# The Britz "Cold Fusion" Journal Bibliography: 1989-2012

**Abstracts of Scientific Journal Articles From the Early Period of Low-Energy Nuclear Reaction Research**

*Primary Sort by Year; Secondary Sort by Last Name of First Author*

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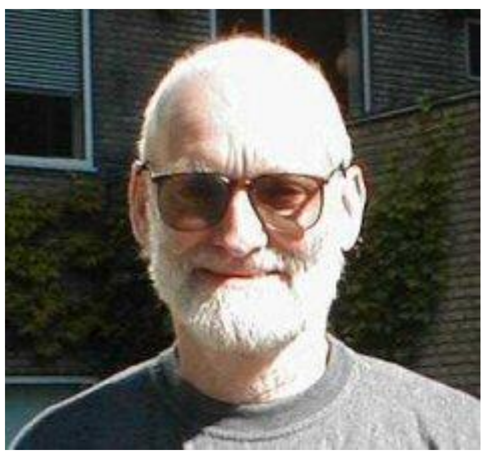
https://newenergytimes.com/

From 1989 to 2012, Dieter Britz, then a professor of chemistry at the University of Aarhus in Denmark, kept track of papers published in mainstream journals on the subject, as it was called, of "cold fusion."

For each paper, Britz created a database record and wrote an abstract, summarizing the paper from his perspective. His scope included English, German, Swedish, Italian, and to a limited extent, Russian-language journals.



Dieter Britz

Dieter Britz, Ph.D. (Sydney Univ. NSW 1967)
Dipl. Comp. Sci. (Newcastle Univ. NSW 1985)
Dr.scient. (Aarhus Univ. 2007)
From 1.1.2010, Emeritus (formally retired)

# Table of Contents

## YEAR: BEFORE 1989

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% Pre-1989 files; there are   10
@article{Dery1986,
 author    = {B.~V. Deryagin and V.~A. Klyuev and A.~G. Lipson
              and Yu.~P. Toporov},
 title     = {Possibility of nuclear reactions during the fracture of
solids},
 journal   = {Colloid J. USSR},
 volume    = {48},
 year      = {1986},
 pages     = {8--10},
 keywords  = {Experimental, fracto, res+},
 annote    = {Another early paper from the USSR, on fracto-something. Here,
 they shot pellets at heavy ice, i.e. D2O crystals, and appear to measure
 small but significant neutrons levels, a few times the background. Normal
 ice, H2O, did not produce neutrons. They theorise that an acceleration of
 deuterons in the microcracks of only 10 keV is enough to produce some
 neutrons from fusion reactions. The yield (from an ice bead of unspecified
 mass, using pellets with 100-200 m/s velocity) was about 0.25 neutrons per
 shot, averaged over 75 shots and corrected for the value for H2O.}
}
@article{Herb1926,
 author    = {H. Herbst},
 title     = {Ist der Aufbau des Heliums aus Wasserstoff gelungen?
               (Was the production of helium from hydrogen succesful?)},
 journal   = {Chemiker-Zeitung},
 volume    = {50},
 year      = {1926},
 pages     = {905},
 note      = {In German},
 keywords  = {Discussion},
 annote    = {A comment on Paneth and Peter's (1926) report of the cold
fusion
 of hydrogen into helium. Herbst points out that he himself had observed that
 it is not possible to remove all traces of He from catalysts by treatment in
 a vacuum, that high temperatures are required to drive it out. In
particular,
 he claims that Pd will form compounds with helium, just as with hydrogen, so
 that a given Pd sample will have absorbed some He from the air. This, he
 says, explains both the appearance of He in Paneth's experiments, and its
 cessation after a time. He suggests that Paneth should use the vacuum+heat
 treatment as a precaution.}
}
@article{Klyu1986,
 author    = {V.~A. Klyuev and A.~G. Lipson and Yu.~P. Toporov
              and B.~V. Deryagin and V.~I. Lushchikov and A.~V. Strelkov
              and E.~P. Shabalin},
 title     = {High-energy processes accompanying the fracture of solids},
 journal   = {Sov. Tech. Phys. Lett},
 note      = {Orig. in: Pis'ma Zh. Tekh. Fiz. 12 (1986) 1333. (In Russian)},
 volume    = {12},
 year      = {1986},
 pages     = {551--552},
 keywords  = {Experimental, fracto, res+},
 annote    = {Shot small pellets at LiD crystals and observed energetic
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 radiation emitted, presumably from the micro-cracks resulting from the
 stress. The authors assume the possibility of nuclear fusion in these
cracks.
 Note the year.}
}
@article{Libo1979,
 author    = {R.~L. Liboff},
 title     = {Fusion via metallic deuterium},
 journal   = {Phys. Lett. A},
 volume    = {71},
 year      = {1979},
 pages     = {361--362},
 keywords  = {Discussion},
 submitted = {03/1979},
 published = {05/1979},
 annote    = {"A deuteron has spin 1 and is therefore a boson" is a recurring
 theme in this author's papers since this seminal one, in which he states
that
 in the metallic phase of deuterium, thought to be attained at a pressure of
 some Mbar, there will be appreciable d-d fusion at low temperatures due to
 wave function overlap, leading to 3He. So this must be an early cold fusion
 paper.}
}
@article{Pane1926a,
 author    = {F. Paneth and K. Peters},
 title     = {On the transmutation of hydrogen into helium},
 journal   = {Ber.},
 volume    = {59},
 year      = {1926},
 pages     = {2039--2048},
 note      = {In German},
 keywords  = {Historical},
 annote    = {Starts by mentioning even earlier attempts at this by Strutt
and
 JJ Thomsen, who tried to bombard hydrogen by high-energy radiation. PP used
 palladium and hydrogen, under mild conditions. They mention that the form of
 palladium is important (they tried Pd black, sponge, etc.) and that the
metal
 sometimes becomes inactive and refuses to take up H. Having invented a
highly
 sensitive He detector, and being aware of the possibility of contamination
by
 external sources, they went to great pains to exclude these. They
 nevertheless find He in Pd-H mixtures, and even a correlation between the
 amount of He and the length of time of reaction. They rather carefully
 conclude that, since all sources of error appear to have been eliminated,
 transmutation has taken place. This was submitted in August 1926 - to at
 least two journals, in fact; the article in Die Naturwissenschaften at
 about the same time contains, as far as I know, the same stuff.}
}
@article{Pane1926b,
 author    = {F. Paneth and K. Peters},
 title     = {On the transmutation of hydrogen to helium},
 journal   = {Naturwiss.},
 volume    = {14},
 year      = {1926},
 pages     = {956--962},
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 note      = {In German},
 keywords  = {Historical},
 annote    = {This is a copy/reprinting of the authors' paper in
 Ber. 59 (1926) 2039.  Lest it be thought that this is an example of
 multiplying publications, the authors explain in 1927 that the journal asked
 for permission to print the paper. It contains exactly the same material as
 the original.}
}
@article{Pane1927a,
 author    = {F. Paneth and K. Peters and P. G{\"u}nther},
 title     = {On the transmutation of hydrogen into helium},
 journal   = {Ber.},
 volume    = {60},
 year      = {1927},
 pages     = {808--809},
 note      = {In German},
 keywords  = {Historical},
 annote    = {Submitted February 1927 or about six months after the earlier
 paper, this retracts the earlier claim. In a fussy and unembarrassed manner,
 they report that they have now found a hitherto unsuspected source of helium
 contamination. Apparently, heated glass allowed He to pass through it,
 especially in the presence of H. This new error source is now sufficient to
 account for all the He found in the experiments, within the error limits of
 He detection. Therefore, it is not justified to assume transmutation.}
}
@article{Pane1927b,
 author    = {F. Paneth},
 title     = {The transmutation of hydrogen into helium},
 journal   = {Nature},
 volume    = {119},
 year      = {1927},
 pages     = {706--707},
 keywords  = {Historical},
 annote    = {Paneth retracts, in much the same wording as the other paper
 in Ber. 60 (1927) 808, his and Peters' claims to have produced helium by the
 fusion of hydrogen in palladium. Although they had done control experiments
 without hydrogen, they had not been aware that hydrogen itself renders both
 glass and asbestos more permeable to helium, so the control was not a
 control.  This still left them with some unaccounted positive results but in
 view of this major error source, they retract their fusion claim.}
}
@article{Pane1927c,
 author    = {F. Paneth},
 title     = {Recent experiments on the transmutation of hydrogen into
helium},
 journal   = {Naturwiss.},
 volume    = {15},
 year      = {1927},
 pages     = {379.},
 keywords  = {Historical},
 annote    = {The author explains that, since there was a reprinting of their
 1926 paper on the subject in this journal, it is reasonable to also publish
 the retraction in the same journal, as well as in the other (Ber. 60 (1927)
 808).  The paper, then, is the same as the original - also, for the same
 reason, published in Nature by Paneth (1927).}
}
@article{VanS1986,
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 author    = {C. DeW. {Van Siclen} and S.~E. Jones},
 title     = {Piezonuclear fusion in isotopic hydrogen molecules},
 journal   = {J. Phys. G: Nucl. Phys.},
 volume    = {12},
 year      = {1986},
 pages     = {213--221},
 keywords  = {Theory, suggestion, high pressure},
 annote    = {Asks the question whether high pressure of the order of $10^6$
 atm, as obtainable from a diamond anvil can significantly increase the
 natural fusion rate of hydrogen isotope atoms. There is a lot of theory but
 no real conclusion, because some experimental data is needed.}
}
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# YEAR: 1989

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% Year 1989; there are 250 entries.

@article{Abri1989,
 author    = {D. Abriola and E. Achterberg and M. Davidson and M. Debray
              and M.~C. Etchegoyen and N. Fazzini and J.~F. Niello
              and A.~M.~J. Ferrero and A. Filevich and M.~C. Galia
              and R. Garavaglia and Bermudez. Garcia G and R.~T. Gettar
              and S. Gil and H. Grahmann and H. Huck and A. Jech
              and A.~J. Kreiner and A.~O. Macchiavelli and J.~F. Magallanes
              and E. Maqueda and G. Marti and A.~J. Pacheco and M.~L. Percz
              and C. Pomar and M. Ramirez and M. Scassera},
 title     = {Examination of nuclear measurement conditions in cold fusion
              experiments},
 journal   = {J. Electroanal. Chem.},
 volume    = {265},
 year      = {1989},
 pages     = {355--360},
 keywords  = {Experimental, gamma, neutron, res-},
 submitted = {05/1989},
 published = {06/1989},
 annote    = {They find levels of gamma and neutron radiation 1/1000 of
              those of FPH.}
}
@article{Albe1989,
 author    = {D. Alber and O. Boebel and C. Schwarz and H. Duwe
              and D. Hilscher and H. Homeyer and U. Jahnke and B.
Spellmeyer},
 title     = {Search for neutrons from cold nuclear fusion},
 journal   = {Z. Phys. A: At. Nucl.},
 volume    = {333},
 year      = {1989},
 pages     = {319--320},
 keywords  = {Experimental, neutrons, res-},
 submitted = {05/1989},
 published = {07/1989},
 annote    = {Attempt to repeat FPH and Jones+'s experiments: no neutrons.}
}
@article{Alex1989,
 author    = {K.~F. Alexander},
 title     = {Cold nuclear fusion},
 journal   = {Wissensch. Fortschr.},
 volume    = {39},
 year      = {1989},
 pages     = {225--228},
 note      = {In German},
 keywords  = {Review},
 published = {09/1989},
 annote    = {An early review of the CNF affair, with a few good references
 and acid comments. A criticises the superficiality of FPH's paper and states
 that Nature would not accept it (Nature does not say this), and deplores the
 lack of control experiments with normal water. Jones et al's paper fares
much
 better with Alexander and he quotes earlier work of the Jones group, on muon
 catalysis and the piezo-effect (see Van Siclen and Jones 1986). }
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}
@article{Andr1989,
 author    = {R. Andreani},
 title     = {La fusione 'fredda' ("'Cold' fusion")},
 journal   = {Energ. Nucl. (Rome)},
 volume    = {6},
 year      = {1989},
 pages     = {8.},
 note      = {In Italian},
 keywords  = {Discussion, no refs.},
 submitted = {04/1989},
 published = {04/1989},
 annote    = {Written in April 1989, this is just a short outline of cold
 fusion, concluding that nothing is certain yet, confirmation is needed, and
 that Walling, also from Utah, has some interesting remarks on the subject.}
}
@article{Apak1989,
 author    = {R. Apak},
 title     = {Conformism in chemistry and the results},
 journal   = {Kim. Sanayi},
 volume    = {31},
 number    = {157-8},
 year      = {1989},
 pages     = {41--52},
 note      = {In Turkish, Engl. abstr.},
 keywords  = {Discussion},
 annote    = {The abstract says that there is some conformism in chemistry,
 in the sense of adherence to prevalent theory, even in the face of new
 observations. A case in point is, among others, the cold fusion story.}
}
@article{Apos1989,
 author    = {M. Apostol and I.~A. Dorobantu},
 title     = {On a competition between solid state and nuclear scale
energies.
              A possible theoretical approach to cold fusion in palladium and
              other transitional elements},
 journal   = {Rev. Roum. Phys.},
 volume    = {34},
 year      = {1989},
 pages     = {233--239},
 keywords  = {Theory, res0},
 annote    = {The authors present some qualitative arguments, not long after
 the FPH-89 announcement, on the nature of hydrogen (deuterium) in Pd and
 suggest a possible mechanism for reactions with nuclear scale energies,
 albeit (as it turns out) at rather low rates. The idea is that the electrons
 freed from the hydrogen atom as it enters the Pd then occupy d holes in the
 lattice, where they might act to accelerate protons (deuterons). The
scenario
 makes cold fusion improbable, but not impossible, the authors write, and may
 even attain sizeable rates, depending on the (unknown) fusion cross sections
 in the Pd.}
}
@article{Arat1989,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Achievement of intense 'cold fusion' reaction},
 journal   = {Kaku Yugo Kenkyu},
 volume    = {62},
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 year       = {1989},
 pages      = {398--411},
 note       = {In Japanese},
 keywords   = {Experimental, on-off efect, electrolysis, palladium, neutrons,
               heat, res+},
 annote     = {Under conditions of intense charge and discharge of deuterium
 into/out of palladium, intense neutron emission due to cold fusion was
 observed. This was called the on-off effect. A large inner pressure of
 deuterium is a necessary condition for the cold fusion reaction. A large
 amount of excess heat produced during electrolysis was not, however, due to
a
 nuclear reaction but due to the heat of reaction and the explosive exhaust
of
 the D "into and out of" the Pd.}
}
@article{Aris1989,
 author     = {N.~R. Arista and A. Gras-Marti and R.~A. Baragiola},
 title      = {Screening effects in nuclear fusion of hydrogen isotopes
               in dense media},
 journal    = {Phys. Rev. A: Gen. Phys.},
 volume     = {40},
 year       = {1989},
 pages      = {6873--6878},
 keywords   = {Theory, screening, res0},
 submitted = {07/1989},
 published = {12/1989},
 annote     = {Calculation of fusion rates of hydrogen isotopes embedded in a
 uniform electron gas, and in the inhomogeneous medium given by a solid
 matrix. In both cases, the screening due to the electron background can help
 overcome coulomb repulsion. Results are similar to those of Koonin and
 Nauenberg (Nature 339) and cannot account for reported cold fusion rates in
 PdD. But temperature is found to be an important parameter and might
 encourage experiments along this line. See also Fujita for a similar idea.}
}
@article{Arms1989a,
 author     = {R.~D. Armstrong and E.~A. Charles and I. Fells
               and L. Molyneux and M. Todd},
 title      = {Some aspects of thermal energy generation during the
               electrolysis of D2O using a palladium cathode},
 journal    = {Electrochim. Acta},
 volume     = {34},
 year       = {1989},
 pages      = {1319--1322},
 keywords   = {Experimental, heat, electrolysis, res-},
 submitted = {06/1989},
 published = {09/1989},
 annote     = {Constant-flow calorimetry measurements showed no excess heat.}
}
@article{Arms1989b,
 author     = {R.~D. Armstrong and E.~A. Charles and I. Fells
               and L. Molyneux and M. Todd},
 title      = {A long-term calorimetric study of the electrolysis of D2O
               using palladium cube cathodes},
 journal    = {J. Electroanal. Chem.},
 volume     = {272},
 year       = {1989},
 pages      = {293--297},
```

```
 keywords  = {Experimental, electrolysis, palladium, heat, res-},
 submitted = {09/1989},
 published = {11/1989},
 annote    = {Very careful work with good controls on the errors; no heat
 was found, that was not expected from non-nuclear processes. Also, an
 analysis of FPH's heat results showed that they, too, lie well within the
 experimental error limits and require no nonconventional explanations.}
}
@article{Augu1989a,
 author    = {J. Augustynski},
 title     = {Commentaire: Pourquoi les experiences de 'fusion froide'
              de deuterium sont-elles si difficiles a reproduire},
 journal   = {Chimia},
 volume    = {43},
 year      = {1989},
 pages     = {99--100},
 note      = {In French},
 keywords  = {Discussion, lithium, res-},
 submitted = {04/1989},
 published = {04/1989},
 annote    = {Looked at FPH's conditions. Discuss possible role of the Pt
 anode: it will dissolve to some extent and some Pt will then deposit on the
 Pd, perhaps inhibiting the surface reaction D+D->D2, just as thiourea does,
 and thus increasing the force driving D into the lattice. Incorporation of
Li
 in Pd is also considered, e.g. the known compound PdLiD(0.7), or
 PdLi(0.06). This may occur either because of a raised electrode
overpotential
 due to the inhibition, or there may be underpotential deposition of
 Li+. Questions such as how the presence in the lattice of Li might affect
 deuteron interaction, or possible fusion reactions involving Li, such as
 Li+d->(4)He+heat, will be examined in a future publication.}
}
@article{Augu1989b,
 author    = {J. Augustynski and M. Ulmann and J. Liu},
 title     = {Electrochemical measurements on palladium cathodes in LiOD/D2O
              solutions related to the 'cold fusion experiments'},
 journal   = {Chimia},
 volume    = {43},
 year      = {1989},
 pages     = {355--357},
 keywords  = {Experimental, surface deposition, electrolysis, res0},
 submitted = {11/1989},
 published = {11/1989},
 annote    = {The current/voltage behaviour of Pd electrodes polarized in an
 electrolysis cell in the title electrolyte was strongly affected by the
 impurity codeposition at the cathode. Pt, Pb and Zn have been detected on
the
 surface after electrolysis. All cause changes of the i/E relationship, and
Zn
 increases electrode potential, making possible Li deposition and LiD2
 formation; some deposits inhibit the surface reaction D+D->D2. Lastly, there
 is some speculation that Li might take part in nuclear reactions in the
 presence of strong electric fields. Is it significant, the authors ask, that
 Kainthla et al (Electrochim. Acta 34 (1989) 1315) add NaCN, a known strong
 complexing agent for Zn++, to their electrolyte?}
}
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@article{Badu1989,
 author    = {G. Badurek and H. Rauch and E. Seidl},
 title     = {Search for cold fusion in palladium-deuterium and
              titanium-deuterium},
 journal   = {Kerntechnik},
 volume    = {54},
 year      = {1989},
 pages     = {178--182},
 keywords  = {Experimental, neutrons, gamma, gas phase, res-},
 submitted = {07/1989},
 annote    = {Repeated the two sorts of experiments, using four independent
 detection systems to detect neutrons and gamma radiation. An upper limit of
 3.6*10**(-23)/s was found for D+D--> (3)He+n per pair. The paper also throws
 doubt on the Frascati claims; their neutron background is unusually low, and
 their claim that Ti releases its deuterium upon reaching room temperature is
 incorrect.}
}
@article{Bale1989,
 author    = {R. Balescu},
 title     = {Some like it cool},
 journal   = {Phys. Mag.},
 volume    = {11},
 year      = {1989},
 pages     = {3--18},
 note      = {In French},
 keywords  = {Review.},
 annote    = {A review of the work of FPH, Jones+ and Scaramuzzi+.}
}
@article{Bala1989,
 author    = {N.~P. Balabanov},
 title     = {Hypothesis to explain electrochemically induced nuclear
fusion},
 note      = {In Bulgarian; published in 1989},
 journal   = {Nauchni Tr. Plovdivski Univ.},
 volume    = {26},
 number    = {4,(Fiz)},
 year      = {1989},
 pages     = {247--251},
 keywords  = {Remark, mechanical effects, res+},
 submitted = {05/1989},
 annote    = {This paper, submitted on 5-May-89, lays out the problem of cnf,
  i.e. the imbalance between the large amount of heat and the small neutron
  flux. The author invokes mechanical friction effects to explain this, i.e
  triboelectronic and triboluminous emission. Any process that may lead to
  electron emission at sufficient energy might also cause fusion, by the
  formation of high voltage fields, up to 1E09 V/m. Such effects might be
  taking place at microregions in the palladium deuteride, due to the
  electrochemical loading with deuterium and subsequent mechanical
  effects. Some old references are given from the areas of mechanoemission
  (Kramer, late 1940's) and of tribochemistry (Thiessen et al, 1960's).}
}
@article{Balej1989,
 author    = {J. Balej and J. Divisek},
 title     = {Energy balance of D2O electrolysis with a palladium cathode.
              Part I. Theoretical relations},
 journal   = {J. Electroanal. Chem.},
 volume    = {278},
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 year      = {1989},
 pages     = {85--98},
 keywords  = {Experimental, theory, calorimetry, res0},
 submitted = {09/1989},
 published = {01/1990},
 annote    = {Anyone who intends to do calorimetry of D2O electrolysis must
 read this.  The authors develop, in an extremely pedantic and fussy manner,
 reaction enthalpies for a widish range of operating temperatures. Nothing
 seems to have been left out, and the large (enthalpy of the overall
 electrolysis reaction) is mixed with the small (e.g. heat of evaporation of
 water), and even non-unity current efficiencies are considered - something
 these authors are experts at, since their daily bread is the economic
 electrolysis of water to produce hydrogen. In the thermodynamic tradition,
 however, only the overall process is considered, and local effects are
 ignored. See Part II under Divisek et al.}
}
@article{Bali1989,
 author    = {R. Balian and J.~P. Blaizot and P. Bonche},
 title     = {Cold fusion in a dense electron gas},
 journal   = {J. Phys. (France)},
 volume    = {50},
 year      = {1989},
 pages     = {2307--2311},
 keywords  = {Theory, screening, res-},
 submitted = {06/1989},
 published = {09/1989},
 annote    = {The authors calculate the Coulomb penetration factor for two
 deuterons immersed in a dense electron gas, using the Born-Oppenheimer
 approximation.  They find that electronic densities orders of magnitude
 larger than those which could be expected in metallic palladium are required
 in order to bring the cold fusion rate to an observable value, or screening
 lengths down to 0.1A.}
}
@article{Bana1989,
 author    = {J. Banas and M. Ciechanowski and M. Dulinski and A. Kreft
              and J. Molenda and K. Morstin and A. Stoklosa and J. Wozniak},
 title     = {Geophysical aspects of cold nuclear fusion in condensed
matter},
 journal   = {Nucl. Geophys.},
 volume    = {3},
 year      = {1989},
 pages     = {321--322},
 keywords  = {Experimental, Jones style, neutrons, gamma, cps, cosmic influx,
              res-},
 submitted = {07/1989},
 annote    = {An attempt to reproduce FPH's and Jones+' results. Nothing was
 found, but cosmic radiation was found to cause background fluctuations.
There
 were large variations in the background, so this must be continuously
 monitored.}
}
@article{Bata1989,
 author    = {E. Batalla and E.~G. Zwartz and B.~A. Judd},
 title     = {In-situ X-ray diffraction of palladium cathodes in electrolytic
              cells},
 journal   = {Solid State Commun.},
 volume    = {71},
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 year      = {1989},
 pages     = {805--807},
 keywords  = {Experimental, crystallography, polemic, res-},
 submitted = {05/1989},
 published = {11/1989},
 annote    = {Question: can high current densities during electrolysis of D2O
 at Pd lead to higher than normal charging (x in PdD(x)), and thus cause
 deuterons to occupy tetrahedral crystal sites, giving tighter packing? In
 normal beta-phase PdD(x), d-d distances are 2.8 A, but in tetrahedral
 packing, this would be reduced to 2.2. X-ray diffraction during charging
with
 H and D, showed the change from the low-H alpha-phase to the high-H
 beta-phase but none beyond that, so the answer is no tetrahedral packing. In
 fact, this is more or less irrelevant, since even 2.2 A is a lot more than
 e.g. 0.74 A, the d-d distance in D2 gas, which is not enough, either, to
 allow fusion.}
}
@article{Baur1989,
 author    = {A. Baurichter and W. Eyrich and M. Frank and H. Goehr
              and W. Kreische and H. Ortner and B. Roeseler and C.~A.
Schiller
              and G. Weeske and W. Witthun},
 title     = {Search for cold fusion in palladium},
 journal   = {Z. Phys. B: Condens. Matter},
 volume    = {76},
 year      = {1989},
 pages     = {1--2},
 keywords  = {Experimental, neutrons, gamma, res-},
 submitted = {04/1989},
 published = {07/1989},
 annote    = {Neutron and gamma spectroscopy found nothing but background;
 reserve judgement.}
}
@article{Beck1989,
 author    = {E.~W. Becker},
 title     = {Triple collision reaction of deuterons as a possible
explanation
              of cold nuclear fusion},
 journal   = {Naturwiss.},
 volume    = {76},
 year      = {1989},
 pages     = {214.},
 keywords  = {Theory, lithium, res+},
 submitted = {04/1989},
 published = {05/1989},
 annote    = {Tries to find a suitable radiationless nuclear reaction to
 conform with FPH's results. Suggests that clusters of (D3e2)+ ---> Li(6)*,
 which then decays to He(4) + D or something. The heavy product particles
also
 would conserve momentum, which is not the case for other plausible
 reactions.}
}
@article{Behr1989,
 author    = {R. Behrisch and W. Moeller and J. Roth and B.~M.~U. Scherzer},
 title     = {Search for fusion reactions between deuterium atoms implanted
             into titanium},
 journal   = {Nucl. Fusion},
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 volume    = {29},
 year      = {1989},
 pages     = {1187--1190},
 keywords  = {Experimental, Ti foil, ion beam, protons, res-},
 submitted = {04/1989},
 published = {07/1989},
 annote    = {Deuterium was implanted into Ti foil at room temperature, 55
 micrograms of D3+ was implanted and produced a layer of TiD2, 8 microns
 thick. A large- area proton detector was placed just next to this for 30 h,
 and detected only the normal background.}
}
@article{Bened1989,
 author    = {G. Benedek and P.~F. Bortignon},
 title     = {Cold nuclear fusion: viewpoints of solid-state physics},
 journal   = {Nuovo Cimento Soc. Ital. Fis. D},
 volume    = {11},
 year      = {1989},
 pages     = {1227--1235},
 keywords  = {Discussion, screening, res+},
 submitted = {06/1989},
 published = {08/1989},
 annote    = {Discussion of some of the possible electronic mechanisms that
 may explain CNF. As usual, localised electron screening is invoked but is
not
 found sufficient - the d-d distance is still too large. The authors admit
 that dielectric arguments should not apply at such small scales but then say
 that they might, anyway. Lastly, they speculate that of a cluster of
 deuterons, if one were missing, this would amount to a negative hole with a
 large mass, which could be a sufficient coulombic screen.}
}
@article{Benes1989,
 author    = {C.~J. Benesh and J.~P. Vary},
 title     = {Fusion rates of squeezed and screened hydrogenic nuclei},
 journal   = {Phys. Rev. C: Nucl. Phys.},
 volume    = {40},
 year      = {1989},
 pages     = {R495--R496},
 keywords  = {Theory, res-},
 submitted = {04/1989},
 published = {08/1989},
 annote    = {Calculated the barrier penetration factor for H-like ions
 confined in a potential well as a function of the equilibrium separation and
 screening length of the medium. There was no agreement with reported high
 fusion rates; deuterons would have get much closer than is plausible.}
}
@article{Benet1989,
 author    = {B.~A. Benetskii and A.~V. Klyachko and A.~I. Rozantsev},
 title     = {An attempt to observe cold thermonuclear fusion in a condensed
             medium},
 note      = {Originally in: Kratk. Soobshch. Fiz. (1989)(6) 58, in Russian},
 journal   = {Sov. Phys. - Lebedev Inst. Rep.},
 year      = {1989},
 number    = {6},
 pages     = {75--78},
 keywords  = {Experimental, Pd, gas, pressure, heat, res-},
 submitted = {05/1989},
 annote    = {A 200 mm long Pd tube of 2.5 mm diameter and wall thickness
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 0.1 mm was sealed at one end and D2 gas at 12-14 atm applied to the other,
 while the tube was electrically heated to 300-400 deg. A total of 10**23 D
 atoms passed through the tube wall in the course of the experiment. A
 scintillation counter using stilbene detected the neutrons. None were
 observed.}
}
@article{Benn1989,
 author    = {S.~M. Bennington and R.~S. Sokhi and P.~R. Stonadge
              and D.~K. Ross and M.~J. Benham and T.~D. Beynon
              and P. Whithey and I.~R. Harris and J.~P.~G. Farr},
 title     = {A search for the emission of x-rays from electrolytically
              charged palladium-deuterium},
 journal   = {Electrochim. Acta},
 volume    = {34},
 year      = {1989},
 pages     = {1323--1326},
 keywords  = {Experimental, x-rays, res-},
 published = {09/1989},
 annote    = {State that x-rays should be produced by high-energy charged
 particles slowing down in condensed matter. They found none.}
}
@article{Berk1989,
 author    = {A.~R. Berkem},
 title     = {Nuclear fusion. Hot fusion - cold fusion},
 journal   = {Kim. Sanayi},
 volume    = {31},
 year      = {1989},
 pages     = {7--19},
 note      = {In Turkish},
 keywords  = {Review, no references.},
 annote    = {A longish review, a short time after Mar-89. Although no
 references are given, Fleischmann and Pons are mentioned. Background on
 fusion reactions is provided, with examples like p-p fusion, the carbon
 cycle, thermal fusion of d-d and d-t type etc. Then cold fusion is
discussed,
 and F\&P's setup described.}
}
@article{Bert1989,
 author    = {A. Bertin and M. Bruschi and M. Capponi and S. {De Castro}
              and U. Marconi and C. Moroni and M. Piccinini
              and N. Semprini-Cesari and A. Trombini and A. Vitale
              and A. Zoccoli and S.~E. Jones and J.~B. Czirr
              and G.~L. Jensen and E.~P. Palmer},
 title     = {Experimental evidence of cold nuclear fusion in a measurement
              under the Gran Sasso Massif},
 journal   = {Nuovo Cimento Soc. Ital. Fis. A},
 volume    = {101},
 year      = {1989},
 pages     = {997--1004},
 keywords  = {Experimental, neutrons, res-},
 submitted = {04/1989},
 published = {06/1989},
 annote    = {A repeat of Jones+'s experiment but under the Grand Sasso
 massiv, under low-cosmic background conditions, using two simultaneous
 neutron detectors: one to measure at the cell, the other, at some distance
 away, to monitor the background; both being proton-recoil liquid
 scintillators which enable the workers to distinguish neutrons from gamma
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 radiation. When gamma radiation is not excluded, no significant neutron
 signals are obtained; gamma discrimination, however, does produce some
 neutron emission, with a peak at the 2.5 MeV expected from the d+d-->(3)He+n
 reaction. After some corrections, the neutron flux is comparable with that
 detected by Jones+. The experiment thus confirms the Jones+ result, suggests
 that the electrochemical charging of Ti with D plays a role in this, and
 suggests that discrimination against gamma radiation is useful.}
}
@article{Bhat1989,
 author    = {J.~K. Bhattacharjee and L. Satpathy and Y.~R. Waghmare},
 title     = {A possible mechanism of cold fusion},
 journal   = {Pramana},
 volume    = {32},
 year      = {1989},
 pages     = {L841--L844},
 keywords  = {Theory, screening, res+, no FPH/Jones refs.},
 submitted = {05/1989},
 published = {06/1989},
 annote    = {Invokes screening of deuterons from each other by electrons
 with enhanced effective masses. Seems to assume that deuterium stays as
 atoms in the metal lattice, not as deuterons.}
}
@article{Blag1989,
 author    = {S. Blagus and M. Bogovac and D. Hodko and M. Krcmar
              and D. Miljanic and P. Tomas and M. Vajic and M. Vukovic},
 title     = {Search for neutron production during heavy water electrolysis
              on palladium electrodes},
 journal   = {Z. Phys. A: At. Nucl.},
 volume    = {333},
 year      = {1989},
 pages     = {321--322},
 keywords  = {Experimental, electrolysis, neutrons, res-},
 submitted = {05/1989},
 published = {07/1989},
 annote    = {Found that the upper limit on neutron production is $10{-5}$
 that of FPH, and also less than Jones+'s results. Scintillation detectors
 were used, regularly calibrated and checked for stability. There was an
 apparent neutron peak in the expected region; however, this was present also
 when the electrolysis was turned off and the Pd electrode taken
 out. Long-time difference spectra showed only background noise. After
 electrolysis, x-ray fluorescence showed that Pt had been deposited on the
 Pd.}
}
@article{Blas1989,
 author    = {J.~P. Blaser and O. Haas and C. Ptitjean and C. Barbero
              and W. Bertl and K. Lou and M. Mathias and P. Baumann
              and H. Daniel and J. Hartmann and E. Hechtl and P. Ackerbauer
              and P. Kammel and A. Scrinzi and H. Zmeskal and T. Kozlowski
              and R. Kipfer and H. Baur and P. Signer and R. Wieler},
 title     = {Experimental investigation of cold fusion phenomena in
              palladium},
 journal   = {Chimia},
 volume    = {43},
 year      = {1989},
 pages     = {262--268},
 keywords  = {Experimental, electrolysis, excess heat, neutrons, gamma,
              tritium, helium, mass spec, res-},
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 submitted = {09/1989},
 published = {09/1989},
 annote    = {A team from 5 different institutes in Germany, Austria and
 Switzerland carried out electrolysis and calorimetry of D2O and H2O, using
 closed cells, while monitoring for neutrons (single detector), gamma
 radiation, tritium and helium (these by mass spec).  During two months, no
 excess heat was found, no neutrons or gammas; tritium was not possible to
 separate from enrichment effects; mass spec sensitivity for (4)He is not
 sufficient while the high sensitivity for (3)He was of no avail, as all such
 counts could be almost precisely accounted for by tritium entering the
 Pd. Surface analysis showed a monolayer on the Pd of Zn, Pb and Hg but these
 did not prevent hydrogen/deuterium from entering the Pd: a loading of
 0.85-0.95 was achieved in both cases.}
}
@article{Bott1989,
 author    = {F. Botter and J. Bouchez and J. Collot and E. Kajfasz
             and B. Lefievre and E. Lesquoy and A. Stutz and S. Tistchenko
             and S. Zylberajch},
 title     = {Search for emission of neutrons from a palladium-deuterium
             system},
 journal   = {Phys. Lett. B},
 volume    = {232},
 year      = {1989},
 pages     = {536--538},
 keywords  = {Experimental, gas phase, Pd black, heat, neutrons, res-},
 submitted = {08/1989},
 published = {12/1989},
 annote    = {Palladium black was used here, to facilitate absorption of H
 or D. The Pd was put into a stainless tube and exposed to H2 or D2 gas under
 various pressures.  At various stages: during absorption of H or D; during
 desorption; static conditions with gas at 1 or 3 bar, and passing through
 phase changes as a result of H or D absorption; temperature and neutron flux
 were measured.  Out of 25 cycles of 197 hours each, runs with D2 emitted 29
 neutrons, runs with H2 18. These levels are several orders of magnitude
below
 the results of De Ninno et al, with Ti.}
}
@article{Bres1989,
 author    = {T. Bressani and E. {Del Giudice} and G. Preparata},
 title     = {First steps toward an understanding of 'cold' nuclear fusion},
 journal   = {Nuovo Cimento Soc. Ital Fis. A},
 volume    = {101},
 year      = {1989},
 pages     = {845--849},
 keywords  = {Theory, collective effects, p-d fusion, 4He, res+},
 submitted = {04/1989},
 published = {05/1989},
 annote    = {Theoretical. Takes as a fact that cold fusion takes place, and
 tries to find an explanation of it, in terms of lattice effects in Ti and
Pd,
 and why cold fusion might differ from fusion in vacuum. The authors have,
for
 some years, been considering collective interactions in the solid state,
 through the quantised electromagnetic field, and claim some success in other
 areas, such as lasers and high-T superconductors. They find that coherent
 oscillation of electrons around deuterons can indeed enhance fusion rates by
 50-60 orders of magnitude and, what is more, that the particular fusion
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 reaction is not expected to be that occurring in vacuum but solely that
 leading to (4)He plus energy, accounting for FPH's heat-without-neutrons; it
 can also accommodate the Jones+ results. Lastly, the authors suggest that
the
 reaction p+d will also be enhanced.}
}
@article{Bria1989,
 author    = {J.-P. Briand and J. Dewynck and P. Chevallier and J.~L. Bobin},
 title     = {Cold fusion: an alternative diagnostic},
 journal   = {Nucl. Instrum. Methods Phys. Res., Sect. A},
 volume    = {285},
 year      = {1989},
 pages     = {547--548},
 keywords  = {Experimental, x-rays, res-},
 submitted = {07/1989},
 published = {12/1989},
 annote    = {A new diagnostic for CNF in Pd targets, using the x-rays that
 would be emitted during the slowing down of p fusion products in the target,
 was carried out. This is fairly easy to measure. So far, negative results.}
}
@article{Brid1989,
 author    = {M. E. Bridge and D. R. Lloyd amd J. M. D. Coey},
 title     = {Cold fusion ideas},
 journal   = {Nature},
 volume    = {340},
 year      = {1989},
 pages     = {105--106},
 published = {07/1989},
 keywords  = {Polemic, res-},
 annote    = {Points out that, due to the different resistivities of
 electrolytes in normal and heavy water, the substitution of normal water
 might produce different heats, without showing that CNF took place in heavy
 water. Also, mass spectrometers might be cheated into apparently giving
 evidence for tritium, while in fact, species such as D2H+ and D3+ might be
 giving the signals.}
}
@article{Broe1989,
 author    = {M.~M. Broer and L.~C. Feldman and A.~C.~W.~P. James
              and J.~S. Kraus and R.~S. Raghavan},
 title     = {Search for neutrons from deuterium-deuterium nuclear reactions
              in electrochemically charged Palladium},
 journal   = {Phys. Rev. C: Nucl. Phys.},
 volume    = {40},
 year      = {1989},
 pages     = {R1559--R1562},
 keywords  = {Experimental, electrolysis, Pd, neutrons, res0},
 submitted = {06/1989},
 published = {10/1989},
 annote    = {A four-week electrochemical experiment with Pd wire and rods,
 annealed under nitrogen at 900 degC for 1h, the rods cast from powder under
 argon and rolled. A single neutron detector was used and found a fusion rate
 less than 1/5 of that of Jones+.}
}
@article{Brus1989,
 author    = {L. Bruschi and M. Santini and G. Torzo and G. Nardelli},
 title     = {Search for neutron emission from a deuterium-titanium system},
 journal   = {Europhys. Lett.},
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 volume    = {10},
 year      = {1989},
 pages     = {303--308},
 keywords  = {Experimental, Ti, gas phase, neutrons, res-},
 submitted = {07/1989},
 published = {10/1989},
 annote    = {Examined a Ti-D system at temperatures between 77-1100 K,
 emulating the De Ninno et al experiments, but here also monitoring the
 D-loading of the Ti by accounting for lost D2 gas (pressure drops). They
 achieved a loading of 1.65 and, at all loadings, observed no neutron
 emission.}
}
@article{Burr1989,
 author    = {A. Burrows},
 title     = {Enhancement of cold fusion in metal 'hydrides' by screening
              of proton and deuteron charges},
 journal   = {Phys. Rev. B: Condens. Matter},
 volume    = {40},
 year      = {1989},
 pages     = {3405--3408},
 keywords  = {Theory, screening, res0},
 submitted = {04/1989},
 published = {08/1989},
 annote    = {Calculates the screening length Ds required to make cnf
possible
 at the claimed rates, given the lattice parameters in PdD(x), which impart
an
 energy of 0.1-1 eV to the deuterons. At low x, where the diffusion
 coefficient at 300K of deuterons is $10^{-6}$ cm$^2$/s, Ds is about 0.5 A,
 which gives a fusion rate of about $10^{-100}$/pair/s. However, in the
highly
 charged beta phase (x>0.7 or so) deuteron diffusion is much slower, reducing
 Ds but it is not clear by how much. To get values such as claimed by FPH
 ($10^{-19}$, inferred from their excess heat claims), Ds would have to be
0.03
 A. Burrows leaves open the question how this can be achieved.}
}
@article{Buss1989,
 author    = {R.~W. Bussard},
 title     = {Virtual-state internal nuclear fusion in metal lattices},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {231--236},
 keywords  = {Theory, chain reaction, optimum loading, res0},
 submitted = {05/1989},
 published = {09/1989},
 annote    = {Theory predicts that the cold fusion rate is a maximum at a
 loading less than the maximum; this can explain some of the observation, and
 has a bearing on branching ratios. There is also a suggestion of a sort of
 chain reaction involving generated tritium and deuterium but this - if it
can
 happen - would destroy the palladium and would thus not offer any hope of
 practical use.}
}
@article{Butl1989,
 author    = {M.~A. Butler and D.~S. Ginley and J.~E. Schirber
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              and R.~I. Ewing},
 title     = {High-sensitivity search for neutrons during
              electrochemical reactions},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {388--390},
 keywords  = {Experimental, electrolysis, neutrons, res-},
 submitted = {06/1989},
 published = {11/1989},
 annote    = {A redundant neutron detector with 3 independent channels was
 used, with an overall efficiency of 9.2\% and a background of 10
 counts/h. While spurious signals indicative of neutrons occurred at one
 channel at a time, no real n events (i.e. on all channels) were recorded for
 a wide variety of conditions.}
}
@article{Camp1989,
 author    = {R.~B. Campbell and L.~J. Perkins},
 title     = {A study of 'cold fusion' in deuterated titanium subjected to
              high-current densities},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {383--387},
 keywords  = {Experimental, nonequilibrium, Ti, electric current, res-},
 submitted = {06/1989},
 published = {11/1989},
 annote    = {Since the cold fusion electrochemists have made much of the
 actual current densities employed (which does not impress the mainstream
 electrochemists), the authors here take pre-deuterated titanium (TiD(x), x =
 0.9) and simply pass electric current through it, comparing the resulting
 (ohmic) heat with that in plain Ti hydride. Two different current densities
 gave no heat beyond ohmic, and no neutrons.}
}
@article{Cape1989,
 author    = {V. Capek},
 title     = {Tunnelling efficiency and the problem of cold fusion},
 journal   = {Czech. J. Phys. B},
 volume    = {39},
 year      = {1989},
 pages     = {793--795},
 keywords  = {Theory, discusssion, res+},
 submitted = {04/1989},
 published = {07/1989},
 annote    = {Argue, irrespective of the final outcome of the CNF debate,
 that there is a theoretical possibility of a tunnelling mechanism which
 exists in solids but not in vacuum, to allow CNF. Previous work by the
author
 and elementary QM lead, via coupling to "the bath" (the crystal environment,
 which differs from a vacuum) to tunnelling rates many orders of magnitude
 higher than in vacuum.  Some simplifying assumptions were made and some of
 these, when eliminated, might suppress the fusion rates. More work needed.}
}
@article{Card2009a,
Author = {Cardone, F. and Mignani, R. and Petrucci, A.},
Title = {Piezonuclear decay of thorium},
Journal = {Phys. Lett. A},
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Year = {2009},
Volume = {373},
Number = {22},
Pages = {1956--1958},
annote = {* A solution of "Th$^{228}$" (not stated which compound) is exposed
   to ultrasound. The 4 control solutions not exposed showed 3 alpha events,
   while 8 sonicated solutions showed only 3, or half the number per lot.
Also
   the thorium concentration in the sonicated solutions was halved on
average.
   A nuclear process due to collapsing bubbles, much faster than the natural
   decay of Th (1.9 years) is proposed, not producing alpha radiation. This
is
   of interest to nuclear physicists, as it may point to a way to eliminate
   radioactive waste quickly.}
}
@article{Card2009b,
Author = {Cardone, F. and Mignani, R. and Petrucci, A.},
Title = {Reply to "Comment on 'Piezonuclear decay of thorium' [Phys. Lett. A
         373 (2009) 1956]" [Phys. Lett. A 373 (2009) 3795]},
Journal = {Phys. Lett. A},
Year = {2009},
Volume = {373},
Pages = {3797--3800},
annote = {* Reply to the Comment by Ericsson et al (Eric2009), rejecting the
 criticisms. The t-test is not appropriate and in fact results in a value of
 0.06, not 0.26, the CR39 detector was indeed inside the chamber, and the
 Swedish authors are not familiar with the field.}
}
@article{Carp1989,
 author    = {J.~M. Carpenter},
 title     = {Cold fusion: what's going on?},
 journal   = {Nature},
 volume    = {338},
 year      = {1989},
 pages     = {711.},
 keywords  = {Discussion, polemic},
 published = {04/1989},
 annote    = {JMC was a referee of Jones+'s paper, and was invited by the
 editor to comment publically on the paper. He warns that cosmic ray neutrons
 must be eliminated from neutron measurements, or at least recognised. Their
 intensity is about the same as that reported for CNF, and there can be peaks
 at the energy 2.45 MeV. Suggests that going underground by two or three
 metres should reduce the qcosmic ray problem by an order of magnitude.}
}
@article{Chat1989,
 author    = {L. Chatterjee},
 title     = {More on cold fusion},
 journal   = {Nature},
 volume    = {342},
 year      = {1989},
 pages     = {232.},
 keywords  = {Discussion, res0},
 published = {11/1989},
 annote    = {Chatterjee discusses the possibility of cosmic muons causing
 the small flux of neutrons in cold fusion results such as those of Jones et
 al 1989.  At the time of writing, there was little evidence of neutrons from
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 electrolysis cells placed in a flux of muons, and control experiments are
 needed.}
}
@article{Chem1989,
 author    = {M. Chemla and J. Chevalet and R. Bury},
 title     = {Heat evolution involved with the electrochemical discharge
              of hydrogen and deuterium on palladium},
 note      = {In French, Engl. summary},
 journal   = {C. R. Acad. Sci., Ser. 2},
 volume    = {309},
 year      = {1989},
 pages     = {987--993},
 keywords  = {Experimental, electrolysis, Pd, calorimetry, res-},
 annote    = {A slightly shorter French version of the other paper by these
 authors, in J. Electroanal. Chem. 277 (1990) 93. Same results.}
}
@article{Chid1989,
 author    = {R. Chidambaram and V.~C. Sahni},
 title     = {Materials issues in the so-called 'cold fusion' experiments},
 journal   = {Curr. Sci.},
 volume    = {58},
 year      = {1989},
 pages     = {597--598},
 keywords  = {Discussion, loading, res-},
 published = {06/1989},
 annote    = {A very good, clear discussion of the thermodynamics of H/D
 loading of Pd.  Absorption of H2/D2 by Pd is exothermic and absorption of
 nascent H/D, as generated by electrolysis (if that is indeed what goes into
 the Pd) can be expected to be even more so. The authors state that this can
 fully account for the heat measured by FPH. One might wonder why, then, this
 is not seen every time but - as long as you have good thermodynamic
 parameters - you can't argue with thermodynamics.}
}
@article{Chri1989,
 author    = {O.~B. Christensen and P.~D. Ditlevsen and K.~W. Jacobsen
              and P. Stoltze and O.~H. Nielsen and J.~K. N{\o}rskov},
 title     = {H-H interactions in Pd},
 journal   = {Phys. Rev. B},
 volume    = {40},
 year      = {1989},
 pages     = {1993--1996},
 keywords  = {Theory, res-},
 submitted = {05/1989},
 published = {07/1989},
 annote    = {Calculation of H-H interaction (H = any isotope) concludes that
 there can be no cold fusion. High loadings, e.g. tetrahedral occupancy,
 requires very high pressures.}
}
@article{Chu1989,
 author    = {C.~W. Chu and Y.~Y. Xue and R.~L. Meng and P.~H. Hor
              and Z.~J. Huang and L. Gao},
 title     = {Search for the proposed cold fusion of D in Pd},
 journal   = {Mod. Phys. Lett. B},
 volume    = {3},
 year      = {1989},
 pages     = {753--760},
 keywords  = {Experimental, calorimetry, neutrons, res-},
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 submitted = {06/1989},
 published = {07/1989},
 annote    = {An electrolysis experiment. A Bonner-sphere n-detector was
used.
 Thermal effects were measured by the difference between the cell and a
 reference cell in which cold fusion should not take place. No neutrons and
no
 anomalous heat effects were found.}
}
@article{Cohe1989a,
 author    = {J.~S. Cohen and J.~D. Davies},
 title     = {Is cold fusion hot?},
 journal   = {Nature},
 volume    = {342},
 year      = {1989},
 pages     = {487--488},
 keywords  = {Discussion, fracto},
 published = {11/1989},
 annote    = {An in-depth discussion of the fracto-theory of CNF, with
 good references.}
}
@article{Cohe1989b,
 author    = {J.~S. Cohen and J.~D. Davies},
 title     = {The cold fusion family},
 journal   = {Nature},
 volume    = {338},
 year      = {1989},
 pages     = {705--707},
 keywords  = {Discussion:muon catalysis, M{\"o}ssbauer, branching ratios},
 published = {04/1989},
 annote    = {A clear outline of possible fusion reactions, muon catalysis,
 cosmic rays, "Moessbauer fusion", branching ratios. This commentary is also
 (I think) the first to refer to the Klyuev et al paper of 1986, which
 reported neutron emission from cracks in mechanically bombarded LiD
crystals;
 the authors call what happens there "microscopically hot fusion".}
}
@article{Cott1989,
 author    = {W.~N. Cottingham and D.~A. Greenwood},
 title     = {The fusion rate of a confined deuteron pair},
 journal   = {J. Phys. G: Nucl. Part Phys.},
 volume    = {15},
 year      = {1989},
 pages     = {L157--L161},
 keywords  = {Theory, res-},
 submitted = {05/1989},
 published = {08/1989},
 annote    = {Reaction rate for a d-d pair confined in a harmonic potential
for
 a range of confinement parameters r0 from 0.1 to 1.0 Angstrom. For reactions
 to be observable, and without a new nuclear reaction, r0 must be < 0.2 A.}
}
@article{Cran1989,
 author    = {L. Cranberg},
 title     = {Cold fusion doubts and controls (title given by section
editor)},
 journal   = {Nature},
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 volume    = {309},
 year      = {1989},
 pages     = {515.},
 keywords  = {Discussion},
 published = {06/1989},
 annote    = {Throws doubts on radiation and tritium from FPH, and even on
 some suggested control experiments.}
}
@article{Crib1989,
 author    = {M. Cribier and M. Spiro and J. Favier},
 title    = {Conventional sources of fast neutrons in cold fusion
experiments},
 journal   = {Phys. Lett. B},
 volume    = {228},
 year      = {1989},
 pages     = {163--166},
 keywords  = {Discussion, suggestion},
 submitted = {05/1989},
 published = {09/1989},
 annote    = {A source of n is the dissociation of D by alpha particles from
 naturally occurring radioisotopes such as U and Th, present as impurities in
 most materials. These decay to radon, which is not removed from Pd or Ti
 simply by heating, and will perhaps desorb under electrolysis and cause
 neutron emission by alpha particles' reaction with the D2O in the
 electrolyte. The electrolyte should be gas flushed to prevent this
 artifact. Some preliminary calculations show that about 50000 Bq of
 impurities are needed, or three times this if the reaction takes place
inside
 the metal, for Jones+ neutron levels. This is a little high. Adsorbed radon
 on the metal surface, however, might help. Look out for this effect if you
 are measuring cold fusion neutrons.}
}
@article{Crow1989,
 author    = {B.~J.~B. Crowley},
 title     = {Nuclear fusion in high density matter.},
 journal   = {Nucl. Fusion},
 volume    = {29},
 year      = {1989},
 pages     = {2199--2216},
 keywords  = {Theory, res-},
 submitted = {07/1989},
 published = {12/1989},
 annote    = {H is believed to exist in hydrides as atomic ions. If many such
 ions can be made to congegrate on a single site, fusion might occur. This is
 the approach taken here, considering deuterons as a dense plasma. This ends
 with a fusion rate equation. In order to produce Jones+ rates, a density of
 500g/cm**3 is needed. The conclusion is that cold fusion is unlikely; but C
 speculates on localised fusion or transient nonequilibrium causes. He notes,
 however, that attempts at corroboration indicate that there may be nothing
to
 explain. He then discusses the implications of his calculations for possible
 fusion processes taking place inside planets and certain types of stars. C
 also makes the suggestion that p-d fusion, rather than d-d, should be looked
 for, as it is favoured.}
}
@article{Cunn1989,
 author    = {V.~J. Cunnane and R.~A. Scannell and D.~J. Schiffrin},
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 title     = {H2 + O2 recombination in non-isothermal, non-adiabatic
               electrochemical calorimetry of water electrolysis in an
               undivided cell},
 journal   = {J. Electroanal. Chem.},
 volume    = {269},
 year      = {1989},
 pages     = {163--179},
 keywords  = {Experimental, calorimetry, res-},
 submitted = {05/1989},
 published = {09/1989},
 annote    = {This very careful piece of work examines the question of
whether
 there is significant recombination of electrolytically generated
 hydrogen/deuterium and oxygen in a FPH-type cell, i.e. undivided and open in
 the sense that the evolved gases escape the system. The method is to measure
 the enthalpy of water electrolysis as the difference between the electrical
 energy input and the heat arising in the cell, using platinum electrodes and
 light water electrolyte + 0.1M LiOH in a cell otherwise similar to that of
 FPH, except that it is contained in a Dewar flask and the heat measurements
 are performed rather more carefully, but still - as done by FPH -
essentially
 by noting the temperature at a point in the cell, at steady state. Together
 with some calibrations and comparisons using heating elements, this permits
 the calculation of reaction enthalpy to within about +- 3\%; this is
 presumably somewhat better than in the FPH experiment, where no such great
 care was taken.
 The result is that the enthalpies come out about right within the stated
 error, so that no significant recombination takes place. The inference is
 reasonable that this also held for the FPH system. At high current densities
 (> about 300 mA/cm$^2$) the deviations are rather larger due to evaporation
 and gas heating effects increasing the error, but the effect is in the
 direction opposite to that which would indicate recombination. Although in
 the FPH case, there was palladium exposed to the gases (not the case here),
 the results rule out the possibility that the excess heat claimed by FPH
 could be due to the recombination reaction. It is pointed out, however, that
 possible errors in the heat balance can become quite large if less care is
 taken with the measurements than here.}
}
@article{Dala1989,
 author    = {F. Dalard and M. Ulman and J. Augustynski and P. Selvam},
 title     = {Electrochemical incorporation of lithium into palladium
               from aprotic electrolytes},
 journal   = {J. Electroanal. Chem.},
 volume    = {270},
 year      = {1989},
 pages     = {445--450},
 keywords  = {Experimental, Pd, electrolysis, lithium},
 submitted = {07/1989},
 published = {10/1989},
 annote    = {Li is sometimes claimed to be associated with CNF. So, at what
 potentials does Li+ get deposited on Pd? They used 1M LiClO4 in acetonitrile
 plus propylene carbonate, as well as in a solid polymer. They reached, at
 rather negative potentials, a surface loading of 1 at\% Li in the Pd, which
 is not much. It is feasible that in FPH's experiments a surface layer of a
 few microns incorporates Li and this might change the electrochemical
 behaviour of the Pd.}
}
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@article{Davi1989,
 author    = {L. Davis},
 title     = {Cold fusion: a learning curve?},
 journal   = {Australian Physicist},
 volume    = {26},
 year      = {1989},
 pages     = {219--220},
 keywords  = {Discussion},
 published = {09/1989},
 annote    = {An early discussion of cold fusion in the general context of
 fusion and energy generation. The three possible d-d fusion reactions
 producing, resp., (3)He, T and (4)He, as well as the p-d reaction, are given
 and discussed. The rest of the paper is then a report of the Australian
AINSE
 colloquium on May 19, attended by 91 scientists, including such heavies as
 theoretical chemist Noel Hush and metal hydride expert Alan Oates. The
 delegates disagree, some plan experiments. Davis has a theory and hints at
 its publication elsewhere.}
}
@article{Davy1989,
 author    = {A. S. Davydov},
 title     = {Possible interpretation of cold nuclear fusion},
 journal   = {Ukr. Fiz. Zh.},
 note      = {In Russian},
 volume    = {34},
 year      = {1989},
 pages     = {1295--1297},
 submitted = {04/1989},
 published = {09/1989},
 keywords  = {Discussion, superconductivity, muons, res0},
 annote    = {Davydov here presents some general thoughts on CNF, one month
 after its announcement. He describes d-d fusion and mentions the problems it
 will have at low temperatures, stating that it requires at least 3 keV to
 surmount the Coulomb barrier. The possible connection with superconductity
is
 given a mention; while neither pure Pd nor pure D is superconducting, PdD
can
 be, at below 11K. He also mentions the boson state and its possible
 implication. So, if CNF be real, the crystal state must play a role to
 promote faster deuterons, or their mobility in the lattice, and their
 penetration of each other's Coulomb barriers.}
}
@article{Deak1989,
 author    = {M.~R. Deakin and J.~D. Fox and K.~W. Kemper and E.~G. Myers
              and W.~N. Shelton and J.~G. Skofronick},
 title     = {Search for cold fusion using x-ray detection},
 journal   = {Phys. Rev. C: Nucl. Phys},
 volume    = {40},
 year      = {1989},
 pages     = {R1851--R1853},
 keywords  = {Experimental, Pd, electrolysis, x-rays, res-},
 submitted = {07/1989},
 published = {11/1989},
 annote    = {On the theoretical likelihood that the dominant cnf reaction at
 room temperature is the d+d-->t+p one, these authors attempted to measure
 x-rays arising from the fast protons released. They achieved electrolytic
 loading of 0.8 D per Pd (using Pd foil), and detected no x-rays above
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 background. This limits the fusion rate to $< 1.6 \times 10^{-20}/s$.}
}
@article{Dell1989,
 author    = {B. Delley},
 title     = {Effect of electronic screening on cold-nuclear-fusion rates},
 journal   = {Europhys. Lett.},
 volume    = {10},
 year      = {1989},
 pages     = {347--352},
 keywords  = {Theory,  res-},
 submitted = {05/1989},
 published = {10/1989},
 annote    = {Theoretical calculation of electronic binding energy for H2,
LiH
 and d in PdD(x). Screening can (1) enhance fusion rates and (2) decrease the
 electronic binding; the two effects work against each other, and no cold
 fusion is expected.}
}
@article{Dema1989,
 author    = {F. Demanins and M. Graziani and J. Kaspar and S. Modesti
             and F. Raicich and R. Rosei and F. Tommasini and A.
Trovarelli},
 title     = {Search for the neutron production in niobium deuteride},
 journal   = {Solid State Commun.},
 volume    = {71},
 year      = {1989},
 pages     = {559--561},
 keywords  = {Experimental, Nb, gas phase, neutrons, res-},
 submitted = {06/1989},
 published = {08/1989},
 annote    = {Niobium also absorbs hydrogen and deuterium, and has similar
 problems as Ti with it - it needs appropriate pretreatment. Here, Nb powder
 was variously treated: exposed to 1 Mpa D2 gas and slowly heated. No D2 was
 absorbed until a temp. of 650K was reached. This could be driven out again
by
 heating at 750K, and this, when cooled down again, readily absorbs D2 even
at
 room temp.  Measured n spectrum with a p-recoil scintillation detector of
 variously pre- treated Nb powder, and found an upper neutron emission rate
of
 $7 \times 10^{-25}$, both for D2 and H2 gas. This rules out cold fusion.}
}
@article{Deni1989a,
 author    = {A. {De Ninno} and A. Frattolillo and G. Lollobattista
             and L. Martinis and M. Martone and L. Mori and S. Podda
             and F. Scaramuzzi},
 title     = {Emission of neutrons as a consequence of titanium-deuterium
             interaction},
 journal   = {Nuovo Cimento Soc. Ital. Fis. A},
 volume    = {101},
 year      = {1989},
 pages     = {841--843},
 keywords  = {Experimental, Ti, gas phase, neutrons, res+},
 submitted = {04/1989},
 published = {05/1989},
 annote    = {Neutrons observed, without electrolysis. Ti shavings in a
 stainless steel cell were put under pressured D2 up to 50 atm, the
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 temperature reduced to that of liquid nitrogen, and the N2 topped up
 occasionally, each time presumably bringing down the temperature. The
authors
 claim that a bunch of neutrons are emitted after each such topping up - well
 above the background - and conclude that nonequlibrium conditions are
 required for cold fusion, but not electrolysis.}
}
@article{Deni1989b,
 author    = {A. {De Ninno} and A. Frattolillo and G. Lollobattista
             and L. Martinis and M. Martone and L. Mori and S. Podda
             and F. Scaramuzzi},
 title     = {Evidence of emission of neutrons from a titanium-deuterium
             system},
 journal   = {Europhys. Lett.},
 volume    = {9},
 year      = {1989},
 pages     = {221--224},
 keywords  = {Experimental, Ti, gas phase, neutrons, res+},
 submitted = {04/1989},
 published = {06/1989},
 annote    = {This looks very much like the authors' paper in Nuovo Cimento
 etc, Deni1989a, with the same figures and results.}
}
@article{Deni1989c,
 author    = {A. {De Ninno} and A. Frattolillo and G. Lollobattista
             and L. Martinis and M. Martone and L. Mori and S. Podda
             and F. Scaramuzzi},
 title     = {Emission of neutrons from a deuterium-titanium system},
 journal   = {Energ. Nucl. (Rome)},
 volume    = {6},
 year      = {1989},
 pages     = {9--11},
 keywords  = {Experimental, Ti, gas phase, neutrons, res+},
 submitted = {04/1989},
 published = {04/1989},
 annote    = {Two experiments, in which Ti was placed under high pressure D,
 produced neutrons. This shows that electrolysis is not needed, and that
 nonequilibrium conditions are essential. A single BF3 neutron counter,
placed
 20 cm from the experimental cell, was used. D2 pressure and temperature were
 varied.}
}
@article{Derj1989,
 author    = {B.~V. Derjaguin and A.~G. Lipson and V.~A. Kluev
             and D.~M. Sakov and Yu.~P. Toporov},
 title     = {Titanium fracture yields neutrons?},
 journal   = {Nature},
 volume    = {341},
 year      = {1989},
 pages     = {492.},
 keywords  = {Experimental, fracto, res+},
 published = {10/1989},
 annote    = {This is the same team as Klyuev et al (1986), spelled a little
 differently (by themselves). Here, they put Ti chips into a ball mill with 6
 mm steel balls, D2O, deuterated "polypropilenium" and LiD in various
 combinations.  Where Ti was not in contact with deuterated compounds, no
 neutrons were observed but in mixtures with D, neutrons up to 6-7 times the
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 background were measured. The authors speculate that either at high D
 loadings in Ti, the D's can approach sufficiently closely to fuse or - in
 line with their earlier 1986 paper - that it is fractofusion. The first of
 these two has been fairly well ruled out by several physics theory papers
 showing that, in a metal deuteride, D-D distances are in fact greater than
in
 liquid D2.}
}
@article{Divi1989,
 author    = {J. Divisek and L. F{\"u}rst and J. Balej},
 title     = {Energy balance of D2O electrolysis with a palladium cathode.
              Part II. Experimental results},
 journal   = {J. Electroanal. Chem.},
 volume    = {278},
 year      = {1989},
 pages     = {99--117},
 keywords  = {Experimental, Pd, calorimetry, res-},
 submitted = {09/1989},
 published = {01/1990},
 annote    = {A careful reenactment of FPH's experiments, with divided and
 undivided cells, and better calorimetry, making use of the relations
 developed in Part I (Balej and Divisek). Whether using H2O or D2O, the heat
 measured is within 0.5\% the same as predicted from
 thermodynamics. Inititally in the undivided cell, some of the evolved
 deuterium gas recombined with evolved oxygen at the Pd electrode; as this
 becomes loaded with D, however, this recombination reaction decreased,
 eventually to zero upon reaching a loading of PdD(x), x = 0.7-0.8. After
long
 electrolysis (270 h), however, appreciable Pt deposits were found on the Pd
 electrode (from corrosion of the Pt anode, also found by Williams et al),
 which again catalysed recombination in an undivided cell.  An interesting
 aspect of this work is the method of obtaining D-loading of the Pd. The
 evolved deuterium gas was monitored and compared with the expected amount
 from the known current. The deficit was thus that part that went into PdD,
 and corresponded to a pure beta-phase with x = 0.70 and 0.77 in two separate
 experiments (divided cells, thus no recombination). They also performed
 surface x-ray analysis on the Pd, before and after 270 h of electrolysis,
and
 found quite significant amounts of platinum, copper, lead and oxygen
 accumulated, while carbon decreased. This was confirmed by another analysis
 technique.}
}
@article{Dudu1989,
 author    = {D. Dudu and M. Molea and I. Pascalau and I. Piticu and I.
Vata},
 title     = {Nuclear effects in the electrolysis of heavy water},
 journal   = {Rev. Roum. Phys.},
 volume    = {34},
 year      = {1989},
 pages     = {229--232},
 keywords  = {Experimental, electrolysis, Pd, Ti, neutrons, res-},
 annote    = {Measured neutron flux on Pd and Ti cathodes in LiCl acidified
 to pH 1.5 by HCl, at currents of 0.1--1.5 A. The cathodes were a cyclinder
of
 Ti, 10*20 mm, or a 16 g ellipsoid (lump?) of Pd. Cell temperatures were 20-
90
 degC. An NE-213 liquid scintillator neutron detector was used with pulse
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 shape discrimination, and shielded with paraffin and Pb. Alternate
background
 and cell measurements were taken for 3000-5000 s at a time (background by
 replacing the cell with a dummy). From the detection of $95 \pm 35$ (Ti) and
 $167 \pm 46$ neutrons over resp. 660 and 1125 h, the maximum cold fusion
 rates of around $10^{-23}$ fus/pair/s were calculated.}
}
@article{Duro1989,
 author    = {J.~J.~G. Durocher and D.~M. Gallop and C.~B. Kwok
             and M.~S. Mathur and J.~K. Mayer and J.~S.~C. McKee
             and A. Mirzai and G.~R. Smith and Y.~H. Yeo},
 title     = {A search for evidence of cold fusion in the direct implantation
              of palladium and indium with deuterium},
 journal   = {Can. J. Phys.},
 volume    = {67},
 year      = {1989},
 pages     = {624--631},
 keywords  = {Experimental, ion beam, In, res-},
 submitted = {06/1989},
 published = {06/1989},
 annote    = {In order to emulate the Utah experiments, but without D2O, they
 used a 30/60 keV beam of D2+ (cf. Beuhler et al) to implant D into
 indium. The initial surprise upon observing neutrons faded when they
 calculated that this could be fully accounted for by the beam energy - it
was
 warm fusion, as the implanted D itself is the target.}
}
@article{Eber1989,
 author    = {V. Eberhard and W. Heeringa and H.~O. Klages and R. Maschuw
             and G. V{\"o}lker and B. Zeitnitz},
 title     = {Neutron limits from gas-loaded titanium-deuterium systems},
 journal   = {Z. Phys. A: At. Nucl.},
 volume    = {334},
 year      = {1989},
 pages     = {357--358},
 keywords  = {Experimental, gas phase, Ti, neutrons, res-},
 submitted = {08/1989},
 published = {11/1989},
 annote    = {Ti sponge and shavings were brought in to contact with D gas at
 various pressures up to about 70 bar and temps. and neutrons measured (4
 separate liquid scintillation counters). Nothing found.}
}
@article{Ebert1989,
 author    = {K. Ebert},
 title     = {Elektrochemisch induzierte Fusion von Deuterium},
 note      = {In German},
 journal   = {Nachr. Chem. Tech. Lab.},
 volume    = {37},
 year      = {1989},
 pages     = {470.},
 published = {05/1989},
 keywords  = {Comment},
 annote    = {An early report of cold fusion, based on the seminal
publication
 of Fleischmann and Pons (1989). The author states that it became obvious
that
 this was not an April fool joke, but was meant seriously. He then discusses
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 the problems with the claims. He concludes that skepticism is warranted, but
 that there is no doubt about the authors' integrity, and reminds the readers
 of the time, 50 years ago, when Hahn and Stra{\ss}mann discovered nuclear
 fission, which was not immediately understood by others.}
}
@article{Ehrl1989,
 author    = {A.~C. Ehrlich and D.~J. Gillespie and G.~N. Kamm},
 title     = {A search for neutrons in single-phase palladium-deuterium},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {529--531},
 keywords  = {Experimental, gas phase, electrolysis, Pd, neutrons, res-},
 submitted = {08/1989},
 published = {12/1989},
 annote    = {A Pd rod is charged to relatively high D levels without passing
 through the 2-phase region of this system. This is done by a combination of
 high-temp- high-pressure initial charging, followed by electrolytic
charging,
 to a final loading of 0.88. Low temperature thermal cycling, and room
 temperature slow discharge of D yielded no neutrons. Data collected during
 rapid discharge of D are statistically unconvincing but weakly suggestive of
 some possible neutron production.}
}
@article{Elbe1989,
 author    = {B. Elbek},
 title     = {Kold fusion?},
 note      = {In Danish},
 journal   = {Gamma (Copenhagen)},
 volume    = {76},
 year      = {1989},
 pages     = {19--21},
 keywords  = {Comment, experimental, neutrons, res-},
 published = {06/1989},
 annote    = {An early report of FPH's results, and a report of their own
 results of neutron measurements under several different conditions
 (electrolysis, heating and pressure), which gave nothing beyond cosmic
 background. The conclusion is sceptical but leaves the question open.}
}
@article{Ewin1989,
 author    = {R.~I. Ewing and M.~A. Butler and J.~E. Schirber
              and D.~S. Ginley},
 title     = {Negative results and positive artifacts observed in a
              comprehensive search for neutrons from 'cold fusion'},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {404--407},
 keywords  = {Experimental, electrolysis, gas phase, Pd, Ti, res-},
 submitted = {07/1989},
 published = {11/1989},
 annote    = {A search for neutrons using both electrochemical and gas
 pressure loading was conducted in an underground lab using 3 highly
sensitive
 neutron detectors.  Any n emission would be detected simultaneously in all 3
 in a known proportion. Individual detectors occasionally emitted groups of
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 counts mimicking both continuous and burst emission. These were identified
as
 artifacts. The use of simultaneous detection on several detectors is thus
 essential for exclusion of such artifacts.}
}
@article{Fall1989,
 author    = {S.~H. Faller and R.~W. Holloway and S.~C. Lee},
 title     = {Investigation of cold fusion in heavy water},
 journal   = {J. Radioanal. Nucl. Chem.},
 volume    = {137},
 year      = {1989},
 pages     = {9--16},
 keywords  = {Experimental, electrolysis, Pd, tritium, gamma, res-},
 submitted = {05/1989},
 published = {08/1989},
 annote    = {Did an electrolysis experiment using a Pd cathode and an Fe
 anode, in a 50-cm long cell at 4 degC, and checked for gamma radiation and
 tritium in the electrolyte. The electrolyte was D2O with added NaOH; later,
a
 small amount (50 mg) of LiC(2) was added to produce LiOD.  Although FPH
claim
 a tritium/deuterium separation factor of 1, it is known to be > 1. In this
 experiment, electrolyte aliquots removed showed rising tritium levels with
 electrolysis time, which could lead one to suspect a cold fusion reaction;
 however, what with D2O losses, the total tritium level in the electrolyte
 went down. A reasonable separation factor of 1.5 can account for the tritium
 levels. No gamma emission that cannot be accounted for by natural background
 was found. The authors conclude with the comment that FPH's gamma results
are
 doubtful until more details of the background and the detector configuration
 are given.}
}
@article{Fehn1989,
 author    = {T. Fehn and C.~A. Schiller},
 title     = {Cold nuclear fusion and electrochemical measuring techniques},
 journal   = {Chem.-Tech. (Heidelberg)},
 volume    = {18},
 year      = {1989},
 pages     = {72, 75, 77--78},
 keywords  = {Experimental, electrolysis, Pd, neutrons, res-},
 published = {06/1989},
 annote    = {Attempt to reproduce, at Erlangen, the CNF experiments of FPH,
 using the same conditions, but using better equipment (triple neutron
 detector, separation and measurement of gases) under a multidisciplinary
 study. The aims were (1) to detect radiation, (2) establish the conditions
 for reproducibility, (3) to protect the scientists from the
 experiment. Results so far are negative but the study goes on.}
}
@article{Feng1989,
 author    = {S. Feng},
 title     = {Enhancement of cold fusion rate by electron polarization
              in palladium deuterium solid},
 journal   = {Solid State Commun.},
 volume    = {72},
 year      = {1989},
 pages     = {205--209},
 keywords  = {Theory, res-},
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 submitted = {05/1989},
 published = {10/1989},
 annote    = {Again a theoretical attempt to overcome the coulomb repulsion:
 invokes dielectric screening and solid state effects which might enhance
 tunnelling to about E-40; Not enough to explain CNF but there are still some
 uncertainties.}
}
@article{Fish1989,
 author    = {R.~S. Fishman and G.~D. Mahan},
 title     = {Binding of charged particles in lattice defects},
 journal   = {Phys. Rev. B40},
 year      = {1989},
 pages     = {11493--11495},
 keywords  = {Theory, res0},
 submitted = {05/1989},
 published = {12/1989},
 annote    = {Calculate the interaction between two positively charged
 particles in the presence of a spherical lattice defect with uniform
electron
 density, using the jellium model, WKB method, and assuming a background
 charge density that neutralises the conduction electrons. If cold fusion
 occurs, it is unlikely that binding of deuterons in lattice defects is
 responsible.}
}
@article{Flei1989a,
 author    = {M. Fleischmann and S. Pons and M. Hawkins},
 title     = {Electrochemically induced nuclear fusion of deuterium.},
 journal   = {J. Electroanal. Chem.},
 volume    = {261},
 year      = {1989},
 pages     = {301--308},
 note      = {See Erratum in ibid 263 (1989) 187.},
 keywords  = {Experimental, electrolysis, Pd, calorimetry, neutrons, tritium,
              helium, res+},
 submitted = {03/1989},
 published = {04/1989},
 annote    = {One of the two original articles that started all the trouble;
 the "FPH" paper. The authors, using rather simple equipment (too simple,
some
 would say), electrolysed heavy water (D2O) containing LiOD at Pd electrodes
 of various geometries, measuring the temperature at intervals, gamma
 radiation and neutrons. They found gammas, neutrons and excess heat
 (i.e. above that expected from chemical reactions).  The erratum (263 (1989)
 187--188) is two pages of corrections to the original FPH paper in the same
 journal, starting with the omission of Hawkins from the author list. For
this
 reason, that earlier paper should have the same three authors as this one
 when cited.  The other errors appear to be errors of detail, and do not
 basically alter the claims.}
}
@article{Flei1989b,
 author    = {M. Fleischmann and S. Pons and M. Hawkins and R. J. Hoffman},
 title     = {Measurements of gamma-rays from cold fusion},
 journal   = {Nature},
 volume    = {339},
 year      = {1989},
 pages     = {667},
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 keywords  = {Polemic},
 published = {06/1989},
 annote    = {Polemic in answer to polemic of Petrasso, Nature 339 (1989)
183.
 FPHH claim that Petrasso+ base their polemic on a graph shown on TV and that
 their gamma spectrum shows in fact a peak at 2.496 MeV, not seen in the
 background. They admit that the peak at 2.22 MeV, expected from the nuclear
 reaction they postulate, is obliterated by the Compton peak due to thorium
 decay. They can't interpret the one at 2.496, though. This is a bit besides
 the point, since they (FPH) did originally claim the peak at 2.22 MeV and
did
 claim that it is evidence for CNF.}
}
@article{Fowl1989,
 author    = {W.~A. Fowler},
 title     = {Cold fusion results still unexplained},
 journal   = {Nature},
 volume    = {339},
 year      = {1989},
 pages     = {345.},
 keywords  = {Theory, res-},
 published = {06/1989},
 annote    = {To try to explain the heat/neutron imbalance of FPH's results,
 Fowler calculates the rate of the reaction d + d --> (4)He + $e^+ e^-$. It
 turns out to have a rate lower than a factor of 100 than the reaction d + d
 --> (4)He + gamma, which is known to have a rate $10^{-7}$ lower than the
 branches giving (3)He or T. Therefore, the above reaction cannot explain the
 results.}
}
@article{Fuji1989,
 author    = {S. Fujita},
 title     = {On the feasibility of nuclear fusion in fcc metals},
 journal   = {Phys. Status Solidi B},
 volume    = {156},
 year      = {1989},
 pages     = {K17--K21},
 keywords  = {Discussion},
 submitted = {07/1989},
 published = {11/1989},
 annote    = {The host crystal creates an ideal environment for very close
 D-D encounters if the coulomb barrier is overcome, because of preferred
 migration channels in fcc crystals - in other words, deuterons are not free
 to move anywhere in palladium, but are restricted to narrow channels. Higher
 temperatures will therefore favour cold fusion. Compare Arista et al, also
 focussing on the matrix inhomogeneities and arriving at a similar
 conclusion.}
}
@article{Gai1989,
 author    = {M. Gai and S.~L. Rugari and R.~H. France and B.~J. Lund
             and Z. Zhao and A.~J. Davenport and H.~S. Isaacs and K.~G.
Lynn},
 title     = {Upper limits on neutron and gamma-ray emission from cold
fusion},
 journal   = {Nature},
 volume    = {340},
 year      = {1989},
 pages     = {29--34},
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 keywords  = {Experimental, electrolysis, gas phase, Ti, neutrons, gamma,
             res-},
 submitted = {05/1989},
 published = {07/1989},
 annote    = {Set up a variety of electrochemical cells as well as
experiments
 in which Ti was deuterided at high pressure, and measured gamma and neutron
 flux. Neutron fluxes were at least a factor 50 less than that of Jones+, and
 $10^6$ smaller than FPH's. A significant fraction of such events are
accounted
 for by cosmic rays.}
}
@article{Ghos1989,
 author    = {S.~K. Ghosh and H.~K. Sadhukhan and A.~K. Dhara},
 title     = {A theory of cold nuclear fusion in deuterium-loaded palladium},
 journal   = {Pramana},
 volume    = {33},
 year      = {1989},
 pages     = {L339--L342},
 keywords  = {Theory, screening, jellium model, res+},
 submitted = {07/1989},
 published = {08/1989},
 annote    = {These Indian workers propose an early theory to explain cold
 fusion. They state at the outset that tunnelling is not the answer. Instead,
 they focus on the deuterons (which are bosons) formed by deuterium in the
 metal lattice, and having large amplitudes. The jellium model is then
 applied. Enhanced screening is the result of all this, and thus enhanced
 fusion rates. Thus there is no need for enhanced-mass electrons, as supposed
 by others.}
}
@article{Gill1989,
 author    = {D.~J. Gillespie and G.~N. Kamm and A.~C. Ehrlich and P.~L.
Mart},
 title     = {A search for anomalies in the palladium-deuterium system},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {526--528},
 keywords  = {Experimental, Pd, electrolysis, neutrons, calorimetry, res-},
 submitted = {08/1989},
 published = {12/1989},
 annote    = {Charged a polycrytalline Pd rod with D up to 0.81 D/Pd, while
 monitoring electrical resistivity, sample dimensions, cell temperature and
 neutrons.  Various charging rates were used to provoke anomalous behaviour
 but none such was observed.}
}
@article{Gitt1989,
 author    = {J. Gittus and J. Bockris},
 title     = {Explanations of cold fusion},
 journal   = {Nature},
 volume    = {339},
 year      = {1989},
 pages     = {105},
 keywords  = {Discussion, polemic},
 published = {05/1989},
 annote    = {Suggest that prior accumulation of H in Pd could prevent the
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 absorption of D by Pd during electrolysis in heavy water, and that this
could
 explain why some cells do not work. They also suggest that when D is
 absorbed, it tends to segregate in cracks and grain boundaries and when it
 reaches a high enough level, CNF starts. This would explain the induction
 period.  The solution to the problem of prior contamination is to remove the
 interstitial hydrogen, as well as other impurities.}
}
@article{Goed1989,
 author    = {J. A. Goedkoop},
 title     = {Koude kernfusie in de vaste stof?
              (Cold nuclear fusion in solids?)},
 journal   = {Energiespektrum},
 volume    = {13},
 year      = {1989},
 pages     = {156--162},
 note      = {In Dutch},
 keywords  = {Review},
 published = {06/1989},
 annote    = {A competent early review of cold fusion, written in June 1989.
 It contains some useful background information about d-d fusion reactions,
 thermodynamics of PdDx, electrochemistry and palladium hydride structure. It
 also points to the theoretical work that appeared subsequently, towards
 explaining the effect, if any. The possibility of the (4)He branch, which
 some consider might lead simply to heat dissipated in the Pd lattice, is
 mentioned, as well as the fracto theory, with the doubt expressed, that the
 postulated charge separation is sustainable in the hydride as in LiD; this
 later became one of the strong arguments against fractofusion.}
}
@article{Gold1989,
 author    = {V.~I. Goldanskii and F.~I. Dalidchik},
 title     = {Mechanism of solid-state fusion},
 journal   = {Nature},
 volume    = {342},
 year      = {1989},
 pages     = {231.},
 keywords  = {Discussion},
 published = {11/1989},
 annote    = {In the search for a possible mechanism for cold fusion of D in
 Pd, the authors dismiss coulombic screening effects in the lattice, and
 tunnelling. An increase in the (local) density and effective mass of lattice
 electrons could, together with lattice deformation, cause a local minimum in
 the potential barrier and form a quasi-stationary complex, leading to
 "resonance transparency". This could increase the natural fusion rate by a
 factor of $10^9$.  Another possiblity is that a deuteron could somehow
aquire
 about 10 keV of energy, which could happen during lattice cracking, as found
 by Soviet workers (Klyuev et al).}
}
@article{Golu1989a,
 author    = {P.~I. Golubnichii and V.~A. Kurakin and A.~D. Filonenko
             and V.~A. Tsarev and A.~A. Tsarik},
 title     = {Possible mechanism of cold nuclear fusion},
 journal   = {Dokl. Akad. Nauk SSSR},
 volume    = {307},
 year      = {1989},
 pages     = {99--101},
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 note      = {In Russian},
 keywords  = {Discussion, fracto},
 annote    = {Not much more than a restatement of the Klyuev et al paper of
 1986; i.e.  allows the possibility of dd fusion by acceleration of deuterons
 in electric fields formed by cracks.}
}
@article{Golu1989b,
 author    = {P.~I. Golubnichii and V.~A. Kurakin and A.~D. Filonenko
              and V.~A. Tsarev and A.~A. Tsarik},
 title     = {A possible mechanism for cold nuclear fusion},
 journal   = {Sov. Phys. - Lebedev Inst.},
 year      = {1989},
 number    = {6},
 pages     = {72--74},
 note      = {Orig. in Kratk. Soobshch. Fiz. (1989)(6) 56. (In Russian)},
 keywords  = {Theory, fracto, res+},
 submitted = {04/1989},
 annote    = {Examines one of the possible mechanisms, viz: that of
 microcracks arising from phase changes during hydrogenation, leading to
 deuteron acceleration (i.e. the 1986 Lipson et al suggestion). High
 concentration of H(or D) in the metal, high diffusion coefficient of H in
the
 metal at room temperature, efficiency of hydrolytic hydrogenation, strong
 increase of the specific volume of the metal at the moment of hydride
 formation at critical H concentrations and formation of micropores, all are
 favourable for fusion. The crack formation is accompanied by mechanoemission
 effects, i.e. pulsed acoustic emission, emission of neutrons with energies
 $\ge 10^5$ eV and electromagnetic gamma-, x- and radiofrequency radiation.
The
 neutron flux can be attained if deuterons can be accelerated to 380 eV.
Seems
 to be a restatement of their other paper in Dokl. Akad. Nauk. SSSR.}
}
@article{Gree1989,
 author    = {T. Greenland},
 title     = {Numbers off an envelope},
 journal   = {Physics World},
 volume    = {2},
 year      = {1989},
 pages     = {16--17},
 keywords  = {Theory, res-},
 published = {05/1989},
 annote    = {Some rough calculations of screening parameters and effective
 electron masses to enable the claimed fusion rates of Jones+, FPH (neutrons)
 and FPH (excess heat). Results look unlikely.}
}
@article{Gryz1989,
 author    = {M. Gryzinski},
 title     = {Cold fusion: what's going on?},
 journal   = {Nature},
 volume    = {338},
 year      = {1989},
 pages     = {712.},
 keywords  = {Discussion, theory, res+},
 published = {04/1989},
 annote    = {Ties in CNF with his own studies of the H(2)+ molecule - i.e.
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 two protons plus one electron. This forms what he calls a collapsing
molecule
 and this phenomenon could aid the tunnelling needed for CNF.}
}
@article{Gu1989,
 author    = {A.~G. Gu and R.~K.~F. Teng and M.~S. Miller and W.~J. Sprouse},
 title     = {Preliminary experimental study on cold fusion using deuterium
              gas and deuterium plasma in the presence of palladium},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {248--250},
 keywords  = {Experimental, gas phase, Pd, ion beam, neutrons, res+},
 submitted = {05/1989},
 published = {09/1989},
 annote    = {Deuterium at liquid nitrogen temperature, in contact with Pd,
 was warmed up to room temp., and neutrons were observed above
 background. Then, Pd was bombarded with a 1 keV deuterium beam, producing
 neutrons well above the background; a beam of N ions (as a check) did
 not. Also, the deuterium beam did not have sufficient energy to expect it to
 produce fusion.}
}
@article{Hajd1989,
 author    = {W. Hajdas and S. Kistryn and J. Lang and J. Sromicki
              and B. Jenny and P. Wachter},
 title     = {Search for cold fusion events},
 journal   = {Solid State Commun.},
 volume    = {72},
 year      = {1989},
 pages     = {309--313},
 keywords  = {Experimental, LaNi5 alloy, gas phase, neutrons, gammas, res-},
 submitted = {08/1989},
 published = {10/1989},
 annote    = {If we assume (as we must) an about 50:50 branching ratio for
 fusion, i.e.  that we should get about half tritium and half helium-4, then
 1W of excess heat corresponds to $10^{12}$ neutrons. Neutrons, then, are a
 much more sensitive measure of fusion. But FPH only found in the region of
 $10^4$. Hajdas et al repeated FPH's experiment, and did one of their own, in
 which they exposed LaNi5 to D2 gas at 12 bar, 150 degC. This alloy absorbs 6
 atoms of hydrogen per unit, and crumbles into a powder upon doing
 so. Neutrons and gammas were measured with a low background. Results:
nothing
 found.}
}
@article{Harg1989,
 author    = {C. Hargitai},
 title     = {Considerations on cold nuclear fusion in palladium},
 journal   = {J. Radioanal. Nucl. Chem.},
 volume    = {137},
 year      = {1989},
 pages     = {17--22},
 keywords  = {Theory, res+},
 submitted = {06/1989},
 published = {08/1989},
 annote    = {The author attacks the coulombic repulsion of deuterons in
PdD(x)
 by way of dielectric screening. PdD(x) may have a dielectric constant of 20
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 or so and - if screening still operates at the small interatomic distances
 needed for d-d fusion to happen, this might explain it. Skeptics will say
 that if it doesn't, it won't.}
}
@article{Hass1989,
 author    = {A.~B. Hassam and A.~N. Dharamsi},
 title     = {Deuterium molecule in the presence of electronic charge
              concentrations: implications for cold fusion},
 journal   = {Phys. Rev. A},
 volume    = {40},
 year      = {1989},
 pages     = {6689--6691},
 keywords  = {Theory, res0},
 submitted = {08/1989},
 published = {12/1989},
 annote    = {Could it be that, if a D2+ pair straddles an "ambient localized
 negative charge concentration" in the PdD(x) lattice, that this would
 contraction of the D-D bond distance, sufficient to make cold fusion
 possible? The authors use the Born-Oppenheimer approximation to find out
and,
 depending on the negative charge, reductions by a factor of 3-5 (enough to
 cause Jones+ rates) and even 10 (enough for FPH rates) are possible in
 principle. More work is required. Prior (unpublished?) work of Koonin is
 cited.}
}
@article{Heni1989,
 author    = {Z. Henis and S. Eliezer and A. Zigler},
 title     = {Cold nuclear fusion rates in condensed matter:
              a phenomenological analysis},
 journal   = {J. Phys. G:  Nucl. Part. Phys.},
 volume    = {15},
 year      = {1989},
 pages     = {L219--L223},
 keywords  = {Theory, res-},
 submitted = {06/1989},
 published = {10/1989},
 annote    = {Estimate fusion rates by tailoring a screened Yukawa potential
 with a harmonic potential. The parameters required for the claimed cold
 fusion rates lie far outside those holding in Pd, so cold fusion is
 unlikely.}
}
@article{Hiet1989,
 author    = {M. Hietschold},
 title     = {Electric field control for cold nuclear fusion? - a
suggestion},
 journal   = {Wiss. Z. TU Karl-Marx-Stadt},
 volume    = {31},
 year      = {1989},
 pages     = {635--636},
 keywords  = {Proposal, theory},
 submitted = {04/1989},
 annote    = {It is hypothesised that trapping of deuterons at the Pd surface
 or in lattice interstitial positions, combined with high local fields might
 activate d's to fuse. This might be helped by the external application of
 electric fields.  Two designs, involving thin Pd films separated from the
 main Pd electrode by a thin insulating film, are shown, to facilitate this.}
}
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@article{Horan1989a,
 author    = {G. Horanyi},
 title     = {Open questions concerning the Fleischmann-Pons experiment},
 journal   = {Magy. Kem. Fol},
 volume    = {95},
 year      = {1989},
 pages     = {140--143},
 note      = {In Hungarian},
 keywords  = {Discussion},
 submitted = {04/1989},
 published = {04/1989},
 annote    = {An early paper, written when the ink on FPH(89) was not yet
dry.
 I quote only from the English abstract at the end. Problems of the
 interpretation of the FPH experiment are discussed, in particular the
 overpotential (I recognise in the text the juxtaposition of 0.8 eV and
 $10^{26}$ atm). H says that the theoretical foundations of cold fusion are
 questionable, as is the calorimetric evidence, without more information
about
 the possibility of the recombination of D2 with O2, evolved from the cell.}
}
@article{Horan1989b,
 author    = {G. Horanyi},
 title     = {Some doubts about the occurrence of electrochemically induced
              nuclear fusion of deuterium},
 journal   = {Electrochim. Acta},
 volume    = {34},
 year      = {1989},
 pages     = {889--890},
 keywords  = {Critical comments},
 submitted = {05/1989},
 published = {06/1989},
 annote    = {Two aspects of the FPH-89 are dealt with critically. There are
 problems with the theoretical foundation, such as the relationship between
 overpotential (the stated 0.8 V) and chemical potential (the famous
$10^{26}$
 atm "pressure"); and problems with the experiment, such as the too easy
 assumption of a nuclear reaction as the source of the excess energy, and the
 possibility - or, as the author believes, the inevitability - of
 recombination of D2 and O2 in the cell. Thus there are strong doubts.}
}
@article{Horan1989c,
 author    = {G. Horanyi},
 title     = {Some basic electrochemistry and the cold nuclear fusion of
              deuterium},
 journal   = {J. Radioanal. Nucl. Chem. Lett.},
 volume    = {137},
 year      = {1989},
 pages     = {23--28},
 keywords  = {Critical discussion},
 submitted = {06/1989},
 published = {08/1989},
 annote    = {Claims that the authors of CNF claim that the flow of current
 is necessary for CNF, having to do with the resultant overpotential and thus
 the effective D-compression (I don't think FPH or Jones+ claim this). A
 "strict" analysis of kinetic and equilibrium relationships is undertaken and
 shows that we should reject the astronomic pressures stated by FPH.  This
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 humble bibliographer suggests that Horanyi is using the wrong reaction for a
 start (in the alkaline medium used, it is D2O, not D+, which is reduced) and
 that the 0.8 V --> $10^{26}$ atm issue is in any case controversial, but not
 settled.}
}
@article{Horo1989,
 author    = {C.~J. Horowitz},
 title     = {Cold nuclear fusion in metallic hydrogen and normal metals},
 journal   = {Phys. Rev. C: Nucl. Phys.},
 volume    = {40},
 year      = {1989},
 pages     = {R1555--R1558},
 keywords  = {Theory, astronomical connection, pd fusion},
 submitted = {04/1989},
 published = {10/1989},
 annote    = {The rate of pd fusion in metallic hydrogen at Jupiter's core
 was calculated as $10^{-50}$ pairs/s. In metals, the width of the fusion
 barrier must be reduced to 0.1 {\AA}ngstrom to get $10^{-25}$, and if
 achieved, the branching ratios will be different from hot fusion
 ratios. Horowitz also points out that the reaction p+d-->(3)He+gamma would
be
 favoured and suggests that it be given attention. See also Schwinger on this
 point.}
}
@article{Huan1989,
 author    = {Z. Huang},
 title     = {A possible explanation of the room temperature nuclear fusion},
 journal   = {J. Beijing Normal Univ.},
 volume    = {2},
 number    = {2},
 year      = {1989},
 pages     = {43--44},
 keywords  = {Discussion, res+},
 annote    = {The author puts forth an idea to explain how cold fusion can
 take place in the Pd lattice even though the available energies appear too
 low. He proposes the existence of a sublattice formed by the deuterons after
 a long loading period. The motion of an oscillating sublattice has soliton
 solutions, which could concentrate the energies of $10^4 \dots 10^6$
 particles on a few members. This has been dealt with theoretically and will
 be published elsewhere.}
}
@article{Ikey1989,
 author    = {M. Ikeya and H. Miyamaru},
 title     = {Chemical heat production of palladium electrode
electrolytically
              charged with deuterium and hydrogen},
 journal   = {Chem. Express.},
 volume    = {4},
 year      = {1989},
 pages     = {563--566},
 keywords  = {Experimental, Pd, electrolysis, decomposition, neutrons,
              tritium, res-},
 submitted = {07/1989},
 published = {09/1989},
 annote    = {D- or H-charged Pd-sputtered Pd plates, having been wiped in
air
 with acetone and then bent, heated up to 280 deg., presumably from the
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 reaction of D or H with the keto-group to give the alcohol. There were some
 neutrons apparently observed during electrolytic loading, but were due to
 water vapour.  No tritium was found. Cold fusion need not be invoked.}
}
@article{Irvi1989,
 author    = {J.~M. Irvine and S. Riley},
 title     = {Cold fusion doubts and controls},
 journal   = {Nature},
 volume    = {339},
 year      = {1989},
 pages     = {515},
 keywords  = {Discussion, cosmology, res-},
 published = {06/1989},
 annote    = {Using results from Big Bang cosmology theory, the authors work
 out that, to achieve the claimed excess heat, deuterium would need to be
 packed at $10^7$ mol/cm$^3$, and conclude the excess heat resides in the
 reports only.}
}
@article{Jack1989,
 author    = {J.~C. Jackson},
 title     = {Cold fusion results still unexplained.},
 journal   = {Nature},
 volume    = {339},
 year      = {1989},
 pages     = {345},
 keywords  = {Suggestion, chain reaction},
 published = {06/1989},
 annote    = {Proposes that the energy release is not due to fusion of
 deuterons but a chain reaction involving radiative capture, by Pd nuclei, of
 neutrons produced by photodisintegration of deuterons. Neutrons weakly bound
 to protons in d are transferred to Pd nuclei: n + (104)Pd --> (105)Pd +
 gamma.  The gammas will knock more neutrons off deuterons. Detailed maths
 will be needed but J suspects that the cross sections will bring the chain
 close to being self-sustaining. This scheme would explain the heat/neutron
 anomaly of FPH. J suggests electrochemical experiments with Be, which can
 also undergo photochemical reactions.}
}
@article{John1989,
 author    = {K.~H. Johnson and D.~P. Clougherty},
 title     = {Hydrogen-hydrogen/deuterium-deuterium bonding in palladium and
             the superconducting/electrochemical properties of PdHx/PdDx},
 journal   = {Mod. Phys. Lett. B},
 volume    = {3},
 year      = {1989},
 pages     = {795--803},
 keywords  = {Theory, superconductivity connection},
 submitted = {05/1989},
 published = {07/1989},
 annote    = {Propose a common quantum chemical origin of superconductivity
 and CNF, based on Jahn-Teller coupling. Calculations show that a fusion rate
 of up to $5 \times 10^{-24}$ fus/pair/s can be achieved, close to the Jones+
 levels. The effect can also explain the heat observed by FPH as a chemical
 phenomenon, not due to fusion.}
}
@article{Jone1989,
 author    = {S.~E. Jones and E.~P. Palmer and J.~B. Czirr and D.~L. Decker
             and G.~L. Jensen and J.~M. Thorne and S.~F. Taylor
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              and J. Rafelski},
 title     = {Observation of cold nuclear fusion in condensed matter},
 journal   = {Nature},
 volume    = {338},
 year      = {1989},
 pages     = {737--740},
 keywords  = {Experimental, electrolysis, Pd, Ti, neutrons, res+},
 submitted = {04/1989},
 published = {04/1989},
 annote    = {One of the two original articles that started it all. This one
 started with the thought that, since there is naturally occurring He(3) in
 the Earth, there may be cold fusion happening under geological
 conditions. The authors attempted therefore to reproduce, in the lab, those
 conditions most likely to lead to CNF. They used exotic soups to do it. The
 article is very unsensational; only neutrons were measured and the rate of
 CNF deduced from the measurements is only a small fraction of that claimed
by
 FPH.}
}
@article{Jorg1989,
 author    = {C.~K. J{\o}rgensen},
 title     = {Scenarios for nuclear fusion in palladium-deuterium alloys
              at ambient temperatures},
 journal   = {Chimia},
 volume    = {43},
 year      = {1989},
 pages     = {142--143},
 keywords  = {Discussion},
 submitted = {04/1989},
 published = {05/1989},
 annote    = {A hand-waving look, in the light of quantum mechanics, at
 possible cold fusion scenarios (i.e. explanations):
 1. if deuterons are to collide at all, it is most likely to occur at the
    octahedral sites in the PdD;
 2. lithium might be incorporated into the Pd, and the reaction Li+d->2(4)He
    might explain the neutron/heat imbalance;
 3. there may be weakly interacting heavy particles (WIMPs) involved; there
    are not likely to be any in the palladium, because of its recent chemical
    treatment, but the heavy water or the LiOD might introduce them, and
WIMPs
    might catalyse cold fusion.}
}
@article{Kain1989a,
 author    = {R.~C. Kainthla and O. Velev and L. Kaba and G.~H. Lin
              and N.~J.~C. Packham and M. Szklarczyk and J. Wass
              and J.~O.~M. Bockris},
 title     = {Sporadic observation of the Fleischmann-Pons heat effect},
 journal   = {Electrochim. Acta},
 volume    = {34},
 year      = {1989},
 pages     = {1315--1318},
 keywords  = {Experimental, res+},
 submitted = {06/1989},
 published = {09/1989},
 annote    = {3 out of 10 cells produced some excess heat, the other 7
 precisely what one expects from classical thermodynamics.}
}
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@article{Kain1989b,
 author    = {R.~C. Kainthla and M. Szklarczyk and L. Kaba and G.~H. Lin
              and O. Velev and N.~J.~C. Packham and J.~C. Wass
              and J.~O.~M. Bockris},
 title     = {Eight chemical explanations of the Fleischmann-Pons effect},
 journal   = {J. Hydrogen Energy},
 volume    = {14},
 year      = {1989},
 pages     = {771--775},
 keywords  = {Discusssion, res+},
 submitted = {06/1989},
 published = {11/1989},
 annote    = {(Once again, Hawkins is forgotten) An attempt to explain the
 results by conventional chemical means. Exposure of the top of the Pd
 electrode to the evolved D2/O2 mixture? This seems to reduce to the question
 of how fast the deuterium in the Pd can come out and burn with O2; an
assumed
 diffusion coefficient of D in PdDx of about $10^{-6}$ cm$^2$/s (a bit high
 maybe but all the better) shows that this can't produce enough heat. Neither
 can recombi- nation of D2 with O2 in the gas phase, nor at the immersed Pd
 surface. The alpha-beta PdDx transition will not - thermodynamically -
either
 (but how about transients?). Pd deuteride formation cannot produce the heat,
 up to loadings of 6. Pauling suggests redissociation into Pd and D2 but
this,
 too, cannot work - and in any case, the deuteride seems to be very
 stable. How about Li deposition? This would consume energy. Stress release,
 as the Pd expands? Not enough.
 So: none of these candidates pass the test, in the authors' opinion. One
 should mention that Kreysa proves the reverse. A weakness in this paper is
 that all calculated heats are assumed to be released over a 50-hour period
 and this does not allow short-term highs - although the argument about the
 diffusion limitation does answer this in part.}
}
@article{Kamm1989,
 author    = {G.~N. Kamm and A.~C. Ehrlich and D.~J. Gillespie
              and W.~J. Powers},
 title     = {Search for neutrons from a titanium-deuterium system},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {401--403},
 keywords  = {Experimental, Ti, gas phase, neutrons, res-},
 submitted = {07/1989},
 published = {11/1989},
 annote    = {Ti sponge was charged under high-pressure D2. The TiD was taken
 on thermal excursions between 77K and room temp. while monitoring for
 neutrons; no significant neutrons were found.}
}
@article{Karas1989,
 author    = {A.~I. Karasevskii and D.~V. Matyushov and A.~V. Gorodyskii},
 title     = {Possibility of the nuclear reaction between deuterium nuclei
              in electron shells of metal ions},
 journal   = {Ukr. Khim. Zh. (Russ. Ed.)},
 volume    = {55},
 year      = {1989},
 pages     = {1036--1039},
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 note      = {In Russian},
 keywords  = {Theory, res0},
 annote    = {Use the Thomas-Fermi statistical model to prove that DD fusion
 (to both T and He) can take place if the two D's meet within the electron
 shells of ions forming a metal. Highly localised electron clouds between
 deuterons are invoked. No definite conclusions appear to be given.}
}
@article{Kash1989,
 author    = {E. Kashy and W. Bauer and Y. Chen and A. Galonsky
              and J. Gaudiello and M. Maier and D.~J. Morrissey
              and R.~A. Pelak and M.~B. Tsang and J. Yurkon},
 title     = {Search for neutron emission from deuterium-loaded palladium},
 journal   = {Phys. Rev. C: Nucl. Phys.},
 volume    = {40},
 year      = {1989},
 pages     = {1--2},
 keywords  = {Experimental, neutrons, res-},
 submitted = {05/1989},
 published = {07/1989},
 annote    = {Neutrons and gammas < $10^{-6}$ FPH's levels, ie nothing.}
}
@article{Kedd1989,
 author    = {M. Keddam},
 title     = {Some comments on the calorimetric aspects of the
electrochemical
              'cold fusion' by M. Fleischmann and S. Pons},
 journal   = {Electrochim. Acta},
 volume    = {34},
 year      = {1989},
 pages     = {995--997},
 keywords  = {Critical comments, res-},
 submitted = {05/1989},
 published = {07/1989},
 annote    = {The author believes that there is a problem with the energy
 balance in the paper by F\&P-89. The total input power must be calculated
(at
 constant current) by integration of the voltage with time; the electrolyte
 resistance is not known to great accuracy; bubbles will affect
 this. Recombination and water evaporation are mentioned and, finally, that
 there should have been a control using light water. So, there is not
 sufficient accuracy to make the claims by F\&P reasonable.}
}
@article{Kond1989,
 author    = {J. Kondo},
 title     = {Cold fusion in metals},
 journal   = {J. Phys. Soc. Japan},
 volume    = {58},
 year      = {1989},
 pages     = {1869--1870},
 keywords  = {Theory, jellium model, res0},
 submitted = {04/1989},
 published = {06/1989},
 annote    = {Presents a simple electrons-in-jellium model for calculating
 fusion rates. Applying this to D2 and dd(mu), produces the known fusion
rates
 within an order of magnitude. He then applies the model to deuterons in
 metals, and arrives at a screening length (d-d distance) of 0.12 A which
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 gives a cold fusion rate of $10^{-30}$/pair/s; reducing the length to 0.064
 results in $10^{-19}$ as claimed by FPH. Kondo does not say why we should
 reduce it, though, and the 0.12 A is an order-of-magnitude result. Other
 workers have found 0.3 A to be enough. Kondo concludes that either rate is,
 in any case, not enough to cause appreciable heating effects.}
}
@article{Kont1989,
 author    = {D. K. Kontturi and H. Pajari and G. Sundholm
              and M.Lindstr{\"o}m},
 title     = {S{\"a}hk{\"o}kemiallisesti indusoitu fuusio
              (Electrochemically induced fusion)},
 journal   = {Kem.-Kemi},
 volume    = {16},
 year      = {1989},
 pages     = {610--612},
 note      = {In Finnish},
 keywords  = {Review, res0},
 annote    = {A short review, a few months after Mar-89, outlining some of
 the problems.  The conclusion is that the phenomenon probably exists but
 there is no proof as yet.}
}
@article{Koon1989,
 author    = {S.~E. Koonin and M. Nauenberg},
 title     = {Calculated fusion rates in isotopic hydrogen molecules},
 journal   = {Nature},
 volume    = {339},
 year      = {1989},
 pages     = {690--691},
 keywords  = {Theory, screening, res-},
 published = {06/1989},
 annote    = {Looks at the possibility that electrons, like muons, could
 catalyse fusion but concludes that they would need to be 5-10 times their
 mass.}
}
@article{Kosy1989,
 author    = {A.~A. Kosyakhkov and V.~S. Triletskii and V.~T. Cherepin
              and S.~M. Chichkan},
 title     = {Detection helium-3 and tritium formed during ion-plasma
              saturation of titanium with deuterium},
 journal   = {Soviet JETP},
 volume    = {49},
 year      = {1989},
 pages     = {744--747},
 keywords  = {Experimental, ion beam, Ti, helium, tritium, mass spec, res+},
 submitted = {05/1989},
 published = {06/1989},
 annote    = {They detected helium-3 and tritium, at a Ti target shot at with
 an ion beam of deuterium with an energy up to 9 keV. Mass spectroscopy was
 used for the detection. This humble commentator does not feel great
 confidence in the results, which consist of tiny pimples on the mass specs,
 at $\times 100$ magnification.}
}
@article{Kova1989,
 author    = {E.~P. Koval'chuk and O.~N. Romaniv and Yu.~A. Pazderskii
              and E.~M. Aksiment'eva and Yu.~I. Babei and A.~E. Koval'chuk},
 title     = {Electrochemically stimulated radiation by metals},
 journal   = {Fiz.-Khim. Mekh. Mater.},
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 volume    = {25},
 year      = {1989},
 pages     = {119--120},
 note      = {In Russian},
 keywords  = {Experimental, Ni, Fe, electrolysis, beta, res+},
 annote    = {Electrolysis of D2O at Ni and Fe; 20-40 events/sec were
observed
 with D2O, none with H2O. "Events" were apparently beta emissions, said to
 come from the reaction n --> e+e- (my strong guess is that they had no
 neutron detectors). No details are given as to background, etc.}
}
@article{Krey1989,
 author    = {G. Kreysa and G. Marx and W. Plieth},
 title     = {A critical analysis of electrochemical nuclear fusion
             experiments},
 journal   = {J. Electroanal. Chem.},
 volume    = {266},
 year      = {1989},
 pages     = {437--450},
 keywords  = {Discussion, res-},
 submitted = {04/1989},
 published = {07/1989},
 annote    = {A demolition job. }
}
@article{Kumar1989,
 author    = {N. Kumar},
 title     = {Cold fusion: is there a solid state effect?},
 journal   = {Curr. Sci.},
 volume    = {58},
 year      = {1989},
 pages     = {833--835},
 keywords  = {Discussion, suggestion},
 submitted = {07/1989},
 published = {08/1989},
 annote    = {Looks at the possibility of d-d pair fusion in metals and
 rejects it on theoretical grounds, but suggests a closer look at fracto-
work.}
}
@article{Kuss1989,
 author    = {H.~M. Kuss},
 title     = {Die elektrochemische Kernfusion bleibt unbewiesen!
             (Electrochemical nuclear fusion still unproven!)},
 journal   = {Chem. Labor Betr.},
 volume    = {40},
 year      = {1989},
 pages     = {353--358},
 note      = {In German},
 keywords  = {Review},
 annote    = {Critical review, inspired by the meeting of about 250 delegates
 at the Dechema Institute in Frankfurt, Germany, on May 18, 1989. The article
 sums up what has gone before this meeting, and quotes the summary by Prof.
 Vielstich:
 1. No measured neutron count so far lies clearly above the background;
 2. gamma measurements were not sufficiently well resolved to allow
    distinction from the (214)Bi natural radiation;
 3. tritium findings are within the range of impurities in D2O;
 4. no calorimetry has so far included recombination of D2 with O2.
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 Kreysa confirmed the heat criticism; can explain even the famous melting of
 the FPH electrode, by conventional means. Fractofusion is mentioned.}
}
@article{Kuzm1989,
 author    = {E. Kuzmann and M. Varsanyi and L. Korecz and A. Vertes
              and T. Masumoto and F. Deak and A. Kiss and L. Kiss},
 title     = {Investigation on the possibility of cold nuclear fusion
              in Fe-Zr amorphous alloy},
 journal   = {J. Radioanal. Nucl. Chem.},
 volume    = {137},
 year      = {1989},
 pages     = {243--250},
 keywords  = {Experimental, electrolysis, Fe-Zr alloy, neutrons, res-},
 submitted = {08/1989},
 published = {11/1989},
 annote    = {Used Moessbauer, neutron and gamma spectroscopy on Fe90Zr10
 amorphous ribbon, which has a high H-absorbing ability. The alloy was
 deuterated electrolytically in a solution of sulphuric acid and sodium
 sulphate in D2O.  Neutrons were detected by two independent detectors and
 noise was carefully excluded also for gamma detection. A loading of 1 D per
 metal atom was achieved. The background-corrected neutron spectrum
fluctuates
 around zero; Moessbauer results also have a non-nuclear explanation. The
 authors comment finally that the use of thin ribbon may have prevented cold
 fusion in this case.}
}
@article{Lam1989,
 author    = {P.~K. Lam and R. Yu},
 title     = {Comment on 'Cold fusion: How close can deuterium atoms get
              inside palladium?'},
 journal   = {Phys. Rev. Lett.},
 volume    = {63},
 year      = {1989},
 pages     = {1895.},
 keywords  = {Polemic},
 submitted = {05/1989},
 published = {10/1989},
 annote    = {A correction of the paper by Sun and Tomanek, in which a
 distance of 0.93 {\AA}ngstrom was calculated; Lam and Yu calculate something
 more like 1.7, varying a little with orientation. Thus it is even less
likely
 that fusion will occur, which Sun and Tomanek had already ruled out.}
}
@article{Lang1989a,
 author    = {K. Langanke and H.~J. Assenbaum and C. Rolfs},
 title     = {Screening corrections in cold deuterium fusion rates},
 journal   = {Z. Phys. A: At. Nucl.},
 volume    = {333},
 year      = {1989},
 pages     = {317--318},
 keywords  = {Theory, screening, res0},
 submitted = {04/1989},
 published = {07/1989},
 annote    = {Recalculation of expected fusion rates; screening of deuterons
 from each other by electrons increases the fusion rate by several orders of
 magnitude, depending on the effective mass of the electrons. About 5 or 8
 times, respec- tively, would make the results of Jones+ or FPH, resp.,
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 possible. This paper is similar to that of Koonin et al.}
}
@article{Lang1989b,
 author    = {K. Langanke},
 title     = {Potential of a deuterium molecule trapped in an external field
              of screened point charges with fcc-symmetry},
 journal   = {Mod. Phys. Lett. B},
 volume    = {3},
 year      = {1989},
 pages     = {1031--1038},
 keywords  = {Theory, screening, res-},
 submitted = {05/1989},
 published = {09/1989},
 annote    = {Calculated the potential between 2 d, within the Born-
Oppenheimer
 approximation, using the Monte-Carlo technique. No significant deviation
 was found from D2.}
}
@article{Lee1989,
 author    = {A.~R. Lee and T.~M. Kalotas},
 title     = {On the feasibility of cold fusion},
 journal   = {Nuovo Cimento Soc. Ital. Fis. A},
 volume    = {102},
 year      = {1989},
 pages     = {1177--1180},
 keywords  = {Theory, collective effects, res0},
 submitted = {06/1989},
 published = {10/1989},
 annote    = {Despite the journal, an Australian contribution. Estimation of
 fusion rates of deuterons trapped in Pd lattice, where deuterons oscillate,
 instead of - as in vacuum - moving around freely; this might change the
 fusion rate and collective effects must be considered. As in other
 theoretical studies, claimed cold fusion rates can be achieved by overcoming
 coulombic screening.  The authors suggest that this might happen by
 localisation of the electronic charges in the lattice, and do not dismiss
the
 possibility of cold fusion.}
}
@article{Legg1989a,
 author    = {A.~J. Leggett and G. Baym},
 title     = {Exact upper bounds on barrier penetration probabilities
              in many-body systems: application to 'cold fusion'},
 journal   = {Phys. Rev. Lett.},
 volume    = {63},
 year      = {1989},
 pages     = {191--194},
 keywords  = {Theory, tunnelling, res-},
 submitted = {05/1989},
 published = {07/1989},
 annote    = {The allowed rate of tunnelling of deuterons is far too small to
 be consistent with inferred rates of fusion. Calculations give an upper
limit
 for dd fusion of $2\times 10^{-31}$/cm$^3$, and $3\times 10^{-20}$/cm$^3$
for
 dp.}
}
@article{Legg1989b,
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 author    = {A.~J. Leggett and G. Baym},
 title     = {Can solid-state effects enhance the cold-fusion rate?},
 journal   = {Nature},
 volume    = {340},
 year      = {1989},
 pages     = {45--46},
 keywords  = {Theory, Born-Oppenheimer, res-},
 published = {07/1989},
 annote    = {Using the Born-Oppenheimer approach, these authors arrive at
the
 consequence that, if the d-d repulsion were somehow overcome, then alpha
 particles, too, would be tightly bound to the palladium; they are not, and
 this counts against cold fusion. An upper limit of $10^{-50}$/s/pair is
 calculated.}
}
@article{Lewi1989,
 author    = {N.~S. Lewis and C.~A. Barnes and M.~J. Heben and A. Kumar
             and S.~R. Lunt and G.~E. McManis and G.~M. Miskelly
             and R.~M. Penner and M.~J. Sailor and P.~G. Santangelo
             and G.~A. Shreve and B.~J. Tufts and M.~G. Youngquist
             and R.~W. Kavanagh and S.~E. Kellogg and R.~B. Vogelaar
             and T.~R. Wang and R. Kondrat and R. New},
 title     = {Searches for low-temperature nuclear fusion of deuterium
             in palladium},
 journal   = {Nature},
 volume    = {340},
 year      = {1989},
 pages     = {525--530},
 keywords  = {Experimental, various, res-},
 submitted = {05/1989},
 published = {08/1989},
 annote    = {Tried a variety of conditions. No excess heat, no radiation,
 T or He.}
}
@article{Lewin1989,
 author    = {J.~D. Lewins},
 title     = {The fusion trail goes cold},
 journal   = {Nucl. Eng. (Inst. Nucl. Eng.)},
 volume    = {30},
 year      = {1989},
 pages     = {181--182},
 keywords  = {Discusssion, no refs.},
 annote    = {Lewins looks at the phenomenon of CNF; it raised public
interest
 partly because here was a development by chemists in a physical area, and
 there was a press conference. Lewins seemed not to know about the FPH-89
 paper in J. Electroanal. Chem., only noting the abortive paper in Nature
 (which the authors withdrew). Lewins allows himself some sarcasm, and
 recounts the stories of N-rays and polywater, as well as the Paneth \&
Peters
 work of 1926 and ends with some philosophising about what science is.}
}
@article{Lind1989,
 author    = {D. Lindley},
 title     = {Does commercial pressure make for bad science?},
 journal   = {The World \& I,},
 year      = {1989},
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 number    = {November issue},
 pages     = {513--525},
 keywords  = {Comment},
 annote    = {DL examines the title question, in the light of claims by
 'cold fusion' workers that they cannot divulge information because of patent
 considerations.  Lindley shows that in the roughly contemporary case of high
 temperature superconductivity, "scientists filed for patents and got on with
 their work".  The difference, he concludes, is that HTSC is a proven
 phenomenon while CNF is not and is increasingly doubted by the majority.
 Commercial pressure, then, is not a barrier to good science.}
}
@article{Lips1989a,
 author    = {A.~G. Lipson and V.~A. Klyuev and B.~V. Deryagin
              and Yu.~P. Toporov and D.~M. Sakov},
 title     = {Anomalous beta activity of products of mechanical working
              of a titanium-deuterated material},
 journal   = {Sov. Tech. Phys. Lett.},
 note      = {Orig. in: Pis'ma Zh. Tekh. Fiz. 15 (1989) 88, in Russian},
 volume    = {15},
 number    = {10},
 year      = {1989},
 pages     = {783--784},
 keywords  = {Experimental, fracto, Ti, ball mill, tritium, res+,
              no FPH/Jones refs.},
 submitted = {08/1989},
 published = {10/1989},
 annote    = {The fractofusion team put Ti and D2O, as well as deuterated
 polypropylene into a ball mill and vibrated it at 50 Hz, amplitude 5 mm. As
a
 control, copper pieces were vibrated instead of Ti. Tritium was looked for
by
 its beta emission. After milling, the barrels were opened and samples
removed
 for analysis. The Ti samples showed more tritium (i.e. beta emission) than
 the controls.}
}
@article{Lips1989b,
 author    = {A.~G. Lipson and V.~A. Klyuev and Yu.~P. Toporov
              and B.~V. Deryagin and D.~M. Sakov},
 title     = {Deuterium-deuterium fusion initiation by friction in the
              system titanium-deuterated polymer},
 note      = {In Russian},
 journal   = {Pis'ma Zh. Tekh. Fiz.},
 volume    = {15},
 number    = {17},
 submitted = {06/1989},
 year      = {1989},
 pages     = {26--29},
 keywords  = {Experimental, Ti, fracto-, neutrons, res+},
 submitted = {06/1989},
 published = {09/1989},
 annote    = {Friction was applied to Ti in solutions of (C2D4)x polymers
 in D2O and observed a substantial excess of neutrons above the background,
 amounting to 0.3 events/s. This is similar to their earlier ball mill
paper.}
}
@article{Lips1989c,
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 author    = {A.~G. Lipson and A.~G. Sakov and V.~A. Klyuev
              and B.~V. Deryagin and Yu.~P. Toporov},
 title     = {Neutron emission during the mechanical treatment of titanium
              in the presence of deuterated substances},
 journal   = {JETP},
 volume    = {49},
 year      = {1989},
 pages     = {675--678},
 note      = {Orig. in: Pis'ma Zh. Eksp. Teor. Fiz. 49 (1989) 588, in
Russian},
 keywords  = {Experimental, Ti, vibromill, fracto-, neutrons, res+},
 submitted = {04/1989},
 published = {06/1989},
 annote    = {Vibrational dispersion of Ti shavings in 10\% D2O and/or 4-5\%
 (D3CD=CD2)x (i.e. low polymer) produced neutrons. Freezing increased the
 count but this decreased again later, confirming the micro-crack theory.
This
 paper seems to be very similar to their paper in Nature. The neutron rate
was
 0.3/s measured, or 5-6 times the background, or 10-30 n/s (presumably due to
 detector attenuation). There is no mention how Ti metal in contact with D2O
 should produce the deuteride.}
}
@article{Liu1989,
 author    = {F. Liu and B.~K. Rao and S.~N. Khanna and P. Jena},
 title     = {Nature of short range interaction between deuterium atoms
              in palladium},
 journal   = {Solid State Commun.},
 volume    = {72},
 year      = {1989},
 pages     = {891--894},
 keywords  = {Theory, res-},
 submitted = {05/1989},
 published = {12/1989},
 annote    = {How close can two deuteriums get in PdD(x)? Are there maybe
 other metal hydrides in which they can get closer and make CNF more likely
 and cheaper?  Both the Born-Oppenheimer approximation, and the Hartree-Fock
 method are used, and in all cases, nothing special which might favour cold
 fusion is found. As also found by others, the D-D distance in PdD(x) is
 greater than that in D2 gas.}
}
@article{Lo1989,
 author    = {S.~Y. Lo},
 title     = {Enhancement of nuclear fusion in a strongly coupled cold
plasma},
 journal   = {Mod. Phys. Lett. B},
 volume    = {3},
 year      = {1989},
 pages     = {1207--1211},
 keywords  = {Discussion, res+},
 submitted = {04/1989},
 annote    = {Conditions in a metal deuteride are those of dense coupled
 plasmas (coupled in the sense that the charges interact). Lo looks at the
 possibility of d-d fusion enhancement as a result of this environment and
 concludes that the observations of P\&F are feasible.}
}
@article{Lohr1989,
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 author    = {L.~L. Lohr},
 title     = {Electronic structure of palladium clusters: implications for
              cold fusion},
 journal   = {J. Phys. Chem.},
 volume    = {93},
 year      = {1989},
 pages     = {4697--4698},
 keywords  = {Theory, res-},
 submitted = {05/1989},
 published = {06/1989},
 annote    = {An ab initio calculation, saying "no" to CNF.}
}
@article{Lomo1989,
 author    = {O.~I. Lomovskii and A.~F. Eremin and V.~V. Boldyrev},
 title     = {Isotope heat effect in reactions with libreration of hydrogen
              on palladium catalytic particles},
 journal   = {Russ. Doklady},
 note      = {Orig. in: Dokl. Akad. Nauk SSSR Fiz. Khim. 309 (1989) 879,
              in Russian},
 volume    = {309},
 year      = {1989},
 pages     = {957--959},
 keywords  = {Discussion, res+},
 submitted = {04/1989},
 published = {12/1989},
 annote    = {Palladium is a catalyst for the oxidation of formaldehyde by
 Cu++ in an aqueous solution: 2CH2O + Cu++ --(Pd)-> Cu + H2 + 2HCOO- + 2H2O.
A
 mechanism for this reaction is proposed. The role of the Pd is the transport
 of electrons from site to site, to facilitate the intermediate
 reactions. When H2O was replaced by D2O, calorimetry showed some heat
effects
 that are not simply explained by the thermodynamics of the reaction, and may
 have connection with cold fusion.}
}
@article{Mari1989,
 author    = {M. Marinelli and G. Morpurgo and S. Vitale and G.~L. Olcese},
 title     = {Heat release from deuterated titanium-iron (TiFe) or
              lanthanum-nickel (LaNi5) on exposure to the air},
 journal   = {Nuovo Cimento Soc. Ital. Fis. A},
 volume    = {102},
 year      = {1989},
 pages     = {959--961},
 keywords  = {Experimental, alloy, La/Ni, heat, x-rays, res-},
 submitted = {07/1989},
 published = {09/1989},
 annote    = {The title compounds, heavily deuterated and in contact with Pd
 or Ni, sometimes become red hot on exposure to air. Thus, ignition (i.e.
 reoxidation of D by recombination with O2) may have caused the heat bursts
in
 PFH's PdD, presumed to have been partially exposed to the air.  While they
 were at it, the authors placed x-ray plates in the containers of the metals
 and pressurised D2; no x-rays were recorded.}
}
@article{Math1989,
 author    = {C.~K. Mathews and G. Periaswami and K.~C. Srinivas
              and T. Gnanasekaran and S.~R. Babu and C. Ramesh
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              and B. Thiyagarajan},
 title     = {On the possibility of nuclear fusion by the electrolysis
              of heavy water},
 journal   = {Indian J. Technol.},
 volume    = {27},
 year      = {1989},
 pages     = {229--231},
 keywords  = {Experimental, Pd, Ti, electrolysis, heat, neutrons, res+},
 submitted = {05/1989},
 published = {05/1989},
 annote    = {Using D2O, they get twice the excess heat they get with H2O.
 This excess heat is much more than would seem to correspond to the neutron
 flux. A bit of a rush job (actually a Rapid Communication) - they do neutron
 measurements with a Ti cathode, and heat with Pd. They more or less suggest
 that the reaction is D + D --> (4)He but instead of the usual gamma as the
 other product they suggest an excited state for the Pd lattice. How long can
 such excitement last? They promise to look for the He in future work.}
}
@article{Matsu1989,
 author    = {T. Matsumoto},
 title     = {'Nattoh' model for cold fusion},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {532--534},
 keywords  = {Theory, nattoh, res+},
 submitted = {08/1989},
 published = {12/1989},
 annote    = {A hypothetical model, the Nattoh model, is proposed to answer
 the questions that arise from cold fusion experiments. The model proposes
the
 formation of a small cluster of deuterons and examines the feasibility of
 many-body fusion reactions. The gamma radiation spectrum, heat production,
 neutron emission and fusion products are discussed.}
}
@article{Mazi1989a,
 author    = {R.~K. Mazitov},
 title     = {On the detection of cold nuclear fusion},
 journal   = {Koord. Khim.},
 volume    = {15},
 number    = {9},
 year      = {1989},
 pages     = {1294--1295},
 note      = {In Russian},
 keywords  = {Discussion, radiation detection, polemic},
 submitted = {05/1989},
 annote    = {Writing at about t = 2 months into the cold fusion affair,
 Mazitov makes three points about radiation detection:
 1. If there be fusion, there will be primary emissions (neutrons, gammas,
 protons and (3,4)He and T nuclei), as well as secondaries (the above plus
 beta particles) from the interaction of primaries with cell materials, such
 as the metal hydride itself. He calculates that a neutron peak can
reasonably
 be expected at about the energy Jones+(89) found, although with largish
 uncertainties.
 2. The radiation background level will often be very unstable, thus
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 confounding the measurements at these very low levels, due to radon, which
is
 everywhere.
 3. Past experiments, conducted in basements, may have had high radon levels
 and widely fluctuating background.  His prescription is to have exactly the
 same physical arrangement of the cell during background and cold fusion
 measurement; to ensure a stable atmosphere around the cell cum detector to
 ensure constant radon levels; to keep the cell physically constant
throughout
 the experiment (no dropping D2O level etc) to minimise changes in the
 interactions of primaries with the cell.}
}
@article{Mazi1989b,
 author    = {R.~K. Mazitov},
 title     = {Possibility of nuclear transformation in chemical reactions},
 journal   = {Dokl. Akad. Nauk. SSSR},
 volume    = {307},
 year      = {1989},
 pages     = {1158--1160},
 note      = {In Russian},
 keywords  = {Discussion},
 annote    = {Discusses conditions under which CNF might take place, such as
 close approach of two D's, changes in the electronic structure of the D,
 "heavy" electrons and interactions of the D with the environment. Suggests
 the use of alloys of rare earth metals and actinides, because heavy fermions
 would exist in these, and might facilitate cold fusion.}
}
@article{McCe1989,
 author    = {A.~J. McCevoy and C.~T.~D. O'Sullivan},
 title     = {Cold fusion: what's going on?},
 journal   = {Nature},
 volume    = {338},
 year      = {1989},
 pages     = {711--712},
 keywords  = {Discussion, suggestion},
 published = {04/1989},
 annote    = {Point out that muons can increase the fusion rate, and that
there
 may be muons in the cosmic radiation, especially at higher altitudes, e.g.
at
 Salt Lake City. They suggest more experiments on metal hydrides with muons.}
}
@article{Mebr1989,
 author    = {T. Mebrahtu and J.~F. Rodriguez and M.~E. Bothwell
              and I.~F. Cheng and D.~R. Lawson and J.~R. McBride
              and C.~R. Martin and M.~P. Soriaga},
 title     = {Observations on the surface composition of palladium cathodes
              after D2O electrolysis in LiOD solutions},
 journal   = {J. Electroanal. Chem.},
 volume    = {267},
 year      = {1989},
 pages     = {351--357},
 keywords  = {Experimental, electrolysis, Pd, Auger electron, surface, res0},
 submitted = {06/1989},
 published = {08/1989},
 annote    = {Focusses on the irreproducibility of CNF: might this be due to
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 surface states? Auger electron spectroscopy (AES) was used to look at
surface
 elements. Pure Pd itself had, besides Pd, the impurities S, C and O; heat
 treatment reduced but did not eliminate these, and added Si, presumably out
 of the metal bulk. After 7 days of electrolysis, AES no longer showed
 Pd. Impurities have evidently covered it completely. C, Si and O peaks are
 larger, S has vanished along with the Pd. This is useful information to all
 who think they purify their Pd by simple heating.}
}
@article{Min1989,
 author    = {D.~P. Min},
 title     = {Computation of the cold fusion rate},
 note      = {In Korean, Engl. abstr.},
 journal   = {Sae Mulli},
 volume    = {29},
 year      = {1989},
 pages     = {233--234},
 keywords  = {Calculation, theory, res0},
 submitted = {04/1989},
 published = {04/1989},
 annote    = {Compute the maximum expected fusion rate. It turns out
 comparable to that of the experimental "conjecture" as long as the deuteron
 may gain about 100 eV of kinetic energy in the Pd metal.}
}
@article{Mint1989,
 author    = {J.~W. Mintmire and B.~I. Dunlap and D.~W. Brenner
              and R.~C. Mowrey and H.~D. Ladouceur and P.~P. Schmidt
              and C.~T. White and W.~E. O'Grady},
 title     = {Chemical forces associated with deuterium confinement
              in palladium},
 journal   = {Phys. Lett. A},
 volume    = {138},
 year      = {1989},
 pages     = {51--54},
 keywords  = {Discussion, res-},
 submitted = {04/1989},
 published = {06/1989},
 annote    = {Evidence is that D-D distance in PdD(x) is larger than in D2
gas,
 repulsion greater than even in solid H at 4K. So: no go! This is one of
 several papers that try to judge the likelihood of CNF by looking simply at
 D-D interaction in the PdD(x) lattice, as if the only role of Pd is that of
 squeezing D's together (which FPH try to suggest with their figure of
 $10^{26}$ atm chemical potential). Pd evidently does not do this, the 0.3 A
 required for claimed fusion rates cannot be attained.}
}
@article{Misk1989,
 author    = {G.~M. Miskelly and M.~J. Heben and A. Kumar and R.~M. Penner
              and M.~J. Sailor and N.~S. Lewis},
 title     = {Analysis of the published calorimetric evidence for
              electrochemical fusion of deuterium in palladium},
 journal   = {Science},
 volume    = {246},
 year      = {1989},
 pages     = {793--796},
 keywords  = {Analysis, res-},
 submitted = {06/1989},
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 published = {11/1989},
 annote    = {Critical analysis of published data and report of their own
 results.  The authors point to some error sources, and conclude that all can
 be accounted for without invoking CNF.}
}
@article{Mizu1989,
 author    = {T. Mizuno and T. Akimoto and N. Sato},
 title     = {Neutron evolution from annealed palladium cathode
              in LiOD-D2O solution},
 journal   = {Denki Kagaku},
 volume    = {57},
 year      = {1989},
 pages     = {742--743},
 keywords  = {Experimental, electrolysis, Pd, neutrons, res+},
 submitted = {06/1989},
 published = {07/1989},
 annote    = {Observed a neutron flux peak at about 2.5 MeV, using annealed
Pd.
 The neutron rate converts to about $10^{-23}$ fusions/s. A single NE213
 n-detector with rise-time gamma discrimination was used, and lead shielding.
 There was a definite peak at 2.5 MeV during electrolysis, but not later,
when
 electrolysis was "ceased".}
}
@article{Morr1989,
 author    = {D. Morrison},
 title     = {A view from CERN},
 journal   = {Physics World},
 volume    = {2},
 year      = {1989},
 pages     = {17.},
 keywords  = {Discussion, early announcement},
 published = {05/1989},
 annote    = {There were some seminars at CERN in the early days of cold
 fusion, with Jones and Fleischmann attending. DM reports. Mentions, among
 other things, that although the d-d distance in a metal lattice is greater
 than that in D2 gas (0.74 A), it is still possible that during
 electrochemical charging, they move closer together. He suggests experiments
 with other metals such as V or Nb.}
}
@article{Muel1989,
 author    = {D. Mueller and L.~R. Grisham},
 title     = {Nuclear reactions products that would appear if substantial
              cold fusion occurred},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {379--382},
 keywords  = {Discussion, res-},
 submitted = {06/1989},
 published = {11/1989},
 annote    = {Lists a large number of possible nuclear reaction that might be
 occurring in the PdD(x) phase but none agrees with the heat claimed by PFH.
 Any energy output must be accompanied by nuclear reaction products, of the
 order of $10^{13}$/s. The elementary property of the alpha-particle at the
 d+d threshold is that it decays into 3He or T (the old branching ratio
 question).}
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}
@article{Norde1989,
 author    = {D.~J.~R. Nordemann},
 title     = {Cold fusion and geophysics: the current situation},
 journal   = {Mineracao Metalurgia},
 volume    = {53},
 year      = {1989},
 pages     = {51.},
 note      = {In Portuguese},
 keywords  = {Review, suggestion},
 annote    = {A wrap-up of the cold fusion story at the time of writing,
 around the middle of 1989, commenting on the FPH paper and that of Cribier+
 only. The usual interest and doubt is expressed, as well as an explanation
of
 the suspect fusion reactions. Nordemann goes further, however, and takes up
a
 suggestion of Cribier et al, that the neutrons may arise from collisions
 between alpha particles and deuterium; the alphas could come from natural
 heavy isotopes (U, Th, Rn) present in the palladium as impurities. Nordemann
 looks at Rn, one of whose decay products is (214)Po, which decays to give
off
 an alpha particle with an energy of 7.68 MeV, sufficient to cause the
 reaction D + (4)He --> H + n + (4)He; i.e. the alpha or (4)He is not itself
 changed.  Nordemann suggests that Pd may accumulate radon gas in sufficient
 quantity to let this happen. Radon is ubiquitous, being a product of uranium
 decay, and U is everywhere. The process could explain the erratic results
 obtained by various researchers, and Nordemann ironically suggests that some
 workers, who state that heat pretreatment of the palladium is to be avoided,
 do so in order not to drive out the radon... He concludes, however, with the
 thought that the subject is still important, and if a fusion reaction is
 indeed behind the positive results, this could have implications not only
for
 our energy future but also for geophysical phenomena such as vulcanism,
 seismic activity and continental origin. SE Jones would agree.}
}
@article{Nordl1989,
 author    = {P. Nordlander and J.~K. N{\o}rskov and F. Besenbacher
             and S.~M. Myers},
 title     = {Multiple deuterium occupancy of vacancies in Pd and related
             metals},
 journal   = {Phys. Rev. B},
 volume    = {40},
 year      = {1989},
 pages     = {1990--1992},
 keywords  = {Discussion, theory, res-},
 submitted = {04/1989},
 published = {07/1989},
 annote    = {If cold fusion happens, then there should appear charged
 particles and neutrons, and these might cause crystal vacancies in the
metal,
 leading to nucleation of dense D plasmas. The team use their "effective
 medium" theory to calculate energies of vacancy trapping for various
 transition metals. In Mo, Cu, Ni and Fe there is strong D-D repulsion, while
 it is weak in Nb and Pd.  D-D spacing in Pd is down to 3.5 au, closer than
 the 5.2 au of octahedral occupancy - but not enough for cold fusion.}
}
@article{Ohas1989,
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 author    = {H. Ohashi and T. Morozumi},
 title     = {Decoding of thermal data in Fleischmann and Pons paper},
 journal   = {J. Nucl. Sci. Technol.},
 volume    = {26},
 year      = {1989},
 pages     = {729--732},
 keywords  = {Analysis, res-},
 submitted = {06/1989},
 published = {07/1989},
 annote    = {As Kreysa (1989) did, the authors take a close look at FPH's
 heat analysis and find it wanting - as well as their experiment. The
 possibilities of recombination, or burning of palladium deuteride all could
 explain the large excess heats claimed. So recombination should be prevented
 in future experiments, and there should be some signs of nuclear reactions,
 to convince the world that a nuclear reaction is taking place. Some of these
 points appear now to be answered by the FPH-90 paper.}
}
@article{Ohms1989,
 author    = {D. Ohms and D. Rahner and K. Wiesener},
 title     = {Kernfusion in einer Elektrolysezelle?
             (Nuclear fusion in an electrolysis cell?)},
 journal   = {Mitteilungsblatt - Chem. Ges. DDR},
 volume    = {36},
 year      = {1989},
 pages     = {151--153},
 note      = {In German},
 keywords  = {Review, experimental, electrolysis, Pd, calorimetry, neutrons,
              res0},
 annote    = {Review with 6 references. The early work of Paneth \& Peters is
 mentioned.  They then examine critically the calorimetry of F\&P, naming
 local pH changes, evaporation, gas evolution and heats of loading into the
 Pd, as error sources, as well as recombination. The D{\"o}bereiner cigarette
 lighter gets a mention.  The authors also did their own experiment, an
 electrolysis both with heavy and light water, measuring the heat balance and
 neutrons. No excess heat was found, nor neutrons above the noise level,
 setting the upper limit of the fusion rate about 4 orders of magnitude below
 that claimed by F\&P.}
}
@article{Ohta1989,
 author    = {T. Ohta},
 title     = {Is cold fusion possible? A proposal of the concept
              of "surfusion"},
 journal   = {Hyomen Kagaku},
 volume    = {10},
 number    = {11},
 year      = {1989},
 pages     = {896--900},
 note      = {In Japanese},
 keywords  = {Review},
 submitted = {08/1989},
 published = {11/1989},
 annote    = {A review with 6 references, mentioning the history (so far),
 neutrons, fusion in the lattice, explaining fractofusion and "surfusion",
 considered to be the result of the deformed potential field at the
 electrode/electrolyte interface.  Finally, a "triode" for surfusion is
 proposed.}
}
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@article{Oka1989a,
 author    = {Y. Oka and S. Koshizuka and S. Kondo},
 title     = {Electrochemically induced deuterium-tritium fusion power
reactor
              - preliminary design of a reactor system.},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {260--262},
 keywords  = {Design, instrumental},
 submitted = {04/1989},
 published = {09/1989},
 annote    = {Conceptual design, using a double-tube cell to maximise
 electrode area.}
}
@article{Oka1989b,
 author    = {Y. Oka and S. Koshizuka and S. Kondo},
 title     = {D2O-fueled fusion power reactor using electrochemically induced
              deuterium-deuterium D-Dn, D-Dp and deuterium-tritium reactions
               - preliminary design of a reactor system},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {263--267},
 keywords  = {Design, CNF reactor},
 submitted = {04/1989},
 published = {09/1989},
 annote    = {A 1000 MW reactor design is presented.}
}
@article{Pack1989,
 author    = {N.~J.~C. Packham and K.~L. Wolf and J.~C. Wass
              and R.~C. Kainthla and J.~O.~M. Bockris},
 title     = {Production of tritium from D2O electrolysis at
              a palladium cathode},
 journal   = {J. Electroanal. Chem.},
 volume    = {270},
 year      = {1989},
 pages     = {451--458},
 keywords  = {Experimental, electrolysis, Pd, tritium, neutrons, res+},
 submitted = {08/1989},
 published = {10/1989},
 annote    = {State that emission of nuclear particles would be better
 evidence of cold fusion that heat. They find tritium but no neutrons.}
}
@article{Park1989,
 author    = {Y.~W. Park and C.~O. Yoon and M.~Y. Yoon and J.~C. Kim},
 title     = {The observation of 2.2 MeV gamma-rays in an electrochemical
              cell},
 journal   = {Sae Mulli},
 volume    = {29},
 year      = {1989},
 pages     = {231--232},
 note      = {In Korean},
 keywords  = {Experimental, electrolysis, Pd, Ti, neutrons, gammas, res0},
 annote    = {Repeated the CNF experiment, electrolysing at Pd (30 x 30 x 1
mm
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 plate) and Ti (8mm long 4mm rod), measuring neutrons and a gamma spectrum.
11
 neutrons were counted in 2 hours, and the gamma spectrum had a peak at 2.2
 MeV, just like PFH-89.  More work is needed to show that these results come
 from a fusion reaction.}
}
@article{Parm1989,
 author    = {R.~H. Parmenter and W. E. {Lamb Jr}},
 title     = {Cold fusion in metals},
 journal   = {Proc. Natl. Acad. Sci. USA},
 volume    = {86},
 year      = {1989},
 pages     = {8614--8616},
 keywords  = {Theory, res-},
 submitted = {07/1989},
 published = {11/1989},
 annote    = {The jellium model of a metal containing deuterons is
considered,
 including the Pd example. The Thomas-Fermi method, and the WBK
 (Wentzel-Brillouin- -Kramers) approximation lead to a fusion rate first of
 $10^{-33}$/s; then, after a few arguments about conduction electrons and the
 double-positive charge of a deuteron pair, to $10^{-30}$/s, in agreement
with
 Kondo, who also used the jellium model. This is still 6-7 orders of
magnitude
 lower than reported by Jones+ but closer than the D2 rate of $10^{-100}$ or
 so. There is some discussion of the possible reasons for the disagreement
 with the result of Legget and Baym ($10^{-47}$/s), involving the
 approximations used.}
}
@article{Parmi1989,
 author    = {F. Parmigiani and P.~G. Sona},
 title     = {Theoretical considerations on the cold nuclear fusion
             in condensed matter},
 journal   = {Nuovo Cimento Soc. Ital. Fis. D},
 volume    = {11},
 year      = {1989},
 pages     = {913--919},
 keywords  = {Discussion},
 submitted = {04/1989},
 published = {06/1989},
 annote    = {If $x > 1$ in PdD(x), pseudomesic D-molecule groups might form,
 giving rise to heavy electrons (up to 20 times normal) and enhanced fusion
is
 then possible. The authors admit that this is not highly likely.}
}
@article{Paul1989,
 author    = {L. Pauling},
 title     = {Explanations of cold fusion},
 journal   = {Nature},
 volume    = {339},
 year      = {1989},
 pages     = {105.},
 keywords  = {Discussion, suggestion},
 published = {05/1989},
 annote    = {Based on his own work going right back to 1938, Pauling
 suggests that higher deuteride, probably PdD2, is formed due to electrolysis
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 pressure of D, and that this decomposes during the later stages of
 electrolysis, giving off heat - and possibly causing the melt-down FPH
 reported. He also suggests that PdD2 is more stable than PdH2, and PdT3 even
 more so.}
}
@article{Perf1989,
 author    = {P. Perfetti and F. Cilloco and R. Felici and M. Capozi
              and A. Ippoliti},
 title     = {Neutron emission under particular nonequilibrium conditions
from
              palladium and titanium electrolytically charged with
deuterium},
 journal   = {Nuovo Cimento Soc. Ital. Fis. D},
 volume    = {11},
 year      = {1989},
 pages     = {921--926},
 keywords  = {Experimental, electrolysis, Pd, Ti, neutrons, res+},
 published = {06/1989},
 annote    = {Report neutron emission. Used electrolysis. Speculate that it
 might be nonequilibrium conditions that induce fusion, perhaps the
transition
 from the alpha- to the beta phase of PdD. To test this, they warmed up the
 D-charged Pd wire by passing 10A through it for 1 min. It warmed up to
 somewhere around 100 degC. Every time, neutrons were observed with a time
 delay of about 2 min. The same happened with Ti wire.}
}
@article{Pero1989,
 author    = {P. Peroni},
 title     = {Cold fusion: what's going on?},
 journal   = {Nature},
 volume    = {338},
 year      = {1989},
 pages     = {711.},
 keywords  = {Polemic},
 published = {04/1989},
 annote    = {One of several Letters commenting on the then fresh cold fusion
 news. Peroni states that, according to Oppenheimer \& Phillips (1935),
 low-energy dd fusion might not lead to the expected neutrons, since these
may
 be captured, so only protons would be emitted. Thus, the low neutron flux
 observed is consistent with expectations. Note that the Letter is signed
 "Peroni Paolo", but I am informed that this is the formal Italian way of
 presenting a name, second name first.}
}
@article{Pete1989,
 author    = {P. Petelenz},
 title     = {Hypothetical D-D bound states in solid palladium},
 journal   = {Acta Phys. Polon. A},
 volume    = {75},
 year      = {1989},
 pages     = {929--933},
 keywords  = {Theory. res0},
 submitted = {04/1989},
 published = {06/1989},
 annote    = {In theory, CNF might go if only D-D pairs are held close enough
 for long enough. But analysis shows they are even further apart than in D2
 gas. But P. speculates that double-positive Schottky vacancies exist in the
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 Pd crystal lattice, attracting deuterons, so that possibly two of them can
 move in together and be close enough for CNF. Maybe.}
}
@article{Petr1989,
 author    = {C. Petrillo and F. Sacchetti},
 title     = {A possible mechanism for bulk cold fusion in
              transition metal hydrides},
 journal   = {Europhys. Lett.},
 volume    = {10},
 year      = {1989},
 pages     = {15--18},
 keywords  = {Discussion, suggestion},
 submitted = {05/1989},
 published = {09/1989},
 annote    = {Fusion rates can be enhanced by extra energy coming from the
 alpha-beta transition observed in such other hydrides as those of Nb and
Ta.}
}
@article{Petr1989a,
 author    = {R.~D. Petrasso and X. Chen and K.~W. Wenzel and R.~R. Parker
              and C.~K. Li and C. Fiore},
 title     = {Problems with the gamma-ray spectrum in the Fleischmann et al
              experiments},
 journal   = {Nature},
 volume    = {339},
 year      = {1989},
 pages     = {183--185},
 keywords  = {Polemic},
 published = {05/1989},
 annote    = {The authors were about the first to point out that that famous
 spectrum was unlikely. FPH show a peak at 2.22 MeV and attribute it to the
 fusion reaction n + d --> d + gamma. Petrasso+ here point out that it not
 only has the wrong shape (it should be wider) but lacks the proximity of the
 Compton effect, which should be distorting the peak.}
}
@article{Petr1989b,
 author    = {R.~D. Petrasso and X. Chen and K.~W. Wenzel and R.~R. Parker
              and C.~K. Li and C. Fiore},
 title     = {Measurement of gamma-ray from cold fusion},
 journal   = {Nature},
 volume    = {339},
 year      = {1989},
 pages     = {667--669},
 keywords  = {Polemic},
 published = {06/1989},
 annote    = {Answer to FPH's answer to Petrasso+'s polemic in Nature 339
 (1989) 183.  They correctly point out that FPH originally did attribute
their
 (incorrect) 2.22 MeV peak to the nuclear reaction.}
}
@article{Pica1989,
 author    = {L.~E. Picasso},
 title     = {Fusione: Fredda o calda? (Fusion; cold or hot?)},
 journal   = {Accaio Inoss.},
 volume    = {56},
 number    = {2},
 year      = {1989},
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 pages     = {5},
 note      = {In Italian},
 keywords  = {Discussion, no refs.},
 annote    = {Early short review in "Stainless Steel" journal. Conventional
 fusion is discussed, then muon fusion, and cold. After a brief period, with
 some dozens of apparent verifications around the world, we are now (probably
 middle 1989) in a period of doubt and reassessment.}
}
@article{Pori1989,
 author    = {N. Porile},
 title     = {Cold fusion as the subject of a final exam in honors
             general chemistry},
 journal   = {J. Chem. Educ.},
 volume    = {66},
 year      = {1989},
 pages     = {932--933},
 keywords  = {Discussion, exam question},
 annote    = {Told to prepare for electrochemistry, crystal structure and
 nuclear chemistry, students at Purdue University were given an exam with
cold
 nuclear fusion as the topic, then just become public. The questions were a
 thorough going-over of the subject; in fact, many researchers might benefit
 by asking themselves just these questions.}
}
@article{Prel1989,
 author    = {M.~A. Prelas},
 title     = {Advanced energy conversion methods for cold fusion},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {240--242},
 keywords  = {Discussion, use of cold fusion},
 submitted = {05/1989},
 published = {09/1989},
 annote    = {Discusses several possibilities for how to produce energy from
 cold fusion, if this proves a real phenomenon. The basis of these
 speculations is that cold fusion might give off charged particles which can
 be made to produce photons.  The article develops various themes for how to
 use these in practice, including the production of chemicals by
irradiation.}
}
@article{Prem1989,
 author    = {F. Premuda},
 title     = {Cold fusion: what's going on?},
 journal   = {Nature},
 volume    = {338},
 year      = {1989},
 pages     = {712.},
 keywords  = {Discussion, suggestion},
 published = {04/1989},
 annote    = {Suggests a way to explain the paradox of so much heat and so
 little radiation as observed by FPH. He hypothesises that there are regions
 in the Pd where the density of deuterons is high, allowing fusion. The
 particles produced there will not escape the high-density regions, having a
 very small mean free path within these regions. So you get a lot of heat but
 little particle radiation.}
}
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@article{Pric1989,
 author    = {P.~B. Price and S.~W. Barwick and W.~T. Williams
              and J.~D. Porter},
 title     = {Search for energetic-charged-particle emission from deuterated
              Ti and Pd foils},
 journal   = {Phys. Rev. Lett.},
 volume    = {63},
 year      = {1989},
 pages     = {1926--1929},
 keywords  = {Experimental, Pd, Ti, gas phase, cps, res-},
 submitted = {07/1989},
 published = {10/1989},
 annote    = {Pd and Ti foils of 0.23 mm thickness were cleaned in aqua regia
 and exposed to D2 at 1 bar, 550 degC for 3 hours. This should be enough,
 given the diffusion coefficients of D in the metals, to load them fully.
 Careful monitoring of particle emissions showed nothing.}
}
@article{Rabi1989,
 author    = {M. Rabinowitz},
 title     = {A theoretical framework for cold fusion mechanisms},
 journal   = {EPRI J.},
 note      = {Reprinted in IEEE Power Eng. Rev., (Nov-89) 8--10},
 number    = {Jul/Aug},
 year      = {1989},
 pages     = {42--44},
 keywords  = {Discussion},
 published = {07/1989},
 annote    = {The four essential ingredients for sustained controlled nuclear
 fusion are tunnelling probability, collision frequency, fusion probability
 and sustaining the reaction. These factors are examined. Tunnelling can be
 enhanced in a metal deuteride matrix; collision frequencies can be higher by
 many orders of magnitude in such a lattice, than outside it, due to
decreased
 degrees of freedom (particles confined to two dimensions, or even one). R
 does some calculations and concludes that cold fusion rates such as reported
 are within the realms of theory.}
}
@article{Ragh1989,
 author    = {M. Ragheb and G.~H. Miley},
 title     = {On the possibility of deuteron disintegration in
              electrochemically compressed deuterium ion (D+)
              in a palladium cathode},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {243--247},
 keywords  = {Theory, OP},
 submitted = {04/1989},
 published = {09/1989},
 annote    = {Invoke the Oppenheimer-Phillips theory of 1935 to explain that
 deuterium compression in Pd can lead to cold fusion, or what they call
 deuteron disintegration, in collision with another deuteron, palladium,
 lithium or other nuclei. They say that the process is characterised by the
 deuteron's disintegration and may even be called fission rather than
 fusion. Such a process would explain the production of tritium and no
helium,
 of PFH, i.e the anomalous branching ratio. Other nuclei than deuterons might
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 be doing a similar thing, like (9)Be.}
}
@article{Raja1989,
 author    = {S.~R. Rajagopalan},
 title     = {Cold fusion produces more tritium than neutrons},
 journal   = {Curr. Sci.},
 volume    = {58},
 year      = {1989},
 pages     = {1059--1062},
 keywords  = {Discussion},
 published = {10/1989},
 annote    = {Comments on the BARC cold fusion measurements of Iyengar and
 others. In many of these, neutrons were found, up to about $10^6$/s, coming
 in bursts.  Tritium was also carefully monitored, taking account of
 enrichment effects.  Tritium was observed beyond these effects, at much
 higher levels than the neutron flux. This seems to support the assumption of
 an aneutronic process taking place. BARC experiments with Ti also showed
 neutrons and tritium, which was found to be localised in hot spots in the
Ti.
 Rajagopalan suggests that the FPH results can be explained without invoking
 an unknown nuclear reaction. He claims that "it is now known" that in metal
 lattices, the branching ratio for dd fusion favours tritium production by a
 factor of $10^8$ over that for neutrons. So $10^4$ neutrons should be
 accompanied by $10^{12}$ tritium atoms. Calculation of the heat expected
from
 FPH's electrodes then gets within about 50\% of FPH's results, not bad when
 taking into account gas emission and fusion rate fluctuations. Thus the
 reaction giving (4)He need not be invoked. Rajagopalan states that papers
 should provide more details of electrode size and conditions, and tritium as
 well as He analysis is essential. R concludes with a rudimentary theory of
 what is happening, being either crack formation and fractofusion, or the
 transmutation of the metal (Pd or Ti) by neutrons (see Jackson, Nature 339
 (1989) 345).}
}
@article{Rand1989,
 author    = {J. {Rand McNally Jr.}},
 title     = {On the possibility of a nuclear mass-energy resonance in
              deuterium + deuterium reactions at low energy},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {237--239},
 keywords  = {Discussion, theory, res+},
 submitted = {04/1989},
 published = {09/1989},
 annote    = {Previously published work by the same author, 1985, is invoked
to
 possibly explain cold fusion; i.e. mass-energy resonance.}
}
@article{Rang1989,
 author    = {S.~K. Rangarajan},
 title     = {Electrochemically induced cold fusion? A commentary},
 journal   = {Curr. Sci.},
 volume    = {58},
 year      = {1989},
 pages     = {598--599},
 keywords  = {Discussion},
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 published = {06/1989},
 annote    = {One of the foremost electrochemists names some problems that
require settling:
1. the mechanism of H+/D+ reduction at the electrode; does this perhaps
change with current density, is there perhaps trace metal codeposition,
different at different cd's, with possible effects on absorption of H/D?
2. The design of the experiments, e.g. should current or potential be
controlled? This relates to the dimensionality effects suspected by some
(but debunked by Williams et al) and the role of lattice defects and grain
boundaries.
3. The part played by the Pd lattice itself. E.g. the possibility of locally
high effective  electronic density and the cross-section for radiation
(possibly) generated.
R. suggests that the "cold rush" - even if it turns out hopeless - will be
remembered for the hope it engendered while it lasted.}
}
@article{Ratk1989,
 author    = {S.~K. Ratkje and B. Hafskjold},
 title     = {Local heat effects by electrolysis of heavy water},
 journal   = {J. Electroanal. Chem.},
 volume    = {273},
 year      = {1989},
 pages     = {269--273},
 keywords  = {Analysis, excess heat},
 submitted = {06/1989},
 published = {11/1989},
 annote    = {An analysis in principle of heat effects, separately for the
two
 electrodes. Involved thermodynamics of the partial reactions, the electro-
 chemical Peltier effect, as well as Joule heating were considered. The
 conclusion is that there should be cooling at both electrodes and that no
 conclusions about the bulk nature of any phenomenon can be drawn from point
 heat measurements in the cell. This analysis does not take into account the
 fact that in FPH's cell, there was undoubtedly partial recombination of the
 electrochemically generated deuterium and oxygen and the probably bursty
 nature of such a reaction in the cell.}
}
@article{Rich1989,
 author    = {P.~M. Richards},
 title     = {Molecular-dynamics investigation of deuteron separation
              in PdD1.1},
 journal   = {Phys. Rev. B},
 volume    = {40},
 year      = {1989},
 pages     = {7966--7968},
 keywords  = {Theory, loading, res-},
 submitted = {04/1989},
 published = {10/1989},
 annote    = {How close can two D+'s get? Although electrolysis or D2 gas
 under pressure won't get us higher than PdD, ion implantation can go to
 PdD1.2.  A loading of 1.1 was assumed in a MD simulation and nothing closer
 than 0.8 {\AA}ngstroms was found - not good enough, no CNF.}
}
@article{Roes1989,
 author    = {O.~E. R{\"o}ssler and J. Becker and M. Hoffmann and W. Nadler},
 title     = {Fermi gas like hypothesis for Fleischmann-Pons experiments.},
 journal   = {Z. Naturforsch. A},
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 volume    = {44},
 year      = {1989},
 pages     = {329},
 keywords  = {Theory, suggestion},
 submitted = {04/1989},
 published = {04/1989},
 annote    = {Pauli repulsion, which is stronger than Coulomb repulsion, is
 absent in a gas of bosons. Coulomb repulsion is absent in a gas of fermions
 whose two Fermi seas are at a low relative temperature. To explain
 Fleischmann-Pons (1989) cold fusion, it would suffice to assume that the
 deuterium nuclei dissolved in the palladium crystal, which are spin-1
bosons,
 nevertheless show an absence of Coulomb repulsion the Fermi (1957) way. This
 can be achieved by postulating that the bosons are delocalised in the Bloch
 fashion (1985), and that at the same time the properties of a cold Fermi gas
 apply to the constituent fermions (the protons and neutrons) that make up
 these composite bosons. A testable implication is submitted: by applying a
 strong magnetic field in conjunction with an RF source (NMR technique), it
 would be possible to align the spins of the bosons. Hereby these composite
 bosons will become 'doubly polarised' (1988) since both subspins are
 equal. This would suddenly introduce Pauli repulsion amongst all the
 constituent subparticles, the protons and neutrons. The cold fusion should
 therefore come to a virtual stop immediately.}
}
@article{Roge1989a,
 author    = {V.~C. Rogers and G.~M. Sandquist},
 title     = {Isotopic hydrogen fusion in metals},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {254--259},
 keywords  = {Experimental, Pd, electrolysis, neutrons, res0},
 submitted = {04/1989},
 published = {09/1989},
 annote    = {Did an electrolysis experiment, found neutrons at 2.45 MeV,
 but this cannot account for heat found by others. Discuss branching ratios
 and the possibility of unknown chemical or nuclear reactions.}
}
@article{Roge1989b,
 author    = {V.~C. Rogers and G.~M. Sandquist and K.~K. Nielson},
 title     = {Deuterium concentration and cold fusion rate distributions
              in palladium},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {523--525},
 keywords  = {Discussion, suggestions},
 submitted = {08/1989},
 published = {12/1989},
 annote    = {Addresses several interesting problems, such as the conditions
 under which cold fusion might happen; how we might get T/He branching ratio
 other than 1 (the T might react with deuterons and thus never appear); other
 possible nuclear reactions; possible chemical reactions to explain the
 effects (they conclude there aren't any); and suggest that the palladium
 should be cast and not mechanically worked in order to prevent grain
defects,
 to which deuterons might migrate and become D2.}
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}
@article{Rose1989,
 author    = {G. Rosen},
 title     = {Deuterium nuclear fusion at room temperature: a pertinent
             inequality on barrier penetration},
 journal   = {J. Chem. Phys.},
 volume    = {91},
 year      = {1989},
 pages     = {4415--4416},
 keywords  = {Theory, res+},
 submitted = {05/1989},
 published = {10/1989},
 annote    = {Theoretical work: the WKB barrier penetration formula is used
 to see whether fusion might be enhanced by the D2 (or D2+) being caged in
 holes in a metallic lattice. Due to an increase in the associated potential
 energy up to 10eV for linear molecular vibrations in the lattice - as
opposed
 to vacuum - fusion rates up to $10^{-20}$/pair/s or so, are allowed, says
 Rosen.}
}
@article{Ross1989,
 author    = {K. Ross and S. Bennington},
 title     = {Solid state fusion (?)},
 journal   = {Physics World},
 volume    = {2},
 year      = {1989},
 pages     = {15--16},
 keywords  = {Discussion},
 published = {05/1989},
 annote    = {General, good description of the hot reports on cnf, and
 discussion of the problems these raise.}
}
@article{Ruso1989,
 author    = {V.~D. Rusov and T.~N. Zelentsova and M.~Yu. Semenov
             and I.~V. Radin and Yu.~F. Babikova},
 title     = {Fast neutron recording by dielectric track detectors in a
             palladium-deuterated -tritiated water system in an electrolytic
             cell},
 journal   = {Pis'ma Zh. Tekh. Fiz.},
 volume    = {15},
 number    = {19},
 year      = {1989},
 pages     = {9--13},
 note      = {In Russian},
 keywords  = {Experimental, alloy, electrolysis, neutrons, res0},
 submitted = {07/1989},
 published = {10/1989},
 annote    = {Used a 50:50 mix of D2O and T2O, a "corrugated" alloy (Pd 72,
 Ag 25, Au 3) electrode, 10 mA/cm$^2$ and "200 V" cell voltage (no
 electrolyte!). A polymer track detector (CR-39) ($1-5\times 10^{-4}$ track/n
 sensitivity) was used to detect the integrated neutron flux from possible
 cold fusion of light nuclei. Some rare high-energy ($>10$ MeV) neutrons
 ($8\pm 4$/s) were found.}
}
@article{Ruzi1989,
 author    = {D.~N. Ruzic and K. Schatz and P.~L. Nguyen},
 title     = {A novel apparatus to investigate the possibility of
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              plasma-assisted cold fusion},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {251--253},
 keywords  = {Discussion, suggestion},
 submitted = {05/1989},
 published = {09/1989},
 annote    = {Suggest an alternative to electrochemistry for producing CNF,
 by using a plasma discharge in a D2 gas and a Pd cathode. No results as
yet.}
}
@article{Sanc1989,
 author    = {C. Sanchez and J. Sevilla and B. Escarpizo and F.~J. Fernandez
              and J. Canizares},
 title     = {Nuclear products detection during electrolysis of heavy water
              with titanium and platinum electrodes},
 journal   = {Solid State Commun.},
 volume    = {71},
 year      = {1989},
 pages     = {1039--143},
 keywords  = {Experimental, Ti, Pd, electrolysis, neutrons, gammas,
              tritium, res+},
 submitted = {07/1989},
 published = {12/1989},
 annote    = {Detected gamma radiation, neutrons, as well as tritium,
 consistent with a d+d nuclear fusion reaction. The paper is particularly
 interesting in that it correlates a gamma burst with a subsequent rise in
the
 tritium level, and provides a control in the form of a cell not evincing
 gamma (or neutron) bursts; such a cell kept a constant tritium level. This
 seems to rule out electrolytic tritium enrichment as a "source" of T.
 Further, the authors are aware of the slow diffusion of T out of the Ti and
 this is consistent with the slow build-up of T in the electrolyte during
some
 hours after the gamma burst.}
}
@article{Sant1989a,
 author    = {K.~S.~V. Santhanam and J. Ragarajan and O.~N. Braganza
              and S.~K. Haram and N.~M. Limaye and K.~C. Mandal},
 title     = {Electrochemically initiated cold fusion of deuterium},
 journal   = {Indian J. Technol.},
 volume    = {27},
 year      = {1989},
 pages     = {175--177},
 keywords  = {Experimental, Ti, Pd, electrolysis, excess heat, neutrons,
res+},
 submitted = {04/1989},
 published = {04/1989},
 annote    = {Electrolysed a solution of NaCl in D2O at Ti and Pd electrodes
 and find excess heat; the input power happens to account for Joule heating
of
 the cell, so that the cold fusion reaction alone powers the electrolysis,
 which therefore is free. All this was measured using a thermistor at the
 cathode and a few assumptions about heat capacities, heat conduction and
 cooling losses. A BF3 counter in front of the electrode showed a 48\%
 increase over the background in one experiment, 8\% in another, while a
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 liquid scintillation counter showed an 18\% higher than background for
 neutrons and gammas together. The authors admit that more careful emission
 measurements are needed but concur with FPH that a non-emitting nuclear
 reaction is occurring in their cells.}
}
@article{Sant1989b,
 author    = {K.~S.~V. Santhanam and J. Rangarajan and K.~C. Mandal
              and S.~K. Haram},
 title     = {Excess enthalpy during electrolysis of D2O},
 journal   = {Curr. Sci.},
 volume    = {58},
 year      = {1989},
 pages     = {1139--1141},
 keywords  = {Experimental, Ti, electrolysis, excess heat, res+},
 submitted = {09/1989},
 published = {10/1989},
 annote    = {These authors did some electrolysis experiments with a Ti
 electrode in an open cell in a dewar flask, and measured the temperature.
 Preliminary cyclic voltammetry showed that there are differences between the
 characteristics for heavy and light water; there was no desorption peak in
 the case of D2O. From calibrations, the temperature changes in the cell
 attributable to the various partial processes (heat of electrolysis,
 adsorption of D2, recombination of D2 with O2) were calculated.  These
 calculations cannot explain the heat effects observed.}
}
@article{Sast1989,
 author    = {K.~S.~R. Sastry},
 title     = {Fusion reaction},
 journal   = {Science},
 volume    = {244},
 year      = {1989},
 pages     = {904.},
 keywords  = {Comment},
 annote    = {A technical comment on energies in (3)He and deuterium, in
 response to an article of Pool in Science (see Section 3).}
}
@article{Schi1989,
 author    = {J.~E. Schirber and M.~A. Butler and D.~S. Ginley
              and R.~I. Ewing},
 title     = {Search for cold fusion in high-pressure deuterium-loaded
              titanium and palladium metal and deuteride},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {397--400},
 keywords  = {Experimental, Ti, Pd, gas phase, neutrons, res-},
 submitted = {06/1989},
 published = {11/1989},
 annote    = {Various Ti and Pd samples were put under high-pressure
 (>=2.4 kbar) D2 and temperature cycling. Underground high-sensitivity
(9.2\%)
 neutron monitoring (background: 10 counts/h) showed nothing in excess of
 background.}
}
@article{Schn1989,
 author    = {J.~H. Schneider},
 title     = {How a rectangular potential in Schroedinger's equation could
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             explain some experimental results on cold nuclear fusion},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {377--378},
 keywords  = {Theory, res+},
 submitted = {07/1989},
 published = {11/1989},
 annote    = {Theoretical calculations of the transmission coefficient for
 barrier penetration in d-d fusion, appear to show that it's possible.}
}
@article{Scho1989,
 author    = {W. Schommers and C. Politis},
 title     = {Cold fusion in condensed matter: is a theoretical description
             in terms of usual solid state physics possible?},
 journal   = {Mod. Phys. Lett. B},
 volume    = {3},
 year      = {1989},
 pages     = {597--604},
 keywords  = {Theory, res+},
 submitted = {04/1989},
 published = {05/1989},
 annote    = {Estimated interaction potentials of two deuterium atoms can
 explain cold fusion results, on the basis of the physics of liquids. The
 model used is that of a Pd-D alloy of charged particles in a uniform
 background of negative charge, and pseudopotential theory leads to the
 possibility of cold fusion.  It can also explain, by conventional means, the
 discrepancy between excess heat and the missing neutrons, because each
fusion
 delivers, as well as the energy of fusion, a large amount of kinetic
energy.}
}
@article{Schr1989,
 author    = {G. Schrieder and H. Wipf and A. Richter},
 title     = {Search for cold nuclear fusion in palladium-deuterium},
 journal   = {Z. Phys. B: Condens. Matter},
 volume    = {76},
 year      = {1989},
 pages     = {141--142},
 keywords  = {Experimental, Pd, electrolysis, cps, res-},
 submitted = {05/1989},
 published = {08/1989},
 annote    = {Equal probabilities for the two fusion reactions: d+d-->t+p,
 d+d->(3)He+n are assumed. Therefore, protons should be detected. The authors
 used electrolysis as did FPH, using Pd foil, and very sensitive proton
 detection.  Mylar foil stopped other particles. The sensitivity was 5 times
 greater than needed to detect the neutron flux level (as protons) claimed by
 FPH. Nothing was found.}
}
@article{Schu1989a,
 author    = {J.~W. Schultze and U. K{\"o}nig and A. Hochfeld
             and C. {Van Calker} and W. Kies},
 title     = {Electrochemically induced nuclear fusion in a solid?},
 journal   = {Nachr. Chem., Tech. Lab.},
 volume    = {37},
 year      = {1989},
 pages     = {707--719},
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 note      = {In German},
 keywords  = {Review},
 annote    = {The original article which - slightly expanded and translated
 into English - was later published in Electrochim. Acta, Schu1989b.}
}
@article{Schu1989b,
 author    = {J.~W. Schultze and U. K{\"o}nig and A. Hochfeld
              and C. {Van Calker} and W. Kies},
 title     = {Prospects and problems of electrochemically induced cold
              nuclear fusion},
 journal   = {Electrochim. Acta},
 volume    = {34},
 year      = {1989},
 pages     = {1289--1313},
 keywords  = {Review},
 submitted = {06/1989},
 published = {09/1989},
 annote    = {Translated (and expanded) from the earlier German article. This
 is an excellent review of just about all aspects of CNF, as well as a good
 source of further references (the Paneth reference /3/ is incorrect, the
 Vol. no.  of Naturwiss. should be 14, not 43). The authors remain carefully
 neutral.}
}
@article{Seit1989,
 author    = {R. Seitz},
 title     = {Fusion in from the cold?},
 journal   = {Nature},
 volume    = {339},
 year      = {1989},
 pages     = {185},
 published = {05/1989},
 keywords  = {Comment, suggestion},
 annote    = {Suggests that under electrolysis conditions, where a current is
 flowing, there may be high-x PdD(x) patches in the Pd, which are not
normally
 seen, because they are unstable. Seitz says that at high x, the distinction
 between these deuterides and metallic D may be small. Then suggests that
 lumps of deuterons, capturing delocalised electrons to become deuterium
 molecules, could release 1MJ/mol of heat, possibly explaining FPH's
 melt-down.  Also, Li may lower the melting point of Pd. So the heat comes
 from plain old chemistry, not fusion. Also quotes the 1986 Klyuev paper}
}
@article{Shan1989,
 author    = {G. Shani and C. Cohen and A. Grayevsky and A. Brokman},
 title     = {Evidence for a background neutron enhanced fusion in
              deuterium absorbed palladium},
 journal   = {Solid State Commun.},
 volume    = {72},
 year      = {1989},
 pages     = {53--57},
 keywords  = {Experimental, Pd, gas phase, neutrons, res-},
 submitted = {08/1989},
 published = {10/1989},
 annote    = {This shows that neutrons will enhance natural fusion rates.
Thus,
 a 2.5 MeV neutron peak is emitted from a Pd-D system in a high-background
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 but not in a "clean" one. Compressed D2 gas shows the same effect.  Pd was
 charged with D from the gas phase at 3 kg/cm$^2$. Within 2 hours, the
 pressure had dropped, indicating absorption to PdD0.6. This was then sealed
 into a stainless tube under the same pressure of D2 and placed near a
 counter.  Under high-level neutron background (0.05 count/s/cm$^2$) a 2.5
 MeV peak is seen (difference between the sample and pure Pd), but at low
 levels (0.0002 counts/s/cm$^2$), nothing.}
}
@article{Shap1989,
 author    = {V.~L. Shapovalov},
 title     = {Test for additional heat evolution in electrolysis of
              heavy water with palladium cathode},
 journal   = {JETP},
 volume    = {50},
 year      = {1989},
 pages     = {117--119},
 keywords  = {Experimental, Pd, electrolysis, excess heat, res-},
 published = {08/1989},
 annote    = {Closed-system calorimetry, using both heavy and light water,
with
 LiOD/LiOH. 7 cells with D2O, 10 with H2O were run. Results are rather close,
 with an "sd of 0.2\%" (presumably in temperature). After allowing for
 differences in heat capacities between heavy and light water, temperature
 increases match within experimental error; i.e. no excess heat found.}
}
@article{Shaw1989,
 author    = {G.~L. Shaw and M. Shin and R.~W. Bland and L. Fonda
              and H.~S. Matis and H.~G. Pugh and R. Slansky},
 title     = {Scenario for cold fusion by free quark catalysis},
 journal   = {Nuovo Cimento Soc. Ital. Fis. A},
 volume    = {102},
 year      = {1989},
 pages     = {1441--1447},
 keywords  = {Theory, anti-diquarks},
 submitted = {07/1989},
 published = {11/1989},
 annote    = {Small numbers of free stable Q anti-diquarks with electric
charge
 -4/3 and mass of a few GeV and short-range repulsion with hadrons catalyze d
 fusion much more effectively than muons. These Q might be left over from the
 Big Bang. About 100 would be required in a FPH-type cell, to explain FPH's
 heat claims. The reaction channel 4He + Q dominates. Bursts of neutrons are
 predicted with a 3-body energy spectrum instead of peaking at 2.45 MeV.
 Independently of these findings, Q-catalysis is attractive in that it could
 provide large power production, if this kind of matter can be found and
 accumulated (aye, there's the rub).}
}
@article{Shih1989,
 author    = {A.~A. Shihab-Eldin and J.~O. Rasmussen and M. Justice
              and M.~A. Stoyer},
 title     = { Cold fusion: effects of possible narrow nuclear resonance},
 journal   = {Mod. Phys. Lett. B},
 volume    = {3},
 year      = {1989},
 pages     = {965--969},
 keywords  = {Theory, res+},
 submitted = {05/1989},
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 published = {08/1989},
 annote    = {Looks at the possibility of the effect of an as yet unknown
 narrow resonance of (4)He on d-d fusion. Theory does not exclude the
 possibility, and does not exclude a skewed branching ratio for the usual two
 reactions assumed, either. The resonance with (4)He would release electrons,
 which would end up as heat and not much else. Some of this theory is
 supported by known astrophysics.}
}
@article{Shim1989,
 author    = {I. Shimamura},
 title     = {Intramolecular nuclear fusion in hydrogen-isotope molecules},
 journal   = {Prog. Theor. Phys.},
 volume    = {82},
 year      = {1989},
 pages     = {304--314},
 keywords  = {Theory},
 submitted = {05/1989},
 published = {08/1989},
 annote    = {Theoretical. Starts by referring to muon catalysed fusion, then
 poses the question of what fusion rates for neutral molecules HH, DD, HD etc
 might be, as well as the charged ions HH+, DD+, HD+ etc, if their
 internuclear distance were reduced somehow by an enhanced effective electron
 mass m(eff) in a crystal lattice, without assuming how this enhancement
might
 take place. The Born-Oppenheimer approximation is used, but the calculations
 are done with high accuracy, compared with the usual treatments. For the
 above-named species, calculated fusion rates for m(eff)=1 come out different
 by 6-15 orders of magnitude (OOM) from previously published values. The
 charged ions all have fusion rates smaller that the neutrals, by about 13
 orders of magnitude. In order to reach the Jones+ fusion rate of
 $10^{-23}$/s, an m(eff) of 5.6 is needed for DD+, but HD+ would give a
higher
 rate by about 1 OOM.  Shimamura concludes that although the mechanism of
cold
 fusion is not known at present, his calcu- lations suggest looking for gamma
 emission from p+d fusion.}
}
@article{Sinh1989,
 author    = {B. Sinha and Y.~P. Viyogi and S. Chattopadhyaya
              and M.~R.~D. Mazumdar and G.~S.~N. Murthy and G. Muthukrishnan
              and T. Bandyopadhyaya and M.~D. Trivedi and D. Ghosh
              and D.~K. Srivastava and P. Sen},
 title     = {Observations of neutron bursts in electrolysis of heavy water},
 journal   = {Indian J. Technol.},
 volume    = {27},
 year      = {1989},
 pages     = {275--277},
 keywords  = {Experimental, Ti, Pd, electrolysis, excess heat, neutrons,
              gammas, res-},
 submitted = {06/1989},
 published = {06/1989},
 annote    = {Observed 4 aperiodic 5-minute bursts of neutrons at Ti and Pd
 during electrolysis of D2O containing NaCl. A single neutron counter was
used
 and the cells shielded with Pb bricks to minimise background. No gamma
 emission was detected and no excess heat.}
}
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@article{Siod1989,
 author    = {R.~E. Sioda},
 title     = {Heat effects during room-temperature electrolysis of
              deuterium oxide},
 journal   = {Bull. Electrochem.},
 volume    = {5},
 year      = {1989},
 pages     = {902--904},
 keywords  = {Experimental, Pd, electrolysis, excess heat, res0},
 submitted = {09/1989},
 published = {12/1989},
 annote    = {This is simple open-cell calorimetry of a cell in which heavy
 water is electrolysed at platinum electrodes. Resistor heating is used to
 measure Newton's cooling rate parameter, which remains constant;
 nevertheless, under electrolysis some heat, corresponding to about 8\%
power,
 is unaccounted for, possibly due to gas evolution or electrochemical side
 reactions.}
}
@article{Slan1989,
 author    = {Z. Slanina},
 title     = {Towards molecular-thermodynamic aspects of postulated Pd/D
              low-temperature nuclear fusion: a useful example of a failure
              of the conventional translation partition function},
 journal   = {Thermochim. Acta},
 volume    = {156},
 year      = {1989},
 pages     = {285--290},
 keywords  = {Theory},
 submitted = {05/1989},
 published = {12/1989},
 annote    = {A study of the partition function of translation in a cubical
box
 of very small dimensions. As the box is assumed smaller and smaller, there
 appear deviations from the conventional macroscopic partition function. This
 was applied to H isotopes in cubic cells of Pd, and the kinetic energy of
 such particles is enhanced. This higher kinetic energy should be considered
 in theoretical work on cold fusion.}
}
@article{Spei1989,
 author    = {B. Speiser and A. Rieker},
 title     = {Energy from electrochemically induced nuclear fusion?},
 journal   = {Nachr. Chem. Tech. Lab.},
 volume    = {37},
 year      = {1989},
 pages     = {616--618},
 note      = {In German},
 keywords  = {Comment},
 published = {06/1989},
 annote    = {An early discussion of cold fusion, from a pair of
 electrochemists. FPH's calorimetry results are put under the microscope and
 found wanting; the errors in the excess heat measurements are much larger
 than desirable - although this is not the same as the calorimetry errors (my
 comment). There is some discussion of the $10^{27}$ atm figure in FPH, and
 somewhat simplified arguments reject this, as well. The paper has some good
 references to the "Paneth and Peters" affair of 1926/7.}
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@article{Stac1989,
 author    = {W.~M. {Stacey Jr}},
 title     = {Reactor prospects of muon-catalyzed fusion of deuterium
              and tritium concentrated in transition metals},
 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {268--278},
 keywords  = {Comment, suggestion},
 submitted = {05/1989},
 published = {09/1989},
 annote    = {Conjectures that muons are responsible for CNF, and goes from
 there, suggesting a muon-catalyzed reactor, the muons coming from an
 accelerator (cosmic muons are not enough).}
}
@article{Sun1989,
 author    = {Z. Sun and D. Tomanek},
 title     = {Cold fusion: how close can deuterium atoms come
              inside palladium?},
 journal   = {Phys. Rev. Lett.},
 volume    = {63},
 year      = {1989},
 pages     = {59--61},
 keywords  = {Comment},
 submitted = {05/1989},
 published = {07/1989},
 annote    = {Even at high D loadings, D's are further apart than as D2 gas.
 Thus, fusion is improbable.}
}
@article{Sund1989,
 author    = {B.~U.~R. Sundqvist and P. H{\aa}kansson and A. Hedin
              and R.~V. Bucur and B. Johansson and R. W{\"a}ppling},
 title     = {On the observation of charged particles in cold fusion},
 journal   = {Phys. Scr.},
 volume    = {40},
 year      = {1989},
 pages     = {303--306},
 keywords  = {Experimental, Pd, electrolysis, cps, res-},
 submitted = {04/1989},
 published = {09/1989},
 annote    = {With the aim of confirming or rejecting CNF claims, the authors
 tried to detect charged particles, which should be emitted. Pd foil was
 electrolytically charged with D, up to the expected 0.7 per Pd, and a
charged
 particle detector placed close to the electrode. This would also pick up
 alpha particles from the reaction d + (6)Li --> 2 (4)He + energy. The
 background level was 1/10 that of the Jones+ experiments; there were no
 deviations from this level.}
}
@article{Szal1989,
 author    = {K. Szalewicz and J.~D. Morgan III and H.~J. Monkhurst},
 title     = {Fusion rates for hydrogen isotopic molecules of relevance for
              'cold fusion'},
 journal   = {Phys. Rev. A: Gen. Phys.},
 volume    = {40},
 year      = {1989},
 pages     = {2824--2827},
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 keywords  = {Theory},
 submitted = {04/1989},
 published = {09/1989},
 annote    = {A theoretical study of room temperature fusion, asking the
 questions\\
 1. how close must deuterons get for the claimed fusion rates to occur?\\
 2. under such conditions, what would be the rates of other possible
reactions?\
 3. how do the fusion rates depend on vibrational excitation?\\
 The reactions considered are:\\
 1. d + d --> (3)He (0.82 MeV)  + n (2.45 MeV)\\
 2. d + d -->    t  (1.01 MeV)  + p (3.02 MeV)\\
 3. p + d --> (3)He (5 keV)     + gamma (5.4 MeV)\\
 4. d + d --> (4)He (76 keV)    + gamma (23.8 MeV)\\
 5. d + t --> (4)He (3.5 MeV)   + n (14.1 MeV)\\
 of which (1) and (2) are those that have been assumed by most workers.
 Accurate calculations are performed within the adiabatic approximation, of
 fusion rates for various vibrational states of the D2, HD, HT and DT
 molecules. It is known that the natural fusion rate of D2 ($10^{-64}$/s) is
 enhanced by a 75 orders of magnitude, if the electrons around the nuclei are
 replaced by muons, with 207 times the mass of electrons. So the study seeks
 to find the required mass of a hypothetical particle of charge -1, which -
 when replacing the normal electrons - would enhance fusion by the required
 factor to explain the claimed rates of $10^{-19}$/s/pair (FPH) or the more
 modest $10^{-23}$/s/pair (Jones+). The model appears to work, reproducing
 known fusion rates reasonably well, and showing that an electron mass m of
 about 5 is sufficient to enhance fusion rates to FPH levels. They then use
 another model to calculate the dependence of fusion rates on the vibrational
 excitation level of a fusing pair, and again, this can enhance these rates,
 especially in cooperation with larger electronic masses. The significance of
 vibrationally excited states is that FPH and Jones claim that an essential
 feature of cold fusion is that the system is in a nonequilibrium state.
 The paper then goes on to look at the possibility that the p+d reaction (3)
 could explain FPH's excess heat results, which are out by a 7-10 orders of
 magnitude compared to the neutron level expected from reactions (1) and (2)
 usually assumed. However, the theoretical rates of reaction (3) is only
 comparable to these two, and the relative rate would depend on a high
 concentration of protons in the palladium; this is unlikely, since D2O is
 used - even though some enrichment might take place on H- and D-absorption
 during charging. So the calculation is still short of a heat explanation by
 some 6 orders of magnitude, even if all gamma radiation were converted to
 heat. The results however suggest an experiment using 50:50 D2O:H2O (I take
 it they mean 50:50 p:d in the palladium after charging), and looking for the
 5.4 MeV gamma radiation.\\
 Lastly, the authors examine the possibility of some crystal parameters
 providing the energy for a fusion reaction, in a manner similar to the
 Moessbauer effect: for several technical reasons, such an effect is not
 likely to do the job. The conclusion is that theory points only to rather
 unlikely conditions for a plausible cold fusion reaction.}
}
@article{Takah1989a,
 author    = {A. Takahashi},
 title     = {Opening possibility of deuteron-catalyzed cascade fusion
channel
              in PdD under D2O electrolysis},
 journal   = {J. Nucl. Sci. Technol.},
 volume    = {26},
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 year      = {1989},
 pages     = {558--560},
 keywords  = {Suggestion},
 submitted = {04/1989},
 published = {05/1989},
 annote    = {Suggests that under the conditions of cold fusion in PdD, the
 predominant reactions would be d+d-->(4)He* and
 (4)He*+d-->(6)Li*-->(4)He+d+23.8MeV.  This cascade would explain the FPH
 results, giving fusion rates of up to $10^{-13}$ f/s per D atom.}
}
@article{Takah1989b,
 author    = {Y. Takahashi},
 title     = {Present status and future problems of cold nuclear fusion},
 journal   = {Kagaku Kogaku},
 volume    = {53},
 year      = {1989},
 pages     = {608--609},
 note      = {In Japanese},
 keywords  = {Discussion},
 annote    = {Chem. Abstr. 111:122093 (1989) says "Discussion with
 3 references".}
}
@article{Takah1989c,
 author    = {Y. Takahashi},
 title     = {Room temperature nuclear fusion},
 journal   = {Gendai Kagaku},
 volume    = {223},
 year      = {1989},
 pages     = {48--54},
 note      = {In Japanese},
 keywords  = {Review},
 annote    = {Review, with no references of the FPH, Jones+ and Menlove
 experiments, as well as the non-electrochemical Italian work.}
}
@article{Takat1989,
 author    = {N. Takata and H. Kaneko and K. Nozaki and K. Sakuta
              and M. Tanimoto},
 title     = {A preliminary attempt to measure neutrons from cold fusion},
 journal   = {Denshi Gijutsu Kenkyusho Iho},
 volume    = {53},
 year      = {1989},
 pages     = {1438--1447},
 note      = {In Japanese},
 keywords  = {Experimental, Pd, electrolysis, neutrons, res-},
 published = {09/1989},
 annote    = {Electrolysis experiment. A neutron detector near the cell was
 matched by another 6 m away, both of the (3)He type. Loadings of Pd with D
of
 0.79, 0.83 and even 1.2 were achieved with various electrolytes but in none
 of these were any neutron emissions observed. The upper limit for neutrons
 was $10^{-25}$/pair/s or 2 orders of magnitude smaller than Jones+.}
}
@article{Take1989,
 author    = {T. Takeda and T. Takizuka},
 title     = {Fractofusion mechanism},
 journal   = {J. Phys. Soc. Jpn},
 volume    = {58},
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 year      = {1989},
 pages     = {3073--3076},
 keywords  = {Theory.},
 submitted = {06/1989},
 published = {09/1989},
 annote    = {Fractofusion can explain observed fusion rates. The authors
 also seem to suggest (unless I misunderstand) that the accelerated
deuterons,
 apart from fusing, release energy (kinetic, one assumes) about $10^8$ times
 that released by the fusion itself - thereby seeming to explain excess heat
 found by some people. This is wrong, since this would be part of the
 non-nuclear energy balance for the electrolysis/crack formation etc. They
 conclude that if CNF is fractofusion, it is not of practical use.}
}
@article{Tani1989,
 author    = {R. Taniguchi and T. Yamamoto and S. Irie},
 title     = {Detection of charged particles emitted by electrolytically
              induced cold nuclear fusion},
 journal   = {Jap. J. Appl. Phys.},
 volume    = {28},
 year      = {1989},
 pages     = {L2021--L2023},
 keywords  = {Experimental, Pd, electrolysis, cps, res+},
 submitted = {08/1989},
 published = {11/1989},
 annote    = {Point out three problems with neutron detection:
 \begin{enumerate}
 \item  low detection efficiency;
 \item  low signal/noise ratio, due to large determination volume
 \item  problems of neutron/gammma discrimination.
 \end{enumerate}
 Charged particles might be a better bet. They used a favourable geometry and
 a charged-particle detector with high efficiency and low background
 sensitivity, as well as to gammas. The electrode was a thin foil at the cell
 bottom, with the detector just underneath. Out of 30 runs with D2O, or about
 3900 hours total, 6 runs showed proton counting rates of up to 100 times
 those in plain H2O. These rates did not commence until after 6-12 days (!),
 although the electrodes were only 10 microns thick and presumably would be
 fully loaded long before this. The authors do not draw firm conclusions; the
 spectra are not clear, protons may have been slowed down.}
}
@article{Tayl1989,
 author    = {K. Tayler},
 title     = {Fusion of 1947?},
 journal   = {Nature},
 volume    = {339},
 year      = {1989},
 pages     = {346},
 keywords  = {Remark},
 published = {06/1989},
 annote    = {Refers to a 1947 paper by Lord Rayleigh who allowed ionised
 O, N and H in a discharge tube to impinge on metal wires (among them Pd) and
 measured a "surprising amount of energy" as a result. This was commented on
 in 1957 by Burgess and Robb. I doubt that this has much to do with anything
 but read the papers and draw your own conclusions.}
}
@article{Tima1989,
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 author    = {S.~F. Timashev},
 title     = {Possible mechanisms for nuclear-chemical transformations
             in a palladium matrix during heavy water electrolysis},
 journal   = {Russ. J. Phys. Chem.},
 note      = {Orig. in: Zh. Fiz. Khim 63 (1989) 2283 (in Russian)},
 volume    = {63},
 year      = {1989},
 pages     = {1258--1259},
 keywords  = {Comment, suggestion, bineutron},
 submitted = {05/1989},
 published = {09/1989},
 annote    = {A description of what might be happening inside PdD(x). The
 possibility of a bineutron, formed from electron capture capture of a
 deuteron, reacting with a deuteron, is discussed. This would release
 neutrinos and neutrons.}
}
@article{Toma1989,
 author    = {P. Tomas and S. Blagus and M. Bogovac and D. Hodko
              and M. Krcmar and D. Miljanic and V. Pravdic and D. Rendic
              and M. Vajic and M. Vukovic},
 title     = {Deuterium nuclear fusion in metals at room temperature},
 journal   = {Fizika Zagreb},
 volume    = {21},
 year      = {1989},
 pages     = {209--214},
 keywords  = {Experimental, Pt, electrolysis, neutrons, surface analysis,
              res-},
 submitted = {05/1989},
 published = {06/1989},
 annote    = {Starts with an interesting historical introduction on cosmic
ray
 mesons and discussions of 1947 and thereafter.  This team tried to reproduce
 the FPH electrolysis experiment. X-ray fluorescence after long electrolysis
 showed Pt deposition of the Pd. A (6)Li-glass scintillation (NE 912) counter
 was used to used to detect neutrons. The experiment took place in an
 underground lab, and no neutrons above the low background were seen. The
 authors promise results from tritium analysis of both the electrolyte and
 palladium, as well as from proton measurements, to be done.}
}
@article{Turn1989,
 author    = {L. Turner},
 title     = {Thoughts unbottled by cold fusion},
 journal   = {Physics Today},
 year      = {1989},
 number    = {September},
 pages     = {142.},
 keywords  = {Comment, suggestion},
 submitted = {06/1989},
 published = {09/1989},
 annote    = {Turner muses that a possible effect, that has been missed by
 such theorists as Van Siclen and Jones, or Koonin and Nauenberg, is the
 enhanced transmission of deuterons through the Coulomb barrier because of
 resonances on the atomic scale. With deuterons in the interstitial sites of
 the Pd lattice, a diffusing deuteron may have a de Broglie wave length that
 permits resonance in the wells formed between the ascending walls of
 neighbouring Coulomb barriers. This adds another factor to any theories of
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 cold fusion, which so far have focussed on two-body (d-d) interaction.
Turner
 does not develop the argument here but suggests it to future theorists.}
}
@article{Vaid1989a,
 author    = {S.~N. Vaidya and Y.~S. Mayya},
 title     = {The role of combined electron-deuteron screening
             in deuteron-deuteron fusion in metals},
 journal   = {Pramana},
 volume    = {33},
 year      = {1989},
 pages     = {L343--L346},
 keywords  = {Theory, screening, res+},
 submitted = {06/1989},
 published = {08/1989},
 annote    = {The resident electrons and introduced deuterons in combination
 can cause sufficient screening to cause cold fusion rates found
 experimentally.}
}
@article{Vaid1989b,
 author    = {S.~N. Vaidya and Y.~S. Mayya},
 title     = {Theory of screening-enhanced D-D fusion in metals.},
 journal   = {Jpn. J. Appl. Phys. 2 Lett.},
 volume    = {28},
 year      = {1989},
 pages     = {2258--2260},
 keywords  = {Theory, res0},
 submitted = {06/1989},
 published = {12/1989},
 annote    = {WKB treatment. The enhancement in d-d fusion rates in metals
 brought about by the combined screening of electrostatic interactions by the
 conduction electrons and mobile deuterons, is investigated using the jellium
 model. It is assumed that under electrolytic conditions, deuterium exists as
 itinerant deuterons in metals such as palladium. The authors derive an
 expression for the screening constant treating electrons as fermions and
 deuterons as bosons.  The screening by charged bosons is a novel concept and
 is found to be sensitively dependent upon the temperature. E.g., at 150K, a
 fusion rate of about $10^{-21}$ /pair/s is calculated, although the smaller
 mobile deuteron fraction at this temperature might work against this. The d-
d
 fusion rate is found to increase substantially when the electron-deuteron
 screening of the Coulomb barrier is incorporated.
 The authors give a figure for the diffusion coefficient of D in Pd at 300K
 of $10^{-6}$ cm$^2$/s, without a reference.}
}
@article{Vaim1989,
 author    = {L.~A. Vaiman and A.~N. Valiev and A.~Ya. Ketko
             and E.~V. Kiseleva and B.~G. Skorodumov and V.~G. Ulanov
             and I.~O. Yatsevich},
 title     = {Observation of reactions in cold fusion during sorption or
             desorption of deuterium from palladium from the gas phase},
 journal   = {Izv. Akad. Nauk UzSSR, Ser. Fiz.-Mat. Nauk},
 year      = {1989},
 number    = {6},
 pages     = {62--63},
 note      = {In Russian},
 keywords  = {Experimental, Pd, gas phase, cps, neutrons, res-,
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              no FPH/Jones refs.},
 submitted = {09/1989},
 annote    = {A possibility was considered of observing cold nuclear fusion
 during the absorption or desorption of D2 in Pd from the gaseous phase. Pd
 black was electrodeposited on a thin Pd plate. The plate was situated in
 vacuum in a duralumin chamber. At the chamber window, there was an Si
 detector (thickness 100 microns) coupled through an amplifier to an
amplitude
 analyzer. Its purpose was to detect the energy spectrum of p from the
 interaction d+d-> p+t.  The spectrometric device was calibrated with the
help
 of a (242)Am alpha-particle source. This made it possible to measure the
 spectra at 0-3 MeV.  The peak of p from the above mentioned interaction was
 expected at about 3 MeV. The background was about 6 counts, which were
 distributed in 40 channels of the analyzer. The measurements were based on
 10-min exposures after the application of the D2 gas into the chamber at a
 pressure of 1.5 atm.  No differences from the background value were obsd. in
 12 exposures. The 2nd expt. was aimed at a possible detection of n from the
 interaction d+d->n +(3)He.  In this case, the chamber was situated in the
 SNM-18 ring-shaped source. The processes of the Pd satn. with D2 up to
highly
 concd. beta-phase with its subsequent desorption did not result in cold
 nuclear fusion.}
}
@article{Vase1989,
 author    = {M. Vaselli and M.~A. Harith and V. Palleschi and G. Salvetti
              and D.~P. Singh},
 title     = {Screening effect of impurities in metals: a possible
explanation
              of the process of cold nuclear fusion},
 journal   = {Nuovo Cimento Soc. Ital. Fis. D},
 volume    = {11},
 year      = {1989},
 pages     = {927--932},
 keywords  = {Theory},
 submitted = {05/1989},
 published = {06/1989},
 annote    = {After dismissing theories that rely on high effective electron
 mass for coulombic screening of deuterons, the authors invoke the presence
of
 the electrons around the deuterons for screening effects, and arrive
(without
 any rigorous theory) at a possible fusion enhancement in a metal lattice by
 this effect. The word "impurity" in the title refers to the impurity of H or
 D in the metal.}
}
@article{Wada1989,
 author    = {N. Wada and K. Nishizawa},
 title     = {Nuclear fusion in solid},
 journal   = {Jap. J. Appl. Phys.},
 volume    = {28},
 year      = {1989},
 pages     = {L2017--L2020},
 keywords  = {Experimental, Pd, gas phase, discharge, neutrons, res+},
 published = {11/1989},
 annote    = {Pd rods were "well soaked" with D2 gas in closed glass bulbs,
and stimulated with a high-voltage discharge between the rods. This brought
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forth neutron bursts $2\times 10^4$ higher than background, but not with Pd
rods soaked with H2. No neutrons were emitted during the soaking. The authors
theorise that heating due the discharge causes local bubble nucleation
in the Pd, with locally high D concentration and thus fusion.}
}
@article{Wall1989,
 author    = {C. Walling and J. Simons},
 title     = {Two innocent chemists look at cold fusion},
 journal   = {J. Phys. Chem.},
 volume    = {93},
 year      = {1989},
 pages     = {4693--4697},
 keywords  = {Discussion, res+},
 submitted = {04/1989},
 published = {06/1989},
 annote    = {An explanation of why it's possible. They work out that He,
 but few neutrons, should be produced.}
}
@article{Wang1989,
 author    = {X.~W. Wang and S.~G. Louie and M.~L. Cohen},
 title     = {Hydrogen interactions in PdHn ($1 \le n \le 4$)},
 journal   = {Phys. Rev. B},
 volume    = {40},
 year      = {1989},
 pages     = {5822--5825},
 keywords  = {Theory, res-},
 submitted = {06/1989},
 published = {09/1989},
 annote    = {Use local-density approximation with the Hedin-Lundqvist form
 of the exchange-correlation potential to calculate the named interactions.
 The total energy of absorption of hydrogen into the Pd hydride is also
 wanted. The Born- Oppenheimer approximation is used. As a comparison,
 calculations are first done for the beta phase, where H is in the octahedral
 sites; this works. All phases other than the beta phase (PdH) are unstable
 and in all, H-H distances are much greater than in H2 gas. So no hope for
 cold fusion.}
}
@article{Wenz1989,
 author    = {H. Wenzl},
 title     = {Fruitless experiments to prove 'cold nuclear fusion'},
 journal   = {Phys. Bl.},
 volume    = {45},
 year      = {1989},
 pages     = {408--409},
 note      = {In German},
 keywords  = {Polemic},
 submitted = {10/1989},
 annote    = {Negative polemic on FPH's paper. It gives a graphic diagram of
 fusion rates, comparing different processes on an order-of-magnitudes scale.
 So far, attempts to reproduce the FPH effect have been unsuccessful.  Wenzl
 notes that the term "cold fusion" has in the past been applied to
 muon-catalysed fusion.}
}
@article{Werl1989,
 author    = {H. Werle and G. Fieg and J. Lebkuecher and M. Moeschke},
 title     = {Trials to induce neutron emission from a titanium-deuterium
              system},
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 journal   = {Fusion Technol.},
 volume    = {16},
 year      = {1989},
 pages     = {391--396},
 keywords  = {Experimental, Ti, gas phase, neutrons, res-},
 submitted = {07/1989},
 published = {11/1989},
 annote    = {An attempt to reproduce the Frascati experiments, using a
highly
 sensitive (10\%) thermal neutron monitor and two different degassed Ti
 samples. During the 20-day experiment, the neutron emission from these Ti-D
 systems was $<$1.7 (first 8 days) and 0.6 n/s (last 12 days), averaged over
 100-minute intervals.}
}
@article{Will1989,
 author    = {D.~E. Williams and D.~J.~S. Findlay and D.~H. Craston
              and M.~R. Sene and M. Bailey and S. Croft and B.~W. Hooton
              and C.~P. Jones and A.~R.~J. Kucernak and J.~A. Mason
              and R.~I. Taylor},
 title     = {Upper bounds on 'cold fusion' in electrolytic cells},
 journal   = {Nature},
 volume    = {342},
 year      = {1989},
 pages     = {375--384},
 keywords  = {Experimental, Pd, electrolysis, heat, neutrons, tritium, res-},
 submitted = {08/1989},
 published = {11/1989},
 annote    = {Perhaps the most thorough piece of work in this field. They
used
 three different calorimetric designs, three different neutron meters, an
 accurate gamma meter and accurate analysis of the electrode composition at
 the end of the experiment, including tritium. To avoid the problem of cosmic
 radiation background variation with time and place, they swapped the
 electrolytically active cells (i.e. with current on) with inactive cells at
 5-min intervals in the radiation-measuring gear, and measured the difference
 between the two. They found nothing. They did, however, find noise from
 neutron counters, cosmic radiation variation and calorimetry errors which
 could easily have mislead others into assuming positive results. Another
 factor that varied - and could mislead - was the tritium enrichment, due to
 the electrolysis.  A little smugly they conclude that future work on 'cold
 fusion' ought to observe the same standards of experimentation set in this
 work, before making claims.}
}
@article{Wiln1989,
 author    = {B. Wilner},
 title     = {No new fusion under the sun},
 journal   = {Nature},
 volume    = {339},
 year      = {1989},
 pages     = {180.},
 keywords  = {Comment, Tandberg and Wilner},
 annote    = {Bertil Wilner, the son of T. Wilner, who worked together with
 Tandberg, who was inspired by the (short-lived) results of Paneth and Peters
 in 1926, reporting the production of new helium from electrolysis of water
at
 a palladium cathode. Paneth and Peters soon withdrew their claim, having
 discovered the source of the helium (ambient), but Tandberg, assisted by
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 Wilner, experimented for years in the 1930's in their Swedish Electrolux
 laboratory, mostly trying to compress deuterium by strong electric currents
 passed through loaded palladium. This never succeeded either, but was an
 attempt at (fairly) cold fusion, some decades before F\&P or Jones.}
}
@article{Wu1989,
 author    = {C.~K. Wu and Y.~T. Yao and C.~W. Wang and E.~K. Lin},
 title     = {Experimental observation of lack of room temperature fusion
              between palladium and heavy water},
 journal   = {Hua Hsueh},
 volume    = {47},
 number    = {2},
 year      = {1989},
 pages     = {139--141},
 note      = {In Chinese},
 keywords  = {Experimental, electrolysis, Pd, calorimetry, gamma, res-},
 annote    = {The authors did an early verification experiment, using KHSO4
 in D2O as electrolyte, with a current of 50 mA/cm$^2$. Gamma emissions were
 detected with NaI. The abstracter cannot read the Chinese but the title says
 that they found nothing.}
}
@article{Yagi1989a,
 author    = {M. Yagi and Y. Shiokawa and S. Suzuki and M. Hara and I. Satoh
              and K. Masumoto and T. Mitsugashira},
 title     = {Measurement of neutron emission from a titanium-deuterium
              system},
 journal   = {J. Radioanal. Nucl. Chem.},
 volume    = {137},
 year      = {1989},
 pages     = {411--420},
 keywords  = {Experimental, Ti, gas phase, neutrons, res+},
 submitted = {09/1989},
 published = {12/1989},
 annote    = {A high-resolution liquid scintillation detector was used to
 detect neutrons from D(d,n)3He fusion on or in Ti metal or sponge, and a
 mixture of Ti powder and trapped D2 at about 1 atm. 11 samples were
subjected
 to a wide variety of conditions, including temperature changes from that of
 liquid N2 to 350 deg.  There were observed "two types of neutron emission":
 those from samples cooled down to liq. N2 and back up to room temp, and from
 those warmed up to 350 degC and back down. "Possibly the n emission
reactions
 are closely related to to the D trapped in the surface of Ti metal";
 emissions were at the customary 3 sigma level from the single detector.}
}
@article{Yagi1989b,
 author    = {M. Yagi and T. Mitsugashira and I. Satoh and M. Hara
              and Y. Shiokawa and K. Inoue and K. Masumoto and S. Suzuki},
 title     = {Measurement of neutron emission from a SiO2-D2 system},
 journal   = {J. Radioanal. Nucl. Chem. Lett.},
 volume    = {137},
 year      = {1989},
 pages     = {421--429},
 keywords  = {Experimental, quartz, gas phase, neutrons, res+},
 submitted = {09/1989},
 published = {12/1989},
 annote    = {During previous experiments with the Ti-D system, where that
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 team observed neutron emission, they became aware of neutron emission from
 quartz-D interaction; quartz was used for the ampoule for the
 experiment. Here, various forms of quartz were tried, such as crushed quartz
 glass, sands, glass wool, anhydrous silica and silica gel. D2 gas was
 adsorbed onto the samples at -196 degC and generally, between $10^{-5}$ and
 $10^{-6}$ mol(D2)/g(sample) was adsorbed.  The neutron detector, calibrated
 as having a 0.13\% efficiency, then detected neutron emissions similar to
 those for the Ti-D system, about 3 times the background. Emissions from
blank
 samples were negligible.}
}
@article{Yan1989,
 author    = {X. Yan and S. Tsai and S. Guo and Z. Zhang},
 title     = {Room temperature deuterium-deuterium fusion reaction rate -
             a strong--coupling plasma model},
 journal   = {Chin. Phys. Lett.},
 volume    = {6},
 year      = {1989},
 pages     = {343--346},
 keywords  = {Theory, res0},
 submitted = {05/1989},
 published = {08/1989},
 annote    = {Consider only the deuterons in palladium or titanium, as a
dense
 plasma.  The authors then use the Thomas-Fermi approximation and the WKB
 method, to solve for fusion rates at various plasma densities. Their results
 show a weak temperature dependence. Fusion rates as claimed would require
 plasma densities as high as $10^{25}$ deuterons/cm$^3$, which is about 2-3
 orders of magnitude denser than in PdD. The authors say that "due to various
 reasons, such as the D-Pd correlation effects, Pd vacancies and
 non-equilibrium conditions, etc., the regions which has higher local density
 will give much more pronounced fusion rate" - which hedges their bets.}
}
@article{Yano1989,
 author    = {M. Yanokura and M. Minami and S. Yamagata and S. Nakabayashi
             and M. Aratani and A. Kira and I. Tanihata},
 title     = {An approach to the cold fusion through hydrogen isotopes
             analysis by the heavy ion Rutherford scattering},
 journal   = {Chem. Lett.},
 year      = {1989},
 pages     = {2197--2200},
 keywords  = {Experimental, Pd, electrolysis, surface analysis, loading.},
 submitted = {08/1989},
 published = {12/1989},
 annote    = {Used argon ion beam analysis to find loading factor x in PdD(x)
 profiles of deuterium in Pd under some different conditions of loading. One
 group of electrodes (dimensions not given) were etched in sulphuric acid
 before electrolysis and another group was heated in vacuo, the cooled in the
 presence of 1 atm D2, before electrolysis. Some were kept in D2O after
 loading, some were exposed to a vacuum, some to air. Loadings of up to 1.5
 were achieved; in vacuum or air, these decreased to about 0.7 near the
 surface; those kept in D2O lost less. The authors conclude that it is
 difficult to monitor loading during electrolysis but OK to do it afterwards.
 In a preliminary note (to be published) they mention that no neutrons,
 tritium or He-3 were found.}
}
@article{Yaro1989a,
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 author    = {M.~A. Yaroslavskii},
 title     = {Possible mechanism for the initiation of nuclear reactions
              during temperature changes and phase transitions in
              condensed materials},
 journal   = {Sov. Phys. Dokl.},
 volume    = {34},
 year      = {1989},
 pages     = {813--814},
 keywords  = {Theory, suggestion, biofusion},
 note      = {Orig. in Akad. Nauk SSSR 308 (1989) 95--97, in Russian},
 submitted = {04/1989},
 published = {09/1989},
 annote    = {"Propose a mechanism for n-emission during cooling and heating
 of heavy water solutions of some salts, from liquid nitrogen to complete
 melting. Some experiments were done in September 1988. After correction for
 the efficiency of the neutron detectors (8 SN17 in parallel), the results
 indicate neutron bursts of 300 counts/s, with the intrinsic background at
 about 1/s, most prominently during melting. Y has a theory: numerous
 microcracks formed due to thermal stresses become ellipsoidal pores by
 diffusion at their vertices, in a matter of minutes. These pores, in the
 dielectric medium with its frozen-in electric field yield energies up to
tens
 of keV, sufficient for fusion reactions. Of special interest to the author
is
 'the distinct possibility, following from these results, of controlled
 nuclear reactions in living organisms'".}
}
@article{Yaro1989b,
 author    = {M.~A. Yaroslavskii},
 title     = {Nuclear reactions induced by temperature changes and
              phase transitions in solids},
 journal   = {Sov. Phys. Dokl.},
 volume    = {34},
 number    = {7},
 year      = {1989},
 pages     = {648--649},
 keywords  = {Experimental, fracto-, neutrons, D2O and chalk, res+},
 note      = {Orig. in Dokl. Akad. Nauk SSSR 307 (1989) 600--601, in
Russian},
 submitted = {04/1989},
 published = {07/1989},
 annote    = {This appears to be a report preliminary to their later paper in
 the same journal (submitted 8 days later), describing neutron detection from
 frozen mixtures of D2O and "natural chalk". The mixture was brought down to
 liquid nitrogen temperature and slowly warmed up. Neutrons were detected by
 two parallel SI13H counters. Intense neutron emissions and pulses trains of
 up to several 100 microseconds long, containing about 1000 pulses, were
 detected, as well as short 10-30 mics packets of 10-100 pulses. Upon
 freezing, the same was observed as upon warming up. One intense pulse was
 observed upon melting of the sample. In another experiment, 7 cm$^3$ D2O
were
 mixed with 0.125 cm$^3$ pentane and this, upon warming, emitted tens of
 pulses per s until completely melted. The author estimates that a pulse
train
 emitted $10^6$ neutrons. Thus, for the first time, nuclear reactions were
 observed as a result of changes in temperature, due to phase transitions.
The
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 reaction is assumed to be d+d --> (3)He + n.  Note that this paper was
 originally communicated in 1986 in Proc. 10th All-Union Jubilee Symp. on the
 Mechanical Emission and Mechanical Chemistry of Solids, Rostov-on-Don., and
 submitted to Doklady in '89.}
}
@article{Yoshih1989,
 author    = {K. Yoshihara and T. Sekine and T. Braun},
 title     = {An attempt to detect fracto-fusion during microwave irradiation
              of D2O loaded silica gel},
 journal   = {J. Radioanal. Nucl. Chem.},
 volume    = {137},
 year      = {1989},
 pages     = {333--339},
 keywords  = {Experimental, silica, D2O, microwave, neutrons, tritium, res-},
 submitted = {09/1989},
 published = {11/1989},
 annote    = {Dried silica gel was charged with D2O and then irradiated with
 microwave, in order to cause small explosions and, hopefully, sufficient
 compression of deuterium to cause it to fuse. Also, fracto-fusion might do
 the trick.  A single BF3 neutron detector was used. No differences from
 background were observed; neither did tritium levels deviate from those
 before the treatment.  Thus no fusion took place here, but this does not
 exclude the fracto-fusion phenomenon in other experiments.}
}
@article{Zak1989,
 author    = {J. Zak},
 title     = {Low-temperature fusion of light nuclei in the
              Fleischmann-Pons reaction},
 journal   = {Inz. Apar. Chem.},
 volume    = {28(5)},
 year      = {1989},
 pages     = {3--4},
 note      = {In Polish},
 keywords  = {Discussion},
 annote    = {"A discussion with 3 refs is given on radiation obsd during an
 electrolysis of D2O with Pd cathode. The properties of D in the crystal
 lattice of Pd are described. The possibility of electrochem-induced cold
 fusion is discussed" (Cited from Chem. Abstr. 113:30258 (1990)). From the
 issue number, I take it this came out in May 1989.}
}
@article{Zakh1989,
 author    = {V.~P. Zakharova and G.~A. Kotel'nikov},
 title     = {To the question of cold nuclear fusion},
 journal   = {Atom. Tekh. za Rubez.},
 volume    = {9},
 year      = {1989},
 pages     = {28--31},
 keywords  = {Comment},
 note      = {In Russian},
 annote    = {A lengthy report of the cold fusion affair, evidently written
 at about the end of April (this commentator cannot find a publication date),
 judging from the reference list. The FPH work is described, along with the
 problems it raises such as branching ratios. The authors note the rush to
 reproduce cold fusion, all over the world but that unambiguous confirmation
 has not been obtained.}
}
@article{Zele1989,
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 author    = {V.~V. Zelentsov},
 title     = {New but quite forgotten matters},
 journal   = {Koord. Khim.},
 volume    = {19},
 year      = {1989},
 pages     = {1296.},
 note      = {In Russian},
 keywords  = {Comment},
 annote    = {Submitted on April 27, 1989, this is a report of the paper by
 Fleischmann and Pons (and Hawkins). As with the ceramic superconductivity
 sensation, cold fusion led to many labs around the world trying to reproduce
 the results; At the Kharkov Physico-technical Institute, cold fusion was
 confirmed; they found tritium and helium (3) by deuterium ion implantation
 into Pd at -130 to -150 degC (no further details given). Z calls Fleischmann
 the erstwhile Czech scientist. He then goes on to point out that this
 sensation is not new, and describes the work of Paneth and Peters of 1926
 (Z's only reference).  Paneth apparently left for Britain in 1933, returned
 to Germany in 1953 but apparently never returned to his cold fusion work of
 the '20's. Z then muses that Nature does not distinguish between physics and
 chemistry, and so the future of scientific endeavour lies in a unified
 approach.}
}
@article{Zhu1989,
 author    = {S.~B. Zhu and J. Lee and G.~W. Robinson},
 title     = {Kinetic energy imbalance in inhomogeneous materials},
 journal   = {Chem. Phys. Lett},
 volume    = {161},
 year      = {1989},
 pages     = {249--252},
 keywords  = {Theory, molecular dynamic computations, res+},
 submitted = {06/1989},
 published = {09/1989},
 annote    = {The authors focus on the relative momentum of the Pd and D
atoms
 in PdDx.  Molecular dynamic simulations are used, in two dimensions, for
PdD,
 and show that barrier penetration is feasible and could enhance cold fusion
 rates by many orders of magnitude.}
}
@article{Zieg1989,
 author    = {J.~F. Ziegler and T.~H. Zabel and J.~J. Cuomo and V.~A. Brusic
              and G.~S. Gargill IV and E.~J. O'Sullivan and A.~D. Marwick},
 title     = {Electrochemical experiments in cold nuclear fusion},
 journal   = {Phys. Rev. Lett.},
 volume    = {62},
 year      = {1989},
 pages     = {2929--2832},
 keywords  = {Experimental, Pd, electrolysis, cp's, gamma, neutron monitors,
              x-ray, diffraction, res-},
 submitted = {04/1989},
 published = {06/1989},
 annote    = {Charged particles in the energy range 1-3 MeV are easier to
 detect than neutrons, and the background is lower. A silicon SSB barrier
 detector was used, placed right next to the Pd electrode in an electrolysis.
 Personel gamma and neutron detectors were also placed next to the cell.
 X-ray diffraction was used to detect the time needed to form the beta-phase
 of PdD(x), x>0.6, Highest fusion rates inferred from the results are about
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 1/100 those claimed by Jones+ and thus about $10^{-6}$ lower than FPH's.}
}
@article{Zuqi1989,
 author    = {H. Zuqia},
 title     = {A possible explanation of the room temperature nuclear fusion},
 journal   = {Beijing Shifan Daxue Xuebao. Ziran Kexueban},
 volume    = {2},
 year      = {1989},
 pages     = {43--44},
 keywords  = {Theory, res+},
 submitted = {04/1989},
 annote    = {Proposes that the absorbed deuterium forms a sublattice in the
 palladium, and because of the nonequilibrium due to electrolysis, the
 deuterons in this lattice could be oscillating energetically. Zuqia invokes
 nonlinear coupling, solitons, cooperative effects, Toda lattices, and
arrives
 at the possibility of some fusion happening. More is to be reported later.}
}
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# YEAR: 1990

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% Year 1990; there are 320 entries.
@article{Abel1990,
 author    = {G.~C. Abell and L.~K. Matson and R.~H. Steinmeyer
              and R.~C. Bowman Jr and B.~M. Oliver},
 title     = {Helium release from aged palladium tritide},
 journal   = {Phys. Rev. B: Condens. Matter},
 volume    = {41},
 year      = {1990},
 pages     = {1220--1223},
 keywords  = {Experimental, helium mobility in metal, res0},
 submitted = {10/1989},
 published = {01/1990},
 annote    = {Tritium decays by beta emission and forms He; so if you let
PdT(x) stand, you accumulate He in the Pd. An interesting question for cold
fusion people looking for He, where should they look for it?  In the solution
or gas outside the Pd, or inside? In other words, how fast does any He come
out? These authors examine this and find that, for small He "loadings" (<0.5
He/Pd), the He is practically not released, and that temperatures exceeding
1300 K are needed to drive it out.}
}
@article{Aber1990,
 author    = {D. Aberdam and M. Avenier and G. Bagieu and J. Bouchez
              and J.~F. Cavaignac and J. Collot and R. Durand and R. Faure
              and J. Favier and E. Kajfasz and D.~H. Koang and B. Lefievre
              and E. Lesquoy and H. Pessard and A. Rouault and J.~P. Senateur
              and A. Stutz and F. Weiss},
 title     = {Limits on neutron emission following deuterium absorption
              into palladium and titanium},
 journal   = {Phys. Rev. Lett.},
 volume    = {65},
 year      = {1990},
 pages     = {1196--1199},
 keywords  = {Experimental, neutron detector, res-},
 submitted = {12/1989},
 published = {09/1990},
 annote    = {This group has a new type of neutron detector which will detect
 any neutron with an energy > 1MeV and allows discrimination against Compton
 electron background. This was used in an underground lab, where the neutron
 background was a low 1.7 n/day. Both electrochemical and pressurization cold
 fusion experiments were done, closely following the example of FPH, Jones+
 and De Ninno+. In some of the electrochemical runs, the currents were
 abruptly changed several times, to test for dynamical effects. Dynamical
 effects were also attempted with the gas absorption runs (up to 60 bars), by
 temperature changes between that of liquid N2 and 950 degC, both fast and
 slowly.  In all cases, something like 1E-26 n/pair/s was measured as an
upper
 limit, or a factor of 100 below Jones et al's results. No bursts were
 observed.}
}
@article{AbuT1990a,
 author    = {A.~F. AbuTaha},
 title     = {Cold fusion - the heat mechanism},
 journal   = {J. Fusion Energy},
 volume    = {9},
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 year      = {1990},
 pages     = {345--349},
 keywords  = {Theory, lattice stress, res0},
 published = {09/1990},
 annote    = {The author's thesis is that the palladium, and not the
 deuterium, is the source of the "excess heat" measured by some workers. The
 deuterium causes strain build-up in the metal, and at some point this is
 released by crack formation and propagation, which also generates sufficient
 heat to explain all. As in simple metal tensile tests, in which crack
 formation causes a rise in temperature, this effect can account for the heat
 observed by FPH. The effect cannot be used to generate power.}
}
@article{AbuT1990b,
 author    = {A.~F. AbuTaha},
 title     = {Cold fusion - engineering perspectives},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {391--396},
 keywords  = {Theory, lattice stress, res0},
 published = {12/1990},
 annote    = {AbuTaha further develops his theory that 'cold fusion' is not
 fusion, but the release of embrittlement energies, i.e. of energy stored
 after crack formation. Crack propagation can then suddenly or over a time
 period release large amounts of energy, up to the FPH claim of 4 MJ/cm**3 in
 metals such as Pd and Ti or Ni. This can explain all, including the FPH
 melt-down (AbuTaha describes an explosive event, due to hydrogen
 embrittlement, observed in the early 1970's). He clearly believes that this
 phenomenon can be used, but we must learn to control and optimise it.}
}
@article{Adle1990,
 author    = {P.~N. Adler and R.~L. Schulte and H. Margolin},
 title     = {Deuterium surface segregation in titanium alloys},
 journal   = {Metall. Trans.},
 volume    = {21A},
 year      = {1990},
 pages     = {2003--2007},
 keywords  = {Polemic discussion, res0},
 published = {07/1990},
 annote    = {Deuterium enrichment in the near-surface region, kinetics of
 segregation, and factors contributing to it, are discussed. Nuclear reaction
 analysis (NRA) showed that there is in fact spotwise enrichment
(segregation)
 at the surface of alpha-phase TiD but not in beta-phase ditto. Some of the
 deuterium may be trapped at surface defects without deuteride formation. }
}
@article{Aiel1990,
 author    = {S. Aiello and Filippo. De E and G. Lanzano and Nigro. Lo S
              and A. Pagano},
 title     = {Nuclear fusion experiment in palladium charged by deuterium
gas},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {115--119},
 keywords  = {Experimental, gas phase, titanium, neutrons, res-},
 submitted = {02/1990},
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 published = {08/1990},
 annote    = {The team performed an experiment similar to that of the De
Ninno
 team, with palladium instead of titanium under pressurised D2 with various
 temperature cycling programs. An NE-213 detector measured neutrons with
gamma
 discrimination, a BaF2 detector measured gamma emission and charged
particles
 were measured by a silicon surface barrier detector. Nothing significant was
 found. The authors state, however, that the expected cold fusion rate of
 about 1E-23 fusions/s/pair would give signals well below their apparatus'
 ability to detect them.}
}
@article{Alba1990,
 author    = {D. Albagli and R. Ballinger and V. Cammarata and X. Chen
              and R.~M. Crooks and C. Fiore and M.~P.~J. Gaudreau and I.
Hwang
              and C.~K. Li and P. Linsay and S.~C. Luckhardt and R.~R. Parker
              and R.~D. Petrasso and M.~O. Schloh and K.~W. Wenzel
              and M.~S. Wrighton},
 title     = {Measurement and analysis of neutron and gamma-ray emission
              rates, other fusion products, and power in electrochemical
              cells having Pd cathodes},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {133--148},
 keywords  = {Experimental, electrolysis, Pd, 4He, mass spec, neutrons, heat,
              res-},
 published = {07/1990},
 annote    = {An experiment, in which the Pd cathodes, electrolyte and
effluent
 gases were analysed for fusion products. The claim that (4)He is a major
 product was examined by means of MS. Constant temperature calorimetry
 measurements was done, and neutrons and gammas counted; tritium was
monitored
 and surface x-ray spectroscopy at the Pd done. The MS results (from a very
 high- resolution MS instrument) did show a (4)He peak, but it showed the
same
 peak for the ambient laboratory air. There were no results to support cold
 fusion. The authors make some comments on cold fusion claims, pointing to
 experimental difficulties.  For example, the FPH(89) excess heat can indeed
 be conceived in terms of a chemical reaction (as also pointed out by
Kreysa).
 Alba1990}
}
@article{Albe1990,
 author    = {M.~A. Alberg and L. Wilets and J.~J. Rehr and . Mustre},
 title     = {Upper limits to fusion rates of isotopic hydrogen molecules
              in palladium},
 journal   = {Phys. Rev. C},
 volume    = {41},
 year      = {1990},
 pages     = {2544--2547},
 keywords  = {Theoretical, res-},
 submitted = {09/1989},
 published = {06/1990},
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 annote    = {Calculation, using the Born-Oppenheimer approximation, of
fusion
 rates of H2 (H being any given hydrogen isotope) molecules in PdH. Find that
 fusion rates are enhanced over those for H2 gas but the rates are still 10-
20
 orders of magnitude lower (at ca. 1E-33/pair/s) than claimed.}
}
@article{Alek1990,
 author    = {R. Aleksan and M. Avenier and G. Bagieu and J. Bouchez
              and J.~F. Cavaignac and J. Collot and M.~C. Cousinou
              and Y. Declais and Y. Dufour and R. Durand and R. Faure
              and J. Favier and E. Kajfasz and Kerret. De H and D.~H. Koang
              and B. Lefievre and E. Lesquoy and J. Mallet and E. Nagy
              and M. Obolensky and H. Pessard and F. Pierre and A. Stutz
              and J.~P. W{\"u}thrick},
 title     = {Limits on electrochemically induced fusion of deuterium by
              neutron flux measurements},
 journal   = {Phys. Lett. B},
 volume    = {234},
 year      = {1990},
 pages     = {389--394},
 keywords  = {Experimental, electrolysis, neutrons, res-},
 submitted = {10/1989},
 published = {01/1990},
 annote    = {Attempted to reproduce cold fusion by electrolysis of D2O.
 A very sensitive neutron detector ((6)Li doped organic liquid scintillator
 NE320) was used to detect neutrons. An upper limit of about 50 n/s was
 obtained, which is 30 times smaller than that claimed by FPH, and less than
 that of Jones+.}
}
@article{Ales1990,
 author    = {A. Alessandrello and E. Bellotti and C. Cattadori
              and C. Antonione and G. Bianchi and S. Rondinini and S. Torchio
              and E. Fiorini and A. Guiliani and S. Ragazzi and L. Zanotti
              and C. Gatti},
 title     = {Search for cold fusion induced by electrolysis in palladium},
 journal   = {Il Nuovo Cimento A},
 volume    = {103},
 year      = {1990},
 pages     = {1617--1638},
 keywords  = {Experimental, gamma, neutrons, helium, tritium, fracto,
              gas phase, res-},
 submitted = {07/1990},
 published = {11/1990},
 annote    = {The aim was here to search for signals from d-p and d-d fusion
 during the electrolysis at palladium, as well as to possibly induce fusion
by
 mechanically straining the electrode, so as to initiate crack formation.
 Gamma, neutron, helium and tritium emissions were all monitored as well as
 heat, in a low-background environment, under the Gran Sasso massif. Heat
 effects were measured by means of several thermocouples in the cells, with
 resistor calibration. Four radiation detectors were used: two (3)He
 detectors, one NaI detector and one intrinsic Ge diode, with appropriate
 shielding and calibrations.  In none of the experiments, radiation emissions
 beyond the background, were detected. The upper limit then becomes around 6
 orders of magnitude lower than the fusion rates claimed by FPH. Mechanical
 strain - i.e. microcracks - made no difference. Tritium analysis showed only
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 the normal electrolytic enrichment. No helium was found, and no excess heat
 outside error limits. This extensive experiment does not support cold
 fusion.}
}
@article{Alta1990,
 author    = {M.~V. Altaiskii and S.~N. Artekha and B.~I. Barts
              and V.~G. Bar'yakhtar and S.~S. Moiseev},
 title     = {Fluctuational enhancement of quantum mechanical and wave
barrier
              penetrability and some physical consequences},
 journal   = {Vopr. Atom. Nauk. Tekh. Ser.: Fiz. Radiats. Povr. Radiats.
              Mater.},
 volume    = {52},
 number    = {1},
 year      = {1990},
 pages     = {78--80},
 note      = {In Russian},
 keywords  = {Theory, fluctuations, res+},
 submitted = {12/1989},
 annote    = {Both the present authors and Koonin have suggested that it is
 not the mean physical states in the metal hydride lattice, that set the cold
 fusion rate, but the fluctuations in all lattice parameters, including the
 Coulomb barrier to a close d-d approach. In analogy with the Debye-Valera
 factor of solid state theory, such a factor is expected here, and it can
lead
 to greatly enhanced rates of cold fusion. Some mathematical theory indicates
 that for a d-d distance >= 0.2A, i.e. $r \ge ra=n^{-1/3}$, n = electron gas
 density, there is effective attraction between the d's. Finally,
fluctuations
 might also be used deliberately to enhance fusion rates in crystals.}
}
@article{Angh1990,
 author    = {S. Anghaie and P. Froelich and H.~J. Monkhorst},
 title     = {On fusion/fission chain reactions in the Fleischmann-Pons
              'cold fusion' experiment},
 journal   = {Fusion Technol.},
 volume    = {17},
 year      = {1990},
 pages     = {500--506},
 keywords  = {Theory, fission and fusion},
 submitted = {12/1989},
 published = {05/1990},
 annote    = {Suggest that the explanation of cold fusion rates may lie in
 fission/fusion chain reactions involving deuterons, 6Li and 7Li as
 consumables; protons, tritons, neutrons and 3He as intermediates and 4He and
 Be as products.  Starting with some rather shaky (but non-essential)
 electrochemical arguments, leading to enormous concentrations of deuterons
 and Li+ ions at the Pd surface, the team suggests that weak fusion sets a
 chain reaction going, that could just be self-sustaining. Several possible
 chains are discussed.  Criticality cannot, however, be achieved. Heat
 production without particle or tritium emission can be explained by this
 mechanism. 4He is produced, and the authors suggest that people who find
 excess heat should look for 4He.}
}
@article{Anto1990,
 author    = {A.~V. Antonov and B.~A. Benetskii and V.~B. Ginodman
              and L.~N. Zherikhina and A.~V. Klyachko and E.~S. Konobeevskii
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              and M.~V. Mordovskoi and V.~I. Popov and A.~I. Rozantsev
              and A.~M. Tskhovrebov},
 title     = {An attempt to observe cold thermonuclear fusion during the
              electrolysis of heavy water},
 journal   = {Sov. Phys. Lebedev Inst. Rep.},
 year      = {1990},
 number    = {5},
 pages     = {52--56},
 note      = {Orig. in: Kratk. Soobshch. Fiz. (1990)(5) 38.},
 keywords  = {Experimental, neutrons, electrolysis, palladium, res-},
 submitted = {03/1990},
 annote    = {Not simply neutron emission is needed to confirm cold fusion,
 but n emission with the correct spectrum; notably, a peak at 2.5 MeV. Two
 electrolysis cells were used. In one, 1 g of Pd plate of 5 cm**2 area was
the
 cathode in an electrolyte of D2O + 30\% D2SO4, and a current of 20-300 mA;
in
 the other a 7g Pd plate of the same size in D2O + 7\% LiOD and a current of
 2A.  Neutrons were measured from scintillation of a stilbene crystal plus
 zero- crossing gamma discrimination and gamma background correction. In both
 cases, electrolysis was performed for one hour with the cell in the detector
 space, and for one hour with the cell well away from it, alternating thus
for
 58 and 90 hours, respectively. Nothing significant was detected. The
addition
 of a BF3 detector to stretch neutron bursts and prevent saturation still did
 not produce evidence of cold fusion.}
}
@article{Arat1990a,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Achievement of intense 'cold' fusion reaction},
 journal   = {Proc. Jpn. Acad., Ser. B},
 volume    = {66},
 year      = {1990},
 pages     = {1-6},
 keywords  = {Experimental, palladium, electrolysis, pressure, heat,
              neutrons, res+},
 submitted = {12/1989},
 annote    = {(Direct citation from the abstract:) A Pd cathode of large
 size was activated by repeating intensive absorption and explosive exhaust
of
 D compulsively due to the powerful on-off effect to induce intense mobility
 and a huge inner pressure of D within the Pd cathode. This characteristic
 played a role in achieving cold fusion. A considerable number of neutrons
far
 beyond the background level, sometimes reaching >= 10**8 n/s, were
 detected. The phenomena were observed 10 times in one month, and the period
 was 30 min for the shortest and 40 h for the longest.  The total number of
 neutrons generated was estimated to be $10^{13}$ for 40 hours at the
maximum,
 and it would be difficult to consider other any process than the nuclear
 fusion by D-D reaction. The large amount of excess heat produced during
 electrolysis was not due to unobserved nuclear fusion proposed by FPH (1989)
 but due to reaction heat produced by the intense absorption and explosive
 exhaust of the D into and out of the Pd. The Pd cathodes used by all other
 researchers were far smaller than the present one.  This is likely the
reason
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 why the new on-off effect phenomenon and the generation of intense cold
 fusion was not found so far.}
}
@article{Arat1990b,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {'Cold' fusion caused by a weak 'on-off effect'},
 journal   = {Proc. Japan Acad. Ser. B},
 volume    = {66},
 year      = {1990},
 pages     = {33--36},
 keywords  = {Experimental, on-off effect, electrolysis, palladium, neutrons,
             res+},
 submitted = {02/1990},
 published = {02/1990},
 annote    = {If the temperature build-up in palladium under deuteration is
 high, a temperature can be reached where an explosive release of deuterium
 occurs; this is called the strong on-off effect, and A\&Z ascribe a cold
 fusion reaction to it. In this paper they state that the "weak" on-off
 effect, where decomposition occurs at lower temperatures, also causes cold
 fusion. Neutron detection appeared to coincide with on-off effects. }
}
@article{Arat1990c,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Corroborating evidence for 'cold' fusion reaction},
 journal   = {Proc. Japan Acad. Ser. B},
 volume    = {66},
 year      = {1990},
 pages     = {110--115},
 keywords  = {Experimental, on-off effect, electrolysis, palladium, neutrons,
             res+},
 submitted = {06/1990},
 annote    = {In previous work, the authors had found intense neutron
 emissions when the powerful "on-off" effect is active. This happens when the
 cell, under electrolysis, reaches temperatures up to 110 degC (the "on"
 effect), and then goes into the "off" effect. If it goes "off" without
 reaching this high temperature, the authors speak of a weak on-off effect,
 and consider it important for cold fusion. Here, they used nickel, spray
 coated thinly with palladium. A paraffin block changed neutrons into thermal
 neutrons and detected these with a BF3 counter. This, they say, is a
reliable
 way to detect fusion neutrons. Comparisons of neutron patterns over long
 times, with those from the background and from a (252)Cf source, showed that
 cold fusion did occur, both on palladium and palladium-coated nickel.}
}
@article{Arat1990d,
 author    = {Y. Arata and Y.-C. Zhang },
 title     = {Achievement of an intense cold fusion reaction},
 note      = {But see: "Corrigendum", FT 19 (1991) 196},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {95--102},
 submitted = {02/1990},
 published = {08/1990},
 keywords  = {Discussion, suggestions},
 annote    = {This paper proposes the conditions necessary for achieving cold
 fusion (more or less) controllably. These are: a large Pd electrode must be
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 used, and the current periodically switched on and off. The team has
 previously described their "on-off" effect. In this, deuterium must be
forced
 quickly into the Pd, and quickly exhausted by switching the current
 off. Quick loading and release of deuterium causes internal high
temperatures
 and pressures of up to 5000 atm, and the authors on several occasions have
 observed large neutron events of up to 1E13 n per event. Several experiments
 are described. Titanium is not suitable, as it does not absorb deuterium to
a
 sufficient depth. The authors measured the heat exchange and there was no
 excess heat; all heat released (about 50\% of Joule heating) could be
 accounted for by chemical reactions. The authors do not believe in excess
 heat, calculating from their neutron emissions that this could only be
 expected to reach about 0.1 mW. They also assume standard physics (e.g. 1:1
 branching ratio) for the fusion reaction. In some cases, the electrode
 reached a temperature of 110 degC, at which deuterium is released
 spontaneously and copiously; an automatic on-off effect. Explosions and
 ignition phenomena were also observed. The authors do not, unfortunately,
 make clear whether the large neutron events are associated with current
 switching or spontaneous on-off events. The conclusion is that this effect
 reconciles the differences between successful and failed cold fusion
 experiments; that long electrolysis times are besides the point; and that
the
 use of small Pd electrodes is "a fatal mistake". The recipe: use a large
 electrode, charge it for 2-3 days to oversaturate it, turn off the current
 for a few hours, polish the cathode, put it back in and resume
 electrolysis. This produced the large neutron bursts.}
}
@article{Arni1990,
 author    = {H.~J. Arnikar},
 title     = {'Cold fusion' - a misnomer},
 journal   = {Ind. J. Chem. Sci.},
 volume    = {4},
 year      = {1990},
 pages     = {65.},
 keywords  = {Polemic, res-},
 annote    = {A recital of the author's belief that there is no cold fusion.
 There may be chemisorption or occlusion of electrolytically produced
 deuterium, both of which are exothermic and yield at most 10 eV, not 0.5 MeV
 as required for fusion. So fusion cannot be happening. As well, there ought
 to be helium, neutrons and gammas, and there is no good evidence for
 these. Ergo, nothing.}
}
@article{Atta1990,
 author    = {E.~M. Attas and K.~W. Chambers and W. Dueck and R. Dutton
              and A.~K. McIlwain},
 title     = {Solar flares and 'cold fusion'},
 journal   = {Nature},
 volume    = {344},
 year      = {1990},
 pages     = {390.},
 keywords  = {Polemic, solar flares},
 submitted = {03/1990},
 published = {03/1990},
 annote    = {This team monitored neutron emission from a FPH-type cell, and
 found a couple of bursts of neutron activity - one larger, one
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 smaller. Instead of rushing into print or to their nearest patent office,
 however, they then checked solar flare records: at precisely the same time
 the neutron emissions occurred, there were solar flares, the larger
 correlating with the larger neutron burst, the smaller with the
 smaller. Solar flare records are thus another item on the list of things
 every cnf experimenter must check for.}
}
@article{Ault1990,
 author    = {M.~R. Ault},
 title     = {Cold fusion: the story behind the headlines},
 journal   = {Radiat. Protect. Managem.},
 volume    = {8},
 number    = {3},
 year      = {1990},
 pages     = {49--57},
 keywords  = {Small review},
 annote    = {A run-down, up to about the end of 1990, of the cold fusion
 story. Ault rejects Williams et al's (Harwell) paper's rebuttal, criticising
 it for its scatter gun approach. He concludes that cold fusion may well be
 real and needs further investigation.}
}
@article{Azbe1990,
 author    = {M.~Ya. Azbel},
 title     = {Possibility of cold fusion},
 journal   = {Solid State Commun.},
 volume    = {76},
 year      = {1990},
 pages     = {127--129},
 keywords  = {Polemic, discussion, res0},
 submitted = {05/1990},
 published = {10/1990},
 annote    = {Having stated that cold fusion - as practised until now - has
 been disproved, A looks at the theory of Leggett and Baym, which showed that
 it is indeed not on. A asks, what conditions might make it possible? They
 are: a material in which high deuterium concentrations can be achieved, in
 which there are narrow electron bands and wide electron gaps and in which
 there is a highly energetic metastable state with d-d distances of around
0.1
 {\AA}ngstr{\o}ms. Pd and Ti are not suitable.}
}
@incollection{Babu1990,
 author    = {K.~S.~C. Babu and N.~P. Lalla and R.~N. Pandey and R.~S. Tiwari
              and O.~N. Srivastava},
 title     = {On the formation of palladium deuteride and its relationship
              to suspected cold fusion},
 booktitle = {Adv. Hydrogen Energy, Hydrogen Energy Prog. VIII, Vol. 2},
 volume    = {8},
 year      = {1990},
 pages     = {1051--1060},
 keywords  = {Experimental, electrolysis, pd fusion, res+},
 annote    = {The authors note that it is not always appreciated that the
 formation of the metal deuteride is exothermic. They carried out a
 calorimetric experiment of their own, and found two regimes: the first,
 during deuteration, showed accountable heat (of deuteration); the second,
 upon full loading, was not so easy to account for. They also electrolysed in
 light water, after fully loading in heavy water, and here found the greatest
 excess heat, confirming the theoretical prediction that p-d fusion is
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 favoured. Measurements of gamma emission also showed greatest deviation from
 the background for this p-d system. Cold fusion appears to be confirmed.}
}
@article{Bald1990,
 author    = {M. Baldo and R. Pucci and P.~F. Bortignon},
 title     = {Relaxation toward equilibrium in plasmon-enhanced fusion},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {347--350},
 keywords  = {Remark, res+},
 submitted = {02/1990},
 published = {09/1990},
 annote    = {"There is no doubt that the fusion reaction rate within a metal
 lattice is dramatically higher than estimated for free deuterium molecules",
 say the authors.  The fact that not everyone measures fusion effects, does
 not imply that Jones et al were mistaken.  The recent cluster impact
 experiments of Beuhler et al indicate that the target plays an important
role
 (I am quoting).  The authors have previously considered plasmon interactions
 (at a conference) and in this paper, further consider the d-phonon
 interaction and deuteron screening due to particle-hole excitations.  The
 conclusion is that the formation of quasi-deuterium molecules and phonon
 damping can lead to cold fusion rates comparable to those claimed by Jones
et
 al, and that this will occur in bursts.  Eventually, the system equilibrates
 and fusion rates drop to those for free D2 gas.}
}
@article{Balk1990,
 author    = {B. Balke and L. Cox and O. Fackler and M. Mugge
              and P.~C. Souers and R.~T. Tsugawa and R.~M. White},
 title     = {Limits on neutron emission from 'cold fusion' in metal
hydrides},
 journal   = {Phys. Rev. C},
 volume    = {42},
 year      = {1990},
 pages     = {30--37},
 keywords  = {Experimental, gas phase, Ti, Pd, neutrons, res-},
 submitted = {03/1990},
 published = {07/1990},
 annote    = {Tried to measure neutrons from pressurised gas charged Ti
 sponge, shavings and Pd wire, under different conditions of charging and
 pretreatment. Using careful multiple neutron detection, in all cases,
nothing
 above background was detected, no temperature response. After elimination of
 false readings of various kinds, no neutron bursts at all were found. Also
 tried loading with HD and DT gas; still no neutrons. These meticulously run
 experiments throw considerable doubt on all previous positive experiments
 with gas charging, finding 2-5 orders of magnitude lower neutron emissions
 than these other studies (Frascati, LANL).}
}
@article{Bara1990,
 author    = {B. Baranowski and S.~M. Filipek and M. Szustakowski
              and J. Farny and W. Woryna},
 title     = {Search for 'cold fusion' in some Me-D systems at high pressures
              of gaseous deuterium},
 journal   = {J. Less-Common Met.},
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 volume    = {158},
 year      = {1990},
 pages     = {347--357},
 keywords  = {Experimental, gas phase, Pd, neutrons, excess heat, res-},
 submitted = {09/1989},
 published = {03/1990},
 annote    = {The authors, experienced in high-pressure generation of metal
 hydrides, decided that this is a better route to PdD(x), as the loading is
 easier to control, more stable, and higher loadings can be achieved, than
 with electrolysis. Neutrons were monitored with liquid scintillation-,
silver
 activation- and a CR-90 nuclear track detectors. Temperature of the metal
 samples was monitored. A large piece of Pd (5.63 cm**3, 5 times the large
 piece considered dangerous by FPH) was put under D2, at 0.8 GPa pressure and
 kept that way for 5 months. Loading factor is about unity, i.e. the
 octahedral sites in the Pd are filled. No heat nor neutrons were detected,
 beyond background. Raising the pressure to 2.56 GPa begins to fill some of
 the tetrahedral sites; this still showed nothing. A higher loading of 2 is
 achievable with Ni (NiD2) at 0.75 GPa, where it was held for 2 months
without
 any emissions. Just in case there is anything special about electrolytic
 charging, the authors did this, too, under 0.6 GPa D2 pressure; still no
 emissions. Thus, 'cold fusion' is an error.}
}
@article{Baru1990,
 author    = {A.~O. Barut},
 title     = {Prediction of new tightly-bound states of H2+ (D2+) and
              'cold fusion' experiments},
 journal   = {J. Hydrogen Energy},
 volume    = {15},
 year      = {1990},
 pages     = {907--909},
 keywords  = {Theoretical, screening, res+},
 submitted = {05/1990},
 published = {12/1990},
 annote    = {FPH(89) concluded that their results were due to an hitherto
 unknown nuclear reaction. Barut believes that the explanation may be tightly
 bound states of D2+ ions, and three-body interactions, which are called the
 anti- Born-Oppenheimer approximation, in which an electron is squeezed
 between two positive nuclei rapidly rotating about it. Barut develops this
 quantum-mechanical model. The formation of these "supermolecules" from only
a
 tiny fraction of the deuterium could account for excess heat observations.
 One drawback is that normal hydrogen should do the same, and output about a
 quarter the excess heat.}
}
@article{Barw1990,
 author    = {S.~W. Barwick and P.~B. Price and W.~T. Williams
              and J.~D. Porter},
 title     = {Search for 0.8 MeV (3)He nuclei emitted from Pd and Ti
              exposed to high pressure D2},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {273.},
 keywords  = {Experimental, helium, neutrons, Ti, Pd, gas phase, res-},
 published = {09/1990},
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 annote    = {Track recording plastic films have been laid alongside Pd and
 Ti sheets exposed to D2 gas under >= 15 bars, to detect the neutrons from
the
 n+(3)He branch of the fusion reactions. There was temperature and pressure
 cycling, and radiation background elimination. No evidence of cold fusion
was
 found, with neutron upper limits of 0.7 and 2.5 fusions/s/cm**3, as compared
 with 20 and 260 measured by de Ninno et al. There were some alpha particles
 detected, arising from impurities in the metals (Th and U).}
}
@article{Bash1990,
 author    = {Yu.~A. Bashkirov and R.~Kh. Baranova and B.~G. Bazanin
             and V.~M. Kazakova},
 title     = {Observation of neutron emission from electrolysis of
             heavy water},
 journal   = {Pis'ma Zh. Tekh. Fiz.},
 volume    = {16},
 number    = {19},
 year      = {1990},
 pages     = {51--55},
 note      = {In Russian},
 keywords  = {Experimental, neutrons, res+},
 submitted = {06/1990},
 published = {10/1990},
 annote    = {Cathodes of Pd (0.5 mm) and Ti (1 mm) and anodes of Pt or Au
 were electrolysed in 0.1-0.15 M LiOH and LiOD, at 150 mA/cm**2. Near the
 electrolysis cell were placed two neutron detectors; one a type SNM-56
 containing 97\% He and 3\% Ar, the other an organic scintillation soup
widely
 used in physics to detect high-energy neutrons. With low-noise
 photomultipliers, this allowed the team to detect the lower-energy neutrons
 expected from cold fusion. There was a temp. probe in the cell. For Pd, in
 heavy water, neutron emission showed a steady increase over the background,
 around double. The Fig. shows two bursts at 10-100 times the background,
 simultaneously on both detectors. At the same time (in most cases but not
 all) there was a temp. spike of a few degrees. A Ti cathode also emitted the
 larger steady neutron flux (the paper does not mention bursts for Ti).}
}
@article{Bazh1990,
 author    = {Yu.~N. Bazhutov and G.~M. Vereshkov and R.~N. Kuz'min
             and A.~M. Frolov},
 title     = {Interpretation of cold nuclear fusion by means of erzion
             catalysis},
 note      = {In Russian},
 journal   = {Fiz. Plazmy Nekotor. Vopr. Obshch. Fiz. M.},
 year      = {1990},
 pages     = {67--70},
 keywords  = {Suggestion, erzions},
 annote    = {Muons are known to catalyse cold fusion, and could, in
 principle, be the cause of cold fusion, since they arrive at the Earth's
 surface in cosmic showers. However, their short life time precludes this
 possibility, at least at the claimed observation levels. But what if there
 were another, heavy and negative particle with much longer life, in these
 cosmic showers? The authors call these hypothetical particles "erzions", and
 postulate that they may have been accumulating in the Earth's surface for a
 long time. Erzion catalysis proceeds just like muon catalysis, and if
erzions
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 are long lived, cold fusion is explained, along with some other physical
 mysteries such as "Lebed-X3" energy. The result would be (4)He, thus
 accounting for the dearth of neutrons; some would however be emitted as
 secondaries.}
}
@article{Belo1990,
 author    = {A.~S. Belov and V.~E. Kusik and Yu.~V. Ryabov},
 title     = {The nuclear fusion for the reactions
              (2)H(d,n)(3)He,(2)H(d,gamma)(4)He at low
              deuterons energy and 'cold' nuclear fusion},
 journal   = {Il Nuovo Cimento A},
 volume    = {103},
 year      = {1990},
 pages     = {1647--1650},
 keywords  = {Experimental, ion beam, Pd, neutrons, res-},
 submitted = {07/1990},
 published = {11/1990},
 annote    = {First, the team shoots a deuteron beam at a range of energies
 at a PdDx target, measuring the neutrons emitted as a result. These agree
 with (much) earlier work. Even at the lowest energies - which might approach
 cold fusion conditions - no anomalies were found. Subsequent neutron
emission
 measurements made with the beam turned off set the upper limit for cold
 fusion at 7E-24 fusions/pair/s. The authors conclude that cold fusion, if it
 happens at all, has an unmeasurably low intensity and there is no basis for
 assuming any anomalies such as in branching ratios.}
}
@article{Belz1990a,
 author    = {A. Belzner and U. Bischler and S. Crouch-Baker and T.~M. Guer
              and G. Lucier and M. Schreiber and R.~A. Huggins},
 title     = {Two fast mixed-conductor systems: deuterium and hydrogen in
              palladium - thermal measurements and experimental
              considerations},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {219--227},
 keywords  = {Experimental, calorimetry, electrolysis, res+},
 published = {06/1990},
 annote    = {The well known "Huggins" paper, presented at a conference in
 1989. This team used an isoperibolic calorimeter to look for excess heat in
 PdHx and PdDx, respectively. In this type of calorimeter, the cell
 temperature does not rise very much, so temperature effects and
 nonlinearities do not appear. The authors measure the power put into a
 working cell and compare it with the power given off by it. They do not
 correct for the energy required for the electrolysis of water, so that if
any
 excess heat is found, it must be real; recombination of evolved hydrogen
 (isotope) with oxygen is of no consequence with this most severe of all
 definitions of excess heat. The results are presented in the form of plots
of
 power-out vs power-in. For a calibration, using electrical heating, this is
a
 straight line with unity slope. The plot for the Pd-H system (light water)
 lies below this line, showing that some power is absorbed by the
 electrolysis. For Pd-D, this is also seen initially, during the charging
 phase; after 66 h electrolysis, when the Pd is presumably fully charged
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 (given the diffusion coefficient of D in PdD of 2E-11, charging can be
 expected to reach into the sample to a depth of 2 mm and the Pd was 3-4 mm
 thick), the plot lies clearly above the calibration line, showing an excess
 heat of about 10\%. A time effect is also shown: the out/in ratio goes
 smoothly from below 1 to above, for two cells. The excess heat is comparable
 with the deficit for Pd-H or for Pd-D initially. So, unless one postulates
an
 exothermic reaction taking place (e.g. between impurities in the Pd and
 deuterium but not hydrogen) at a scale comparable with the power absorbed by
 water electrolysis, these results appear to provide strong evidence for a
 non-chemical source of excess heat in the Pd-D system. Belz1990a}
}
@article{Belz1990b,
 author    = {A. Belzner and U. Bischler and S. Crouch-Baker and T.~M. Guer
              and G. Lucier and M. Schreiber and R.~A. Huggins},
 title     = {Recent results on mixed conductors containing hydrogen or
              deuterium},
 journal   = {Solid State Ionics},
 volume    = {40/41},
 year      = {1990},
 pages     = {519--524},
 keywords  = {Experimental, calorimetry, electrolysis, res+},
 published = {08/1990},
 annote    = {Essentially the same results (and text) as in the authors'
paper
 in the J. Fusion Energy  9 (1990) 219. Belz1990a}
}
@article{Benn1990,
 author    = {S.~M. Bennington and M.~J. Benham and P.~R. Stonadge
              and J.~P.~A. Fairclough and D.~K. Ross},
 title     = {In-situ measurements of deuterium uptake into a palladium
              electrode using time-of-flight neutron diffractometry},
 journal   = {J. Electroanal. Chem.},
 volume    = {281},
 year      = {1990},
 pages     = {323--330},
 keywords  = {Experimental, neutron diffraction, loading, res0},
 submitted = {01/1990},
 published = {03/1990},
 annote    = {Like x-ray diffraction, neutron diffraction can analyse the
 structure and composition of materials like PdD(x) but with the advantage
 that neutrons can penetrate more deeply into the bulk; x-rays can only do
 near-surface measure- ments. So with neutrons, the authors were able to
 measure the x in PdD(x).  This has now been attempted by several methods
such
 as accounting for evolved gas, by gravimetry, by resistance measurements and
 others. Loadings (x) of up to 2 have been claimed, whereas 0.8 or so is
 assumed normal. The present paper reports a maximum of 0.78, in line with
 expectations.}
}
@article{Bern1990,
 author    = {R. Bernabei and G. Gannelli and R. Cantelli
              and S. {Cordero d'Angelo} and N. Iucci and P.~G. Picozza
              and G. Villoresi},
 title     = {Neutron monitoring during evolution of deuteride precipitation
              in Nb, Ta and Ti},
 journal   = {Solid State Commun.},
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 volume    = {76},
 year      = {1990},
 pages     = {815--819},
 keywords  = {Experimental, neutrons, cracks, gas phase, res-},
 submitted = {03/1990},
 published = {11/1990},
 annote    = {The formation of the highly loaded metal deuteride beta phase
 is here called precipitation (why not?), and this team monitored neutron
 emissions during such precipitation, as well as during deformation and crack
 nucleation.  The "D-doping" was done under D2 gas (99.96\% pure) at 400 and
 550 degC for 1-2 h and loadings of 0.07 to 0.43 were achieved. There was
 temperature cycling.  Crack formation was observed upon precipitation. No
 neutrons were found under any conditions.}
}
@article{Bert1990,
 author    = {A. Bertin and M. Bruschi and M. Capponi and S. {De Castro}
              and U. Marconi and C. Moroni and M. Piccinini
              and N. Semprini-Cesari and A. Trombini and A. Vitale
              and A. Zoccoli and J.~B. Czirr and G.~L. Jensen
              and S.~E. Jones and E.~P. Palmer},
 title     = {First experimental results at the Gran Sasso Laboratory on
              cold nuclear fusion in titanium electrodes},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {209--213},
 keywords  = {Experimental, Ti, electrolysis, neutrons, res+},
 published = {06/1990},
 annote    = {This reports preliminary results of neutron measurements from
 electrolytic infusion of deuterium into Ti. The measurements were undertaken
 under low- background conditions. The same electrolyte mixture as used by
 Jones+(89) was used, and the same type of Ti electrodes. The laboratory
 inside the Gran Sasso massif has an overall radioactivity level 1/10 that
 elsewhere, and practically no cosmic radiation gets in, except neutrinos.
One
 neutron detector (a NE-213 type) was set next to the cell, another 8m away.
 Neutron- gamma separation was possible by pulse shape discrimination and
 confirmed by calibration. The results show a definite difference between the
 two counters, with a calculated 875+-180 neutrons/hour emitted from the cold
 fusion cell. Taking account of some experimental differences, this compares
 well with the results of Jones+(89), thus confirming low-level cold
 fusion.}
}
@article{Bese1990a,
 author    = {F. Besenbacher and B. {Bech Nielsen} and P. Hornsh{\o}j
              and E. L{\ae}gsgaard and N. Rud},
 title     = {Search for cold fusion in plasma-charged Pd-D and Ti-D
systems},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {315--317},
 keywords  = {Experimental, glow discharge, nonequilibrium, neutrons, res-},
 published = {09/1990},
 annote    = {Although the effective-medium theory (see other papers from
 this group) says that cold fusion should not occur, the team nevertheless
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 tried it out.  Nonequilibrium has been said to be the secret; one more way
to
 ensure this is to charge the metal with deuterium from a plasma, obtained by
 means of a DC glow discharge in a low-pressure deuterium gas between two Cu
 electrodes. The cathode was the test metal (Pd or Ti) covered with a thin
 layer (50 A) of Cu, which trapped the D in the metal. The D impinges at
 200-400 eV, and loses about 100 eV to the Cu barrier, not leaving enough
 energy for self targetting neutron emission. Any neutrons measured would
thus
 have to come from fusion.  Neutron detection was by means of an NE-213
liquid
 scintillator coupled to a fast photomultiplier tube, with pulse shape gamma
 discrimination, and an efficiency of about 3\% at the sample. Measurements
 continued for 2 weeks.  Loading of the top layer of the Pd was determined by
 surface nuclear reaction analysis and found to be about 0.8. The upper limit
 for cold fusion, calculated from the neutron flux, was <= 5E-24 fus/pair/s,
 or well below claimed rates. Thus cold fusion is not found.}
}
@article{Bese1990b,
 author    = {F. Besenbacher and Nielsen. Bech B and J.~K. N{\o}rskov
              and S.~M. Myers and P. Nordlander},
 title     = {Interaction of hydrogen isotopes with metals: deuterium
              trapped at lattice defects in palladium},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {257--261},
 keywords  = {Theory, res-},
 published = {09/1990},
 annote    = {A fundamental study, both theoretical and experimental, of the
 interaction of hydrogen isotopes with defects in metals. Ion implantation is
 used for the experiments. For the theory, the inhomogeneous metal is
modelled
 as a simpler host, the "effective medium", giving the name to the theory
 (dating back some years). In short, defects act as a trap for hydrogen.
There
 is good absolute agreement between theory and experiment, with respect to
 trap strength of some metals looked at. Up to 6 hydrogens can be trapped at
a
 single open defect; the distance between them is, however, no less than 1.85
 A, far too great to allow fusion.}
}
@article{Birg1990,
 author    = {O. Birgul and S. Celebi and A. Ozdural and K. Pekmez
              and A. Yildiz and Y. Yurum},
 title     = {Electrochemically induced fusion of deuterium using surface
              modified palladium electrodes},
 journal   = {Doga-Turk. J. Eng. Env. Sci.},
 volume    = {14},
 number    = {3},
 year      = {1990},
 pages     = {373--380},
 keywords  = {Experimental, gammas, electrolysis, Pd, res+},
 submitted = {07/1989},
 annote    = {Bursts of gamma-ray emission accompanying sudden temp. rises
 were obsd.  during the const. current electrolysis of D2O contg. LiOD
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 electrolyte using the surface modified Pd cathodes following the charge-up
of
 the cathode material with the electrolytically produced D. Macroscopic and
 microscopic deformations of the cathode material were noted at the end of
 electrolysis that could only be caused by extreme pos. thermal changes. The
 results were compared with blank expts. using H2O in which no such changes
 occurred. The nature of surface modification is not specified. The authors
 speculate that fusion is initiated by microscopic rises in temperature and
 collapse from the beta to alpha phase, by either recombination of deuterons
 into D2, or reaction of deposited Li with D2O. The surface modification will
 be described elsewhere.}
}
@article{Bitt1990,
 author    = {M. Bittner and A. Meister and D. Ohms and E. Paffrath
              and D. Rahner and R. Schwierz and D. Seeliger and K. Wiesener
              and P. W{\"u}stner},
 title     = {Method for investigation of fusion reactions in condensed
              matter},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {120--130},
 keywords  = {Experimental, electrolysis, Pd, D2O, H2O, neutrons, res0},
 submitted = {02/1990},
 published = {08/1990},
 annote    = {The authors present a sophisticated statistical analysis of
 neutron measurements made close to electrolysis cells in which palladium was
 the cathode in electrolytes with heavy and light water, and with current
 switched on and off. At one-hour intervals, the cell was taken far away from
 the detector, and this was repeated over many hours. The small differences
 between background and measurement were enhanced by integrating the total
 hourly neutron count differences (background total minus cell total) over
 time. Some cells showed a deficit, due to shadowing. The cell with
 electrolysis of D2O, however, did show a very small positive effect of about
 3 counts/h. Other measurements rule out cosmic muon effects. No strong
 conclusions are drawn, the object here being to present the method.}
}
@article{Blen1990,
 author    = {J.~G. Blencoe and M.~T. Naney and D.~J. Wesolowski
              and F.~G. Perey},
 title     = {Tests for 'cold fusion' in the Pd-D2 and Ti-D2 systems at
              40-380 MPa and -196-27 degC},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {149--153},
 keywords  = {Experimental, gas loading, Pd, Ti, heat, neutrons, res+},
 published = {06/1990},
 annote    = {This team decided to try to load Pd with D2 gas; while this was
 in progress, they heard about the Frascatti experiments with Ti and added
 this to the experiment. The Pd-D2 system was monitored for heat effects, as
 well as for neutrons. A triple BF3 neutron detector was used. Results: "no
 sustained neutron flux" over a long period of pressurisation,
 depressurisation and temperature cycling for the Pd-D2 system, and
 temperature changes due only to PV work and deuteride formation. The single
 Ti-D2 experiment gave an increase in the neutron level over a period of 5
 hours at 80 hours. This corresponds to about 1000 n/s, comparable with Jones
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 et al or Menlove et al, but the authors warn that they cannot be sure that
 their detector was behaving properly. They plan more experiments to
 confirm/deny this result.}
}
@article{Bock1990a,
 author    = {{J. O'M}. Bockris and G.~H. Lin and N.~J.~C. Packham},
 title     = {A review of the investigations of the Fleischmann-Pons
              phenomena},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {11--31},
 keywords  = {Review, res+},
 submitted = {03/1990},
 published = {08/1990},
 annote    = {A review, with 61 references, of cold fusion, a little
selective
 in parts.  Many of the references are to conferences and "private
 communication", and thus not quite so accessible. The major experiments are
 reported, and a discussion given on each of excess heat, tritium, neutrons,
 protons, mass spectrometry, cluster impact fusion. The various theories that
 have been proposed are explained rather well. These include growing cracks
 (but there is no mention of the Soviet work), muon catalysis, Coulombic
 screening, tunnelling, chain reactions, quantum electrodynamic, and the
 formation of dendrites on the cathode surface; this last theory is the
 authors', and would explain the long electrolysis time required before
 anything happens, the sporadicity and irreprodubility of the phenomenon, and
 even the alleged anomalous branching ratio. Tritium, the authors say, should
 be the easiest of all fusion products to detect; neutrons are difficult;
 FPH's calorimetry is beyond reproach.}
}
@article{Bock1990b,
 author    = {{J. O'M}. Bockris},
 title     = {Addition to 'A review of the investigations of the
              Fleischmann-Pons phenomena'},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {523.},
 keywords  = {Discussion, tritium, res+},
 published = {11/1990},
 annote    = {Since the printing of the review, more evidence has come to
 light. Bockris says that Kevin Wolf's tritium could not have been in the
 palladium beforehand and even if it was, it would have been driven out
during
 electrolysis. So the results of Bockris' school, and those of Wolf himself,
 are not in doubt.}
}
@article{Bock1990c,
 author    = {J. Bockris and D. Hodko},
 title     = {Is there evidence for cold fusion?},
 journal   = {Chem. \& Ind.},
 volume    = {22},
 year      = {1990},
 pages     = {688--692},
 keywords  = {Discussion, res+},
 published = {11/1990},
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 annote    = {A summary of the case for cold fusion, which is a clear "yes"
 for the authors. In particular, they emphasise the burst-like nature of cold
 fusion, and say that there have been observations of correlated events like
 tritium with heat or neutrons or gammas. 77 references are given, many of
 them of conference talks, reports, and private communications.}
}
@article{Bona1990,
 author    = {G.~C. Bonazzola and T. Bressani and D. Calvo and A. Feliciello
              and P. Gianotti and S. Marcello and M. Agnello and F. Iazzi},
 title     = {A large-area neutron detector based on double scattering},
 journal   = {Nucl. Instrum. Meth. Phys. Res. A},
 volume    = {299},
 year      = {1990},
 pages     = {25--28},
 keywords  = {Experimental, neutron detector design. No FPH/Jones refs},
 annote    = {This team, which has also been active in CNF research, here
 presents the design of a neutron detector to reliably detect the 2.45 MeV
 neutrons that must be emitted from d-d fusion. The apparatus is able to
 measure the impulse vector and the emission time, of every emitted particle
 reaching the detector.}
}
@article{Bosc1990,
 author    = {H.~S. Bosch and G.~A. Wurden and J. Gernhardt and F. Karger
              and J. Perchermeier},
 title     = {Electrochemical cold fusion trials at IPP Garching},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {165--186},
 keywords  = {Experimental, electrolysis, Pd, heat, neutrons, tritium, gamma,
              res-},
 published = {06/1990},
 annote    = {The "Bavarian Bubble Bottle Team" reports, in a refreshingly
 informal and candid manner, their extensive experiments, starting as soon as
 they heard of FPH's press conference. Lacking all technical details, they
 nevertheless happened to hit on more or less the same set-up as FPH. Their
 neutron detectors were not up to Jones+ levels but sufficiently sensitive
for
 FPH levels, as was their calorimetry, at an accuracy of about 5\%. Three
 electrolysis cells showed no signs of neutrons, tritium, gamma emissions or
 excess heat above backgrounds. One large electrode, intended to verify the
 FPH melt-down (it didn't) was thrown into liquid nitrogen after 21 h
 charging, and allowed to warm up; this, to emulate Italian
 experiments. Again, no emissions.  The deuterium loading was estimated (with
 some corrections) at 0.9-1.2. The team comments that the thermodynamics of
 palladium hydride differs from that of the deuteride, and that this could
 well account for the claims by Huggins (at that time not published), given
 his conditions of nonequilibrium; i.e. if the loading is changing, then the
 two hydrogen isotopes behave differently in a thermodynamic sense. They also
 point out (as Frank Close has done) that no matter what nuclear reaction one
 postulates, one must expect some kind of radiation; the cooperative,
 Moessbauer-type effect suggested by some, absorbing such emissions as heat,
 is highly unlikely.}
}
@article{Boya1990,
 author    = {L.~J. Boya},
 title     = {Possible mechanisms for cold fusion in deuterated palladium},
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 journal   = {An. Fis. B},
 volume    = {86},
 year      = {1990},
 pages     = {221--223},
 keywords  = {Discussion, suggestions},
 submitted = {09/1989},
 annote    = {Some speculation about cold fusion in the Pd lattice. The
 stationary state is first discussed. Deuterium is thought to be present as
 the neutral D most of the time, and as d (i.e. deuterons, D+) only a small
 part of the time; and to be colliding frequently ("because of the repulsive
 and big Pd ions").  However, this will not favour their fusion. Possible
 mechanisms should therefore be looked for in some non-stationary condition,
 such as the passing of a current, or an attractive d-d force in the alpha
 phase, or lattice interaction such as overlapping pseudolocalised Bloch
 waves; or lattice vibrations; or hysteresis in the alpha/beta transition
 region. Suggestions are made for experiments to throw light on the puzzle:
 the use of ac current to enhance the current effect, and heating and cooling
 to exploit the hysteresis effect.}
}
@article{Brac1990,
 author    = {L. Bracci and G. Fiorentini and G. Mezzorani},
 title     = {Nuclear fusion in molecular systems},
 journal   = {J. Phys. G},
 volume    = {16},
 year      = {1990},
 pages     = {83--98},
 keywords  = {Theory, fusion rate, screening, effective mass, res-},
 submitted = {06/1989},
 published = {01/1990},
 annote    = {Theoretical calculation of the fusion rate of pairs xx', where
 x and x' can be p, d or t, for a range of internuclear distances and
 effective masses of the binding particle (electron). A model thought to be
 more accurate than the naive Gamow-Sommerfeld formula is used. In some
cases,
 high pressures might lead to an internuclear distance sufficiently smaller
 than normal, to increase fusion rates by tens of orders of magnitude, even
at
 normal electron mass.  Collective effects on the fusion process are ruled
 out, however, because they operate at inter-atomic spacings, not the small
 internuclear distances. The table of results shows that claimed cold fusion
 rates are possible with effective electron masses of 5-10 for all xx'.}
}
@article{Bria1990a,
 author    = {J.~P. Briand and G. Ban and M. Froment and M. Keddam
             and F. Abel},
 title     = {Cold fusion rates in titanium foils},
 journal   = {Phys. Lett. A},
 volume    = {145},
 year      = {1990},
 pages     = {187--191},
 keywords  = {Experimental, Ti, gas phase, cracking, res-},
 submitted = {12/1989},
 published = {04/1990},
 annote    = {In a previous paper, this team had detected cold fusion by the
 x-rays produced when the neutrons hit metal atoms. They have now improved
 their technique, and use it on Ti instead of Pd (as previously). Background
 detector noise is now down by a factor of 100, efficiency up 3 times.
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 Electrolysis was used, in soups containing Jones+-like metal ions. They
 conclude that even with properly pretreated Ti, the D does not penetrate
more
 than 2-3 mu into the Ti, due to deposition of metals. So, on the one hand,
 Jones+ fusion rate should be revised by a couple of orders of magnitude, due
 to the much smaller volume. On the other hand, the present team finds next
to
 nothing, even from Ti fully loaded by D2 gas, nor (a fracto-experiment) from
 loaded Ti cracked right in front of the detector.}
}
@article{Bria1990b,
 author    = {J.-P. Briand and M. Froment },
 title     = {La fusion 'froide' dix-huit mois apres (Cold fusion,
              18 months later)},
 note      = {In French},
 journal   = {Recherche},
 volume    = {21},
 year      = {1990},
 pages     = {1282--1284},
 published = {10/1990},
 keywords  = {Comments, res0},
 annote    = {This is a run-down of cnf, summarising the situation 18 months
 after FPH-89 and Jones et al 89. The main problems are mentioned, as well as
 the various aspects of the subject, such as the Italian Ti/gas experiments
 and the Russian fractofusion. The writers state that the subject has at
least
 stimulated some research.}
}
@article{Brit1990,
 author    = {D. Britz},
 title     = {Cold fusion: an historical parallel},
 journal   = {Centaurus},
 volume    = {33},
 year      = {1990},
 pages     = {368--372},
 keywords  = {Discussion, historical},
 submitted = {11/1990},
 published = {09/1991},
 annote    = {The experiment of Wada and Nishizawa (1989) was preceded by a
 very similar one, almost 60 years previously. John Tandberg, the Swedish
 chemist electrically exploded a Pd wire electrolytically charged with
 deuterium, in order to provoke d-d fusion. The paper provides a translation
 of the Swedish description of this work, and discusses the parallel.}
}
@article{Brud1990a,
 author    = {V.~B. Brudanin and V.~M. Bystritskii and V.~G. Egorov
              and S.~G. Shamsutdinov and A.~L. Shyshkin and V.~A. Stolupin
              and I.~A. Yutlandov},
 title     = {Does cold nuclear fusion exist?},
 journal   = {Phys. Lett. A},
 volume    = {146},
 year      = {1990},
 pages     = {347--350},
 keywords  = {Experimental, electrolysis, gas phase, Pd, neutrons, res0},
 submitted = {06/1989},
 published = {06/1990},
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 annote    = {Experimental attempt to verify cold fusion, by both
electrolysis
 of D2O at Pd and D2-saturation of Pd, as well as electrolysis of D2-charged
 Pd. Pure D2O, as well as 50:50 D2O:H2O were used and currents from 1-125
 mA/cm**2. The authors seem not to have used LiOD but note that "at high
 currents", sodium carbonate was added to raise conductivity. In the D2 gas
 experiments, a loading of 0.5 was achieved. Two SNM-14 boron-containing
 neutron detectors were used, calibrated at 0.32\% efficiency; x-rays were
also
 measured. Nothing was found above background levels.  The authors comment on
 the use of Li salts: cosmic neutrons react with (6)Li to produce tritium, so
 Li should be avoided if tritium is to be detected.}
}
@article{Brud1990b,
 author    = {V.~B. Brudanin and V.~M. Bystritskii and V.~G. Egorov
              and S.~G. Shamsutdinov and A.~L. Shyshkin and V.~A. Stolupin
              and I.~A. Yutlandov},
 title     = {Once more about cold nuclear fusion},
 journal   = {Phys. Lett. A},
 volume    = {146},
 year      = {1990},
 pages     = {351--356},
 keywords  = {Experimental, electrolysis, Ti, gas phase, neutrons, res0},
 submitted = {07/1989},
 published = {06/1990},
 annote    = {To add to their other paper on p.347, the authors have tried
 experiments with Ti, again using electrolysis and D2 gas loading, as well as
 temperature cycling as in the Frascati trials. No neutrons were found.}
}
@article{Brud1990c,
 author    = {V.~B. Brudanin and V.~M. Bystritsky and V.~G. Egorov
              and S.~G. Stetsenko and I.~A. Yutlandov},
 title     = {Search for the cold fusion d(d,(4)He) in electrolysis of D2O},
 journal   = {Phys. Lett. A},
 volume    = {151},
 year      = {1990},
 pages     = {543--546},
 keywords  = {Experimental, electrolysis, Pd foil, helium, alphas, res0},
 submitted = {09/1989},
 published = {12/1990},
 annote    = {Previous work by this team did not confirm either FPH(89) or
 Jones+(89) claims. Nevertheless, the excess heat found by some needs to be
 explained.  Here the possibility of the reaction d+d --> (4)He + lattice
 energy is investigated, by detection of alpha particles (i.e. He). Thin Pd
 (50 mu) and Ti (100 mu) foils are used as cathodes in 0.1M Na2CO3 in D2O, at
 current densities of 30 mA/cm**2 for about 100 h. Two CR-39 track detectors
 were placed directly under the cathode foils. Not a single track was
 recorded. In another experiment, a silicon surface barrier detector was
used,
 again with no alphas detected. This set an upper limit for cold fusion at
 1E-26 fus/pair/s.  Thus, the exotic (4)He+heat branch is not the explanation
 for the excess heat observed by others, and precision calorimetry must
 provide the answer.}
}
@article{Budn1990,
 author    = {A.~T. Budnikov and P.~A. Danilov and G.~A. Kartamyshev
              and N.~P. Katrich and V.~P. Seminozhenko},
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 title      = {Study of gases evolving from palladium, nickel and copper,
               bombarded with D+ ions, from palladium saturated with gases
               by heavy water electrolysis and by heating in deuterium},
 journal    = {Vopr. At. Nauki Tekh., Ser. Fiz. Radiats. Povr. Radiats. Mat.},
 year       = {1990},
 volume     = {52},
 number     = {1},
 pages      = {81--88},
 note       = {In Russian},
 keywords   = {Experimental, ion beam, Pd, Ni, Cu, electrolysis, mass spec,
               tritium, res+},
 submitted = {12/1989},
 annote     = {The three metals Pd, Ni and Cu were bombarded by D+ ions in a
 vacuum; other metal samples (Pd) were used as cathodes in heavy water
 electrolysis or charged in D2 gas. These were then placed in a high vacuum
 pumping system and the desorption of gases from the metals followed by mass
 spectroscopy. Masses of 1,2,3,4,5 and 6 were found, as well as higher. The
 authors exclude, on no basis that this abstractor can see, species
containing
 tritium, ascribing all to combinations of H and D; He is excluded because it
 does not desorb from within a metal by simple pumping.}
}
@article{Bull1990,
 author     = {J. S. {Bullock IV} and G.~L. Powell and D.~P. Hutchinson},
 title      = {Electrochemical factors in cold fusion experiments},
 journal    = {J. Fusion Energy},
 volume     = {9},
 year       = {1990},
 pages      = {275--280},
 keywords   = {Experimental, electrolysis, Pd, precharging, mass spec,
               postmortem, res-},
 published = {09/1990},
 annote     = {Expertise in electrochem, metal hydrides and physics was
brought
 together to study cold fusion, and this paper reports the electrochemical
 findings. The FPH(89) paper gave a few clues (some now superseded):
unalloyed
 Pd, Pt anode, high-purity D2O with 0.1M LiOD 0.2 M was used here), bulky
 electrode. Cell symmetry giving an even current distribution etc. were added
 as reasonable guesses, and gas-phase precharging of the Pd with D2 gas to
 save time. The electrolyte was analysed by inductively coupled plasma mass
 spectroscopy (ICP-MS), the Pd by metallography, scanning electron microscopy
 (SEM), transmission electron microscopy (TEM) and x-ray crystallography
 (XRC).  Evolved gases were analysed by high resolution MS (HRMS). No
evidence
 of cold fusion was obtained, and comments are made.  There is table of the
 possible (electro)chemical reactions than may take place at both cathode and
 anode, as well as in solution; this will be useful for the
 nonspecialists. There is some discussion of the thermodynamics of the cell
 and some modelling. A scenario is suggested to explain the FPH exploding
 cube. It is suggested that several poisons should be tried, and high-
symmetry
 cells with reference electrodes used.}
}
@article{Bush1990,
 author     = {R.~T. Bush and R.~D. Eagleton},
 title      = {'Cold nuclear fusion': A hypothetical model to probe an
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              elusive phenomenon},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {397--408},
 keywords  = {Theory, suggestion, bosons, res+},
 published = {12/1990},
 annote    = {CNF differs from hot ditto by using subtle effects such as
 tunnelling, instead of brute force. This must be assisted by something,
which
 needs to be explained, as well as the known facts (?) such as excess heat,
 few neutrons, coming in bursts, low x-ray and gamma-ray yields, tritium
 production, irreproducibility and the lack of nuclear signature. Boson
 clumping is suggested as a jumping-off point for discussion; i.e. the tight
 clumping of deuterons in the lattice. Helium-4, and some of the other
 properties of cnf can be accounted for by this model.}
}
@article{Bushu1990,
 author    = {V.~S. Bushuev and V.~B. Ginodman and L.~N. Zherikhina
              and S.~P. Kuznetsov and Yu.~A. Lapushkin and I.~P. Matvienko
              and A.~I. Nikitenko and A.~D. Perekrestenko
              and N.~P. Saposhnikov and S.~M. Tolokonnikov
              and A.~M. Tskhovrebov},
 title     = {Some results obtained by detecting nuclear radiation during
              heavy-water electrolysis},
 journal   = {Sov. Phys. Lebedev Inst. Rep.},
 year      = {1990},
 number    = {5},
 pages     = {57--61},
 note      = {Orig. in: Kratk. Soobshch. Fiz. (1990)(5) 41, in Russian},
 keywords  = {Experimental, electrolyusis, Pd, neutrons, gamma, res0},
 submitted = {03/1990},
 annote    = {Thermal neutrons and, simultaneously, gamma emissions, were
 measured at a number of electrolysis cells using various Pt anode shapes and
 different-size Pd foil cathodes, in heavy water and 30\% D2SO4 or 7\%
 LiOD. Neutrons were detected by an array of six (3)He counters around the
 water-filled region, shielded by paraffin and protected from external
neutron
 background by a shield of borate polyethylene and grounded aluminium. A
 gamma-ray counter was mounted above the cell. The Pd was baked in vacuum at
 500-600 degC for a few hours before, and was electrolytically saturated with
 D before radiation measurement commenced, in some cases. Measurements took
 place around the clock for several days, with removal of the cell before,
 during and after the run, for a background check. Some irreproducable
neutron
 bursts were seen with the larger Pd electrodes. No strong conclusions can be
 reached.}
}
@article{Byun1990,
 author    = {J.~H. Byun},
 title     = {Cold nuclear fusion},
 journal   = {Hwahak Kwa Kongop Ui Chinbo},
 volume    = {30},
 year      = {1990},
 pages     = {86--89},
 note      = {In Korean},
 keywords  = {Discussion, review},
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 annote    = {The paper is entirely in Korean. The following was
recognisable:
 "LiOD", "cocktail" (suggesting the Jones paper), "ion beam", the three d-d
 fusion branches as equations, and that of the p-d reaction; "branching
 efficiency", "100 mA/cm$^2$", the applied cell power equation with I*1.54
 correction, "scintillation counter", "background", "cosmic rays", "(3)He",
 "(4)He", "DOE", "(Cold Fusion Panel to the Energy Research Advisory Board)",
 "cluster", "Wall Street Journal", "photonuclear", "(microcrack)", "$10^4-
10^6$
 V/cm". Assumed to be a review of the field.}
}
@article{Case1990,
 author    = {M. Case and R. Boehm},
 title     = {Assessment of thermal energy output from electrochemical cells
             - a critical review},
 journal   = {HDT (Am. Soc. Mech. Eng.) (Heat Transfer Adv. Energy Syst.)},
 volume    = {151},
 year      = {1990},
 pages     = {55--62},
 keywords  = {Discussion, suggestion, calorimetry, res0},
 annote    = {An excellent and simply written description of the problems
with
 cold fusion calorimetry, and the types of calorimeters that have been
 used. Several suggestions are made for better designs, and an error analysis
 for the three main designs given. These errors are much larger than those
 claimed by previous users of the designs. Good design suggestions include
the
 use of differential thermocouples, a differential design for a cooling
jacket
 type that uses only a calibration heater and three temperatures (or two
 differences), and a good suggestion for better use of the (most accurate)
 Seebeck effect design. A response simulation is also presented.}
}
@article{Ceci1990,
 author    = {F.~E. Cecil and D. Ferg and T.~E. Furtak and C. Mader
              and J.~A. McNeil and D.~L. Williamson},
 title     = {Study of energetic charged particles emitted from thin
              deuterated palladium foils subject to high current densities},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {195--197},
 keywords  = {Experimental, Pd, ion beam, cps, res0},
 published = {06/1990},
 annote    = {Some cold fusion results, such as heat without radiation
 emissions, could be due to the radiation being in the form of short-range
 charged particles. So this team looked for such emissions from Pd foil,
 irradiated by a D+ beam at 95 keV. During beam inpact, roughly the expected
 flux of neutrons was given off (self-targeting). The beam was switched off,
 electric current passed through the foil and energy spectra measured. Quote:
 "In Fig. 4a, accumulated over a period of 19 hours, there is a suggestion of
 a peak at about 3 MeV which could be identified as the protons from the
 d(d,p)t reaction". Another spectrum shows a peak at 5 MeV, and this is not
 seen for the controls in which either there was no current running through
 the PdD or a current running through undeuterated Pd. The authors have no
 explanation for this peak, which is consistent with a (d,p) reaction with
 various Pd isotopes, all very unlikely to occur.}
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}
@article{Cela1990,
 author    = {F. Celani and A. Spallone and S. Pace and B. Polichetti
              and A. Saggese and L. Liberatori and V. {Di Stefano}
              and P. Marini},
 title     = {Further measurements on electrolytic cold fusion with D2O
              and palladium at Gran Sasso Laboratory},
 journal   = {Fusion Technol.},
 volume    = {17},
 year      = {1990},
 pages     = {718--724},
 keywords  = {Experimental, electrolysis, Pd, neutron, gamma, res+},
 submitted = {12/1989},
 published = {07/1990},
 annote    = {Electrolysis experiments with Pd were performed in the
 low-background underground lab, measuring gamma and neutron radiation. The
 diagram shows that two (3)He detectors, two NaI detectors and a plastic
 scintillator were used.  It appears that the electrolyte was 0.1M LiOH in
 heavy water. Electrolysis current density was 60 mA/cm**2, at hyperpure,
 vacuum-annealed Pd. There were some definite gamma events on all detectors,
 calculating out as up to 1E-19 fusions/pair/s. These gamma events were
 unaccompanied by neutron events, so the authors conclude that an aneutronic
 process is taking place. They also state that it was not possible to exclude
 fractoemission effects. Future work is planned.}
}
@article{Cham1990a,
 author    = {G.~P. Chambers and J.~E. Eridon and K.~S. Grabowski
              and B.~D. Sartwell and D.~B. Chrisey},
 title     = {Charged particle spectra of palladium thin films during
              low energy deuterium ion implantation},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {281--285},
 keywords  = {Experimental, Pd thin film, ion beam, cps, res0},
 published = {09/1990},
 annote    = {If a new nuclear reaction, rather than conventional d-d fusion,
 is responsible for the results of FPH(89), then one might expect heavy
 charged particle emissions such as alphas, tritons or protons. These would
be
 emitted at MeV energies but stopped within the Pd lattice, so not easy to
 detect. So thin film Pd electrodes were used here, loaded with deuterium by
 an ion beam and charged particles detected by a silicon surface barrier
 detector. During several runs, a few counts were detected at the same energy
 of about 21 MeV, at about the same time into the run (2700 s). If these are
 due to charged particles, these must be heavier than D; possibly (3)He or
 (4)He nuclei. No known fusion reaction can account for these, though. Other
 explanations, in terms of artifacts, are possible.}
}
@article{Cham1990b,
 author    = {G.~P. Chambers and J.~M. Eridon and K.~S. Grabowski},
 title     = {Upper limit on cold fusion in thin palladium films},
 journal   = {Phys. Rev. B: Condens. Matter},
 volume    = {41},
 year      = {1990},
 pages     = {5388--5391},
 keywords  = {Experimental, Pd, ion beam, cps, res-},
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 submitted = {06/1989},
 published = {03/1990},
 annote    = {If, as stated by FPH, the excess heat comes from some new
 nuclear reaction not producing neutrons, tritium or helium, it is likely to
 be producing alpha particles or protons, which are detectable. This paper
 tests this hypothesis by charging palladium with an ion beam of deuterium,
 reaching a loading of 0.56. This can be done in vacuum, making particle
 detection easy. None were detected, however. It is possible that under these
 conditions the FPH effect does not operate.}
}
@article{Chap1990,
 author    = {I.~M. Chapnik},
 title     = {Possibility of induced beta radioactivity in PdD},
 journal   = {J. Radioanal. Nucl. Chem. Lett.},
 volume    = {146},
 year      = {1990},
 pages     = {273--282},
 keywords  = {Theory, suggestion.},
 submitted = {09/1990},
 published = {11/1990},
 annote    = {Chapnik notes that charged particle detectors, used to find
 protons, do not go much below the Pd surface. Some have indeed detected some
 charged particles.  Going back to an old thesis by Segre (1947), C suggests
 that beta emission may be induced in the deuterons in the interstitial sites
 of Pd, by virtue of the many electrons around the deuteron nucleus. This
 would produce (4)He plus energy at 10-12 MeV. He cites Yamaguchi and
Nishioka
 (1990) for experimental evidence.}
}
@article{Chat1990,
 author    = {L. Chatterjee},
 title     = {Could spectator electrons legalize cold fusion?},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {683--685},
 keywords  = {Theory, res+},
 submitted = {06/1990},
 published = {12/1990},
 annote    = {An interesting introductory phrase: "The origin of the
 phenomenon is not understood, so theoretical adventures may be hazardous
 until the experimenters reach a concensus". Still, C explores a possible
 avenue; that of spectator (conduction) electrons somehow enhancing one of
the
 two fusion branches, which might explain "excess tritium" production in some
 experiments. Theory seems to support this idea; the electrons drain away
some
 of the energy from the fusion vertex, skewing the branching ratio markedly.}
}
@article{Chee1990,
 author    = {G.~T. Cheek and W.~E. O'Grady},
 title     = {Measurement of hydrogen uptake by palladium using a quartz
             crystal microbalance},
 journal   = {J. Electroanal. Chem.},
 volume    = {277},
 year      = {1990},
 pages     = {341--346},
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 keywords  = {Experimental, basic study, EQCM},
 submitted = {10/1989},
 published = {01/1990},
 annote    = {The EQCM, a new toy for electrochemists, is used here to
measure
 H-loading of Pd, evaporated onto the quartz surface. Calibration was by
means
 of coulometry. It turns out that the frequency shifts, which normally tell
 you how much has been laid on, are about double those expected, due to
 stresses caused by Pd lattice expansion upon H-uptake. A loading of PdHx, x
=
 0.72 +/- 0.06 and PdDx, x = 0.68 +/- 0.06, was reached. So QCM can be used
to
 measure H/D loading in films of Pd.}
}
@article{Chem1990,
 author    = {M. Chemla and J. Chevalet and R. Bury and M. Perie},
 title     = {Experimental investigation of thermal and radiation effects
             induced by deuterium discharge at the palladium electrode},
 journal   = {J. Electroanal. Chem.},
 volume    = {277},
 year      = {1990},
 pages     = {93--103},
 keywords  = {Experimental, electrolysis, Pd, calorimetry, res-},
 submitted = {08/1989},
 published = {01/1990},
 annote    = {In short: there weren't any. The team is expert in
 electrochemical calorimetry and used their experience on a cell in which
both
 the cathode and anode were deuterium-charged palladium, which avoids certain
 problems of heat calculation, as well as oxygen evolution. The overall cell
 reaction is transfer of D from one electrode to the other (the new technique
 of "transfer electrolysis"). A quasi-adiabatic calorimeter was used. Tritium
 was also monitored in the electrolyte. There were some heat excursions but
 these could all be accounted for by some D2-O2 recombination; also, normal
 water, H2O, produced such excursions. No tritium was found. Since the
authors
 are experts at microcalorimetry, one might take their error figure for
 measured heat (3-5\%) as an important, realistic figure.
 In conclusion the authors note that there are claims of excess heat from
other workers, which are not easily accounted for. They call for a
theoretical
and practical study of possible surface effects that may lead to higher
loading of the palladium with deuterium, than is normally achieved.}
}
@article{Chen1990,
 author    = {M. Chen and S.~G. Steadman and M.~P.~J. Gaudreau
             and S.~C. Luckhardt and R.~R. Parker and D. Albagli
             and V. Cammarata and M. Schloh and M.~S. Wrighton and K. Kwok
             and C. Thieme and D.~I. Lowenstein and R. Debbe
             and J.~J. Reilly},
 title     = {Measurements of neutron emission induced by muons stopped
             in metal deuteride targets},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {155--159},
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 keywords  = {Experimental, Pd, Ti, Y, muon beam, res-},
 published = {06/1990},
 annote    = {There have been suggestions that perhaps muons from cosmic
 infall cause cold fusion. This team investigates by experiment whether this
 can be so. A muon beam is aimed at deuterated Pd, Ti and Y, and neutron
 emission measured by a ring of (3)He detectors of high efficiency
 (14\%). There was no difference between the neutron count from the
deuterides
 and controls, so muons from cosmic radiation cannot explain cold fusion. On
 the side, some simple heat and tritium measurements were also made, also
 without result.}
}
@article{Chene1990,
 author    = {J. Chene and A.~M. Brass},
 title     = {Tritium production during the cathodic discharge of deuterium
             on palladium},
 journal   = {J. Electroanal. Chem.},
 volume    = {280},
 year      = {1990},
 pages     = {199--205},
 keywords  = {Experimental, electrolysis, Pd, tritium, res+},
 submitted = {12/1989},
 published = {02/1990},
 annote    = {Under FPH conditions, the authors looked at tritium levels
 (measured as beta activity) both in the LiOD electrolyte and in the
 palladium, as a function of time, being careful to correct for background
 levels. They did observe a beta increase in the electrolyte which they say
 cannot be accounted for by isotope enrichment due to electrolysis, but the
 error bars are about equal to the measured levels. Nor does one expect much
 tritium out in the electrolyte, if cold fusion happens inside the
 palladium. This they looked at by rinsing the electrodes after hours of
 charging, and boiling them in the scintillation cocktail, to let out any
 tritium (I'm not sure how much would come out, and they don't say how long
 they boil). Here, higher levels, many times the error bars, were observed.
 The authors conclude that tritium is being produced, unaccounted for by
 electrolytic isotope enrichment, somewhat uncorrelated with time, so
 production is not continuous, and mainly near the surface of the palladium.
 The amounts of tritium would correspond to a neutron flux of 10**5/s, much
 higher than has been observed so, as they say "tritium production and
 neutron emission may not be connected". They also present spectrum evidence
 that they are, in fact, observing tritium.}
}
@article{Chri1990,
 author    = {D.~R. Christman},
 title     = {Cold fusion},
 journal   = {C\&EN September},
 volume    = {17},
 year      = {1990},
 pages     = {78.},
 keywords  = {Discussion, suggestion, tritium},
 published = {09/1990},
 annote    = {The author is a retired chemist, and recounts his experience,
 of "many years ago" at Brookhaven National Labs, working with heavy water.
At
 one point he was asked to analyse D2O for tritium. The range of T content in
 about 30 different D2O samples varied by three orders of
 magnitudes. Christman suggests strongly that tritium in D2O used in cold
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 fusion experiments be checked before each experiment, before drawing
 conclusions.}
}
@article{Chu1990,
 author    = {L.~Y. Chu and D.~H. Lu},
 title     = {The estimation of nuclear fusion rate in crystal},
 journal   = {Commun. Theor. Phys.},
 volume    = {13},
 year      = {1990},
 pages     = {33--40},
 keywords  = {Theory, res-},
 submitted = {09/1989},
 annote    = {A crystal has collective properties and an interior periodic
 field. C+L ask, what mechanism might there be to promote cold fusion? It
 turns out that collective properties can't do it because of wavelength
 problems. The periodic field, however, could bring deuterons together. This
 idea is examined in detail for PdDx (x <= 0.8). Thomas-Fermi statistics is
 invoked as well as the Schroedinger equation and WKB method, and the final
 result is a maximum of about $10^{-60}$ fusions/pair/s and, for titanium
 deuteride, $10^{-55}$. So no go, unless "there exist some unknown
equilibrium
 effects".}
}
@article{Chub1990,
 author    = {T.~A. Chubb and S.~R. Chubb},
 title     = {Bloch-symmmetric fusion in PdD(x)},
 journal   = {Fusion Technol.},
 volume    = {17},
 year      = {1990},
 pages     = {710--712},
 keywords  = {Theory, res+},
 submitted = {12/1989},
 published = {07/1990},
 annote    = {The Chubbs have an unpublished theory which as yet has not been
 confirmed or accepted by others. This theory says that at high loading like
x
 = 1, a BBC (Bose Bloch condensate) may form, allowing one or both of the
 reactions d+d-->(4)He or d+d-->(8)Be--> 2 alpha + 47.6 MeV, which could
 account for a lot. The authors speculate about future commercial solid state
 fusion reactors.  They plan a demonstration experiment using gas discharge.}
}
@article{Coll1990a,
 author    = {G.~S. Collins and G. McGhee and S.~L. Shropshire and H.~J. Jang
              and J. Fan and R.~B. Schuhmann},
 title     = {Electrolytic loading of hydrogen in metals studied by PAC},
 journal   = {Hyperfine Interactions},
 volume    = {60},
 year      = {1990},
 pages     = {663--666},
 keywords  = {Experimental, fundamental metal hydride},
 annote    = {PAC (perturbed gamma-gamma angular correlation) measurement was
 used to study the nature of hydrides of Pt and Ni, produced by
 electrolysis. In the case of Ni, 30\% of the metal had been transformed into
 the NiH beta-phase.  Normally, about 6 kbar of H2 pressure is required for
 this and this lends some weight to the claims that electrolysis is
equivalent
 to high pressure.}
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}
@article{Coll1990b,
 author    = {G.~S. Collins and J.~S. Walker and J.~W. Norbury},
 title     = {Deuteron tunnelling at electron-volt energies},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {409--411},
 keywords  = {Theory, tunnelling, res0},
 published = {12/1990},
 annote    = {Not much more than a conjecture at this stage, this paper tries
 to find a tunnelling mechanism to explain cnf. Looking at states of helium-4
 other than the 23.84 MeV one, it is found that the preferred reaction might
 be d-d tunnelling, combined with electron-conversion, the three becoming
 (4)He at 20.1 MeV, which then goes on to become tritium, protium, energetic
 electrons and small amount of (4)He. A direct test of this conjecture would
 be the search for electrons at energies of 3.7 or 23.8 MeV.}
}
@article{Corr1990,
 author    = {D.~A. Corrigan and E.~W. Schneider},
 title     = {Tritium separation effects during heavy water electrolysis:
             implications for reported observations of cold fusion},
 journal   = {J. Electroanal. Chem.},
 volume    = {281},
 year      = {1990},
 pages     = {305--312},
 keywords  = {Experimental, separation effects, tritium, res-},
 submitted = {01/1990},
 published = {03/1990},
 annote    = {But for the last few words of the title, this paper might have
 ended up as a Peripheral. Here, the authors examine in a very thorough
manner
 the separation effects when electrolysing heavy water containing a little
 tritium. As is well known, T is gradually enriched because D2 is formed
 preferentially at the electrode. The results are much as expected from
 conventional chemistry, using conventional values for S (ratio of fraction
 T/D in gas phase to ratio in liquid phase) which FPH have fiddled with a
 little. One could, however, level at the paper the charge of using a
circular
 argument, which goes: assume that the tritium increase is all due to
 electrolytic enrichment, what would the separation factor S have to be? A
 suitable value is found (2-10) and when this is used, the results can be
 fully explained in terms of electrolytic enrichment. OK: S is normally taken
 to be about 4, and FPH take it to be 1, so there is some point to this. This
 paper will not convince believers of cnf.}
}
@article{Dano1990a,
 author    = {M. Danos},
 title     = {Coulomb-assisted cold fusion in solids},
 journal   = {Fusion Technol.},
 volume    = {17},
 year      = {1990},
 pages     = {484--489},
 keywords  = {Theory, res+},
 submitted = {11/1989},
 published = {05/1990},
 annote    = {Previous theories of cold fusion have focussed on some (usually
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 unspecified) way of overcoming the coulombic repulsion of deuterons, and
have
 ignored the metal (Pd, Ti) atoms in the lattice. Danos now involves them in
 this rough quantitative treatment, in which the Pd atoms are seen as
possible
 catalysts of deuteron fusion, sharing in the liberating energy and
 momentum. Danos concludes that fusion enhancements of up to 10**40 are
 possible in principle.}
}
@article{Dano1990b,
 author    = {M. Danos},
 title     = {Coulomb-assisted cold fusion},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {413--416},
 keywords  = {Theory, res0},
 published = {12/1990},
 annote    = {So far, theory and experiment are at variance in cold fusion.
 Danos tries to find a mechanism that bridges the gap. We have a three-body
 problem here: the two fusing particles plus the catalyst. The three then
 share the resulting energy. Using a WKB solution of the wave equation, the
 result is an enhanced fusion rate, in line with experimental evidence. Just
 what reactions result from the fusion is left open.}
}
@article{Davi1990,
 author    = {R. Davidonis and G. Duskesas and R. Kalinauskas
             and K. Makarinunas and J. Petrauskas and V. Remeiskis
             and B. Ruzele},
 title     = {An experimental evaluation of the probability of cold fusion},
 journal   = {Litovskii Fiz. Sbornik},
 volume    = {30},
 number    = {6},
 year      = {1990},
 pages     = {65--68},
 keywords  = {Experimental, Pd, Ti, electrolysis, neutrons, gamma, tritium,
             res-},
 submitted = {12/1989},
 annote    = {In May and June 1989, a cold fusion experiment was run in the
 Institute of Physics of the Lithuanian Academy of Sciences, and this is a
 report. A quartz cell with cooling jacket was used for the electrolysis,
 using the usual 0.1 M LiOD, and a Ti or Pd rod, 8 mm dia., 40 mm long. Heat
 was measured as the difference in temperature between the outlet and inlet
of
 the coolant, which entered at 10 degC. This was calibrated using a resistive
 heater in the cell.  The cell was placed in a plastic scintillator well for
 neutron counting (by proton recoil), and a gamma spectrometer recorded
gammas
 using a NaI crystal.  10 cm of Pb shielding was used to reduce the
 background. Several measurement series were carried out, at 0.1 and 0.5
 A/cm**2, for both Pd and Ti cathodes, and a duration of 24-72 hours.  The
 results show that the upper limit for fusion was 5 orders of magnitude below
 that reported by FPH-89. Also, the 27\% tritium increase in the electrolyte
 (no details given how this was measured) was in line with electrolytic
 enrichment considerations.}
}
@article{Davi1990a,
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 author    = {J.~D. Davies and G.~J. Pyle and G.~T.~A. Squier and A. Bertin
              and M. Bruschi and M. Piccinini and A. Vitale and A. Zoccoli
              and S.~E. Jones},
 title     = {Search for 2.5 MeV neutrons from D2O (heavy water) electrolytic
              cells stimulated by high-intensity muons and pions},
 journal   = {Nuovo Cimento Soc. Ital. Fis. A},
 volume    = {103},
 year      = {1990},
 pages     = {155--162},
 keywords  = {Experimental, Pd, Ti, ion beams, muons, res0},
 submitted = {11/1989},
 published = {01/1990},
 annote    = {D-charged Pd and Ti cathodes were exposed to high-intensity
 beams of negative muons or pions. PdDx (x=0.8) and TiDx (x=?) were produced
 electrolytically.  Muon results indicate that Jones+ results cannot be
 explained simply by cosmic muon impingement.}
}
@article{Davi1990b,
 author    = {J.~D. Davies and J.~S. Cohen},
 title     = {More on the cold fusion family},
 journal   = {Ettore Majorana Int. Sci. Ser.: Phys. Sci.
              (Electromag. Cascade Chem. Exot. At.)},
 year      = {1990},
 pages     = {269--275},
 keywords  = {Theory, discussion},
 annote    = {A theoretical physicists' view of cold fusion, in 1989. All
 possibilities are critically examined, such as barrier penetration,
branching
 ratios, muon catalysis via cosmic influx, and the micro-hot
 fractofusion. Some penetrating comments are made. At the low energies of
 alleged cold fusion, p-d fusion is favoured. Cosmic muon catalysis is
 unrealistic because of the short life time of the muons and their sticking
to
 the products, reducing the catalysis cycle.  Fractofusion remains, although
 this, too, seems unlikely because of the metal hydrides' conductivity;
 charges that may build up will be quickly conducted away. Nuclear reactions
 with Li are also shown to be unlikely. Experiments with tritiated water
would
 be most fruitful if fractofusion is the answer but the authors warn of the
 dangers of T2 and especially T2O.}
}
@article{Davy1990,
 author    = {A.~S. Davydov},
 title     = {Possible explanation of the cold fusion experiments},
 journal   = {Sov. Phys. Dokl.},
 note      = {Orig. in: Dokl. Akad. Nauk SSSR 314 (1990) 339 (in Russian)},
 volume    = {35},
 number    = {9},
 year      = {1990},
 pages     = {811--812},
 keywords  = {Theory, res+},
 submitted = {05/1989},
 published = {09/1990},
 annote    = {Submitted 30-May-89, the paper says that the tritium+proton
 branch is more probable, and the proton then splits another deuteron,
 producing a neutron at 0.75 MeV. This, together with the 2.45 MeV from the
 (3)He+n branch, escape from the PdD, and are observed as gamma emission upon
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 being thermalised.  D points out that the sharp 2.2 MeV peak of FPH(89) does
 not, as FPH(89) claim, represent neutrons coming from a fusion reaction. The
 explanation of cold fusion lies in the electronic structure of Pd and its
 hydride (which is a superconductor at 11K). Hybridisation of the broad
 subband of Pd s-electrons and a very narrow subband of 4d-electrons with
 large effective mass, form Cooper pairs (bosons) which can pull deuterons
 together, enhancing the rate of fusion.}
}
@article{Degw1990,
 author    = {S.~B. Degweker and M. Srinivasan},
 title     = {A simple dead time method for measuring the fraction of bunched
              neutronic emission in cold fusion experiments},
 journal   = {Ann. Nucl. Energy},
 volume    = {17},
 year      = {1990},
 pages     = {583--585},
 keywords  = {Discussion},
 submitted = {04/1990},
 published = {10/1990},
 annote    = {Previous work in India indicates that when there is neutron
 emission from cold fusion, some of it (10-20\%) comes in about 20 ms bunches
 of 400-600.  This paper suggests and provides theory for a dead time
 technique for obtaining better resolution in such measurements, using a PC
 based data acquisition system.}
}
@article{Derj1990,
 author    = {B.~V. Derjaguin and V.~A. Kluev and A.~G. Lipson
              and Yu.~P. Toporov},
 title     = {Excitation of nuclear reaction under mechanical effect (impact)
              on deuterated solids},
 journal   = {Physica B},
 volume    = {167},
 year      = {1990},
 pages     = {189--193},
 keywords  = {Experimental, fracto, res+},
 submitted = {09/1989},
 published = {12/1990},
 annote    = {Another report from this Soviet team of what has been called
 fractofusion.  Metal missiles (50 g) were shot (velocity 200 m/s) at targets
 of LiD and heavy water ice, and neutrons measured. A block of 7 proportional
 "all wave" NSW-62 counters was used, immersed in silicone oil; efficiency
 1\%. Each shot was centred within a 1s observation period. Both targets
 showed a background of about 0.08 c/shot or about 0.1 n/s [sic]. Some
 background checks were done by using dummy targets. The authors conclude
that
 "is established that the count of neutrons in shooting at LiD and D2O
targets
 substantially exceeds the 'pulse background'" (i.e. the dummy shots). The
 diagrams are not quite as convincing as this. The authors advance two
 explanations: (1) fractofusion, (2) fusion due to shock compression of
highly
 D-loaded microdomains (dislocations), aided by polarons to provide
 shielding.}
}
@article{Dick1990,
 author    = {J.~T. Dickinson and L.~C. Jensen and S.~C. Langford
              and R.~R. Ryan and E. Garcia},
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 title     = {Fracto-emission from deuterated titanium: Supporting evidence
             for a fracto-fusion mechanism},
 journal   = {J. Mater. Res.},
 volume    = {5},
 year      = {1990},
 pages     = {109--122},
 keywords  = {Experimental, fracto, cps, light, radio emisssion, res+},
 submitted = {07/1989},
 published = {01/1990},
 annote    = {These authors, as well as others, have for some time been
 propagating the idea of crack propagation of embrittled metal
 hydride/deuteride as the cause of fusion (be it cold or otherwise), in
 support of the Soviet team.  Experiments of their own, measuring charged
 particles, photons and radio frequency signals from the deformation of
 polycrystalline and deuterated Ti, are presented here. They also critically
 examine charge separation, crucial to the debate: can it be sustained long
 enough in a conducting medium, and if so, how? These experiments support
 fractofusion, and the authors propose a possible mechanism for charge
 separation. }
}
@article{Dign1990,
 author    = {T.~G. Dignan and M.~C. Bruington and R.~T. Johnson
              and R.~W. Bland},
 title     = {A search for neutrons from fusion in a highly deuterated
              cooled palladium thin film},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {469--472},
 keywords  = {Experimental, Pd-Ir, ion beam loading, neutrons, gammas, res-},
 published = {12/1990},
 annote    = {This group tried to create conditions for optimal cold fusion.
 They believe that deuteron implantation at low temperatures might provide
 such conditions, because high d densities can be achieved, and that
 high-energy implantation is likely to put d's into the most suitable sites
in
 the metal lattice. A thin Pd-Ir (90:10) film was cooled to 77K and implanted
 at 1000 eV with a neutralised deuterium beam. Neutrons were detected with a
 moderator/absorber (0.1 $m^3$ of paraffin) with NaI at its centre. If all
the
 deuterium atoms stuck to the film, a surface loading D/Pd of 50 would have
 been reached; the approximately measured figure was about 9. The gamma
 spectrum from moderated neutrons measured during the experiment was the same
 as the background one.}
}
@article{Donn1990,
 author    = {A. J. H. Donne and A. A. M. Oomens},
 title     = {Zon op Aarde},
 note      = {In Dutch},
 journal   = {Natuur en Technik},
 volume    = {58},
 number    = {2},
 year      = {1990},
 pages     = {118--129},
 keywords  = {Commmentary, no FPH/Jones ref.},
 annote    = {Dutch report of the cold fusion news. The authors mention the
 events and comment that water and lithium are abundant so this could be a
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 good energy source, on top of which the only waste product is helium. All
 this is written in the abstract, but most of the article then is about
 conventional hot fusion, with just a small box about Fleischmann and Pons
 type cold fusion, without a reference.}
}
@article{Dunl1990,
 author    = {B.~I. Dunlap and D.~W. Brenner and R.~C. Mowrey
              and J.~W. Mintmire and C.~T. White},
 title     = {Linear combination of Gaussian-type orbitals -
              local-density-functional cluster studies of D-D interactions
              in titanium and palladium},
 journal   = {Phys. Rev. B},
 volume    = {41},
 year      = {1990},
 pages     = {9683.},
 keywords  = {Theory, res-},
 submitted = {12/1989},
 published = {05/1990},
 annote    = {Theoretical look at the possibility that two or more deuterons
 might occupy the same site in the metal deuteride lattice, and thus be
 squeezed enough to fuse. A combination of the title models is used. The
 result is that if two d's were to try this, one would be strongly repelled,
 i.e ejected from the site.  Therefore, d-d distances in these deuterides is
 that of nearest sites from each other, or > 5 bohr, which is much more than
 in D2 gas. Bad news for cold fusion.}
}
@article{Duru1990,
 author    = {J. Durup},
 title     = {Comment on: "Deuterium nuclear fusion at room temperature:
              a pertinent inequality on barrier penetration"},
 journal   = {J. Chem. Phys.},
 volume    = {93},
 year      = {1990},
 pages     = {6120.},
 keywords  = {Comment, res-},
 submitted = {12/1989},
 published = {10/1990},
 annote    = {Comment on named paper by G Rosen (1989), who found theoretical
 grounds for support of cold fusion claims. Like Morgan III (1990) and Mas et
 al (1990), Durup points out that there are serious flaws in Rosen's
treatment
 of the potential well (d-d interaction), and the calculations are therefore
 out by tens of orders of magnitude.}
}
@article{Eagl1990,
 author    = {R.~D. Eagleton and R.~T. Bush},
 title     = {Design considerations for palladium electrodes as suggested by
              a deuteron cluster model for cold nuclear fusion},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {359--362},
 keywords  = {Theory, res+},
 published = {09/1990},
 annote    = {According to the authors' model, the essential element in cold
 fusion is the formation of deuteron clusters in the PdDx lattice. The paper
 discusses the processes and events in the production of suitable Pd
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 electrodes.  Electrode preparation, chemisorption and absorption of
deuterium
 into the Pd, saturation, cluster growth and subsequent fusion of closely
 crowded deuterons are discussed. Fusion is expected to lead to (4)He, which
 will give some of their energy to other deuterons, causing local melt-downs
 and plasma, which would screen x-rays. Tritium can also be produced, if
 deuterons at a cluster periphery fuse. Design consequences of all this are
 that any Pd not immersed must be sealed by cladding or a surface poison;
 cluster formation should be optimum near the electrode cladding.}
}
@article{Ewin1990a,
 author    = {R.~I. Ewing and M.~A. Butler and D.~S. Ginley
              and J.~E. Schirber},
 title     = {A sensitive multi-detector neutron counter used to monitor
              'cold fusion' experiments in an underground laboratory:
              negative results and positive artifacts},
 journal   = {IEEE Trans. Nucl. Sci.},
 volume    = {37},
 year      = {1990},
 pages     = {1165--1170},
 keywords  = {Experimental, neutron detector design},
 published = {06/1990},
 annote    = {The team has reported their results in two other papers, and
 here describes the neutron detector used. It consisted of three independent
 detectors, each one comprising 11 gas proportional counters; thermal
neutrons
 were detected via the (3)He (n,p) reaction. The laboratory was situated
 underground in a low-background environment, down by a factor of 700 below
 that at the surface.  A total of 339 counting hours produced the same number
 of counts as a control.  There was a single coincidence peak (counts on all
 three), but this was statistically not significant.  There were a number of
 false signals from single detectors, not shared by the others. These
 artifacts, which have a number of causes, might confuse a cold fusion
 experimenter using a single detector. From the measured neutron flux, an
 upper limit of 66 neutrons per hour can be inferred.}
}
@article{Ewin1990b,
 author    = {R.~I. Ewing},
 title     = {High-sensitivity neutron detectors used at Sandia National
              Laboratories to monitor and diagnose 'cold fusion' experiments:
              negative results},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {473.},
 keywords  = {Experimental, electrolysis, gas phase, Pd, Ti, neutrons, res-},
 published = {12/1990},
 annote    = {A multidisciplinary group has tried out every type of cold
 fusion experiment known to them, for which positive results have been
 claimed, in an underground site with low background neutron count (10 c/h)
 and using high efficiency (9-10\%) detectors. This counter can detect < 100
 c/h and bursts of < 35 counts. Nothing was detected. The counter has 22
(3)He
 proportional counter tubes embedded in polythene, connected so as to form
 three independent neutron detectors. One detector at a time did show random
 signal artifacts, but coincidence on all three eliminated these. Spurious
 counts can arise from acoustic disturbances, electrical discharges across
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 insulators, electronic noise and cosmic showers.}
}
@article{Fedo1990,
 author    = {G.~F. Fedorovich},
 title     = {Coulomb interaction in a radiation defect of a hydride
crystal},
 journal   = {Sov. Tech. Phys. Lett.},
 note      = {Orig. in: Pis'ma Zh. Tekh. Fiz. 16 (1990) 63)},
 volume    = {16},
 number    = {12},
 year      = {1990},
 pages     = {911--912},
 keywords  = {Theory, fractofusion, lithium deuteride, res+},
 submitted = {01/1990},
 published = {12/1990},
 annote    = {Fedorovich, who later developed his E-cell theory, here looks
 at the effect of high pressure on a lithium hydride crystal, and
 tunnelling. He concludes that there might be a significant fission reaction
 lithium hit by thermal neutrons at pressures of tens of Mbar.}
}
@article{Fili1990a,
 author    = {V.~A. Filimonov},
 title     = {Mechanism of cold nuclear fusion},
 journal   = {Pis'ma Zh. Tekh. Fiz.},
 volume    = {16},
 number    = {20},
 year      = {1990},
 pages     = {29--34},
 note      = {In Russian},
 keywords  = {Theory, suggestions},
 submitted = {02/1990},
 published = {10/1990},
 annote    = {A thermodynamic theory, involving conditions far from
 equilibrium, where there is a high probability of d-cluster formation and
 shock fronts arising at phase boundaries; the clusters may have some
 properties of solitons, and consitions may arise in which hot deuterons can
 overcome the Coulomb barrier and fuse. The conditions for this are that the
 material have weakly bound and mobile deuterons, that there be phase
 boundaries and that it be mono- or polycrystalline, with a minimum of
 defects.}
}
@article{Fili1990b,
 author    = {V.~A. Filimonov},
 title     = {On the probability of cold nuclear fusion},
 journal   = {Pis'ma Zh. Teor. Fiz.},
 volume    = {16(19)},
 year      = {1990},
 pages     = {42--46},
 note      = {In Russian},
 keywords  = {Theory, res0},
 submitted = {06/1990},
 published = {10/1990},
 annote    = {The probability of the energy jump required for d-d fusion is
 very small.  Two groups of hypotheses put forward: Coulomb barrier
 penetration enhancement by structure defects, and subtle interactions in
 solids or plasmas to lower the Coulomb barrier, do not answer the problem. A
 new theory is presented here. The large energy gap is proposed to be
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 subdivided into a number of sub-levels. The probability of traversing the
 total gap by successive jumps up the sub-levels is larger than that for the
 single jump. For this to occur, there must be self-organisation in the
 medium, and these sub-levels must exist. Shock waves, solitons and
 directional propagation all play a part in the process. More work will
 follow.}
}
@article{Flei1990,
 author    = {M. Fleischmann and S. Pons and M.~W. Anderson and L.~J. Li
              and M. Hawkins},
 title     = {Calorimetry of the palladium-deuterium-heavy water system},
 journal   = {J. Electroanal. Chem.},
 volume    = {287},
 year      = {1990},
 pages     = {293--348},
 keywords  = {Experimental, electrolysis, calorimetry, res+},
 submitted = {12/1989},
 published = {07/1990},
 annote    = {A 50+ pages paper, to back up their preliminary note of 15
months
  earlier.  The authors here meticulously explain and justify the methods
they
 use, and present new results, confined to excess heat measurements. Other
 measurements such as of tritium, are "to be published". The calorimetry is
 described in detail; the controversial question of mixing is addressed and
it
 seems that this is not a problem. That is, measured temperature rises cannot
 be due to local hot spots. Gas recombination has been prevented. Careful
 calibrations were made, and this time, a number of control experiments were
 run. These all produce zero excess heat +/- very small error limits. Errors
 are estimated, and are - where there is excess heat - small in relation to
 the excess heats.  The excess heats - measured at steady state - are clearly
 a function of current density, and electrode size. Up to about 100 w/cm**3
 steady state excess heat was calculated. In contrast to the preliminary note
 (FPH 1989), the present more comprehensive results show that the larger the
 palladium electrodes (in terms of diameter), the smaller the excess
 heat/cm**3; in fact, the largest Pd electrode, of 8 mm diameter, was used as
 one of the controls in D2O electrolysis. Other controls are Pd in H2O and Pt
 in both H2O and D2O. All showed zero excess heat. About half of the paper
 consists of appendices on calorimetry, analysis of calorimetry results,
 mathematical and numerical procedures and some comments on the authors'
 previous paper.  The authors conclude once more that a nuclear, rather than
a
 chemical process must be responsible for the excess heat results; they
 express concern that many attempts at verification have focussed simply on
 neutron emission, since this nuclear process appears to be largely
aneutronic
 (and possibly atritonic).}
}
@article{Flem1990,
 author    = {J.~W. Fleming and H.~H. Law and J. Sapjeta and P.~K. Gallagher
              and W.~F. Marohn},
 title     = {Calorimetric studies of electrochemical incorporation of
              hydrogen isotopes into palladium},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
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 pages     = {517--524},
 keywords  = {Experimental, calorimetry design, electrolysis, Pd, res-},
 published = {12/1990},
 annote    = {Novel open and sealed calorimeters were designed. In the sealed
 design, no reaction product is lost, and the heat of hydrogenation is
 accounted for within 2\%. Electrolyses were run for 1-40 days, at constant
 current. The electrolyte was 0.1M LiOD or LiOH. The calorimeter was a
Setaram
 HT 1000 functioning as a heat flow isothermal calorimeter. It could provide
 space for two separate cells, whose heat output could be measured
 differentially. In this mode, sensitivity was 10 microwatt. For a single
 cell, this increased to 2.5 milliwatt. For the open (differential) designs,
 no excess heat was found.  The sealed single-cell designs also balanced the
 output against the input to within 2.2\% of total integrated heat. The small
 deviation (positive) can be explained by the different responses of the top
 and bottom of the cells. The paper thus does not support cold fusion.}
}
@article{Fogl1990,
 author    = {A. {Foglio Para} and V. Sangiust and P.~L. Cavallotti
              and U. Ducati and P.~F. Bortignon},
 title     = {Neutron monitoring and related measurements during electrolysis
              of heavy water with palladium and titanium cathodes:
              activity report},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {131--135},
 keywords  = {Experimental, electrolysis, Pd, Ti, neutrons, tritium, res+},
 submitted = {02/1990},
 published = {08/1990},
 annote    = {From April to August 1989, more than 100 long-term electrolysis
 experiments with both Pd and Ti electrodes were carried out with monitoring
 of neutrons and analysis of the electrolyte and the gases evolved. Four
 neutron detectors ensured good sensitivity. In two cases, significant
neutron
 emissions were observed, one of them associated with palladium electrode
 deformation which possibly caused heating. No tritium was found in the
 electrolyte of these cells, but none was expected above experimental error,
 on the basis of the neutron emission intensity. In another series, neutron
 counting was synchronised with pulsed cathodic charging of the electrodes,
 with 60-90 s periods. Out of 30 runs, two showed some differences, again
 indicating a weak cold fusion effect. Gas analysis using a mass detector
 found some atomic masses 5 and 6, but no tritium. The authors point out that
 the positive results were obtained under conditions far from equilibrium.}
}
@article{Fond1990,
 author    = {L. Fonda and G.~L. Shaw},
 title     = {Deuteron cold fusion by anti-diquark catalysis},
 journal   = {Fizika (Zagreb)},
 volume    = {22},
 year      = {1990},
 pages     = {371--376},
 keywords  = {Theory, anti-diquarks, res0},
 submitted = {10/1989},
 published = {01/1990},
 annote    = {In case cold fusion is real, the authors speculate on a
possible
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 mechanism, being the catalysis of d-d fusion by the anti-diquark Q with
 charge -4/3 and large mass, forming (in analogy with muons) the triatomic
 molecules dQd by Coulombic shielding; these could then fuse. The
requirements
 for this scenario are the -4/3 charge, sufficient stability of Q and a mass
 of a few GeV. Of the three fusion reaction paths (yielding (4)He, (3)He+n
and
 t+p, respectively, plus the rereleased Q), the (4)He branch would be
strongly
 favoured. Formation of the dQd group would be much faster than the analogous
 dmud group in muon catalysis because the first product, dQ would have a
 charge of -1/3 and would attract the second d, unlike the neutral dmu. Where
 do these Q's come from?  "Quarked" atoms (4)HeQ, may exist within transition
 metals the with properties like H; once released from these, a Q can
catalyse
 a number of d-d fusions and finally either escape from the metal or be
 sequestered into a metal atom. This predicts a large localised burst of
 neutrons, calculated roughly to be $10^5$ to $10^6$ n/s/Q, and separated in
 time by 1E-06-1E-05 s. Finally, these neutrons would not have a fixed energy
 of 2.45 MeV but a three-body spectrum (the Q makes off with some). If these
 Q's in fact exist and can be found and harnessed, we can get clean energy
from
 cold d-d fusion.}
}
@article{Free1990,
 author    = {S. Freedman and D. Krakauer},
 title     = {Biases in cold fusion data},
 journal   = {Nature},
 volume    = {343},
 year      = {1990},
 pages     = {703.},
 keywords  = {Polemic, statistics},
 published = {02/1990},
 annote    = {The authors throw statistical doubts on the results of Jones
 et al. One suspicion they appear to harbour is that the Jones team ended
 their runs - which had durations of widely varying lengths - when positive
 results had been obtained. This would give positive results from random
 noise. See Jones, Decker and Tolley's (1990) response.}
}
@article{Frie1990,
 author    = {H. Friedmann and P. Hundegger and H.~R. Kirchmayr and A. Pavlik
             and H. Vonach and G. Wiesinger and G. Winkler},
 title     = {Search for 'cold fusion'},
 journal   = {Kerntechnik},
 volume    = {55},
 year      = {1990},
 pages     = {161--164},
 keywords  = {Experimental, gas phase, Ti, TiFe alloy, neutrons, res-},
 submitted = {11/1989},
 published = {06/1990},
 annote    = {The authors made an attempt to verify cold fusion. Having
failed
 with electrolysis, they turned to Frascati-type experiments, especially as
 the apparatus for this was already available. Ti and TiFe alloy were
 gas-charged with D2 at 200 degC and 50 atm, with thermal cycling. Two
 separate BF3 neutron counters were used. The neutron flux, corrected for
 counting efficiency, came to about $8 \times 10^{-24}$ fusions/s/d with Ti,
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 and $1.4 \times 10^{-25}$ for TiFe, both as upper limits. Since some
theories
 (e.g. fractofusion) result in short-time neutron bursts, these were also
 looked for, in the form of coincidence readings on both detectors. These
gave
 readings of $1.9 \times 10^{-24}$ (Ti) and $2.2 \times 10^{-26}$ (TiFe)
(same
 units). The team concludes that their superior equipment shows that there is
 no cold fusion and that the Frascati results are due to faults in the
 measuring equipment.}
}
@article{Frod1990,
 author    = {P. Frodl and O.~E. Roessler and M. Hoffmann and F. Wahl},
 title     = {Possible participation of lithium in Fleischmann-Pons reaction
              is testable},
 journal   = {Z. Naturforsch. A},
 volume    = {45},
 year      = {1990},
 pages     = {757--758},
 keywords  = {Discussion, suggestion, Li},
 submitted = {05/1989},
 published = {05/1990},
 annote    = {The "unknown nuclear reaction" just might be (6)Li + d -> 2
(4)He
 plus nothing but energy (heat). This reaction has been suggested previously
 by Jones et al. In fact, it has other possible branches, and the authors
 leave these aside for the moment. Lithium is able to get into Pd. Assuming
 that all the heat claimed by FPH comes from this reaction, then there should
 be measurable consumption (of up to 3\% or so) in the Li concentration in
the
 0.1M LiOD electrolyte used by FPH. Go forth and try it.}
}
@article{Fuka1990,
 author    = {S. Fukada and S. Furuya and Y. Matsumoto and K. Ishibashi
              and N. Mitsuishi},
 title     = {Neutron emission from some metal deuterides},
 note      = {In Japanese, English abstr.},
 journal   = {Technol. Rep. Kyushu Univ.},
 volume    = {63},
 number    = {5},
 year      = {1990},
 pages     = {475--480},
 keywords  = {Experimental, gas phase, Pd, Ti, Pd-coated C, neutrons, res0},
 published = {10/1990},
 annote    = {The metal under high pressure D2 mode of cold fusion
experiment,
 including the customary temperature cycling. Ti, Pd and Pd-coated carbon
were
 tried. A single BF3 neutron counter was used. No reproducible neutron
 emission was observed, but with the Ti sample, analysis of variance
indicated
 some unreproducible bursts; these appear to have occurred at the liquid
 nitrogen temperature, before the rise to room temp.}
}
@article{Gai1990,
 author    = {M. Gai and S.~L. Rugari and R.~H. France and B.~J. Lund
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              and Z. Zhao and A.~J. Davenport and H.~S. Isaacs and K.~G.
Lynn},
 title     = {Upper limits on emission rates of neutrons and gamma-rays from
              'cold fusion' in deuterated metals},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {217.},
 keywords  = {Experimental, electrolysis, Pd, neutrons, gamma, res-},
 published = {06/1990},
 annote    = {An array of six liquid-scintillator neutron counters with total
 efficiency of about 1\% and a very low background was used to measure
neutron
 and gamma emissions from a cold fusion experiment. Up to four FPH-type
 electrochemical cells ran simultaneously for up to 2 weeks, with Pd and Ti
as
 cathodes. No statistically significant emissions above background were
 observed in any of the experiments. This translates into an upper limit of
 $10^{-25}$ fus/pair/s from the neutron count, or $10^{-22}$ from the gamma
 count. The lower limit is 50-100 times smaller than that reported by
 Jones+(89), and  some 1E06 smaller than FPH(89). The results suggest that a
 significant fraction of the neutrons are associated with cosmic rays.}
}
@article{Gann1990,
 author    = {V.~V. Gann and V.~I. Pokhodyashchii},
 title     = {Metastable bound states of deuterium in palladium and its role
              in cold nuclear fusion},
 journal   = {Vopr. At. Nauki Tekh. Ser. Fiz. Radiats. Povrezhdenii Radiats.
              Materialoved.},
 volume    = {1990},
 number    = {1},
 year      = {1990},
 pages     = {89--90},
 note      = {In Russian},
 keywords  = {Theory, effective mass},
 submitted = {12/1989},
 published = {01/1990},
 annote    = {Examines the possibility of raised probability of tunnelling
 barrier penetration. Analysis shows that an effective electron mass of twice
 normal might be realised at the periphery of the d-shells of the Pd, and
 under some circumstances this might lead to fusion rates of the order of
 those observed.  For this, it is assumed that deuterium exists in a mildly
 nonuniform gas of quasiparticles (the conductance electrons), whose
 characteristic dimensions exceed those between the bound d-atoms.
Macroscopic
 defects might play a role in causing electron localisation and aggregation
of
 deuterons.}
}
@article{Gods1990,
 author    = {N.~A. Godshall and E.~P. Roth and M.~J. Kelly
              and T.~R. Guilinger and R.~I. Ewing},
 title     = {Calorimetric and thermodynamic analysis of palladium-deuterium
              electrochemical cells},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
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 pages     = {229--237},
 keywords  = {Experimental, Pd, electrolysis, calorimetry, neutrons, res-},
 published = {06/1990},
 annote    = {A novel, large calorimeter was developed, based on the
 vaporisation of freon and which does not depend on temperature measurement
 within the cell, thus avoiding problems of temperature gradients. The 10.6 g
 Pd rod was vacuum annealed at 900 degC for 16 hours to remove residual
 hydrogen, and placed, in a dry room to exclude light water, into the cell
 also containing 167 ml of 0.1M LiOD in D2O. The electrolysis cell was placed
 into a Dewar, completely immersed in liquid freon. All heat released by the
 cell resulted in freon vaporisation, and the power output of the cell was
 calculated from the flow of freon gas out of the system. This gave an
 accuracy of 2\% of the known power inputs, or 0.1W. Initial loading of the
Pd
 with D took place at low current for 48 h, then the current density was
 raised to 270-360 mA/cm$^2$ and held for 21 days. The current was reversed
 for 1 day, and then reapplied for a further 14 days. A neutron detector
 consisting of three (3)He proportional counters was also mounted close to
the
 cell. The cell heat output was within 2\% of that expected from conventional
 chemical reactions in all cases. No neutron emissions not accountable as
 background, were detected. This included a short burst twice the long-term
 background, but such bursts are not unusual, being artifacts also observed
by
 others. There is a very clear discussion of the thermodynamics of the
 chemical reactions in the cell, and how this affects the calorimetry of such
 cells.}
}
@article{Gold1990,
 author    = {V.~I. Goldanskii and F.~I. Dalidchik},
 title     = {On the possibilities of 'cold enhancement' of nuclear fusion},
 journal   = {Phys. Lett. B},
 volume    = {234},
 year      = {1990},
 pages     = {465--468},
 keywords  = {Discussion, theory, fracto, res+},
 submitted = {07/1989},
 published = {01/1990},
 annote    = {The authors claim that 3 years ago, the editor of JETP Lett.
 (i.e. of the Soviet journal Pis'ma etc) rejected Deryaguin's paper on the
 emission of neutrons from heavy ice or LiD under fracture. Their subsequent
 publications have remained largely unnoticed, in contrast with FPH and
 Jones+.  Here, the present authors take a look at some possible mechanisms
 for the claimed cold fusion rates. Coulombic shielding, large effective
 electron mass, barrier penetration, and stimulation by radiation are
 considered, and rejected on quantitative theoretical grounds. Thus there
 remains only energetic activation by, for example, fracture micro-cracks, as
 suggested by the Soviet fracto-fusion school. G\&D do admit that this is not
 yet theoretically substantiated.}
}
@article{Golu1990a,
 author    = {P.~I. Golubnichii and A.~D. Filoneko and V.~A. Tsarev
              and A.~A. Tsarik and V.~A. Chechin},
 title     = {Verification of the accelerator model for low-temperature
              nuclear fusion},
 journal   = {Sov. Phys. - Lebedev Inst. Rep.},
 year      = {1990},
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 pages     = {16--18},
 note      = {Orig. in Sb. Kratk. Soobshch Fiz. AN SSSR 1990(9) 15
              (in Russian)},
 keywords  = {Discussion, fracto, res+},
 submitted = {06/1990},
 annote    = {Some rough calculations are made here to see whether the team's
 experimental results, reported in another paper (specified as a preprint)
 make sense. The results were some correlations between nuclear, acoustic and
 electromagnetic emission pulses for a sample of palladium under deuteration.
 The rough calculations show that the observations are roughly to be
expected,
 within a few orders of magnitude.}
}
@article{Golu1990b,
 author    = {P. I. Golubnichii and E. P. Koval'chuk and G. I. Merzon
             and A. D. Filonenko and V. A. Tsarev and A. A. Tsarik},
 title     = {Detection of neutrons and tritium from solid palladium targets
             by electrolytic deuterium charging},
 journal   = {Sov. Tech. Phys. Lett.},
 volume    = {16},
 number    = {11},
 year      = {1990},
 pages     = {826--827},
 submitted = {05/1990},
 published = {11/1990},
 note      = {Orig. in: Pis'ma Zh. Tekh. Fiz. 16(21) (1990) 46--51,
             in Russian},
 keywords  = {Experimental, electrolysis, Pd wire, neutrons, tritium,
             correlations, res+},
 annote    = {A 7 cm long Pd wire of area 10 cm$^2$ was prepared by
deposition
 from a PdCl2 solution (they don't say deposited onto what), and used as
 cathode in 0.1M LiClO2 in D2O. 10 neutron detectors were used, and tritium
 analysed in the gas phase. There were several neutron events during
 electrolysis, several times the background levels, some of them coinciding
 with cell temperature rises. In another experiment, one tritium event
 coincided with a temperature rise, and some neutron events did as well.}
}
@article{Golu1990c,
 author    = {P.~I. Golubnichii and G.~I. Merzon and A.~D. Filonenko
             and V.~A. Tsarev and A.~S. Tsarik},
 title     = {Correlation between nuclear, acoustic, and electromagnetic
             emissions during the electrolytic saturation of palladium
             with deuterium},
 journal   = {Sov. Phys. - Lebedev Inst. Rep.},
 number    = {8},
 year      = {1990},
 pages     = {31--35},
 note      = {Orig. in Kratk. Soobshch . Fiz. (1990) (8) 26, in Russian},
 keywords  = {Experimental, electrolysis, Pd, acoustics, nuclear, em, res+},
 submitted = {05/1990},
 annote    = {Four series of measurements were carried out, three of them
 electrolysis at a Pd plate at the bottom of a cell, in 0.1M LiClO4 in D2O; a
 microphone was soldered to the palladium, a CdI crystal underneath it to
 catch nuclear events and an electromagnetic probe to catch signals up to
1MHz
 in frequency.  Electrolysis was continued (at 1A) for 3.5, 3.5 and 2
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 hours. In the fourth experiment, a D-charged Pd cathode was heated in a
 vacuum chamber to drive out the deuterium, while also monitoring the three
 kinds of emissions. The acoustic probe came loose, however. All in all, two
 events were seen, in which the three signals coincided, during the
 electrolysis runs; none during the desorption run. Going by the frequencies
 of events of the individual signals, the expected number of such
coincidences
 was $10^{-7}$, so that 2 might be a large number. The authors admit to the
 weakness of these statistics and agree that further work is needed. They
did,
 however, write another paper to explain these results (p.16/15, same journal
 issue).}
}
@article{Gott1990,
 author    = {S. Gottesfeld and R.~E. Anderson and D.~A. Baker
              and R.~D. Bolton and K.~B. Butterfield and F.~H. Garzon
              and C.~A. Goulding and M.~W. Johnson and E.~M. Leonard
              and T.~E. Springer and T. Zawodzinski},
 title     = {Experiments and nuclear measurements in search of cold fusion
              processes},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {287--297},
 keywords  = {Experimental, electrolysis, Pd, neutrons, gamma, calorimetry,
              res-},
 published = {09/1990},
 annote    = {The Los Alamos team (one of several to have a go) comprised
 electronics and various nuclear expertise, as well as electrochemical. Four
 separate electrochemical cells were used. Deuterium loading was monitored by
 continuous monitoring of the electrode resistance. To measure neutron
 emissions, a (3)He well counter as well as a NE-213 scintillation
 spectrometer were used, and a HPGe detector for gamma emissions. Later,
 thermocouples monitored for thermal swings as well. During a total
 observation time of about 550 hours, there were some excursions on one
 counter, not matched by another, and could be rejected.  Such excursions
were
 also observed in the absence of an electrolysis cell.  Another experiment
 using titanium exposed to D2 gas yielded no emissions either.}
}
@article{Gou1990,
 author    = {Q. Gou and Z. Zhu and Q. Zhang},
 title     = {Possible mechanism of cold fusion and experimental research},
 journal   = {Yuanzi Yu Fenzi Wuli Xuebao},
 volume    = {7},
 year      = {1990},
 pages     = {1491--1496},
 note      = {In Chinese},
 keywords  = {Discussion, theory},
 annote    = {A possible mechanism is proposed of D-D cold fusion based on
 at., mol. or solid state physics. After this assumption, the remarkable
 effects of temp.  variation and exothermal and the fusion products with mass
 no. 4 and 3 were obsvd. during the electrolysis of Dd with Pd or Ti
 electrodes. (Chem. Abstr.  114:151805, (1991)).}
}
@article{Govo1990,
 author    = {B.~V. Govorov and V.~M. Gryaznov and N.~B. Yeremin
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              and A.~N. Karavanov and N.~R. Roshan and A.~F. Tulinov
              and I.~V. Tyapkin},
 title     = {Study of neutron emission from palladium alloy deuterides},
 journal   = {Zh. Fiz. Khim.},
 volume    = {64},
 year      = {1990},
 pages     = {539--540},
 note      = {In Russian},
 keywords  = {Experimental, fracto, gas phase, Pd-Sm, Pd-Ru alloys, neutrons,
              res-},
 submitted = {07/1989},
 published = {02/1990},
 annote    = {Refer to FPH and Jones+, and to the fractofusion explanation of
 cold fusion, as given by Golubnichi et al. (Lipson et al are not
 mentioned). To test this, the authors used two alloys, Pd-Sm (80:20 by mass)
 and Pd-Ru (94:6 by mass), which suffer greatly different hydrogen
 embrittlements, Pd-Sm fragmenting much sooner than Pd-Ru upon absorption of
 hydrogen. The idea (I take it) is that there should thus be similarly
 different neutron emissions, if these are due to fracturing. Deuterium was
 absorbed as a gas (1 atm), with the metal in a U-tube immersed in a variable
 temperature bath, cycled between liquid N2 temperature and 500K. 12
 proportional neutron counters were used, with an overall counting efficiency
 of $0.105 \pm 0.005$, together with another 3 detectors for monitoring
 background neutron counts. Results show clear evidence for neutron emission
 when the deuterated alloys were brought to 500K (but I am not clear about
the
 units on the graph, or in the text), but no essential difference between the
 two alloys, so the fractofusion theory is not upheld here.}
}
@article{Gozz1990a,
 author    = {D. Gozzi and P.~L. Cignini and L. Petrucci and M. Tomellini
              and Maria. De G and S. Frullani and F. Garibaldi and F. Ghio
              and M. Jodice},
 title     = {Evidences for associated heat generation and nuclear products
              release in palladium heavy-water electrolysis},
 journal   = {Nuovo Cimento Soc. Ital. Fis. A},
 volume    = {103},
 year      = {1990},
 pages     = {143--154},
 keywords  = {Experimental, electrolysis, Pd sinter, calorimetry, neutrons,
              gamma, res+},
 submitted = {09/1989},
 published = {01/1990},
 annote    = {A sintered Pd electrode, shaped from Pd powder to final
 dimensions of $6 \times 5 \times 25$ mm, was charged galvanostatically
 (const. current) at 200 mA/cm$^2$ with deuterium. Of two similar
experiments,
 one produced nuclear and thermal effects simultaneously, after 6 days of
 electrolysis, in the form of a single sharp neutron burst. The event lasted
4
 minutes and emitted $7.2 \times 10^5$ neutrons, while the electrode heated
to
 150 degC. Gamma radiation could not be detected because of the short period
 of the burst. Excess T was estimated, by complex background corrections, at
 $2.14 \times 10^{11}$ atoms. However, the calculated excess heat is 3 orders
 of mag. less than expected from the no. of neutrons.  The authors consider
 the possible role of Li but no conclusion is reached.}
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}
@article{Gozz1990b,
 author    = {D. Gozzi and P.~L. Cignini and L. Petrucci and M. Tomellini
              and G. {De Maria} and S. Frullani and F. Garibaldi and F. Ghio
              and M. Jodice and E. Tabet},
 title     = {Nuclear and thermal effects during electrolytic reduction
              of deuterium at palladium cathode},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {241--247},
 keywords  = {Experimental, electrolysis, Pd sinter, calorimetry, neutrons,
              gamma, res+},
 published = {09/1990},
 annote    = {Used a sintered Pd cathode and measured its temperature, but
did
 no other calorimetry. Neutron and gamma emissions were monitored. The cell
 was switched off upon reaching 80 degC. A (3)He dosimeter was used for
 neutron detection, up to 7 MeV, with an efficiency of $5 \times 10^{-5}$.
 Gamma detection was by means of a NaI crystal connected to a SILENA
 spectrum analyser. Deuterium charging took place in a series of bursts of
 increasing length. At the onset of such a burst, there was a temperature
rise
 of the cathode followed, upon current cessation, by a slow drop. This
pattern
 changed gradually due to increasing D/Pd ratio. At one point, there was a
 temperature spike and a neutron burst at the same time; the authors conclude
 from this single event that cold fusion had taken place. At the end of the
 paper, a tritium excess of $2 \times 10^{11}$ atoms is mentioned.}
}
@article{Grae1990,
 author    = {L. Gr{\"a}sjo and M. Seo},
 title     = {Measurement of absorption of hydrogen and deuterium into
              palladium during electrolysis by a quartz crystal
microbalance},
 journal   = {J. Electroanal. Chem.},
 volume    = {296},
 year      = {1990},
 pages     = {233--239},
 keywords  = {Experimental, EQCM, Pd, res0},
 submitted = {07/1990},
 published = {12/1990},
 annote    = {The aim was to examine the quartz crystal resonance frequency
 change, in response to stress induced by absorption of hydrogen/deuterium
 into palladium.  A 200 nm thick Pd film was electroplated onto the base gold
 film on the crystal. H/Pd or D/Pd ratios were calibrated by both electrode
 potential measurement and coulometry (current integration) and agreed within
 a few \% for higher loadings around 0.6, but not for alpha-phase loadings,
 probably due to surface impurities taking part in electron transfer in the
 early stages. There was a linear relation between df (change in resonance
 frequency) and H or D loading, but this did not conform to theory; stress
 effects are blamed, and cause an approximate doubling of df with respect to
 the expected value, as has been found by others.}
}
@article{Gran1990a,
 author    = {J.~R. Granada and R.~E. Mayer and G. Guido and P.~C. Florido
              and A. Larreteguy and V.~H. Gillette and N.~E. Patino
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              and J. Converti and S.~E. Gomez},
 title      = {Thermal neutron measurements on electrolytic cells with
              deuterated palladium cathodes subjected to a pulsed current},
 journal    = {J. Nucl. Sci. Technol.},
 volume     = {27},
 year       = {1990},
 pages      = {222--229},
 keywords   = {Experimental, electrolysis, pulsed current, Pd, neutrons,
res0},
 submitted = {01/1990},
 published = {03/1990},
 annote     = {The team started with an experiment of charging palladium with
 deuterium with a constant current over a period of over 2 weeks, without any
 results.  Here, they report a new experiment, in which the charging current
 is turned on and off at some 10 s intervals, over a long period. Neutrons
 were carefully monitored using 18 correlated (3)He detectors; overall
 efficiency was found to be about 17\%. Several palladium electrode shapes
 were used, and a control with light water, H2O. Results show modest neutron
 fluxes above the background, but statistical analysis shows that it is about
 95\% certain that the results are not simply noise. The authors do not
commit
 themselves to a neutron rate emission because of experimental uncertainties
 but they do seem 95\% certain that neutrons were emitted whenever current
 flowed.}
}
@article{Gran1990b,
 author     = {J.~R. Granada and R.~E. Mayer and P.~C. Florido
              and V.~H. Gillette and S.~E. Gomez},
 title      = {Neutron measurements on electrolytic cells (Pd-D2O) performed
              under very low background conditions},
 journal    = {J. Nucl. Sci. Technol.},
 volume     = {27},
 year       = {1990},
 pages      = {379--381},
 keywords   = {Experimental, electrolysis, low-noise background, neutrons,
              res0},
 submitted = {01/1990},
 published = {04/1990},
 annote     = {The previous paper by these authors showed that in pulsed-
current
 electrolysis experiments, there appeared to be a small but significant
 neutron flux during current flow, although it was only about 30\% above the
 background.  This paper is a preliminary report of a second experiment, done
 under water at a depth of 50 m (with the bottom at 100 m) which reduced the
 background neutron flux by a factor of 70, even though the detector assembly
 was only 2/3 effective, due to an electronic fault. Again, a definite
neutron
 flux from the Pd electrode was observed, this time about twice the
 background, or 6 sd's above it. The authors promise an analysis of the
 results in a forthcoming paper.}
}
@article{Gree1990,
 author     = {T. Greenland},
 title      = {Issues connected with cold fusion: a room temperature mechanism
              for the production of x-rays},
 journal    = {J. Phys. B},
 volume     = {23},
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 year      = {1990},
 pages     = {1679--1690},
 keywords  = {Theory, suggestion},
 submitted = {10/1989},
 published = {05/1990},
 annote    = {Assuming (as in fracto-fusion postulates) that fusion is the
 result of energetic deuterons moving through the Pd or Ti lattice, the
 neutrons should produce x-rays at "hot spots". Without accounting for these
 hot spots, G estimates the yield of these x-rays. Results indicate that
 neutrons, rather than x-rays, are the most sensitive probe for the existence
 of these hot spots. G suggests some further experiments to throw light on
hot
 spot theories. He also examines another possibility: instead of individual
 energetic deuterons "ploughing through the lattice", there could be bunches
 of deuterons sharing a certain energy inside a small volume ("fire
 balls"). This turns out not to lead to greater fusion rates than single
 deuterons doing their stuff.}
}
@article{Gu1990,
 author    = {A.~G. Gu and R.~K.~F. Teng and M.~S. Miller and J. Sprouse},
 title     = {Experimental study on cold fusion using deuterium gas and
              deuterium ion beam with palladium},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {329--331},
 keywords  = {Experimental, Pd, gas phase, high pressure, ion beam, neutrons,
              res0},
 published = {09/1990},
 annote    = {Pd was exposed to D2 gas at 69 kPa, and a Ludlum 14C neutron
 detector placed nearby. Temperature cycling was applied. In another
 experiment, an ion beam of deuterons was aimed at the Pd, with a nitrogen
 beam as a control. The neutron flux was here detected by a BF3 detector.
Upon
 switching to the deuteron beam, the neutron flux went from 4-6 counts over a
 2-min period to about 36. The authors ask themselves whether this might not
 be plasma beam fusion (self targeting) and it well might, although in one
 experiment, they continued to detect neutrons after switching off the
 deuterons and purging with nitrogen. They draw no conclusions but promise
 more work.}
}
@article{Guil1990,
 author    = {T.~R. Guilinger and M.~J. Kelly and J.~R. Scully
              and T.~M. Christensen and D. Ingersoll and J.~A. Knapp
              and R.~I. Ewing and W.~H. Casey and S.~S. Tsao},
 title     = {Investigation of fusion reactions in palladium and titanium
              tritide using galvanostatic, coulometric, and hydrogen
              permeation techniques},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {299--304},
 keywords  = {Experimental, electrolysis, Pd, loading, neutrons, tritium,
              res-},
 published = {09/1990},
 annote    = {Ran a long-term reenactment of FPH(89) using annealed Pd wire
 (1050 degC at 1E-06 Torr), measuring neutron and tritium emission; none was
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 found, with a sensitivity of $10^{-23} \dots 10^{-22}$ fus/pair/s. There
were
 also hydrogen permeation studies (and some interesting theory) to find the
 possible D/Pd loading; 0.8 was not exceeded (although this does not rule out
 that possibility while the charging current is on). The efficiency of
loading
 was found to decreased markedly by surface contamination with carbon; flame
 washing of the metal to remove this resulted in efficient hydrogen
 uptake. Tritiated Pd films were tried to see whether this might call forth
 cold fusion; it did not.}
}
@article{Hage1990,
 author    = {P. L. Hagelstein},
 title     = {Coherent fusion theory},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {451--464},
 keywords  = {Theory, res+},
 published = {12/1990},
 annote    = {The long-awaited and much quoted Hagelstein theory, published
at
 last. It is the theory of coherent fusion in which, instead of the emission
 of a single gamma packet, a large number of lower-energy photons are
emitted,
 coherently.  Hagelstein considers electron involvement, i.e. electron-X
 fusion into a short-lived neutral species (X might be p, d or Li+), which
 then can fuse with another charged species. This is beta fusion. In the case
 of X=p, and the virtual neutron fusing with d, the product is tritium and no
 proton. Reactions starting with X=d are also possible, but X=p is favoured.}
}
@article{Hale1990,
 author    = {G.~M. Hale and R.~D. Smith and T.~L. Talley},
 title     = {Nuclear reactions and screened-Coulomb fusion rates},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {187--193},
 keywords  = {Theory, res-},
 published = {06/1990},
 annote    = {The authors say that R-matrix theory is a very convenient way
 to describe many-body systems with both long- and short-range forces, as we
 have in cold fusion. This is applied here to the long-range screened-Coulomb
 potentials of the Hulthen form. The result is that, in order to get fusion
 rates of the Jones+(89) levels, unreasonably high electron densities are
 required at low particle energies. Perhaps nonequilibrium conditions supply
 high-energy particles, which can fuse at larger screening lengths. However,
 the branching ratios of the d-d fusion come out fairly conventional (close
to
 1) and the exotic radiationless (4)He branch is not supported.}
}
@article{Hall1990,
 author    = {J.~W. Halley and J.~L. Valles},
 title     = {Estimate of nuclear fusion rates arising from a
             molecular-dynamics model of palladium deuteride},
 journal   = {Phys. Rev. B: Condens. Matter},
 volume    = {41},
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 year      = {1990},
 pages     = {6072--6075},
 keywords  = {Theory, coherency, res-},
 submitted = {08/1989},
 published = {03/1990},
 annote    = {If cold fusion takes place in metals, while not doing so in
 fluids, it must be due to solid state effects, and tunnelling. A molecular
 dynamic model of PdD(x), with x = 1, 3, 4, 5 was attempted, assuming a
static
 Pd lattice and using the WKB approximation. A very low expected fusion rate
 of $10^{-150}$/s per pair was calculated, even for x = 4 or 5. These values
 agree with those of Legget and Baym but not with those of Koonin et al, who
 reached higher values (though still much lower than those claimed by Jones+
 etc). Also, the authors considered but rejected quantum coherency effects.}
}
@article{Hand1990,
 author    = {P. Handel},
 title     = {Intermittency, irreproducibility, and the main physical effects
             in cold fusion},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {512--517},
 keywords  = {Discussion, theory, res+},
 submitted = {03/1990},
 published = {11/1990},
 annote    = {Starts by citing supercooling as a phenomenon difficult to
 reproduce because of the uncertainty of nucleation; yet we believe it. Cold
 fusion could in fact be related to the nucleation of deuterium gas bubble
 formation at the electrode surface: if inhibited, this leaves atomic
 deuterium at very high energies and this, together with high effective
 electron mass, may be responsible for cold fusion. The theory can also
 explain anomalous branching ratios for fusion.}
}
@article{Harb1990,
 author    = {J.~N. Harb and W.~G. Pitt and H.~D. Tolley},
 title     = {Statistical analysis of neutron burst size and rate during
             electrolysis of LiOD solutions},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {669--677},
 keywords  = {Experimental, electrolysis, Pd, statistics, neutrons, res-},
 submitted = {04/1990},
 published = {12/1990},
 annote    = {Rigorous statistical analysis is used to describe the
 distribution of both the neutron burst size and rate, from a cold fusion
 electrolysis at a Pd cathode in a 3M LiOD solution in heavy water. This is
to
 overcome the ambiguity plaguing most such experiments, with neutron levels
 close to the background. A Czirr \& Jensen type spectrometer was used, in
 conjunction with a neutron flux monitor, enabling detection of bursts. A
pair
 of thermocouples were also placed in the cell but never detected any excess
 heat. There was also some analysis for tritium but, again, none was
 found. The results show a rather clear steady rise in the mean neutron
 emission rate with time, for electrolysis in heavy water, and a very steady
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 constant mean rate for the light water control. The heavy water emissions
are
 characterised by large infrequent bursts superimposed on the background.
 These results are consistent with those of Menlove et al, and show that
 careful statistical treatment is essential in such experiments.}
}
@article{Hari1990,
 author    = {M.~A. Harith and V. Palleschi and A. Salvetti and G. Salvetti
              and D.~P. Singh and M. Vaselli},
 title     = {Theoretical and experimental studies on the cold nuclear fusion
              phenomena},
 journal   = {Fusion Technol.},
 volume    = {17},
 year      = {1990},
 pages     = {704--709},
 keywords  = {Theory, experimental, Pd, gas phase, excess heat, res0},
 submitted = {12/1989},
 published = {07/1990},
 annote    = {Start with screening theory, and calculate cold fusion rates
 somewhat higher than from classical models. Furthermore, the authors suggest
 that the palladium offers a potential 46 electrons for screening, and it
 would be of interest to know how many can take part. Other theories have
 assumed the helium atom affinity in Pd or Ti is independent of the degree of
 deuteration but this needs to be examined experimentally, the authors say.
 An experiment is then described, using D2 pressure charging of Pd and a
 differential calorimeter. This publication goes as far as to establish one
 potential artifact in such measurement, and calculate a heat of hydrogen
 absorption in Pd at 20 bars pressure, of ($9.37 \pm 0.05$) kcal/mol,
somewhat
 at variance with some published values. A future paper will report results
of
 the full experiment.}
}
@article{Hayd1990,
 author    = {M.~E. Hayden and U. Naerger and J.~L. Booth and L.~A. Whitehead
              and W.~N. Hardy and J.~F. Carolan and E.~H. Wishnow
              and D.~A. Balzarini and J.~H. Brewer and C.~C. Blake},
 title     = {High precision calorimetric search for evidence of cold fusion
              using in situ catalytic recombination of evolved gases},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {161--164},
 keywords  = {Experimental, electrolysis, Pd, calorimetry, res-},
 published = {06/1990},
 annote    = {A closed electrolytic cell was developed with recombination of
 the evolved gases, so as to eliminate these as problems in accurate
 calorimetry. The result was an order of magnitude in the accuracy of the
 overall power balance.  The calorimeter is of the cooling jacket type, with
 careful measurement of the temperature at the in- and outlet of the jacket
by
 an 8-element thermopile.  Chunky bar shaped Pd cathodes were used, degassed
 at 600 degC, and the electrolyte was 0.1M LiOD in D2O. Loading was measured
 by mass, and reached a little over 0.8. After loading, the electrode was
 inserted into the calorimetric apparatus. There were no pressure changes,
 i.e. recombination worked. For a range of input powers 4-18 W, the ratio of
 heat outputs from a control cell (using a Pt electrode) to that of the
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 Pd-electrode cell was $1.000 \pm 0.003$, i.e. within 0.3\%, excess heat is
 ruled out.}
}
@article{Hend1990,
 author    = {R.~A. Henderson and K.~R. Czerwinski and H.~L. Hall
              and K.~T. Lesko and E.~B. Norman and B. Sur and D.~C. Hoffman},
 title     = {More searches for cold fusion},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {475--477},
 keywords  = {Experimental, electrolysis, Pd, neutrons, gamma, res-},
 published = {12/1990},
 annote    = {This team, from the Nuclear Sci. Div. LBL, tried to find
 neutrons, gammas and induced radioactivity, i.e. part of the expected
 signature of cold fusion.  A 1mm, 50 mm long Pd wire, as well as a 8 mm, 25
 mm long rod were used as cathode, and also two Ti cathodes; one a 1 cm$^3$
 cube, one a 10*10, 80 mm long rod. Electrolyte: 0.1M LiOD, from Li metal
 (enriched to 99.3\% (6)Li) in 99\% pure D2O, as well as the Jones+ "soup"
 complete with poison. Neutrons were detected with a NE-213 liquid
 scintillator with pulse shape discrimination, and by a Kodak dosimeter, and
 by looking for induced radioactivity in the Pd cathodes. A NaI detector took
 care of gamma counting. All this was done in a special low-background lab,
 where the bg was $0.118 \pm 0.001$ n/s. In each of the FPH- and Jones-style
 experiments, 10\% H2O was also added to have a go at the p-d reaction.
During
 various periods of 2.5 and 17 days at a stretch, no radiation of any kind
was
 found, neither from the pure-D2O nor from the 10\% H2O cells. So the upper
 limits of cold fusion, set by the one-sigma level above detector limit, were
 $3 \times 10^{-23}$ and $3 \times 10^{-24}$ fus/pair/s for the Pd wire and
 rod, respectively, and this does not support cold fusion claims, being below
 even the Jones+ results by one order of magnitude.}
}
@article{Hill1990,
 author    = {J.~C. Hill and C. Stassis and J. Shinar and A.~I. Goldman
              and R. Folkerts and D.~D. Schwellenbach and D.~T. Peterson
              and C. Widrig and M. Porter and C.~J. Benesh and J.~P. Vary},
 title     = {Search for cold fusion using Pd-D2O cells and Ti-D mixtures},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {305--308},
 keywords  = {Experimental, electrolysis, Pd, gas phase, Ti, neutrons, gamma,
              res-},
 published = {09/1990},
 annote    = {A conventional electrolysis cell was tried, using a 2 mm
 polycrystalline Pd rod and a 4 mm single crystal. No neutron or gamma
 emissions above background were detected, with D/Pd loadings of 0.8,
measured
 by degassing in vacuum and measuring the pressure increase. Then, Ti powder
 and pieces were loaded under D2 at 50 atm, with the usual temperature
 cycling. Again, no neutrons.  Acting on a report by Koonin and Nauenberg,
 predicting that d-p fusion should be easier, they then placed 4 g of LaHD2
 against a Ge gamma detector for 24 days, and found no emissions here,
 either. The paper ends with some simple theory, arriving at the conclusion
 that the d-d separation is too great to make fusion plausible.}
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}
@article{Hora1990,
 author    = {H. Hora and L. Cicchitelli and G.~H. Miley and M. Ragheb
              and A. Scharmann and W. Scheid},
 title     = {Plasma and surface tension model for explaining the surface
              effect of tritium generation at cold fusion},
 journal   = {Nuovo Cimento Soc. Ital. Fis. D},
 volume    = {12},
 year      = {1990},
 pages     = {393--399},
 keywords  = {Theory, res+},
 submitted = {01/1990},
 published = {03/1990},
 annote    = {Introduces the idea of an exotic plasma, with possible short
 nuclear distance by thermal motion, in order to explain the surface
mechanism
 of D reactions in Pd and Ti (i.e. cold fusion). The resulting swimming
 electron layer resulting from this new theory, together with high D
 concentrations near the metal surface and thus short D-D distances can
 increase fusion rates.}
}
@article{Howa1990,
 author    = {R.~A. Howald},
 title     = {Calculation on the palladium-lithium system for cold fusion},
 journal   = {CALPHAD},
 volume    = {14},
 year      = {1990},
 pages     = {1--10},
 keywords  = {Suggestion, lithium deposition},
 submitted = {11/1989},
 published = {01/1990},
 annote    = {Proposes a mechanism, involving Li atoms in the Pd lattice, to
 explain some of the puzzling aspects of cold fusion. Experiments showed that
 high Li concentrations can build up in the Pd near the surface during
 electrolysis, and Li is reasonably soluble in Pd, easily up to PdLi(0.125)
 and is expected to be present as Li+ ions. This opens up the possibility of
 fusion reactions involving Li. The paper deals in detail with Pd-Li phase
 systems, providing thermodynamic and calculated phase data.}
}
@article{Ichi1990a,
 author    = {S. Ichimaru and A. Nakano and S. Ogata and S. Tanaka
              and H. Iyetomi and T. Tajima},
 title     = {Statistical-mechanical theory of cold nuclear fusion
              in metal hydrides},
 journal   = {J. Phys. Soc. Jpn},
 volume    = {59},
 year      = {1990},
 pages     = {1333--1340},
 keywords  = {Theory, res-},
 submitted = {07/1989},
 published = {04/1990},
 annote    = {Stat-mech Fermi-Thomas approximation look at coulombic
screening
 in Pd-H and Ti-H systems. Calculations cannot account for experimental
 claims, under the given assumptions. However, there may be effects such as
 metal lattice periodicity or lattice defects or nonequilibrium, bringing d's
 together.  Isotopic effects favour the p-d reaction, especially in Ti, where
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 higher hydrogen (or deuterium) loadings can be achieved.}
}
@article{Ichi1990b,
 author    = {S. Ichimaru and S. Ogata and A. Nakano},
 title     = {Rates of nuclear fusion in metal hydrides},
 journal   = {J. Phys. Soc. Japan},
 volume    = {59},
 year      = {1990},
 pages     = {3904--3915},
 keywords  = {Theory, pd fusion, res+},
 submitted = {07/1990},
 published = {11/1990},
 annote    = {Hydrogen exists in a metal hydride both as a trapped quantum
 solid, and an itinerant particle. This paper does some Monte Carlo
 simulations of the behaviour of these dual particles, which differ from
those
 in starts or plasmas by the interactions with valence and partially
localised
 electrons. Using as a model some previous theory applied to carbon-oxygen
 solids of similar nature, the paper calculates expected fusion rates for
both
 states. For the trapped state, these are too low to be of interest, whereas
 for the itinerants they approach observed levels. Further, the fusion rates
 are very sensitive to the microscopic details of lattice fields in the metal
 hydrides, which could explain the extreme variation between observations. As
 others have suggested, the authors suggest that p-d fusion is favoured, that
 nonequilibrium is a good thing, and that Ti and Pd have special (and
 different) advantages.}
}
@article{Iguc1990,
 author    = {T. Iguchi},
 title     = {Measurement of a very small yield of neutron using a
              moderating-type (3)He gas counter},
 journal   = {Ionizing Radiation (Hoshasen)},
 volume    = {16},
 number    = {3},
 year      = {1990},
 pages     = {22--28},
 note      = {In Japanese},
 keywords  = {Experimental, neutrons},
 annote    = {The English summary tells us that by combining thermal n
 detectors such as BF3 gas cum (3)He gas counter, etc, with n moderators, the
 neutron detection efficiency the higher energies can be increased. Such
 apparatus is described here, and tried out on a cold fusion experiment. The
 rest is in Japanese, but I recognise "64-bit * 2K", "ADC", and a background
 of 0.086 c/s and what looks like a cold fusion n detection 3.8 sigmas above
 this. There is an interesting Fig. 7, comparing different workers'
 measurements; if only I knew some Japanese.}
}
@article{Ilic1990a,
 author    = {R. Ilic and J. Rant and T. Sutej and M. Dobersek and E. Kristov
              and J. Skvarc and M. Kozelj},
 title     = {Investigation of the deuterium-deuterium fusion reaction
              in cast, annealed, and cold-rolled palladium},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
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 pages      = {505--511},
 keywords   = {Experimental, electrolysis, Pd, pretreatment, excess heat,
               protons, cps, neutrons, gamma, res-},
 submitted = {12/1989},
 published = {11/1990},
 annote     = {Another thorough experiment in which there were several
 different neutron monitors as well as detectors for protons, gamma and
 x-radiation. The aim was to see whether palladium pretreatment would make a
 difference. The result is that it largely didn't, and the limits for cold
 fusion rates, determined by the background levels, are at around
 $10^{-21}$/s/pair or so. No thermal excursions were observed in any run.}
}
@article{Ilic1990b,
 author     = {R. Ilic and J. Rant and T. Sutej and E. Kristof and J. Skvarc
               and M. Kozelj and M. Najzer and M. Humar and M. Cercek
               and B. Glumac and B. Cvikl and A. Fajgelj and T. Gyergyek
               and A. Trkov and A. Loose and J. Peternelj and I. Remec
               and M. Ravnik},
 title      = {A search for neutrons, protons, tritons, (3)He ions, gamma-
               and x-rays from deuterium-deuterium nuclear reaction in
               electrochemically charged palladium},
 journal    = {Int. J. Radiat. Appl. Instrum. Part D:
               Nucl. Tracks Radiat. Meas.},
 volume     = {17},
 year       = {1990},
 pages      = {483--490},
 keywords   = {Experimental, Pd, electrolysis, neutrons, protons, tritium,
               helium, gamma, x-rays, heat, res-},
 submitted = {12/1989},
 annote     = {A contribution from the J. Stefan Institute in Ljubljana. The
 system included an array of 6 proportional (3)He counters, a high-purity Ge
 detector, CR-39 track-etch detector, a BD-100 bubble damage polymer detector
 and a CaF2:Mn thermoluminescent dosimeter (this is the team that has
 advocated the use of in-situ passive devices). So upper limits for both the
 neutron- and proton-producing fusion reaction branches could be determined.
A
 tubular Pd cathode was used, 7.8 g in the solution, and a thermistor mounted
 near it to detect any gross thermal excursions. Neutrons were H2O-moderated
 and gamma background reduced with Pb shielding. The neutron background was
 monitored by another detector 5 m away from the cell. Results do not support
 cold fusion, the rates being below the lowest measurable. There were no heat
 events during 2 and 6 days' charging periods.}
}
@article{Iyen1990,
 author     = {P.~K. Iyengar and M. Srinivasan and S.~K. Sikka and A. Shyam
               and V. Chitra and L.~V. Kulkarni and R.~K. Rout
               and M.~S. Krishnan and S.~K. Malhotra and D.~G. Gaonkar
               and H.~K. Sadhukhan and V.~B. Nagvenkar and M.~G. Nayar
               and S.~K. Mitra and P. Raghunathan and S.~B. Degwekar
               and T.~P. Radhakrishnan and R. Sundaresan and J. Arunachalam
               and V.~S. Raju and R. Kalyanaraman and S. Gangadharan
               and G. Venkateswaran and P.~N. Moorthy and K.~S. Venkateswarlu
               and B. Yuvaraju and K. Kishore and S.~N. Guha and M.~S.
Panajkar
               and K.~A. Rao and P. Raj and P. Suryanarayana
               and A. Sathyamoorthy and T. Datta and H. Bose and L.~H. Prabhu
               and S. Sankaranarayanan and R.~S. Shetiya and N. Veeraraghavan
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              and T.~S. Murthy and B.~K. Sen and P.~V. Joshi
              and K.~G.~B. Sharma and T.~B. Joseph and T.~S. Iyengar
              and V.~K. Shrikhande and K.~C. Mittal and S.~C. Misra
              and M. Lal and P.~S. Rao},
 title     = {Bhabha Atomic Research Centre studies on cold fusion},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {32--94},
 keywords  = {Experimental, theory, multi-study, res+},
 submitted = {12/1989},
 published = {08/1990},
 annote    = {This is a collection of reports with parts reported by the
 various author groups, and introduced by PK Iyengar. In the 62 pages,
results
 are presented for the Bhabha cold fusion effort from April to September
1989,
 involving over 50 scientists and engineers plus technicians, from more than
 ten Divisions.  There were experts on metal hydrides, electrochemistry,
 isotope exchange process in the concentration of heavy water, neutron and
 tritium measurement.  Of the presumably many experiments, there were some
 which, in the team's opinion, positively confirm the occurrence of d-d
fusion
 reactions in both electrolytic and gas-loaded palladium and titanium at
 ambient temperatures.  Neutron emission was observed even when the
 electrolytic current was switched off or, in the case of gas-loaded Ti, when
 no external perturbation such as heating, cooling, evacuation, etc, was
 applied. The main results are:
 1. Tritium is the primary end-product of cold fusion, with a n/T ratio of
   1E-08; cold fusion is essentially aneutronic (even so, one group states
   that neutrons are easier to measure because much more T is needed to
detect
   it than neutrons). T was found in the electrolyte, escaping gas and in
   the electrode after the run.
 2. Neutron emission from electrolysis and gas loading is Poisson in nature;
   neutrons are emitted one at a time. It is not clear, however, whether
these
   come from the d-d fusion itself or from secondary reactions of energetic
   protons or tritium with the lattice;
 3. About 10-25\% of the neutrons were emitted in groups of over 100 each
   within <20 ms, implying a cascade of >1E10 fusions within those 20
   ms. Since this seems very unlikely, lattice cracking, wherein the n/T
ratio
   is close to unity, could be a source of these bunched neutron events;
 4. Autoradiography of gas-loaded Ti and Pd demonstrated tritium which
   cannot be explained by enrichment effects. T was concentrated in "hot
   spots" on the metal surface, indicating the importance of lattice defects.
 Excess heat measurements do not seem convincing; one of the groups did
 observe a "mild explosion" with unknown causes. There was an attempt to
 detect helium, after removal of the large excess of D2 and O2 by
 recombination; no helium was found in any experiments, using gas
 chromatography. Autoradiography seemed to confirm cold fusion.}
}
@article{Izum1990,
 author    = {T. Izumida and Y. Ozawa and K. Ozawa and S. Izumi and S. Uchida
              and T. Miyamoto and H. Yamashita and H. Miyadera},
 title     = {A search for neutron emission from cold nuclear fusion in a
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             titanium-deuterium system},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {641--646},
 keywords  = {Experimental, Ti, gas phase, neutrons, fracto-, res+},
 submitted = {05/1990},
 published = {12/1990},
 annote    = {Spongy Ti was pressurised with D2 gas at 20-50 atm and heated
 to enhance deuterium absorption by the metal, resulting in absorption
"almost
 to the theoretical limit" (no further details given, but TiD2 is named). The
 neutron detection equipment consisted of a small water tank filled with
 purified water as moderator, several (3)He counters and a BF3 counter with
 polyethylene moderator. A background base was established over a period of
 120 h. The TiD2 was cooled to liquid nitrogen temperature, and then allowed
 to warm up to room temperature. Neutron bursts were detected by both kinds
of
 counters at about 220-250K, and the fusion rate calculated to be $10^{-23}$
 fus/pair/s.  Statistics confirmed a fusion origin of the neutron bursts.
 After some cycles, the TiD2 was powdered rather than spongy.  Fractofusion
is
 invoked as the mechanism of cold fusion.}
}
@article{Jaen1990,
 author    = {M. Jaendel},
 title     = {Cold fusion in a confining phase of quantum electrodynamics},
 journal   = {Fusion Technol.},
 volume    = {17},
 year      = {1990},
 pages     = {493--499},
 keywords  = {Theory, QED, res+},
 submitted = {10/1989},
 published = {05/1990},
 annote    = {A new theory, spurred by anomalous results of experiments with
 heavy ion collisions and cold fusion. This involves the confining phase of
 quantum electrodynamics (CQED) and the "bag model". In cold fusion,
deuterons
 and electrons enter a CQED region and (4)He comes out, along with energy at
5
 MeV.  Experiments to test the theory are suggested.}
}
@article{Jens1990,
 author    = {L.~C. Jensen and K.~S. Mortensen},
 title     = {Beyond fusion, annihilation reactions of confined hydrogen},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {417--422},
 keywords  = {Theory, antineutrons, res+},
 published = {12/1990},
 annote    = {This baffled abstracter quotes the conclusion: "Antineutrons
 can enter into a region of confined hydrogen or deuterium and cause
 annihilation reactions.  These annihilation reactions are the likely
 mechanism of mass changing to energy. Large particles change to energy by
 multiplicity of less energetic positron-electron annihilations". Etc. Using
 the FPH result of 40000 n/s (but later modified by those authors), J\&M
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 conclude that PdDx is a good place for the formation of and reaction between
 antiparticles and normals.}
}
@article{Jin1990,
 author    = {S. Jin and Y. Ding and Y. Liu and B. Wu and D. Yao},
 title     = {The possibilities of cold nuclear fusion of deuterium},
 journal   = {Chin. Phys. Lett.},
 volume    = {7},
 year      = {1990},
 pages     = {28--31},
 keywords  = {Theory, res0},
 submitted = {07/1989},
 published = {01/1990},
 annote    = {Theoretical. Deuterons in Pd constitute a strongly coupled
 plasma. Two possible fusion mechanisms are considered. One assumes thermal
 motion and collisions between deuterons, the other on deuteron pairs. There
 is strong screening of deuterons from each other, increasing the fusion rate
 substantially, but not enough to be measurable. So if there is fusion, some
 other unknown effect must be responsible.}
}
@article{Jone1990a,
 author    = {S. E. Jones and D. L. Decker and H. D. Tolley},
 title     = {Scientific correspondence},
 journal   = {Nature},
 volume    = {343},
 year      = {1990},
 pages     = {703--704},
 keywords  = {Polemic},
 published = {02/1990},
 annote    = {Response to the accusation by Freedman and Krakauer in the same
 issue of Nature, that the Jones et al results of 1989 were biased. It
appears
 that the Jones team ended all runs at an arbitrary time, not correlated with
 success or otherwise, and were in general well aware of possible error
 sources and the need for controls; this seems also to be clear from their
 original paper.}
}
@article{Jone1990b,
 author    = {S.~E. Jones and E.~P. Palmer and J.~B. Czirr and D.~L. Decker
              and G.~L. Jensen and J.~M. Thorne and S.~F. Taylor
              and J. Rafelski},
 title     = {Anomalous nuclear reactions in condensed matter:
              recent results and open questions},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {199--208},
 keywords  = {Discussion},
 published = {06/1990},
 annote    = {The Jones+(89) work arose out of earlier work on muon catalysed
 fusion, where the group measured effects at variance with theory, as was the
 case with cold fusion. The group continues to measure the same small effect,
 although no excess heat has been detected. Indeed, the authors do not
believe
 in a nuclear origin of excess heat. This paper gives a summary of the best
 evidence for cold fusion and discusses it. The idea that muons from cosmic
 radiation causes cold fusion is eliminated; there is not sufficient time for
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 the dd(mu) melecule to form, before the muon is absorbed elsewhere. The
 electrolyte used in the electrolysis experiments has been slightly modified,
 and more work is needed to unravel the essential components; as well,
 pressurised D2 is used by the group to deuterate metals (this goes back to
 1986 but has been modified by the Scaramuzzi group's experience). Some
 neutron results are shown with error bars, from previous work. On average,
 this amounts to $10^{-24}$ fus/pair/s if it is a volume effect, or much
 larger if a surface effect (up to $10^{-20}$).  Neutron bursts are
 discussed. Although there are bursts in the background, those from cold
 fusion experiments are too large to be background, and should be studied
 further. There is some discussion of geological cold fusion, which was one
of
 the driving factors for the work; geological (3)He/(4)He ratios are
 mentioned, as well as geological tritium, which appears to have been
detected
 at some volcanic sites. The authors conclude that cold fusion is an
 interesting phenomenon worthy of further study, but should not be confused
by
 claims of excess heat production.}
}
@article{Jorn1990a,
 author    = {J. Jorne},
 title     = {Electrochemically induced nuclear fusion of deuterium:
             the existence of negatively charged deuteride ions},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {519--522},
 keywords  = {Theory, lithium},
 submitted = {03/1990},
 published = {11/1990},
 annote    = {Contrary to almost everyone else, Jorne states that deuterium
 in PdD(x) is largely in the form of D- anions and that a minute fraction
 exists as deuterons, assumed to be dominant by others. He marshalls a lot of
 previous evidence for this. The tiny fraction of deuterons can easily fuse
 with the D-, as there is a small Coulomb barrier. Furthermore, Li will be
 deposited in the electrolysis in LiOD electrolyte, and LiD certainly has
 negative deuterium.}
}
@article{Jorn1990b,
 author    = {J. Jorne},
 title     = {Unsteady diffusion reaction of electrochemically produced
             deuterium in palladium rod},
 journal   = {J. Electrochem. Soc.},
 volume    = {137},
 year      = {1990},
 pages     = {369--370},
 keywords  = {Theory, loading, diffusion},
 submitted = {05/1989},
 published = {01/1990},
 annote    = {A rather approximate theoretical prediction of the time
required
 to load Pd with deuterium right to the centre of the Pd bulk, assuming a
 given diffusion coefficient diminished by the conversion of deuterium into
 PdD, of $10^{-7}$ cm$^2$/s. Pd cylinders of diameters (0.1,0.2,0.4,0.6,1.0,
 2.0) cm resp. require about (7/24,1,5,10,29,116) days electrolysis for a
full
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 PdD(0.6) loading, which corresponds roughly to experimental findings. As an
 afterthought, Jorne calculates that at full loading, the deuterium is packed
 at a density corresponding to solid deuterium.}
}
@article{Jow1990,
 author    = {T.~R. Jow and E. Plichta and C. Walker and S. Slane
              and S. Gilman},
 title     = {Calorimetric studies of deuterated Pd electrodes},
 journal   = {J. Electrochem. Soc.},
 volume    = {137},
 year      = {1990},
 pages     = {2473--2478},
 keywords  = {Experimental, Pd wire, electrolysis, excess heat, res-},
 submitted = {01/1990},
 published = {08/1990},
 annote    = {Used a twin-cell calorimeter, with both cells (control with Pd
 and H2O or Pt with D2O, working cell with Pd and D2O) in a large Al
 block. Both glass and stainless cells were tried, with the Pd in the form of
 wires of 1mm and 0.5 mm diameter. There was no recombination. Currents of up
 to 600 mA/cm$^2$ were applied for 2-12 weeks, and calorimetry done for
 several days at a time.  Deuterium loadings D/Pd of between 0.65 and 0.70
 were measured thermogravimetrically. Within experimental error (about 2\%),
 no excess heat was found.}
}
@article{Karab1990,
 author    = {A.~B. Karabut and Ya.~R. Kucherov and I.~B. Savvatimova},
 title     = {Nuclear reactions at the cathode in a gas discharge},
 journal   = {Sov. Tech. Phys. Lett.},
 volume    = {16},
 number    = {6},
 year      = {1990},
 pages     = {463--464},
 keywords  = {Experimental, electrical discharge, Pd, neutrons, heat, res+},
 submitted = {08/1989},
 published = {06/1990},
 annote    = {A cathode, consisting of a 0.1 mm foil of Pd, and an anode were
 placed in a chamber which was evacuated and then filled with D2 gas at 2-10
 Torr. An electrical discharge was then passed between the electrodes by
means
 of 50-500 V, at currents of 10-500 mA. Temperature sensors measured the
 cathode temperature, and two types of neutron detectors were placed near the
 setup, as well as some photographic film for penetrating secondary
 radiation. It was found that when the cathode temperature rose above 500K,
 the reaction stopped.  Below this, however, some neutron emissions
correlated
 with step increases of cathode temperature.}
}
@article{Karp1990,
 author    = {S.~Yu. Karpov and Yu.~V. Koval'chuk and V.~E. Myachin
              and Yu.~V. Pogorel'skii},
 title     = {On the possibility of a mechanism of cold nuclear fusion},
 journal   = {Sov. Tech. Phys. Lett.},
 volume    = {35},
 number    = {3},
 year      = {1990},
 pages     = {203--204},
 keywords  = {Experimental, wet chemistry, neutrons, res+},
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 submitted = {02/1990},
 published = {03/1990},
 annote    = {This paper examines a novel hypothesis. First, some theory,
 using simple charge relationships and the Thomas-Fermi model, concludes with
 the possibility that deuterium fusion tunnelling might be aided if deuterons
 are able to penetrate the electron shells of heavy, preferably negatively
 charged, atoms. Presumably palladium centres in the palladium deuteride
 spring to the authors' minds. However, this hypothesis led to a suggestion
of
 a very simple experiment, involving no electrolysis or solid metal. Of a
 total of five chemical reactions tried out, the following one was succesful:
 A 40\% solution of HBr (10-15 ml) in H2O was mixed with 20 ml of a saturated
 solution of KI in D2O. Some KBr is precipitated out, and there is some
 exchange of H and D from the species HBr, H2O and D2O. This commentator
 assumes that I- ions act as the heavy anions, into whose electron shells the
 deuterons (D+ ions) are supposed to penetrate and fuse. The authors
monitored
 neutrons with a single scintillation detector of fast and intermediate
 neutrons, coupled with a photomultiplier and shielded by an ethylene
 moderator and a Cd jacket. 16 experiments were averaged, and the Fig. shows
a
 marked increase in neutron activity from the time of mixing the chemicals,
 lasting about 2000 s, at a level of 0.009 impulses/s, compared with a
 background of 0.005. The authors cite similar work (Soviet, in preprint) by
 other workers.}
}
@article{Kaus1990,
 author    = {T.~C. Kaushik and A. Shyam and M. Srinivasan and R.~K. Rout
             and L.~V. Kulkarni and M.~S. Krishnan and S.~K. Malhotra
             and V.~B. Nagvenkar},
 title     = {Preliminary report on direct measurement of tritium in
             liquid nitrogen treated TiDx chips},
 journal   = {Indian J. Technol.},
 volume    = {28},
 year      = {1990},
 pages     = {667--673},
 keywords  = {Experimental, Ti, gas phase, neutrons, xrays, tritium, res+},
 submitted = {10/1990},
 published = {12/1990},
 annote    = {D2 gas was prepared by electrolysis of D2O, and analysed for
 tritium contamination; a t/d ratio of $10^{-13}$ was found and attributed to
 the Pd cathode used for the electrolysis, previously used for a cold fusion
 experiment. Ti chips were treated with nitric and sulphuric acids followed
by
 water, to remove surface oxides. Batches of the chips were evacuated at 850
 degC for 2h, cooled to 600 degC and exposed to D2 gas at 1 bar. Loading,
 measured by weight, was only 0.05 (D/Ti) but assumed much higher at the Ti
 surface. A bank of 10 BF3 neutron counters was set up around the liquid
 nitrogen cell, with paraffin block moderators; the background count was 5
 c/s. Two plastic scintillators were placed away from the cell to monitor the
 background. The Ti chips were dropped into liquid nitrogen and allowed to
 warm up to room temp upon nitrogen evaporation; the cycle was repeated 4-5
 times per batch. One such batch of 100 chips was thus cycled, and there was
 no indication from the scintillators, but the BF3 detectors showed a signal
 15 times the background, implying a burst of about 10000 neutrons during the
 5 min interval. Repetition of this, with more chips, was not successful. One
 way to detect tritium was to detect the K x-ray emissions expected from the
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 Ti if they contained tritium; some signals above background were found by
 this inaccurate method. Another, better detector was also used, and many
 chips were found with above-background tritium signals, going up to a factor
 of about 5 (4 chips). Some high-activity chips were placed between medical
 x-ray films, and produced images. Although no untreated chips were measured
 for tritium, it is considered unlikely that there was any tritium surviving
 the vacuum heating.}
}
@article{Kawa1990,
 author    = {H. Kawai},
 title     = {Profile of the cold nuclear fever},
 journal   = {Kinki Daigaku Genshiryoku Kenkyusho Nenpo},
 volume    = {27},
 year      = {1990},
 pages     = {19},
 keywords  = {Review},
 annote    = {A review of cold fusion. K reckons that about half of cnf
 experiments have positive results, and suggests using cathodes of graphite
or
 U, both of which absorb hydrogen. Using enriched U would also cause neutron
 multiplication, making it easier to detect them. DTO could also be used, to
 enable the more favoured dt fusion reaction. (Abbreviated quote from CA
 115:100641, (1991)).}
}
@article{Kay1990,
 author    = {B.~D. Kay and K.~R. Lykke and R.~J. Buss},
 title     = {Problems with the mass spectrometric determination
              of tritium from cold fusion},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {491--493},
 keywords  = {Polemic, mass spectrometry, tritium, res-},
 published = {12/1990},
 annote    = {This study caused the retraction of a claim for the MS
detection
 of tritium, say the authors but give no names. There are 11 different
 chemical reactions that can give rise to species with mass close to that of
 tritium (e.g. HD2+, D3+). So MS detection of tritium is ambiguous.}
}
@article{Kim1990a,
 author    = {M.~S. Kim and M.~Y. Park},
 title     = {Comment on room temperature nuclear fusion},
 journal   = {Anal. Sci. Technol.},
 volume    = {3},
 year      = {1990},
 pages     = {265--267},
 note      = {In Korean},
 keywords  = {Polemic},
 annote    = {"A polemic in response to M. Fleischmann, S. Pons and M.
Hawkins,
 J.  Electroanal. Chem. 1989, 261 (2A), 301". (Direct quote from CA
 117:259549, (1992)).}
}
@article{Kim1990b,
 author    = {Y.~E. Kim},
 title     = {Neutron burst from a high-voltage discharge between
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               palladium electrodes in D2 gas},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {680--682},
 keywords  = {Theory, res-},
 submitted = {02/1990},
 published = {12/1990},
 annote    = {Kim offers a conventional explanation for the results of Wada
 and Nishizawa who got large neutron emissions from a high voltage discharge
 "stimulation" between two Pd rods in pressurised D2 gas. W\&N claimed this
 was due to cold fusion of supersaturated D in the Pd. Kim suggests, and
 underpins theoretically, that it can be explained in terms of D+ ions,
 accelerated by the discharge, striking the PdDx; in other words, it is just
 plain well known beam fusion, as in self-targeting. All W\&N's experimental
 features such as pressure changes and the "controls" can be accommodated by
 this explanation.}
}
@article{Kim1990c,
 author    = {Y.~E. Kim},
 title     = {New cold nuclear fusion theory and experimental tests},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {423--427},
 keywords  = {Theory, res+},
 published = {12/1990},
 annote    = {In a previous Report, Kim has suggested that the FPH effect may
 be due to neutron-induced tritium-deuterium fusion. Here, this process is
 described, independently of the FPH electrolysis, as well as for that
 situation.  Background neutrons break up Li, in the electrolyte, producing
  (4)He and T.  The tritium penetrates the Pd cathode, alongside deuterium
from
 the electrolysis. D-T fusion then releases more neutrons to make a chain
 reaction, also forming (4)He. The rather doubtful FPH paper is quoted as
 evidence: MS showing some (4)He; but the excess heat is also consistent with
 this suggestion. More evidence comes from the inability of NaOD solution to
 show any cnf. This theory leads to a list of suggested ways to improve the
 yield, and a number of tests of this theory, such as varying the Li isotope
 ratio, evidence for (4)He, neutrons at about 14 MeV.}
}
@article{Kim1990d,
 author    = {Y.~E. Kim},
 title     = {Cross section for cold deuterium-deuterium fusion},
 journal   = {Fusion Technol.},
 volume    = {17},
 year      = {1990},
 pages     = {507--508},
 keywords  = {Theory, CIF connection, branching ratio, res0},
 submitted = {12/1989},
 published = {05/1990},
 annote    = {The experiments of Beuhler et al (1989, see Section 4) with
 fusion induced by (D2O)(x)+ cluster impact, suggest that at low energies,
the
 branching ratio for d-d fusion - known only from high-energy fusion - may
not
 apply, and that the tritium branch may be favoured. The same might be
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 indicated by the FPH results. Kim suggests further investigation of this.}
}
@article{Kimu1990,
 author    = {T. Kimura},
 title     = {Quantitative evaluation of multiple production of neutrons
              induced by cosmic rays in materials},
 journal   = {J. Nucl. Sci. Technol.},
 volume    = {27},
 year      = {1990},
 pages     = {1147--1150},
 keywords  = {Experimental, neutron detection, no electrolysis, suggestion},
 submitted = {09/1990},
 published = {12/1990},
 annote    = {Neutrons can be emitted as a result of cosmic ray influx onto
 some materials, and this possibility needs to be considered in the very
 low-level neutron measurements in cold fusion experiments. This is examined
 experimentally in this work. 32 (3)He detectors, shielded by a Cd plate and
a
 layer of boric acid, and held within a polyethylene moderator, were used,
 with pulse height- and -interval analysis, multichannel scaling and
 coincidence measurements. Materials put to the tests included Pb, Cd, Nb-Mo,
 Cu-Zn and Ti-Al-V-S alloys, Fe, Al, D2O and H2O. Results showed rough log-
log
 linearity of neutron production rate vs atomic weight, with a slope of 1.8;
 these rates are 0.001-0.01 n/kg/s, corresponding to an equivalent fusion
rate
 of roughly $10^{-27} \dots 10^{-26}$ fus/pair/s. The additive effect of this
 neutron production in a cold fusion experiment may, however, need to be
taken
 into account.}
}
@article{Kita1990,
 author    = {M. Kitajima and K. Nakamura and M. Fujitsuka},
 title     = {Electrical resistivity of high pressure D2-loaded Pd and Ti
              at low temperatures},
 journal   = {Solid State Commun.},
 volume    = {75},
 year      = {1990},
 pages     = {159--161},
 keywords  = {Experimental, D2 loading effect on resistance, res0},
 submitted = {03/1990},
 published = {07/1990},
 annote    = {Studied the temperature dependence of electrical resistivity of
 Pd and Ti under pressurised D2 gas at low temperatures and pressures from 6
 to 90 atm.  The metals were cooled to 77K, exposed to gas pressure, and
 allowed to warm up, while the resistance was monitored. The first time Pd
was
 thus treated, its resistivity followed that of pure Pd up to about 270K, and
 went up steeply thereafter, indicating that no deuterium was absorbed below
 this temperature.  A second cycle produced higher resistivity, showing that
 the release of D is slower than its uptake. X-ray diffraction showed that a
 maximum loading of 0.7 was achieved. For Ti, the resistivity was the same as
 that for pure Ti up to room temperature, and no surface treatment changed
 this; i.e. the Ti never absorbed any deuterium.}
}
@article{Knap1990,
 author    = {J.~A. Knapp and T.~R. Guilinger and M.~J. Kelly and B.~L. Doyle
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              and D. Walsh and S.~S. Tsao},
 title     = {Thin-foil electrochemical cells: high-sensitivity fusion tests
              and in-situ beam measurements of deuterium loading},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {371--375},
 keywords  = {Experimental, cps, thin foil, electrolysis, res0},
 published = {12/1990},
 annote    = {Again, the statement that emitted protons ought to be more
 easily detected than neutrons because of the much lower background. Also, a
 thin foil's D content can be easily monitored using a suitable ion beam, and
 thus the claim tested, that high loadings D/Pd > 1 can be achieved. This was
 done in this work, in which in situ measurements were performed, while the
 experiment ran.  The ssb detector is mounted up close to the back of the
foil
 cathode, with 0.5 A/cm$^2$ flowing. It would detect not only the 3.02 MeV
 protons but also 1.01 MeV tritons (if any) or the (perhaps) ca. 1 MeV
 (4)He's, if any. A pulse height spectrum collected over 23.2 h showed
nothing
 better than background.  In the other part of the experiment, a 3 MeV (3)He
 ion beam was shot at the back of the foil under electrolysis, resulting in
 backscattered 14 MeV protons from reaction with deuterium in the
 foil. Calibration with known metal hydride foils showed a loading peaking at
 around 0.8. This can be assumed to hold not only for the top 2 mu thus
 analysed, but for the whole 25 mu foil thickness, because the back of the
 foil was coated by d-impervious Au. Other experiments showed that (1)H is
 indeed absorbed preferentially over deuterium.}
}
@article{Kocs1990,
 author    = {M. Kocsis and L. Nyikos and I. Szentpetery and D. Horvath
              and J. Kecskemeti and A. Lovas and T. Pajkossy and L. Pocs},
 title     = {Search for neutrons from cold nuclear fusion},
 journal   = {J. Radioanal. Nucl. Chem. Lett.},
 volume    = {145},
 year      = {1990},
 pages     = {327--337},
 keywords  = {Experimental, electrolysis, gas phase, Pd, Ti, neutrons, res+},
 submitted = {06/1990},
 published = {07/1990},
 annote    = {The authors note that of those cold fusion studies in which
 neutron emission was measured, few have been successful; they, too, wanted
to
 have a go at it. An FPH-type electrochemical cell was used with Pd, as well
 as a tube filled with Ti chips and D2 gas. A triple (3)He proportional
 counter was used for neutron detection; its calibrated efficiency was
 6.3\%. A lengthy background measurement showed some "statistically
 significant" excursions above the mean of 0.06 c/s, possibly due to
 barometric variations in the cosmic background, and a well distinguished
 neutron peak. A subsequent 9-day electrolysis showed nothing above this
 background. The experiment was then moved into an underground tunnel at a
 depth of 30 m in limestone. Now the mean background was 0.003 c/s but with
 occasional "huge burstlike excursions" due to electrical disturbances in the
 power network. Some filtering etc resulted in a stable background of about
 0.002 c/s. During two electrolysis runs - one continuous, the other with
 periodic current switching -, as well as the Ti/D2 run, no neutron emission
 above the background was observed. The authors note that upon switching off
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 the electrolysis current, violent bubbling occurred at the Pd cathode,
 i.e. that the Pd was saturated with deuterium.}
}
@article{Kogo1990,
 author    = {S. Kogoshi},
 title     = {Present status of cold fusion research},
 journal   = {J. Inst. Electron. Inf. Commun. Eng. (Japan)},
 volume    = {73},
 year      = {1990},
 pages     = {1311--1317},
 note      = {In Japanese},
 keywords  = {Discussion},
 published = {12/1990},
 annote    = {Cold fusion has not been proved yet scientifically judging from
 the principle that scientific truth is reproducible by test. It has been
 reported that a large amount of tritium is produced from a multilayer
 sandwich structure of heavy-hydrogen-adsorbed [sic] Pd films and Si films by
 sending an electric current to the structure, which has been attracting
 interest of people concerned including researchers in the field of
 semiconductor engineering (38 refs.) (Direct quote from Phys. Abstr.
 94:114582 (1991)).}
}
@article{Koma1990,
 author    = {V.~V. Komarov and O. Melsheimer and A. Popova},
 title     = {Does cold fusion exist and is it measurable?},
 journal   = {Z. Naturforsch. A},
 volume    = {45},
 year      = {1990},
 pages     = {759--761},
 keywords  = {Theory},
 submitted = {02/1990},
 published = {05/1990},
 annote    = {Considers the dynamics of a deuteron sitting in the Pd lattice,
 and another one coming in. Considering all other deuterons as distant
 perturbations only, a quantum mechanical treatment then indicates a possible
 resonance effect leading to close d-d approach and cold fusion rates as
 claimed. If this is assumed to be a surface effect taking place within the
 first few monolayers, then one can expect about 1-10 particles emitted per
s,
 which is a weak effect and therefore perhaps not observable, as has happened
 in some experiments.}
}
@article{Koon1990,
 author    = {S.~E. Koonin and M. Mukerjee},
 title     = {Branching ratios in low-energy deuteron-induced reactions},
 journal   = {Phys. Rev. C},
 volume    = {42},
 year      = {1990},
 pages     = {1639--1645},
 keywords  = {Theory, branching ratio, res-},
 submitted = {03/1990},
 published = {10/1990},
 annote    = {Using a second-order Born approximation to the Schroedinger
 equation, K\&M arrive at an expression for the branching ratio which turns
 out to vary by at most 10\% from unity. This is at variance with earlier
work
 by others on the d+(6)Li reaction, as well as with cold fusion claims, who
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 all come in for criticism here. It is pointed out that low-energy beam
fusion
 and muon catalysed fusion all have about unity branching ratio, which
 nullifies statements about cluster impact, fracto- or dendrite fusion
 branching ratio anomalies.}
}
@article{Kosy1990a,
 author    = {A.~A. Kosyakhkov and V.~T. Cherepin and V.~V. Kolotyi
              and K.~K. Kisurin},
 title     = {Neutron yield in the deuterium ion implantation into titanium},
 journal   = {Fiz. Tverd. Tela},
 volume    = {32},
 year      = {1990},
 pages     = {3672--3672},
 note      = {In Russian},
 keywords  = {Experimental, discharge, Ti, neutrons, res+},
 submitted = {07/1989},
 published = {12/1990},
 annote    = {This team investigates cold fusion by means of their magnetic
 discharge pump, sending an ionised deuterium beam at 8 keV at a Ti
 target. The Ti is grounded and Penning discharge results in the target
 bombardment. Despite the neutron detector not being positioned optimally
 because of the pump's geometry, clear neutron emission is seen upon this
 bombardment. The authors take this as confirmation of cold fusion (it is
 not).}
}
@article{Kosy1990b,
 author    = {A.~A. Kosyakhkov and S.~S. Triletskii and V.~T. Cherepin
              and S.~M. Chichkan},
 title     = {Mass-spectrometric study of the products of nuclear reactions
              occurring due to deuterium ion-plasma saturation of titanium},
 journal   = {Sov. Phys. Dokl.},
 volume    = {35},
 number    = {5},
 year      = {1990},
 pages     = {470--471},
 note      = {Orig. in Dokl. Akad. Nauk. (Tekh. Fiz.) 312(1) (1990) 96,
              in Russian},
 keywords  = {Experimental, discharge, Ti, neutrons, res+},
 submitted = {04/1989},
 annote    = {Very similar to - i.e. almost identical with - the earlier
paper
 by the same authors. They used a magnetodischarge pump to aim high-intensity
 beams (up to 1A) of deuterons at titanium, and MS to analyse sputtered
 products. As in their other paper, small traces of tritium and helium-3 were
 found, though at large magnifications ($\times 100$). The authors interpret
 this as evidence for fusion of deuterium. Ion-beam induced fusion has been
 known since the 1950's.}
}
@article{Kozi1990a,
 author    = {H. Kozima},
 title     = {On a mechanism of the electrochemically induced nuclear
fusion},
 journal   = {Rept. Fac. Sci., Shizuoka Univ.},
 volume    = {24},
 year      = {1990},
 pages     = {19--21},
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 keywords  = {Theory, res+},
 submitted = {07/1989},
 annote    = {A mechanism is proposed to explain the experimental findings of
 Jones et al.  A qualitative model is that deuterons can approach more
closely
 than deuterium atoms in D2 (which keep apart at about 0.72 {\AA} distance),
 because of the electrons around the particles in the metal lattice. The 1926
 work of Paneth and Peters is mentioned also.}
}
@article{Kozi1990b,
 author    = {H. Kozima and K. Hasegawa and H. Suganuma and S. Oe
              and K. Sekido and M. Fujii and M. Yasuda and T. Onojima},
 title     = {On a mechanism of the electrochemically induced
              nuclear fusion II},
 journal   = {Rept. Fac. Sci., Shizuoka Univ.},
 volume    = {24},
 year      = {1990},
 pages     = {23--28},
 keywords  = {Theory, res+},
 submitted = {07/1990},
 annote    = {The mechanism of cold fusion proposed by Kozima in the
preceding
 paper (ibid page 19) is extended to a calculation of expected fusion rates
 and the results are consistent with recent claims. The authors caution,
 however, that the model is limited and further work is needed.}
}
@article{Kozi1990c,
 author    = {H. Kozima and S. Oe and K. Hasegawa and H. Suganuma
              and M. Fujii and T. Onojima and K. Sekido and M. Yasuda},
 title     = {Experimental investigation of the electrochemically
              induced nuclear fusion},
 journal   = {Rept. Fac. Sci., Shizuoka Univ.},
 volume    = {24},
 year      = {1990},
 pages     = {29--34},
 keywords  = {Experimental, electrolysis, Pd, neutrons, res+},
 submitted = {09/1990},
 annote    = {An early attempt at replication. The Pd cathode was a thin
 (0.2 mm) plate, 50*50 mm, and a current of 600 mA was applied. Neutrons were
 detected with a neutron dose meter. There were more detected than for the
 background, outside tha standard deviation. A control with light water gave
 the same as without electrolysis; it is concluded that cold fusion is
 confirmed.}
}
@article{Kula1990,
 author    = {A.~V. Kulakov and E.~V. Orlenko and A.~A. Rumyantsev},
 title     = {Problem of physical mechanism of so-called cold fusion},
 journal   = {Power Eng. (USSR Acad. Sci)},
 volume    = {28},
 number    = {1},
 year      = {1990},
 pages     = {141--143},
 keywords  = {Discussion, theory},
 annote    = {An earlyish paper trying to explain cold fusion in the Pd
 lattice by enhancement of Coulomb barrier penetration, due to the special
 conditions in the lattice. The authors say that the Debye shielding radius
 here is 0.3{\AA}, less than the Bohr radius. One out of four colliding d-d
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 pairs fuse, and the tritium + proton + gamma branch would dominate,
 explaining the dearth of measured neutrons.}
}
@article{Kyot1990,
 author    = {{Kyoto University CNF Test Group}},
 title     = {Search for cold nuclear fusion at the research reactor
              institute},
 journal   = {Kyoto Daigaku Genshiro Jikkensho Gakujutsu Koenkai Koen
              Yoshishu},
 volume    = {24},
 year      = {1990},
 pages     = {45--52},
 note      = {In Japanese},
 keywords  = {Experimental, various, res-},
 annote    = {There have been intense efforts at the Institute to verify
FPH's
 or Jones+' results, under various conditions. No evidence of neutron, gamma
 or heat production has been seen. The Frascati experiment was also
attempted,
 as well as the Los Alamos one, using good equipment, capable of
 distinguishing between noise and neutrons. So far, nothing.}
}
@article{Lewis1990a,
 author    = {D. Lewis and K. Sk{\"o}ld},
 title     = {A phenomenological study of the Fleischmann-Pons effect},
 journal   = {J. Electroanal. Chem.},
 volume    = {294},
 year      = {1990},
 pages     = {275--288},
 keywords  = {Experimental, electrolysis, calorimetry, neutrons, res0},
 submitted = {05/1990},
 published = {11/1990},
 annote    = {The authors have performed a very thorough and careful cold
 fusion experiment, using a cell similar to that of FPH but adding a cooling
 coil for the calorimetry, and using a ring of 30 helium counters to monitor
 neutron emissions at about 2.5 MeV. They also analysed aliquots of the
 electrolyte for tritium. Everything is described clearly and in detail.
There
 are tables of input and calculated power, and clear figures of same; a
 control series is reported, of electrolysis of H2O at Pt and Pd, which show
 an approximately zero excess power with some fluctuation. Using D2O and Pd,
 there was some excess power during some time, and it fell back to the input
 power after that.  Neutron emission showed some spikes. Some were associated
 with, for example, switching on of the galvanostat, or with movement of a
 thermocouple in the detector well, leading to an electrical contact or, in
 some cases, with a nearby nuclear reactor being turned on. However, some
 large neutron events remained unaccounted for and the largest correlated
with
 a thermal excursion of the cell. Another run showed thermal and neutron
 excursions at different times. Tritium levels are reported without much
 comment. The authors carefully conclude that there is indeed evidence for an
 anomaly similar to that of FPH, while admitting that their measurements are
 close to their experimental errors. They then point out that, since these
 events seem to correlate with D2O top-up additions, they may be due to an
 impurity in the D2O, such as light water or T2O.}
}
@article{Lewis1990b,
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 author    = {L.~N. Lewis and P.~G. Kosky and N. Lewis},
 title     = {On the search for non-electrochemical cold fusion:
              production of D2 off of high surface area Pd colloid},
 journal   = {J. Radioanal. Nucl. Chem. Lett.},
 volume    = {145},
 year      = {1990},
 pages     = {81--91},
 keywords  = {Experimental, chemical hydriding, heat, neutrons, gammas, res-
},
 submitted = {03/1990},
 published = {05/1990},
 annote    = {Yet another way to deuterate Pd: the reaction of triethyl-SiX
 with Na2PdCl4 in normal (if X=H) or deuterated (if X=D) methanol produces Pd
 colloid and X (i.e. H or D) at its surface. Thus one can expect the Pd to
 absorb the hydrogen/deuterium, and we have yet another cold fusion
 experiment.  The team carried out both the control (X=H) and test (X=D) in a
 Dewar and measured the rise in temperature; they were roughly the same, so
no
 excess heat. They also monitored gamma and neutron emission with a variety
of
 gear, and found nothing. So, they say, there is no need to worry about the
 possibility of high energy emission from high surface area Pd, deuterated by
 nonelectrochemical means, as some have warned (i.e FPH and one AH Alberts).}
}
@article{Liev1990,
 author    = {L.~A. Lievrouw},
 title     = {Communication and the social representation of
              scientific knowledge},
 journal   = {Crit. Stud. Mass Commun.},
 volume    = {7},
 year      = {1990},
 pages     = {1--10},
 keywords  = {Soc/phil-sci, discussion; no FPH/Jones refs.},
 published = {03/1990},
 annote    = {Lievrouw, a prof. of communication, here examines communication
 issues in the "cold fusion" area. Not providing too many references for some
 statements made, the author fits the issue into the mould of knowledge
 culture and the three stages of the scientific communication cycle:
 Conceptualisation, documentation and popularisation. She propagates the
 assumption of competing scientific interests in the case of "cold fusion",
 i.e. that hot fusion workers had reasons for suppressing "cold fusion". This
 affected "cold fusion" workers' strategies to some extent, in the direction
 of media exploitation.}
}
@article{Lin1990a,
 author    = {G.~H. Lin and R.~C. Kainthla and N.~J.~C. Packham
              and J.~O.~M. Bockris},
 title     = {Electrochemical fusion: a mechanism speculation},
 journal   = {J. Electroanal. Chem.},
 volume    = {280},
 year      = {1990},
 pages     = {207--211},
 keywords  = {Discussion, dendrites},
 submitted = {11/1989},
 published = {02/1990},
 annote    = {The authors speculate that dendrites of Ni, Fe and Cr, formed
 after prolonged electrolysis, may be responsible for cold fusion. They say
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 that this would also explain why tritium is not seen until 5 days
 electrolysis, which is more than enough to fully charge palladium with
 deuterium (then how come Chene and Brass see tritium after only 24 or 48
 hours?). On the tips of these dendrites, high energies are available, and D2
 may be split into D+ and D; the D+, in the presence of a high voltage field,
 might then be accelerated back towards the dendrite and smack into D waiting
 there. Furthermore, because it always comes from a certain direction, the
 branching ratio for tritium/helium might not be 50:50. A lot of "might"'s,
 but if there be (cold) fusion, we need a radically new explanation; some of
 this speculation is surely testable. }
}
@article{Lin1990b,
 author    = {G.~H. Lin and R.~C. Kainthla and N.~J.~C. Packham
             and O. Velev and J.~O.~M. Bockris},
 title     = {On electrochemical tritium production},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {15},
 year      = {1990},
 pages     = {537--550},
 keywords  = {Experimental, electrolysis, Pd, tritium, res+},
 submitted = {04/1990},
 annote    = {Four and a half months' experiments lead the team to report
 clear evidence of tritium production, weakly correlating with excess
 heat. The tritium is not accounted for by electrolytic enrichment (on which
 Bockris is an expert) but is produced in much larger amounts. Samples of the
 electrolyte and the electrodes used were analysed by other labs and confirm
 the team's findings that there was no T in the palladium before the runs,
and
 their results of solution analysis. The possibility of mischief is
dismissed.
 This reviewer does not find any control experiments in the paper.  The paper
 ends by proposing the "dendrite" theory of cold fusion, assuming a high
 double layer electric field of $10^9$ V/cm and dielectric breakdown of water
 (another field in which at least Bockris is an expert).  The paper concludes
 with suggestions for how to optimise cold fusion.  Pd may not be needed;
 surface dendrites should be encouraged.}
}
@article{Lin1990c,
 author    = {T.~L. Lin and C.~C. Liu},
 title     = {Cold fusion experiment at Department of Nuclear Engineering,
             National Tsing-Hua University},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {487--490},
 keywords  = {Experimental, electrolysis, Pd, neutrons, gammas, res0},
 published = {12/1990},
 annote    = {Thermalised neutrons are easier to detect than fast ones, and
 efficiency is important in low-level measurements. The right amount of
 moderator is also important: too little, not enough moderation; too much, no
 neutrons come out.  This pair electrolysed 0.1M LiOD in D2O at a Pd rod 5 mm
 by 80 mm. Thermal neutrons were detected by one (3)He and one BF3 detector,
 with H2O the moderator. The neutron signal was pulse-distribution
 discriminated. Besides the two neutron counters, a Ge detector looked for
 gamma emissions. Before applying the current to the cell, the backgrounds
 were measured. During a run of about 24 h, with increasingly higher current
 densities, two neutron bursts were detected by the (3)He tube but not by the
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 BF3 counter; the latter did have a much lower sensitivity, but an artifact
 cannot be ruled out. There is no mention of gamma results. More work is
 needed.}
}
@article{Lips1990a,
 author    = {A.~G. Lipson and V.~A. Klyuev and B.~V. Deryagin
              and Yu.~P. Toporov and M.~G. Sirotyuk and O.~B. Khavroshkin
              and D.~M. Sakov},
 title     = {Observation of neutrons from cavitation action on substances
              containing deuterium},
 note      = {In Russian},
 journal   = {Pis'ma Zh. Teo. Fiz.},
 volume    = {16},
 number    = {9},
 year      = {1990},
 pages     = {89--93},
 keywords  = {Experimental, LanNi5 etc,  fracto vibromill, neutrons, res+},
 submitted = {07/1990},
 published = {10/1990},
 annote    = {Heavy and light water cells, with and without suspensions of
 LaNi5 or LaNi5Dx particles, were subjected to a Ti vibrator and ultrasound,
 while neutrons were measured by a block of 7 proportional counters immersed
 in an oil bath and shielded by 1mm of Cd; overall efficiency: 1\%. The
 ultrasound vibrations induce cavitation. For D2O, and D2O plus LaNi5Dx
 suspension, cavitation produces neutrons at about 4 sigmas above the
 background, and this ceases when the ultrasound is turned off. For a
 suspension of LaNi5, neutrons are only detected after the ultrasound is
 turned off - the "after-effect". For D2O, the authors suggest that
cavitation
 promotes Ti deuteride formation at supersaturation, which is stopped by
 hydroxide layers formed when cavitation ceases. In the case of a LaNi5
 suspension, there is no deuteride formed during cavitation, but when this
 ceases, relaxation of surface stresses might allow deuteride formation at
 near-surface Stokes defects, and thus fracto-fusion.  Lastly, the LaNi5Dx
 suspension again shows neutrons during cavitation, not connected with
surface
 cracking, but rather with collapsing voids on the particles' surface; this
 ceases with cavitation cessation, explaining the lack of after-effect. More
 experiments are needed to clear this up.}
}
@article{Lips1990b,
 author    = {A.~G. Lipson and V.~A. Klyuev and Yu.~P. Toporov
              and B.~V. Deryagin},
 title     = {Neutron generation by mechanical activation of metal surfaces},
 note      = {In Russian},
 journal   = {Pis'ma Zh. Tekh. Fiz.},
 volume    = {16},
 number    = {17},
 year      = {1990},
 pages     = {54--57},
 keywords  = {Experimental, Ti, LaNi5, fracto-, neutrons, res+},
 submitted = {06/1990},
 published = {12/1990},
 annote    = {Another in the fracto-fusion series. Here the team used
 mechanical abrasion of sample disks (30 mm diameter, 20 height) of Ti and
 LaNi5, to a depth of 1mm. After 1 min of this, 1ml of D2O was placed on the
 abraded surface; all this was done in air, rel. hum. 30\%, room temp. The
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 samples were placed into a block of 7 neutron detectors of the type NWJ-62,
 with an efficiency of about 1\%, the whole being shielded by 1 mm Cd
 metal. With the H2O controls, the samples did not emit neutrons above
 background; with D2O, however, in the case of deuterated Ti samples (though
 not with Ti itself), and the LaNi5 alloy, emitted neutrons at around 3-4
 sigma above background. The difference between Ti and TiDx is that the
latter
 has more crystal defects, which lead to microcracks. Abrasion removes
 impervious hydroxide films.}
}
@article{Liu1990a,
 author    = {S. Liu and F. Qiu and Y. Sun},
 title     = {Mass spectra analysis of the products of the so-called
             'cold fusion'},
 journal   = {Fenxi Huaxue},
 volume    = {18},
 number    = {4},
 year      = {1990},
 pages     = {400--401},
 note      = {In Chinese},
 keywords  = {Experimental, MS, helium, res-},
 annote    = {MS anal. of the products of cold fusion did not show the
 presence of (3)He, (4)He and T which should be present in nuclear fusions. A
 VG 7070E double focus MS, EI ionization source, and e energy 70 eV were
used.
 The emission current, collected current, and instrument resolving power were
 2 mA, 400 $\mu$A, and 1000, resp. (Cited from Chem. Abstr. 113:139992
(1990))}
}
@article{Liu1990b,
 author    = {Z. Liu and K. Xie and S. Qi and J. Cao and N. Li and X. Yu
              and Z. Lin},
 title     = {Photoemission studies of Pd/D system with high deuterium
              content},
 journal   = {Chin. Phys. Lett.},
 volume    = {7},
 year      = {1990},
 pages     = {125--128},
 keywords  = {Experimental, spectroscopy, Pd, gas phase, post mortem, res-},
 submitted = {10/1989},
 published = {03/1990},
 annote    = {Measured the ultraviolet photoelectron emission spectra (UPS)
 of PdDx vs x, in order to help understand cold fusion (only the Jones et al
 paper is referred to). Pd foil was cleaned by several cycles of sputtering
 and annealing (450 degC), until XPS (x-ray emission) no longer showed C and
S
 impurities. Different preparations were examined. One foil sample was
treated
 at 450 degC and $2\times 10^{-5}$ Torr D2 gas; this showed peaks similar to
 H-treated Pd but one that was not observed with Pd treated with D2 at room
 temperature.  Another was given the same treatment used in the group's cold
 fusion experiments: oxidation at 500 degC in O2 for 1.5 h, followed by
 reduction at 600 degC in H2 for 1.5 h, then loading under high pressure H2,
 which was removed again by heating and pumping. Then the Pd was charged with
 D by D2 under "50 kg/cm$^2$ pressure" and measured (XPS showed no C or
 S). Measurement was repeated after heat treatment in vacuum for various
 lengths of time, and showed a change in the spectra.  Results indicate that
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 the deuteride behaves as the hydride, and deuterium is dissociatively
 absorbed by Pd, and diffuses into the lattice. Only a limited amount of the
 deuterium is ionised in the lattice, however, especially at high
 loadings. The electrons from the ionised deuterons occupy the Pd 4d holes
and
 the delocalised states in the 5s band, and there are various shifts in
 properties.}
}
@article{Lomo1990,
 author    = {O.~I. Lomovsky and A.~F. Eremin and V.~V. Boldyrev},
 title     = {Isotope heat effect in reactions involving hydrogen evolution
             on palladium catalyst particles},
 journal   = {Proc. Indian Acad. Sci. Chem. Sci.},
 volume    = {102},
 number    = {2},
 year      = {1990},
 pages     = {173--176},
 keywords  = {Discussion, res+},
 submitted = {08/1989},
 published = {04/1990},
 annote    = {This is almost word for word the paper by the same authors in
 Dokl. Akad.  Nauk SSSR Fiz. Khim. 309 (1989) 879, already abstracted (note
 that I spelled the first author Lomovskii in that abstract, using standard
 transliteration, as he himself does not here).  See the other abstract for
 details, i.e. Lomo1989}
}
@article{Long1990,
 author    = {G.~R. Longhurst and T.~J. Dolan and G.~L. Henriksen},
 title     = {An investigation of energy balances in palladium cathode
             electrolysis experiments},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {337--343},
 keywords  = {Experimental, Pd, calorimetry, neutrons, gamma, res-},
 published = {09/1990},
 annote    = {Calorimetry similar to that of FPH(89) was used, with several
 sizes of Pd cathodes in 0.1M to 1.2M "LiOH" in H2O, D2O and mixtures
 thereof. Cell voltage and temperatures were continuously recorded and
 calibration heating applied.  The difference between heat input and output
 was a fluctuating $\pm$4.4\%, with no relation to type of water or other
 conditions. Neutron and gamma emissions were also checked using a BC-501
 liquid scintillator; nothing was found. The build-up of tritium in the
 electrolyte was accounted for by conventional causes (enrichment). So no
cold
 fusion was observed here.}
}
@article{Lore1990,
 author    = {E. Lorenzini and P. Tartarini and M. Trentin},
 title     = {Cold fusion: status of the research},
 journal   = {Tec. Ital.},
 volume    = {55},
 number    = {1},
 year      = {1990},
 pages     = {1--9},
 note      = {In Italian},
 keywords  = {Discussion},
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 annote    = {A summary of the current situation (the beginning of 1990,
 presumably). The major experiments are reported, as well as some of the more
 prominent conferences. The authors' contribution is to suggest that the
 Wigner effect could be another cause of sudden energy release (the
 melt-down): just as in the Windscale nuclear reactor, neutrons caused a
 gradual build-up of stress in the graphite blocks and subsequent sudden
 release, the absorbed hydrogen and deuterium in the palladium stresses the
 metal lattice; this, too, could be relieved abruptly with large energy
 release and apparent excess heat production or even more violent events. The
 paper concludes on a skeptical note.}
}
@article{Loui1990,
 author    = {E. Louis and F. Moscardo and E. San-Fabian
              and J.~M. Perez-Jorda},
 title     = {Calculation of hydrogen-hydrogen potential energies and
              fusion rates in palladium hydride (PdxH2) clusters (x=2,4)},
 journal   = {Phys. Rev. B},
 volume    = {42},
 year      = {1990},
 pages     = {4996--4999},
 keywords  = {Theory, res-},
 submitted = {03/1990},
 published = {09/1990},
 annote    = {The objectives were to estimate the effect of neighbouring Pd
 atoms on the H-H potential in realistic lattices and such exotic lattices
 that might favour cold fusion, as well as to calculate fusion rates for
 favourable configurations. The Hartree-Fock method was used. Results are
that
  (a) H-H distances in lattices are in all cases much greater than in H2 gas,
 and (b) even in the most favourable lattices, far from equilibrium, very
high
 vibrational energies are required to approach a fusion rate of $10^{-
20}$/s.}
}
@article{Mas1990,
 author    = {F. Mas and J.~C. Paniagua and J. Puy and J. Salvador
              and E. Vilaseca},
 title     = {Comment on: Deuterium nuclear fusion at room temperature:
              a pertinent inequality on barrier penetration},
 journal   = {J. Chem. Phys.},
 volume    = {93},
 year      = {1990},
 pages     = {6118--6119},
 keywords  = {Comment, polemic},
 submitted = {12/1989},
 published = {10/1990},
 annote    = {Comment on named paper by G Rosen (1989), who found theoretical
 grounds for support of cold fusion claims. The authors, like Morgan III
 (1990), point out the inappropriateness of the straight use of the WKB
 method; the Langer adaptation should be used, and gives results different by
 4 orders of magnitude. Also, the potential energy curve for a pair of
 deuterons, as used by Rosen, is too rough. Fusion rates from the better
 approximations are vastly smaller than Rosen's.}
}
@article{Mass1990,
 author    = {M. Massaron and F. Lamperti},
 title     = {La fusione fredda (Cold fusion)},
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 journal   = {Tecnol. Chim.},
 volume    = {10},
 number    = {4},
 year      = {1990},
 pages     = {98--104},
 note      = {In Italian},
 keywords  = {Commentary},
 annote    = {The authors ask themselves whether cnf is just a journalistic
 construct or a scientific breakthrough, about one year after FPH-89 (the
only
 real cnf reference cited, although Jones et al are mentioned in the
 text). There is a brief chronology of cnf up to May 1989. The results of
 Scaramuzzi are mentioned, also the excess heats of FPH-89, the Harwell
 attempt at replication and conventional fusion. No conclusion is drawn.}
}
@article{Matsu1990a,
 author    = {O. Matsumoto and K. Kimura and Y. Saito and H. Uyama
              and T. Yaita},
 title     = {Detection of neutrons in electrolysis of D2SO4-D2O solution
              by means of fission track method},
 journal   = {Denki Kagaku},
 volume    = {58},
 year      = {1990},
 pages     = {147--150},
 keywords  = {Experimental, electrolysis, particle tracks on film, res+},
 submitted = {08/1989},
 annote    = {Carried out electrolysis in D2SO4 solution instead of the more
 customary LiOD, because previous studies of hydrogen evolution have been
used
 acid. A Pd plate, a palladized Pd plate or Pt plate were used, in normal
 electrolysis and glow discharge electrolysis (GDE), 50 mA in both cases (in
 GDE, one of the two electrodes hangs in the gas above the electrolyte; the
 gas is kept at a low pressure, here 70 Torr, and large voltages <= 1000 V or
 so are required).  The paper does not make clear whether it is the Pd
cathode
 or the Pt anode that is in the gas phase. The neutron detector, mounted
below
 the cells, was a sandwich of a mica plate plus uranyl salt plate in a
 polythene bag. Neutrons make tracks in this sandwich and can be counted.  In
 every case (different electrolysis methods, different cathodes), there were
 clearly more neutrons from D2SO4 in D2O than in dummy cells (by factors of
 1.5-3.4) and no such differences between runs in H2SO4 and dummies. However,
 the fluctuations from one dummy to another were of similar magnitude. The
 authors conclude that cold fusion takes place, at a rate of about $10^{-24}$
 fusions/pair/s, a little lower than the rate observed by Jones et al.}
}
@article{Matsu1990b,
 author    = {O. Matsumoto and K. Kimura and Y. Saito and H. Uyama
              and T. Yaita},
 title     = {Detection of tritium in cathode materials after the
              electrolysis of D2SO4-D2O solution},
 journal   = {Denki Kagaku},
 volume    = {58},
 year      = {1990},
 pages     = {471--474},
 keywords  = {Experimental, electrolysis, Pd, tritium, MS, res+,
              no FPH/Jones refs},
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 submitted = {12/1989},
 published = {05/1990},
 annote    = {The authors have previously reported the emission of neutrons
 from cold fusion. Tritium, too, is to be expected, and this time they have
 looked at this. Firstly, they immersed the cathode material, after
 electrolysis, in the liquid scintillator that measured tritium; then they
 also placed the cathode in a glass tube attached to a mass spectrometer, and
 heated the sample to drive out the gases. In the scintillation count, a
dummy
 Pd electrode gave 32.9$\pm$1.6 counts, a cathode from a cold fusion
 electrolysis gave 40.6$\pm$1.8, and palladised Pt, after electrolysis showed
 35.0$\pm$1.6 counts. Mass spectra showed tritium (as well as other masses)
in
 the Pd, but also in the D2 gas given off. The authors conclude that tritium
 was formed in the Pd by a nuclear reaction.}
}
@article{Matsu1990c,
 author    = {T. Matsumoto},
 title     = {Observation of new particles emitted during cold fusion},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {356--360},
 keywords  = {Experimental, theoretical, the iton, electrolysis, Pd,
             film tracks, res+, no FPH/Jones refs},
 submitted = {03/1990},
 published = {09/1990},
 annote    = {The author's Nattoh model theory explains the strange branching
 ratio by the action of the "iton" particle, which carries away about 20 MeV
 from the fusion reaction d+d-->(4)He + 23.85 MeV. The iton can be observed
by
 using nuclear film, and has perhaps been observed during the electrolysis of
 light water at Pd. Here, M electrolyses D2O (+3\% NaCl) at Pd. The films
 showed many cosmic ray tracks, but also some due to iton decay, clearly
 distinguished from the background. Thus a new particle, the iton, is
 discovered.}
}
@article{Matsu1990d,
 author    = {T. Matsumoto},
 title     = {Prediction of new particle emission on cold fusion},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {647--651},
 keywords  = {Comment, suggestion, the nattoh},
 submitted = {02/1990},
 published = {12/1990},
 annote    = {Having observed the new particle, the iton (p. 356, same
volume),
 M now predicts it theoretically, using the Nattoh model. Cold fusion takes
 place not via the branches commonly assumed (proton+T, neutron+(3)He) -
these
 are of lesser importance - but mainly by hydrogen-catalysed fusion, in which
 first a nattoh is formed, then two D's fuse with the help of a third, into
 the short lived (4)H, which then becomes (4)He, and an iton is emitted. This
 also explains M's observation of cold fusion in ordinary light water. This
 paper looks at the theory of this process and concludes that it works. A
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 further paper, suggesting a cold fusion reactor, is on the way.}
}
@article{Matsu1990e,
 author    = {T. Matsumoto},
 title     = {Cold fusion observed with ordinary water},
 journal   = {Fusion Technol.},
 volume    = {17},
 year      = {1990},
 pages     = {490--492},
 keywords  = {Experimental, electrolysis, light water, Pd, gamma, res+},
 submitted = {11/1989},
 published = {05/1990},
 annote    = {Based on the Nattoh model of cold fusion, in which deuterons
 associate into nattohs or clumps, M suggests that protons, too, might do it,
 producing as a first product (2)He, which then might emit a positron to
 become a deuteron.  An electrolysis experiment with H2O + 3\% NaCl on Pd was
 run, and a single Ge(Li) detector used to monitor gamma radiation. A
 background curve is shown and compared with the experimental curve, and M
 claims that this shows an effect at energies below 130 keV. This humble
 abstracter cannot see the "extraordinary enhancement of the signals" which M
 states shows that "a cold fusion reaction really occurred in ordinary
water".
 M concludes with the hope that a cold fusion reactor using seawater is
 possible.}
}
@article{Matsud1990,
 author    = {J.~I. Matsuda and T. Matsumoto and K. Nagao},
 title     = {An attempt to detect (3)He from the cold nuclear fusion},
 journal   = {Geochem. J.},
 volume    = {24},
 year      = {1990},
 pages     = {379--382},
 keywords  = {Experimental, Ti, electrolysis, helium, res-},
 submitted = {09/1990},
 annote    = {The reactions p-d-->(3)He, d-d-->(3)He+n and d-d-->t+p all
 eventually lead to (3)He, since t decays to (3)He also. A high sensitivity
 mass spec can detect down to $3 \times 10^4$ to $3 \times 10^6$ He atoms,
say
 the authors, which is inferior to neutron detection but better than for
heat,
 gamma or tritium. Electrolytes of LiOH (in H2O) and LiOD (D2O) were
 electrolysed at a 10*15*0.2 mm$^3$ Ti plate, which had been preheated at 800
 degC in vacuum for 1 h to reduce its He content. Currents up to 250 mA were
 applied to the cells, and the cathodes analysed for He after runs of from 2
 to 18 h. The VG5400 MS was set at such a sensitivity as to be able to
 distinguish between (3)He and HD. The samples were heated to 1000 degC for
20
 min to drive out the He, which was passed over a Ti-Zr getter to remove
 impurities, and through charcoal at liquid N2 temperature to remove Ar, Kr
 and Xe. No significant differences between controls and D2O runs were found,
 and the results lie close to the detection limits, setting an upper bound to
 cold fusion of 30/s, much smaller than FPH's 40000/s but larger than
 Jones+'s. The results show a much higher level of (4)He by a factor of about
 $3 \times 10^4$ but again, with no difference between controls and D2O
runs.}
}
@article{Matsun1990,
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 author    = {N. Matsunami},
 title     = {Solid state effects on tunnelling probability for d+d
              nuclear fusion at room temperature},
 journal   = {Radiat. Effects Def. Solids},
 volume    = {112},
 year      = {1990},
 pages     = {181--188},
 keywords  = {Theory, screening, res0},
 submitted = {05/1989},
 annote    = {The author tries to see whether screening by lattice electrons
 might increase the cold fusion rate. This is not found reasonable for d-d
 fusion, but D-D fusion might be feasible if an energy of as little as 100 eV
 can be found.  The author then (erroneously) invokes the steep potential
 gradient at the metal/electrolyte interface, apparently as the source of
this
 energy. There is no real conclusion, however.}
}
@article{Maye1990,
 author    = {F.~J. Mayer and J.~S. King and J.~R. Reitz},
 title     = {Nuclear fusion from crack-generated particle acceleration},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {269--272},
 keywords  = {Theory, fracto, res0},
 published = {09/1990},
 annote    = {A theoretical look at the fractofusion model for "cold" fusion.
 A crack is modelled as a capacitor shorted at one end, with a high voltage
 across it - as might be the case at the moment of crack formation. If this
 field can be maintained long enough for deuterons to accelerate across the
 crack, we might be in business. Some rough calculations indicate that we
 might be, indeed, making certain assumptions about crack size and speed of
 formation. This also suggests the possibility of maximising the effect by
 inducing cracking deliberately. A first attempt is made to show how one
might
 calculate whether such a process might be energy-profitable.}
}
@article{McCr1990a,
 author    = {D.~R. McCracken and J. Paquette and H.~A. Boniface
              and W.~R.~C. Graham and R.~E. Johnson and N.~A. Briden
              and W.~G. Cross and A. Arneja and D.~C. Tennant and M.~A. Lone
              and W.~J.~L. Buyers and K.~W. Chambers and A.~K. McIlwain
              and E.~M. Attas and R. Dutton},
 title     = {In search of nuclear fusion in electrolytic cells and
              in metal/gas systems},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {121--131},
 keywords  = {Experimental, electrolysis, gas phase, Pd, Ti, neutrons,
gammas,
              tritium, heat, res-},
 published = {07/1990},
 annote    = {Both a Pd/D2O electrolysis and a Ti/D2 gas loading experiment
 are reported, with neutron, gamma and tritium monitoring, as well as (later)
 calorimetric measurement.  Multiple neutron detectors, of various types,
were
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 used.  Calorimetry consisted of measuring the temperature at the inlet and
 outlet of a cooling coil within the cell, with total gas recombination.
About
 1\% accuracy was achieved. Loading (i.e. x in PdD(x)) was measured by
heating
 a sample of the loaded electrode in a closed system and measuring the
 pressure increase; a loading of 0.72 (beta phase) was found. The Ti was in
 the form of sponge, and was temperature cycled in the D2 gas at up to 40
 atm. No neutron, gamma, tritium emissions were found in either system, and
no
 heat events.}
}
@article{McCr1990b,
 author    = {G.~M. McCracken and M. Bailey and S. Croft and D.~J.~S. Findlay
              and A. Gibson and R.~P. Govier and O.~N. Jarvis and H.~J.
Milton
              and B.~A. Powell and G. Sadler and M.~R. Sene and D.~R.
Sweetman
              and Belle. van P and H.~H.~H. Watson},
 title     = {Experimental search for 'cold fusion' in the deuterium-titanium
              system},
 journal   = {J. Phys. D: Appl. Phys.},
 volume    = {23},
 year      = {1990},
 pages     = {469--475},
 keywords  = {Experimental, Ti, gas phase, neutrons, res-},
 submitted = {09/1989},
 published = {05/1990},
 annote    = {A very careful attempt to repeat the Frascati experiment of
 De Ninno et al.  D2 absorption in Ti, cooling and heating were performed.
 Three separate types of neutron counters were used simultaneously.  Nothing
 was found.  The authors point out some problems. Although the counters,
 together, showed no neutron emission, one of them did by itself. So, if only
 one had been used, spurious neutrons might have been reported. Also, the
 baking temp. of 475 K said to have been used by the De Ninno team leaves an
 oxide layer, impervious to D2, so no D2 is absorbed; a higher baking temp.
is
 needed. The authors state that the diffusion coefficient of D in Ti is 0.013
 exp(-Q/RT), with Q = 52 kJ/mol; at 300K, this makes $2\times 10^{-11}$
 cm$^2$/s. So charging for $10^4$ s and using diffusion theory gives a loaded
 layer only 9 microns deep, throwing doubt on claims of deep loading.}
}
@article{Menl1990a,
 author    = {H.~O. Menlove and M.~M. Fowler and E. Garcia and A. Mayer
              and M.~C. Miller and R.~R. Ryan and S.~E. Jones},
 title     = {The measurement of neutron emission from Ti plus D2 gas},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {215--216},
 keywords  = {Experimental, Ti, gas phase, temperature cycling, neutrons,
              res+},
 published = {06/1990},
 annote    = {Various forms of Ti chips and sponge were exposed to D2 under
 pressure, and neutrons monitored, using high-efficiency (21-34\%) cavity-
type
 detectors containing 6-8 (3)He tubes. Random neutron emissions were observed
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 as well as time-correlated neutron bursts. Temperature cycling, from liquid
 nitrogen temperature up to room temp., was emplyed, and the neutron bursts
 were emitted during the warm-up phase; the random emissions persisted for 19
 h after warm-up. The cycle could be repeated only a few times, whereupon
 neutron emissions ceased. The rather low neutron yields at 0.05-0.2 n/s were
 10.4 sigma above background. Two electrolytic cells showed similar neutron
 bursts.  The mechanism of neutron production is not clear.}
}
@article{Menl1990b,
 author    = {H.~O. Menlove and M.~M. Fowler and E. Garcia and M.~C. Miller
             and M.~A. Paciotti and R.~R. Ryan and S.~E. Jones},
 title     = {Measurement of neutron emission from Ti and Pd in pressurized
             D2 gas and D2O electrolysis cells},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {495--506},
 keywords  = {Experimental, Ti, Pd, V, gas phase, neutrons, fracto, res+},
 published = {12/1990},
 annote    = {LANL and Brigham Young get together to measure neutron bursts
 and randoms from a variety of sample types, such as D2 gas mixed with Pd and
 Ti chips, sponge, crystals and powder, as well as electrolysis in D2O at
 cathodes of Ti, Pd and V. Four separate neutron detectors were used, all
 based on (3)He tubes.  These were placed 1-2 m from each other, in an
 underground, low-background lab. There is a lot of detail on the neutron
 detection technique, which can exclude common noise sources such as
 electrical noise, rf interference and cosmic showers, and uses correlation
to
 distinguish between real neutron bursts and artifacts. Also, there was an
 acoustical detector attached to the sample bottle, to detect cracking of the
 Ti samples.  Control runs had tubes of Ti in air, or cells without
 electrodes, or cells with H2O instead of D2O. The electrolytes were the
 Jones+ soup as well as others. Everything is tabulated for the reader.
 Neutron bursts were detected from Ti in D2, and also from Ti in a 50:50 mix
 of D2:H2 (to test for p-d fusion). No bursts from dummy controls.
 Random-neutron counts were also seen from Ti+D2, but not from controls. The
 electrolysis runs showed some 3-sigma random emissions and one showed
bursts,
 going on for some days. So, out of 42 carefully done experiments, 14
produced
 significant neutron emissions, mostly in the form of bursts, by up to two
 orders of magnitude above the background. The bursts are consistent with the
 fracto-fusion idea, although no bursts correlated with cracking noises. The
 random emissions cannot be the sum of small bursts, so neutrons are emitted
 by two separate processes, maybe. The common denominator between them is
 nonequilibrium. Future work is planned, to characterise the materials used
 and to improve the detection to the point where energy spectra can be
 obtained.}
}
@article{Menl1990c,
 author    = {H.~O. Menlove and M.~C. Miller},
 title     = {Neutron-burst detectors for cold-fusion experiments},
 journal   = {Nucl. Instr. Methods Phys. Res. A},
 volume    = {299},
 year      = {1990},
 pages     = {10--16},
 keywords  = {Design, neutron detector},
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 published = {12/1990},
 annote    = {This describes the neutron detector built at LANL, and details
 some of the design considerations. The job is to cope with the intermittent
 nature and low intensity of the neutrons, and with short bursts without
 losing information.  The high-efficiency detectors used by Menlove et al are
 based on (3)He gas tubes in a CH2 moderator. An inner ring of nine (3)He
 tubes is surrounded by an outer one of 42 tubes. The inner ring is
 unmoderated and is more sensitive to lower-energy neutrons, while the
 moderated outer ring responds to higher- energies. Bursts are handled by
 time-spread them by thermalisation in the CH2 moderator. The detectors have
 been used in cold fusion experiments (mostly reported elsewhere) in an
 underground laboratory with low background, and worked well.}
}
@article{Midd1990,
 author    = {R. Middleton and J. Klein and D. Fink},
 title     = {Tritium measurements with a tandem accelerator},
 journal   = {Nucl. Instr. Methods Phys. Res. B},
 volume    = {47},
 year      = {1990},
 pages     = {409--414},
 keywords  = {Experimental, instrumental, MS, tritium},
 submitted = {12/1989},
 annote    = {Spurred by the cold fusion news, this team decided to measure
 the sensitivity of their accelerator mass spectrometer for tritium analysis.
 This instrument is not only very sensitive, but also allows discrimination
of
 other species with similar mass, such as HD- ions, or similar magnetic
 rigidity, such as (6)Li. The team had available deuterated Ti samples 10 and
 12 years old; these might, if Jones et al (89) are right, have steadily
 accumulated T in the interval. The method was to absorb the deuterium gas in
 Ti powder (if not already there) and release it into the instrument. The
 sensitivity of the measurement is down to a ratio T:D equal to $10^{-16}$;
 this is somewhat academic, since it was found that several samples of fresh
 D2O showed a ratio of $10^{-10}$, an "astonishingly high level". The authors
 checked, by directly injecting D2 rather than going through their
 Ti-absorption way, that the T did not come from unintended cold fusion in
the
 Ti. We must accept, then, that heavy water is now "naturally" contaminated
 with tritium. This rather expensive method, however, is a good way of
 monitoring T with accuracy. The old TiD samples did not, by the way, show
 unexpected tritium.}
}
@article{Mile1990b,
 author    = {M.~H. Miles and K.~H. Park and D.~E. Stilwell},
 title     = {Electrochemical calorimetric evidence for cold fusion in the
              palladium-deuterium system},
 journal   = {J. Electroanal. Chem.},
 volume    = {296},
 year      = {1990},
 pages     = {241--254},
 keywords  = {Experimental, electrolysis, Pd, calorimetry, res+},
 submitted = {06/1990},
 published = {12/1990},
 annote    = {Measured excess heat during electrolysis at Pd in 0.1 M LiOD;
 at the same time, radiation levels were (crudely) monitored near the cell
 (nothing was found). There were control electrolyses with light water
 cells. The calorimetry consisted of a prior calibration using electrical
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 heating, and thermistors in a water jacket around the cell. Thus,
temperature
 in this jacket could be related to the amount of heat given off inside the
 cells.  Excess heat was calculated by simple subtraction of the
thermoneutral
 potential from the total cell voltage. Averaging over 11-33 days, several
 cells containing heavy water showed a mean excess heat of 4-17\%, with error
 limits, in some cases, below these levels. The light water control runs
 showed no excess heat. As no recombination was used, periodic water
additions
 were required, and contributed to temperature fluctuations. However, some
 excess heat excursions are clearly uncorrelated with such additions.}
}
@article{Miles1990a,
 author    = {M.~H. Miles and R.~E. Miles},
 title     = {Theoretical neutron flux levels, dose rates, and metal foil
              activation in electrochemical cold fusion experiments},
 journal   = {J. Electroanal. Chem.},
 volume    = {295},
 year      = {1990},
 pages     = {409--414},
 keywords  = {Discussion, radiation monitoring},
 submitted = {06/1990},
 published = {11/1990},
 annote    = {No experiment is reported here but some calculations are made
to
 help with experiments. First, the authors consider the safety of cold fusion
 cells: if they emit neutrons, what dosage do the operators receive? Assuming
 1E04 n/s, and a certain spectral composition, the dosages at various places
 in and on a typical FPH-type cell are calculated. Result: the emission level
 would have to go up to $10^6$ n/s to be a danger. This leads to thoughts of
 where to place a neutron detector, to get the most out of it, and another
 method of measuring neutron emission: activation of certain metals. Using,
 e.g. foils of In, Au or even Cu, wrapped closely around the inner cell,
foils
 of all these metals would be fully activated in a typical 30-hour
experiment,
 given the assumed neutron emission level. This activation can then be
 detected by the gamma radiation given off by the activated foils.}
}
@article{Milj1990,
 author    = {S. Miljanic and N. Jevtic and S. Pesic and M. Ninkovic
              and D. Nikolic and M. Josipovic and Lj. Petkovska and S.
Bacic},
 title     = {An attempt to replicate cold fusion claims},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {340--346},
 keywords  = {Experimental, electrolysis, Pd, Ti, gas phase, neutrons,
              tritium, res-},
 submitted = {03/1990},
 published = {09/1990},
 annote    = {Attempted to measure neutron emission (and other products)
 from electrolysis of D2O, ala FPH, and D2 gas-loaded samples (Pd and Ti).
Two
 Bonner spheres with scintillation sensors, a BF3 neutron dosimeter, a
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 high-efficiency NE-213 organic scintillator (gamma discriminating) for
 neutrons, a NaI(Tl) gamma detector, proton track etch detectors, a tritium
 beta counter and a mass spectrometer were used. Samples from the D2O from
the
 electrolysis cells were analysed for tritium, and the gas from the gas-load
 runs by MS. Calorimetry was not done. There was a 2.5 times background
 neutron flux for a short time but nothing definite. From this, the upper
 limit for cold fusion was estimated at $< 2.09 \times 10{-22}$
 fusion/(d-d)/s. Tritium was not found in significant amounts. There was a
 large before/after change in the ratio of masses 2 to masses 3 in the D2 gas
 used in the gas-loading experiments but could be explained by conventional
 processes. Helium analysis, planned for the future, may throw light on these
 problems. One electrolytic cell briefly heated up.}
}
@article{Morg1990a,
 author    = {J. D. {Morgan III}},
 title     = {Comment on: Deuterium nuclear fusion at room temperature:
              a pertinent inequality on barrier penetration},
 journal   = {J. Chem. Phys.},
 volume    = {93},
 year      = {1990},
 pages     = {6115--6617},
 keywords  = {Polemic},
 submitted = {10/1989},
 published = {10/1990},
 annote    = {Comment on named paper by G Rosen (1989), who found theoretical
 grounds for support of cold fusion claims. Morgan III points out that Rosen
 makes a crucial error, arising from his qualitative sketch of the potential
 energy curve for the interaction of two deuterons. Also, the ordinary WKB
 barrier penetration is not suitable here; its Langer modification should be
 used, and gives results within 25\% of those from numerical integration of
 the Schroedinger equation, whereas straight WKB is out by 4 orders of
 magnitude.  Fusion rates such as claimed by FPH or Jones, and apparently
 supported by Rosen, are extremely unlikely.}
}
@article{Morg1990b,
 author    = {J. D. {Morgan III} and H.~J. Monkhurst},
 title     = {Simple model for accurate calculation of Coulomb-barrier
              penetration factors in molecular fusion rates},
 journal   = {Phys. Rev A},
 volume    = {42},
 year      = {1990},
 pages     = {5175--5180},
 keywords  = {Theory, muons, res-},
 submitted = {05/1990},
 published = {11/1990},
 annote    = {A simple "back of the envelope" model is developed here for
 calculating muon catalysed cold fusion rates. Despite its simplicity, the
 model still gives results within 25\% or so of more sophisticated methods
 such as full Born-Oppenheimer integration, at the small d-d
 separations. Based on earlier work by Jackson (1957) and Soviet work (1961),
 the method works within the adiabatic approximation. Calculated cold fusion
 rates, uncatalysed by muons, are not encouraging for true believers, coming
 out at about $3 \times 10^{-56}$ fus/pair/s.}
}
@article{Morr1990,
 author    = {D. Morrison},
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 title     = {The rise and decline of cold fusion},
 journal   = {Physics World},
 volume    = {3},
 year      = {1990},
 pages     = {35--38},
 keywords  = {Discussion},
 annote    = {Earlyish summary and premature dismissal of 'cold fusion' by
 prominent critic DROM. There is a summary of the experimental claims,
 theories, and an attempt at a simple theoretical dismissal on the basis of
 d-d distances in PdD. The article also classifies 'cold fusion' as
 pathological science.}
}
@article{Morrey1990,
 author    = {J.~R. Morrey and M.~W. Caffee and I.~V. Farrar H
              and N.~J. Hoffman and G.~B. Hudson and R.~H. Jones
              and M.~D. Kurz and J. Lupton and B.~M. Oliver and B.~V. Ruiz
              and J.~F. Wacker and A. {Van Veen}},
 title     = {Measurements of helium in electrolyzed palladium},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {659--668},
 keywords  = {Experimental, helium analysis, res0},
 submitted = {07/1990},
 published = {12/1990},
 annote    = {Six laboratories spread across the US and as far as The
 Netherlands took part in a double blind study of sections of palladium rods,
 some of which had been used as cathodes in cold fusion experiments, and some
 were controls. One rod was as received from Johnson-Mathey; some were spiked
 with surface implanted helium by Johnson-Mathey and supplied as such (one)
or
 used in a cold fusion experiment (two); one unspiked rod was used in a cold
 fusion electrolysis (it was later said to have produced excess heat). These
 five rods were analysed by the various labs, using their own methods, for
 helium. One rod dropped out; this was the spiked one, not used in any
 experiments. Its known helium level (from the spiking) did not agree with
the
 analysis. The other 4 rods made an interesting picture. The He levels in the
 two remaining spiked rods were about right (both had been used in cold
fusion
 experiments).  Of the two unspiked rods, one should have had no He, and
 between $10^{-11}$ and $10^{-10}$ mol/cm$^3$ were found - this might be
 considered experimental background, although it was higher than expected.
The
 other, reported to have given out excess heat, had about 10 times this
 much. That level was not enough, however, to explain the excess heat from
the
 known fusion reaction, by a factor of about 36. All He was found near the
 surface, and there seemed to be more at the ends of the rods than near the
 middle, for some reason. No (3)He was found, although some of the labs would
 have if there had been some. The authors conclude that they cannot be sure
 that the He found in the unspiked rod came from cold fusion, and suggest
 further experiments of this sort.}
}
@article{Mugu1990,
 author    = {F.~F. Muguet and M.~P. Bassez-Muguet},
 title     = {Ab initio computations of one and two hydrogen or deuterium
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              atoms in the palladium tetrahedral site},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {383--389},
 keywords  = {Theory, calculation, res0},
 published = {12/1990},
 annote    = {Another look at the Coulombic repulsion barrier, but here with
 the assumption, that at high loadings, some tetrahedral sites may be
 occupied, instead of just the octahedral sites, generally assumed. The
 authors state that it is now clear that a loading greater than 0.8 is
 essential for cnf.  Here, then, are reported initial calculations on
 tetrahedral occupancy. The results say that this effect would not increase
 screening and thus tunnelling anywhere near enough to account for
 cnf. However, vibrational and other electric-field effects have not been
 included in the model.}
}
@article{Mukh1990,
 author    = {R. Mukhopadhyay and B.~A. Dasannacharya and D. Nandan
              and A.~J. Singh and R.~M. Iyer},
 title     = {Real time deuterium loading investigation in palladium
              using neutron diffraction},
 journal   = {Solid State Commun.},
 volume    = {75},
 year      = {1990},
 pages     = {359--362},
 keywords  = {Experimental, electrolysis, Pd, diffraction, loading, res0},
 submitted = {03/1990},
 published = {07/1990},
 annote    = {They had an electrolysis cell (0.2 M LiOD) and the Pd was a
 cylinder at its bottom; it also stuck out below the bottom, where it was in
 the path of a neutron beam for diffraction measurements, which were
conducted
 continuously (with a break due to a breakdown, between 5.1 and 10.2
 Ah). Current was 100 mA or about 200 mA/cm$^2$. Initially, a clear pattern
 was seen, with a lattice constant of 3.89 {\AA}ngstroms; this persisted
 through the low-load alpha phase.  After the breakdown, from 10.2 Ah,
another
 pattern was seen, with lc 4.02, corresponding to the beta phase. It was
 possible to measure the loading by an indirect method; it reached 0.55 and
 did not exceed this value. Also, the diffusion coefficient of deuterium in
 the Pd lattice could be estimated, and was about $5 \times 10^{-7}$
 cm$^2$/s.}
}
@article{Murr1990,
 author    = {L.~E. Murr},
 title     = {Palladium metallurgy and cold fusion: some remarks},
 journal   = {Scripta Metallurg. Mater.},
 volume    = {24},
 year      = {1990},
 pages     = {783--786},
 keywords  = {Discussion},
 submitted = {02/1990},
 annote    = {A metallurgist's view of cold fusion; the erratic results
 obtained by the various cold fusion researchers might be due to different
 crystal and grain structures of the Pd used. Dislocation density and grain
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 size, for example, might affect cold fusion probabilities. There is a
variety
 of techniques that can and should be used, at each experiment, to
 characterise the metal microstructure, for example transmission electron
 microscopy, on which Murr has written a book.}
}
@article{Myer1990,
 author    = {S.~M. Myers and D.~M. Follstaedt and J.~E. Schirber
             and P.~M. Richards},
 title     = {Search for cold fusion at D/Pd > 1 using ion implantation},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {263--268},
 keywords  = {Experimental, ion implantation, protons, res-},
 published = {09/1990},
 annote    = {It has been stressed that the D/Pd loading should be maximised
 in order to get cold fusion. So ion implantation is used to do this. Nuclear
 reaction analysis was used to determine the surface loading, which reached
 1.3 $\pm$ 0.2. Charged particles (protons) from a cold fusion reaction were
 measured upon breaking the implantation beam. No evidence for cold fusion
was
 found on Pd or on Zr.}
}
@article{Naer1990,
 author    = {U. N{\"a}rger and M.~E. Hayden and J.~L. Booth and W.~N. Hardy
             and L.~A. Whitehead and J.~F. Carolan and D.~A. Balzarini
             and E.~H. Wishnow and C.~C. Blake},
 title     = {High precision calorimetric apparatus for studying
             electrolysis reactions},
 journal   = {Rev. Sci. Instrum.},
 volume    = {61},
 year      = {1990},
 pages     = {1504--1508},
 keywords  = {Experimental, electrolysis, Pd, calorimetry, res-},
 submitted = {09/1989},
 published = {05/1990},
 annote    = {This team developed an accurate microcalorimeter (0.3\% in abs.
 energy balance), along the lines of an older (1947) design. Basically, the
 closed cell has catalytic recombination of evolved gases, so can be closed,
 and the heat evolved is measured by heat exchange with a long convoluted
tube
 of fluid going through the cell. In the old, 1947 design, the tube went
 straight to the source of heat and then outwards; here, it goes inward from
 the outside. This isolates the cell from environmental (thermal)
 interferences, although it becomes slightly less accurate. It was able to
 detect 20 mW of heat. The team then tried it out on a cold fusion
experiment,
 comparing electrolysis at a Pt electrode (0.1 M LiOD in D2O, the standard
 soup) with ditto at a Pd electrode, previously loaded with deuterium to 0.78
 D/Pd (measured by weight). Within the 0.3\% scatter, the two cells gave the
 same results. If you assume that no cold fusion takes place in/at Pt, then
 neither does it at Pd.}
}
@article{Naka1990a,
 author    = {M. Nakazawa and T. Shibata and T. Iguchi and T. Akimoto
             and N. Niimura and Y. Oyama and O. Aizawa},
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 title     = {Cold fusion and low level neutron measurements},
 journal   = {Nihon Genshiryoku Gakkaishi},
 volume    = {32},
 year      = {1990},
 pages     = {114--122},
 note      = {In Japanese},
 keywords  = {Review},
 annote    = {A review, with 10 refs., of methodology of low level neutron
 detection for cold nuclear fusion.}
}
@article{Naka1990b,
 author    = {M. Nakazawa},
 title     = {Urtra low-level neutron counting},
 journal   = {Hoshasen},
 volume    = {16},
 number    = {3},
 year      = {1990},
 pages     = {8--14},
 keywords  = {Review of neutron detection; no FPH/Jones refs},
 annote    = {This is a review of methods of ultra low-level neutron
 measurement, with special reference to neutrons from cold fusion. There is
 advice on how to reduce spurious counts.}
}
@article{Nimt1990,
 author    = {G. Nimtz and P. Marquardt},
 title     = {A proposal for a lukewarm nuclear fusion},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {518.},
 keywords  = {Suggestion},
 submitted = {06/1990},
 published = {11/1990},
 annote    = {N \& M have, in their previous work, found that small metal
 particles can have a large dielectric constant, perhaps as high as $10^5$.
 Such a medium - e.g. a network of Ag - would require only about 5600 K for
 fusion between deuterons to take place, instead of the usual enormously high
 temperatures.  This suggests some simple and cheap experiments.}
}
@article{Nish1990,
 author    = {K. Nishizawa},
 title     = {Radiation Protection Aspects of cold fusion},
 journal   = {Hoken Butsuri},
 volume    = {25},
 year      = {1990},
 pages     = {288--290},
 note      = {In Japanese},
 keywords  = {Suggestion.},
 annote    = {Tritium and neutrons are discussed.}
}
@article{Ogur1990,
 author    = {K. Oguro},
 title     = {Hydrogen absorbing alloys and low-temperature nuclear fusion},
 journal   = {Zairyo},
 volume    = {39},
 number    = {437},
 year      = {1990},
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 pages     = {228--229},
 note      = {In Japanese},
 keywords  = {Review},
 annote    = {"A review with no references is given on the mechanism of
 absorption of H by alloys, the roles of the metal surface and bulk metal in
H
 absorption, and Pd as an electrode for cold nuclear fusion".}
}
@article{Olem1990,
 author    = {A.~I. Olemskoj and E.~A. Toropov},
 title     = {On the fluctuation theory of cold fusion},
 journal   = {Ukr. Fiz. Zh.},
 volume    = {35},
 year      = {1990},
 pages     = {1619--1622},
 note      = {In Russian},
 keywords  = {Theory, res+ number    = {11},},
 submitted = {04/1990},
 published = {11/1990},
 annote    = {The authors use the work of Anderson (Phys. Rev. 109 (1958)
1492)
 to work out a model of cold fusion, and the conditions under which it might
 work. The idea is that although mean states do not allow fusion in metal
 deuteride, their fluctuations might, with the right parameters; large values
 of deuteron delocalisation and scattering and small storage parameter are
 favourable, helped by the fluctuations and external noise.}
}
@article{Oria1990,
 author    = {R.~A. Oriani and J.~C. Nelson and S.~K. Lee
              and J.~H. Broadhurst},
 title     = {Calorimetric measurements of excess power output during the
              cathodic charging of deuterium into palladium},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {652--658},
 keywords  = {Experimental, electrolysis, Pd, calorimetry, res0},
 submitted = {05/1990},
 published = {12/1990},
 annote    = {A calorimeter using the Seebeck effect is used. The cylindrical
 electrode space is entirely surrounded by a thermopile array, thus capturing
 all the heat given off; temperature gradients do not matter. Calibration
with
 electrical heating shows an accuracy of 0.3\%. Runs with water establish
 precise agreement between expected and measured heat, and absence of
 significant recombination effects. Runs with heavy water then show no
 anomalous heat outputs over 31 hours. A larger cell was then built, with
 lower electrolytic resistance, to allow larger current densities. Also,
 palladium was a part of the anode, so as to dissolve Pd and redeposit it
onto
 the cathode, in order to encourage crack formation there. Now some apparent
 excess heat was measured. Recalibration with H2O confirmed this. Another
 anomaly observed was that, upon reduction of the input power there was a
rise
 in the calorimeter signal, and excess heat. There was also a slight waviness
 in the calorimeter signal with heavy water but not with light water,
 indicating the possibility of periodic or sporadic heat bursts. Chemical
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 explanations for the excess heats appear not to be sufficient, nor are
 mechanical energy storage models. Some attempt to monitor neutron flux, and
 to assay for tritium afterwards; neither was found. The excess heat observed
 remains unexplained.}
}
@article{Oyam1990a,
 author    = {N. Oyama and T. Ohsaka and O. Hatozaki and Y. Kurasawa
              and N. Yamamoto and S. Kasahara and N. Ohta and Y. Imai
              and Y. Oyama and T. Nakamura and T. Shibata and M. Imamura
              and Y. Uwamino and S. Shibata},
 title     = {Electrochemical calorimetry of D2O electrolysis using a
              palladium cathode - an undivided, open cell system},
 journal   = {Bull. Chem. Soc. Japan},
 volume    = {63},
 year      = {1990},
 pages     = {2659--2664},
 keywords  = {Experimental, electrolysis, Pd, calorimetry, res+},
 submitted = {04/1990},
 published = {09/1990},
 annote    = {Palladium rods of 2mm and 6mm dia. were first heated in air at
 1540 degC for 1 h, quenched in D2O, and then heated in vacuum at 600 degC
for
 6 h and cooled in a D2 gas atmosphere. The paper does not make clear whether
 the same treatment, but using H2O and H2 gas, was used for the controls. The
 rods were then used in electrolysis of H2O and D2O containing 0.1 M LiOH or
 LiOD.  Current densities were 60-300 mA/cm$^2$. Two temperature probes were
 placed in the undivided cells and the evolved gases' volume measured to
 monitor electrolysis efficiency, from which the degree of recombination
could
 be estimated. Even for fully immersed cathodes, there was around 2-5\%
 recombination, presumably from gases present in the electrolyte. Cell
 temperature changes were measured by means of a thermistor, and calibration
 by electric heating. A loading of about 0.65 was achieved. The figures show
 excess heat, corrected for water electrolysis. For heavy water, there is
 great scatter and it appears that the points average out to about zero, as
 they also do for light water, where there is less scatter. The authors,
 however, list the high points of excess heat in their Table, going up to
 "42\% excess heat".  One of the interesting effects is the difference
between
 the two temp. probes, showing clearly that there are large temp. gradients
in
 the cells. The authors do not conclude that they have evidence for cold
 fusion, pointing to the need for measurements of correlated independent
 parameters.}
}
@article{Oyam1990b,
 author    = {N. Oyama and N. Yamamoto and O. Hatozaki and T. Ohsaka},
 title     = {Probing absorption of deuterium into palladium cathodes
              during D2O electrolysis with an in situ electrochemical
              microbalance technique},
 journal   = {Jpn. J. Appl. Phys. Part 2},
 volume    = {29},
 year      = {1990},
 pages     = {L818--L821},
 keywords  = {Experimental, fundamental, loading, structure},
 submitted = {03/1990},
 published = {05/1990},
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 annote    = {The quartz crystal microbalance (QCM), is used here to weigh
 absorbed hydrogen isotopes in Pd, sputtered as a film (45-1000 nm) on top of
 a film of Cr (2 nm) and Au (300 nm) on the quartz plate. Cyclic voltammetry
-
 i.e.  cycling the applied potential forward and backward - is used,
 monitoring both current and QCM frequency changes, df. On Au, df (due to
 H-deposition) goes back to zero on the reverse scan, while on Pd, it does
 not, in the few minutes the scan took, indicating absorption of H into the
Pd
 interior. A constant-current run with both normal and deuterated
electrolytes
 showed double the df for D as for H, since D is double the weight of H. This
 shows these isotopes are absorbed into Pd. From df, the team calculate a
 loading D/Pd of about 0.58; this is less than the total current comes to,
 indicating some loss as, e.g., D2 bubbles. X-ray diffraction confirmed the
 presence of some beta-phase Pd deuteride.  The results differ from those of
 Cheek and O'Grady, who found that df was twice that expected from the
 Sauerbrey equation, probably due to mechanical changes in the film due to
 D-loading. They used coulometry to measure the loading, and got quite
 reasonable numbers, implying no loss.  Oyama et al promise more work on the
 kinetics of absorption of H into and its diffusion in Pd, and some
 calorimetry.}
}
@article{Oyam1990c,
 author    = {Y. Oyama},
 title     = {Very low level flux neutron measurement with
              an NE213 liquid scintillator},
 journal   = {Hoshasen},
 volume    = {16},
 year      = {1990},
 pages     = {15--21},
 note      = {In Japanese},
 keywords  = {Design, instrumental, neutron detection},
 annote    = {Tech. details of an NE213 liq. scintillation detector system
 is described from the viewpoint of very low-level flux n measurements such a
 cold fusion expt. Characteristics of the NE213 detector system are
 investigated for the background pulse shape discrimination, stability and
 shielding. The detection limit of the present system is 0.1 n/s/source due
to
 the detector efficiency and background. This limit will be extended to
 0.001-0.01 n/s/source by using coincidence and anticoincidence detectors. A
 multichannel scaling technique is also applied to perform a chi-square test
 in comparison with Poisson distribution. A series of expts. are arranged
with
 chi-square values to see reproducibility of n detection. (Quoted from CA
 115:17192 (1991))}
}
@article{Pala1990,
 author    = {A. Palamalai and A. G. Rafi Ahmed and M. Sampath
              and A. Chinnusamy and G.~N. Prasad and K. S. Krishna Rao
              and O.~M. Sreedharan and V.~R. Raman and G.~R.
Balasubramanian},
 title     = {Preliminary experimental studies on electrochemically induced
              fusion of deuterium},
 journal   = {Trans. SAEST},
 volume    = {25},
 year      = {1990},
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 pages     = {73--80},
 keywords  = {Experimental, electrolysis, Pd, Ti, gammas, tritium,, res+},
 annote    = {Electrolysis of D2O at Pd. Gamma emission from thermalised
 neutrons was detected by an NaI detector, shielded from cosmic rays by Pb
 shielding.  Aliquots of the electrolyte were extracted for tritium assays.
In
 another experiment, a Ti cuboid is used as cathode. Thermal effects were
 measured by comparing a "live" cell with a dummy containing H2O. Some
 sporadic gamma events were observed from both Pd and Ti electrodes. The
 authors also analyse FPH's results and conclude that a small area/volume
 ratio is favourable for fusion, as this relatively inhibits escape of
 deuterium from the Pd, thus giving it more time to fuse.}
}
@article{Pall1990,
 author    = {V. Palleschi and M.~A. Harith and G. Salvetti and D.~P. Singh
              and M. Vaselli},
 title     = {A plasma model of the process of cold nuclear fusion in
metals},
 journal   = {Phys. Lett. A},
 volume    = {148},
 year      = {1990},
 pages     = {345--350},
 keywords  = {Theory, res+},
 submitted = {08/1989},
 published = {08/1990},
 annote    = {The authors aim to present a model of the interionic
interactions
 and electron screening in metals that, without introducing the unrealistic
 concept of effective mass or charge, may account for observed cold fusion
 rates. The high density of H in Pd gives rise to a dense one-component
 plasma.  Results show that efficient screening of the d potential obtains in
 metals at low temperatures and d-d short range correlation lead to enhanced
 cold fusion rates.}
}
@article{Pari1990,
 author    = {T.~A. Parish and R.~T. Perry and W.~B. Wilson},
 title     = {Neutron sources and spectra from cold fusion},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {479--481},
 keywords  = {Theory, calculation},
 published = {12/1990},
 annote    = {The feasible, known fusion reactions would produce neutrons,
 which would be thermalised and produce secondaries. This paper sets out to
 calculate expected spectra of these emissions; experimentalists will thus
 know what to look for, i.e. as shown in the four Figs in this paper.}
}
@article{Parm1990a,
 author    = {R.~H. Parmenter and W. E. {Lamb Jr}},
 title     = {More cold fusion in metals: corrected calculations
              and other considerations},
 journal   = {Proc. Natl. Acad. Sci. U.S.A.},
 volume    = {87},
 year      = {1990},
 pages     = {3177--3179},
 keywords  = {Theory, calculation, res+},
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 submitted = {12/1989},
 published = {04/1990},
 annote    = {A reexamination of their previous calculations of possible
 fusion rates in PdD(x), which lead to a value of $10^{-30}$. Now, it seems
 that about $10^{-18}$ is possible, larger than the rates inferred by Jones+
 (who have similar results with palladium electrodes). The application of the
 model to titanium is not as easy, due to uncertainties in values of, e.g.,
 specific heat and elastic constants of the deuteride, so no reliable numbers
 can be calculated.}
}
@article{Parm1990b,
 author    = {R.~H. Parmenter and W. E. {Lamb Jr}},
 title     = {Cold fusion in palladium: a more realistic calculation},
 journal   = {Proc. Natl. Acad. Sci. USA},
 volume    = {87},
 year      = {1990},
 pages     = {8652--8654},
 keywords  = {Theory, calculation, res-},
 submitted = {07/1990},
 published = {11/1990},
 annote    = {Following these authors' previous two papers (1989, 1990), this
 paper recalculates expected fusion rates, now employing the modified, rather
 than the straight, Thomas-Fermi-Mott equation. The modification lies in the
 model for the conduction electrons, and their assumed effective mass. The
 resulting fusion rate, around $10^{-23}$ fusions/s/d-d pair, is more in line
 with those reported by Jones et al (1989), and some orders of magnitude
 larger than those previously calculated. The new numbers suggest that the
 Jones et al results can be explained by conventional physics, as used here.
}
}
@article{Pase1990,
 author    = {I. Paseka and J. Vondrak},
 title     = {Cold nuclear fusion},
 journal   = {Chem. Listy},
 volume    = {84},
 year      = {1990},
 pages     = {897--908},
 note      = {In Czech, Engl. abstract},
 keywords  = {Discussion},
 submitted = {06/1989},
 published = {09/1990},
 annote    = {(English abstract:) "The subject of this article is the
 development of the knowledge concerning cold nuclear fusion. Both the
 original communications and the experiments on the checking of the
phenomenon
 are presented. Further, the main properties of the metal-hydrogen systems
are
 summarized with respect to the assumed influence of the nuclear reaction of
 deuterons, and some features of this nuclear reaction are described. The
 causes of errors leading to incorrect determination of thermal effects and
 nuclear particles are discussed. Fusion processes with an observable thermal
 effect are not probable, but it cannot be excluded, either experimentally or
 theoretically, that fusion processes take place at very low speeds, below
 $10^{-21}$ to $10^{-28}$ fusions per second per one deuteron pair."  Written
 in June, 1989, the paper draws attention to most of the major commentaries
to
 that date, goes through most of the important aspects of the Pd/D system,
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 electrolysis, muon catalysis, Oppenheimer-Phillips theory, some
 thermodynamics, nuclear chemistry, and the possible traps for the unwary
cold
 fusion researcher.}
}
@article{Pokr1990,
 author    = {V.~V. Pokropivnii and V.~V. Ogorodnikov},
 title     = {The bineutron model of cold nuclear fusion in metals},
 journal   = {Sov. Tech. Phys. Lett.},
 note      = {Orig. in: Pis'ma Zh. Teor. Fiz. 16(21) (1990) 31 (in Russian)},
 volume    = {16},
 number    = {111},
 year      = {1990},
 pages     = {819--821},
 keywords  = {Theory, bineutrons},
 submitted = {08/1990},
 published = {11/1990},
 annote    = {Supported by earlier Soviet theoretical work, the authors
 propose the hypothetical formation of quasistable bineutrons; these are put
 into the context of the nucleonic (neutron, deuteron and biproton) isotope
 family. If bineutrons have sufficient life times, they might undergo the
 fusion reactions d+2n-->t+n or d+2n->(4)He+e. The bineutrons can be formed
by
 electron capture by protons, and the chemistry of the environment enters
 here: high electron pressure and density are favourable. Some
thermodynamical
 calculations indicate that Pd and Nb are particularly good metals in whose
 deuterides this might happen. Highly energetic electrons might derive from
 the fracto-effect (electrons accelerated across cracks) or from the high
 voltage fields at cathode surfaces. The hypothesis suggests test experiments
 as, e.g. varying the accelerating voltages in some manner, or admixture of
 different neutron-rich impurities to optimise the process.}
}
@article{Pons1990,
 author    = {S. Pons and M. Fleischmann},
 title     = {Calorimetric measurements of the palladium/deuterium system:
              fact and fiction},
 journal   = {Fusion Technol.},
 volume    = {17},
 year      = {1990},
 pages     = {669--679},
 keywords  = {Polemic, discussion},
 submitted = {03/1990},
 published = {07/1990},
 annote    = {A defense of their paper FPH-89, in the form of more details.
 Some of this overlaps with their second paper, FPALH-90. The points made
here
 include (1) a low-cost calorimeter is required for experiments which must be
 run for an average of 3 months; (2) recombination of D2 with O2 gas did not
 occur, as these gases were never in contact with the Pd electrode; (3)
 appreciable stray currents did not flow since $>99$\% Faradaic efficiency
was
 measured; (4) the cell acts as an extremely well-stirred system in the
 thermal sense; (5) there were in fact blank experiments reported in FPH-89
 (they cite the Pd plate at low current and state that the best blank is a
 deuterated Pd electrode with no excess heat), and here they report many more
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 blanks; (6) that, apart from long term, steady state excess heats, there
were
 much larger bursts, with factors up to 40 relative to the input heat; and
 that (7) the integrated long-term heat shows an excess far greater than can
 be explained by any conceivable chemical process.}
}
@article{Port1990,
 author    = {J.~D. Porter and A.~A. Shihab-Eldin and H. Bossy
              and F.~J. Echegaray and J.~M. Nitschke and S.~G. Prussin
              and J.~O. Rasmussen and M.~A. Stoyer},
 title     = {Limits on electromagnetic and particle emission from
              palladium-D2O electrolytic cells},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {319--327},
 keywords  = {Experimental, electrolysis, Pd, neutrons, cps, ems, res-},
 published = {09/1990},
 annote    = {First, an FPH(89)-type cell, using a Pd wire, was used, and
 neutrons monitored by means of the 2.224 MeV gamma peak expected from
neutron
 thermalisation. Open-circuit electrode potential measurements were attempted
 as a measure of D/Pd loading but abandoned as useless. Electrochemical
 titration (i.e. reoxidation of all D and current integration) yielded a
lower
 limit of 0.62. This cell produced no emissions above background, setting the
 upper limit at $2 \times 10^{-22}$ fus/pair/s. Another, twin, cell was then
 built, with D2O in the one and H2O in the other. "Single blind" mode was
 used, in which the experimenters did not know which cell was which. The two
 cells were alternately placed into the detector space for 24 hours. Gamma,
 x-ray, neutron detectors were placed, as well as one for high-energy charged
 particles. Also, a thin-foil cell was placed over an SSB charged particle
 detector. No emissions indicating cold fusion were detected. Current cycling
 was tried in order to perhaps stimulate stress cracking and fractofusion,
 again with no results. The thin-foil cell showed no charged particle
 emissions. The need for the twin cells was emphasised by considerable
 background variations. As well, there were a few large neutron bursts,
 readily associated with known noise sources.}
}
@article{Powe1990,
 author    = {G.~L. Powell and I.~V. Bullock JS and R.~L. Hallman
              and P.~J. Horton and D.~P. Hutchinson},
 title     = {The preparation of palladium for cold fusion experiments},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {355--357},
 keywords  = {Experimental, fundamental, loading},
 published = {09/1990},
 annote    = {Clearly, Pd cathode preparation is a critical issue in cold
 fusion. This paper examines the options. One can distinguish between
 electrodes that have been mechanically worked (by forging, extrusion,
swaging
 and rolling or surface treatments such as turning, drilling and tapping) and
 those that have not. These latter might be chill-block cast, dud melted
 directionally solidified, zone refined boule grown or treated by the
 Czochralski method.  Some of these produce single crystals or oriented
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 grains, some with shrink voids. Voids may be important. The paper reports an
 experiment with Pd melted from foil in an ultravacuum furnace at 1600 degC
 and rapidly solidified to produce voids which have nice clean surfaces and
 might sustain high deuterium pressures. Two of the rods were annealed at 900
 degC for 4 h to remove residual work. They were charged with D2 gas, while
 measuring the pressure (changes), which allowed a pressure-loading curve to
 be measured. It showed a final D/Pd loading of 0.63 at about 2 atm at 50
 degC. Future work is plannned, such as inclusion of Li or LiD.}
}
@article{Prel1990,
 author    = {M. Prelas and F. Boody and W. Gallaher and E. Leal-Quiros
              and D. Mencin and S. Taylor},
 title     = {Cold fusion experiments using Maxwellian plasmas and
              sub-atmospheric deuterium gas},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {309--313},
 keywords  = {Experimental, plasma, Pd, gammas, neutrons, res+},
 published = {09/1990},
 annote    = {Here is a team with experience with plasma fusion. They use a
 heated plasma of deuterium aimed at a Pd target to load D into the Pd, at
the
 typically low plasma pressures, and measure gamma and neutron fluxes. Data
is
 taken with software and "manually ... in bound notebooks". Some neutron and
 gamma emissions were detected above background, and were shown not to be due
 to heating of the Pd sample, since simple heating produced no such
 effects. The results are sufficiently interesting to warrant further
research
 using, e.g., better neutron detectors and searching for tritium as well.}
}
@article{Pric1990,
 author    = {P.~B. Price},
 title     = {Search for high-energy ions from fracture of LiD crystals},
 journal   = {Nature},
 volume    = {343},
 year      = {1990},
 pages     = {542--542},
 keywords  = {Experimental, fracto-, res-},
 submitted = {09/1989},
 published = {02/1990},
 annote    = {At last an attempt to verify the several Soviet claims of
 emission of high-energy particles from fractured deuterides. Price cleaved a
 large LiD crystal 100 times, and measures no neutrons. This casts some doubt
 on the Soviet fracto-something results.}
}
@article{Rabi1990a,
 author    = {M. Rabinowitz and D.~H. Worledge},
 title     = {An analysis of cold and lukewarm fusion},
 journal   = {Fusion Technol.},
 volume    = {17},
 year      = {1990},
 pages     = {344--349},
 keywords  = {Discussion},
 submitted = {10/1989},
 published = {03/1990},
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 annote    = {FPH- or Jones+-type cold fusion is having a hard time becoming
 accepted; the single publication on cluster-impact ("lukewarm") fusion of
 Beuhler et al has not raised any obvious objections, although the two
 phenomena have much in common: surprisingly high fusion rates, given the
 applied energies. The Beuhler et al neutron emissions are about 25 orders of
 magnitude larger than expected from theory. The authors attempt to find
 factors that could enhance the fusion rates for both lukewarm and cold
 fusion. For the former, compression and electron screening can account for
10
 orders of magnitude; for the latter, a change in effective mass of deuterons
 in the palladium lattice can account for FPH-level rates. Further, no great
 temperature effect is expected for cold fusion.}
}
@article{Rabi1990b,
 author    = {M. Rabinowitz},
 title     = {High temperature superconductivity and cold fusion},
 journal   = {Mod. Phys. Lett. B},
 volume    = {4},
 year      = {1990},
 pages     = {233--247},
 keywords  = {Discussion, HTSC connection},
 submitted = {12/1989},
 annote    = {There are parallels between high-temp superconductivity and
cold
 fusion.  In the former, charge carrier effective mass and, in the latter,
the
 d effective mass, (may) play a role. A new theory including the effects of
 proximity, electron shielding and decreased effective mass of the fusing
 nuclei can account for the cold fusion results. There is a relation between
 the recent cluster impact fusion experiments and cold fusion.}
}
@article{Rafe1990,
 author    = {J. Rafelski and M. Sawicki and M. Gajda and D. Harley},
 title     = {How cold fusion can be catalyzed},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {136--141},
 keywords  = {Discussion, X-particle},
 submitted = {02/1990},
 published = {08/1990},
 annote    = {Even before the cold fusion affair, there was speculation about
 catalysis of fusion by some unknown particle, leading to observed anomalous
 levels of (3)He in metals. Cosmic muons have been suggested as the cause of
 cnf, but this has been disproved theoretically and by experiment. They (and
 quarks, another suggestion) would be captured before doing their stuff.
 However, if there were a hitherto unknown ultra-heavy negatively charged
 particle, X-, left over from the universe's origins, these might do the
 job. This is not altogether pulled out of the air; there is a body of prior
 speculation by physicists on such particles. Some calculations show that
this
 is feasible, and would explain a few features of cold fusion, such as its
 sporadicity.  Some proposals are made for the search for these particles.}
}
@article{Ragh1990,
 author    = {M. Ragheb and G.~H. Miley},
 title     = {Deuteron disintegration in condensed media},
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 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {429--435},
 keywords  = {Theory, neutron cleavage},
 published = {12/1990},
 annote    = {Another novel theory. The authors point out that the deuteron
 is one of the few nuclei in which the proton and neutron are loosely bound,
 with a largish mean distance between them. When a deuteron approaches
another
 nucleus X, the proton turns away from X (polarisation), and the deuteron
 might cleave, the neutron entering X (with the proton still outside the
 Coulomb barrier) and the proton flying off. If X is another deuteron, this
 makes a triton. X might also be a Pd isotope, making another one plus a
 proton. This would explain the strange branching ratios found for cold
 fusion, which then in fact is better classified as a fission reaction
 (fission of the original deuteron), or a neutron capture reaction. The
 corrected gamma spectrum of FPH (Petrasso+,89) even shows some evidence of
 the reaction with Pd. Other possible reactions of this type might be with
 (3)He (--> (4)He + p) and with (9)Be (--> 2(4)He + t).  In all cases, the
 products are not those expected from conventional d-d fusion. The theory is
 experimentally testable.}
}
@article{Rant1990,
 author    = {J. Rant and R. Ili{\'c} and J. Skvar{\v{c}} and T. {\v{S}}utej
             and M. Budnar and U. Miklav{\v{z}}i{\'c}},
 title     = {Methods for in-situ detection of cold fusion
             in condensed matter},
 journal   = {Kerntechnik},
 volume    = {55},
 year      = {1990},
 pages     = {165--167},
 keywords  = {Suggestion, neutron detector design},
 submitted = {02/1990},
 published = {06/1990},
 annote    = {Most previous detectors used to detect possible emissions
 (neutrons, protons, x-rays, gamma rays) from cold fusion, used active
devices
 such as (3)He or BF3 counters, recoil proton spectrometers, scintillators
and
 solid state Ge and Si detectors. These authors suggest the use of passive
 activation threshold detectors and solid state nuclear track detectors
 (SSNTDs) as well as bubble damage detectors (BDDs) and thermoluminescence
 detectors (TLDs).  The term "in-situ" means that these passive devices,
being
 small and without electric connections, can be placed right next to or even
 into cavities inside the electrode from which there might be
 emissions. Different sorts of these can be stacked, the outside ones then
 shielding the inside ones from certain kinds of radiation, e.g. protons, so
 that only gammas arrive there. BDDs can be tailored to neutrons above a
given
 energy, and are very sensitive. All these types have low backgrounds. The
 authors have submitted experimental cold fusion results to two journals.}
}
@article{Rede1990,
 author    = {L. Redey and K.~M. Myles and D. Dees and M. Krumpelt
             and D.~R. Vissers},
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 title     = {Calorimetric measurements on electrochemical cells
              with Pd-D cathodes},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {249--256},
 keywords  = {Experimental, electrolysis, Pd, calorimetry, res-},
 published = {09/1990},
 annote    = {First, an attempt was made to directly compare a cell with
 H2O + LiOH with another containing D2O + LiOD. The idea was to detect, under
 identical electrolysis conditions, large temperature differences perhaps due
 to cold fusion. It proved impossible to ensure identical conditions; e.g.,
 for the same current, different cell voltages (and thus input powers) were
 observed.  A constant-heat-loss calorimeter was then tried, sufficiently
 sensitive to measure excess heat from cold fusion; accuracy was about
 0.4\%. The 19 g Pd rods were degassed either below 100 degC or at high
 temperatures in vacuum, heat treated in air at 650 degC for an hour and
 finally for 18 hours in vacuum at 600 degC. The electrolyte was saturated
 LiOD, to lower its resistance compared with the usual 0.1M solution. Six
 extended experiments, totalling 1500 h were run, the longest being 460 h and
 700 Ah. During the runs, the Pd was weighed, its potential measured with
 current both on and off, and the amount of heavy water measured that was
 needed to maintain constant level. At the end, an H/D ratio of 0.02 was
 found, presumably due to some exchange with air, but no significant increase
 of tritium was found in the electrolyte. The Pd was outgassed, and the gas
 was found to have an H/D ratio of 0.06. The D/Pd loading was close to 0.8,
 and there was degassing upon switching the current off. There is some
 discussion about these, and recombination (which was not important). No
 excess heat was found.}
}
@article{Rehm1990,
 author    = {K.~E. Rehm and W. Kutschera and G.~J. Perlow},
 title     = {Search for protons from the 2H(d,p)3H reaction in an
              electrolytic cell with palladium-platinum electrodes},
 journal   = {Phys. Rev. C: Nucl. Phys.},
 volume    = {41},
 year      = {1990},
 pages     = {45--49},
 keywords  = {Experimental, Pd, electrolysis, protons, res-},
 submitted = {09/1989},
 published = {01/1990},
 annote    = {One of the two branches of the d+d fusion reaction releases
 protons and these are more easily detectable than neutrons, with a much
lower
 background.  The cathode was a 30.5 mg/cm$^2$ Pd foil, and separated the gas
 in the proportional counter from the electrolyte, 0.1 LiOD in D2O. Protons
 were counted at a detection efficiency of 28\%. Current density was <650
 mA/cm$^2$.  Several runs were performed, the longest going for 10+ days. No
 difference was noted between cells that were on or off. An upper limit for p
 production gave a maximum fusion rate of $4\times 10^{-23}$ D(d,p)T fusions
 per s, which is the Jones+ level, making it unlikely that FPH's claimed
 excess heat is of nuclear origin.}
}
@article{Rice1990a,
 author    = {R.~A. Rice and G.~S. Chulik and Y.~E. Kim and J.~H. Yoon},
 title     = {The role of velocity distribution in cold deuterium-deuterium
              fusion},
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 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {147--150},
 keywords  = {Discussion, dendrites},
 submitted = {02/1990},
 published = {08/1990},
 annote    = {Some calculations on the dendrite theory of cold fusion. The
 dendrites or whiskers will often penetrate D2 bubbles formed at the metal
 surface, and the high voltage field will accelerate some D+ particles. The
 authors examine, on the basis of two models of velocity distribution, what
 fusion rates can be expected from this. Although these come to much higher
 rates than for "conventional" cold fusion, they are still not quite high
 enough to explain recent claims, but fall into line if electrolysis voltages
 of 30-40 V were used (which is not the case).}
}
@article{Rice1990b,
 author    = {P. Rice-Evans and H. Evans},
 title     = {Search for neutrons from cold nuclear fusion},
 journal   = {Eur. J. Phys.},
 volume    = {11},
 year      = {1990},
 pages     = {251--252},
 keywords  = {Experimental, Pd, electrolysis, neutrons, res-},
 submitted = {10/1989},
 published = {07/1990},
 annote    = {Scintillation neutron counters have poor gamma resolution,
 high-resolution intrinsic Ge detectors are better, and are used
 here. Palladium foil (2*1*0.025 cm$^3$) in LiNO3/D2O, 10 days electrolysis
at
 0.1A, followed by 56h while measuring neutrons, with 0.05A flowing. The
 neutrons from the reaction d+d--> (3)He + n(2.45 MeV) are expected to
 thermalise in the water bath to 2.224 MeV gammas; these were looked for. The
 results show a peak at 2.204 MeV, due to (214)Bi in the building walls, but
 nothing at all at 2.224 MeV. So, these precision measurements say "no" to
 cold fusion.}
}
@article{Ritl1990,
 author    = {K.~A. Ritley and P.~M. Dull and M.~H. Weber and M. Carroll
             and J.~J. Hurst and K.~G. Lynn},
 title     = {The behavior of electrochemical cell resistance: a possible
             application to cold fusion experiments},
 journal   = {Fusion Technol.},
 volume    = {17},
 year      = {1990},
 pages     = {699--703},
 keywords  = {Suggestion, discussion},
 submitted = {12/1989},
 published = {07/1990},
 annote    = {Some experiments show that the overall "cell resistance", i.e.
 that calculated from cell voltage and current in an electrochemical cold
 fusion cell, changes with temperature and current. The authors suggest that
 therefore, one must monitor both voltage and current in order to correctly
 account for joule heating of the cell. If there are temperature excursions
in
 such a cell, these could, for example, come from a voltage or current
 fluctuation. There may also be changes in electrolyte concentration with
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 time, and these must be accounted for.}
}
@article{Ritt1990,
 author    = {E.~S. Rittner and A. {Meulenberg  Jr}},
 title     = {A chemical interpretation of heat generated in 'cold fusion'},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {377--381},
 keywords  = {Discussion, suggestion},
 published = {12/1990},
 annote    = {A non-(hitherto unknown nuclear) explanation is attempted for
 the FPH disparity between the heat and neutron flux. D2-O2 recombination can
 easily account for the excess heat claimed by FPH; D-D recombination (by
 decomposition of the PdDx, releasing the D, as suggested by Pauling), can
 explain the melt-down and explosion of the large cathode of FPH. No nuclear
 reactions need be invoked.}
}
@article{Robe1990,
 author    = {D.~A. Roberts and F.~D. Becchetti and E. Ben-Jacob and P. Garik
              and J. Musser and B. Orr and G. Tarle and A. Tomasch
              and J.~S. Holder and D. Redina and B. Heuser and G. Wicker},
 title     = {Energy and flux limits of cold fusion neutrons using a
              deuterated liquid scintillator},
 journal   = {Phys. Rev. C},
 volume    = {42},
 year      = {1990},
 pages     = {R1809--R1813},
 keywords  = {Experimental, Pd, electrolysis, neutrons, res-},
 submitted = {12/1989},
 published = {11/1990},
 annote    = {The team used two deuterated liquid scintillator neutron
 detectors NE230; these provide good neutron/gamma discrimination, state the
 authors. One was placed inside a glass tube, surrounded by the Pd cathode in
 an electrolytic cell containing 0.1 M LiOD. Clean spectra could only be
 obtained on weekends or evenings, due to interference, and pulse shape
 discrimination (PSD) eliminated remaining spurious events; PSD was found to
 be essential. Neutron flux limits were 1000 n/s/g Pd or $< 7\times 10^{-24}$
 fusions/s/d-d pair, averaged over 200 hours. Conclusion: a tentative "no" to
 cold fusion.}
}
@article{Rock1990,
 author    = {P.~A. Rock and W.~H. Fink and D.~A. McQuarrie and D.~H. Volman
              and Y.~F. Hung},
 title     = {Energy balance in the electrolysis of water with a
              palladium cathode},
 journal   = {J. Electroanal. Chem.},
 volume    = {293},
 year      = {1990},
 pages     = {261--267},
 keywords  = {Analysis, calorimetry, loading},
 submitted = {06/1989},
 published = {10/1990},
 annote    = {This paper starts with a thorough review of the various phases
 of palladium deuteride, giving valuable references. It seems that D-loadings
 (x in PdDx) of up to 0.9 are known. However, it is only below 0.7 that the
 reaction leading to the deuteride is exothermic; above 0.7, it may well be
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 endothermic and therefore, the decomposition from high loadings may be
 exothermic. The authors analyse the energy balance of electrolysis, and then
 suggest factors that could lead to an overestimate of "excess heat" and, as
 well, offer a possible scenario for the violent melt-down/explosion reported
 by FPH. The factors are (1) deuteride formation during electrolysis; (2)
 recombination of evolved gases; (3) change of electrochemical
thermodynamical
 parameters at the higher cell temperatures; (4) Li deposition, especially at
 high current densities; (5) decomposition of high-loaded deuteride at high
 temperature, leading to a runaway effect. The last factor is able to account
 for the melt-down and/or an explosion, and gives an explanation of why it
 happened only with the most "chunky" electrode. The authors also note that
at
 110 degC, the beta phase of the deuteride abruptly reverts to the alpha
 phase, releasing a lot of deuterium and heat (cf Arata 1990, the "on-off"
 effect). They suggest that, in view of their analysis, any meaningful
 calorimetry on this system must time integrate all inputs and outputs.}
}
@article{Roge1990,
 author    = {V.~C. Rogers and G.~M. Sandquist},
 title     = {Cold fusion reaction products and their measurement},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {483--485},
 keywords  = {Comment, neutrons, gammas},
 published = {12/1990},
 annote    = {General remarks about the difficulties and some of the pitfalls
 of low-level emission measurement. With gammas, electrical equipment tends
to
 adsorb some Rn decay products. There is a Figure showing a measurement near
 such equipment, with another measurement away from the equipment,
subtracted.
 This shows a "gamma" peak at 2.2 MeV. The same happens with neutron
 detectors.  So this type of detection is suspect. Tritium, too, has its
 pitfalls, since there will be some in the D2O initially.}
}
@article{Roli1990,
 author    = {D.~R. Rolison and P.~P. Trzaskoma},
 title     = {Morphological differences between hydrogen-loaded and
             deuterium-loaded palladium as observed by scanning electron
             microscopy},
 journal   = {J. Electroanal. Chem.},
 volume    = {287},
 year      = {1990},
 pages     = {375--383},
 keywords  = {Experimental, postmortem, res0},
 submitted = {05/1990},
 published = {07/1990},
 annote    = {Palladium foils (0.127 mm) were carefully etched and rinsed,
 using ultrasonics, and their crystal surfaces SEM'ed under various
conditions
 of electrolysis, in light and heavy water containing LiSO4 and modest
current
 densities of 10-130 mA/cm$^2$. With both types of water, electrolysis
changes
 the post-etch rough crystalline surfaces to more homogeneous surfaces of
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 greater surface area; but the structures were different for light and heavy
 water. Lattice expansion upon deuteriding is greater than that upon
 hydriding, explaining this effect. As well, upon current switch-off, R\&T
 observed bursts of outgassing, presumably due to decomposition of
 hydride/deuteride; this was greater for D than for H. R\&T suggest that the
 use of single crystal Pd to obtain the "Fleischmann-Pons effect" would be
 unproductive.}
}
@article{Rose1990,
 author    = {G. Rosen},
 title     = {Groundstate thermalization of hydrogen isotopes in certain
              metals: enhancement of p+d and d+d nuclear fusion rates by
              Bethe-Bloch polarization},
 journal   = {Hadronic J.},
 volume    = {13},
 year      = {1990},
 pages     = {255--261},
 keywords  = {Theory},
 submitted = {02/1990},
 published = {07/1990},
 annote    = {Rosen first calculates the rms displacement of a proton in an
 octahedral site of PdH as 0.25 A; then he calculates it again from the
ground
 state thermalization formula and gets 0.2 A, in good agreement with the
 first. Then invoking Bethe-Bloch polarisation for such a proton and for a
 deuteron, Rosen is able to calculate fusion rates greatly enhanced beyond
 those from Coulomb barrier arguments: up to $10^{-20}$ fus/pair/s. Rosen
 comments that difficulties in achieving this experimentally may have to do
 with inconstancy of ground state thermalization in porous metals with a high
 concentration of motile protons and deuterons.}
}
@article{Roth1990,
 author    = {J. Roth and R. Behrisch and W. M{\"o}ller and W. Ottenberger},
 title     = {Fusion reactions during low energy deuterium implantation
              into titanium},
 journal   = {Nucl. Fusion},
 volume    = {30},
 year      = {1990},
 pages     = {441.},
 keywords  = {Experimental, ion beam, Ti, protons, res0},
 submitted = {09/1989},
 published = {03/1990},
 annote    = {The authors state that it is essential to have a high metal
 loading with deuterium, like 2 D per metal atom. To get this, they say, we
 need deuterium ion implantation. The beam, however, leads to "self
 targeting", a process known for over 30 years, where the beam hits
previously
 deposited deuterons (the references are given). This is not cold fusion. So
 the question is: do we detect fusion when the beam is off? The team used a
 0.3-6 keV beam, shot at Ti foil, and measured protons coming out at the rear
 of the foil. During the beam, the proton flux agreed with earlier work,
 obeying the Gamov cross section relation and diffusion behaviour observed 30
 years ago. The background, before the beam, was 2 emitted protons in
 $2.4\times 10^5$ s; and after bombardment, 1 proton in $0.54\times 10^{5}$
 s. From this, the background, they arrive at an upper fusion rate limit of
 $10^{-23}$/pair/s, "in reasonable agreement" with the results of Jones+.}
}
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@article{Russ1990,
 author    = {J. L. {Russell Jr}},
 title     = {Plausibility argument for a suggested mechanism for cold
fusion},
 journal   = {Ann. Nucl. Energy},
 volume    = {17},
 year      = {1990},
 pages     = {545--548},
 keywords  = {Theory, discussion},
 submitted = {04/1990},
 published = {10/1990},
 annote    = {While others (e.g. Schwinger) can explain why cold fusion
 researchers find heat but no neutrons or tritium, Russell Jr here explains
 why they find tritium but no heat or neutrons or gamma emission. He invokes
 virtual dineutrons: a deuteron sits in its place in the palladium lattice,
 with a proton hovering nearby. The deuteron briefly captures an electron,
 becoming a neutral dineutron, the proton speeds towards the hole thus
 created, fuses with the dineutron to become a triton, and the excess energy
 is carried off by a neutrino, which nobody sees. Some rough calculations
make
 this plausible; e.g.  the expected lifetime of such a dineutron is long
 enough for the proton to get there, etc. The reaction is called dep and is
 similar to the pep reaction running in the Sun. Other possible reactions of
 this sort are considered, but dep is the most likely one.}
}
@article{Sahn1990,
 author    = {V.~C. Sahni},
 title     = {Comment on 'Cold fusion in condensed matter: is a theoretical
              description in terms of usual solid state physics possible?'},
 journal   = {Mod. Phys. Lett. B},
 volume    = {4},
 year      = {1990},
 pages     = {497--498},
 keywords  = {Comment},
 submitted = {01/1990},
 annote    = {Comment on the paper of Schommers and Politis (1989) in which
 they suggest that Pd ions play a part in bringing deuterons together. Sahni
 points out that there is an error in SP's paper and that there will be
 repulsion, rather than attraction, between deuterons, and further that at
 small distances, dielectric effects cease to operate. Sahni leaves open the
 question of the existence of other solid state effects to make cold fusion
 possible.}
}
@article{Sait1990,
 author    = {N. Saito and K. Sakuta and S. Sawata and M. Tanimoto
              and N. Takata},
 title     = {Search for cold-fusion neutrons from palladium breathing
              deuterons},
 note      = {In Japanese, Eng. abstr.},
 journal   = {Denshi Gijutsu Sogo Kenkyusho Iho},
 volume    = {54},
 number    = {9},
 year      = {1990},
 pages     = {986--1004},
 keywords  = {Experimental, Pd, gas phase, electrolysis, neutrons, res-},
 submitted = {07/1990},
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 annote    = {This team did both electrolysis at Pd in LiOD, and Italian
style
 gas loading and temperature cycling. For neutrons, a combination of a BF3
 and a 3He counter was used. Electrolysis was done in charging and
discharging
 cycles.  No neutrons were found, beyond a few above the statistical noise.}
}
@article{Sala1990,
 author    = {M.~H. Salamon and M.~E. Wrenn and H.~E. Bergeson
             and K.~C. Crawford and W.~H. Delaney and C.~L. Henderson
             and Y.~Q. Li and J.~A. Rusho and G.~M. Sandquist
             and S.~M. Seltzer},
 title     = {Limits on the emission of neutrons, gamma-rays, electrons and
             protons from Pons/Fleischmann electrolytic cells},
 journal   = {Nature},
 volume    = {344},
 year      = {1990},
 pages     = {401--405},
 keywords  = {Experimental, neutrons, gammas, res-},
 submitted = {09/1989},
 published = {03/1990},
 annote    = {(What about Hawkins?) This team was invited by Pons into his
 laboratory and set up to measure the title particles under/around Pons'
cells
 over a period of 67 hours. They list a number of possible fusion reactions
 which would produce one or more of these types of radiation, including the
 secondary fusion of fusion-generated tritium with deuterium, and internal
 conversion of two deuteriums to (4)He plus an occasional electron, as
 suggested by the two innocent chemists Walling and Simons. All measurements
 were done with great care and the measured radiation levels translated into
 expected excess heat in watts. As has been widely publicised even before
 publication of this paper, the team found next to nothing - the highest heat
 output (as a maximum value) was around a milliwatt, most measurements gave
 much less still.  As has also been widely discussed, there was a two-hour
 power failure and a longer period during which the team's monitors were not
 working, and Pons apparently states that something was happening just within
 this period. This is answered by the authors, however: had there been any
 significant radiation during this time, it would have left measureable
traces
 in the form of (24)Na in their gamma detector; no (24)Na was observed, so no
 neutrons were given off at any time.
 Unfortunately, believers will say that the authors have assumed known
nuclear
 reactions, still leaving the possibility of that elusive hitherto unknown
 one.}
}
@article{Sand1990,
 author    = {G.~M. Sandquist and V.~C. Rogers},
 title     = {Enhancement of cold fusion reaction rates},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {351--354},
 keywords  = {Comments, suggestions},
 published = {09/1990},
 annote    = {This paper considers some enhancement possibilities, given the
 assumption that cold fusion takes place inside the metal lattice, where the
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 deuterons are highly compressed and contained for long times, with apparent
 reduction of quantum mechanical barrier width. Pd pretreatment such as
 repeated degassing in vacuum might be essential, and zone refining might
 help, as might surface etching with aqua regia to remove metallic
 impurities.  Applying high pressure to the electrolyte is suggested. For the
 temperature, a trade-off between stability of the hydride, and faster
 diffusion, should be made. Try using pulsed current. The electrolyte should
 be pure, the authors believe that poisoning goes against deuterium uptake
(as
 opposed to most other workers).  Bruenner [sic] -Nernst theory is invoked
 with respect to mass transport of the deuterium specie [sic] near the
 electrode. There is a list of methods for monitoring the D/Pd loading, and a
 list of how to measure tritium, neutrons, protons, gamma rays, the two He
 isotopes as well as activation products.}
}
@article{Sasa1990,
 author    = {A. Sasaki},
 title     = {An approach to cold fusion},
 journal   = {Kenkyu Kiyo - Miyagi Kogyo Koto Senmom Gakko},
 volume    = {26},
 year      = {1990},
 pages     = {47--50},
 note      = {In Japanese},
 keywords  = {Remark, experiment design, plasma beam},
 annote    = {"Room temp. nuclear fusion was examd. using a different method
 from S.E.  Jones et al (1989) assuming that their theory is correct, and a
 plan for the expts. is described. A low temp. plasma (low pressure and e-
 temp. ca. 1 eV used for processing) and high temp. d beam will be used but
 the target at which reaction will take place is at room temp. The equipment
 to be used is compared [sic] of a Ti wire, a Ti film target in a vacuum
 chamber, an extra electrode, and a plasma ion source. The plasma is formed
by
 the discharge of ECR (heating). In the region of plasma formation, an
 electrode is set up to produce the d beam. In the 1st stage of the expt., <=
 1 keV energy and ca.  10 mA electricity will be used. By adjusting the beam
 energy (accelerating voltage), the dependence of nuclear fusion reaction (if
 it occurs) on energy can be measured."}
}
@article{Savi1990,
 author    = {R.~F. Savinell and Jr. Burney and . HS},
 title     = {Report of the electrolytic industries for the year 1989},
 journal   = {J. Electrochem. Soc.},
 volume    = {137},
 year      = {1990},
 pages     = {485C--503C},
 keywords  = {Commentary},
 published = {10/1990},
 annote    = {The authors report on the electrochemical industry in general,
 and devote part of one page to cold fusion, in a neutral tone, mainly
 reporting FPH-89 and Jones+ results, and some of the ensuing controversy.
 They go along with the claim that it was mainly physicists who were
initially
 skeptical. They also make the point that although FPH were criticised for
 their press conference, they might have been criticised even more, had they
 allowed the news to wind its way out of the normal publication channels.
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 references but none to cnf papers in scientific journals.}
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}
@article{Schi1990,
 author    = {K.~D. Schilling and P. Gippner and W. Seidel and F. Stary
              and D. Wohlfarth},
 title     = {Search for charged-particle emission from deuterated
              palladium foils},
 journal   = {Z. Phys. A: At. Nucl.},
 volume    = {336},
 year      = {1990},
 pages     = {1--4},
 keywords  = {Experimental, Pd, cps, res-},
 submitted = {11/1989},
 published = {05/1990},
 annote    = {Emphasise - as others have done - that protons would indicate
 a nuclear reaction; are detected at close to 100\% efficiency; and have a
 much lower background than neutrons. So protons it is. The usual thin Pd
foil
 is used, with a p-detector close to it. A loading of x = 0.4 (PdD(x)) is
 reached, not sure whether any beta phase formed. No protons were detected
 above the background; the cold fusion upper limit becomes about
 $10^{-24}$/s/pair.}
}
@article{Schw1990a,
 author    = {J. Schwinger},
 title     = {Nuclear energy in an atomic lattice. 1},
 journal   = {Z. Phys. D: At., Mol. Clusters},
 volume    = {15},
 year      = {1990},
 pages     = {221--225},
 keywords  = {Theory, res+},
 submitted = {11/1989},
 published = {03/1990},
 annote    = {A notable physicist has a go at a theory of CNF. Starting from
 scratch and invoking virtual phonons, Schwinger finds that lattice coupling
 can diminish the Coulomb barrier in a way that strongly favours fusion of
 protons with deuterons (p+d), rather than (d+d); the reaction is p+d ->
(3)He
 plus heat.  A new twist, which could go towards explaining the absence of
 emitted radiation in the presence of heat. (3)He is a stable isotope and
(see
 Abell et al) would not escape from the Pd. The theory is quite testable -
 look for (3)He in the metal, not the evolved gas; there ought to be lots of
 it.}
}
@article{Schw1990b,
 author    = {J. Schwinger},
 title     = {Cold fusion: a hypothesis},
 journal   = {Z. Naturforsch. A},
 volume    = {45},
 year      = {1990},
 pages     = {756.},
 keywords  = {Comment, suggestion},
 submitted = {10/1989},
 published = {05/1990},
 annote    = {Just a suggestion, without any supporting theory (which is
 presented by the author in his paper in Z. Phys. D: At., Mol. Clusters 15
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 (1990) 221), that the nuclear reaction giving rise to the observed effects
is
 not a d-d, but a p-d one. This has the consequence that "controls" with
light
 water may not be true controls and also cause cold fusion due to traces of
 deuterium; and implies some test experiments.}
}
@article{Scot1990a,
 author    = {C.~D. Scott and J.~E. Mrochek and T.~C. Scott
              and G.~E. Michaels and E. Newman and M. Petek},
 title     = {Measurement of excess heat and apparent coincident increases in
              the neutron and gamma-ray count rates during the electrolysis
              of heavy water},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {103--114},
 keywords  = {Experimental, Pd, electrolysis, excess heat, neutrons, gammas,
              res+},
 submitted = {03/1990},
 published = {08/1990},
 annote    = {Excess power, at a level of 5-10\%, was found for periods of
 many hours. In one case, neutron excursions above background was correlated
 with excess heat.  The team used a cooling jacket calorimeter, with and
 without recombination of D2 and O2. A single NE-213 neutron detector, with
 gamma-ray correction, was used and had a background corresponding to a
fusion
 rate of $3 \times 10^{-24}$ fusions/s/pair. Gamma emission was also
detected,
 by a NaI device, at somewhat lower sensitivity. Tritium analysis was
 performed on aliquots taken from the electrolyte at intervals. Cell
 temperatures were usually around 28-38 degC, with some controlled excursions
 to higher and lower temperatures imposed.  In the closed (recombining)
 system, the calorimetry calculation is simple: applied power versus measured
 power from the cooling flow. Both the open and closed systems showed bursts
 of heat excess at 5-10\%, well outside the claimed experimental error, with
 the open cell being more consistent. Changes in the current density did not
 affect the excess heat (this implies that the deuterium loading did not
 change markedly with current). In the closed cell run, there were small but
 significant emissions of neutrons and gammas, the latter at unexpected
 energies, indicating a possible neutron-proton interaction. Tritium
 production could not be shown. The authors conclude that they have
consistent
 excess heat, out of proportion with neutron and gamma which were small but
 definite. Low cell temperatures, meaning higher deuterium loadings, are
 favourable.}
}
@article{Scot1990b,
 author    = {C.~E. Scott and E. Greenbaum and G.~E. Michaels
              and J.~E. Mrochek and E. Newman and M. Petek and T.~C. Scott},
 title     = {Preliminary investigation of possible low-temperature fusion},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {115--119},
 keywords  = {Experimental, neutrons, gammas, res-},
 published = {07/1990},
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 annote    = {A calorimetry cum neutron detection experiment. The cell was
 cooled by a constant flow water jacket, whose temperature was monitored at
 inlet and outlet. A single NE-213 scintillation counter was used for the
 neutrons, with gamma discrimination. A 2-foot thick concrete surround
 shielded (?) the cell.  There was also a separate NaI gamma detector to also
 detect neutrons indirectly. Results show a single neutron event at 3.5
 standard deviations above background, and no sustained excess heat, although
 there were some short excess heat events. This preliminary experiment does
 not confirm cold fusion.}
}
@article{Seel1990,
 author    = {D. Seeliger},
 title     = {Physical problems of the investigations into nuclear fusion
              in condensed media},
 journal   = {Isotopenpraxis},
 volume    = {26},
 year      = {1990},
 pages     = {384--395},
 note      = {In German},
 keywords  = {Comment},
 submitted = {02/1990},
 annote    = {A commentary on cold fusion as of Dec-89. The experimental
 evidence is reported. Drawing on prior work by Jarmie, S then makes some
 rough calculations of low energy fusion, and concludes that the branching
 ratios may well differ from the high-energy cases, thus perhaps enhancing
 weak branches like the (4)He one. A host of other fusion reactions is
 considered, including a number involving Li. There is a summary of some
 theories, including the more speculative ones like Hagelstein's and Walling
 \& Simons'. The fractofusion work in the USSR is mentioned and considered
 plausible. 114 refs.}
}
@article{Segr1990,
 author    = {S.~E. Segre and S. Atzeni and S. Briguglio and F. Romanelli},
 title     = {A mechanism for neutron emission from deuterium trapped
              in metals},
 journal   = {Europhys. Lett.},
 volume    = {11},
 year      = {1990},
 pages     = {201--206},
 keywords  = {Theory, fractofusion},
 submitted = {06/1989},
 published = {02/1990},
 annote    = {This is one of the first papers (I know of) that attempts more
 than an arm-wave at a theory of what has been called fracto-fusion. It is
 theorised that small temperature changes in a MD(x) lattice (M being a given
 metal) will move the system away from equilibrium. For metals such as Cu,
 temperature decreases will do this, while for transition metals (Pd, Ti
etc),
 temperature increases will. Then, D2 gas will tend to form, expanding into
 bubbles to cause voids and cracks and potential fields etc - the familiar
 fracto-picture.  The paper lists a number of necessary conditions for
 fracto-fusion, which ought to help experimenters looking for it. The
 tentative conclusion is that it is possible.}
}
@article{Shoh1990,
 author    = {N. Shohoji},
 title     = {Unique features of hydrogen in palladium metal lattice: hints
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              for discussing the possible occurrence of cold nuclear fusion},
 journal   = {J. Mater. Sci. Lett.},
 volume    = {9},
 year      = {1990},
 pages     = {231--232},
 keywords  = {Comment},
 submitted = {06/1989},
 published = {02/1990},
 annote    = {Entirely speculative. S seems not to know about Jones+ Ti work,
 nor of the Italian work with gas phase charging with D2. S tries to find
some
 characteristics of palladium that make it special, in order to suggest other
 metals that might be even better. He finds (i) hysteresis behaviour in the
 p(H2) vs x in PdD(x) and (ii) the fact that the metal and its hydride have
 the same crystal structure, claiming that fcc is a requirement (Ti does not
 have this structure). All this leads S to suggest Ni, Ce (which forms a
 trihydride) and Ac as candidates for a closer look.}
}
@article{Silv1990,
 author    = {I.~F. Silvera and E. Moshary},
 title     = {Deuterated palladium at temperatures from 4.3 to 400K
              and pressures to 105 kbar: search for cold fusion},
 journal   = {Phys. Rev. B},
 volume    = {42},
 year      = {1990},
 pages     = {9143--9146},
 keywords  = {Experimental, Pd, gas phase, diamond anvil, res-},
 submitted = {02/1990},
 published = {11/1990},
 annote    = {The authors used their diamond anvil to achieve these
pressures.
 Detectors for neutrons, gamma radiation and heat were mounted around the
 press. From the volume compression, a loading of up to 1.34 was inferred.
 Several days at the various temperatures and pressures evinced no evidence
 for cold fusion.}
}
@article{Sima1990,
 author    = {E. Simanek},
 title     = {Quantum tunnelling through a fluctuating barrier. Enhancement
              of cold-fusion rate},
 journal   = {Physica A (Amsterdam)},
 volume    = {164},
 year      = {1990},
 pages     = {147--168},
 keywords  = {Theory},
 submitted = {09/1989},
 published = {03/1990},
 annote    = {The Feynman functional integral formulation of quantum
mechanics
 is used to derive tunnelling rate enhancement of cold fusion in a Pd
lattice.
 Strong temperature dependence of this enhancement is found.  Enhancement is
 positive above Tc, the temp corresponding to "the energy spacing of the bath
 oscillator". Additionally, due to the covalent Pd-D bonding, Pd lattice
 oscillations induced by thermal phonons will assist in the tunnelling. No
 real numbers are given.}
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@article{Sobk1990,
 author    = {J. Sobkowski},
 title     = {Cold fusion - facts and opinions},
 journal   = {Wiad. Chem.},
 volume    = {44},
 year      = {1990},
 pages     = {587--602},
 note      = {In Polish},
 keywords  = {Review},
 submitted = {02/1990},
 annote    = {The author was apparently asked by the journal editor to write
 this review, shortly after a cold fusion conference in Poland in May 1989.
 This review was submitted in February 1990, and is a summary of the field,
 without much in the way of contribution by the author himself. The problems
 raised by cnf are described, such as the branching ratio, and some of the
 motivation background is mentioned (the alleged anomalous (3)He/(4)He ratio
 in the atmosphere, in some metals etc). Some of the possible ways to detect
 cold fusion are named such as neutron and gamma detection. There is a
 detailed description of the Jones+ and FPH work, and the critical papers of
 Keddam, Horanyi, Kreysa and others. Supporting work is also included, such
as
 works suggesting the (4)He branch, and the quiet dissipation as heat of the
 24 MeV released from that branch. The author concludes that cold fusion will
 continue to live for some time, but that practical applications are
 unlikely.}
}
@article{Sobo1990,
 author    = {L.~G. Sobotka and P. Winter},
 title     = {Fracture without fusion},
 journal   = {Nature},
 volume    = {343},
 year      = {1990},
 pages     = {601.},
 keywords  = {Experimental, fractofusion, res-},
 published = {02/1990},
 annote    = {The authors note that there appears to be a lot of evidence for
 fracture-induced fusion, and have a shot at it themselves, by shooting steel
 pellets (0.131 g mass, going at 168 m/s) at heavy ice. After 75 shots they
 average less than one neutron per shot, 1/10 the level measured by the
Soviet
 team (Deryagin et al). They note that this experiment was a good
reproduction
 of the Soviet work, and conclude that there is no compelling evidence for
 fractofusion.}
}
@article{Sohl1990,
 author    = {K. Sohlberg and K. Szalewicz},
 title     = {Fusion rates for deuterium in titanium clusters},
 journal   = {Phys. Lett. A},
 volume    = {144},
 year      = {1990},
 pages     = {365--370},
 keywords  = {Theory, res-},
 submitted = {08/1989},
 published = {03/1990},
 annote    = {Calculations for hydrogen atoms placed in small Ti clusters,
 using the ab initio Hartree-Fock self-consistent field method. The
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 possibility is explored that there might be a stable H atom configuration in
 a Ti lattice with d-d distance smaller than that in D2 gas. Results show
that
 the H atoms are reasonably mobile in the Ti lattice. There are no stable
 close d-d states. The closest configuration - occupation of adjacent
 tetrahedral sites - gives a d-d distance > than that in D2 gas. Fusion rates
 of $10^{-84}$/s result.}
}
@article{Soif1990,
 author    = {V.~N. Soifer and V.~A. Goryachev and A.~N. Salyuk
              and F. Sergeev},
 title     = {Neutron yield in heavy-water electrolysis},
 journal   = {Sov. Phys. Dokl.},
 volume    = {35},
 number    = {6},
 year      = {1990},
 pages     = {546--548},
 note      = {Orig. in:  Dokl. Akad. Nauk. SSSR 312 (1990) 860--863,
              in Russian},
 keywords  = {Experimental, Ti, TiV alloy, Pd, Pt, electrolysis, neutrons,
              res-},
 submitted = {07/1989},
 published = {06/1990},
 annote    = {In the absence of information about cold fusion experiments,
this
 team from Vladivostok designed their own, using NaOH dissolved in heavy
 water.  They are experienced in (heavy) water analysis for isotope content,
 and they note at the start, that heavy water contains about 5 to 6 orders of
 magnitude more tritium than normal water and therefore also an elevated
 content of (3)He, from tritium decay. The neutron detector was a 4 litre
 proportional methane counter, allowing anticoincidence discrimination of
 cosmic influx. For the cathode, they tried Ti, stainless steel, Ti/V alloy,
 Pt and Pd, as plates and wires, under a variety of current densities. No
 neutrons were measured.}
}
@article{Sona1990a,
 author    = {P.~G. Sona and M. Ferrari},
 title     = {The possible negative influence of dissolved O2 in cold nuclear
              fusion experiments},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {678--679},
 keywords  = {Comment, suggestion},
 submitted = {05/1990},
 published = {12/1990},
 annote    = {As Appleby has stated elsewhere, it is possible that a layer
 containing Li needs to be deposited, in order for deuterium to get into the
 Pd, instead of forming D2 gas and bubbling off (this is in fact a fast
 reaction) - i.e. the Li-containing layer is a poison for bubble formation.
If
 the layer has holes, it works less well. The layer, being a compound of Pd,
 Li and D, would clearly be sensitive to oxygen, which would dissolve it as
 LiOD, leaving Pd. So it is a good idea to prevent access of oxygen to the Pd
 cathode (O2 is generated at the anode). This can be done by, among other
 things, putting a porous membrane between the cathode and anode (standard
 electrochemical practice in fact), or using a hydrogen anode, i.e. one where
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 hydrogen (or deuterium) gas is oxidised to water. Sona \& Ferrari also speed
 up the layer's formation by increasing the LiOD concentration from the usual
 0.1M to 2.4M.}
}
@article{Sona1990b,
 author    = {P.~G. Sona and F. Parmigiani and F. Barberis and A. Battaglia
              and R. Berti and G. Buzzanca and A. Capelli and D. Capra
              and M. Ferrari},
 title     = {Preliminary tests on tritium and neutrons in cold nuclear
fusion
              within palladium cathodes},
 journal   = {Fusion Technol.},
 volume    = {17},
 year      = {1990},
 pages     = {713--717},
 keywords  = {Experimental, Pd, electrolysis, tritium, neutrons, res+},
 submitted = {12/1989},
 published = {07/1990},
 annote    = {Did 12 experiments with electrolytic D-loading of Pd, and two
of
 them showed positive results: one cell produced tritium without neutrons,
the
 other neutrons without tritium, both at significant levels. The conditions
 that seem to be necessary are solution preelectrolysis, long wait at zero
 current prior to electrolysis, and care in avoiding CO2 contamination.}
}
@article{Sout1990,
 author    = {J.~R. Southon and J.~W. Stark and J.~S. Vogel
              and J.~C. Waddington},
 title     = {Upper limit for neutron emission from cold deuteron-triton
              fusion},
 journal   = {Phys. Rev. C: Nucl. Phys.},
 volume    = {41},
 year      = {1990},
 pages     = {R1899--R1900},
 keywords  = {Experimental, Ti, electrolysis, tritium loading, neutrons,
res+},
 submitted = {10/1989},
 published = {05/1990},
 annote    = {Although theory seems to favour dd over dt fusion, theory is
out
 by 30 orders of magnitude compared to experimental claims, so this, too, may
 be wrong. A Ti cathode was preloaded to a t/Ti ratio of about 0.5 using T2
 gas.  This tritide was quite stable; no leakage was detected from it. This
 was then used as the cathode in a solution of 0.1 M lithium carbonate in
D2O,
 adjusted with HNO3 to pH 2.5. A NE213 scintillation neutron detector,
coupled
 to an RCA 8850 photomultiplier, was used to detect neutrons, in such a way
as
 to exclude neutrons from dd fusion. Detector efficiency was about 1.3\%. No
 difference between background and running cells was found, setting an upper
 limits for dt fusion at $10^{-23}$/s/pair. So either there is no such thing
 as cold fusion, or the wrong conditions were used.}
}
@article{Spin1990,
 author    = {B.~I. Spinrad},
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 title     = {On cold fusion},
 journal   = {Fusion Technol.},
 volume    = {17},
 year      = {1990},
 pages     = {343.},
 keywords  = {Comment},
 submitted = {10/1989},
 published = {03/1990},
 annote    = {A conjecture: since palladium hydride is still a conductor, a
 high electron density inside it can be achieved by "pushing" electrons into
 it.  This may be what is happening in the FPH experiments. The electrons
 might then enhance fusion rates by shielding deuterons from each other. This
 suggests the experiment of charging palladium with deuterium and then
putting
 it into contact with a charged plate - standing well back.}
}
@article{Stei1990,
 author    = {C. Steinert},
 title     = {Laser-induced 'semicold' fusion},
 journal   = {Fusion Technol.},
 volume    = {17},
 year      = {1990},
 pages     = {206--208},
 keywords  = {Comment, suggestion},
 submitted = {09/1989},
 published = {01/1990},
 annote    = {Suggests the combination of palladium deuteride and laser-
induced
 fusion; i.e. shoot a high-power laser at PdD(x) and stand back. Some
possible
 configurations are suggested.}
}
@article{Stil1990,
 author    = {D.~E. Stilwell and K.~H. Park and M.~H. Miles},
 title     = {Electrochemical calorimetric studies on the electrolysis of
              water and heavy water (D2O)},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {333--336},
 keywords  = {Experimental, Pd, electrolysis, excess heat, res-},
 published = {09/1990},
 annote    = {This paper reports excess heat, which was correlated in another
 paper with He. Two kinds of calorimetric cells were used. In one (type A),
 the temperature was measured directly inside the cell; in the other (type
B),
 the cell heated up a bath surrounding it, and the temp. was measured there.
 Both were without recombination, which was in fact minimised. For the excess
 heat calculation, the power going into water electrolysis (current *
 thermoneutral potential) was subtracted. The cells were operated at 13-37
 degC above room temp. For type A cells, both light and heavy water appeared
 to give about 7\% excess heat, so something was wrong here. Type B cells
 showed no excess heat.  The conclusion is that these experiments do not
 support cold fusion, and that calorimetry with type A cells is not easy.
Note
 that in a (presumably) later paper, the same authors find excess heat, using
 shorter, thicker, cathodes than here (Miles et al, J. Electroanal. Chem. 296
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 (1990) 241) and still later, they report helium and radiation
 (J. Electroanal. Chem. 304 (1991) 271).}
}
@article{Stor1990,
 author    = {E. Storms and C. Talcott},
 title     = {Electrolytic tritium production},
 journal   = {Fusion Technol.},
 volume    = {17},
 year      = {1990},
 pages     = {680--695},
 keywords  = {Experimental, Pd, electrolysis, tritium, res+},
 submitted = {12/1989},
 published = {07/1990},
 annote    = {53 electrolytic cells were run, electrolysing heavy water
 containing LiOD, at Pd electrodes; the electrolyte was sampled at intervals
 for tritium for each cell. Some of the cells appeared to produce tritium up
 to about twice that originally present, while others did not. Reverse
 electrolysis (Pd as anode) after charging revealed no extra tritium, so none
 was produced within the Pd. Surface pretreatment of the Pd electrodes with
 paraffin vapour and H2S, followed by cathodic cleaning, appeared to improve
 the results, assumed to be a poisoning effect aiding deuteration of Pd in
 competition with gas formation.}
}
@article{Tabe1990a,
 author    = {E. Tabet and A. Tenenbaum},
 title     = {A dynamical model for cold fusion in deuterated palladium},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {143--146},
 keywords  = {Theory, loading},
 submitted = {02/1990},
 published = {08/1990},
 annote    = {A thermodynamic instability can, under favourable
circumstances,
 trigger a coherent and concentric collapse in the metal and thus enable
 fusion.  Some preliminary calculations lead to reasonable figures. This
could
 also explain the experimental difficulties with repeatability, because the
 model predicts a strong dependence on loading.}
}
@article{Tabe1990b,
 author    = {E. Tabet and A. Tenenbaum},
 title     = {Nuclear reactions from lattice collapse in a cold fusion
model},
 journal   = {Physics Lett. A},
 volume    = {144},
 year      = {1990},
 pages     = {301--305},
 keywords  = {Theory, phase change},
 submitted = {10/1989},
 published = {03/1990},
 annote    = {Another phase-change explanation of cold fusion, here on a
micro
 scale.  Under nonequilibrium conditions, the random movement of deuterons in
 Pd- or Ti-deuteride might lead to d-deficient micro-volumes, which may
 collapse, due to the dependence of the molar volume of PdD(x) on x. This
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 sudden collapse causes energy transfer from the collapsing metal atoms to
 deuterons and in some small fraction of cases, this may drive them together
 with enough force for fusion. Estimated fusion rates are within a ballpark
of
 claimed rates.}
}
@article{Taji1990,
 author    = {T. Tajima and H. Iyetomi and S. Ichimaru},
 title     = {Influence of attractive interaction between deuterons in Pd
              on nuclear fusion},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {437--440},
 keywords  = {Theory, screening, res+},
 published = {12/1990},
 annote    = {Another paper calculating the rate of (possibly enhanced) d-d
 fusion in a PdD lattice. The authors here invoke the 10 d-shell electrons of
 Pd, a dielectric constant and effective electron mass. They find that
 screening does enhance the fusion rate significantly by as many as 40 orders
 of magnitude, and the preferred rate, based on some knowldge of parameters,
 is consistent with experimental findings (Jones+). But the d's have to be on
 the hop (itinerant) and this explains why the reaction stops when the
current
 is off. The p-d fusion rate is comparable to d-d, d-t is not much faster,
 while d-(3)He is negligible.}
}
@article{Takah1990a,
 author    = {A. Takahashi and T. Takeuchi and T. Iida and M. Watanabe},
 title     = {Emission of 2.45 MeV and higher energy neutrons from D2O-Pd
cell
              under biased-pulse electrolysis},
 journal   = {J. Nucl. Sci. Technol.},
 volume    = {27},
 year      = {1990},
 pages     = {663--666},
 keywords  = {Experimental, Pd, electrolysis, neutrons, tritium, res+},
 submitted = {05/1990},
 published = {07/1990},
 annote    = {The authors update an earlier report, submitted to Fusion
 Technol., of positive cold fusion results; here, they obtained neutron
 emissions at 2.45 MeV and at higher energies 3-7 MeV, from biased-pulse
 electrolysis of 0.2-0.4 M LiOD in D2O, with a Pd cathode. Biased-pulse means
 alternating higher with lower current densities, e.g. 0.8A with 0.5A at
about
 2 cm$^2$, each level for a couple of minutes or so. Light irradiation
 simultaneous with either the high- or the low-level currents was also
 tried. Water temperature was measured with a thermocouple, neutrons by a
 cross-checking system of a (3)He with a NE213 detector, and tritium in
 aliquots taken from the electrolyte (to be reported later). The emissions at
 higher energies cannot be explained by hitherto known fusion reactions.}
}
@article{Takah1990b,
 author    = {H. Takahashi},
 title     = {Dynamical screening of potential by mobile deuteron and
              fusion rate of accelerated deuteron in PdDx},
 journal   = {J. Fusion Energy},
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 volume    = {9},
 year      = {1990},
 pages     = {441--445},
 keywords  = {Theory, screening, res+},
 published = {12/1990},
 annote    = {Like the Tajima et al work, this paper stresses that deuterons
 under motion are better than stationary d's. In fact, d-d screening is not
 only done by electrons but by moving deuterons as well. Takahashi develops
 his previous model further and finds that, for accelerated deuterons, fusion
 might occur at observed rates. The acceleration might be provided by the
 joint movement of groups of deuterons, creating a sort of whip, or surfing,
 effect.}
}
@article{Takah1990c,
 author    = {Y. Takahashi},
 title     = {After effects of the cold nuclear fusion experiments},
 journal   = {Kagaku (Kyoto)},
 volume    = {45},
 year      = {1990},
 pages     = {54--55},
 note      = {In Japanese},
 keywords  = {Review},
 annote    = {A survey of the papers following those of FPH and Jones+
 (10 references).  No paper reports the excess heat of FPH although some do
 report some neutrons or protons.}
}
@article{Tama1990,
 author    = {J.~M.~M. Tamayo and J.~M. Rivas and B.~Z. Celis
              and F.~P.~R. Garcia and O.~N. Penaloza},
 title     = {Experiments on cold fusion at IMP},
 journal   = {Rev. Inst. Mex. Pet.},
 volume    = {22},
 year      = {1990},
 pages     = {42--47},
 note      = {In Spanish},
 keywords  = {Experimental, electrolysis, gama, tritium, excess heat, res0},
 annote    = {A number of experiments on cold fusion were run at the Mexican
 Petroleum Institute IMP, to prove or disprove the effect. IR spectra were
 measured for both H2O and the D2O used; the latter showed no H2O peak, but
 some HDO impurity. LiOD was prepared by electrolysis from LiCl in D2O. Gamma
 radiation background was measured over 24 hours with NaI, and during
 electrolysis runs.  Tritium was also monitored. No significant radiation was
 detected, although there was, upon magnification, a very small gamma peak at
 2.224 MeV. No heat was observed. Some tritium increases, roughly in line
with
 electrolysis time, was observed. No conclusions as to the reality of cnf are
 drawn.}
}
@article{Tani1990a,
 author    = {N. Taniguchi and S. Baba and K. Kawamura and T. Gamo},
 title     = {Conditions for cold nuclear fusion},
 journal   = {Nippon Kagaku Kaishi},
 year      = {1990},
 number    = {9},
 pages     = {992--998},
 note      = {In Japanese},
 keywords  = {Experimental, Pd, Ti, electrolysis, neutrons, gammas, res+},
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 annote    = {Used a pulse shape discriminator to measure neutrons and gammas
 in electrolysis experiments with palladium, and D2 experiments with
 titanium. The counting equipment was able to detect fusion at a rate of
 $10^{-22}$ fusions/atom/s and found nothing in either setup, except when D2
 was released from Ti, where a signal at 30-600 times the background was
 detected, presumed to be due to gamma emission from a p-d reaction.}
}
@article{Tani1990b,
 author    = {R. Taniguchi and T. Yamamoto and S. Irie},
 title     = {Fine structure of the charged particle bursts induced by
              D2O electrolysis},
 journal   = {Bull. Univ. Osaka Prefect., Ser A},
 volume    = {39},
 number    = {2},
 year      = {1990},
 pages     = {233--240},
 keywords  = {Experimental, Pd, electrolysis, cps, res+},
 submitted = {11/1990},
 annote    = {The authors join others in pointing out that low-level neutron
 measurement is more difficult than that of charged particles, also expected
 from cold fusion. The sensitivity is one order of magnitude better and the
 background is lower by two. A thin foil Pd cathode, plated onto a Cu backing
 was placed at the bottom of the cell, close to the SSB detector. A video
 recorder recorded the signals obtained on a video screen. Some abnormal
 counts, at ten times the background, were recorded. This fixes the fusion
 rate at about $10^{-23}$ fus/pair/s, in agreement with Jones+. Some
 burst-like emissions were seen, and the fine structure of one such burst
 analysed. It was found to consist of a number of very short bursts. An
energy
 spectrum was obtained also, and show that the bursts cannot be due to the
 simple d-d fusion reaction. They have some features in common with the Ti +
 D2 heat cycle experiments.}
}
@article{Tani1990c,
 author    = {R. Taniguchi and T. Yamamoto},
 title     = {High sensitivity measurement of charged particles using
              a silicon surface barrier detector},
 journal   = {Hoshasen},
 volume    = {16},
 year      = {1990},
 pages     = {29--35},
 note      = {In Japanese},
 keywords  = {Experimental, Pd, electrolysis, cps, res+},
 annote    = {"A Si surface barrier detector (Si-SSD, charged particle
 detector), is rather insensitive to background radiation. The detection of a
 few charged particles emitted in electrolytically induced cold nuclear
fusion
 was attempted using the Si-SSD attached near to the thin foil Pd cathode
 which formed the bottom of an electrolysis cell. Using the pulsed
 electrolysis technique, the background and foreground data were measured
 alternately. The expt. results, counting rate and the energy spectrum
 suggested that the some [sic] species of nuclear reaction occurred in the
 cathode. The reaction rates were 2 orders of magnitude lower than that
 reported by S.E. Jones et al (1989)." (Quoted from CA 115:17193 (1991))}
}
@article{Tesc1990,
 author    = {S. Tesch},
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 title     = {Yet again 'cold' nuclear fusion.},
 journal   = {Radio. Fernsehen Elektro. (East Ger.)},
 volume    = {39},
 year      = {1990},
 pages     = {53--54},
 note      = {In German},
 keywords  = {Commentary},
 annote    = {The author brings us up to date with the latest results of
 experiments attempting to duplicate the Fleischmann and Pons demonstration
in
 March 1989 of cold fusion during the electrolysis of deuterium on palladium
 electrodes (by claiming to have detected neutrons, gamma radiation and
 tritium). As a background, he summarises the F and P experiment and
describes
 various known methods of nuclear fusion. He then brings the subject up to
 date (1.9.1989) by commenting on the results of a few experiments (largely
in
 the German-speaking world) attempting to reproduce F and P's discovery.
 Finally, he mentions the damage caused by the attendant media publicity.}
}
@article{Thom1990,
 author    = {D.~T. Thompson},
 title     = {A report from the meeting in Salt Lake City},
 journal   = {Platinum Metals Rev.},
 volume    = {34},
 year      = {1990},
 pages     = {136--141},
 keywords  = {Comment},
 annote    = {Thompson, of Johnson Matthey Technology Centre, went to the
 "First Annual Conference on Cold Fusion" in Utah, March 1990, and here
 reports. The 200 strong audience was active, responsive to the generally
high
 quality talks.  Most of these came from the USA but also from India, Japan
 and some European countries such as Russia [sic] and Italy. Many speaker
 referred to Johnson and Matthey palladium, notes Thompson. Positive
 calorimetric results were reported again by Pons, as well as by Murphy
(TAM),
 Hutchinson (Oak Ridge) and Scott (Oak Ridge). Tritium was discussed, and
some
 positive results reported by Iyengar (Babha), Bockris (TAM) and Storms
(LANL)
 and some correlation between heat and tritium was claimed, albeit with
 puzzling ratios; the same holds for the neutron:tritium branching ratio
which
 should be about unity but seems to be far from this. The possible role of
 lithium, particularly (6)Li, was discussed. At least one theoretical paper
 (Andermann, Hawaii) was given.  Fleischmann summed up the conference on a
 positive note and was given a standing ovation.}
}
@article{Tome1990,
 author    = {M. Tomellini and D. Gozzi},
 title     = {On the possibility for local oversaturation of deuterium
             in palladium},
 journal   = {J. Mater. Sci. Lett.},
 volume    = {9},
 year      = {1990},
 pages     = {836--838},
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 keywords  = {Comment, suggestion},
 submitted = {10/1989},
 published = {07/1990},
 annote    = {Some explanations of cold fusion require an overload of
 deuterium in the Pd. The authors look at the possibility of this happening,
 by considering the key role of both the electrode internal structure and and
 the non-equilibrium conditions imposed by electrolysis. Some effects are
 locally high current density (at, e.g., dendrites), and point- and
 line-defects; perhaps even their combined action, although improbable, could
 be put to work.}
}
@article{Tran1990,
 author    = {D.~N. Tran and D.~T. Tran and T.~A. Truong and T.~H. Phi
              and V.~V. Tran},
 title     = {Investigation of nuclear fusion at the normal temperature},
 journal   = {Tap Chi Vat Ly},
 volume    = {15},
 number    = {1},
 year      = {1990},
 pages     = {29--32},
 note      = {In Vietnamese},
 keywords  = {Experimental, gas phase, heat, gammas, neutrons, tritium, res-
},
 annote    = {At the Center for Nuclear Physics, an experiment was performed,
 both the Fleischmann-Pons electrolysis, and a gas-phase experiment with an
 applied electric field. No heat, gamma or tritium were found, and neutrons
 were not found reproducibly.}
}
@article{Tsar1990,
 author    = {V.~A. Tsarev},
 title     = {Cold fusion},
 journal   = {Sov. Phys. Usp.},
 volume    = {33},
 number    = {11},
 year      = {1990},
 pages     = {881--910},
 keywords  = {Review},
 submitted = {01/1990},
 published = {11/1990},
 annote    = {A review of cold fusion, written in Jan-90, i.e. 8 months into
 the affair.  131 references are given, many of which, perforce, are to
 preprints and talks given at conferences. Clearly a physicist, Tsarev makes
a
 number of good points. Like other physicists, he points to the necessity of
 x-ray emissions from any proposed nuclear process taking place in the metal
 lattice. A thorough discussion of all the issues (emissions, calorimetry,
 theories) is followed by one on the Soviet view of cold fusion - which can
be
 said to date back to 1986 - i.e. fractofusion. Fairly, Tsarev points out
that
 these results all come from a single laboratory (Klyuev et al) and need to
be
 confirmed by others (in the meantime they have, and have also been refuted).
 The biggest problem with fractofusion is the conductivity of palladium
 deuteride, and Tsarev suggests that at high loadings and under
nonequilibrium
 conditions, the material might become a dielectric, making this mechanism
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 possible. He makes a number of suggestions for future work, both practical
 and fundamental.}
}
@article{Turn1990,
 author    = {L. Turner},
 title     = {Peregrinations on cold fusion},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {447--450},
 keywords  = {Comment},
 published = {12/1990},
 annote    = {Peregrination: journey, travel. Have deuteron, will travel?
 Turner turns to thoughts of potential barriers in PdD lattices, and
resonance
 effects to enhance d-d tunnelling. The many-body nature of the lattice make
 resonance effects possible, and thus cold fusion, maybe. Just as an electron
 going through a double slit makes an interference pattern, so deuterons
 moving through the lattice might do so, in a complicated manner. Cold fusion
 might result from the interference, and one should perhaps look for patterns
 of fusion sites. The walk through these musings ends on a careful note; cold
 fusion has not been verified but if it is, this theory might help.}
}
@article{Ulma1990,
 author    = {M. Ulman and J. Liu and J. Augustynski and F. Meli
              and L. Schlapbach},
 title     = {Surface and electrochemical characterization of Pd cathodes
              after prolonged charging in LiOD + D2O solutions},
 journal   = {J. Electroanal. Chem.},
 volume    = {286},
 year      = {1990},
 pages     = {257--264},
 keywords  = {Experimental, Pd, electrolysis, surface analysis, deposits,
              poisoning},
 submitted = {04/1990},
 published = {06/1990},
 annote    = {Long electrolysis leads to accumulation of impurities on the
 Pd cathode, and the hydrogen evolution reaction (better: hydrogen
production)
 is known to be very sensitive to these. One effect observed is that for a
 given current, the overvoltage becomes higher with time. This is clearly
seen
 in a comparison between a 220 hour electrolysis in an untreated electrolyte
 with one for 16 h in a preelectrolysed solution (removes some of the
 impurities): in the latter case, lower overvoltages are seen. The team
 performed surface analysis after electrolysis, using x-ray photoelectron
 spectroscopy (XPS).  Apart from large values for carbon and oxygen,
platinum,
 lead, zinc, chromium and in some cases copper, calcium, magnesium and sodium
 were found, differing in concentrations according to conditions.
Particularly
 Pb and Zn will increase the overvoltage. The Ca and Mg came from the D2O
 used, as did Cu and Cr (note that we are talking about ultratrace bulk
 amounts, which accumulate at the surface during electrolysis). There were
 differences between LiOD made up from LiOH + D2O, and from Li metal + D2O
 (the metal contains some Ca and Mg). The point emerges that even relatively
 short electrolysis leads to deposits. Zn is particularly bad, increasing the
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 overvoltage; codeposited Pt (from the anode) cannot counteract the Zn. The
 poisoning by Zn opens the way to secondary reactions, among them the
 incorporation of Li into Pd and Zn and possibly the formation of ZnD2 and
 LiD. All this causes a pronounced blocking of the electrode surface and
this,
 in turn, causes local strong electric fields.}
}
@article{Vand1990,
 author    = {P. D. T. {Van der Merwe}},
 title     = {Enhanced fusion induced by affiliated muons},
 journal   = {Fusion Technol.},
 volume    = {17},
 year      = {1990},
 pages     = {696--698},
 keywords  = {Theory, muons},
 submitted = {11/1989},
 published = {07/1990},
 annote    = {Highly theoretical paper, looking at the possibility and the
 consequence of muon pairs cooperating in assisting d-t fusion. The rough
 result is that a pair of muons leads to about 10 times the fusion rate for
 d-t, d-t and p-d fusions. The paper gives little indication of why the muons
 should associate, being repelled from each other, beyond the statement that
 in the hydride crystal lattice, something might push them together.}
}
@article{Vele1990,
 author    = {O.~A. Velev and R.~C. Kainthla},
 title     = {Heat flow calorimeter with a personal-computer-based
              data acquisition system},
 journal   = {Fusion Technol.},
 volume    = {18},
 year      = {1990},
 pages     = {351--355},
 keywords  = {Experimental, Pd, electrolysis, heat, res+},
 submitted = {04/1990},
 published = {09/1990},
 annote    = {Here, a calorimeter system essentially like that used by FPH,
 was used, for 24 cells simultaneously. A PC did all the work. Accuracy was
 about 3\% and recombination of gases was possible. Although constant values
 for the thermoneutral electrolysis potentials were used (which can lead to
 spurious excess heat observations), no excess heat within the 3\% limits,
was
 detected in most cases, for experiments during 7 months and using 27
 electrodes. In only four cases, some excess heat, at a level of 15-25\%, was
 seen, as reported by Kainthla et al in 1989. The authors conclude that their
 system is a good one.}
}
@article{Waan1990,
 author    = {F.~B. Waanders and J.~J.~A. Smit},
 title     = {Koue kernsmelting (Cold fusion)},
 journal   = {Spectrum},
 volume    = {28},
 year      = {1990},
 pages     = {46--47},
 note      = {In Afrikaans},
 keywords  = {Discussion},
 annote    = {This is an early report and discussion of 'cold fusion' by a
 pair of physicists in South Africa. There is the usual mention of the close
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 d-d approach required for d-d fusion, and an exposition of the normally
 expected products of such fusion. As well, the rise in price of Pd after the
 news of 'cold fusion' is mentioned, and the simplicity of F\&P's setup as
 reported in 1989. The authors remarks that F\&P made some great errors in
 their calculations and that some corrections are seen in their final paper
 (FP89). They are also critical of the press conference given by F\&P, prior
to
 publication. They conclude by saying that it is not, at the time of writing,
 certain whether 'cold fusion' is real or not.}
}
@article{Wada1990,
 author    = {N. Wada},
 title     = {Possibility of room temperature nuclear fusion},
 journal   = {Suri Kagaku},
 volume    = {330},
 year      = {1990},
 pages     = {69--71},
 note      = {In Japanese},
 keywords  = {Review},
 annote    = {A review with no refs. is given.
 (Cited from Chem. Abstr. 114:193695 (1991)).}
}
@article{Wagn1990,
 author    = {F.~T. Wagner and T.~E. Moylan and M.~E. Hayden and U. Naerger
             and J. L. Booth},
 title     = {A comparison of calorimetric methods applied to the
electrolysis
             of heavy water on palladium cathodes},
 journal   = {J. Electroanal. Chem.},
 volume    = {295},
 year      = {1990},
 pages     = {393--402},
 keywords  = {Experimental, Pd, electrolysis, calorimetry, res-},
 submitted = {05/1990},
 published = {11/1990},
 annote    = {Two kinds of calorimeters were compared in a number of
 electrolysis runs with water and heavy water in open and recombination
 cells. One was cooled by a cooling tube going through it (the "inverse
 labyrinth water flow calorimeter" ILWFC, described in another paper) and so
 keeps a low temperature during the run; the other was the isoperibolic type
 used by FPH, where the temperature is measured at some points in a cell in
 which there is a significant temperature gradient, and a heater is used to
 calibrate the measurement. The ILWFC type worked very well, with an excess
 heat of about zero, $\pm$0.4\% or so, calculated on the basis of the
 thermoneutral electrolysis potential. The isoperibolic one gave apparent
 excess heats, because heating by the calibrator lowered this thermoneutral
 potential and therefore more power went into heating rather than into the
 electrolytic reaction, than might be assumed. Clearly, this is a major error
 source. Temperature fluctuations in a cold fusion cell need to be accounted
 for, and the electrolysis potential used for the calculation needs to be
 adjusted as a function of this temperature.  Other experiments showed that
 the isoperibolic method is capable of good results if used properly but the
 accuracy is never as good as with the ILWFC.  Another factor leading to
 erratic results is the lowering electrolyte level during electrolysis.}
}
@article{Waka1990,
 author    = {S. Wakao and K. Ozeki and H. Sawa},
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 title      = {Gamma-ray emission from hydrogen-absorbing
               metal cathodes in D2O},
 journal    = {J. Adv. Sci.},
 volume     = {2},
 number     = {3},
 year       = {1990},
 pages      = {149--152},
 keywords   = {Experimental, electrolysis, Pd, Ti, TiNi alloys, ZrV \& ZrNi
               alloys, gamma, res+},
 submitted = {11/1989},
 note       = {In Japanese, Engl. abstr.},
 annote     = { Several metals and alloys (Pd, Ti, TiNi0.5, TiNi, ZrV1.8Ni0.2
 and ZrV1.5Ni0.5) were electrolysed in D2O containing LiOD or D2SO4, as well
 as the corresponding normal hydrogen mixtures. During electrolysis, gamma
 emissions were monitored by a survey gamma meter. All metals emitted some
 gammas, and those that have a higher hydrogen absorbing capacity emitted
 more. The emission flux did not much depend on the loading, therefore the
 fusion rate decreased (as fus/pair/s) with increasing loading. This allows
 the conclusion that fusion happens in a deuterium diffusion layer, at phase
 change boundaries or in micro-cracks.}
}
@article{Wang1990,
 author     = {R. Wang},
 title      = {Remarks on the possibility of cold fusion},
 journal    = {Commun. Theor. Phys. (China)},
 volume     = {13},
 year       = {1990},
 pages      = { 549--556},
 keywords   = {Theory, branching ratio, res-},
 submitted = {02/1990},
 annote     = {Looks at some possible explanations. The suggested (4)He +
gamma
 branch is dismissed, because the fusion reaction takes place within a space
 about $10^{-13}$ cm across, so the Pd atoms, with their $10^{-8}$ cm
 spacing, cannot affect it; the usual neutron/proton branch is expected. This
 is supported by some quantitative theory. Another explanation is the group
of
 solid state, plasma, nonequilibrium thermal and electrochemical effects.
None
 of these will do.  Nor can Thomas-Fermi screening help. Palladium crystal
 dislocations might do it but only with the help of a new screening
 effect. Finally, heavy electrons might do it, but where are they to come
 from, except as muons? Wang concludes that cold fusion is not possible
 without muons.}
}
@article{Wei1990a,
 author     = {S.~H. Wei and A. Zunger},
 title      = {Instability of diatomic deuterium in fcc palladium},
 journal    = {J. Fusion Energy},
 volume     = {9},
 year       = {1990},
 pages      = {367--370},
 keywords   = {Theory, res0},
 published = {12/1990},
 annote     = {(fcc = face centred cubic). Using the all-electron full-
potential
 semirelativistic linearized augmented plane wave (LAPW) method, including
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 interelectronic Coulomb and exchange-correlation interactions (I am
quoting),
 an accurate solution to the electronic Schroedinger problem for a static
 periodic atomic configuration of the combined (Pd,H) system is obtained. The
 question is: what is more stable in the (Pd,H) system, H2 molecules or H+
 ions? What is the d-d distance? The answer is that H2 does not form in the
 lattice, being very unstable, and d-d distance is much greater than in D2
 gas.  Therefore, explanations of cold fusion do not lie in diatomic
deuterium
 but elsewhere; perhaps conditions at grain boundaries or defects.}
}
@article{Wei1990b,
 author    = {S.~H. Wei and A. Zunger},
 title     = {Stability of atomic and diatomic hydrogen in fcc palladium},
 journal   = {Solid State Commun.},
 volume    = {73},
 year      = {1990},
 pages     = {327--330},
 keywords  = {Theory, res-},
 submitted = {09/1989},
 published = {02/1990},
 annote    = {Another attempt to calculate the bond distances of D-D within
 the PdD(x) lattice. Like others, the authors find that these are greater
than
 in D2 gas, for a wide range of loadings x.}
}
@article{Whal1990,
 author    = {K.~B. Whaley},
 title     = {Boson enhancement of finite-temperature coherent dynamics
              for deuterium in metals},
 journal   = {Phys. Rev. B},
 volume    = {41},
 year      = {1990},
 pages     = {3473--3481},
 keywords  = {Theory, res0},
 submitted = {10/1989},
 published = {02/1990},
 annote    = {Unusual isotopic anomalies observed in tungsten/hydrogen
systems
 suggest that at high concentrations, collective effects may obtain. Whaley
 presents a theory, using a generalised Hubbard Hamiltonian model acting on
 spin -1/2 states (fermions) for H and T, and -1 spin (bosons) for D.
Results:
 for PdD, no good, but possibly for PdD2, but under special conditions. Boson
 screening is of interest.}
}
@article{Whit1990,
 author    = {C.~T. White and B.~I. Dunlap and D.~W. Brenner
              and R.~C. Mowrey and J.~W. Mintmire},
 title     = {Limits of chemical effects on cold fusion},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {363--366},
 keywords  = {Theory, res-},
 published = {09/1990},
 annote    = {The authors examine theoretically the idea that d-d fusion can
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 occur at the sort of d-d distances seen in the PdD lattice. They detail here
 their local density functional (LDF) theory. Solution of the relevant
 differential equation allowed the calculation of the total energy of the
 cluster formed by a pair of deuterons plus the immediately surrounding Pd
 atoms. These calculations rule out cold fusion as an explanation of the
 Jones+(89) or FPH(89) results.}
}
@article{Wies1990,
 author    = {H. Wiesmann},
 title     = {Examination of cathodically charged palladium electrodes
              for excess heat, neutron emission, or tritium production},
 journal   = {Fusion Technol.},
 volume    = {17},
 year      = {1990},
 pages     = {350--354},
 keywords  = {Experimental, electrolysis, Pd, heat, neutrons, tritium, res-},
 submitted = {10/1989},
 published = {03/1990},
 annote    = {An attempt at a FPH reenactment, monitoring for temperature,
 neutrons and tritium in the electrolyte and using palladium plates. No
 evidence for cold fusion was found.}
}
@article{Wilh1990,
 author    = {Z. Wilhelmi and Z. Szeflinski and J. Tarasiuk and A. Turowiecki
              and J. Zlomanczuk},
 title     = {Search for neutron emission in the deuterium-palladium system},
 journal   = {Nukleonika},
 volume    = {35},
 number    = {7-9},
 year      = {1990},
 pages     = {175--186},
 keywords  = {Experimental, Pd, electrolysis, neutrons, gammas, res-},
 annote    = {This Polish team of physicists carried out an electrolysis
 experiment at a $10\times 50$ mm$^2$ Pd rod, in 0.1M LiOD, while monitoring
 for neutrons and gammas, using two scintillation detectors with pulse shape
 discrimination. The cell was replaced with one containing H2O as a control.
 The authors remark that the cold fusion phenomenon, if it exists, is highly
 capricious, and that the time structure of any neutron emissions must be
 looked at; background neutrons follow a Poisson distribution. In the event,
 there was no deviation from this distribution, nor differences between the
 experiment and the control, over long periods of electrolysis, setting the
 upper limit for cold fusion at about $10^{-26}$ neutrons/deuteron/s, three
 orders of magnitude lower than the results of Jones et al.}
}
@article{Wolf1990,
 author    = {K.~L. Wolf and N.~J.~C. Packham and D. Lawson and J. Shoemaker
              and F. Cheng and J.~C. Wass},
 title     = {Neutron emission and the tritium content associated
              with deuterium-loaded palladium and titanium metals},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {105--113},
 keywords  = {Experimental, Pd, Ti, electrolysis, neutrons, tritium, res+},
 published = {07/1990},
 annote    = {Presumably submitted to the journal shortly after the
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 conference, of which this was one of the papers, this predates Wolf's
tritium
 retraction of June 1990. Here, neutron emission is sporadically seen at the
 Jones+ level, as well as tritium. Neutron detection was by a NE-213
 time-of-flight detector, and backed up with calculations of the expected
 energy/intensity function. This confirmed some weakly positive results,
 though in a rather indirect manner.  The tritium results would be
significant
 (a rise to a plateau by 3 orders of magnitude over a period of 4 hours upon
 bumping the current) if it were not for Wolf's later retraction. Bockris,
 however, still accepts these results and rejects the retraction. The paper
 does present very clean background values, with small inter-batch
 fluctuations, and the increase is not explicable in terms of electrolytic
 enrichment. It might be thought strange that tritium, originally present in
 the palladium, should appear in the electrolyte so quickly. Wolf et al do in
 fact carefully consider the possibility of contamination from various
 sources, including the electrodes. They sent some of these for analysis but
 results were still pending.  No neutron/tritium/heat correlations were
 observed.}
}
@article{Yagu1990,
 author    = {A.~R. Yague},
 title     = {Cold nuclear fusion and its history},
 journal   = {Metal. Electr. (Spain)},
 volume    = {54},
 number    = {618},
 year      = {1990},
 pages     = {134--136},
 note      = {In Spanish},
 keywords  = {History of CNF},
 annote    = {A run-through of the history of cold fusion, starting with
 Paneth and Peters, through Frank's and Sakharov's ideas of the 1940's,
 Alvarez's discovery of muon catalysed fusion (which got the name "cold
 fusion", in 1957), Rafelski and Jones's work along the same lines, a
 thumbnail sketch of the background to the Jones \& FPH relationship,
 publication problems and world-wide attempts to reproduce the phenomenon.
The
 breadth of all this is, unfortunately, not matched by the reference list,
 which is skimpy, referring mostly to what appear to be Spanish popular
 science publications.}
}
@article{Yamag1990,
 author    = {E. Yamaguchi and T. Nishioka},
 title     = {Cold fusion induced by controlled out-diffusion of deuterons
             in palladium},
 journal   = {Jpn. J. Appl. Phys. Part 2},
 volume    = {29},
 year      = {1990},
 number    = {4},
 pages     = {L666--L669},
 keywords  = {Experimental, Pd, gas phase neutrons, res+},
 submitted = {01/1990},
 published = {04/1990},
 annote    = {The authors observed a "gigantic neutron burst" and inferred
 intense heat effects, at a Pd plate charged with D2. One side of the 1mm Pd
 plate was coated with a thin film of Au, which blocks outgassing of D2 on
 that side.  The key process on the other side is then the "formation of D
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 accumulation layers by controlling the D-atom out-diffusive transport with
 heterostructures". This is done by coating that side with a < 100 A layer of
 something containing Mn and O (no more is said about it). The idea is that
 the Au-covered side is - after loading under 0.5 atm D2 - in the alpha phase
 and the other side, at least during outgassing (I think) in the beta form.
 The paper is not 100\% explicit about the steps. After D-loading for 24
 hours, the samples were placed in a chamber which was evacuated, and a BF3
 neutron counter placed near it, as well as a Varian TPS-451S leak detector
 for gases of mass number < 6. Three hours after evacuation, a 2-3 sec burst
 of neutrons at an intensity of 0.1-0.2 mSv/h, simultaneously with "explosive
 release of gas from the samples" and biaxial bending of all the plates due
to
 the uniform expansion of the surfaces with the Mn-O film. Also, the Au film
 was gone, from which a temperature of at least 1064 degC is inferred. D2 was
 reintroduced, followed by re-evacuation and this time, there was another
 neutron burst of 0.06-0.09 mSv/h after 150 s (they don't mention whether
they
 reapplied the Au film). Then they introduce 1 atm of nitrogen [sic] and
 evacuated. Again, the same neutron emission and gas release after 150 s. 20
 more separate experiments did not show any of these events. Other
experiments
 using H2 gave no explosive release nor neutrons.  The authors legitimise
 their BF3 counter by calibrating with a D+ beam experiment (self targeting)
 and got the correct measurements. They calculate that if the observed event
 is at 2.45 MeV, then 0.1 mSv/h corresponds to 72 n/s/cm$^2$ or about $1-2
 \times 10^6$ n/s from their plate. This is about $2.5-5 \times 10^6$ larger
 than that reported by Jones et al and 25-50 larger than FPH's.  Also, the
gas
 evolved must have been D2, because the leak detector showed a mass of 4, as
 well as some of mass 3 ("slightly detected"). The heat could come from
 decomposition of PdD(0.6), as suggested by Pauling.  The authors then go on
 to some speculations about the origin of the explosive outgassing, to do
with
 lattice strain under bending, the Gorsky effect and "degradations of the Pd
 crystals".}
}
@article{Yamam1990a,
 author    = {T. Yamamoto and T. Oka and R. Taniguchi},
 title     = {In-situ observation of deuteride formation in palladium
             electrochemical cathode by x-ray diffraction method},
 journal   = {Annu. Rep. Osaka Prefect. Radiat. Res. Inst.},
 volume    = {30},
 year      = {1990},
 pages     = {79--82},
 keywords  = {Experimental, Pd, x-ray diffraction, loading study},
 annote    = {In conjunction with their cold fusion experiment, the team used
 x-ray diffraction to determine the deuterium loading of the Pd. It was about
 0.73.  In their other work, this was estimated higher.}
}
@article{Yamam1990b,
 author    = {N. Yamamoto and T. Ohsaka and T. Terashima and N. Oyama},
 title     = {In situ electrochemical quartz crystal microbalance studies of
             water electrolysis at a palladium cathode
             in acidic aqueous media},
 journal   = {J. Electroanal. Chem.},
 volume    = {296},
 year      = {1990},
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 pages     = {463--471},
 keywords  = {Experimental, quartz crystal microbalance, Pd film},
 submitted = {07/1990},
 published = {12/1990},
 annote    = {Another go at following the crystal oscillation frequency as a
 result of electrolysis under various conditions. As expected, the frequency
 decreases as hydrogen is loaded into the Pd film, but not (as others have
 found) in the way expected for simple loading; there are (not unexpectedly)
 structural changes in the film, affecting the frequency. There is some
 irreversible change, possibly due to surface roughening upon electrolysis.
 Future work, using D2O electrolytes, is planned.}
}
@article{Yang1990,
 author    = {F. Yang},
 title     = {On cold fusion},
 journal   = {Nucl. Tech. (China)},
 volume    = {13},
 year      = {1990},
 number    = {12},
 pages     = {705--707},
 note      = {In Chinese},
 keywords  = {Review},
 published = {12/1990},
 annote    = {"The work on so-called cold fusion is reviewed. The prospects
 for cluster-impact fusion and the importance of studying the interactions
 between cluster molecules (or atoms) and solids are described. (5 refs.)".
 (Direct quote from Phys. Abstr. 94:101095 (1991)).}
}
@article{Yao1990,
 author    = {Y.~D. Yao and C.~W. Wang and E.~K. Lin and J.~K. Wu},
 title     = {Observation of cathodic charging on a palladium electrode
              in heavy water},
 journal   = {J. Mater. Sci. Lett.},
 volume    = {9},
 year      = {1990},
 pages     = {228.},
 keywords  = {Experimental, Pd, electrolysis, heat, gammas, neutrons, res-},
 submitted = {06/1989},
 published = {02/1990},
 annote    = {Did some electrolysis experiments with Pd and Pt sheet, in
 different electrolytes in D2O and H2O, with and without the addition of
 thiourea (which can suppress D2 formation from adsorbed D and so favour
 absorption of adsorbed H or D) and monitored for heat, gammas and neutrons.
 Heating effects were the same for all cells, whether Pd or Pt, H2O or D2O
 were used. The spectra cannot be reconciled with nuclear reactions
 either. Gives a value for the diffusion coefficient of D in alpha PdD as
 $10^{-11}$m$^2$/s, no reference; calls it large.}
}
@article{Zahm1990,
 author    = {L.~L. Zahm and A.~C. Klein and S.~E. Binney and Jr. Reyes JN
              and J.~F. Higginbotham and A.~H. Robinson},
 title     = {Experimental investigations of the electrolysis of D2O using
              palladium cathodes and platinum anodes},
 journal   = {J. Electroanal. Chem.},
 volume    = {281},
 year      = {1990},
 pages     = {313--321},
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 keywords  = {Experimental, Pd, electrolysis, heat, neutrons,  gammas,
              tritium, res-},
 submitted = {01/1990},
 published = {03/1990},
 annote    = {These authors tried to reproduce as closely as possible the
 experiments of FPH (though not using jam jars), measuring cell temperature
 with thermocouples and monitoring for neutrons, gamma radiation and tritium.
 Oddly, they found five temperature "events" but smothered them by topping up
 with more D2O whenever they were observed. No evidence of tritium production
 or radiation above background was found.}
}
@article{Zele1990a,
 author    = {V.~F. Zelenskii and V.~F. Rybalko and A.~N. Morozov
              and G.~D. Tolstolutskaya and V.~G. Kulish and S.~V. Pistryak
              and I.~S. Martynov},
 title     = {Experiments on cold nuclear fusion in Pd and Ti saturated
              with deuterium by ion implantation},
 journal   = {Vopr. At. Nauki Tekh., Ser.: Fiz. Radiats. Povrezhdenii
              Radiats. Mater.},
 year      = {1990},
 number    = {1},
 pages     = {65--77},
 note      = {In Russian},
 keywords  = {Experimental, Pd, Ti, ion beam, neutrons, cp's, MS, fracto,
              res+},
 submitted = {12/1989},
 annote    = {Pd and Ti targets were loaded with deuterium by means of a D2+
 ion beam at 25 keV, 30-40 microamp, at 100K. The loaded targets were then
 warmed up to 1200-1300K and emissions monitored: neutrons by a
 boron-containing detector, charged particles (cp's) by a surface barrier
 detector, and gas emissions with masses 1..6 by a mass spectrometer (MS), to
 detect possible production of (3)He, T, protons. Another neutron monitor was
 placed at 4 m from the experiment, to monitor the background. Neutron
 emission intensity depended on the temperature: for Pd, they were max. at
 100-400K and 900-1300K, for Ti at 100-300K and 600-1200K, with highs up to
 twice background, meaning about 100 n/s. Cp's were observed only during
 charging, i.e. these must have been from self-targeting. MS detected no
 masses in the range 1..6 during warming up. The authors conclude that
 dd-fusion occurred and point to fractofusion as the likely mechanism.}
}
@article{Zele1990b,
 author    = {V.~F. Zelenskii and V.~P. Bozhko and V.~Ya. Golovnya
              and S.~N. Oleinik},
 title     = {Experimental investigation of cold D-D-fusion by
              ion implantation},
 journal   = {Vopr. At. Nauki Tekh. Ser., Fiz. Radiats. Povrezhdenii Radiats.
             Mater.},
 year      = {1990},
 number    = {1},
 pages     = {91--93},
 note      = {In Russian},
 keywords  = {Experimental, ion implantation, Pd, Ni, Ti targets, neutrons,
              gamma, CP's, res+},
 submitted = {12/1989},
 annote    = {An ion (d) implantation experiment on the metals Pd, Ni and Ti.
 For Pd, there was a simultaneous steady increase with time of neutron, gamma
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 and charged particle emission. In two series, positive results were
obtained,
 giving a fusion rate of $0.8\times 10^{-22}$/s/dd, or about Jones+ levels.}
}
@article{Zhu1990a,
 author    = {S.~B. Zhu and J. Lee and G.~W. Robinson},
 title     = {Nonlinear effects on thermonuclear reaction rates},
 journal   = {Phys. Lett. A},
 year      = {1990},
 volume    = {144},
 pages     = {361--364},
 keywords  = {Theory, res+},
 submitted = {12/1989},
 published = {03/1990},
 annote    = {Coulomb screening and nonlinear effects, together with many-
body
 collisions, may enhance nuclear fusion rates by many orders of magnitude at
 low temperatures.}
}
@article{Zhu1990b,
 author    = {S.~B. Zhu and J. Lee and G.~W. Robinson},
 title     = {Non-Maxwell velocity distributions in inhomogeneous materials},
 journal   = {J. Fusion Energy},
 volume    = {9},
 year      = {1990},
 pages     = {465--467},
 keywords  = {Theory, tail energy, res+},
 published = {12/1990},
 annote    = {Physicists generally assume, say the authors, that the Maxwell
 distribution of gas particle velocity v, falling off exponentially with
 v$^2$/T (T=temp.), also applies to liquids and solids. With a supercomputer,
 one can examine this, and this has been in progress for some years here.
They
 have applied their techniques to deuterons in a PdD lattice, and find a
 non-Maxwellian velocity function for the d's, as they move away from their
 potential minima.  The tails of the distribution correspond to temperatures
 at least 10 or up to 100 times ambient, and this would enhance the fusion
 rate by many 10's of orders of magnitude. So how do we know, ask the
authors,
 that Fleishman [sic], Pons and Hawkins do not have something new?}
}
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# YEAR: 1991

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% Year 1991; there are 188 entries.
@article{An1991,
 author    = {X.~W. An and H.~K. Yan and B.~X. Han and D.~J. Guo and D.~Y.
Xie
              and Q.~H. Zhu and R.~H. Hu},
 title     = {Calorimetric investigation of electrochemically induced nuclear
               fusion of deuterium},
 journal   = {Thermochim. Acta},
 volume    = {183},
 year      = {1991},
 pages     = {107--115},
 keywords  = {Experimental, electrolysis, palladium, heat, res-},
 submitted = {09/1990},
 annote    = {A thoroughly performed experiment. Two cells, one with heavy
 and one with light water, were operated in series, closely matched. Over
 longer periods, the same constant current was run through the two cells, and
 the cell voltages were monitored throughout. Calibration heating was used to
 check the cell constants as a function of temperature. The identical Pd
rods,
 5.9 mm in dia.  and 47 mm exposed lengths, were pretreated in molten NaOH;
 the electrolytes were purified by preelectrolysis with Pt cathodes. It was
 noted here that the heavy water electrolyte (0.1 M LiOD) was markedly more
 viscous than the light electrolyte (0.1 M LiOH). Mechanical stirring, beyond
 the bubbles generated, was provided, and it was found that the bubbles alone
 were not adequate. The cell constants were temperature dependent. The
volumes
 of evolved gases were as expected from the electrolysis current. Currents of
 0.6A, 0.8A, 1 A and finally 1.3 A were applied for respectively 98 h, 13 h,
 16.5 h and (21+72) h.  No recombination was found to take place, and no
 excess heat outside the error limits of about 5% was found. The authors
 conclude that in the FPALH-90 paper, there was insufficient stirring and
that
 it is important to know the cell constant, as a function of temperature.}
}
@article{Anuf1991,
 author    = {G.~S. Anufriev and B.~S. Boltenkov},
 title     = {Helium isotopes and hydrogen in aluminium and other metals},
 journal   = {Vopr. At. Nauki Tekh. Ser.: Fiz. Radiats. Povr. Radiats.
              Materialoved.},
 volume    = {56},
 year      = {1991},
 number    = {2},
 pages     = {73--81},
 note      = {In Russian},
 keywords  = {Experimental, isotope distribution, helium, tritium, aluminum,
              res+},
 submitted = {11/1990},
 annote    = {Isotopic distributions and amounts of the isotopes of 3He, 4He,
 T and H were studied in some samples of Al produced by electrolysis. Out of
 several samples, one had not only larger than normal concentrations of both
 3He and tritium, but also unusual T/H and 3He/4He ratios ($4*10^{-8}$ and
 1.2, resp., against the more normal values $10^{-11}--10^{-12}$ and
 $10^{-4}$, resp., it is not clear what is normal here). Some conventional
 hypotheses are advanced, all based on contamination from the lab; all can be
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 rejected mostly in terms of diffusion arguments. An experiment is done with
 Ag, in which D is much more mobile, and yet it had less T; other experiments
 with Ni foils, too, did not achieve the same results as the Al. Although no
 detail is given, there are also correlations between 3He and T content in
the
 Al and time of electrolysis in the cryolite bath. Some materials associated
 with Al in its manufacture, such as cryolite, lime stone, alumina, AlF3,
 "nephelitic concentrate" and Al(OH)3, did not have the extra isotopes, so
 they do not come from these raw materials.  Only cold fusion, strongly
 stimulated by the electrolysis, is left.}
}
@article{Aoya1991,
 author    = {T. Aoyama and C. Mori and A. Uritani and T. Matsui and K.
Naito},
 title     = {Highly reliable low-level neutron detection using (3)He
              proportional counters},
 journal   = {Radioisotopes},
 volume    = {40},
 year      = {1991},
 pages     = {188--192},
 keywords  = {Experimental, neutron detector, electrolysis, res0},
 submitted = {12/1990},
 annote    = {For the very low-level neutron fluxes in cold fusion
 experiments, special precautions must be taken. This paper describes some
 techniques for this.  Perfect noise rejection is required as well as the
 application of Poisson statistics. The paper gives details of the
 construction of three identical (3)He counters with 42\% efficiency. These
 were placed around a cold fusion electrolysis cell, and there had an overall
 efficiency of 2.5\%. Noise comes from high voltage leakage and external
 noise. Humidity control can eliminate the first, and are in any case
rejected
 by not being coincident on all three.  External noise is common to all
 detectors, on the other hand, and is eliminated completely by using a high
 detector voltage (1300V) and setting the pulse height discriminator high.}
}
@article{Arzh1991,
 author    = {A.~V. Arzhannikov and G.~Ya. Kezerashvili},
 title     = {First observation of neutron emission from chemical reactions},
 journal   = {Phys. Lett. A},
 volume    = {156},
 year      = {1991},
 pages     = {514--518},
 keywords  = {Experimental, LiD, fracto, neutrons, res+},
 submitted = {10/1990},
 published = {07/1991},
 annote    = {A pair of nuclear physicists from Novosibirsk have had a go at
 cold fusion, and report their first results. Two chemical reactions were
used
 as a test: in the first test, solid LiD granules were dropped gradually into
 a test tube containing D2O; in the second, a mixture of zinc metal and the
 complex beta-trans-Pd(ND3)2Cl2 (both deuterated as shown, and hydrated,
 ..NH3..) were ground to a powder and dropped into the tube. Temperature
 changes were monitored. Neutrons were measured using 6 (3)He counters with
 pulse height discrimination and calibration, to optimise these. The 6
 counters' signals seem to have been added. Results: for LiD into D2O,
 temperature rose to 70 degC, the neutron emissions rose from background to
 about 1.7 times, and showing some spikes not seen in the background. For the
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 complex powder, the temperature rose to 250 degC and the emission/background
 ratio to about 2.  The paper concludes that these chemical reactions caused
 neutron emission but offers no explanations for the effect.}
}
@article{Asta1991,
 author    = {I.~I. Astakhov and A.~D. Davydov and N.~V. Katargin
              and V.~E. Kazarinov and I.~G. Kiseleva and L.~B. Kriksunov
              and D.~Yu. Kudryavtsev and I.~A. Lebedev and B.~F. Myasoedov
              and O.~P. Shcheglov and G.~L. Teplitskaya and V.~M. Tsionskii},
 title     = {An attempt to detect neutron and gamma radiations in heavy
              water electrolysis with a palladium cathode},
 journal   = {Electrochim. Acta},
 volume    = {36},
 year      = {1991},
 pages     = {1127--1128},
 keywords  = {Experimental, neutrons, gamma, palladium electrolysis,
              lithium, res-},
 submitted = {08/1990},
 published = {05/1991},
 annote    = {10 3He neutron counters were used, with pulse-height analysis,
 to detect neutrons; a scintillation spectrometer was used for gamma
 emissions.  Electrolysis was done at a bulky Pd cathode, with membrane
 separation of the two electrodes. Results were that whether the cell was in
 the detection space, or heavy or light water was being electrolysed, made no
 difference to the neutron count, nor was any gamma emission detected.
Lithium
 was found to be incorporated into the Pd, up to 0.5%. Its diffusion is
finite
 in Pd, about 1E-10 cm**2/s, compared with 1E-07 for deuterium. Lithium
 incorporation might explain some of the anomalies observed by others, such
as
 apparent excess heat. This will be reported in a future paper.}
}
@article{Bash1991,
 author    = {V.~A. Bashko and V.~I. Vit'ko and I.~G. Goncharov
              and V.~F. Zelenskii and G.~D. Kovalenko and S.~M. Krivoruchko
              and Yu.~N. Ranyuk and I.~K. Tarasov},
 title     = {Study of the nuclear fusion reaction in palladium by the
              emission of neutrons upon electrolysis},
 note      = {In Russian. Chem. Abstracts (117:199600) has the first author
              as "Rashko", and this will probably be the entry in the
              CAS database},
 journal   = {Vopr. Atom. Nauk Tekh. Ser.: Fiz. Radiats. Povrezhden. Radiats.
              Materialoved.},
 volume    = {56},
 number    = {2},
 year      = {1991},
 pages     = {54--63},
 submitted = {06/1991},
 keywords  = { Experimental, neutrons, massive Pd, res-},
 annote    = {This team from Kharkov undertook essentially a pure neutron
 search, from a CNF electrolysis, using two Pd cathodes, one of 182 g and the
 other 38 g, of chunky cylindrical shape and charged with 0.23 A/cm$^2$ and 1
 A/cm$^2$, resp. The experiment runs stretched over many days, individual
runs
 lasting 4-5 days.  The cell was alternately placed within, and outside the
 detection volume with 1-hour periods of time. Several figures show neutron
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 counts for these periods.  An array of 14 (3)He neutron counters was divided
 into two sets of 7 and the detections treated by analogue and digital
 means. Careful statistical data reduction led to the conclusion that nothing
 other than noise was observed.}
}
@article{Bazh1991,
 author    = {Yu.~N. Bazhutov and A.~B. Kuznetsov and T.~D. Surova
              and Yu.~P. Chertov},
 title     = {Study of the possibility of a cold nuclear fusion reaction by
              electrolysis of heavy water with a titanium electrode},
 note      = {In Russian},
 journal   ={Teo. Eksp. Issled. Vopr. Obshch. Fiz., Min. Obshch. Mashin.
SSSR},
 year      = {1991},
 pages     = {37--40},
 keywords  = {Experimental, 5M LiOD, Ti, tritium, x-ray film, res+},
 annote    = {Two series of experiments were run in Apr-May 1990, using a
 20*10*2 mm$^3$ Ti plate in 5M LiOD/D2O, and 5A or ca. 1A/cm$^2$. Tritium was
 monitored from aliquots taken out, by scintillation counts. In one series, 7
 hours of electrolysis roughly tripled the tritium counts from 124000 to
 412000 c/min/ml. In another series, the current was reversed twice while
 checking for tritium; there was an increase in the tritium count at those
 periods when Ti was the cathode (roughly doubling during these times, 40 min
 and 20 min, resp.). The paper does not state what the other electrode was,
it
 was presumably an inert metal like Pt. There was also an x-ray film in some
 runs, placed close to the electrodes, and this was found to be fogged only
at
 the Ti cathode, indicating x-rays.}
}
@article{Belt1991,
 author    = {I.~L. Beltyukov and N.~B. Bondarenko and A.~A. Janelidze
              and M.~Yu. Gapanov and K.~G. Gribanov and S.~V. Kondratov
              and A.~G. Maltsev and P.~I. Novikov and S.~A. Tsvetkov
              and V.~I. Zakharov},
 title     = {Laser-induced cold nuclear fusion in Ti-H2-D2-T2 compositions},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {234--238},
 keywords  = {Experimental, heating, laser, phase transition, Ti,
              fractofusion, neutrons, gamma, res+},
 submitted = {09/1990},
 published = {09/1991},
 annote    = {In the search for the right nonequilibrium conditions,
 considered by many to be required for cold fusion, this team tried laser
 heating to effect phase transitions across the beta/(beta+gamma) and
 (beta+gamma)/gamma boundaries. Ti rods were used, prehydrided and flushed in
 vacuum; the rods were recharged by the respective gas at around 773-823K
 under various pressures. Two neutron and two gamma counters were nearby and
 thermocouples mounted within the rod to record the axial temperature
 gradients. It was found that neutron and gamma emissions coincided with
phase
 transitions in the Ti-D system (presumably the transitions were known from
 the temperatures and reference to phase diagrams).  After the experiment,
the
 Ti showed a wide net of cracks. Despite the title, no Ti-H or Ti-T systems
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 are reported but there is a control of Ti in air, with no emissions
 detected. }
}
@article{Bitt1991a,
 author    = {M. Bittner and A. Meister and D. Ohms and E. Paffrath
              and D. Rahner and R. Schwierz and D. Seeliger and K. Wiesener
              and P. Wuestner},
 title     = {Indication for the temporary production of deuteron-deuteron
              fusion neutrons during electrolytic infusion of deuterons into
              a massive palladium slab},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {334--348},
 keywords  = {Experimental, electrolysis, Pd slab, large currents, neutrons,
              res+},
 submitted = {02/1991},
 published = {11/1991},
 annote    = {The team from Dresden continues with its cnf experiments, and
 here reports the use of a slab, initially 50*40*7 mm**3, loaded by a 8A
 current in 3M LiOD.  The authors subscribe to a dense plasma model of cold
 fusion, and predict (and have shown) a maximum fusion rate at intermediate D
 loadings, in contrast to most other workers. A maximum loading of 0.615 was
 reached over 900 h of electrolysis in all. There were some weak but
 significant neutron emissions but not as definite as the team's previous
 reports with other cathodes. The upper limit was set at 1E-26 fusions/pair/s
 for fully loaded Pd.}
}
@article{Bitt1991b,
 author    = {M. Bittner and G. Ludwig and A. Meister and J. M{\"u}ller
              and D. Ohms and E. Paffrath and D. Rahner and R. Schwierz
              and D. Seeliger and P. Stiehl and K. Wiesener
              and P. W{\"u}stner},
 title     = {Evidence for the production of d-d fusion neutrons during
              electrolytic infusion of deuterons into a palladium cylinder},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {2119--2124},
 keywords  = {Experimental, electrolysis, Pd, large currents, neutrons,
res+},
 submitted = {08/1990},
 published = {07/1991},
 annote    = {This team has previously described their method, without many
 results, and also has a theory (same journal, p.2114). Here, they report
 their experimental results. Electrolysis at their chunky Pd cathode (32.1 mm
 diameter, 19.3 mm long) was kept up for 606 h, at 4A (i.e. ca. 0.5/cm**2) in
 3M LiOD and D2O.  The electrolyte was topped up regularly, and the
 temperature and cell voltage measured. The cell was periodically removed
from
 the neutron detectors for one hour, so that there was a total of 110 hours
of
 neutron measurements and 116 hours of background measurement. Weighing after
 the experiment showed that a D/Pd loading of 0.801 had been achieved. During
 the first 220 h, effect and background are the same, then the effect
 increases to up to 4 sigma above background, and decreases again later,
 confirming these authors' theory on that count, for a loading time constant
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 of 350 h.}
}
@article{Bitt1991c,
 author    = {M. Bittner and A. Meister and D. Ohms and E. Paffrath
              and D. Rahner and R. Schwierz and D. Seeliger and K. Wiesener
              and P. W{\"u}stner},
 title     = {Emission of DD-fusion neutrons from a massive palladium
              cyclinder during electrolytic infusion of deuterons into
              the metal},
 journal   = {Isotopenpraxis},
 volume    = {27},
 year      = {1991},
 pages     = {274--280},
 keywords  = {Experimental, electrolysis, Pd, large currents, neutrons,
res+},
 submitted = {01/1991},
 annote    = {A 92 g cyclinder of Pd, 22.6 mm dia and 20.2 mm length, was
 electrolysed for over 700 h at a current of 4A in 3M LiOD in D2O, while
 periodically monitoring the neutron flux, alternating with the background,
as
 previously described. Post-mortem weighing indicated a D/Pd loading of
 0.812. Some positive results were obtained; as before, there was a maximum
 neutron emission at about one charging time constant, i.e. below maximum
 saturation.  The maximum neutron emission rate is 160 n/h, which I translate
 into about 1E-26 fus/pair/s; the authors make that 1E-44/s/cm**3. The
 introduction says that there will be a comparison with an H2O electrolysis
 but this is not found in the paper.}
}
@article{Bres1991a,
 author    = {T. Bressani and D. Calvo and A. Feliciello and C. Lamberti
              and F. Iazzi and B. Minetti and R. Cherubini and A.~M.~I. Haque
              and R.~A. Ricci},
 title     = {Observation of 2.5 MeV neutrons emitted from a
              titanium-deuterium system},
 journal   = {Il Nuovo Cimento Soc. Ital. Fiz. A},
 volume    = {104},
 year      = {1991},
 pages     = {1413--1416},
 keywords  = {Experimental, gas phase, Ti, neutrons, res+},
 submitted = {08/1991},
 published = {09/1991},
 annote    = {** This team recognised the difficulties of low-level neutron
 measurement and started, some time ago, to design a suitable detector
 system. They chose a time-of-flight system, together with a scattering trick
 which, although lowering the sensitivity to 3E-04, had the advantage of
 almost complete immunity to background. 3g of Ti shavings were pressurised
 under H2 or D2 at up to 2 atm at temperatures from 25-540 degC. The Ti was
 degassed for one day at 540 degC. During pressurising, the temp. was cycled
 up and down. At the high temps., all gas escaped the Ti, and was reabsorbed
 during the down cycle.  During the downs with D2, small enhancement of the
 neutron spectrum around 2.45 MeV were observed; none with H2 gas. Signal
 averaging of up cycles and down cycles separately and subtracting these
 averages gave a much clearer 2.45 MeV peak than reported previously. The
 intensity amounts to about 13 n/s/g Ti, or a fusion rate of about 1E-21
 fus/pair/s.}
}
@article{Bres1991b,
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 author = {T. Bressani and D. Calvo and A. Feliciello and
           C. Lamberti and F. Iazzi and B. Minetti and R. Cherubini
           and A. M. I. Haque and R. A. Ricci},
 title = {ERRATA: Observation of 2.5 MeV neutrons emitted
          from titanium-deuterium system},
 journal = {Il Nuovo Cimento Soc. Ital. Fis. A},
 volume = {104},
 year = {1991},
 page = {1587.},
 annote = {In the paper referred to here, same journal 104A (1991) 1413,
 some of the corrections requested by the authors were not carried out in the
 final version. On p.1417, line 19, there should appear (4.0 +- 1.5) n/s, and
 in the following row, (1.3 +- 0.5) n/s/g.  (Original dates)}
}
@article{Brit1991,
 author    = {D. Britz},
 title     = {Parameter correlations in cold fusion measurements},
 journal   = {J. Radioanal. Nucl. Chem. Lett.},
 volume    = {155},
 year      = {1991},
 pages     = {377--382},
 keywords  = {Discussion, calculations, correlations, res0},
 submitted = {08/1991},
 published = {12/1991},
 annote    = {Besides listing some of those few cold fusion experiments in
 which correlations between different measured parameters were found, the
 author looks closely at the paper of Birgul et al, which clearly shows some
 remarkably correlated gamma emissions and cell temperature; Birgul et al do
 not seem to make much of this. Britz calculates the cross correlation
 function and finds a peak of 0.34 at a lag of 16 min, i.e. the temperature
 tends to lead gamma emissions by 16 minutes on average. No explanation is
 offered.}
}
@article{Bunc1991,
 author    = {K.~J. Bunch and R.~W. Grow},
 title     = {Self-consistent field calculations on diatomic hydrogen
              in a potential well},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {2131--2134},
 keywords  = {Theory, res-},
 submitted = {11/1990},
 published = {07/1991},
 annote    = {Diatomic dd in a well, i.e. in an octahedral or tetrahedral
site
 in the PdDx lattice, or in a defect or crack, are looked at here. The
 Schroedinger equation for such a pair plus electron cloud (an overall
neutral
 region) is solved by the Method of Roothaan and Blinder. Results show that
 the dd pairs are squeezed together in the well, but not enough to explain
 cold fusion. The model can however be adjusted and might be useful anyway.}
}
@article{Bush1991a,
 author    = {B.~F. Bush and J.~J. Lagowski and M.~H. Miles and G.~S.
Ostrom},
 title     = {Helium production during the electrolysis of D2O in
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             cold fusion experiments},
 journal   = {J. Electroanal. Chem.},
 volume    = {304},
 year      = {1991},
 pages     = {271--278},
 keywords  = {Experimental, electrolysis, helium, calorimetry, correlations,
             res+},
 submitted = {02/1991},
 published = {04/1991},
 annote    = {The "China Lake" paper. The gas effluent from cold fusion
 electrolysis cells was analysed for He by a sensitive mass
 spectrometer. Great care was taken to establish that there was no
 contamination; the N2 gas used to flush the sample flask was checked and
 found to contain no He, and blank runs showed none. The Pd cathode was
 surface-ground with wet silicon carbide paper to remove any possible helium
 from it (?). The MS detection limit for He was about 8E11 atoms of
 (4)He. Results show that those electrodes that had produced excess heat
 (reported elsewhere) also gave off (4)He in amounts large compared to the
 detection limit, while those that gave little or no excess heat did not.
None
 gave off any detectable (3)He. The He detection limit corresponds to around
 8\% excess heat, and up to 27\% had been observed.  For the cell giving out
 0.46 W, about 5.4E14 He atoms are expected during the electrolysis time of
 4440 s; this is certainly well above their detection limit. The amount of He
 found is roughly proportional to the excess power (with large uncertainties
 because the amounts are still small). Dental x-ray film, placed next to the
 electrodes, showed evidence of radiation emitted from the electrode. Control
 electrolyses with light water showed no helium; these electrodes had been
 used previously in heavy water and contained some residual D, so d+p fusion
 could not be ruled out; indeed, some unexpected excess heat was found,
 despite the lack of (3)He, expected from this reaction. There was no
evidence
 of radiation on the film. The fact that He was detected implies that it is
 produced at the metal surface and that most of it escapes.}
}
@article{Bush1991b,
 author    = {R.~T. Bush},
 title     = {Cold 'fusion'. The transmission resonance model fits data
             on excess heat, predicts optimal trigger points, and suggests
             nuclear reaction scenarios},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {313--356},
 keywords  = {Theory, transmission resonance, res+},
 submitted = {05/1990},
 published = {03/1991},
 annote    = {Bush, in this 40+ page paper, outlines his model, which
explains
 the neutrons, tritium, excess heat and even cluster impact emissions claimed
 by various experimenters. When an odd integer multiple number of quarter
 waves of the de Broglie waves of diffusons (here deuterons diffusing within
 Pd) match the potential well widths of the lattice particles, 100\%
 transmissivity can be achieved, and the deuteron can get close to others on
 the way, and may fuse.  The model not only explains the experimental
evidence
 but also makes detailed predictions of, e.g., the shape of the function
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 excess power vs.  current density (it finds a relative minimum, matched to a
 measured point set). It also leads to optimal conditions ("trigger points")
 for observing cold fusion, and even goes as far as some preliminary reactor
 design. The nuclear reaction taking place is not d-d fusion but most likely
 neutron transfer from deuteron to Pd: d + $^{105}$Pd --> p + $^{106}$Pd
 + energy.}
}
@article{Case1991,
 author    = {L.~C. Case},
 title     = {The reality of 'cold fusion'},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {478--480},
 keywords  = {Discussion, suggestion, res+},
 submitted = {05/1991},
 published = {12/1991},
 annote    = {The fact that the positive results of cold fusion experiments
 are few in number and widely scattered is not evidence against the
 phenomenon, but instead evidence of a lack of understanding of the required
 conditions, writes Case. He then looks at the results of Yamaguchi and
 Nishioka and concludes that these can only be due to a nuclear process, most
 likely d-d fusion. He proposes a tentative mechanism, catalysed (initiated)
 by traces of tritium present in heavy water. D+T fusion releases neutrons,
 which then catalyse the main D+D fusion reaction, which releases further
 tritium, etc. There remains the lack of neutrons. These might be captured,
 e.g. by tritium or (3)He, both present. This leads to suggestions for
 improving experiments.}
}
@article{Cedz1991,
 author    = {K. Cedzynska and S.~C. Barrowes and H.~E. Bergeson
             and L.~C. Knight and F.~G. Will},
 title     = {Tritium analysis in palladium with an open system analytical
             procedure},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {108--112},
 keywords  = {Experimental, electrolysis, Pd, tritium, res-},
 submitted = {02/1991},
 published = {08/1991},
 annote    = {Palladium from three different suppliers (45 samples in all)
 were subjected to open-cell electrolysis, as done by Wolf et al, with the
aim
 of throwing light on tritium analysis. This was done on both the cathode
 materials and the electrolyte. There was no evidence of any tritium being
 produced but some evidence of possible artifacts and even artifactal low
 readings.}
}
@article{Cham1991,
 author    = {G. Chambaud and B. Levy and J.~G. Esteve},
 title     = {Estimate of Ti effects on D-D fusion},
 journal   = {Phys. Lett. A},
 volume    = {156},
 year      = {1991},
 pages     = {395--398},
 keywords  = {Theory, screening, res-},
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 submitted = {10/1989},
 published = {07/1991},
 annote    = {A theoretical attempt to explain both cold fusion and cluster
 impact fusion claims, by looking at possible screening effects in Ti. In the
 employed model, Ti-D and D-D interactions are taken as additive, and this
 leads to an overestimate of the tunnelling rate. Nevertheless, this turns
out
 too low to account for observation claims.}
}
@article{Chan1991,
 author    = {C.~P. Chang and J.~K. Wu and Y.~D. Yao and C.~W. Wang
             and E.~K. Lin},
 title     = {Hydrogen and deuterium in palladium},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {16},
 year      = {1991},
 pages     = {491--497},
 keywords  = {Experimental, Pd, neutrons, gamma, tritium, calorimetry, res-},
 submitted = {03/1991},
 published = {07/1991},
 annote    = {A wide-ranging experiment that aimed to determine the
 permeability of Pd to hydrogen and deuterium, the capacity of Pd to absorb
 these elements and their diffusion coefficients in the metal, all parameters
 as a function of temperature; further, gammas, neutrons, tritium, excess
heat
 and changes in lattice parameters (by x-ray diffraction) were measured, and
 scanning electron microscopy employed on the Pd surface after
 electrolysis. Permeability, diffusion rate and solubility were measured by
 electrolytic flushing of the gas from the metal by anodic
 polarisation. Rather low loadings (D/Pd = 0.1) were achieved in the Pd foil
 used; there are Arrhenius plots. Deuterium diffuses faster through Pd than
 hydrogen and is more soluble, at all temps.  Excess heat is claimed for both
 light and heavy water electrolyses, at about 30\% but there are few
 details. No nuclear products were found. There was lattice expansion of
0.5\%
 \[sic\] linear, from a measured 3.88 A for pure Pd (the known value is 3.89)
 and there were (scanning electron microscopy) cracks and pits over both
 surfaces.}
}
@article{Chap1991,
 author    = {I.~M. Chapnik},
 title     = {Possibility of electrochemically induced transmutation in PdD},
 journal   = {Physics Lett. A},
 volume    = {161},
 year      = {1991},
 pages     = {111--113},
 keywords  = {Theory, suggestion for optimisation},
 submitted = {09/1991},
 published = {12/1991},
 annote    = {Chapnik here follows up an earlier paper in which he suggested
 that the process in cold fusion is the Oppenheimer-Phillips reaction, in
 which neutrons from deuterons tunnel into other, heavier atoms, such as
 Pd. This would emit beta, gamma and proton radiation, any of which can be
 detected. This paper considers optimal conditions for the observation of the
 effect. One method of promoting this reaction might be mechanical distortion
 (twisting, bending) of the PdD sample, to cause inhomogeneities.}
}
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@article{Chat1991a,
 author    = {L. Chatterjee and A. Chakraborty and G. Das},
 title     = {Non-radiative exit channels in low energy d-d fusion},
 journal   = {Indian J. Pure Appl. Phys.},
 volume    = {29},
 year      = {1991},
 pages     = {781--786},
 keywords  = {Theory, res0},
 submitted = {04/1991},
 published = {12/1991},
 annote    = {A theoretical look at collisional and muon-catalysed d-d fusion
 at low energies (the two differ in important ways). Phase space effects
might
 alter the ratio of the two main exit branches t-p and (3)He-n. Indeed,
 calculations support this, though deviations from unity are smallish except
 for muon catalysed d-d fusion at high muon energies.}
}
@article{Chat1991b,
 author    = {L. Chatterjee and G. Das},
 title     = {Sub-barrier nuclear fusion of amuonic and muonic flavour},
 journal   = {Phys. Lett. A},
 volume    = {154},
 year      = {1991},
 pages     = {5--8},
 keywords  = {Theory, res+},
 submitted = {12/1989},
 published = {03/1991},
 annote    = {The physics of cold fusion is analysed in terms of Allis-Morse
 potentials, to decide in which way this apparently amuonic process might
take
 place. Under the special nonequilibrium conditions during deuterium charging
 of the metal, abnormal electron pile-up could provide strong screening. The
 authors arrive at a necessary d-d distance of close to 0.1 A and feel that
 this can be achieved, especially during the later phases of charging. Thus,
 the delay before onset of neutron emission is explained and nonequilibrium
 confirmed as a requirement.}
}
@article{Chat1991c,
 author    = {L. Chatterjee},
 title     = {On a weak flavor for cold fusion},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {358--360},
 keywords  = {Theory, res+},
 submitted = {04/1991},
 published = {11/1991},
 annote    = {The author explores the possibility that "cold fusion" is not
 just pure fusion but a reaction flavoured by weak interaction, which might
 ease the way over the barrier suppressing fusion. Hagelstein considered
 superradiant neutrinos and the doubtful virtual neutrons, but LC takes a
 different approach. Excess electron cloud density in the deuterated metal
 may, with their fluctuations, put some reactions at threshold; the electron
 participates in the reaction, rather than being - as in screening models -
 just a spectator. This model does not require exotic physics to explain cold
 fusion.  LC goes on to speculate that the natural deuterium in sea water
 might have come from p-p reactions in pure H2O over long times. The model
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 also has astrophysical ramifications.}
}
@article{Chat1991d,
 author    = {L. Chatterjee},
 title     = {The two faces of the Coulomb barrier},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {365--366},
 keywords  = {Theory, res+},
 submitted = {04/1991},
 published = {11/1991},
 annote    = {LC examines the problem that the Coulomb barrier response is
 different for approaching and receding particles, from the mathematical
 boundary conditions.  But wave function solutions show no such difference. A
 simple mechanism to resolve this paradox is proposed, and may have practical
 applications. For example, the exit channel (branch) t-p would be enhanced
 over the n-(3)He one, as claimed by some cold fusion experimenters.}
}
@article{Chu1991,
 author    = {S.~Y. Chu and B. Shen},
 title     = {Can the color force be used to achieve fusion?},
 journal   = {Mod. Phys. Lett. A},
 volume    = {6},
 year      = {1991},
 pages     = {237--244},
 keywords  = {Theory, color force},
 submitted = {04/1990},
 annote    = {The basic question of cold fusion is: what are the possible
 forces that can overcome the Coulomb barrier to fusion? So far, muons,
quarks
 and diquarks have been proposed, and the remaining unexplored possibility is
 the color force. Small deviations from absolute color neutrality might
 collectively be able to produce a color field sufficient to overcome the
 Coulomb barrier. The paper examines this question and concludes that the
 process is feasible. It further suggests that a favourable condition for
cold
 fusion is the creation and maintenance of a deuteron concentration gradient
 in the Pd, possibly by using a thin Pd sheet with different deuterium
 concentrations on the two sides.}
}
@article{Chub1991,
 author    = {T.~A. Chubb and S.~R. Chubb},
 title     = {Cold fusion as an interaction between ion band states},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {93--99},
 keywords  = {Theory, res+},
 submitted = {02/1991},
 published = {08/1991},
 annote    = {The authors add to their theory of cold fusion, in which they
 propose an interaction between deuteron and (4)He++ ion band states and a
new
 form of matter, namely ion band state matter or Bose Bloch condensate
 matter. This leads to the release of heat as observed by FPH but not to
 high-energy particle emission, thus accounting for this phenomenon. The
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 theory also says that pretreatment of the Pd with He improves its cold
fusion
 performance; also it suggests experiments with silver, in which similar
 processes ought to take place, even though Ag does not form a deuteride. The
 theory suggests the way to improve reproducibility, by control of the (4)He
 level.}
}
@article{Clar1991,
 author    = {R.~W. Clark},
 title     = {What ever happened to cold fusion?},
 journal   = {J. Chem. Ed.},
 volume    = {68},
 year      = {1991},
 pages     = {277--279},
 keywords  = {Discussion},
 annote    = {Clark gives a summary of the cold fusion field, devoting one of
 three pages to muon catalysed fusion, the "real" cold fusion. He
consistently
 spells Fleischmann as Fleishmann, perpetuates the myth that cnf divided
 chemists and physicists, and states that physicists have not succeeded in
 fusing hydrogen nuclei (apart from the muon variety). The other cold fusion,
 in certain experiments in making superheavy elements, is also mentioned. No
 conclusion.}
}
@article{Corr1991,
 author    = {D.~A. Corrigan and B.~K. Schwemmin and E.~W. Schneider},
 title     = {Radiochemical measurements of tritium during heavy water
             electrolysis at palladium cathodes in closed cells},
 journal   = {J. Electroanal. Chem.},
 volume    = {312},
 year      = {1991},
 pages     = {175--184},
 keywords  = {Experimental, tritium, electrolysis, Pd, res-},
 submitted = {05/1991},
 annote    = {In previous experiments on long-term electrolysis in heavy
water
 at Pd, open cells were used, allowing the possibility that tritium was
 introduced by the repeated water top-up. Here a closed cell is used, with a
 recombiner catalyst, to eliminate the problem. The Pd cathodes were vacuum
 annealed at 900C. Tritium analysis ws on 1 ml aliquots taken out after
 electrolysis (11 days, some for 100 days), by scintillation. Some samples
 were spiked with tritium. After electrolysis, the Pb were unloaded
anodically
 to drive out the hydrogen isotopes. None showed any significant increase of
 tritium, the changes were all around zero. The results suggest that when
 tritium was found by others, it may have been artifactual.}
}
@article{Czer1991,
 author    = {A. Czerwinski and R. Marassi and S. Zamponi},
 title     = {The absorption of hydrogen and deuterium in thin palladium
             electrodes. Part I. Acidic solutions},
 journal   = {J. Electroanal. Chem.},
 volume    = {316},
 year      = {1991},
 pages     = {211-221},
 keywords  = {Experimental, Pd, loading study},
 submitted = {05/1991},
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 published = {10/1991},
 annote    = {A cyclic voltammetric study with coulometry, on thin Pd film
 overlaid on Au on glass, in H2SO4 or D2SO4. Coulometry measured the H/Pd or
 D/Pd loading as a function of potential. Maximum loading was about 0.7. This
 was independent of the film thickness.}
}
@article{Dano1991,
 author    = {M. Danos and V.~B. Belyaev},
 title     = {Estimate of the neutron transfer fusion rate},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {354--357},
 keywords  = {Theory, res+},
 submitted = {03/1991},
 published = {11/1991},
 annote    = {The use of higher-order terms leads to fusion enhancement up to
 40-50 orders of magnitudes. A three-body process of neutron transfer is
 postulated and treated as a quantum electrodynamic problem. The Feynman
 diagram is replaced by its non-relativistic time-ordered form, a reaction
 graph. The results indicate that observational claims for cold fusion are
not
 unreasonable within the framework of nonexotic physics.}
}
@article{Daut1991,
 author    = {D.~P. Dautovich},
 title     = {What do we know? What do we think?},
 journal   = {J. Fusion Energy},
 volume    = {10},
 year      = {1991},
 pages     = {117--119},
 keywords  = {Panel Discussion},
 published = {03/1991},
 annote    = {The author took part in a panel discussion on cold fusion,
later
 published in this journal. He presents a potted history, referring to the
two
 approaches of a wet electrolysis cell and the dry gas/metal experiments at
 Frascati. Some work was also done in Canada, the author's country, in
several
 places, but no convincing results were achieved. There follows some
 theory. See also Rees1991.}
}
@article{Dien1991,
 author    = {J.~K. Dienes},
 title     = {On nuclear reactions in defects},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {543--546},
 keywords  = {Theory, res+},
 submitted = {06/1990},
 published = {05/1991},
 annote    = {The object of this analysis is to see whether atoms can
approach
 very closely to each other as a result of lattice slip processes. The model
 of Frenkel and Kontorova, considered an early example of soliton behaviour,
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 is extended here. It appears that close approach is indeed possible, in a
 self organised wave propagation process. This hangs together with
 crack-induced fusion, and the burst nature of fusion, claimed by some
 observers, including the large bursts of Arata and Zhang and the De Ninno
 group. }
}
@article{Dmit1991,
 author    = {V.~N. Dmitrenko and I.~P. Dryapachenko and M.~V. Sokolov},
 title     = {On the possibility of the study of electron screening
             in three-particle nuclear reactions},
 note      = {In Russian},
 journal   = {Ukr. Fiz. Zh. (Russ. Ed.)},
 volume    = {36},
 year      = {1991},
 pages     = {993--999},
 keywords  = {Theory, screening, res+},
 submitted = {02/1991},
 annote    = {Screening by electrons is looked at in this paper. In palladium
 deuteride, the electrons behave in a different way to that in either Pd or
D2
 itself and fusion is enhanced far beyond the rate in, say, D2. Reactions
with
 three particles in the final state are interesting from the point of view of
 scattering at low energies. The model of Migdal and Watson is invoked, being
 a stepped reaction sequence, a + A --> 1 + (2+3)* --> 1 + 2 + 3. An example
 is the new reaction pair d + D --> p + T + gamma and --> n + (3)He + gamma,
 both three-particle final states.}
}
@article{Dong1991,
 author    = {S.~Y. Dong and K.~L. Wang and Y.~Y. Feng and L. Chang
             and C.~M. Luo and R.~Y. Hu and P.~L. Zhou and D.~W. Mo
             and Y.~F. Zhu and C.~L. Song and Y.~T. Chen and M.~Y. Yao
             and C. Ren and Q.~K. Chen and X.~Z. Li},
 title     = {Precursors to 'cold fusion' phenomenon and the detection of
             energetic charged particles in deuterium/solid systems},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {330--333},
 keywords  = {Experimental, Pd, Ti, gas phase, emr, UV, x-rays, cps, res+},
 submitted = {12/1990},
 published = {11/1991},
 annote    = {To verify cold fusion, fusion products have been searched for,
 mostly in vain.  This Chinese team suggests that there may be precursors to
 these products, that should be found and correlated with the products. Such
 findings might also aid in understanding the phenomenon. They assume that
 only electron screening, helping to overcome the Coulomb barrier, can be an
 explanation, and this requires the emission of the precursor,
electromagnetic
 radiation in the range 10-3000 eV, i.e. ultraviolet to soft X-rays. Another
 emission should be energetic charged particles. Both these were searched for
 here. Pd and Ti foil was gas-loaded with D2 and thermoluminescent detectors
 (TLD) used for the em radiation measurement, and the plastic track detector
 (CR-39) for the charged particles (protons and alphas). Both D2 cells and H2
 controls showed em radiation at about the same level, but only the D2 cells
 emitted cp's. Thus something appears to be happening, probably very near the
 metal surface, since cp's do not get very far.}
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}
@article{Dono1991,
 author    = {D.~L. Donohue and M. Petek},
 title     = {Isotopic measurements of palladium metal containing protium
              and deuterium by glow discharge mass spectrometry},
 journal   = {Anal. Chem.},
 volume    = {63},
 year      = {1991},
 pages     = {740--744},
 keywords  = {Experimental, electrolysis, Pd, isotope changes, res-},
 submitted = {10/1990},
 published = {04/1991},
 annote    = {The question addressed here is whether there are changes in the
 isotope distribution of Pd upon electrolysis of D2O at such Pd, acting as a
 cathode.  The Pd was arc melted under argon, and annealed at 900 degC in
 vacuum. Three kinds of electrolysis were carried out: in 0.1 LiOH in H2O, in
 LiOD in D2O, and LiOD in D2O followed by LiOH in H2O with the same
 cathode. Mass spectrometry was the main analytical tool. It was found that
 pure Pd gave a characteristic isotope pattern, deviating somewhat from the
 expected. After electrolysis, the spectra included various protonised and
 deuteronised Pd species such as PdH+, PdH2+, etc. Heating, to drive out the
 hydrogen isotopes, then restored the original Pd isotope distribution in all
 cases. That is, electrolysis did not change the Pd isotope distribution. It
 will be of interest to cold fusion workers that even in 99.9\% pure D2O,
 something like 25\% of the hydrogen in the Pd after electrolysis was (1)H;
 thus, the supposedly tiny fraction of H in the D2O seems to be very
 preferentially taken up. At the low end of the mass spectra, species with
 masses 3-6 were found; these were assigned to respectively H3+, (DH2+ and
 D2+), D2H+ and D3+. Tritium or helium species either were not present or
were
 not able to be discriminated from H- and D-species; the authors do not say.
}
}
@article{Drag1991,
 author    = {G. Dragan},
 title     = {Topoenergetic evidence of cold fusion phenomena},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {361--364},
 keywords  = {Suggestion, res+},
 submitted = {10/1990},
 published = {11/1991},
 annote    = {Dragan has previously applied the title technique in the field
 of polymer thermodynamics, to clear up a puzzle, and applies it here to the
 calorimetry of a metal deuteride. The overall energy circuit is modelled by
 capacitive, inductive, dissipative components, potential and flow sources
 etc. Such an analysis, applied to the excess heat claims of the FPH and
FPALH
 papers, points to structural disclination states in the deuteride and shear
 stresses on the deuterium diffusing in the intercrystalline spaces. This
 might make cold fusion possible, if the stresses are sufficiently large. The
 author also mentions biological transmutations arising from the same effect,
 citing a 1972 study. The paper ends with some suggestions for better
 experiments, e.g.  attention to the cathode processing conditions and the
 crystal structure, a high-resolution calorimeter, the use of different
 electrolytes.}
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}
@article{Eagl1991,
 author    = {R.~D. Eagleton and R.~T. Bush},
 title     = {Calorimetric experiments supporting the transmission resonance
             model for cold fusion},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {239--245},
 keywords  = {Theory, res+},
 submitted = {01/1991},
 published = {09/1991},
 annote    = {In a previous paper, the authors' TRM was outlined and predicts
 a rather characteristic dependence of excess heat with current density and
 temperature.  This paper reports an attempt to verify this, both for varying
 cd at constant T, and constant cd with varying T. A closed cell with total
 recombination was used, with a magnetic stirrer. The cell was of Teflon to
 avoid contamination from corrosion. There was a light water blank. Of the
 five non-blank cells, two produced excess heat. The fact that some cells do
 not behave is also explained by the TRM, which predicts chaos. The
 calorimeter was of the cooling coil type. The results can be roughly fitted
 to the predicted TRM theory, but the authors admit that the fit is not
highly
 significant. The fit to the temperature dependence is somewhat better. More
 work is planned, using an improved set-up.}
}
@article{Enyo1991,
 author    = {M. Enyo},
 title     = {Is the cold fusion reaction possible?},
 journal   = {Kagaku to Kogyo, Tokyo},
 volume    = {44},
 year      = {1991},
 pages     = {47},
 keywords  = {Review},
 annote    = {"A review, with 18 refs., on feasible cold fusion reactions,
 detection and measurement of neutrons, tritium and excess heat,
 theor. treatment of electrochem. models and their fundamental
 understanding". (Direct quote from CA 115:121407 (199)).}
}
@article{Fang1991,
 author    = {P.~H. Fang},
 title     = {Deuterium fusion through nonequilibrium induction},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {369--370},
 keywords  = {Suggestion},
 submitted = {06/1990},
 published = {03/1991},
 annote    = {Fang notes that a number of authors have appeared to induce
 cold fusion by a nonequilibrium condition - current pulses, warming up,
 mechanical fracture and so on. Fang suggests another efficient method of
 forcing nonequilibrium, using ultrasonics applied to, e.g., Pd powder in
 heavy water etc. The ultrasound would increase the frequency of collision
 between metal and deuterium atoms. Many configurations are possible, and can
 be augmented by electric fields.}
}
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@article{Farl1991,
 author    = {F.~J.~M. Farley},
 title     = {Cold fusion},
 journal   = {New Scientist},
 volume    = {129},
 number    = {1756},
 year      = {1991},
 pages     = {3},
 keywords  = {Suggestion},
 published = {02/1991},
 annote    = {Farley has an explanation for the fact (?) that the larger the
 Pd electrode in FPH's experiment, the bigger the excess heat. He assumes
that
 the Pt anode was the same cylinder all the time, and that therefore the gap
 between the two electrodes is smaller, the larger the Pd cathode. He further
 says we all know that nascent hydrogen and nascent oxygen are generated by
 electrolysis, and that these generate heat when they combine with other.
This
 effect is the greater, the smaller the gap. The heat, in other words, comes
 from recombination of evolved (nascent) gases.}
}
@article{Fedo1991a,
 author    = {G.~V. Fedorovich},
 title     = {The Coulomb interaction in the E-cell},
 journal   = {Physica B},
 volume    = {172},
 year      = {1991},
 pages     = {491--498},
 keywords  = {Theory, suggestion, res+, no FPH/Jones refs},
 submitted = {09/1990},
 published = {07/1991},
 annote    = {The author suggests that neutron capture by light atoms such
 as (3)He, (6)Li, (7)Be or (10)B lead to E-cells, i.e. small regions in the
 lattice in which there is, briefly, a very high concentration of free
 electrons. This could happen in, e.g., LiH. If a pair of hydrogen atoms
 should find themselves in the centre of such an E-cell, there is a larger
 than normal probability of their fusing. No cold fusion references.}
}
@article{Fedo1991b,
 author    = {G.~V. Fedorovich},
 title     = {Coulomb interaction in an E-cell},
 journal   = {Sov. Phys. Tech. Phys.},
 note      = {Orig. in: Zh. Tekh. Fiz. 61 (1991) 1},
 volume    = {36},
 year      = {1991},
 pages     = {847--850},
 keywords  = {Theory, fractofusion, res+},
 submitted = {02/1990},
 published = {08/1991},
 annote    = {If the width of the tunnelling barrier were reduced, the fusion
 tunnelling rate would increase. This takes place in an E-cell, a radiation
 defect created by a thermal neutron in a crystal cell of hydrides of certain
 light elements such as Li or B. So in, e.g., LiD, there might be appreciable
 d-d fusion, as suggested by the Soviet fractofusion results.}
}
@article{Flan1991,
 author    = {T.~B. Flanagan and W. Luo and J.~D. Clewley},
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 title     = {Calorimetric enthalpies of absorption and desorption of
              protium and deuterium by palladium},
 journal   = {J. Less Common Met.},
 volume    = {172-174},
 year      = {1991},
 pages     = {42--55},
 keywords  = {Experimental, electrolysis, Pd, loading enthalpies,
calorimetry,
              res-},
 published = {08/1991},
 annote    = {This is only tangentially a cold fusion paper but was in part
 motivated by it.  The team, long-time experts in metal hydrides, make
 accurate measurements of the enthalpy of palladium hydride and -deuteride
 formation and break-down, as well as the entropy at 298K and some other
lower
 temperatures. The metal was a heap of foil pieces, and H2 or D2 gas was used
 for charging. H(f) for PdH was -19.1 kJ/molH and for PdD, -17.3 kJ/molD,
with
 entropies of 46.3 J/K/molH and 46.7 J/K/molD, resp. There were some
 hysteresis effects but these could be compensated out. For the first time,
 enthalpies of formation in the beta phase were measured. At loadings around
 0.7 (D/Pd), these begin to decline towards zero, reflecting the difficulty
of
 hydriding beyond this degree. No anomalous heats were detected in any of the
 many measurements.}
}
@article{Gajd1991,
 author    = {M. Gajda and J. Rafelski},
 title     = {Jovian limits on conventional fusion},
 journal   = {J. Phys. G},
 volume    = {17},
 year      = {1991},
 pages     = {653--661},
 keywords  = {Discussion, Jupiter},
 submitted = {11/1990},
 published = {05/1991},
 annote    = {Fusion rates are evaluated for the interior of Jupiter and
 compared to those assumed by conventional wisdom; might these explain Jovian
 excess heat?  Also, terrestrial cold fusion experiments are looked at. The
 authors take as given that these latter have now been established to give a
 rate of $10^{-23}$ fusions/s/dd-pair. A central density of 4 g/cm$^3$ and a
 temperature of 1.4 eV are assumed for Jupiter, as well as a degenerate Fermi
 gas state for the electrons, and a d/p ratio of $10^{-5}$. Theory then
yields
 fusion rates that are not sufficient to explain Jupiter's excess heat. Maybe
 other factors? Such as local high densities and/or higher temperatures,
maybe
 2.8 eV? G\&R now say that, given Jones+(89), and transferring this knowledge
 to Jupiter, the heat is still unexplained. But, if a similar enhancement for
 the dp fusion reaction is assumed, the heat is explained. Unfortunately,
 there are no reports of laboratory pd cold fusion, for which gamma emission
 should be seen.  So Jones+(89) might help astronomers explain the Jupiter
 enigma.}
}
@article{Gaje1991,
 author    = {R. Gajewski},
 title     = {Fuzja, nadzieja czy iluzja?  (Nuclear fusion, hope or
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              illusion?)},
 journal   = {Postepy Fiz.},
 volume    = {42},
 year      = {1991},
 pages     = {85--95},
 note      = {In Polish},
 keywords  = {Discussion},
 annote    = {Prof. Ryszard Gajewski, who works for the DOE in Waszyngton,
USA,
 gave a talk to the Polish Academy of Science in 1989, on fusion. This is an
 account of the lecture. Most aspects of fusion, including hot, cold, muon
 catalysed and ion beams, are discussed. No references.}
}
@article{Gent1991,
 author    = {H. Gentsch},
 title     = {DD-fusion reactions at a PdAg(D) target in a minireactor},
 journal   = {Ber. Bunsenges. Phys. Chem.},
 volume    = {95},
 year      = {1991},
 pages     = {1283--1286},
 note      = {In German},
 keywords  = {Experimental, electrolysis, Pd-Ag alloy, ion beam, neutrons,
              gamma, tritium, res+},
 submitted = {07/1991},
 published = {10/1991},
 annote    = {An electrolysis cell, in which the cathode was a hollow
cylinder
 of the PdAg alloy, is described. The electrolyte is 0.1M LiOD in D2O, and a
 small current of 0.1 A charges the thin-walled (0.3 mm) cyclinder. Within it
 is a near-vacuum, and a small D2 pressure after a time indicates that the
 alloy is deuterated. Down the middle of the cyclinder is an ion source,
 bombarding the alloy deuteride with ions up to 30 keV. Neutrons were
measured
 by a Bonner sphere and a (6)LiI scintillator, gammas with NaI. The emissions
 were found to be larger than expected by theory, and more tritium
accumulated
 in the electrolyte than expected. This means either that the ions penetrated
 more deeply into the alloy surface than thought possible, or that some
 unexpected fusion reactions were taking place in the alloy deuteride. The
 apparatus should lend itself to mass spectrometric detection of fusion
 products such as helium or tritium, and is quite simple.}
}
@article{Gior1991,
 author    = {N. Giordano and A.~S. Arico and V. Antonucci},
 title     = {Thermal effects during the electrolytic charging of deuterium
              in the palladium lattice},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {105--107},
 keywords  = {Discussion, res0},
 submitted = {09/1990},
 published = {08/1991},
 annote    = {The absorption of deuterium into Pd may be an uneven process,
 producing small centres (clusters) of deuteride, and local overheating at
 length scales small with the electrons' mean free path. This will delay heat
 conduction, and large internal temperatures may be attained. This effect may
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 explain some of the cold fusion observation and, although it could not
 account for a sustained excess heat as claimed by FPH, might enter into the
 process inducing cold fusion.}
}
@article{Golu1991a,
 author    = {P.~I. Golubnichii and F.~F. Kayumov and G.~I. Merzon
              and O.~A. Petrii and V.~A. Tsarev and G.~A. Tsirlina},
 title     = {Proton emission in low-temperature nuclear fusion},
 journal   = {Sov. Phys. - Lebedev Inst. Rep.},
 year      = {1991},
 number    = {12},
 pages     = {6--9},
 note      = {Orig. in Sb. Kratk. Soobshch Fiz. AN SSSR 1991(12) 41
              (in Russian)},
 keywords  = {Experimental, electrolysis, Pd film, protons, res-},
 submitted = {12/1991},
 annote    = {Detection of protons is easier than that of neutrons, so this
 fusion branch is studied here, despite the small yield of protons, which are
 stopped within 30 micrometres in Pd. An electrolysis cell with 0.1M LiOD in
 heavy water and a control cell with LiOH in light water were arranged such
 that the Pd film cathode was the cell floor, beneath which was the detector,
 consisting of a proportional counter (PC) and broad-gap track spark chamber
 (SC). This had a 2\% efficiency and 4s dead time. In 8 series of
 measurements, lasting 1010 min and using a current density of 31 mA/cm$^2$,
 141 events were recorded, one every 7 min on average. Of these 141, 2 could
 be said to be coming from the heavy water cell (the tracks point to their
 origin), the rest are cosmic rays. Even these 2 could be cosmic noise. A 940
 min control run with no current produced again 1 ev per 7 min, 2 from the
 heavy and one from the light water cells. The results set the upper limit
for
 cnf at $10^{-24}$ fus/pair/s.}
}
@article{Golu1991b,
 author    = {P.~I. Golubnichii and V.~V. Kuz'minov and G.~I. Merzon
              and B.~V. Pritychenko and A.~D. Filonenko and V.~A. Tsarev
              and A.~A. Tsarik},
 title     = {Correlated neutron and acoustic emission from a
              deuterium-saturated palladium target},
 journal   = {JETP Lett.},
 volume    = {53},
 year      = {1991},
 pages     = {122--125},
 keywords  = {Experimental, fracto, Pd, neutrons, res+},
 submitted = {12/1990},
 published = {01/1991},
 annote    = {What the fractofusion school of thought has been waiting for;
 are the cracks sources of neutrons? Experiments were done under low
 background conditions, underground. The Pd was electrolytically saturated
 with deuterium.  Neutrons were moderated in paraffin and detected with an
 array of 10 SNM-18 counters, with an overall efficiency of 10\%. Sound was
 measured with a ceramic piezoelectric device. Correlation measurements were
 carried out for 3.5 h.  There were 42 correlated events (with a time shift,
 due largely to the finite propagation of the acoustic signal), while 6 are
 expected if they were random.  So the results appear to support the
 fractofusion model.}
}
@article{Goro1991,
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 author    = {V.~G. Gorodetskii and B.~G. Polosukhin and E.~M. Sulimov
              and P.~I. Novikov and V.~P. Bychin},
 title     = {Emission of neutrons and gamma quanta from palladium upon its
              saturation with deuterium in the gas phase},
 journal   = {Fiz. Metal. Metalloved.},
 year      = {1991},
 number    = {7},
 pages     = {176--178},
 note      = {In Russian},
 keywords  = {Experimental, gas phase, Pd foil, neutrons, gamma, res+},
 submitted = {06/1990},
 annote    = {Pd foil, 0.2 mm thickness, 28 g in all, rolled into a cyclinder
 (15 mm dia, 80 mm long) and wire of 2mm dia, 6 g, were placed into steel and
 quartz holders, respectively, and D2 admitted into the evacuated holders at
 1-4 atm.  Two groups of neutron detectors, each consisting of 15 type SI 19N
 counters, were placed "around" the holders; they had an optimal sensitivity
 at about 2 MeV. Blocks of scintillation NaI gamma detectors were also
placed,
 max sens.  at 662 keV. At room temp., the background neutron count was
 0.17/s. The samples were now heated from room temp to 570 K while monitoring
 neutrons and gammas. The foil showed a maximum of 0.29 n/s and the wire a
 maximum of 0.4 n/s; these took place in the range 420-570 K, where both
 alpha- and beta-phases of the deuteride exist. The authors speculate that
 fluctuating phase transitions, as suggested by Petrillo+ (89), cause
 fusion.}
}
@article{Gran1991,
 author    = {E. Granite and J. Jorne},
 title     = {A novel method for studying electrochemically induced cold
              fusion using a deuteron-conducting solid electrolyte},
 journal   = {J. Electroanal. Chem.},
 volume    = {317},
 year      = {1991},
 pages     = {285--290},
 keywords  = {Experimental, solid state electrolysis, Pd, neutrons, res0},
 submitted = {11/1990},
 published = {11/1991},
 annote    = {Most previous cnf experiments have used either a wet cell with
 electrolysis or metals under pressurised dry deuterium, to load deuterium
 into a metal.  These workers combine the two. They have a beta''-alumina
 sandwich on Pd film, in a dry D2 atmosphere, and apply a voltage between the
 Pd films. The alumina is an ionic conductor and D+ ions, generated at the
 anode, can reach the cathode, there to be reduced to D, which loads into the
 Pd film. Neutrons were measured by means of two NE 213 counters, with gamma
 discrimination. Over two days of electrolysis, no deviations from the
 background were seen, except for some bursts. The authors cannot with
 certainty attribute these to the cell but do say that a run with hydrogen
 produced no such bursts. The cell also has a small heat capacity and is thus
 more sensitive than aqueous systems to heat effects. Calorimetry showed no
 heat effects, however. Mass spectroscopy did not detect any helium, and
 tritium was not produced.}
}
@article{Hawk1991,
 author    = {N. Hawkins},
 title     = {Possible natural cold fusion in the atmosphere},
 journal   = {Fusion Technol.},
 volume    = {19},
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 year      = {1991},
 pages     = {2112--2113},
 keywords  = {Discussion, suggestion},
 submitted = {11/1990},
 published = {07/1991},
 annote    = {Atmospheric disturbances, electron bonding (Cooper pairs),
 Abrikosov electron vortices (AEV), free floating fire balls and more are
 invoked here along with the proposition that such atmospheric phenomena may
 cause or help along cold fusion. For example, there seems to be some
evidence
 that cold fusion cells "work" during electrical storms, due to the influx of
 AEV's between the cathode and anode. More work is needed, says H.}
}
@article{Hira1991,
 author    = {T. Hirabayashi and Y. Yoshida and Y. Aradono},
 title     = {Verification of room temperature nuclear fusion. 2},
 journal   = {Genshiryoku Kogyo},
 volume    = {37},
 number    = {4},
 year      = {1991},
 pages     = {31--39},
 note      = {In Japanese},
 keywords  = {Review},
 annote    = {A review with 44 refs. is given on the verifications of room
 temperature nuclear fusion (RTNF) by the electrolysis method and by heavy
 hydrogen gas dry pressurization method, exptl. results of the verification
of
 RTNF by new dry methods, and exptl. results disproving the RTNF. (Quoted
from
 CA 115:58485 (1991)).}
}
@article{Horo1991,
 author    = {C.~J. Horowitz},
 title     = {Cold nuclear fusion in dense metallic hydrogen},
 journal   = {Astrophys. J.},
 volume    = {367},
 year      = {1991},
 pages     = {288--295},
 keywords  = {Remark, astronomical connection},
 submitted = {11/1989},
 published = {01/1991},
 annote    = {H writes that the extreme conditions required to overcome the
 fusion barrier, although impossible to realise in the laboratory, might have
 astrophysical relevance; in particular, cold fusion might explain excess
heat
 from Jupiter.  Fractofusion is also mentioned, and the possibility that low
 level cold fusion takes place inside the Earth, producing tritium and (3)He,
 as suggested by some (I am not sure anyone has found T). Finally, a pp
fusion
 rate in the Sun, greater than expected, might explain the solar neutrino
 puzzle. H calculates cnf rates in dense metallic hydrogen, possibly existing
 within Jupiter, at a density of 4-5 g/cm$^3$. At high densities, the
 electrons degenerate to a Fermi gas. Numerical integration of the
 Schroedinger equation yields expected fusion rates (i.e. pp and dp; dd is
not
 likely, with the small d-content of H) that, under certain conditions, such
 as high density could account for Jupiter's heat; unfortunately, Jupiter is
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 not large enough to provide such densities.  But wait: maybe other
 enhancement factors can be found. One avenue is the fairly high temperature
 (1-5 eV), making the hydrogen liquid. This leads to higher rates at
realistic
 densities, though still not enough. There are still unexplored factors such
 as fluctuations, collective effects and phase transitions. If only Jupiter
 were a brown dwarf. An Appendix shows how to do a numerical Runge-Kutta
 integration of the Schroedinger equation.}
}
@article{Hugg1991,
 author    = {R.~A. Huggins},
 title     = {Fundamental considerations relating to the insertion of
hydrogen
              isotopes into mixed conductors at high activities},
 journal   = {Mater. Res. Soc. Symp. Proc.},
 volume    = {210},
 year      = {1991},
 pages     = {317--322},
 keywords  = {Discussion, catalysis},
 annote    = {A discussion of some issues involved in cold fusion, with
 attention to the behaviour of hydrogen (isotope) at and in a metal. Some old
 results in surface catalysis are quoted to (tacitly) support the
electrolytic
 compression argument. There is mention of permeation studies and the light
 they might throw on conditions at the surface of hydrogen entry. The role of
 stresses and microstructural metal features in hydrogen transport is
 discussed, as is that of surfactants as promotors and inhibitors of hydrogen
 uptake. There is a very useful list of references (but none to cold fusion
 itself), and the article ends by pointing out the sporadic nature of the
 effects discussed, which fact correlates with the nature of cold fusion
 observations.}
}
@article{Ichi1991,
 author    = {S. Ichimaru},
 title     = {Cold nuclear fusion in pressurized liquid metals},
 journal   = {J. Phys. Soc. Japan},
 volume    = {60},
 year      = {1991},
 pages     = {1437--1440},
 keywords  = {Theory, p-d, p-Li fusion, res+},
 submitted = {02/1991},
 published = {05/1991},
 annote    = {The author develops a theoretical model for the rate of p-d
 and p-Li fusion under widely different conditions: solar interior, the
 white-dwarf progenitor of a supernova, a metal hydride and pressurised
liquid
 hydrogen. The Schroedinger equation, Coulomb repulsion, electron screening
 and careful Monte Carlo simulations lead to a table of fusion rates. For
 metal hydrides containing both deuterons and protons, the rates approach
 those of Jones et al, but might be reduced by some orders of magnitude. The
 highest rates are obtained for liquid DH and LiH under pressures of the
order
 of 1E07 bar. This system is the author's main interest, and he concludes
that
 it may be feasible to extract energy, e.g. around 10 kW/cm$^3$, from such
 systems.}
}
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@article{Ikeg1991,
 author    = {H. Ikegami},
 title     = {Present and future of cold fusion. Nuclear products from
             cold fusion},
 journal   = {Oyo Buturi},
 volume    = {60},
 year      = {1991},
 pages     = {212--219},
 note      = {In Japanese},
 keywords  = {Review},
 submitted = {01/1991},
 published = {03/1991},
 annote    = {A review, in the context of fusion in general, of the cold
 fusion claims of neutrons and tritium. The control, i.e. the reproducibility
 of experiments is essential. The major results of the past few years are
 summarised, ranging over about 14 orders of magnitude in intensity from the
 neutron emissions of Menlove to excess heat of Pons and Fleischmann. There
is
 an English-abstract section of this Japanese-language journal.}
}
@article{Ilic1991,
 author    = {R. Ilic and J. Rant},
 title     = {The search for cold nuclear fusion with track-etch and bubble
             damage detectors},
 journal   = {Int. J. Radiat. Appl. Instrum.
             Part D: Nucl. Tracks Radiat. Meas},
 volume    = {19},
 year      = {1991},
 pages     = {619--625},
 keywords  = {Experimental, passive detectors, neutrons, cps, res-},
 annote    = {These authors have previously suggested the use of passive
 radiation detection devices, and here discuss the two in the title. The
 advantages of these devices are (1) simultaneous detection of neutrons and
 cp's and the direct determination of the (controversial) branching ratio;
(2)
 particle charge, energy and propagation direction can be determined; (3) in
 situ detection is possible because of the small size; (4) bursts can be
 detected, because there is no finite response time. There is a summary of
 results of experiments with such devices, including the authors'. None of
 these has so far supported cold fusion.}
}
@article{Jin1991a,
 author    = {S. Jin and F. Zhang and D. Yao and Q. Wang and B. Wu
             and Y. Feng and M. Chen},
 title     = {Anomalous nuclear effects in palladium-deuterium systems
             during the gas discharge process},
 note      = {In Chinese; English abstr.},
 journal   = {Gaojishu Tongxun},
 volume    = {1},
 number    = {5},
 year      = {1991},
 pages     = {25--27},
 keywords  = {Experimental, discharge, gas phase, nuclear products, res+},
 submitted = {04/1991},
 annote    = {"A burst of nuclear products far larger than background was
 reproducibly detected for the first time by using CR-39 solid state nuclear
 track detector during the experiments of Pd-D system stimulated by a high
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 voltage discharge.  No any anomalous effects were found in the control
 experiments of Pd-H and Cu-D systems under the same experimental
 conditions. This indicates that anomalous nuclear effects were definitely
 produced in the Pd-D system under certain conditions" (Direct cite of the
 abstract). This looks like a Wada and Nishioka reenactment, with similar
 results.}
}
@article{Jin1991b,
 author    = {S.-X. Jin and Y.-B. Ding and B.-L. Wu and Y.-Z. Liu
              and D.-C. Yao},
 title     = {The possibilities of electrochemically induced nuclear fusion
              of deuterium},
 journal   = {Science in China A},
 volume    = {34},
 year      = {1991},
 pages     = {697--707},
 keywords  = {Discussion, theory, res0},
 submitted = {06/1989},
 published = {06/1991},
 annote    = {Rather than what the title suggests, this paper looks for some
 possible explanations for cold fusion. First the paper calculates the
 charging time, based on current density (not diffusion). In section II, the
 lattice system is said to be a strongly coupled plasma, and the screening
 effect of the mobile electrons might allow closer d-d approach than
 otherwise. In section III, two possible mechanisms are suggested. One is the
 thermal motion of and collision between deuterons; this results in a large
 enhancement of fusion at normal temperatures, but still not enough to
measure
 it. Only at temperatures higher than the Pd melting point might there be a
 sufficient effect. The other possibility is the fusion of D2 molecules
formed
 in the lattice. Again, the enhancement due to screening is not enough, and
 loadings thousands of times that which can be achieved would be required. So
 some nonequilibrium process in the lattice may be responsible for the
 observations.}
}
@article{Jone1991,
 author    = {S.~E. Jones},
 title     = {Nuclear reactions in deuterated solids versus excess
              heat claims},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {915--923},
 keywords  = {Discussion},
 published = {12/1991},
 annote    = {Jones has collected a great number of cnf results and tabulated
 them, along a vertical scale for neutrons/cp's or watts, for one group of
 searches for nuclear emissions, and one of searches for excess heat. There
is
 a ten-order difference between the two. Jones writes that excess heat must
 accompany a commensurate emission of nuclear products, if it is to be a
 product of a nuclear reaction, and it clearly is not. Claims for helium or
 tritium must also show secondary emissions; the one study claiming (4)He
 commensurate with excess heat does not show the necessary tritium or (3)He,
 and is therefore likely to be a result of contamination. Lattice absorption
 of high energies by some Moessbauer-like effect is not possible.}
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}
@article{Jorn1991,
 author    = {J. Jorne},
 title     = {Neutron and gamma-ray emission from palladium deuteride
              under supercritical conditions},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {371--374},
 keywords  = {Experimental, Pd, gas phase, nonequilibrium, neutrons, res-},
 submitted = {03/1990},
 published = {03/1991},
 annote    = {Another try at forcing nonequilibrium; here, Pd under
 pressurised D2 gas is cycled between 75 and 295 degC, the critical point for
 PdDx, beyond which the alpha- and beta phases merge and large fluctuations
in
 density might enhance the sought-after effect. Pd foil and sponge were kept
 for three days under up to 90 atm pressurised D2, at -80 degC, then slowly
 allowed to warm up, then heated up to 320 degC. Two NE-213 scintillation
 neutron counters were placed around the cell, with pulse-shape
discriminators
 to reject gamma radiation. Neutron counting efficiency was about 1\%. Gamma
 radiation was taken from the same pulse-shape separation. No significant
 increase over background levels were observed during the warm-up to room
 temperature, nor upon going to 473K; the cell was then held under 36 atm
 pressure at room temperature for >2 months, then heated to 620K, well above
 the critical temp., and significant neutron emissions were recorded above
 about 550K, the two counters being very well correlated. A similar increase
 was seen in the gamma emission. Control runs, with empty cells or Pd + H2
 gas, showed no emissions of this sort. Rough estimation of the fusion rate
 leads to about Jones+(89) levels, at $10^{-21}$ or so.}
}
@article{Juli1991,
 author    = {P. Julin and L.~A. Bursill},
 title     = {Dendritic surface morphology of palladium hydride produced
              by electrolytic deposition},
 journal   = {J. Solid State Chem.},
 volume    = {93},
 year      = {1991},
 pages     = {403--417},
 keywords  = {Experimental, electrolysis, Pd foil, light water, res-},
 submitted = {12/1990},
 annote    = {The authors used a number of small Pd foil disks,
 electrolytically worn down to the point where a pin hole appeared in the
 centre, and used very high resolution transmission electron microscopy to
 look at the foil before and after electrolysis. The electrolyte was one
 common in electropolishing but unusual in cold fusion experiments: 5\%
 ethanol and 50(mol)\% sulphuric acid, the rest presumably being H2O, for the
 cathodic polarisation to "compress hydrogen galvanistically" into the Pd. An
 interesting result is that there is extensive dendrite formation,
 i.e. dendrites of the Pd hydride. Prolonged electrolysis changes the
 dendrites into blunter forms. These dendrites will increase the surface area
 of the electrode enormously, and thereby the double layer capacitance. The
 authors suggest that the FPH effects may originate from this capacitance.}
}
@article{Karab1991,
 author    = {A.~B. Karabut and Ya.~R. Kucherov and I.~B. Savvatimova},
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 title     = {The investigation of deuterium nuclei fusion at glow discharge
              cathode},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {924--928},
 keywords  = {Experimental, glow discharge, excess heat, neutrons, gamma,
              res+},
 annote    = {The authors had at the time already published some results from
 their glow discharge experiments with Pd cathodes in D2 gas, and here follow
 up with further results. They monitored for neutrons, gammas and heat, and
 found all.  Rough neutron spectra fitted with some of the d-d fusion
reaction
 energies but the gamma results did not. Radiation fluxes were 7 orders of
 magnitude above the background, and some persisted for 30 min after the
 discharge was switched off.}
}
@article{Karam1991,
 author    = {N.~A. Karamdoust and A. Majeed and S.~A. Durrani},
 title     = {Cold fusion: Radon contribution to neutron production ?},
 journal   = {Int. J. Radiat. Appl. Instrum.
              Part D: Nucl. Tracks Radiat. Meas.},
 volume    = {19},
 year      = {1991},
 pages     = {627--628},
 keywords  = {Experimental, suggestion, neutrons, res+},
 annote    = {Several authors have suggested that neutron emissions from PdD
 may originate from impurities inherent in the Pd used, such as U, Th or
 radon, Rn.  This team investigated this possibility by experiment. A
 high-purity Pd foil, as used in the same laboratory in a cold fusion
 experiment (where some neutrons were found) was sandwiched between CR-39
 detector foil for one week.  The activity recorded was 3 orders of magnitude
 below that of the possible cold fusion emission level. In another
experiment,
 Pd foil was allowed to absorb Rn for 9 hours and was then left for 2 hours
 between CR-39 detector foils. Again, the activity recorded was far below
that
 claimed for cold fusion experiments.  Thus U/Th/Rn impurities cannot explain
 cold fusion results.}
}
@article{Kaza1991,
 author    = {V.~E. Kazarinov and I.~I. Astakhov and G.~L. Teplitskaya
              and I.~G. Kiseleva and A.~D. Davydov and N.~V. Nekrasova
              and D.~Yu. Kudryavtsev and T.~B. Zhukova},
 title     = {Cathodic behaviour of palladium in electrolytic solutions
              containing alkali metal ions},
 journal   = {Sov. Electrochem.},
 volume    = {27},
 year      = {1991},
 pages     = {6--10},
 keywords  = {Experimental, electrolysis, lithium deposition, artifacts, res-
},
 submitted = {01/1990},
 published = {01/1991},
 annote    = {Li, and to a lesser extent K, intrude into a Pd lattice upon
 cathodic polarisation in aprotic as well as aqueous electrolytes. In aprotic
 media, the result is the formation of intermetallic Li with the Pd, able to
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 react with water, and a solid solution in the bulk of the Pd. In aqueous
 media, after 74h of electrolysis, a 0.5mm-thick layer of a solid solution
was
 formed, with a mean overall concentration of 5 at\%, but the electrode
 gradually dissolves during electrolysis. It is concluded that in
electrolytic
 cold fusion experiments, one is dealing not with deuterated palladium, but
 rather a solid solution system D-Li-Pd and must reckon with heat effects due
 to the decomposition of these aqueous intrusion products.}
}
@article{Kees1991,
 author    = {R.~G. Keesing and R.~C. Greenhow and M.~D. Cohler
              and A.~J. McQuillan},
 title     = {Thermal, thermoelectric, and cathode poisoning effects
              in cold fusion experiments},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {375--379},
 keywords  = {Experimental, electrolysis, excess heat, nuclear, res-},
 submitted = {08/1990},
 published = {03/1991},
 annote    = {This team ran FPH-type experiments 24h/day for 10 weeks and
 observed no excess heat or signs of nuclear emission. However, they gained
 some understanding of the reaction, thermal effects and heat pumping due to
 the Peltier effect, as well as the effects of cathode poisoning. Their
 calorimetric measurements produced negligible excess heat, temperature being
 monitored at five different points in the cell. During an early run, the
cell
 temperature was lower than expected; heat was being absorbed. The authors
 believe that this might be due to a Peltier effect at the Pd/Pt junction,
and
 then realised that such an effect might in fact be the cause for excess heat
 apparently observed by others. The Peltier effect is normally small, but if
 the Pt is deuterided (near the surface) it becomes as a semiconductor, which
 would increase the effect. Tests for this were not successful, however.
 Experiments with poisoning (using cyanide) show that this raises the
 overpotential; this might lead workers to see excess heat where there is in
 fact increased ohmic heating. The authors speculate that absorption of CO2
 might, by reduction, lead to CO poisoning, with similar effects. The paper
 concludes that one must be careful to account for exothermicity, any
possible
 Peltier effect and poisoning. No comments about radiation could be made,
 since nothing was detected.}
}
@article{Kenn1991,
 author    = {J.~P. Kenny},
 title     = {Electropionics and fusion},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {547.},
 keywords  = {Discussion, theory, res+},
 submitted = {06/1990},
 published = {05/1991},
 annote    = {Kenny states that pions (pi mesons) undoubtedly must be
involved
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 in the cold fusion interaction, having an interaction range about 7 times
 that of the 7 times heavier protons or neutrons. A model of anomalous
nuclear
 resonances is developed, involving pions. Deuterium fuses into an excited
 resonant species with a half life of the order of days, and this might
 explain some of the anomalies seen in cnf. Decay products might be pions,
 kaons (decaying to leptons), deuterons and dibaryons, or even phonons as
 suggested by Schwinger. Baryon nonconservation and quarks are invoked as
 well. Cold fusion demands a new physics and this may be it.}
}
@article{Kiku1991,
 author    = {E. Kikuchi and K. Nomura and N. Nogawa and H. Saito
              and K. Itoh and H. Niikura and M. Murabayashi},
 title     = {Effect of charging current density on release characteristics
              of tritium from palladium},
 journal   = {Denki Kagaku Oyobi Kogyo Butsuri Kagaku},
 volume    = {59},
 year      = {1991},
 pages     = {880--884},
 note      = {In Japanese},
 keywords  = {Experimental, tritium loading, res0},
 submitted = {05/1991},
 annote    = {"Tritium was charged electrochemically into annealed Pd at
 various current densities, and the release rates of tritium were measured as
 a function of time by liquid scintillation counter. Microstructures of Pd
 were also observed by a transmission electron microscope before and after
 annealing. The release rates decreased by annealing and with increased in
the
 charging current density". (Direct quote of the English abstract).  I glean
 further, that annealing took place at a pressure of about 1E-04 Torr and
 1300-1500K for 1-1.5 hours. There is a figure showing the tritium release
 rate after charging at 0.1 mA/cm$^2$, as a function of time; this roughly
 follows the expected $1/\sqrt{t}$ shape, and about one order of magnitude
 decrease within 1 hour. The tritium surface concentration decreases only
 slightly in that time. Higher current densities show similar behaviour, but
 at different absolute discharge rates. Some smallish different discharge
 curves are seen for annealed, and non-annealed Pd samples.}
}
@article{Kim1991a,
 author    = {Y.~E. Kim},
 title     = {Surface reaction mechanism for deuterium-deuterium fusion
              with a gas/solid-state fusion device},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {558--566},
 keywords  = {Theory, res+},
 submitted = {07/1990},
 published = {05/1991},
 annote    = {Kim's previously proposed theory of a surface fusion mechanism
 is applied here to the results of Claytor et al (preprint) said to
 demonstrate reproducible tritium production from a gas/solid-state (G/S)
 device. The theory also explains others' irreproducibility. The theory
 suggests that at D2 bubbles at the cathode surface under electrolysis, or in
 pockets at the solid state device, electric fields will accelerate deuterons
 to speeds sufficient to cause fusion upon impact with others. Gas bubbles
can
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 cause high electric gradients, up to $10^9$ V/m, etc., and Kim also suggests
 that breaking of electrolytic contact can lead to "huge" spark discharge
 currents. This is followed by a mathematical development, leading to cold
 fusion rates similar to those claimed by some. The theory leads to
 suggestions for optimisation of the yield: an oxide coating, a pulsed
 voltage, surface asperities, control of the size and number of the bubbles
or
 pockets and a magnetic field to divert electrons, which might interfere.}
}
@article{Kim1991b,
 author    = {Y.~E. Kim and R.~A. Rice and G.~S. Chulik},
 title     = {The role of the low-energy proton-deuteron fusion cross section
              in physical processes},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {174--177},
 keywords  = {Theory, p-d fusion, geological and CIF connection},
 submitted = {02/1990},
 published = {01/1991},
 annote    = {Drawing on Kim's idea of insulating bubbles causing high
voltage
 discharges at the cathode (which the authors discuss, dismissing the
problems
 with this), the paper examines the p-d fusion reaction theoretically. Using
 the Maxwell- Boltzmann velocity distribution and some uncertain
 extrapolation, the result is that at low energies, p-d fusion would
 dominate. This has implications not only for cold fusion, but also for
 geophysics (geological heating) and may even solve the solar neutrino
 problem. It impinges also on cluster impact fusion.}
}
@article{Kim1991c,
 author    = {Y.~E. Kim and R.~A. Rice and G.~S. Chulik},
 title     = {The effect of coulomb screening and velocity distribution on
              fusion cross-sections and rates in physical processes},
 journal   = {Modern Phys. Lett. A},
 volume    = {6},
 year      = {1991},
 pages     = {929--938},
 keywords  = {Theory, screening, res+},
 submitted = {01/1991},
 published = {10/1991},
 annote    = {The two title effects are examined to see whether they might
 explain cold fusion observations. Results indicate significant enhancement
of
 fusion rates at energies below 50 eV, which might explain the observations,
 as well as indicate that pd fusion might be an important astronomical energy
 source.}
}
@article{Kim1991d,
 author    = {Y.~E. Kim},
 title     = {Time-delayed apparent excess heat generation in
              electrolysis fusion experiments},
 journal   = {Mod. Phys. Lett. A},
 volume    = {6},
 year      = {1991},
 pages     = {1053--1060},
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 keywords  = {Theory, suggestion, res+},
 submitted = {11/1990},
 annote    = {The 12 orders of magnitude discrepancy between the neutron flux
 and observed excess heat in cold fusion electrolysis is explained here in
 terms of a time-delayed chemical effect; namely repeated cycles of deuterium
 absorption and desorption. This cycle shows hysteresis, from which Kim
 concludes that excess heat can apparently appear in the form of bursts,
 during the absorption stage. This raises the Pd internal temperature,
 initiating the (cooling) desorption phase. Kim makes some calculations based
 on the experiments of Scott et al (1990) and concludes that this model can
 account for the observed (about) 10\% excess heat. Kim reiterates his
 high-field-gradient model of surface fusion, along with his gas bubble
 arguments in the present connection.  The model also suggests that the Pd
 internal temperature should be measured as a test.}
}
@incollection{Kim1991e,
 author    = {Y.~E. Kim},
 title     = {Fission-induced inertial confinement hot fusion and
             cold fusion with electrolysis},
 booktitle = {Laser Interaction and Related Plasma Phenomena},
 editor    = {Hora, Miley},
 publisher = {Plenum Press},
 volume    = {9},
 year      = {1991},
 pages     = {583--591},
 keywords  = {Theory, surface reaction, res+},
 annote    = {In a volume otherwise devoted to inertial confinement fusion,
 Kim presents his surface reaction mechanism for cold fusion by electrolysis.
 Support for low-energy anomalous branching ratios comes from cluster impact
 fusion, also showing such anomalies. Whisker formation at the electrode
 surface is invoked, leading to high voltages across small D2 gas bubbles
 generated by electrolysis; these then aid fusion as in the Bockris dendrite
 theory. The neutrons released from this fusion might then initiate a
 fission/fusion chain: n+(6)Li --> (4)He+T; T+D --> (4)He+n (14.07 MeV); the
 last-emitted neutron will restart the cycle. Observations are so far not
 consistent with this, however. The paper continues with conventional fusion,
 suggesting an alternative to the magnetic or inertial confinement approaches
 used at present.}
}
@article{Kimu1991,
 author    = {T. Kimura},
 title     = {Current problems and future of room temperature nuclear
fusion},
 journal   = {Genshiryoku Kogyo},
 volume    = {37},
 number    = {4},
 year      = {1991},
 pages     = {49--57},
 note      = {In Japanese},
 keywords  = {Review},
 annote    = {A review with 26 refs. is given on the measurement of n, effect
 of cosmic radiation, effect of environmental radioactivity, and problems in
 measurement of very low level n in room temp. nuclear fusion (Quoted from CA
 115:58487 (1991)).}
}
@article{Klot1991,
 author    = {I.~M. Klotz and J.~J. Katz},
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 title      = {Two extraordinary electrical experiments},
 journal    = {Amer. Scholar},
 volume     = {60},
 year       = {1991},
 pages      = {247--249},
 keywords   = {Soc/sci discussion},
 annote     = {A sci-soc/phil paper. K\&K juxtapose the 1836 Crosse with the
 1989 F\&P affair. Crosse performed a long term electrolysis and observed the
 formation of small insects in the cell. K\&K note several parallels, such as
 announcement by press, simplicity of the experiments, eminence of the
 workers, confirmation by others, refutation by others, lack of controls.
K\&K
 conclude: People yearn to believe.}
}
@article{Koch1991,
 author     = {D.~I. Kochubey and V.~P. Babenko and M.~N. Vargaftik
              and I.~I. Moiseev},
 title      = {Enrichment of deuterium with tritium in the presence
              of a palladium-561 giant cluster},
 journal    = {J. Molec. Catal.},
 volume     = {66},
 year       = {1991},
 pages      = {99--104},
 keywords   = {Experimental, chemical, complex, tritium, res+},
 submitted = {06/1990},
 annote     = {Pd561Phen60(OAc)180, i.e. the complex formed of (ideally)
 561 Pd atoms, 60 molecules of 1,10-phenanthroline and 180 acetic ester
 groups, with the Pd atoms forming a central densely packed structure. This
is
 a catalyst for some chemical reactions, and also can absorb hydrogen up to a
 1:1 H/Pd ratio. The authors decided to use this instead of Pd metal, in a
 cold fusion experiment.  They expect this dense Pd cluster not to be subject
 to cracking. The complex was exposed to D2 gas at atmospheric pressure for
 1-11 days, after which the D2 was purged with Ar, passed over a Pt/Al2O3
 catalyst with oxygen, and the resulting D2O analysed for tritium. Results
 show tritium levels at twice and five times the background after resp. 5 and
 11 days exposure. Careful checks exclude artifactual tritium sources. Using
 H2 gas gave exactly the same as the background; using H2 with cluster
 previously exposed to D2 (but purged) gave some tritium, indicating
 incomplete purging; D2 used after exposure to H2 gave less tritium than when
 it was used with fresh complex.}
}
@article{Kone1991,
 author     = {N.~V. Konenkov and S.~S. Silakov and G.~A. Mogil'chenko},
 title      = {Quadrupole mass-spectrometric analysis of hydrogen isotopes
              during deuterium implantation in titanium},
 journal    = {Sov. Tech. Phys. Lett.},
 note       = {Orig. in: Pis'ma Zh. Tekh. Fiz. 17(1) (1991) 21, in Russian},
 volume     = {17},
 number     = {1},
 year       = {1991},
 pages      = {8--9},
 keywords   = {Experimental, mass spec, Ti, helium, tritium,  discharge, res-
},
 submitted = {10/1990},
 published = {01/1991},
 annote     = {The unequivocal establishment of the presence of 3He and T, as
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 products of the nuclear reaction of D during implantation of the ions into
 Ti, by the mass-spectrometric method requires a min. resolving power
 m/delta-m of 510 for the sepn. of ions (3He + T)+ and HD+ and 590 for
 sepg. the doublet T2+, D3+. A quadrupole mass spectrometer with high
 resoln. was used by the authors to analyze the compn. of plasma ions of a Ti
 magnetodischarge pump. The use of this more ideal mass spectrometer did not,
 however, confirm the hypothesis of cold D-D fusion in solids.}
}
@article{Kras1991,
 author    = {Yu.~I. Krasnoshchekov and L.~V. Larionov and V.~A. Makovei
              and E.~Yu. Muryshev and G.~I. Syrenkov},
 title     = {Possibility of nuclear reaction during phase transitions},
 journal   = {Sov. Phys. Dokl.},
 volume    = {36},
 year      = {1991},
 pages     = {705--706},
 note      = {Orig. in: Dokl. Akad. Nauk. SSSR 320 (1991) 1358,
              in Russian},
 keywords  = {Discussion, suggestion},
 submitted = {05/1991},
 published = {10/1991},
 annote    = {Phase transitions in metal hydrides are considered here. In Fe
 at high temperature, for example, a gamma-alpha PhT is known in which
 pressures of hydrogen, thousands of times the equilibrium state are
 observed. Also, the release of hydrogen from the metal upon PhT is
 impulsive. As the phase boundary moves through titanium deuteride,
 reorganisation of the crystal structure and thus displacement of deuterium
 should occur. This, and the possibility of charge separation upon cleavage,
 might be a clue to the understanding of cold fusion.}
}
@article{Kueh1991a,
 author    = {R.~W. K{\"u}hne},
 title     = {Possible explanations for failures to detect cold fusion},
 journal   = {Phys. Lett. A},
 volume    = {159},
 year      = {1991},
 pages     = {208--212},
 keywords  = {Discussion, res0},
 submitted = {05/1991},
 published = {10/1991},
 annote    = {K{\"u}hne first gives a summary of some of the explanations for
th
 Jones+89 effect, i.e. statistical (pro and con), cosmic influx variations,
 solar flares and muon catalysis; all these are now rejected, he says. He
then
 states that what he calls MHF (micro hot fusion or fractofusion) is the
 likely candidate.  This would take place in cracks formed by bubbles at
 dislocations, and those investigators who did not have the right conditions
 for this to occur, observe nothing. E.g., the optimum temperature range is
 -100..0 degC, and most people work outside this. Ion implanation would not
 lead to bubbles and in any case, any neutrons from MHF would be overwhelmed
 from self target effects. Neutrons must be measured at very low background,
 not easy. Lastly, the burst frequency is rather low and one must wait a
 sufficient time. These four factors conspire to prevent the detection of
 MHF. The paper gives 108 references, most of which are "real" (as opposed to
 preprints or conferences).}
}
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@article{Kueh1991b,
 author    = {R.~W. K{\"u}hne},
 title     = {Cold fusion: pros and cons},
 journal   = {Phys. Lett. A},
 volume    = {155},
 year      = {1991},
 pages     = {467--472},
 keywords  = {Review},
 submitted = {06/1990},
 published = {05/1991},
 annote    = {A sort of review of the cold fusion scene, stating some of the
 arguments for and against, as marshalled by the various authors. K himself
 refrains from suggestions, beyond the odd calculation or small comment. 99
 refs.}
}
@article{Kumag1991,
 author    = {H. Kumagai and S. Nakabayashi and S. Yamagata and S. Isomura
              and T. Ichihara and K. Yoshida and T. Suzuki and K. Takahashi
              and A. Kira and I. Tanahata},
 title     = {Attempts in detection of neutrons on so-called cold nuclear
              fusion},
 journal   = {J. Phys. Soc. Japan},
 volume    = {60},
 year      = {1991},
 pages     = {2594--2601},
 keywords  = {Experimental, electrolysis, Pd, Ti, neutrons, res-},
 submitted = {02/1991},
 published = {08/1991},
 annote    = {The authors note that there is a substantial discrepancy
between
 the results of Fleischmann and "Ponse" and of Jones et al; they even
question
 whether these teams observed the same phenomenon. In any case, if fusion
 takes place, they write, neutrons must be emitted. Low background and a
 stable detection are essential for measuring neutrons. All radiation events
 were here accumulated one by one, enabling later off-line analysis. Two
 identical detectors were used, and some anomalous artifacts were
 rejected. The counters were of the NE-213 scintillation type and Pb blocks
 shielded them from gammas.  Paraffin reduced cosmic fast neutron influx. The
 background ended up as 0.025 cps neutrons and 25 cps gammas for each
 detector. Two separate methods for neutron/gamma discrimination were used.
In
 one experiment, a Pd rod, degassed at $10^{-6}$ Torr at 600 degC and cooled
 in D2 gas was used as cathode in an electrolysis at 100-200 mA/cm$^2$ in
0.1M
 LiOD. A Pd/Ti rod, and a Pd pipe were also used. Pulsed operation was
 tried. In another experiment, Pd/Ti alloy and a Ti alloy containing 6\% V,
 6\% Al and 2\% Sn, were exposed to D2 gas at 50 atm, cooled to 77K and heat
 cycled. In no case were any significant neutron emissions
 detected. Significantly, however, one of the detectors (but not the other)
 did show increased counts, and the spectrum could have been interpreted as
 having a peak at 2.5 MeV. The authors warn that multiple detectors are
 essential.}
}
@article{Kumar1991,
 author    = {K. Kumar and I.~S. Hwang and R.~G. Ballinger
              and C.~R. Dauwalter and A. Stecyk},
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 title     = {Analyses of palladium cathodes used for heavy water
              electrolysis},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {178--187},
 keywords  = {Experimental, electrolysis, Pd, structure, res-},
 submitted = {07/1990},
 published = {01/1991},
 annote    = {Since the various cold fusion experiments' results have
depended
 on the particular palladium used, it is important to characterise it. This
 paper reports a post-mortem examination of some cathodes after long
 electrolysis, including one that showed positive results. The 4mm*10cm rods
 were vacuum annealed for 196 h at 800 degC. They were examined later for
D/Pd
 ratio, microstructure, X-ray structure and chemistry. The loading was found
 to be about 0.7. EDAX showed that the Johnson \& Mathey supplied rods,
 supposed to be cast, were in fact cold worked and heat treated. There were
 differences in the grain structure between the top and bottom of the rods;
at
 the top, there was some Pd mixed with PdD0.7. This may be due to uneven
 current distribution. No dendritic structures were seen on the surface.
There
 was surface degradation.  The charging time was measured from evolved gas
 volumes, and had a time constant of about 5 h (my estimate), being complete
 at 14-16 h. SIMS showed traces of species with masses 3 and 4 but at very
low
 level, and these findings were not repeated.}
}
@article{Laws1991,
 author    = {D.~R. Lawson and M.~J. Tierney and I.~F. Cheng
              and L. S. {van Dyke} and M.~W. Espenscheid and C.~R. Martin},
 title     = {Use of a coulometric assay technique to study the variables
              affecting deuterium loading levels within palladium
electrodes},
 journal   = {Electrochim. Acta},
 volume    = {36},
 year      = {1991},
 pages     = {1515--1522},
 keywords  = {Experimental, loading measurement},
 submitted = {07/1990},
 published = {08/1991},
 annote    = {The problem of the determination of deuterium loading is looked
 at here.  One way is to reverse the electrolytic current, and to measure the
 total charge needed to drive out the deuterium again. This is carefully
 compared with the rough-and-ready method of wiping and weighing. Some
 interesting results are obtained. At no current densities did the loading
 (D/Pd) exceed 0.73 or so; for light water, H/Pd was 0.8; the wipe \& weigh
 method gives much the same result; gas bubbles, or gas dissolved in the
 electrolyte do not significantly interfere with the measurements. Two
 electrochemical poisons were also tried, since some workers believe that
 these might force a higher D/Pd ratio. Neither thiourea nor As2O3 succeeded
 in this.}
}
@article{Lee1991,
 author    = {K.~P. Lee and S.~W. Kim and K.~U. Choi and S.~T. Hwang},
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 title     = {Cold Fusion},
 journal   = {Anal. Sci. Technol.},
 volume    = {4},
 number    = {1},
 year      = {1991},
 pages     = {103--107},
 note      = {In Korean},
 keywords  = {Review},
 annote    = {"Review of room temp. nuclear fusion phenomena controversy
 started by Fleishmann [sic] and Pons with 8 refs." (Direct quote from CA
 117:259455 (1992)).  The article shows a stylised figure of an
 electrochemical cnf cell, gives some general fusion background, describes a
 spectrum of cnf experiments, the problem of Coulomb barrier to fusion,
 tunnelling and screening.}
}
@article{Lewe1991a,
 author    = {B.~V. Lewenstein and W. Baur},
 title     = {A cold fusion chronology},
 journal   = {J. Radioanal. Nucl. Chem.},
 volume    = {152},
 year      = {1991},
 pages     = {273--298},
 keywords  = {Sci-soc, chronology},
 submitted = {01/1991},
 annote    = {Science historian-philosophers Lewenstein and Baur have
compiled
 a useful chronology of key events in the cold fusion saga, starting with
 Paneth and Peters in 1926, the 1927 patent application of John Tandberg,
some
 early speculation on fusion in hydrides; the idea, and its verification, of
 muon catalysed cold fusion, the early Jones work, and (now getting denser in
 time) the recent events that gave a new special meaning to the term "cold
 fusion".  There are 163 references, many of them from the press. This paper
 is an invaluable aid to anyone studying this science-sociological
 phenomenon.}
}
@article{Lewe1991b,
 author    = {B.~V. Lewenstein},
 title     = {Preserving data about the knowledge creation process.
             Developing an archive on the cold fusion controversy},
 journal   = {Knowledge: Creation, Diffusion, Utilization},
 volume    = {13},
 year      = {1991},
 pages     = {79--86},
 keywords  = {Sci-soc},
 published = {09/1991},
 annote    = {A sci-soc paper, using cold fusion as a case. The Cornell Cold
 Fusion Archive (CCFA) is described, as well as some of the problems of
 setting it up.  The archive comprises published papers, mass media reports,
 electronic messages, some manuscript material (letters, notebooks, seminar
 notes etc), even some experimental apparatus and joke items, and taped
 interviews. L argues that, even if CNF is shown to be false, the process of
 showing that itself will be of great interest, and this archive will help.}
}
@article{Lewis1991,
 author    = {D. Lewis},
 title     = {Some regularities and coincidences in thermal,
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              electrochemical and radiation phenomena observed in
              experiments at Studsvik on the Fleischmann-Pons effect},
 journal   = {J. Electroanal. Chem.},
 volume    = {316},
 year      = {1991},
 pages     = {353--360},
 keywords  = {Discussion, autopolemic, res+},
 submitted = {07/1991},
 published = {10/1991},
 annote    = {A previous paper by Lewis and Skoeld reported finding some
 excess heat.  In that paper, it was noted that the start of temperature
 excursions occurred after topping up with fresh D2O, and other workers have
 also noted this. The old L\&S data is analysed here and it is seen that out
 of 11 runs showing excess heat, 9 showed this effect, with a delay time < 15
 min (this being the sampling time). Simultaneously, there was a rise in cell
 voltage, probably due to the change in electrolyte conductance. At the time,
 no neutron emission flares were found associated with these events. However,
 now the data has been compared with solar flare data and one such flare
 correlated with the extinction of a thermal event in the cell. To test this
 unlikely connection, Lewis placed a (252)Cf neutron source near the cell,
and
 observed the extinction of another thermal event; in a third case, a thermal
 event was accompanied by some neutron emission, i.e. the opposite effect.
The
 first effect might be consistent with resonance theories, and the second
 effect with theories involving the (4)He branch. Cold fusion seems to be
 indicated by the level of the thermal events.}
}
@article{Liaw1991,
 author    = {B.~Y. Liaw and P.~L. Tao and P. Turner and B.~E. Liebert},
 title     = {Elevated-temperature excess heat production in a Pd + D
system},
 journal   = {J. Electroanal. Chem.},
 volume    = {319},
 year      = {1991},
 pages     = {161--175},
 keywords  = {Experimental, salt melt electrolysis, Pd, heat, helium, res0},
 submitted = {03/1991},
 published = {12/1991},
 annote    = {This team used a new approach to a cold fusion electrolysis,
 employing a molten salt electrolyte instead of the usual 0.1M LiOD heavy
 water one. They perform the electrolysis at a Pd anode [sic] in a LiCl and
 KCl eutectic mixture at above 350 degC; the eutectic was saturated with LiD,
 providing D- ions in the melt. This strong reductant removes oxide from the
 metal and is also the source of deuterium, upon oxidation at the Pd
 anode. The cathode was Al, and Li is deposited there. No gases are
generated,
 a decided advantage from many angles, not least the calorimetry. An
 isoperibolic calorimeter was used, with resistance heating for
 calibration. After the prolonged electrolysis, scanning electron microscopy
 (SEM) was used to examine surface changes on the Pd. The graph of power in
 vs. temperature shows a consistent slope during calibration and a much
 steeper slope for electrolysis; excess heats are calculated (in an unusual
 way) as high as 1500\% or over 7 MJ/mol D2, strongly indicating a
 super-chemical process. There was no correction for the thermoneutral power,
 so these figures may be low. Some metals, notably Fe and Zn were found on
the
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 surface afterwards. Some preliminary experiments using LiH (a possible
 control) have been carried out without excess heat being found, and will be
 reported elsewhere.}
}
@article{Linf1991,
 author    = {R.~K. Linford},
 title     = {What do we know? What do we think?},
 journal   = {J. Fusion Energy},
 volume    = {10},
 year      = {1991},
 pages     = {121--122},
 keywords  = {Panel Discussion},
 published = {03/1991},
 annote    = {The author took part in a panel discussion on cold fusion,
later
 published in this journal. He refers to a conference at Santa Fe on cold
 fusion and summarises the reported results there, pointing out the
 discrepancies between reported excess heat and the equivalent numbers of
 watts from the observed fusion products. Tritium was reported from cells
 where calorimetry was not done, and other problems existed. More
coordination
 between workers is needed. In Rees1990}
}
@article{Lips1991a,
 author    = {A.~G. Lipson and B.~F. Lyakhov and B.~V. Deryagin
             and V.~N. Kudryavtsev and Yu.~P. Toporov and V.~A. Klyuev
             and M.~A. Kolobov and D.~M. Sakov},
 title     = {Reproducible neutron emission by the combined effect of
             cavitation and electrolysis at the surface of a titanium
cathode
             in electrolyte based on heavy water},
 journal   = {Pis'ma Zh. Teor. Fiz.},
 note      = {In Russian},
 volume    = {17},
 number    = {21},
 year      = {1991},
 pages     = {33--37},
 keywords  = {Experimental, Ti, electrolysis, fracto-, vibrator, neutrons,
             res+},
 submitted = {10/1991},
 published = {11/1991},
 annote    = {The Ti cathode was vibrated strongly at a frequency of 15 kHz
 and amplitude of 15 micrometres; cathodes and anodes were separated by a
 glass frit membrane. Both alkaline (1M NAOD) and acid (0.2M D2SO4)
 electrolytes were tried, as well as the use of Ti powder in
 suspension. Electrolysis currents were in the range 1-100 mA/cm$^2$. A
 neutron detector as described previously, was used. Many cycles of
 electrolysis-vibration-electrolysis, were alternated.  In alkaline solution,
 neutrons were observed at about 20-25 times the background during cavitation
 (vibration), and a post-effect of 30 times background during electrolysis
 subsequent to vibration. In acid solution, during vibration: 25 times with a
 post-effect of 5 times background. With the Ti dispersion present, resp. 30
 and 15 times the background (alkaline) and 25 and 5 (acid).}
}
@article{Lips1991b,
 author    = {A.~G. Lipson and V.~A. Kuznetsov and B.~V. Deryagin},
 title     = {Scenarios of 'cold nuclear fusion' by concentration
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                of elastic energy in crystals},
 journal   = {Dokl. Akad. Nauk. Fiz. Khim.},
 volume    = {318},
 number    = {3},
 year      = {1991},
 pages     = {636--639},
 note      = {In Russian},
 keywords  = {Theory, fracto-, res+},
 submitted = {01/1991},
 annote    = {Another in the fractofusion series. Here the authors draw upon
 earlier work on mechanical crushing of crystals, where the L-factor was
 conceived, i.e. the compressional resistance of the material. This leads to
 the idea of nonuniform absorption of elastic energy in isolated crystal
 microregions, called supercondensates. Application of Heisenberg's
 uncertainty principle and some mathematics leads to a life time of such
 (virtual) supercondensates of about $10^{-22}$ s, and further development
 makes fractofusion feasible by this mechanism. It might be helpful to apply
 lasers to metal deuterides for extra compression and possibly the production
 of quarks, perhaps observed by Shaw et al for cryo-shocked Nb spherules.}
}
@article{Lips1991c,
 author    = {A.~G. Lipson and D.~M. Sakov and Yu.~P. Toporov
              and V.~V. Gromov and B.~V. Deryagin},
 title     = {The possibility of 'cold nuclear fusion' in deuterated ceramic
              YBa2Cu3O(7-x) in the superconducting state},
 journal   = {Sov. Dokl.},
 note      = {Orig. in: Dokl. Akad. Nauk SSSR 321(5) (1991) 958, in Russian},
 volume    = {36},
 year      = {1991},
 pages     = {849--851},
 keywords  = {Experimental, HTSC ceramics, neutrons, res+},
 submitted = {10/1991},
 annote    = {Solid state mechanisms proposed for cold fusion might be
 illuminated by an experiment using the recently discovered high temperature
 superconducting (HTSC) ceramic materials such as the title material, for 0.1
 <= x <= 0.4. For x = 0.1, the transition temp is 91K, comfortably above 77K,
 the boiling point of liquid nitrogen. The material was made up into small
 disks, 6.5 mm dia and 1 mm thickness, and placed variously into D2O or H2O,
 as such, and also containing 1M NaOD or NaOH, resp. The disks were verified
 to be without defects and to have the proper transition temp. Pure Cu disks
 were also used as controls. After a 10-min exposure to the solution, the
 samples were frozen to 77K and neutron emissions measured by a block of 7
 boron neutron detectors of nominal efficiency 1.5\%; subsequently they were
 warmed up again. A 2-week period established the neutron background, which
 consisted mainly of single neutron events and a total of only 10 double
 events, none higher. The superconducting disks, and only these, emitted
 neutrons at 5 sigma above the background, if frozen below 91K. There were 3-
,
 4- and even 5-neutron events.  At higher temperatures, emissions were as for
 the background; all controls were like this. The authors speculate on crack
 formation due to deuteriding, causing oxygen vacancies near the disk surface
 and the formation of polarons or excitons and the penetration of the Coulomb
 barrier. An alternative is the qcharge separation in fresh cracks,
 i.e. fractofusion.}
}
@article{Loba1991,
 author    = {V.~V. Lobanov and A.~S. Zetkin and G.~E. Kagan and V.~E. Demin
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             and I.~I. Mil'man and A.~I. Syurdo},
 title     = {Studies of neutron emission from TiFe alloy loaded with
             deuterium at room temperature},
 journal   = {Soc. Tekh. Phys. Lett.},
 note      = {Orig. in: Pis'ma Zh. Teor. Fiz. 17(23) (1991) 22, in Russian},
 volume    = {17},
 year      = {1991},
 pages     = {832--833},
 keywords  = {Experimental, alloy, Ti, Fe, gas phase, neutrons, res+},
 submitted = {06/1991},
 published = {12/1991},
 annote    = {The alloy (46.14 at\% Fe) was loaded preliminarily by exposure
 to D2 gas to a mass\% of 0.41 D2 (I make that a loading of close to 0.1
 D/metal). The temperature was cycled up to 882 degC under 600 Torr of D2; at
 600 degC, the alloy went into the alpha phase, and between 600-882, into the
 mixed alpha- and beta phase. Many cycles of charging and vacuum degassing
 were carried out.  After thermocycling, the sample was cooled in a D2
 atmosphere to room temp.  and kept for some hours. Neutrons were measured by
 a scintillation radiometric dosimeter, type MKS-01R, the detector block was
 of 155 mm diameter and could detect integrated neutrons in the energy range
 $10^{-3}$ to 14 MeV.  Differentiation produced instantaneous neutron fluxes,
 and were seen to be 125 and 760 times the known background for two runs
 respectively, arriving in bursts. This shows that neutron bursts are given
 off by TiFe alloy treated in this way.}
}
@article{Lowt1991,
 author    = {J.~E. Lowther},
 title     = {Hot spots in palladium hydride and cold fusion},
 journal   = {Suid-Afrik. Tydskr. Wetenskap},
 volume    = {87},
 year      = {1991},
 pages     = {17--18},
 keywords  = { Discussion, suggestion, phase transitions},
 published = {01/1991},
 annote    = {L says that cold fusion has been discredited as a nuclear
effect
 but that the anomalous excess heat is real and significant. In this article,
 the author reflects on Pd hydride and suggests a possible explanation. This
 is the segregation of two different phases PdHp and PdHq which form an
 unstable mixture at their interfaces and thus, perhaps, local hot
 spots. These may be the origin of the anomalous heat.}
}
@article{Marti1991,
 author    = {S.~E. Martin},
 title     = {Using expert sources in breaking science stories:
             A comparison of magazine types},
 journal   = {Journalism Quarterly},
 volume    = {68},
 year      = {1991},
 pages     = {179--187},
 keywords  = {Sci-soc discussion},
 annote    = {Martin askes the question whether there is a significant
 difference between scientific journals and the popular press (in which she
 includes Scientific American) in the number of experts cited in the
 material. There is not, for the case of 'cold fusion'. There was more
 variability in the number of expert sources drawn upon by business journals
 than in all others.}
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}
@article{Marty1991,
 author    = {M.~I. Martynov and A.~I. Mel'dianov and A.~M. Chepovskii},
 title     = {Experiments on the detection of nuclear reaction products
              in deuterated metals},
 journal   = {Vopr. Atom. Nauki i Tekh., Ser. Termoyader. Sintez},
 year      = {1991},
 number    = {2},
 pages     = {77--81},
 note      = {In Russian},
 keywords  = {Experimental, neutrons, gammas, charged particles,
electrolysis,
              ion beam, res+},
 submitted = {01/1991},
 published = {02/1991},
 annote    = {This team tried two kinds of experiments: an electrolysis, and
 an ion beam experiment. For electrolysis, LiOD in D2O was the electrolyte,
 and a Pd foil of 40 mu thickness and about 1 cm$^2$ area the cathode. One
 side of the foil was exposed to the electrolyte, the other was isolated from
 it, and a detector of charged particles (cp's) mounted close to it. At 300
 mA/cm$^2$, and over an observation time of 10-20 h, no cp's above background
 were observed. There were two ion beam runs, using H, D and Xe ions. With a
 D-beam, run for 200 h at 1-2 keV onto a TiD target at 400 C, the n count
went
 up to about 3 times the background noise, and remained at this level after
 the beam was switched off. H and Xe beams did not produce n counts above
 background. The neutron detector was a triple 3He type, with a
discriminator.
 Gamma results are not mentioned.}
}
@article{Matsu1991a,
 author    = {T. Matsumoto and K. Kurokawa},
 title     = {Observation of heavy elements produced during explosive
              cold fusion},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {323--329},
 keywords  = {Experimental, electrolysis, Pd, MS, transmutation, res+,
              no FPH/Jones refs},
 submitted = {03/1991},
 published = {11/1991},
 annote    = {The authors take it as given that large concentration of
 hydrogen at Pd grain boundaries will initiate cold fusion. When hydrogen is
 forced to move in the metal, this will cause such local concentrations and
 thus bursts of fusion. A Pd rod was charged electrolytically in a 3\% NaCl
 solution in D2O, and when fully loaded, the top of the rod was exposed to
the
 gas head, thus forcing deuterium to move through the rod. This resulted in a
 small-scale explosion in one case, due to hydrogen but aided by heat from
 cold fusion. The gas within the Pd was analysed afterwards by MS and masses
 of 2, 3, 4, 6, 17, 18, 19 and 20 were found. SEM and EDX showed the presence
 of ruthenium and indium, as well as a host of other elements, products of
the
 transmutation of Pd, say the authors. Within the grain structure, Si, S and
 Ca were also seen.  So we have explosive cold fusion, and the authors
predict
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 its use in car engines, and a future for "industrial alchemy".}
}
@article{Matsu1991b,
 author    = {T. Matsumoto},
 title     = {Observation of quad-neutrons and gravity decay
              during cold fusion},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {2125--2130},
 keywords  = {Analysis, film tacks, quad neutrons, res+, no FPH/Jones refs},
 submitted = {09/1990},
 published = {07/1991},
 annote    = {M's iton theory of cold fusion might also predict the emission
 of 4-neutron nuclei, which would escape from the cell, to disintegrate in
the
 emulsion of the detector film. Nuclear emulsions left from the author's
 previous experiments were carefully reexamined and some ring-shaped tracks
 found that might be due to these quad neutrons undergoing microexplosions
due
 to gravity, like a neutron star, after being compressed to a single
 point. Theory says that these quad neutrons have a life time of only
 $10^{-23}$ s, and thus should not reach the emulsion; their observation,
 however, means that this theory needs to be modified. Cold fusion, then,
 because of the extremely high hydrogen pressure, is a small-scale simulation
 of the processes taking place in a dying star, and we are tapping
 gravitational energy here.}
}
@article{Matsu1991c,
 author    = {T. Matsumoto},
 title     = {Microscopic observations of palladium used for cold fusion},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {567--575},
 keywords  = {Analysis, film tracks, res+, no FPH/Jones refs},
 submitted = {09/1990},
 published = {05/1991},
 annote    = {The Nattoh model of cold fusion says that cnf takes place as a
 chain reaction at grain boundaries. One of the candidates would be so
 energetic as to leave behind marks of damage in the crystal structure of the
 Pd deuteride, and M looks for evidence in this work, using microscopy. Pd
 rods, used as cathodes in heavy as well as light water electrolysis, were
cut
 in an axial plane, and first looked at optically, then by SEM. In both H2O
 and D2O, although the mechanism may be different, cold fusion takes place,
 and M finds the tell-tale areas of damage.}
}
@article{Maye1991a,
 author    = {F.~J. Mayer and J.~R. Reitz},
 title     = {Nuclear energy release in metals},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {552--557},
 keywords  = {Suggestion, polyneutrons, CIF connection},
 submitted = {10/1990},
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 published = {05/199},
 annote    = {A new "scenario" is proposed that might explain what is known
 about cold fusion and can suggest new directions for cnf experiments. The
 knowns are (all approx.) neutrons: 1000/s; tritium: $10^{11}$/s; little or
no
 (3)He or (4)He; no d-t neutrons or gammas; everything comes in bursts. The
 lack of energetic secondaries, often cited as THE major problem, is
 significant. There is some recent speculation about the brief combination of
 an electron with protons, deuteron or triton, making a virtual mono-, di- or
 tri-neutron. This might last about 60 microsec, enough time to do
 stuff. These might incidentally explain the anomalously high diffusion rate
 of hydrogen (isotopes) in Pd.  Virtual trineutrons could react with (106)Pd
 but there is not enough tritium.  Virtual dineutrons cannot do this, but can
 react with some impurities that are deposited during electrolysis, such as
 Pt, U. The scenario can be tested by controlling impurity types and
 levels. It is also consistent with known facts of cnf, as well as with the
 related field of cluster impact fusion, also anomalous (though now
defunct).}
}
@article{Maye1991b,
 author    = {F.~J. Mayer and J.~R. Reitz},
 title     = {On very low energy hydrogenic nuclear reactions},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {367--372},
 keywords  = {Theory, hydron, CIF connection,  res+},
 submitted = {05/1991},
 published = {11/1991},
 annote    = {The much-discussed hydron theory, which might explain the
 family of anomalous observations: cold fusion, cluster impact fusion (CIF)
 and the exploding LiD wires of Lochte-Holtgreven, 1987. A set of
calculations
 is presented for estimating the nuclear reaction rates and characteristics
of
 this new class of hydrogenic objects, and these are tied to data. There is
 rough agreement with CIF results; the authors have previously also explained
 excess heat without radiation from CNF by the model. Unfortunately, CIF has
 been shown to be an artefact.}
}
@article{Maye1991c,
 author    = {F.~J. Mayer},
 title     = {Comments on 'Excess heat production by the electrolysis
              of an aqueous potassium carbonate electrolyte and the
              implications for cold fusion'},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {511.},
 keywords  = {Polemic},
 submitted = {07/1991},
 published = {12/1991},
 annote    = {FJM comments critically on Mills and Kneizys' paper in ibid 20
 (1991) 65.  He sets aside the doubtful "theory" (FJM's quote marks) of the
 authors, but points out an alternative explanation of the excess heat. This
 is the effect on the electrolyte conductivity of the radioactive decay of
 (40)K present in all potassium salts. If the conductivity changes, the
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 calorimetry calibration may be wrong. There is no such effect with Na, which
 accounts for the lack of excess heat with sodium carbonate (M\&K's control),
 whereas with Rb there is the effect (from the (87)Rb), again consistent with
 M\&K's paper. Mayer suggests the use of Lu, which also has a radioactive
 isotope but may not fit with the M\&K theory. Finally, in normal cold fusion
 calorimetry, the production of tritium may also have this effect on
 conductivity and should be watched for.}
}
@article{Mend1991,
 author    = {R.~V. Mendes},
 title     = {Ergodic motion and near collisions in a Coulomb system},
 journal   = {Mod. Phys. Lett. B},
 volume    = {5},
 year      = {1991},
 pages     = {1179--1190},
 keywords  = {Theory},
 submitted = {05/1991},
 annote    = {This explores the possibilities of many body processes taking
 place between charged particles in chaotic motion, as in metal deuterides,
to
 perhaps find factors that might enhance the rate of d-d fusion. Dynamic
 effects - near collisions of ergodically moving particles - and/or
collective
 effects are the likely suspects. It is found that three-body collisions
would
 dominate, the bodies being two d's and one electron. The mass of the
electron
 does not need to be greater than normal. Rather large rates of instances of
 close proximity are calculated, and emphasise the fact that the charged
 particles are not at rest but in energetic motion. A fusion rate is not
 computed, however. The author makes some suggestions for how fusion might be
 favoured, based on this.  Cluster impact fusion (now defunct) is mentioned
in
 connection with solid state (cold) fusion.}
}
@article{Meng1991,
 author    = {G. Mengoli and M. Fabrizio and C. Manduchi and G. Zannoni
              and L. Riccardi and F. Veronesi and A. Buffa},
 title     = {The observation of tritium in the electrolysis of D2O
              at palladium sheet electrodes},
 journal   = {J. Electroanal. Chem.},
 volume    = {304},
 year      = {1991},
 pages     = {279--287},
 keywords  = {Experimental, electrolysis, surface poisoning, tritium, res+},
 submitted = {11/1990},
 published = {04/1991},
 annote    = {Electrolysis at sheets down to 0.1 mm thickness. Loadings of
 0.8-0.9 were achieved, measured by reverse electrolysis. Tritium was
analysed
 by means of aliquots taken from the electrolyte. D2O levels were kept up by
 addition of more D2O; the authors compensate the tritium results for the
fact
 that the D2O added contained much less tritium than that originally in the
 cell. Many cells show no tritium produced, but some do, at significant
 levels, above those that can be attributed to electrolytic
 enrichment. Thiourea and As2O3 were used to poison the Pd surface, to aid
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 deuterium loading.}
}
@article{Meye1991,
 author    = {W.~E. Meyerhof},
 title     = {Statistical analysis of a 'cold fusion' experiment},
 journal   = {J. Radioanal. Nucl. Chem., Lett.},
 volume    = {153},
 year      = {1991},
 pages     = {391--398},
 keywords  = {Polemic},
 submitted = {01/1991},
 published = {04/1991},
 annote    = {Meyerhof looks at the results of Yagi et al, which these
authors
 take as evidence for cold fusion neutron emission. If it were, it would have
 to follow normal neutron emission statistics in the form of Poisson
 distributions of the number of counts found in a given time interval;
 certainly the background counts should follow this. Analysis of the results
 of Yagi et al show that only one set fits this requirement clearly, one is a
 borderline case and one (the background!) does not fit it at all. All
neutron
 measurement ought to undergo such analysis, says M, to ascertain its
 trustworthiness. He further points to recent results (Aberdam et al) setting
 the cold fusion upper limits at a very low $10^{-26}$ fus/s/pair.}
}
@article{Mill1991,
 author    = {R.~L. Mills and S.~P. Kneizys},
 title     = {Excess heat production by the electrolysis of an aqueous
              potassium carbonate electrolyte and the implications for
              cold fusion},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {65--81},
 keywords  = {Theory, experimental, hydrino, light water, Ni, electrolysis,
              calorimetry, res+},
 submitted = {02/1991},
 published = {08/1991},
 annote    = {This paper starts with a long theoretical part, introducing
 the Mills and Farrel theory (published in a book). It seems that cold fusion
 shows that, since the Schroedinger equation does not explain it, this
 equation is not applicable to cold fusion. M\&F's theory, on the other hand,
 is. It leads to shrunken hydrogen atoms; absorption of energy quanta at
27.21
 eV can push electrons down to a lower shell, and these shrunken atoms are
 then able to approach closer to one another. The theory predicts certain
 optimal conditions such as the presence of K or Rb ions. This is followed by
 an experiment with a Ni cathode in a K2CO3 electrolyte in H2O, and rather
 simple calorimetry. The results are massive excess heats, up to nearly
 4000\%, but no excess with a Na2CO3 control. A Rb electrolyte works also.
The
 theory also explains why it works for Pd in D2O, and the skew branching
 ratio.}
}
@article{Mizu1991,
 author    = {T. Mizuno and T. Akimoto and K. Azumi and N. Sato},
 title     = {Tritium evolution during cathode polarization of palladium
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              electrode in D2O solution},
 journal   = {Denki Kagaku},
 volume    = {59},
 year      = {1991},
 pages     = {798--799},
 note      = {In Japanese},
 keywords  = {Experimental, electrolysis, Pd, tritium, res+},
 submitted = {03/1991},
 annote    = {Tritium in the electrolyte was measured, before and after
 electrolysis.  There was also a temperature probe at the top of the Pd
 rod. The cell was sealed and heated to various temperatures. There were some
 pressure peaks lasting a month or so over the 200 day experiment. The
tritium
 level increased by about 50\% and the authors equate this to a fusion rate
of
 $10^{-23}$ fus/pair/s, roughly in line with Jones+89.}
}
@article{Moiz1991,
 author    = {B.~Ya. Moizhes},
 title     = {Formation of a compact D2 molecule in interstitial sites
              - a possible explanation for cold nuclear fusion},
 journal   = {Sov. Tech. Phys. Lett.},
 note      = {Orig. in: Pis'ma Zh. Tekh. Fiz. 17 (1991) 15},
 volume    = {17},
 year      = {1991},
 pages     = {540--541},
 keywords  = {Discussion, theory},
 submitted = {04/1991},
 published = {08/1991},
 annote    = {Cold fusion has been observed, says Moizhes, and only remains
 to be explained. One possibility is the statistical close approach of two
 deuterons due to screening. The question is whether a stable D2 molecule can
 form in the deuteride crystal, and what the d-d distance in it would
 be. Electron overlap between the D2 and the Pd centres would compress the
 molecule to about 0.3 A and the resulting energy makes it feasible that an
 electrolysis voltage of 10V or so could force two d nuclei into an
 interstitial site, enabling Jones levels of fusion. More work is needed to
 confirm this.}
}
@article{Morr1991,
 author    = {D.~R.~M. Morrison},
 title     = {Review of cold fusion},
 journal   = {Sov. Phys. Usp.},
 volume    = {34},
 year      = {1991},
 pages     = {1055--1060},
 keywords  = {Review},
 submitted = {07/1991},
 published = {12/1991},
 annote    = {DROM reviews cold fusion for this Russian journal. This is
taken
 from an address given by him at a meeting in Honolulu on July 1990. He
 recites the short history of the field, shows the usual three d-d fusion
 branches and then a chronology of cold fusion events, up to June 1990. This
 is followed by a summary of experimental results, reporting steady neutron
 production, the Frascati-type results, neutron bursts, x-rays, tritium,
 charged particles and calorimetry. The balance of all this is that nothing
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 can be reproduced, and the evidence is against cold fusion. DROM then states
 three experiments that should be critical for believers: the Williams et al
 experiment, the GE report and the Salamon team's monitoring of nuclear
 products under Pons' experiment.  All three were negative and should give
 pause to a believer. Pathological science is invoked; cold fusion is an
 error.}
}
@article{Myer1991,
 author    = {S.~M. Myers and P.~M. Richards and D.~M. Follstaedt
              and J.~E. Schirber},
 title     = {Superstoichiometry, accelerated diffusion, and nuclear
reactions
              in deuterium-implanted palladium},
 journal   = {Phys. Rev. B},
 volume    = {43},
 year      = {1991},
 pages     = {9503--9510},
 keywords  = {Experimental, ion beam, Pd, neutrons, res0},
 submitted = {07/1990},
 published = {04/1991},
 annote    = {Samples of Pd foil, both vacuum annealed and untreated, were
 exposed to a deuterium beam at 10 keV and 41K, and 30 keV and 81K. At
 temperatures below about 120K, the authors find that Pd can absorb more than
 unity D/Pd ratio of deuterium. When the beam is turned off, however, the
 emission of neutrons has the same spectrum as that of the background. Thus,
 for this fairly short-term experiment, the upper cold fusion limit is about
 $10^{-21} \dots 10^{-20}$. The paper goes into some interesting detail about
 deuterium diffusion in Pd and its temperature dependence.}
}
@article{Nefe1991,
 author    = {V.~I. Nefedov},
 title     = {Cold nuclear fusion?},
 journal   = {Vestnik Akad. Nauk SSSR},
 year      = {1991},
 number    = {1},
 pages     = {49--60},
 note      = {In Russian},
 keywords  = {Review, Russian work},
 annote    = {A review, paying special attention to work in the Soviet Union.
 Early history is mentioned, e.g. one V.P. Alikin (1970, newspaper reports
 only), who electrolysed (heavy?) sulphuric acid at Fe, but also used metal
 hydrides by gas absorption. In 1986, Deryagin had trouble getting their
 fracto-work published. This has been actively pursued in 1989 (and
 later). Several Soviet institutions had a go, notably a large effort at
 Kharkov, with negative results). The author leaves no doubt that he is a
 skeptic. He writes that Soviet efforts are in harmony with the rest of the
 world, that is, the results are mostly negative. The work at the
 Physics-Energy Institute at Obninsk is cited as an example of a responsible
 approach. These workers appeared to observe high neutron fluxes from several
 meters, but on investigating found that this was due to electromagnetic
 interference. Nefedov concludes with some philosophising, making comparisons
 with parapsychology and some comments on science sociology.}
}
@article{Nish1991,
 author    = {K. Nishizawa},
 title     = {Neutron measurements in cold fusion},
 note      = {In Japanese, Engl. abstr.},
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 journal   = {Hoshasen},
 volume    = {17},
 number    = {1},
 year      = {1991},
 pages     = {4--12},
 keywords  = {Experimental, gas phase, Pd, neutrons, res0},
 submitted = {09/1990},
 published = {01/1991},
 annote    = {"This paper describes an experience of neutron monitoring in
 cold fusion experiments in gas phase. A BF3 neutron dose rate meter was
 mainly used. The meter in our experiment on D2 gas discharge was free from
 noise to be counted.  A slightly over-discharge of the batteries affects the
 pulse height of the counter although the rate meter of the counter responds
 regularly. False pulses were counted in high humidity". (Direct quote from
 the English abstr.).  Fig. 1 shows what look like 5 neutron counters around
 the cell, and an MCA between the amplifier and the computer. Two Pd rods are
 used, in a 300 ml glass flask filled with D2 gas, at close to atm. pressure
 (rubber stoppers are shown). This, together with the referenc to Wada +
 Nishizawa, looks as if the author might have applied a spark between the two
 loaded Pd rods. As is seen, the abstract does not say whether neutrons were
 found but it does say some false readings were obtained.}
}
@article{Noni1991a,
 author    = {V.~C. Noninski and C.~I. Noninski},
 title     = {Determination of the excess energy obtained during the
              electrolysis of heavy water},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {364--368},
 keywords  = {Experimental, electrolysis, Pd, calorimetry, res+},
 submitted = {07/1990},
 published = {03/1991},
 annote    = {Calorimetric experiments, using a bundle of thin Pd wire as
 cathode, and K2SO4 in D2O as electrolyte. After "lengthy" preelectrolysis,
in
 which the Pd is saturated with deuterium, the cell is moved into the
 calorimeter. Gases evolve into an airbag, also within the calorimeter. Very
 short measuring times (electrolyses) of about 3 min, are used. During this
 time, the cell temperature rose, and the rises were converted to heat
 produced by precalibration. With or without recombination, most of the 10
 runs reported show some excess heat. No controls are reported, but the
 authors claim that this calorimeter solves a number of problems.}
}
@article{Noni1991b,
 author    = {V.~C. Noninski and C.~I. Noninski},
 title     = {Comments on 'measurement and analysis of neutron and gamma-ray
              emission rates, other fusion products, and power in
              electrochemical cells having palladium cathodes'},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {579--580},
 keywords  = {Polemic},
 submitted = {11/1990},
 published = {05/1991},
 annote    = {The paper by Albagli et al, F. Fusion Energy 9 (1990) 133, is
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 commented upon here. Albagli et al did an open-cell calorimetry comparison,
 and the paper shows a drift in cell temperature, and the heat required to
 keep the cell at the same temperature. They attribute this to loss of
 solvent. Noninski and Noninski point out that this is not valid and that
 there in fact was evidence of excess heat in that paper.}
}
@article{Olof1991,
 author    = {G. Olofsson and I. Wads{\"o} and L. Eberson},
 title     = {Design and testing of a calorimeter for measurements on
              electrochemical reactions with gas evolution},
 journal   = {J. Chem. Thermodyn.},
 volume    = {23},
 year      = {1991},
 pages     = {95--104},
 keywords  = {Design, instrumental, calorimetry},
 submitted = {09/1990},
 published = {01/1991},
 annote    = {Cold fusion calorimetry places great demands on the
experimenter,
 because of the high currents and gas evolution, over long periods. Many
 calorimeter designs allow substantial rise in cell temperature, which itself
 introduces problems. Here, the authors present a better design, using
 thermopile heat conduction to carry heat out of the cell. Accuracy was
0.2\%.
 In this kind of setup, the calibration constant is not a function of the
heat
 capacity of the cell, unlike with other calorimeters. During electrolysis,
 even at the highest applied powers (up to 1W), cell temperature was not
 raised by more than 0.5K.  The results show no excess heat for any cell,
 within the experimental limits.}
}
@article{Ono1991,
 author    = {H. Ono and S. Takahashi and H. Morisaki and K. Yazawa},
 title     = {Absorption and desorption of hydrogen and deuterium
              into palladium},
 journal   = {Denki Tsushin Daigaku Kiyo},
 volume    = {4},
 year      = {1991},
 pages     = {235--242},
 note      = {In Japanese, Engl. abstr.},
 keywords  = {Experimental, SEM, electrolysis, Pd, neutrons, res-},
 published = {12/1991},
 annote    = {SEM was used to look at the surface morphology of Pd upon
 electrolysis in 0.1M LiOH and LiOD in normal and heavy water, resp. In LiOD,
 crater-like features appear on the Pd, but not in LiOH, after thousands of
 electrolysis hours. A neutron detector was placed into a Wada-Nishizawa-type
 glass bulb containing Pd and pressurised D2 gas, with an electric discharge
 passed between the Pd rods. No neutrons were observed above background.}
}
@article{Oyam1991,
 author    = {N. Oyama and O. Hatozaki},
 title     = {Present and future of cold fusion - nuclear fusion induced
              by electrochemical reaction},
 journal   = {Oyo Butsuri},
 volume    = {60},
 year      = {1991},
 pages     = {220--226},
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 note      = {In Japanese},
 keywords  = {Critical review},
 published = {01/1991},
 annote    = {Seems to be a review-type discussion of the CNF field, naming
 a few problems and describing the experimental variants.}
}
@article{Pali1991,
 author    = {E. Palibroda and P. Gl{\"u}ck},
 title     = {Cold nuclear fusion in thin foils of palladium},
 journal   = {J. Radioanal. Nucl. Chem. Lett.},
 volume    = {154},
 year      = {1991},
 pages     = {153--161},
 keywords  = {Experimental, electrolysis, Pd foil, poisoning, neutrons,
res+},
 submitted = {03/1991},
 annote    = {A 20 mu-thin foil of Pd was electrolytically charged with
 deuterium from an electrolyte 0.1M LiOD in D2O, and then poisoned with
 thiourea. Neutrons were measured with a (ZnS(Ag)?) detector not sensitive to
 gamma rays, another one being placed at 1.5 m for background monitoring.
 Counts were integrated over 10 min intervals. The cell was double-walled and
 inside a thermostat, with a recombination catalyst feeding the evolved gases
 back into the cell. There were 7 periods of neutron emissions, lasting from
 3.2 to 12.7 hours each, with a neutron intensity from 1.8 to 140 (mean)
times
 the background, or up to 300 times maximum. These emissions convert to
fusion
 rates up to $10^{-18}$ /s/pair.  The background was fairly constant
 throughout at about $112 \pm 12$ counts during inactive periods, and raised
 slightly to $216 \pm 46$ during active periods. No temperature data is
 reported, and no controls. The team will now attempt to make the experiment
 reproducible; they speculate that the poisoning did the trick.}
}
@article{Petr1991,
 author    = {O.~A. Petrii and G.~A. Tsirlina and E.~F. Simonov
              and V.~A. Safonov and E.~V. Lapshina},
 title     = {Attempts to detect electrochemical cold nuclear fusion
              by determining the excess tritium},
 journal   = {Sov. Electrochem.},
 volume    = {27},
 year      = {1991},
 pages     = {1240--1248},
 keywords  = {Experimental, electrolysis, Pd, tritium, res-},
 submitted = {04/1991},
 published = {11/1991},
 annote    = {Of the various signatures of fusion, tritium is not the most
 sensitive (lower limit = $10^{-17}$ - $10^{-19}$ fusion rate) but was chosen
 here nevertheless because it is urgent to detect it reliably. Careful
 attention was paid to controls, material purity. Pd alloys with different
 mechanical properties were used, to allow for fractofusion effects, and some
 trace metals were added in order to raise the overpotential at a given
 current density. Tritium was looked for in both the electrolyte and the
 evolved gas. No significant amounts were found in any experiments, beyond
 normal enrichment effects. The lower limit of the fusion rate is thus found
 to be $10^{-18}$. Future work, to detect protons from the same reaction, is
 planned, and should yield four orders of magnitude better sensitivity.}
}
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@article{Prep1991a,
 author    = {G. Preparata},
 title     = {Some theories of 'cold' nuclear fusion: a review},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {82--92},
 keywords  = {Review},
 submitted = {01/1991},
 published = {08/1991},
 annote    = {The experimental reports are classified into the F-P, BYU,
 TAMU, BNL and CHY (Caltech-Harwell-Yale) lines and are briefly described.
The
 positive results throw up the two problems of the Coulomb barrier and the
 fact that the PdDx lattice seems to behave differently from vacuum. The main
 theories that attempt to get around these problems are outlined. In summary,
 P concludes that experimental failure may have to do with failure to reach a
 loading of 1+. Fractofusion is not mentioned.}
}
@article{Prep1991b,
 author    = {G. Preparata},
 title     = {A new look at solid-state fractures, particle emission and
              'cold' nuclear fusion},
 journal   = {Nuovo Cimento Soc. Ital. Fis. A},
 volume    = {104},
 year      = {1991},
 pages     = {1259--1263},
 keywords  = {Theory, discussion, fracto},
 submitted = {11/1990},
 published = {08/1991},
 annote    = {Preparata goes back to 1953 to find evidence of fractoemission
 of electrons and electromagnetics; he presents his theory of superradiant
 motions of solid plasmas. The components of a solid plasma lose their
 identity and behave in a collective manner. The oscillations are reflected
at
 the boundaries but there exists a field beyond these boundaries, fast
 decaying with distance. Within the small cracks, however, there will be
 "evanescent waves" due to this effect, which can impart considerable energy
 to particles there. Thus fractoemission is explained, and cold fusion is
seen
 to be a likely fracto effect as well.}
}
@article{Qin1991,
 author    = {G. Qin and Q. Peng and J. Fu and L. Zhang and B. Zhang},
 title     = {Evolution of hydrogen (deuterium) in palladium-hydrogen
              (deuterium) system and the distribution of hydrogen near
              the surface},
 note      = {In Chinese, Engl. abstr.},
 journal   = {Wuli Xuebao},
 volume    = {40},
 number    = {6},
 year      = {1991},
 pages     = {943--948},
 keywords  = {Experimental, Pd, electrolysis, x-ray diffraction, loading},
 submitted = {07/1990},
 published = {06/1991},
 annote    = {"Hydrogen and deuterium were introduced into palladium cathode
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 in an electrolysis process for 150 h with light and heavy water as
 electrolyte, resp. The palladium cathode used had quenched or annealed after
 a thermal treatment at 950 degC. The variation of diffraction pattern and
 lattice const.  of beta phase of palladium-hydrogen system in air with time
 were measured by x-ray diffraction method. The distribution of hydrogen in
 the surface layer of palladium-hydrogen system was measured by the nuclear
 reaction $^1$1H($^{19}$F,$\alpha,\gamma$)$^{16}$O. Comparing a quenched
 palladium cathode with annealed palladium cathode, it is shown that the
 former has higher initial concn. of hydrogen and faster evolution velocity
 than the latter after electrolysis. The concn. of hydrogen reaches max. at
 the surface of palladium hydrogen system and its min. at a depth of several
 hundreds angstroms from the surface".  (Direct quote from the English
 abstract). Further information from the paper itself: NaOH and NaOD were
used
 as electrolytes as well as LiOH (LiOD) and currents of 60 mA/cm$^2$ and
 300-400 mA/cm$^2$.}
}
@article{Qiu1991,
 author    = {W. Qiu and Q. Dong and F. Gan},
 title     = {Positron lifetime studies on systems of palladium filled
              galvanostatically with hydrogen or deuterium},
 journal   = {Nucl. Sci. Techniques},
 volume    = {2},
 number    = {3},
 year      = {1991},
 pages     = {157--163},
 keywords  = {Experimental, Pd, electrolysis, positron anihilation, fracto-,
              res-},
 submitted = {01/1991},
 published = {08/1991},
 annote    = {There are two types of theories to explain cold fusion. One of
 them does so by invoking high d-d pressures (piezofusion) in the Pd lattice,
 the other by electric fields in cracks (micro-hot fusion). In either case,
 positron annihilation spectroscopy (PAS) can throw light on the theory, by
 defects in the crystal structure. So PAS should be useful. Sheets of 2 mm
 thick Pd were cleaned and annealed (550 degC, 8 h) and electrolysed in H2O
 and D2O resp. at about 200 mA/cm$^2$ for 5 h, thereby galvanostatically
 compressing d or p into the metal. After a 2-week period of stabilation, the
 samples were analysed by the PAS spectrometer, with $10^6$ counts for each
 spectrum. Differences in the positron annihilation between before- and after
 electrolysis point to lattice expansion upon hydriding/deuteriding
(decreased
 electron density). Also, no cracks seemed to be be formed during loading,
 although large pressures must be generated during the expansion. H and D
have
 very similar properties but "most people pay more attention to deuterium as
 precious fusionable material, but elbow hydrogen out..", even though it
would
 be the cleanest energy source if we could get it to fuse.}
}
@article{Quic1991,
 author    = {J.~E. Quick and T.~K. Hinkley and G.~M. Reimer and C.~E.
Hedge},
 title     = {Tritium concentrations in the active Pu'u O'o crater, Kilauea
              volcano, Hawaii: implications for cold fusion in the Earth's
              interior},
 journal   = {Phys. Earth Planet. Interior},
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 volume    = {69},
 year      = {1991},
 pages     = {132--137},
 keywords  = {Experimental, tritium in volcanoes, res-},
 submitted = {01/1991},
 published = {11/1991},
 annote    = {Cold fusion might be an important planetary heating mechanism,
 if it takes place. (3)He and T out of volcanoes might be indicators of such
 fusion, with T being the more definite. To avoid contamination by man-made
 sources (bomb test fallout etc), the study focussed on the Pu'u O'o crater,
 where there is large release of magmatic water. Comparisons with rainwater
 and similar controls reveal no extra tritium emissions from the volcano, in
 fact, in-crater levels were lower than those for rain.}
}
@article{Rafe1991,
 author    = {H.~E. Rafelski and D. Harley and G.~R. Shin and J. Rafelski},
 title     = {Cold fusion: muon-catalyzed fusion},
 journal   = {J. Phys. B},
 volume    = {24},
 year      = {1991},
 pages     = {1469--1516},
 keywords  = {Review, muon-catalysed fusion},
 annote    = {This is a longish and up-to-date review of muon-catalysed
 fusion. It does, however, briefly mention Jones+(89)-type cold fusion, and
 presents very clearly some of the theoretical approaches to its explanation.
 The authors, like others before them, come up with an effective electron
mass
 of about five times normal, as a requirement, if this is invoked as
 explanation. Worth reading, if not new.}
}
@article{Rajan1991,
 author    = {K.~G. Rajan and U.~K. Mudali and R.~K. Dayal and P. Rodriguez},
 title     = {Electromigration approach to verify cold fusion effects},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {100--104},
 keywords  = {Experimental, electrolysis, Ti, nonequilibrium, neutrons,
              x-rays, res-},
 submitted = {12/1990},
 published = {08/1991},
 annote    = {It is well known that the application of an electric field to a
 metal bar produces a large concentration gradient of interstitial ions along
 the length of the bar. This can be exploited in cold fusion electrolysis, by
 applying an electric field along the length of the Ti rod during the
 electrolysis. This will then produce a strong nonequilibrium deuterium
 concentration in the rod.  This was tested by an experiment. A 500 mV static
 field produces a ratio of [d](one end)/[d](other end) of $10^{10}$, which is
 large and might enhance fusion.  A well shielded NE-213 neutron detector was
 used, along with superheated drop drop neutron detectors placed around the
 cell. Post-mortem tritium assays were carried out, and the Ti rods placed
 close to medical x-ray films overnight.  No significant neutrons or tritium
 were measured. The films did, however, show some faint fogging, not shown by
 unused Ti controls. The question is whether this can be something picked up
 from the D2O. It is also concluded that the nuclear reactions taking place
 are aneutronic.}
}
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@article{Rees1991,
 author    = {L.~B. Rees},
 title     = {What do we know? What do we think?},
 journal   = {J. Fusion Energy},
 volume    = {10},
 year      = {1991},
 pages     = {111--116},
 keywords  = {Panel Discussion},
 published = {03/1991},
 annote    = {The author took part in a panel discussion on cold fusion,
 later published in this journal. Rees describes muon catalysed fusion, which
 preceded the later "cold fusion" by some years. Jones' team then tried
 loading metals such as Ti, Ni and Pd with deuterium to see whether anything
 interesting might happen without muons. As is known, they considered that
 they observed very low but significant levels of neutron emissions. The team
 speculates what might be causing these, and such ideas as piezofusion, or
 fractofusion, were suggested.  Rees concludes that Fleischmann and Pons
 simply did not observe fusion, because of the lack of fusion products. The
 pdf file contains other contributions.}
}
@article{Riek1991,
 author    = {A. Rieker and B. Speiser and K.~M. Mangold and M. Hanack},
 title     = {Potential error sources in combined electrochemistry/neutron
              detection experiments},
 journal   = {Z. Naturforsch. B},
 volume    = {46},
 year      = {1991},
 pages     = {1125--1125},
 keywords  = {Experimental, Pd, electrolysis, neutrons, error sources, res-},
 submitted = {01/1991},
 published = {08/1991},
 annote    = {A long electrolysis of a 0.1M LiOD solution in D2O was run,
 with a Pd rod as cathode, Pt as anode, the two electrodes in separate arms
of
 a U-shaped cell, so that the gases are led off separately. Two separate
 scintillation neutron counters are used, and pulse-shape analysis used to
 distinguish between neutrons and gammas. The cell was periodically inserted
 into the detector space for 1000 s, and taken out for 1000 s. Total
 electrolysis time: 75 h. There was a 2\% neutron level fluctuation, and it
 appeared that, when the cell was "in", neutrons were up by, on average, by
 2.7\%. However, at the same time, gammas were down. This was attributed to
an
 effect on the photomultiplier amplification, changing the discrimination,
and
 this was confirmed by trying the alternation with a heated resistor instead
 of the cell. The authors point out that exterior effects of magnetic and
 electrostatic fields on photomultiplier tubes are well known. Another effect
 they observed is that the total cell voltage rose with cell temperature, and
 this could be controlled by sparging the anode compartment with N2. They
 write that the FPH paper did not account for this effect. Thus, they have
 discovered two artifacts that might fake cold fusion results.}
}
@article{Ritl1991,
 author    = {K.~A. Ritley and K.~G. Lynn and P. Dull and M.~H. Weber
              and M. Carroll and J.~J. Hurst},
 title     = {A search for tritium production in electrolytically
              deuterided palladium},
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 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {192--195},
 keywords  = {Experimental, Pd, electrolysis, He, tritium, res-},
 submitted = {05/1990},
 published = {01/1991},
 annote    = {Ten Pd cathodes were used in the electrolysis of both heavy and
 light water containing 0.1M LiOD or LiOH, over an extended period. Some
cells
 were closed (with recombination) and some were open to a greater or lesser
 degree. The metal, from Johnson \& Mathey, was found to contain an initial
 impurity of (4)He, to the extent of He/Pd of $3\times 10^{-10}$. The
cathodes
 were predeuterided in D2 gas before electrolysis. Aliquots were taken out
for
 tritium analysis. Some erratic tritium levels could be put down to counting
 errors, and the only cells showing a tritium increase were the more or less
 open cells. This is due only to selective escape of gases, as an experiment
 with a completely open cell confirmed.}
}
@article{Roli1991,
 author    = {D.~R. Rolison and W.~E. O'Grady},
 title     = {Observation of elemental anomalies at the surface of palladium
             after electrochemical loading of deuterium or hydrogen},
 journal   = {Anal. Chem.},
 volume    = {63},
 year      = {1991},
 pages     = {1697--1702},
 keywords  = {Experimental, transmutation, res0},
 submitted = {11/1990},
 published = {09/1991},
 annote    = {The main result of this paper is the detection of significant
 traces of the elements Rh and Ag at the surface of Pd after electrolysis. An
 electrolyte containing Li2SO4, which etches the cell's glass less than the
 basic LiOD, was used, and XPS surface analysis. Both Rh and Ag did indeed
 accumulate at the surface, to several at\%. If a nuclear reaction takes
place
 in the Pd, the interaction of resulting energetic particles with Pd might
 produce such elements. However, this happened for both heavy and normal
water
 and R\&O'G conclude that Rh and Ag were initially present in the Pd at much
 lower levels, and migrated to the surface during electrolysis. They were
able
 to exclude electrolytic deposition from the electrolyte.}
}
@article{Romo1991,
 author    = {V.~A. Romodanov and V.~I. Savin and M.~V. Shakhurin
             and V.~T. Chernyavskii and A.~E. Pustovit},
 title     = {Nuclear fusion in the solid state},
 journal   = {Sov. Phys. Tech. Phys.},
 note      = {Orig. in: Zh. Tekh. Fiz. 61 (1991) 122--125},
 volume    = {36},
 number    = {5},
 year      = {1991},
 pages     = {572--574},
 keywords  = {Experimental, glow discharge, res+},
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 submitted = {09/1989},
 published = {05/1991},
 annote    = {Gaseous deuterium was put into a glow discharge chamber with
 various metals, such as Pd, Ti, Zr, etc. Voltages of 100-1000V were applied,
 while the gas pressure was at 500-15000 Pa. Neutrons were detected, and
 tritium was enriched by about an order of magnitude.}
}
@article{Rosa1991,
 author    = {J.~M. Rosamilia and J.~A. Abys and B. Miller},
 title     = {Electrochemical hydrogen insertion into palladium and
             palladium-nickel thin films},
 journal   = {Electrochim. Acta},
 volume    = {36},
 year      = {1991},
 pages     = {1203--1208},
 keywords  = {Experimental, Pd, Pd-Ni alloys, films, loading, res0},
 submitted = {06/1990},
 published = {05/1991},
 annote    = {Cold fusion has raised a number of fundamental questions about
 electrode potentials, limiting compositions, hydrogen mobility, outgassing
 etc. This paper addresses some of these, experimentally, using films of
 palladium deposited on Pt, and Pd-Ni alloys. Thin films have the advantage
of
 being saturated by the hydrogen (isotope) in a short time (about 10 s). The
 ring-disk electrode was used, where the ring can "catch" hydrogen generated
 by oxidation at the disk, upon reoxidation to estimate the extent of
 hydriding, and also for the outgassing resulting from switching the charging
 current off, as has been observed. These measurements at the ring showed
that
 the D/Pd loading was about 0.81, independent of the film thickness; the time
 scale for the unloading (reoxidation), however, was much larger than the
 diffusional time scale. Experiments with charging current interruption
showed
 the expected detection transient at the ring; integration and the decay time
 indicate that the error made by the normal procedure of taking out the
 cathode and weighing it, is no more than about 6\% in the D/Pd figure, if
one
 is reasonably speedy.  Addition of nickel to the film drastically reduce the
 D/Pd loading; other codeposits can be expected to do the same.}
}
@article{Rote1991,
 author    = {D. Rotegard},
 title     = {Fusion, cold fusion, and space policy},
 journal   = {Space Power},
 volume    = {10},
 year      = {1991},
 pages     = {205--215},
 keywords  = {Sci-soc/phil discussion},
 annote    = {A science-philosophical work by a space economist. Rotegard
 believes that hot fusion advocates are suppressing cold fusion, and is
 critical of USA policy with respect to the financing of hot fusion. He
 suggests that more support should be given to both cold fusion (to avoid a
 Japanese lead), and asteroid mining.}
}
@article{Rout1991a,
 author    = {R.~K. Rout and A. Shyam and M. Srinivasan and A. Bansal},
 title     = {Copious low energy emissions from palladium loaded with
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             hydrogen or deuterium},
 journal   = {Indian J. Technol.},
 volume    = {29},
 year      = {1991},
 pages     = {571--578},
 keywords  = {Experimental, Pd, gas phase, spark discharge, loading, cps,
             autoradiography, x-ray, res0},
 submitted = {10/1991},
 published = {12/1991},
 annote    = {Most samples, disks of 2mm thickness and 16 mm diameter, were
 loaded with hydrogen or deuterium in a plasma focus (PF) chamber, by
 evacuating and filling with the gas to a few mbars and discharging,
repeating
 this 15-30 times for each loading. Some Pd needles were also 'loaded' using
 the spark discharge method of Wada \& Nishizawa, with 10kV and the gas at
600
 mbar. As well, some Pd foils and hundreds of Pd chips were loaded by
 evacuating at 600C and cooling in the respective gas at 1 atm, without any
 discharge. D/Pd or H/Pd loadings varied from 0.1-0.6, measured by gas
 pressure drop. The samples were then placed close to x-ray sensitive film;
 all of them fogged it. Fogging by chemical reaction with H2 or D2 was ruled
 out by control experiments. Also, dosimeters were applied to the samples,
and
 7 times the background measured typically. X-ray emissions were measured
 using NaI and SiLi detectors; no x-rays were detected. Heavy charged
 particles were searched for using surface barrier detectors, but only rarely
 observed. In addition, some Pd was electrolytically loaded and
 autoradiographed, but no fogging was observed.  Some samples were loaded in
 the PF with 4He, and autoradiographed; no fogging was seen, showing that the
 effect is specific for H2 and D2. Other metals, such as Zr, Hf and Ni-Ti
 superconductors were tried, but none of them showed any effects. The effects
 are 100\% reproducible, even at low loading, and likely to be due to
electron
 emission from the samples, possibly due to cold nuclear fusion.}
}
@article{Rout1991b,
 author    = {R.~K. Rout and M. Srinivasan and A. Shyam and V. Chitra},
 title     = {Detection of high tritium activity on the central titanium
             electrode of a plasma focus device},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {391--394},
 keywords  = {Experimental, Ti, plasma beam, tritium, res+},
 submitted = {09/1990},
 published = {03/1991},
 annote    = {This team loaded a Ti cylinder in a vaccum chamber with
 deuterium from a plasma beam. They then measured the near-surface tritium
 content of the rod, and find more tritium there than can be accounted for,
 they say, by the fusion reaction due to the plasma, or by impurities in the
 D2 gas used.  Therefore, they say, it was produced by a cold fusion
process.}
}
@article{Ruga1991,
 author    = {S.~L. Rugari and R.~H. France and B.~J. Lund and S.~D. Smolen
             and Z. Zhao and M. Gai and K.~G. Lynn},
 title     = {Upper limits on emission of neutrons from Ti in pressurized D2
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              gas cells: A test of evidence for 'cold fusion'},
 journal   = {Phys. Rev. C},
 volume    = {43},
 year      = {1991},
 pages     = {1298--1313},
 keywords  = {Experimental, Ti-Pd alloy, gas phase, neutrons, res-},
 annote    = {This Yale/Brookhaven joint paper presents the results of a
 "dry cell" experiment, i.e. metal (Ti-Pd alloy) chips are deuterated from
the
 gas phase.  The team observes that in most such experiments, rather a short
 time is spent under those conditions thought to provoke cold fusion;
 i.e. during the warming up phase, after cooling the deuteride down to liquid
 nitrogen temperature.  Here, this phase was prolonged, so as to maximise the
 chances of observing cold fusion. A very sensitive, low background neutron
 detector was used, consisting of 12 NE213 liquid scintillators operable in
 single mode (28\% efficiency, moderate background of 100 c/h) or coincidence
 mode (2\%, 2 c/h).  There is a detailed description of the neutron detection
 procedure, background discrimination etc. No neutrons were detected in any
 runs. Thus the upper limit on cold fusion was much lower than that claimed
by
 Menlove et al. No numbers are given, but from the background of 2 c/h at 2\%
 efficiency and about 40 g Ti, I calculate $10^{-25}$ fus/pair/s.
 There is some additional comment about Ti's ability to absorb deuterium.
 Surface oxides prevent this, and are difficult to remove. Treatments such as
 used by Menlove et al allowed a loading of 0.013 only. Ti-Pd alloy chips did
 absorb D2. Also, Briand et al (to be published) report that the Jones+(89)
 setup would merely deposit metals on the Ti, and no deuterium would be
 absorbed.
 Erratum:
 Rugari SL, France RH, Lund BJ, Smolen SD, Zhao Z, Gai M, Lynn KG;
 Phys. Rev. C 43 (1991) 2899.
 "Erratum: Upper limits on emission of neutrons from Ti in pressurized D2 gas
 cells: A test of evidence for 'cold fusion'".
 Equation 6 in the named paper , ibid 43 (1991) 1298, was incorrect and is
 corrected here.}
}
@article{Russ1991a,
 author    = {J. L. {Russell Jr}},
 title     = {Virtual electron capture in deuterium},
 journal   = {Ann. Nucl. Energy},
 volume    = {18},
 year      = {1991},
 pages     = {75--79},
 keywords  = {Theory, discussion},
 submitted = {08/1990},
 annote    = {Russell has previously suggested that cold fusion could be due
 to dineutron formation in deuterons, by electron capture by the nucleus. In
 this paper, he has a more detailed look at the scenario, which can explain
 how the Coulomb barrier is overcome (it isn't there), why tritium is
produced
 (is it?) and the excess heat. A neutrino is released upon dineutron
 formation, and the dineutron, during its short life (aye, there's the rub)
 might capture a nearby nucleus. Can this work? Weak interaction theory, the
 Schroedinger equation and a cloudy crystal ball show that the dineutron
 formation rate and lifetime are well within the range required for cold
 fusion. Remarkably, this range is narrow; if the lifetime were one order of
 magnitude smaller, no cold fusion would be observed; if it was one order of
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 magnitude larger, it would would have been seen long ago.}
}
@article{Russ1991b,
 author    = {J. L. {Russell Jr}},
 title     = {Proposed heat producing nuclear reaction for cold fusion},
 journal   = {Ann. Nucl. Energy},
 volume    = {18},
 year      = {1991},
 pages     = {305--308},
 keywords  = {Theory, discussion},
 submitted = {10/1990},
 annote    = {Russell has a theory to explain the anomaly of excess heat
 without energetic emissions. None of the standard nuclear reactions fill the
 bill; there is a good discussion of what one would get from charged
particles
 at given energies (gamma, x-rays, etc), none of which is observed. Russell's
 model of a small dineutron/dineutrino population, which possibly allows d-d
 fusion to (4)He with transfer of the excess energy to the lattice as heat.
 This implies amounts of He commensurate with that heat, but Russell muses
 that helium might be "swept" from the Pd somehow. The model does not lead to
 any useful suggestions for experiment except perhaps to look for energetic
 sonic emissions, one per fusion.}
}
@article{Sait1991,
 author    = {N. Saito and K. Sakuta and S. Sawata and M. Tanimoto
              and N. Takata},
 title     = {Measurement of neutrons from cold fusion},
 note      = {In Japanese, Engl. abstr.},
 journal   = {Hoshasen},
 volume    = {17},
 number    = {1},
 year      = {1991},
 pages     = {31--36},
 keywords  = {Experimental, Pd, gas phase, electrolysis, neutrons, res-},
 submitted = {09/1990},
 published = {01/1991},
 annote    = {"Some comments on neutron measurement technique in cold fusion
 experiment are given. In order to detect the neutrons emitted as a result of
 the cold fusion reaction, BF3- and (3)He-detectors were used and careful
 analysis of output pulses was carried out to distinguish neutron signals
from
 noise. Also, great efforts were made to shield the detectors from background
 neutrons and noise. No convincing evidence for occurrence of cold fusion was
 observed in various froms [sic] of palladium metal loaded with
 deuterium". (Direct quote from the abstr.).
 Fig. 1 shows a Cd foil shield around the cell, which seems to have just one
 detector (the He type in the Fig.). The rest is in Japanese, inscrutable to
 this bibliographer.}
}
@article{Sann1991,
 author    = {V.~I. Sannikov and V.~G. Gorodetskii and E.~M. Sulimov
              and B.~G. Polosukhin and V.~Ya. Kudyakov},
 title     = {Emission of neutrons and gamma-quanta from a titanium electrode
              polarised by a current in the gas phase over LiD},
 journal   = {Rasplavy},
 year      = {1991},
 number    = {4},
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 pages     = {86--89},
 note      = {In Russian},
 keywords  = {Experimental, Ti, gas phase, discharge, neutrons, gammas,
res+},
 submitted = {01/1991},
 annote    = {Ti metal, D2 gas, solid LiD and electric discharges have all
 been used in one way or the other in cold fusion experiments; why not
combine
 them all in one? A Ti rod is the cathode in low-pressure D2 gas, the anode
 being a steel cup, with a LiD crystal lying in its bottom. The system is
held
 at various temperatures, and various D2 pressure regimes applied to charge
 the Ti with the gas. High voltages are then applied between the electrodes,
 to cause discharges, and neutrons and gammas monitored. Beautiful violet
hues
 were seen during the discharges, especially if small amounts of oxygen were
 present in the cell. The emission of gammas was dependent both on
temperature
 and voltage but it was not possible to separate the effects. Both gamma and
 neutron emissions were close to the background noise but nevertheless the
 authors believe that more neutrons were emitted in the temperature regions
 (270-380 degC and 530-620 degC) of TiD phase transitions. There were some
 small differences in the neutron count distributions between the absence and
 presence of the LiD. No explanations or mechanisms can be suggested; the
cold
 d-d fusion reactions suggested by FPH and Jones+ cannot be the answer.
Future
 studies must decide which of the low-mass species Li, Be, B and alpha
 particles, may be involved.}
}
@article{Sato1991,
 author    = {T. Sato and M. Okamoto and P. Kim and Y. Fujii and O. Aizawa},
 title     = {Detection of neutrons in electrolysis of heavy water},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {357--363},
 keywords  = {Experimental, Pd, electrolysis, neutrons, res+},
 submitted = {07/1990},
 published = {03/1991},
 annote    = {A divided electrolysis cell, with a Pd plate cathode and 1M
LiOD
 electrolyte was used. Neutron detection was by means of 9 (3)He counters,
 grouped into three channels, with pulse height discrimination. Shielding all
 around, by polyethylene blocks, cadmium plates and boric acid. Neutron count
 efficiency was calibrated to be 7\%. The background was carefully recorded
 and showed some bursts due to a nuclear reactor nearby. Three electrolyses
 were run; two of them evinced large neutron counts at about 5 h, the third
at
 20 h.  These bursts were 2-3 times the background bursts. There will be
 further measurements using a large NE-213 scintillator, allowing energy
 assignment, to be reported later.}
}
@article{Schw1991a,
 author    = {J. Schwinger},
 title     = {Nuclear energy in an atomic lattice},
 journal   = {Prog. Theor. Phys.},
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 volume    = {85},
 year      = {1991},
 pages     = {711--712},
 keywords  = {Comment},
 submitted = {01/1991},
 published = {04/1991},
 annote    = {A brief note of criticism of simple physics theories to dismiss
 cold fusion. The simple models sometimes used may be missing something. JS
 here looks at causality. Taking as an example the d-p fusion reaction (which
 he has suggested as the more likely culprit), this has a stable bound state:
 (3)He.  There may, thus, be a resonance between p-d and (3)He, rather than
 the causal sequence d+p --> He. JS concludes that research evidence is
 required, not simple theory.}
}
@inproceedings{Schw1991b,
 author    = {J. Schwinger},
 title     = {Cold fusion: Does it have a future?},
 booktitle = {Springer Procs. in Physics (Evolutionary Trends in the
             Physical Sciences)},
 editor    = {M. Suzuki and R. Kubo},
 volume    = {57},
 year      = {1991},
 pages     = {171--175},
 publisher = {Springer Verlag},
 address   = {Heidelberg},
 keywords  = {Comment, review},
 annote    = {This is the publication of an address given by Nobelist
 Schwinger, in Japan. Cold fusion, says S, could have significant
implications
 for mankind, especially for the Japanese. S mentions the prehistory of cold
 fusion, i.e.  the work of Paneth et al during the Showa era (1926). We then
 move forward to P\&F in 1989. Schwinger makes the point that neither
 intermittency of the emissions (heat, neutrons etc) nor the
irreproducibility
 of the results prove that there is no effect. Nor is it fair to level the
 charge that the effect is not theoretically understood; other phenomena
(such
 as high temperature superconductivity) have this problem. Cold fusion is not
 the same as hot fusion, and cannot be measured by that yard stick; metal
 lattice effects make this a quite different phenomenon. At high loading, for
 example, there may appear d-d separations much smaller than those known for
 normal loadings, and lattice fluctuations might also help. S suggests that
 lower temperature might enhance the process, by providing a better
 environment for such close approaches. Schwinger concludes that pressure of
 scientific conformity precludes a future for cold fusion in Europe and the
 USA, but in Japan, there is some hope.}
}
@article{Seel1991a,
 author    = {D. Seeliger and A. Meister},
 title     = {A simple plasma model for the description of d-d fusion
             in condensed matter},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {2114--2118},
 keywords  = {Comment, loading},
 submitted = {08/1990},
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 published = {07/1991},
 annote    = {The authors first consider previous attempts to account for
 enhanced fusion rates in PdDx, such as the expected rate in D2 gas, electron
 screening, ion screening and fluctuation tunnelling. They then develop a new
 model, which takes the transport itself of d-d pairs through the lattice to
 be important.  This implies that it is during charging that fusion is
 enhanced. At a time corresponding to about one charging time constant, the
 fusion rate goes through a broad maximum and declines towards zero at full
 loading. This is in fairly good accord with the authors' own experiments
(see
 also Bittner et al, ibid p.2119) and those of others. The model is only a
 start but does not invoke unknown nuclear processes.}
@article{Seel1989,
 author    = {D. Seeliger and K. Wiesener and A. Meister and H. Marten
              and D. Ohms and D. Rahner and R. Schwierz and P. W{\"u}stner},
 title     = {Search for DD-fusion neutrons during heavy water electrolysis},
 journal   = {Electrochim. Acta},
 volume    = {34},
 year      = {1989},
 pages     = {991--993},
 keywords  = {Experimental, electrolysis Pd, neutrons, res+},
 submitted = {05/1989},
 published = {07/1989},
 annote    = {Used a largish Pd plate, which deformed, while giving off a
 statistically significant 0.1 n/s, but no heat. A light-water control did
not
 emit statistically significant counts of neutrons.}
}
@article{Seel1991b,
 author    = {D. Seeliger},
 title     = {Theoretical limits of nuclear fusion in condensed matter},
 journal   = {Acta Phys. Hung.},
 volume    = {69},
 year      = {1991},
 pages     = {257--267},
 keywords  = {Theory, res+},
 submitted = {08/1990},
 annote    = {The two dd reactions, and the dp and dt reactions, are
 considered, with the main emphasis on the dd --> (3)He + n one. Solid state
 screening effects are considered, and it gives enhancements over the D2 gas
 rate of $10^{-63}$/s by 10-15 - maybe even 20 - orders of magnitude.
 Dynamical effects and fluctuations give another 6-8 orders of magnitude, and
 there is a chance of further gain by temperature and density
 fluctuations. The bottom line is that rates of $10^{-46} \dots 10^{-29}$
 fusions per dd pair per s are not impossible.}
}
@article{Seif1991,
 author    = {W. Seifritz},
 title     = {No end to cold fusion (Kalte Fusion und kein Ende)},
 journal   = {GIT Fachz. Lab.},
 volume    = {35},
 year      = {1991},
 pages     = {114--118},
 note      = {In German},
 keywords  = {Comments, theory},
 published = {02/1991},
 annote    = {Prof. Seifritz, who has earlier weighed in with a theory he
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 himself here describes as improbable, lists some of the attempts at
 explaining cold fusion, and comments on them. The greatest attention is
given
 to Bockris's dendrite "theory" and his theory that cnf is fusion of
 spin-polarised nuclei, explaining the anomalous branching ratio. Neither
 theory is watertight. All explanations fall down on the experimental
evidence
 in some way. S has the impression that all try to explain some specific
 effect - i.e. every theory, a different effect. The bottom line that we do
 not know whether cnf is real or not.}
}
@article{Sevi1991,
 author    = {J. Sevilla and F. Fernandez and B. Escarpizo and C. Sanchez},
 title     = {Some characteristics of titanium and palladium samples used
              in cold fusion experiments},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {188--191},
 keywords  = {Comment},
 submitted = {02/1990},
 published = {01/1991},
 annote    = {Looking at the state of the cathode after a cold fusion
 experiment might be fruitful. The authors have used a variety of techniques
 to do this, including differential scanning calorimetry and SEM. It appears
 that electrolysis at Ti does not enable deuterium to reach more than slight
 depths, and the overall loading D/Ti was found to be 0.02, while
 higher-temperature gas charging reached a value of 2. DSC confirmed this.
 Nevertheless, cold fusion was equally successful in either case, implying
 that it is a surface effect. SEM showed that gas loading caused little
 surface change, while electrolysis caused surface cracking and polishing by
 bubbles, as well round craters; these were larger for those samples where
 cold fusion had been observed.}
}
@article{Shen1991,
 author    = {G. Shen and S. Li and W. Jing and Q. Sui and Z. Li and Z.
Yang},
 title     = {The efficiency calculation of a low background neutron
detection
              system},
 journal   = {Yuanzineng Kexue Jishu (Atomic Energy Science and Technology)},
 volume    = {25},
 year      = {1991},
 pages     = {93--96},
 note      = {In Chinese, Engl. abstr.},
 keywords  = {Suggestion},
 published = {11/1991},
 annote    = {"The results of efficiencies calculated by Monte Carlo methods
 are reported for a low background neutron detection system to be used for
 cold fusion study" (Direct quote of the English abstract).  An ST-451 type
 detector seems to be used; there is mention of a mixture of 73.3\% SiO2,
 7.5\% Al2O3, 13.0\% (6)LiO and 5.9\% Ce2O2, and there are tables of
 calculated efficiencies and space distributions of efficiencies at several
 (MeV) energies, such as 3.5, 2.45 (!), 1.75 and 1.00 MeV.}
}
@article{Shir1991,
 author    = {O. Shirai and S. Kihara and Y. Sohrin and M. Matsui},
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 title     = {Some experimental results relating to cold nuclear fusion},
 journal   = {Bull. Inst. Chem. Res., Kyoto Univ.},
 volume    = {69},
 year      = {1991},
 pages     = {550--559},
 keywords  = {Experimental, Pd, electrolysis, excess heat, gammas, res+},
 submitted = {11/1991},
 annote    = {Newly devised conditions for provoking cold fusion in an
 electrolysis at Pd in D2O containing 0.1M DCl and 0.01M PdCl2, are described
 here. A chunky Pd cylinder was used, and besides the electrolytic current
 (constant 0.5 A), a larger electric current (5A) was passed through the
 cathode, and called the "indifferent current". A thermometer measured the
 cell temp. near the Pd, and a gamma probe (GM counter, model TGS-113, Aloka)
 mounted just outside the cell. There were also some studies of the
 electrochemistry of D2O reduction at this cathode and of D2 permeation in
 another cell. More than 50 runs showed that the indifferent current was able
 to start excess heat events, and sometimes gamma events above the background
 and persisting for 1-2 min. One gamma event followed the addition of light
 water to the cell; thus, the fusion might be that of d + p, giving 3He.
 Therefore, the use of an indifferent current, as well as the use of PdCl2
 (leading to Pd deposition) are recommended.}
}
@article{Shun1991,
 author    = {W. Shunjin},
 title     = {Effect of Coulomb screening on deuterium-deuterium fusion
              cross section},
 journal   = {Gaoneng Wuli Yu Hewuli},
 volume    = {15},
 number    = {8},
 year      = {1991},
 pages     = {761--764},
 note      = {In Chinese},
 keywords  = {Theory},
 submitted = {10/1990},
 published = {08/1991},
 annote    = {"The popular Gamow formula for the deuterium-deuterium fusion
 cross-section is generalized to take into account the Coulomb screening
 effect. The generalized formula has been used to discuss the fusion process
 occurring in the metal medium" (English abstract).  Using the WKB
 approximation and Gamow approach, some mathematical expressions for fusion
 rates are derived, but no conclusions about cold fusion reached.}
}
@article{Srin1991,
 author    = {M. Srinivasan},
 title     = {Nuclear fusion in an atomic lattice: An update on the
              international status of cold fusion research},
 journal   = {Curr. Sci.},
 volume    = {60},
 year      = {1991},
 pages     = {417--439},
 keywords  = {Review},
 published = {04/1991},
 annote    = {A review of cold fusion concentrating on conferences to a large
 extent. It is written by a well informed researcher but clearly from a
 positive viewpoint, and this shows in the importance given to marginal
 results in some places. An unusual claim is that cold fusion has already
 exceeded the power density yield of conventional nuclear fission reactors,
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 i.e. in terms of W/cm$^3$ fuel.  There is an outline of the "puzzles of cold
 fusion" and the author believes that the phenomenon is due to "many
different
 nuclear reactions induced by deuterons". There are 174 references, most of
 them to actual papers.}
}
@article{Stop1991,
 author    = {G. Stoppini},
 title     = {Coulomb screening in superconducting PdH},
 journal   = {Il Nuovo Cimento D},
 volume    = {13},
 year      = {1991},
 pages     = {1181--1188},
 keywords  = {Theory, superconductivity},
 submitted = {01/1991},
 published = {09/1991},
 annote    = {Although this paper alludes to d-d fusion in the metal hydride
 lattice, it confines itself to the temperature range, i.e. T <= 11K, where
 PdH is superconducting. Electron screening might be supplied by the electron
 pairs that give rise to the superconductivity phenomenon, and this might
 enhance d-d fusion at these temperatures.}
}
@article{Stor1991a,
 author    = {E. Storms and C. Talcott-Storms},
 title     = {The effect of hydriding on the physical structure of palladium
             and on the release of contained tritium},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {246--257},
 keywords  = {Experimental, Pd, electrpolysis, tritium, res+},
 submitted = {12/1990},
 published = {09/1991},
 annote    = {To have convincing tritium results, one must be careful to
 eliminate the possibility of contamination, which might come from outside
the
 cell or from the Pd itself. The authors here examine the latter possibility
 by looking at the behaviour of tritium, as well as protium present in Pd,
 from charging in D2O deliberately contaminated with T2O and H2O. The
hydrogen
 isotopes were in each case driven out by anodic discharge. There is an
 interesting figure showing mole fraction D/H in the Pd against the same
 fraction in the electrolyte. H is favoured. Many experiments are reported.
An
 11\% expanded sample showed pits but no cracks. Deuterium is taken up
 preferentially over tritium and tritium discharge is a first-order process.
 The study supports the view that tritium that appears mainly in the gas
after
 many days of electrolysis cannot have come from prior contamination of the
 metal. In the authors' own work, however, the tritium appears in the
 electrolyte, rather than in the gas. This reviewer is not clear about what
 the conclusions of the paper are, beyond rejecting contamination charges.}
}
@article{Stor1991b,
 author    = {E. Storms},
 title     = {Review of experimental observations about the cold fusion
             effect},
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 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {433--477},
 keywords  = {Review},
 submitted = {05/1991},
 published = {12/1991},
 annote    = {A review of the experimental evidence for cold fusion as of
 July 1991.  Storms believes that careful work has shown evidence for heat,
 tritium, neutron and helium production. The author has himself read all the
 papers (he does not refer to others) and gives a competent and detailed
 account, complete with tables and figures. Fractofusion is included. The key
 ideas in favour of cold fusion are outlined, such as dendrites (suggesting
 large voltages but naming only gradients), or the use of the Nernst equation
 for an overpotential (suggesting immense pressures). The paper concludes
that
 the evidence is overwhelmingly for cold fusion. Of the 359 references, about
 200 are real experimental papers.}
}
@article{Swit1991,
 author    = {A.~C. Switendick},
 title     = {Electronic structure and stability of palladium hydrogen
              (deuterium) systems, PdH(D)n, $1 \le n \le 3$},
 journal   = {J. Less-Common Met.},
 volume    = {172-174},
 year      = {1991},
 pages     = {1363--1370},
 keywords  = {Theory, res-},
 published = {09/1991},
 annote    = {Self-consistent augmented plane-wave total energy calculations
 were performed as a function of the cubic lattice constant within the local
 density approximation using Hedin-Lundquist exchange, on the mono-, di- and
 trihydrides of Pd (and deuterides), correcting an earlier erroneous paper.
 The results are compared with cold fusion inspired theoretical work of
 Sun+Tomanek, Wang et al and others. The monohydride is the only stable
 species, and p-p or d-d distances greatly exceed that in the corresponding
 gas, i.e. 0.74 A. There is a large energy barrier against close approaches.}
}
@article{Szpa1991a,
 author    = {S. Szpak and P.~A. Mosier-Boss and J.~J. Smith},
 title     = {On the behavior of Pd deposited in the presence of evolving
             deuterium},
 journal   = {J. Electroanal. Chem.},
 volume    = {302},
 year      = {1991},
 pages     = {255--260},
 keywords  = {Experimental, electrolysis, Pd, codeposition, excess heat,
res+},
 submitted = {11/1990},
 published = {03/1991},
 annote    = {This preliminary publication (a fuller account is promised)
 describes a new experimental twist in the area. Palladium and deuterium are
 deposited together by electrolysis from a solution containing both the usual
 0.1M LiOD and 0.05M PdCl2. This creates a growing layer of PdDx, continually
 freshly laid down and possessing the attribute of nonequilibrium, considered
 by many to be the magic ingredient of cold fusion. The authors also claim
 that this method eliminates the need for a uniform current distribution and
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 long charging times. A copper foil is used as the cathode initially, being
 progressively coated by the PdDx, and a thermocouple mounted behind it (on
 the dry side) (T1), as well as in the electrolyte (T2). A photographic film
 was mounted up close to the cathode and, in one cell, a metal grid was
placed
 between the cathode and this film. During electrolysis, T1 > T2 by 2-4 degC,
 which cannot be explained by electrical resistance of a deuterium gas film
on
 the growing surface, say the authors.  Also, when the current is switched
 off, there is a sudden temperature rise in T1, not explained. One might
 suspect a chemical decomposition of the PdDx. The authors crudely calculate
 an excess heat of 10-40\% from the T1-T2 differences.  Experiments with
light
 water showed no such differences; T1 and T2 were about the same, and there
 was no temperature jump upon current switch-off.  Tritium levels went up by
a
 factor of 10 in the electrolyte but not in the light water controls. The
film
 showed fogging, and clear shadowing by the metal grid, suggesting soft x-ray
 emission; again, this was not observed with the controls.}
}
@article{Szpa1991b,
 author    = {S. Szpak and C.~J. Gabriel and J.~J. Smith and R.~J. Nowak},
 title     = {Electrochemical charging of Pd rods},
 journal   = {J. Electroanal. Chem.},
 volume    = {309},
 year      = {1991},
 pages     = {273--292},
 keywords  = {Theory, loading kinetics},
 submitted = {10/1990},
 published = {07/1991},
 annote    = {It is of interest to cold fusion experimenters using
 electrolysis, how long it takes to charge a Pd rod and what the electrode
 potential is as function of current density and time. This paper goes into
 excruciating detail on all processes taking place, complete with a set of
 rate constants, all unknown.  The model is then solved numerically, putting
 in some sets of values. There are no firm conclusions but the paper gives
 valuable detail of the many reactions contributing to deuterium charging of
 Pd.}
}
@article{Tach1991,
 author    = {E. Tachikawa},
 title     = {Outline of room temperature nuclear fusion},
 journal   = {Genshiryoku Kogyo},
 volume    = {37},
 number    = {4},
 year      = {1991},
 pages     = {11--20},
 note      = {In Japanese},
 keywords  = {Review},
 annote    = {"A review with no refs. is given on nuclear fusion energy,
 room temp.  nuclear fusion, and the trend of the research on room temp.
 nuclear fusion".  (Quoted from CA 115:58483 1991).}
}
@article{Taka1991,
 author    = {R. Takagi and H. Numata and I. Ohno and K. Kawamura
              and S. Haruyama},
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 title     = {Neutron emission during a long-term electrolysis of heavy
water},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {2135--2139},
 keywords  = {Experimental, Pd, elecytrolysis, excess heat, neutrons, res+},
 submitted = {12/1990},
 published = {07/1991},
 annote    = {A chunky (121.3 g, 21.1 mm dia., 32.4 mm long) Pd electrode was
 vacuum annealed and then used as cathode in 0.1M LiOD, and subjected to a
 variety of current densities from 0.05-102.4 mA/cm$^2$, over a long period,
 after gas-charging in D2 at 1.2 atm. A single NE-213 detector measured
 neutron emissions, and two thermocouples, one within the cathode bulk and
one
 in the electrolyte, the temperature. A Luggin capillary allowed measurement
 of cathode potential plus iR drop. There were no neutron background
 measurements, but the authors take this to be equal to the lowest emissions.
 There were some neutron emissions higher than others, including some
 spike-like excursions, and the authors take this to be support for cold
 fusion. They also noted some cathode potential swings and these tell them
 that cold fusion might be a surface effect.}
}
@article{Takah1991,
 author    = {A. Takahashi and T. Iida and F. Maekawa and H. Sugimoto
              and S. Yoshida},
 title     = {Windows of cold nuclear fusion and pulsed electrolysis
              experiments},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {380--390},
 keywords  = {Theory, screening, experimental, electrolysis, neutrons, res0},
 submitted = {12/1989},
 published = {03/1991},
 annote    = {A hypothetical excitation-screening model is proposed as a
 possible mechanism for nuclear heating, and some experiments to confirm it,
 are reported. The model rules out cold fusion under stationary conditions,
so
 nonstationary conditions are examined as well. Pd is unusual with its 10
 valence electrons. An incoming deuteron will be surrounded by many free
 electrons, resulting in strong screening. As more and more d comes in, the
 probablity of a d-d meeting increases, while electron screening decreases.
At
 a certain loading, the fusion rate will be at a maximum. At full charging,
 screening is very weak; no more fusion. This might explain some of the
 observed results. Some rough estimations using the excitation model indicate
 the feasibility of observed fusion rates.  An experiment using biased pulsed
 electrolysis current was then run, involving two different neutron detectors
 (a Bonner (3)He thermal neutron detector, and a NE-213 one) and simple cell
 temperature measurement. No definite emissions were detected, although there
 were some slight increases over the background.  Nevertheless, the authors
 say that cold fusion exists, and encourage further work, including that with
 "crazy ideas".}
}
@article{Take1991,
 author    = {T. Takeda},
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 title     = {Theory of room temperature nuclear fusion},
 journal   = {Genshiryoku Kogyo},
 volume    = {37},
 number    = {4},
 year      = {1991},
 pages     = {40--48},
 note      = {In Japanese},
 keywords  = {Review},
 annote    = {"A review with 42 refs. is given on 2-body collision nuclear
 fusion by the shielding of the Coulomb field, collective nuclear reaction,
 and apparent room temp. nuclear fusion". (Quoted from CA 115:58486 (1991)).}
}
@article{Tate1991,
 author    = {H. Tateno and Y. Iwashita},
 title     = {An attempt to observe nuclear fusion in titanium by
             internal friction},
 journal   = {Jpn. J. Appl. Phys. Suppl.},
 volume    = {30--31},
 year      = {1991},
 pages     = {41--42},
 keywords  = {Experimental, Ti, gas phase, internal friction, res-},
 submitted = {01/1991},
 annote    = {The internal friction and resonant frequency of oscillation
 of Ti charged with deuterium from the gas phase were measured, and compared
 with those using hydrogen. The Ti was degassed at 600 C and loaded at liquid
 nitrogen temperature. Upon warming up, there were changes in internal
 friction and resonant frequency and some differences between deuterium and
 hydrogen; however, nothing was observed at the temperature at which other
 workers reported neutron emissions.}
}
@article{Tayl1991,
 author    = {C.~A. Taylor},
 title     = {Defining the scientific community: A rhetorical perspective
             on demarcation},
 journal   = {Commun. Monogr.},
 volume    = {58},
 year      = {1991},
 pages     = {402--420},
 keywords  = {Soc/sci},
 published = {12/1991},
 annote    = {A scholarly paper by a science sociologist/philosopher on how
 science defines its borders; cold fusion is used as a case study. The idea
is
 propagated here, that Big Science, i.e. hot fusion, felt itself under attack
 and reacted. Reaction focussed on the errors committed by cold fusion
 researchers, and on the lack of universality (reproducibility), a clear
 criterion for the demarcation of what is science from what is not.}
}
@article{Thom1991,
 author    = {K.~I. Thomassen},
 title     = {What do we know? What do we think?},
 journal   = {J. Fusion Energy},
 volume    = {10},
 year      = {1991},
 pages     = {123--124},
 keywords  = {Panel Discussion},
 published = {03/1991},
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 annote    = {The author took part in a panel discussion on cold fusion,
 later published in this journal. After two months of intense international
 focus on cold fusion, including experimmnts at the LLNL, it was possible to
 come to some understanding of the phenomena. The author considers that cold
 fusion is unlikely to yield useful power, but is interesting as a scientific
 curiosity. He believes that excess heat and neutron emissions are not
 connected. Although it is possible that cold fusion is an error, there are
 sufficient positive results that it may not be. Thom1990, contained in
 Rees1990.}
}
@article{Tsar1991a,
 author    = {V.~A. Tsarev and P.~I. Golubnichii},
 title     = {Geological manifestations of cold fusion},
 journal   = {Sov. Phys. - Lebedev Inst. Rep.},
 year      = {1991},
 number    = {3},
 pages     = {22--24},
 note      = {Orig. in: Kratk. Soobshch. Fiz. (1991) 24},
 keywords  = {Comment, geological, fracto},
 submitted = {01/1991},
 annote    = {The actual role of cold fusion in the Earth is not yet clear,
 since we do not yet fully understand the cold fusion mechanism, write the
 authors. But the geological level of fusion suggested by Jones is far too
 high, and dd fusion contributes more than pd fusion. One problem with any
 scenario is that steady fusion rates over long periods are required, whereas
 experiments with Pd or Ti show that the effect dies away after some time.
 This can be understood in terms of fractofusion, first demonstrated in 1986
 by Soviet workers. This reasoning also has importance to geological tritium
 and (3)He.}
}
@article{Tsar1991b,
 author    = {V.~A. Tsarev and D.~H. Worledge},
 title     = {New results on cold nuclear fusion: a review of the conference
              on anomalous nuclear effects in deuterium/solid systems,
              Provo, Utah, October 22-24, 1990},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {484--508},
 keywords  = {Report, comment},
 submitted = {06/1991},
 published = {12/1991},
 annote    = {It all started with the Jones group in Utah, say the authors
 (clearly defining their loyalties) and this is where this conference was
 held. The most important conclusion was that there is a body of quality
 evidence for the phenomenon, although it is sporadic and has little to do
 with nuclear fusion as understood up to now; hence also the conference
 name. The paper then outlines the successful detection of neutrons, charged
 particles, tritium, and some correlations (acoustic/electromagnetic
radiation
 (emr), neutrons/acoustic, protons/emr. The geological evidence, which is the
 driving force behind the Jones group's work, is reiterated, such as
"natural"
 tritium, anomalous ratios of (3)He/(4)He etc. In summary, the phenomena are
 not normal d-d fusion; the theory is not yet in line with experiment; the
 quality of experiments is going up; widely varying experiments are giving
 much the same results; the field deserves wider support.}
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}
@article{Tsuc1991,
 author    = {K.~I. Tsuchiya and Y.~H. Ohashi and K. Ohashi and M. Fukuchi},
 title    = {Interaction between two neighboring deuterium atoms in
palladium},
 journal   = {J. Less-Common Met.},
 volume    = {172-174},
 year      = {1991},
 pages     = {1371--1374},
 keywords  = {Theory, res0},
 published = {09/1991},
 annote    = {Again an approach to the feasibility of cold fusion in terms of
 the possible close approach of two d's in the lattice. Here, electron
 screening is looked at, to see whether it could allow a closer approach than
 previously thought. In principle, there might be sufficient space for an
 extra deuterium atom between lattice sites. The jellium model is invoked,
and
 potentials are calculated. The potential well is broad and flat, with a
 minimum at about 0.66 A, which is closer than the D2 gas value of 0.74 A. No
 conclusions are drawn as to whether this might explain cold fusion.}
}
@article{Uhm1991,
 author    = {H.~S. Uhm and W.~M. Lee},
 title     = {High concentration of deuterium in palladium from plasma
             ion implantation},
 journal   = {Phys. Fluids B},
 volume    = {3},
 year      = {1991},
 pages     = {3188--3193},
 keywords  = {Comment, suggestion},
 submitted = {03/1991},
 published = {11/1991},
 annote    = {The authors propose plasma ion implantation, in order to obtain
 high loadings of D/Pd for cold fusion and other experiments where this is of
 interest. A plasma of up to $10^{12}$/cm$^3$ and an electron temperature of
 up to 10 eV is generated by either rf, glow discharge or thermionic
 filaments.  The Pd sample may be presoaked with deuterium, to about 0.6
 loading. A negative charge applied to the Pd sample will then lead to the
 plasma deuterons making their way into the sample. If the surface is coated
 with a material in which deuterons are not highly mobile, their escape will
 be largely prevented; a good candidate here is 60\% Fe+40\% Ni. The barrier
 does not prevent ingress of the ions during charging. Calculations predict
 that the loading could be three times the normal 0.6 - but only if the
 lattice is not deformed. In any case, high loadings can be expected from
this
 method.}
}
@article{Vaid1991,
 author    = {S.~N. Vaidya},
 title     = {On the possibility of coherent deuteron-deuteron fusion
             in a crystalline Pd-D lattice},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {481--483},
 keywords  = {Theory, res+},
 submitted = {05/1991},
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 published = {12/1991},
 annote    = {The author proposes that in the PdD lattice with its periodic
 fields, there may be coherent interaction between this lattice and the
 wave-propagated deuterons, and that this interaction might enhance d-d
fusion
 rates greatly.  The condition for this is that the de Broglie wavelength of
 the deuterons are equal to the lattice spacing. This may be the case only
 sporadically in polycrystalline Pd and thus may explain the sporadic nature
 of cold fusion.  Resulting fusion rates are in the observed range. The
theory
 opens the possibility of optimising the process.}
}
@article{Vara1991,
 author    = {A.~N. Varaksin and A.~A. Zhivoderov and N.~B. Bondarenko
              and V.~F. Shipitsin},
 title     = {Computer modelling of phase transitions in deuterised palladium
              (possible mechanism of low-temperature nuclear fusion)},
 journal   = {Fiz. Metal. Metalloved.},
 year      = {1991},
 pages     = {30--34},
 note      = {In Russian},
 keywords  = {Theory, modelling, res+},
 submitted = {12/1990},
 annote    = {A cubic microcrystallite of 500 Pd and 250 D atoms was
simulated
 by molecular modelling on a computer; open boundaries were assumed, and
450K.
 Results show that up to 10eV can be achieved for D atoms arising from the
 beta-alpha transition, and D-D distances down to 0.07 nm. In vacuum, this is
 not enough to cause fusion but in a metal lattice, maybe, what with
potential
 barrier heights of about 10-20 eV. In reality, there might be even more
 energetic and close DD pairs, and fusion rates up to $10^{-21}$
 fus/pair/s. This does not apply to the alpha-beta transition. The suggested
 mechanism is: (1) formation of high-energy (>10eV) D atoms and pairs; (2)
 formation from such pairs of metastable D-D which, with collective
 interaction with electrons from the palladium might fuse by tunnelling.}
}
@article{Viel1991,
 author    = {W. Vielstich and T. Iwasita and H. {von Buttlar}
              and K. Farzin and K. Uebelguenn},
 title     = {Search for neutrons from controlled deuterium concentrations
              in palladium},
 journal   = {J. Electroanal. Chem.},
 volume    = {303},
 year      = {1991},
 pages     = {211--220},
 keywords  = {Experimental, Pd, electrolysis, neutrons, res-},
 submitted = {08/1990},
 published = {03/1991},
 annote    = {Basically, a FPH(89) experiment with careful neutron detection,
 and using a cell divided with a membrane, so that the evolved gases do not
 mix (why is not everybody doing this, being standard electrochemistry?).
 Three separate cells were used, the cathodes being rather thin Pd plates,
 which can be fully charged in a conveniently short time. Loading was
measured
 by reversing the current and integrating it. Some deuterium is lost as
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 bubbles but results indicate that a loading of about 0.85 was
 achieved. Neutrons were measured with a single high-efficiency (43\% at 2.5
 MeV) NE-213 detector; pulse-shape discrimination separated neutron from
gamma
 detection very well. Shielding was by 44 cm block of paraffin (more for the
 second experiment); the authors note that metals like Pb or Fe lower the
 gamma background, but raise that of neutrons. The three experiments gave
 three different upper limits for the cold fusion rate; the best of these,
 with the largest Pd cathode and the heaviest shielding, gave about $10^{-
25}$
 fus/s/pair, or about 1/50 that claimed by Jones+(89).}
}
@article{Welb1991,
 author    = {V. Welborn},
 title     = {The cold fusion story: A case study illustrating the
              communication and information seeking behavior of scientists},
 journal   = {Sci. Technol. Librarian},
 year      = {1991},
 number    = {Spring},
 pages     = {51--60},
 keywords  = {Library science},
 annote    = {Biologist and librarian Victoria Welborne is concerned with the
 refereeing process, and finds fault with the haste with which the cold
fusion
 story was made public, without proper refereeing, initially. A cold fusion
 chronology, based largely on newspaper and magazine articles (but also the
 FPH-89 and Jones+89 papers) is given. The extreme brevity of the FPH-89
paper
 and its lack of detail are criticised, somewhat unfairly, as most
 electrochemists knew some of what was left out. VW concludes that this
affair
 has clarified the role of the referee in scientific publication.}
}
@article{Whit1991,
 author    = {C.~T. White and D.~W. Brenner and R.~C. Mowrey
              and J.~W. Mintmire},
 title     = {D-D (H-H) interactions within the interstices of Pd},
 journal   = {Jpn. J. Appl. Phys. Part 1},
 volume    = {30},
 year      = {1991},
 pages     = {182--189},
 keywords  = {Theory, res-},
 submitted = {05/1990},
 published = {01/1991},
 annote    = {Over a period of one year, the authors have examined several
 different theoretical models, to examine d-d and p-p interactions within the
 Pd deuteride lattice. They report on three: a) the bulk embedded-atom method
 gave good agreement with known facts like bulk expansion upon hydriding, and
 the migration energy; it showed that if you try to squeeze deuterons
together
 by chemical or other forces, you only cause lattice expansion instead.  b)
 the cluster local-density-functional, and Hartree-Fock methods showed that
 for all cases considered, there is strong d-d repulsion with resulting large
 d-d distances.  c) they also looked at what happens at 0.1 Bohr d-d
distance,
 a la Koonin and Nauenberg, but still found nothing promising.  They conclude
 that neither squeezing deuterons together, nor electron screening, can
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 account for cold fusion.}
}
@article{Wu1991,
 author    = {B. Wu and S. Jin and F. Shang and D. Yao and Y. Ding
              and J. Yao and P. Yao},
 title     = {The SEM observation of palladium-deuterium system after
              the gas discharge process},
 journal   = {Gaojishu Tongxin},
 volume    = {1},
 number    = {9},
 year      = {1991},
 pages     = {1--5},
 keywords  = {Experimental, Pd, gas discharge, surface analysis, res+},
 note      = {In Chinese, Engl. abstr.},
 annote    = {"The palladium-deuterium system after the gas discharge process
 was observed with scanning electron microscopy (SEM). A species of round
hole
 1-200 micron in diameter with a melting boundary was found on the cross
 section of the sample on which the nuclear track had been detected by CR-39
 detector. This phenomenon may be the trace of a high temperature and high
 pressure burst caused by some anomalous localised nuclear process under
 certain experimental conditions" (Direct quote from the English abstract).}
}
@article{Yamam1991,
 author    = {T. Yamamoto and R. Taniguchi and T. Oka and K. Kawabata},
 title     = {In situ observation of deuteride formation in palladium foil
              cathode by an x-ray diffraction method},
 journal   = {J. Less-Common Met.},
 volume    = {172-174},
 year      = {1991},
 pages     = {1381--1387},
 keywords  = {Experimental, Pd, electrolysis, x-ray diffraction, loading.},
 published = {09/1991},
 annote    = {Since some theories of cold fusion focus on high deuterium
 loading in Pd, it is worthwhile looking at what can be achieved. The aim
here
 was to look at the lattice constants and loadings as a function of
 electrolysis overpotential in 0.18M LiOD (D2O), by means of x-ray
 diffraction.  Use of a Pd foil allowed this; the electrolyte was on one
side,
 the x-ray equipment on the other. This showed the progression from pure Pd
 through a mixture of the alpha and beta phases to pure beta. Later, some
 alpha phase reappears. It is concluded that the maximum loading was no
 greater than 0.8.}
}
@article{Yang1991,
 author    = {J. Yang},
 title     = {A new fusion mechanism},
 journal   = {Hunan Shifan Daxue Ziran Kexue Xuebao},
 volume    = {14},
 number    = {2},
 year      = {1991},
 pages     = {126--132},
 note      = {In Chinese},
 keywords  = {Suggestion, theory},
 annote    = {"The nuclear fusion of d-d can not be accomplished at room-
temp.,
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 so the phenomena of the cold fusion in expt. may be from a new
 fusion-mechanism.  Based on 2 basic hypotheses, the author expounds to
 explain some exptl.  phenomena that is incomprehensible in normal d-d
 fusion. Furthermore, the author suggests a series of expts. to check the
 fusion mechanism" (Direct quote from CA 115:288601 (1991)).}
}
@article{Yoshid1991,
 author    = {Y. Yoshida and Y. Aradono and T. Hirabayashi},
 title     = {Verification of room temperature nuclear fusion. 1},
 journal   = {Genshiryoku Kogyo},
 volume    = {37},
 number    = {4},
 year      = {1991},
 pages     = {21--30},
 note      = {In Japanese},
 keywords  = {Review},
 annote    = {A review with 16 refs. Means to detect room temp. nuclear
fusion
 (RTNF) (measurements of n, p, T, and x-ray, etc) and the reaction system for
 RTNF are discussed (Quoted from CA 115:58484 (1991)).}
}
@article{Yun1991,
 author    = {K.~S. Yun and J.~B. Ju and B.~W. Cho and W.~I. Cho
              and S.~Y. Park},
 title     = {Calorimetric observation of heat production during electrolysis
              of 0.1 M LiOD + D2O solution},
 journal   = {J. Electroanal. Chem.},
 volume    = {306},
 year      = {1991},
 pages     = {279--285},
 keywords  = {Experimental, Pd, electrolysis, heat, res0},
 submitted = {02/1991},
 published = {05/1991},
 annote    = {An apparently carefully done series of experiments with
 electrolysis at two kinds of Pd electrodes: as supplied and annealed at 800
 degC in vacuum or in D2 gas. Both kinds gave essentially the same results.
 The calorimeters were open and closed, with and without recombination and
 with small temperature rises in the electrolytes. At a rate of about 4-5
 experiments out of 20, excess heat bursts were observed at times, going up
to
 over 20\%. This level cannot be accounted for as chemical artifacts, given
 the calorimeters' accuracy (about 2\%). The authors draw no strong nuclear
 conclusions, however, noting that more experiments, particularly correlated
 heat and emission events are needed for this.}
}
@article{Zako1991,
 author    = {W. Zakowicz},
 title     = {Possible resonant mechanism of cold fusion},
 journal   = {Fusion Technol.},
 volume    = {19},
 year      = {1991},
 pages     = {170--173},
 keywords  = {Theory, res0},
 submitted = {04/1990},
 published = {01/1991},
 annote    = {Theoretical paper, looking for resonance effects, due to a
 combination of the short-range attractive nuclear interactions at close
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 distances and the longer-range Coulombic repulsion. Solution of the
 Schroedinger equation yields reasonable reaction rates for d-d fusion, and
 shows the importance of screening. The remaining question is whether the
 resonance in fact exists.  Inclusions and dislocations in the Pd lattice
 would be detrimental to this model, acting against resonance.}
}
@article{Zele1991a,
 author    = {V.~F. Zelenskii and V.~F. Rybalko},
 title     = {Studies of neutron emission by mechanical destruction of Ti
              and Pd samples, saturated with deuterium},
 journal   = {Vopr. At. Nauki Tekh. Ser.: Fiz. Radiats. Povredzh.
              Radiats. Mater.},
 year      = {1991},
 number    = {2},
 pages     = {46--47},
 note      = {In Russian},
 keywords  = {Experimental, fracto, Ti, neutrons, res-},
 submitted = {06/1991},
 annote    = {Samples of Ti, about 40 g mass, were shot at by a high speed
 steel projectile, reducing them to granules. There was a group of samples
 with the stoichiometric D/Ti ratio at 1.8..2, and another group, at
 0.3..0.8. Neutrons were detected by 2 BF3 tubes at 20 cm from the targets.
 Neutrons were looked for over a period up to 1500 s after each shot.
Controls
 were run, without the Ti. Out of a number of runs, no significant neutrons
 were observed.}
}
@article{Zele1991b,
 author    = {V.~F. Zelenskii and V.~F. Rybalko and A.~N. Morozov
              and S.~V. Pistryak and G.~D. Tolstolutskaya and V.~G. Kulish},
 title     = {Preliminary results of the second series of experiments
              on cold fusion},
 journal   = {Vopr. At. Nauki Tekh. Ser.: Fiz. Radiats. Povredzh.
              Radiats. Mater.},
 year      = {1991},
 number    = {2},
 pages     = {48--53},
 note      = {In Russian},
 keywords  = {Experimental, Pd, Ti, ion beam, cp's, res0},
 submitted = {06/1991},
 annote    = {More results from ion beam (D2+) bombardment of Pd and Ti
 targets, saturated from the gas phase, and one case of Ti saturated with
 tritium gas, with charged particle (cp) detection, greatly improved (by 2
 orders of magnitude in sensitivity). Bombardment was sustained for $10^5$ s
 at 25 keV (20 keV for the TiT sample) and 20-30 $\mu$A/cm$^2$. Additionally,
 the samples were cycled in temperature down to liquid N2 and up to room
 temp. No cp's were found, setting an upper fusion limit at $1.5 \times
 10^{-22}$ fus/dd-pair/s. Cold fusion was thus not found, but not excluded
 either.}
}
@article{Zhan1991,
 author    = {J.~S. Zhang},
 title     = {The estimation of the difference between d(n,n)3He and d(d,p)T
              cross sections in the cold fusion},
 journal   = {Commun. Theor. Phys.},
 volume    = {16},
 year      = {1991},
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 pages     = {439--442},
 keywords  = {Theory, branching ratio, res0},
 submitted = {02/1991},
 annote    = {A theoretical attack on the assumption that, at low energies,
 the d-d fusion reaction must have the same roughly 1:1 branching ratio as at
 high energies. A rough approach, taking into account differences in wall
 transmission, angular distribution of the reaction channels and deuteron
 nuclear structure, show that p-t is favoured, and that the branching ratio
 might be as high as 100. "One should study further".}
}
@article{Zhu1991a,
 author    = {R. Zhu and X. Wang and F. Lu and D. Ding and J. He and H. Liu
              and J. Jiang and G. Chen and Y. Yuan and L. Yang and Z. Chen
              and H.~O. Menlove},
 title     = {Measurement of neutron burst production in thermal cycle
              of D2 absorbed titanium chips},
 journal   = {Fusion Technol.},
 volume    = {20},
 year      = {1991},
 pages     = {349--353},
 keywords  = {Experimental, Ti, gas phase, neutrons, res+},
 submitted = {02/1991},
 published = {11/1991},
 annote    = {A Chino-USA effort to find neutrons in a Ti/D2 gas system with
 thermal cycling - the "Italian" mode. The experiment was done 580 m
 underground to minimise cosmic influx. Humidity had to be avoided, to avoid
 fake neutron bursts from the (3)He detectors (18 of them). The setup was not
 sensitive to mechanical knocks. H2 dummy batches were run to eliminate other
 artifacts.  There were 10 D2 batches and only 3 of these showed no neutron
 emissions. The others showed neutron bursts of up to 535 from a burst. The
 burst intensity was up to 2 orders of magnitude above the carefully
monitored
 background. The bursts occur during the first one or two thermal cycles,
 between -100 degC and room temperature; thereafter, the Ti seems to be
 inactive. They could be reactivated by vacuum degassing and reloading but
the
 activity was lower. The controls with H2 ruled out interference effects.}
}
@article{Zhu1991b,
 author    = {R. Zhu and X. Wang and F. Lu and L. Luo and J. He and D. Ding
              and H.~O. Menlove},
 title     = {Measurement of anomalous neutron from deuterium/solid system},
 journal   = {Yuanzineng Kexue Jishu (Atomic Energy Science and Technology)},
 note      = {In Chinese},
 volume    = {25},
 year      = {1991},
 pages     = {84--92},
 note      = {In Chinese},
 keywords  = {Experimental, Ti, gas phase, neutrons, res+},
 published = {11/1991},
 annote    = {"A series of experiments on both D2O electrolysis and thermal
 cycle of deuterium absorbed Ti Turnings are designed to examine the
anomalous
 phenomena in Deuterium/Solid System. A neutron detector containing 16 BF3
 tubes with a detection limit of 0.38 n/s for two hour counting is used for
 electrolysis experiments. No neutron counting rate statistically higher than
 detection limit is observed from Fleischmann \& Pons type experiments. An
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 HLNCC-II neutron detector equipped with 18 3He tubes and a JRS-11 shift
 register unit with a detection limit of 0.20 n/s for a two hour run are
 employed to study the neutron signals in D2 gas experiments. Different
 material pretreatments are selected to review the changes in frequency and
 size of the neutron burst production. Experiment sequence is deliberately
 designed to distinguish the neutron burst from fake signals, e.g. electronic
 noise pickup, the cosmic rays and other sources of environmental
 background. Ten batches of dry fusion samples are tested, among them, seven
 batches with neutron burst signals occur roughly at the temperature from -
100
 degrees centigrade to near room temperature. In the first four runs of a
 typical sample batch, seven neutron bursts are observed with neutron numbers
 from 15 to 482, which are 3 and 75 times, respectively, higher than the
 uncertainty of background. However, no bursts happened for H2 dummy samples
 running in-between and afterwards and for sample batch after certain runs"
 (Direct quote from the English abstract).}
}
@article{Zywo1991,
 author    = {A. Zywocinski and H.~L. Li and A.~A. Tuinman and P. Campbell
              and J.~Q. Chambers and W. A. {van Hook}},
 title     = {Analysis for light atoms produced in the bulk phase of
              a tubular palladium/ silver alloy cathode working electrode},
 journal   = {J. Electroanal. Chem.},
 volume    = {319},
 year      = {1991},
 pages     = {195--205},
 keywords  = {Exxperimental, Pd, electrolysis, tritium, helium, MS, res-},
 submitted = {03/1991},
 published = {12/1991},
 annote    = {This is the counterpart of the calorimetric paper by the same
 team. Here, the cathode was a 81:19 atom-fraction Pd-Ag alloy tube of 85
 microns wall thickness, 1.6 mm outside diameter and 75 mm length; the
outside
 of the tube acted as a cathode in D2O + LiOD, and the inside was connected
to
 a vacuum system to withdraw gases from it. During electrolysis, tritium is
 expected to go through, while helium is not; He was pulled through into the
 vacuum system after electrolysis by heating to 870 K and pulling hydrogen
 through for several hours. Mass spectroscopy was used to detect the species
 searched for; any (4)He+ ions were distinguished from D2+, present in large
 excess, by removing all hydrogen species by oxidation and
 cold-trapping. During electrolysis, species with masses 1,2,3,4,5 and 6 were
 found and assigned to various HnDm+ species by the high-resolution MS
 used. At this stage, some (4)He was found, peaking when the current was on -
 but was found due to contamination of the electrode from the laboratory
 atmosphere. Similar results were obtained from electrolysis in H2O and
 LiOH. The final results for (4)He were all at about the level expected from
 atmospheric levels, i.e around $(1-3)\times 10^{12}$ atoms. Tritium levels,
 too, were not above contamination levels, being the same for controls, and
 initial solutions without electrolysis. The authors comment that the results
 of Bush et al (same journal 304 (1991) 271) are likely to be due to their
not
 pretreating their electrodes to remove occluded helium. Such helium is
 degassed electrolytically.}
}
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# YEAR: 1992

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% Year 1992; there are 100 entries.
@article{Adac1992,
 author    = {G. Adachi and H. Sakaguchi and K. Nagao},
 title     = {(3)He and (4)He from D2 absorbed in LaNi5},
 journal   = {J. Alloys Comp.},
 volume    = {181},
 year      = {1992},
 pages     = {469--476},
 keywords  = {Experimental, mass spec, 3He, alloy, gas phase, res-},
 annote    = {One of the branches of the d-d fusion reaction leads to the
 formation of 3He, and this should be possible to detect if allowed to
 accumulate in a closed system. Mass spectrometry was used here to do this,
 from deuterium absorbed in LaNi5 alloy. The alloy (52.2 g) was carefully
 degassed at 1123 K and 1.3E-03 Pa for half a day. 99.5\% pure D2 at 7.9E05
Pa
 pressure was then admitted and the temperature cycled between 363 and 273 K
 to ensure absorption. After this, two experiments were run for 40 days and
28
 days, respectively, cycling the temperature. Samples of the initial gas were
 also taken as background. Finally, the alloy was degassed again to obtain
 absorbed gases. In the MS measurements, the ratios of (3)He to (4)He, as
well
 as to the impurity gases Ne, Ar Kr and Xe were measured as checks. Both in
 these ratios and the absolute amounts of (3)He found, there was a clear
 increase in (3)He, not explicable in terms of contamination from the air.
The
 amount corresponds to a fusion rate of about 1.3/s, which is roughly equal
to
 1E-23 fusions/dd- pair/s. The possibility that this helium came from tritium
 contamination in the deuterium gas was not tested, however.}
}
@article{Arat1992a,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Reproducible 'cold' fusion reaction using a complex cathode},
 journal   = {Fusion Technol.},
 volume    = {22},
 year      = {1992},
 pages     = {287--295},
 keywords  = {Experimental, composite cathode, palladium, nickel,
             electrolysis, neutrons, res+},
 submitted = {08/1991},
 published = {09/1992},
 annote    = {This is essentially the same paper as published by the authors
 in Kagu Yugo Kenkyu 67 (1992) 432, in Japanese. It describes a Pd or Ni
 cathode "plasma-sprayed" with a Pd layer. The authors point out that if cnf
 takes place, it does so within the cathode, and it is there the temperature
 should be measured. Neutron emissions from an electrolysis cell were
measured
 with two detectors; a 3He and a BF3 one, with surrounding paraffin blocks
and
 Cd shielding. A complex Pd cathode, after charging for 240 h, was held in
air
 and a strong heating effect was observed. A similar cathode but without the
 extra Pd layer did not do this. When sand-blasted, this one, too, heated up
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 in air after being charged again. Thus, an uneven surface favours
 fusion. Neutron counts, too, were higher than blanks or runs with H2O, with
 these sprayed rods.}
}
@article{Arat1992b,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {'Cold' fusion in deuterated complex cathode},
 journal   = {Kaku Yugo Kenkyu},
 volume    = {67},
 number    = {5},
 year      = {1992},
 pages     = {432--444},
 note      = {In Japanese},
 keywords  = {Experimental, nickel, palladium, electrolysis, heat, res+},
 submitted = {12/1991},
 annote    = {A new type of cathode, either Ni or Pd, was prepared by plasma
 spraying its surface with Pd. This layer activated the surface and a new
type
 of heat generation was observed reproducibly. The experiment was done by
 electrolysis in 0.07 M LiOH in D2O, with a thermocouple to monitor the heat,
 and two neutron counters (one BF3 and one (3)He). Accumulated neutron counts
 as a function of time showed clear differences between D2O runs (higher) and
 control H2O runs (lower), the latter matching blank runs in air.}
}
@article{Bart1992,
 author    = {B.~I. Barts and D.~B. Barts and A.~A. Grinenko},
 title     = {Theory of nuclear reactions with the participation of slow
              charged particles in solids},
 journal   = {Sov. J. Nucl. Phys.},
 volume    = {55},
 year      = {1992},
 pages     = {45--48},
 keywords  = {Theoretical, screening, res-},
 submitted = {07/1991},
 published = {01/1992},
 annote    = {Two aspects of the crystal environment of purported solid state
 cold fusion are investigated. One is the screening of d-d pairs by valence
 electrons of the crystal. It is shown that at low energies, this is very
 important and the rate of fusion can be enhanced by many orders of
 magnitude. The other is the possibility of two deuterons moving together
into
 a region of minimum crystal potential at the centre of a cell, where their
 wave functions might overlap and the fusion rate can increase by one or two
 tens of orders of magnitude.  These effects are not enough, however, to
 explain experimental claims.}
}
@article{Behr1992,
 author    = {R. Behrisch},
 title     = {Comment on: H. Gentsch, DD-fusion reactions at a PdAg(D) target
              in a minireactor, Ber. Bunsenges, Phys. Chem. 95, 1283 (1991)},
 journal   = {Ber. Bunsenges. Phys. Chem.},
 volume    = {96},
 year      = {1992},
 pages     = {733.},
 note      = {In German},
 keywords  = {Polemic, self targeting.},
 submitted = {12/1991},
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 published = {05/1992},
 annote    = {Gentsch had a hollow tube as the cathode in a cold fusion
 electrolysis, with a near vacuum inside, into which he aimed a deuteron beam
 and got more neutrons and tritium than expected. Behrisch writes here that
 Gentsch is wrong, that the results are explained by self targeting without
 invoking anomalous effects. See Gentsch's answer, ibid p.734.}
}
@article{Bock1992,
 author    = {{J. O'M}. Bockris and C.~C. Chien and D. Hodko and Z.
Minevski},
 title     = {Cold fusion as a consequence of high fugacity among
             hydrogen isotopes},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {17},
 year      = {1992},
 pages     = {445--450},
 keywords  = {Discussion, fugacity, pressure, res+},
 annote    = {Bockris et al here argue for the high-fugacity theory of cold
 fusion. In the original FPH paper, FPH calculated, from the overpotential,
an
 equivalent "pressure" of 1E26 atm. This is supported here, although called
 fugacity. The authors refer to 1967 work of Landau and Lifshits, which says
 that a pressure exceeding 1E17 atm might cause electron capture by deuterium
 nuclei and thus loss of charge. There is some qualitative argument for
 equating fugacity with pressure, away from walls. The steep fugacity rise at
 pressures of around $10^4$ atm is still mentioned.}
}
@article{Bott1992a,
 author    = {E. Botta and T. Bressani and D. Calvo and A. Feliciello
             and P. Gianotti and C. Lamberti and M. Agnello and F. Iazzi
             and B. Minetti and A. Zecchina},
 title     = {Measurement of 2.5 MeV neutron emission from Ti/D and
             Pd/D systems},
 journal   = {Il Nuovo Cimento A},
 volume    = {105},
 year      = {1992},
 pages     = {1663--1671},
 keywords  = {Experiment, gas phase, Ti, Pd, neutrons, res0},
 submitted = {04/1992},
 published = {11/1992},
 annote    = {Report of an improved series of experiments, using both Ti and
 Pd, loaded with deuterium from the gas phase. Blanks with hydrogen were also
 run. With both metals, thousands of minutes worth of neutron measurements
 were taken.  Background measurements were also taken. The detector was a
 time-of-flight neutron spectrometer, two blocks of plastic scintillators.
The
 authors point out that the Ti, covered as it is with oxide, does not absorb
 D2 or H2 unless heat treated, which they did. Temperature-time curves showed
 phase transitions for low-loaded Ti (x=0.7), but not for highly loaded Ti
 (1.8). Both metals, initially in the form of sponge (Ti) or small pellets,
 broke down. Subtraction of the average background in two slightly different
 ways clearly showed an excess of neutrons at around 2.5 MeV with the metal
 deuterides at about 4-5 sigma (Ti) and 2 sigma (Pd) but not with the
 hydrides. The neutron flux was about 1/10 of that found by this team
 previously, at (Ti) 0.1 n/s/g, and (Pd) 0.02 n/s/g. No bursts were found.}
}
@inproceedings{Bott1992b,
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 author    = {E. Botta and D. Calvo},
 title     = {Results of cold fusion experiments on Ti/D22 and Pd/D2 systems
              with gas loading},
 booktitle = {Conf. Proc., Common Problems and Trends of Modern Physics,
              Folgara, Italy},
 editor    = {T. Bressani and S. Marcello and A. Zenoni},
 publisher = {World Scientific},
 address   = {Singapore},
 year      = {1992},
 pages     = {331--340},
 keywords  = {Experimental, Ti, Pd, gas loading, neutrons, res+},
 annote    = {An improved neutron detector was designed, and some
 statistically significant neutrons observed, especially for the Ti case,
 but not as much at Pd.}
}
@article{Bril1992,
 author    = {E. Brillas and J. Esteve and G. Sardin and J. Casado
              and X. Domenech and J.~A. Sanchez-Cabeza},
 title     = {Product analysis from D2O electrolysis with Pd and Ti
cathodes},
 journal   = {Electrochim. Acta},
 volume    = {37},
 year      = {1992},
 pages     = {215--219},
 keywords  = {Experimental, electrolysis, Pd, Ti, tritium, lithium, res-},
 submitted = {03/1991},
 published = {02/1992},
 annote    = {If there be fusion, there must be fusion products; this has
been
 one of the weak points in the cold fusion saga. The Spanish team here looks
 specifically at the production of tritium and deposition on and diffusion
 into the metal of lithium and platinum, both at Pd and Ti cathodes, as well
 as at Pt, as a control. The electrolyte is the usual 0.1M LiOD in pure D2O
 (and LiOH in H2O as control), as well as some D2O spiked with tritium to
 about three times the normal contamination level. The metals were high
purity
 sheets and rods and current densities ranged from 5 to 300 mA/cm**2, for
many
 days. The temperature was controlled to 25 degC. Tritium was assayed from
 aliquots taken from the electrolyte, and near-surface products were detected
 by SIMS spectra.  No unexplained changes in tritium were found, i.e. none
was
 produced by exotic reactions. Lithium was indeed deposited on all cathodes,
 up to a total content of 30 ppm in the Ti sheet. Much more Pt was deposited
 (up to 600 ppm).}
}
@article{Brya1992,
 author    = {S.~R. Bryan and J.~H. Gibson},
 title     = {Comments on 'Nuclear energy release in metals'},
 journal   = {Fusion Technol.},
 volume    = {21},
 year      = {1992},
 pages     = {95.},
 keywords  = {Polemic, isotope change},
 submitted = {08/1991},
 published = {01/1992},
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 annote    = {A letter to the Editor, commenting on Mayer and Reitz's
previous
 paper (FT 19 (1991) 552). M\&R claimed that there is experimental evidence
for
 their theory of a nuclear reaction with the Pd atoms, leading to Pd isotope
 distribution changes. Bryan and Gibson say that this is a misinterpretation,
 and no such changes took place.}
}
@article{Bush1992a,
 author    = {R.~T. Bush},
 title     = {A light water excess heat reaction suggests that 'cold fusion'
              may be 'alkali-hydrogen fusion'},
 journal   = {Fusion Technol.},
 volume    = {22},
 year      = {1992},
 pages     = {301--322},
 keywords  = {Polemic},
 submitted = {07/1991},
 published = {09/1992},
 annote    = {Bush here outlines, in a qualitative manner, his disavowal of
 the theory of Mills and Farrell (which "is flawed"), and his own theory of
 how cold fusion takes place in a Pd or Ni lattice. A multitude of reactions
 of the kind p + M1 ==> M2, and d + M1 ==> M2, are possible, where M1 are
 alkali metals (as well as hydrogen isotopes), and M2 are ultrastable (or
 near-ultrastable) elements such as (40)Ca, (4)He, etc. This ultrastability,
 plus the special conditions in a metal hydride/deuteride lattice, is what
 enables cold fusion. There is thus a wide choice of fusion fuels, and the
 good news is that deuterium is not needed. In each case, the resulting high
 energy is dissipated in a kind of anti-Moessbauer effect, due to the
rigidity
 of the metal lattice at these low temperatures. FPH were lucky because Li
can
 do it with d. The author's TRM model (with Eagleton) is invoked along with
 all this.
 There is experimental proof. Using a Ni cathode, a Pt anode and 0.57M Na2CO3
 as electrolyte, and a plate of a "Ni alloy", excess heat was found, in
 contrast with M\&F, whose theory demands light water and a potassium salt
(but
 using Ni itself). Rb salts, too, do the trick. The reaction with potassium
 should yield some Ca as the ash, and in fact 14 microgram (about the right
 amount) were found; using a Rb salt, again about the right amount of Sr was
 found (3 microgram). This subrevolution within cnf could have immense
 economic ramifications, writes Bush.}
}
@article{Bushu1992b,
 author    = {V.~S. Bushuev and V.~B. Ginodman and L.~N. Zherikhina
              and S.~P. Kuznetsov and Yu.~A. Lapushkin and I.~P. Matvienko
              and A.~I. Nikitenko and A.~D. Perekrestenko
              and N.~P. Saposhnikov and S.~M. Tolokonnikov
              and A.~M. Tskhovrebov},
 title     = {Experiments in the recording of nuclear emissions by
              electrolysis of heavy water},
 journal   = {Trud. Ord. Lenin. Ord. Oktyab. Revol. Fiz. Inst. im. P.N.
              Lebedeva, Ross. Akad. Nauk},
 volume    = {220},
 year      = {1992},
 pages     = {89--95},
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 note      = {In Russian},
 keywords  = {Experimental, electrolysis, Pd foil, neutrons, gamma, res0},
 annote    = {Search for neutrons and gamma radiation, in three variants of
 electrolytic cells, using small Pd foil 0.1 mm*2.5 cm$^2$ (0.3 g), a larger
 foil, 0.3 mm* 30.4 cm$^2$ (11 g) and a Pd rod 10 mm dia., 90 mm long (86
 g). The first two were electrolysed in 30\% D2SO4, the rod in this as well
as
 7\% LiOD, all in D2O. Neutrons were detected by a battery of 6 3He tubes
 around the cell, gammas by CsI(Na) scintillation detectors. The Pd was
vacuum
 annealed at 500-600 C for some h, and electrolysis was maintained for about
 100 h. The small foil showed no radiation above background. The large
samples
 showed some irreproducible large neutron pulses, up to 4 times background;
no
 gammas.}
}
@article{Cann1992,
 author    = {F. Cannizzaro and G. Greco and M. Raneli and M.~C. Spitale
             and E. Tomarchio},
 title     = {Search for neutrons as evidence of cold fusion},
 journal   = {Fusion Technol.},
 volume    = {21},
 year      = {1992},
 pages     = {86--91},
 keywords  = {Experimental, electrolysis, Pd, Ti, neutrons, res-},
 submitted = {05/1991},
 published = {01/1992},
 annote    = {Report of a Palermo effort. Electrolysis was carried out in D2O
 containing sodium sulphate, and a mixture of sodium sulphate and iron,
nickel
 and calcium salts. The Pd and Ti cathodes were in the form of plates. Two
 independent systems of BF3 thermal neutron counters were used, with pulse
 height analysis.  Current densities went up to 24 mA/cm**2. The results do
 not confirm even Jones+ levels, at an upper limit of 3.6E-24 fus/d-d
 pair/s.}
}
@article{Cedz1992,
 author    = {K. Cedzynska and F.~G. Will},
 title     = {Closed-system analysis of tritium in palladium},
 journal   = {Fusion Technol.},
 volume    = {22},
 year      = {1992},
 pages     = {156--159},
 keywords  = {Experimental, electrolysis, Pd, tritium, res0},
 submitted = {07/1991},
 published = {08/1992},
 annote    = {This describes a method of detecting tritium in Pd and the
 results of using it on about 90 samples of Pd, supplied by Hoover and Strong
 and Johnson-Mathey.  The metal sample is simply dissolved in a distillation
 flask and the solution distilled past a catalyst to burn any tritium gas to
 water. The distillate is then prepared for scintillation analysis for
 tritium. The method was standardised, and a sensitivity of about 5E07
tritium
 atoms was found for the 5 ml cell, or a ratio of 1:1E13 t/Pd. None of the 90
 commercial Pd samples showed any tritium contamination, in contrast with the
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 claims of prior tritium contamination by Wolf. Thus, commercial Pd appears
to
 be free of tritium.}
}
@article{Cela1992,
 author    = {F. Celani and A. Spallone and F. Croce and L. Storelli
              and S. Fortunati and M. Tului and N. Sparvieri},
 title     = {Search for enhancement of neutron emission  from
              neutron-irradiated, deuterated, high-temperature
              superconductors in a very low background environment},
 journal   = {Fusion Technol.},
 volume    = {22},
 year      = {1992},
 pages     = {181--186},
 keywords  = {Experimental, HTSC, neutrons, res+},
 submitted = {10/1991},
 published = {08/1992},
 annote    = {The authors consider that copper-oxide-based high temperature
 superconducting materials (which absorb hydrogen) should also aid d-d
fusion.
 Preliminary results were obtained by Jones. These materials have a
perovskite
 crystal structure, similar to some geological crystals in the Earth's
mantle.
 A two-(3)He-tube neutron detector and Pb shielding bricks were arranged
 around a cell containing variously a calibrating neutron source or a sample
 of the material, exposed to D2 gas at 40 and 36 bar. Some thermal cycling
was
 carried out. Generally there were no deviations from background or blank
 detections, but there was one triple neutron event during a superconducting
 transition; such a triple event is likely to occur once in about 80 h,
 whereas all the thermal cycle runs lasted only 2.4 h. Other significant
 multiple events were seen in some other runs, going up to 30 sigmas above
 background. Thus, HTSC materials are suitable for cold fusion experiments
and
 nonequilibrium conditions are favourable.}
}
@article{Cero1992,
 author    = {C.~F. Cerofolini and A.~F. Para},
 title     = {Alternatives in low energy fusion?},
 journal   = {Springer Proc. Phys. (Exot. At. Condens. Matter)},
 volume    = {59},
 year      = {1992},
 pages     = {129--147},
 keywords  = {Theory, res+},
 annote    = {While hot fusion meets with increasing problems as it
approaches
 break-even, there are appearing many claims for low-energy (cold)
 fusion. Here, cold fusion and the related cluster impact fusion (CIF) are
 examined and a unified model proposed to explain them, including their poor
 reproducibility. Muon catalysis, fractofusion, electrolytic fusion and CIF
 are discussed. The authors' "hot cloud" theory of CIF also implies that
 deuterium atoms explosively released from supercharged titanium deuteride
 might fuse at the levels found by Jones et al. At these levels, one is about
 5 orders of magnitude below break-even.}
}
@article{Chie1992a,
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 author    = {C.~C. Chien and D. Hodko and Z. Minevski and J.~O.~M. Bockris},
 title     = {On an electrode producing massive quantities of tritium
              and helium},
 journal   = {J. Electroanal. Chem.},
 volume    = {338},
 year      = {1992},
 pages     = {189--212},
 keywords  = {Experimental, Pd, electrolysis, tritium, helium, res+},
 submitted = {01/1992},
 published = {10/1992},
 annote    = {Pd, from original bullion rather than scrap, was formed into
 cathode rods in a fairly conventional cold fusion electrolysis cell. Pd
 pretreatment included acid etching and anodic treatment. The rods were 16 mm
 long and 10 mm diameter. A rod from a cell that produced tritium was cut
into
 a number of sections with a jeweller's saw, and stored in liquid nitrogen to
 preserve the gases. The samples were then analysed for helium and tritium,
 and by XPS and EDS surface analysis. The He assay was done by an external
 lab; extensive controls were used. Results were: there was a marked tritium
 production, as measured from electrolyte aliquots, well above the
background,
 and increasing with time; this could be quenched by addition of light water,
 and the rate of tritium emission increased with increasing cathodic
 potential. It was observed (by MS water analysis) that the heavy water was
 contaminated with around 10\% of light water after 22 days of electrolysis
in
 the fairly well closed cell.  During 761 h of electrolysis, a total of
around
 1E15 tritium atoms were estimated to have been produced. The original Pd
 material was checked, and no tritium found in notable amounts; neither was
 there any in the laboratory air.  Out of 10 cells, 9 produced (4)He, ranging
 from 0.4 to 167E09 atoms, with an uncertainty of 0.5 to 2E09. No (3)He was
 found. Surface postmortem analysis showed some Cu, Zn, Pt and Si (in small
 amounts). Surface morphology differed between cells producing tritium and
 those without. There is some speculation that high fugacity is the
 explanation of the results.}
}
@article{Chie1992b,
 author    = {C.~C. Chien and T.~C. Huang},
 title     = {Tritium production by electrolysis of heavy water},
 journal   = {Fusion Technology},
 volume    = {22},
 year      = {1992},
 pages     = {391--394},
 keywords  = {Experimental, electrolysis, Pd, tritium, res+},
 submitted = {08/1991},
 published = {11/1992},
 annote    = {An effort of the Institute of Nuclear Energy Research in
Taiwan.
 Mild charging conditions were used, and tritium production measured as a
 function of applied voltage and bath temperature. An open style cell was
 used, with outlet vent holes, holes for D2O refilling and for insertion of a
 thermocouple. Pd rods, 10 mm diameter and 10-20 mm long were used as
cathodes
 and thin Pt wire as anode, in 0.1M LiOD in D2O. A recirculating cooler kept
 cell temperature constant. Acid etching and anodic pretreatments were tried.
 Results show that tritium in the electrolyte increased roughly linearly with
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 time, the slope depending upon temperature; a rise in temperature during a
 run (20 C to 30 C) clearly increased this slope. Similarly, increasing cell
 voltage increased tritium production. Interruption of the current stopped
 tritium production, but it could be revived by resuming electrolysis.
Surface
 treatment was important and showed that the reaction takes place near the
 surface.}
}
@article{Chu1992,
 author    = {L. Chu and S. Wang},
 title     = {Coulomb screening of deuterium in metal crystal},
 journal   = {Yuanzineng Kexue Jishu},
 note      = {In Chinese, Engl. abstr.},
 volume    = {26},
 number    = {6},
 year      = {1992},
 pages     = {80--81,88},
 keywords  = {Theory, screening},
 published = {11/1992},
 annote    = {(English abstract:) "The Poisson equation is solved to discuss
 the Coulomb screening for deuterium in metal crystal". It is not clear to
 this abtracter whether there is any conclusion.}
}
@article{Clar1992,
 author    = {B.~W. Clarke and R.~M. Clarke},
 title     = {Search for (3)H, (3)He, and (4)He in D2-loaded titanium},
 journal   = {Fusion Technol.},
 volume    = {21},
 year      = {1992},
 pages     = {170--175},
 keywords  = {Experimental, Ti sponge, gas phase, helium, tritium, res-},
 submitted = {02/1991},
 published = {03/1992},
 annote    = {A very careful experiment, using titanium sponge and D2 gas.
 The D2 was prepared from heavy water that had been stored since 1946 and was
 therefore exceptionally low in tritium contamination (T/D was measured as
 1.800E-15). A very sensitive mass spectrometer was used to determine He and
 tritium; sensitivity to (3)He and (4)He was 2E04 and 4E09 atoms,
 respectively. The Ti samples were outgassed at various temperatures and
found
 to contain at most 3E03 and 3E09 atoms of the two resp. He isotopes.  The D2
 gas was passed over the Ti sponge to be absorbed, to form TiD. The gas was
 then driven off at 900 degC and reabsorbed further down the flow line; this
 sort of transfer was repeated many times, going to D/Ti ratios up to 2, and
 using D2 as well as H2 gas, and mixtures thereof. Each time, the (3)He and
 (4)He levels evolved were measured. There appeared to be a release of these
 gases but careful accounting showed that it was all due to the He initially
 present in the metal, so cold fusion did not need to be invoked. An upper
 limit on the fusion rate of 1.4E-21 fusions/d-d pair/s was calculated and
 said to be in reasonable agreement with the Jones+ results. Tritium
 measurements showed an apparent excess of 9E07 atoms; of four possible
 sources of tritium contamination, two could not be ruled out and thus the
 figure gives an upper fusion rate limit of 1.6E-19 f/pair/s. The paper ends
 with a long discussion of origin of He and T contamination.}
}
@article{Craw1992,
 author    = {O.~H. Crawford},
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 title     = {Examination of a proposed phonon-coupling mechanism for
              cold fusion},
 journal   = {Fusion Technol.},
 volume    = {21},
 year      = {1992},
 pages     = {161--162},
 keywords  = {Theory, res-},
 submitted = {06/1991},
 published = {03/1992},
 annote    = {In this paper, Crawford takes a critical look at Schwinger's
 theory how cold fusion might work, i.e. the idea that coupled harmonic
motion
 of deuterons in the palladium lattice might lower the fusion barrier; in
 particular, Schwinger proposed that the p-d reaction is favoured. It is
shown
 here that Schwinger's model does not lead to any such thing, that the p-d
 interaction potential has nothing to do with cold fusion, which cannot be
 expected to be enhanced by this mechanism.}
}
@article{Czer1992,
 author    = {A. Czerwinski and R. Marassi},
 title     = {The absorption of hydrogen and deuterium in thin palladium
              electrodes. Part II: Basic solutions},
 journal   = {J. Electroanal. Chem.},
 volume    = {322},
 year      = {1992},
 pages     = {373--381},
 keywords  = {Experimental, Pd, loading study},
 submitted = {06/1991},
 published = {01/1992},
 annote    = {A report of the potential dependence of the amount of
 hydrogen/deuterium sorbed in a thin Pd film (supported on Au) in basic
 solutions of different electrolytes (NaOH, LiOH, NaOD, LiOD, all 0.1 M). It
 appears that Li+ ions favour absorption but hinder desorption of
 hydrogen/deuterium, with respect to Na+. Cyclic voltammetry was carried out,
 and the results show that absorption is strongly potential dependent, that
 basic electrolytes behave differently from acidic electrolytes, Li+ ions
seem
 to affect the alpha-beta transition more than Na+ ions, maximum H(D)/Pd
 ratios are not affected by the electrolyte composition, and that sorption
 causes irreversible changes in the palladium.}
}
@article{Dong1992,
 author    = {Q. Dong and W. Qiu and F. Gan and N. Cai},
 title     = {Studies on behavior of deuterium and hydrogen in palladium},
 journal   = {Chem. J. Chin. Univ.},
 volume    = {13},
 number    = {6},
 year      = {1992},
 pages     = {847--849},
 keywords  = {Experimental, positron annihilation, res0},
 annote    = {"The absorption, reserve, diffusion of deuterium and hydrogen
in
 palladium, and the positron lifetime of palladium during electrolysis are
 investigated by hydrogen permeation method and positron annihilation
 spectroscopy. The results show that the electrochemical behavior of
deuterium
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 is almost the same as that of hydrogen, but the amount of deuterium reserved
 in palladium is slightly less than that of hydrogen and the diffusion
 coefficient of deuterium is slightly greater than that of hydrogen. The
 positron lifetime in palladium after electrolysis is increased by 10.5\%.
The
 behavior similarity of deuterium and hydrogen and the possibility of 'cold
 nuclear fusion' are discussed". The same authors have published an
 English-language paper in the same year (see: Qiu WC, Dong QH, Gan FX, Wang
 SJ; Mat. Sci. Forum 105-110 (1992) 1961.), in which they state that they not
 able to draw conclusions about cold fusion from the results.}
}
@article{Enyo1992,
 author    = {M. Enyo and P.~C. Biswas},
 title     = {Hydrogen absorption in palladium electrodes in alkaline
             solutions},
 journal   = {J. Electroanal. Chem.},
 volume    = {335},
 year      = {1992},
 pages     = {309--319},
 keywords  = {Experimental, electrolysis, Pd foil, Li deposition, fugacity,
             res0},
 submitted = {05/1992},
 published = {09/1992},
 annote    = {The entry of hydrogen into palladium has mainly been observed
 in acid solution; the cold fusion controversy makes alkaline solutions
 interesting as well. Small foil samples of Pd of 5 mu thickness were
 subjected to galvostatic transients and the overpotentials monitored against
 time. From this, it was concluded that normal Butler-Volmer behaviour is
 observed at these electrodes in alkaline media. There was evidence of
 underpotential deposition of Li, explaining the disintegration of bulk Pd;
 this implies that similar deposition of Na and K is not ruled out. Maximum
 hydrogen pressure as a result of overpotential was less than that calculated
 from the Nernst equation, at up to about 10000 atm.}
}
@article{Fedo1992,
 author    = {G.~V. Fedorovich},
 title     = {Quantum-mechanical screening},
 journal   = {Phys. Lett. A},
 volume    = {164},
 year      = {1992},
 pages     = {149--154},
 keywords  = {Theory, res+},
 submitted = {06/1991},
 published = {04/1992},
 annote    = {Apparently motivated by cold fusion, F here tackles atom-atom
 (or ion-ion) interaction in a free-electron gas, with implications to
 crystalline solids, and particularly for the possible enhancement of fusion
 rates in such solids.  The model, not yet complete, nevertheless may throw
 some light on cold fusion, in particular its relation to the author's E-cell
 proposal, published elsewhere. At large electron density, electron
 wavelengths can become large and strong screening may occur.}
}
@article{Fili1992a,
 author    = {V.~A. Filimonov},
 title     = {Cold nuclear fusion: Its possibility in principle and means
             of realization},
 journal   = {Sov. Phys. Tech. Phys.},
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 volume    = {37},
 number    = {6},
 year      = {1992},
 pages     = {689--690},
 keywords  = {Theory, suggestion},
 published = {06/1992},
 annote    = {The movement of a deuterium soliton is coherent with the
 palladium antisoliton, and the deuterium shock compression is coherent with
 the shock rarification of the Pd sublattice; these cause Pd atom
 displacements much greater than thermal vibrations. Self organisation of a
 system of particles makes it easy for them to go to higher energies than the
 probability calculated from the individual jumps up the sub-levels. So
energy
 may be passed from excited Pd atoms to deuterons, thereby enhancing fusion
 rates, and Filimonov calculates a rate of $4\times 10^6$ fusion acts/s at a
 loading (D/Pd) of 0.3.  To optimise the cnf rate, Filimonov suggests coating
 the electrode with Pd black, use of an alkaline electrolyte to raise the
 cathode potential, and to promote a longitudinal potential gradient along
the
 electrode for nonequilibrium.}
}
@article{Fili1992b,
 author    = {V.~A. Filimonov},
 title     = {On the probability of cold nuclear fusion implementation:
              Synergetic hypothesis},
 journal   = {J. Radioanal. Nucl. Chem.},
 volume    = {162},
 year      = {1992},
 pages     = {99--109},
 keywords  = {Theory, res0},
 submitted = {11/1991},
 annote    = {An alternative theory of cold fusion is attempted here. It
 consists of the division of an energy gap into a series of smaller gaps and
 this, together with nonequilibrium (dissipative structure formation)
suggests
 higher fusion probability. State segregation si required for this theory,
and
 this might be provided by lattice distortions as a result of
 deuteration. Some mathematics is used to describe this idea, and there is a
 table. Its contents seem to contradict F's conclusions: that this is a
 possible mechanism. The table shows that rather high energies are needed.}
}
@article{Fish1992,
 author    = {J.~C. Fisher},
 title     = {Polyneutrons as agents for cold nuclear reactions},
 journal   = {Fusion Technol.},
 volume    = {22},
 year      = {1992},
 pages     = {511--517},
 keywords  = {Theory, polyneutrons, res+},
 submitted = {01/1992},
 published = {12/1992},
 annote    = {This attempts to address the problem of anomalies in cold
 fusion, which clearly cannot be "normal" d-d fusion. Electrostatic repulsion
 demands that the new mechanism involves at least one neutral species; it
 cannot be a single neutron (not observed), so perhaps it is
 polyneutrons. This assumes the existence of a precursor super-heavy isotope
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 (A)H (with A=6, for example) and the reaction n + (A)H --> (A)n + H, which
is
 mildly exothermic. The poly- neutron (A)n could then enter a number of
 different reactions, including fusion and growth to a higher A value, up to
 1E09. Much of this takes place in the electrolyte, involving lithium, so the
 role of the PdD phase is not clear here. This new physics opens up a rich
new
 field of study.}
}
@article{Flei1992,
 author    = {M. Fleischmann and S. Pons},
 title     = {Some comments on the paper Analysis of experiments on
              the calorimetry of LiOD-D2O electrochemical cells,
              R.H. Wilson et al., J. Electroanal. Chem. 332 (1992) 1},
 journal   = {J. Electroanal. Chem.},
 volume    = {332},
 year      = {1992},
 pages     = {33--53},
 keywords  = {Polemic},
 submitted = {03/1992},
 published = {08/1992},
 annote    = {A strong rebuttal of the cited polemic paper. F\&P find it full
 of misconceptions and misrepresentations of their own previous reports. In
 particular, F\&P write that they did not neglect evaporation effects, did
not
 overestimate heat transfer, and that they used modern data treatment methods
 such as Kalman filtering, unlike Wilson et al. }
}
@article{Garf1992,
 author    = {M. Garfinkle},
 title     = {Ion implantation as a definitive means of investigating any
              possibility of intracrystalline nuclear fusion},
 journal   = {Fusion Technol.},
 volume    = {22},
 year      = {1992},
 pages     = {160--163},
 keywords  = {Suggestion, ion implantation},
 submitted = {07/1991},
 published = {08/1992},
 annote    = {Electrochemical loading of a metal with deuterium has several
 drawbacks, among them the large iE heat term in calorimetric experiments,
the
 presence of oxygen in the solution, and others. Ion implantation is
suggested
 here. It would make mass spectrometry easier; also, with sufficient ion
 energies, quite large penetration depths up to a micrometer or so can be
 achieved, and loadings up to $10^{19}$ ions per cm$^3$. Also, the beam
 composition can be varied, allowing experiments with p, d, t or mixtures of
 these ions. Thin metal foils should be used, and reaction products can then
 be measured directly.}
}
@article{Gent1992,
 author    = {H. Gentsch},
 title     = {Reply to: R. Behrisch, Ber. Bunsenges. Phys. Chem. 96, 733
              (1992)},
 journal   = {Ber. Bunsenges. Phys. Chem.},
 volume    = {96},
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 year      = {1992},
 pages     = {734.},
 note      = {In German},
 keywords  = {Polemic},
 submitted = {01/1992},
 published = {05/1992},
 annote    = {Answer to Behrisch's polemic criticising Gentsch's 1991 paper.
 True, Gentsch did not read all the relevant literature, but his figures are
 maybe 10\% accurate, not totally out as Behrisch writes.}
}
@article{Gerl1992,
 author    = {I.~L. Gerlovin and R.~Kh. Baranova and P.~S. Baranov},
 title     = {New approach to low-temperature nuclear fusion},
 journal   = {Zh. Obshch. Khim.},
 volume    = {62},
 year      = {1992},
 pages     = {230--232},
 note      = {In Russian},
 keywords  = {Theory, suggestion},
 submitted = {12/1991},
 annote    = {The author here outlines, in a qualitative manner, their
 explanation of cold fusion, on the basis of the new unified fundamental
field
 theory, invoking spin orientation, the energy of vacuum, and the existence
of
 different kinds of space interacting, as well as magnetic effects. The
vaccum
 energy effect might explain long-term properties of cnf results, due to
 diurnal and other rhythms that are a result of the Earth's movement with
 respect to the vacuum of space. Best results should be achieved at 10 and 11
 am, and noon. This preliminary paper will be followed by both more
 theoretical and experimental work.}
}
@incollection{Gier1992,
 author    = {T.~F. Gieryn},
 booktitle = {The Social Dimensions of Science},
 editor    = {E. McMullin},
 publisher = {U. Notre Dame Press},
 address   = {Notre Dame, USA},
 title     = {The ballad of Pons and Fleischmann: Experiment and narrative
              in the (un)making of cold fusion},
 year      = {1992},
 pages     = {214--243},
 keywords  = {Science sociology, discussion},
 annote    = {A sci-soc/phil paper. The author narrates the development of
  the 'cold fusion' affair, in a somewhat light vein. He describes how P\&F
 have kept the subject alive, and have thrown doubt on their critics and
 generally have succeeded in keeping it in the public consciousness.}
}
@article{Gozz1992,
 author    = {D. Gozzi and P.~L. Cignini and M. Tomellini and S. Frullani
              and F. Garibaldi and F. Ghio and M. Jodice and G.~M. Urciuoli},
 title     = {Neutron and tritium evidence in the electrolytic reduction
              of deuterium on palladium electrodes},
 journal   = {Fusion Technol.},
 volume    = {21},
 year      = {1992},
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 pages     = {60--74},
 keywords  = {Experimental, electrolysis, Pd, neutrons, tritium, res0},
 submitted = {04/1991},
 published = {01/1992},
 annote    = {A FPH reenactment, using 10 cells and lasting 3 months, was
 carried out.  All 10 cells were placed in the same water bath and shared the
 same current.  A neutron detector was placed in the centre, and gamma
 detectors outside the ring. Tritium was measured in the recombined evolved
 gases. One of the 10 cells contained an H2O solution instead of D2O. Pd
 electrodes were gas (D2 or H2) charged prior to electrolysis. Current
 densities were changed according to a program suggested by a Texas A\&M
 result, up to 500 mA/cm$^2$, and there is a correlation between neutron
 emission and current density, with a threshold at about 320 mA/cm$^2$. Also,
 3 cells out of the 9 showed tritium in excess of enrichment, at the same
 currents as produced neutrons. Some anomalous thermal effects were found but
 are in doubt. No gamma emissions were found. The authors conclude that more
 work is needed.}
}
@article{Gran1992,
 author    = {P. Graneau and N. Graneau},
 title     = {The role of Ampere forces in nuclear fusion},
 journal   = {Phys. Lett. A},
 volume    = {165},
 year      = {1992},
 pages     = {1--13},
 keywords  = {Discussion, ampere forces},
 submitted = {10/1991},
 published = {05/1992},
 annote    = {Not referring to cold fusion, this paper points to deuterium
 fusion in conductors exploded by heavy current pulses. Neutrons and x-rays
 have been observed, not due to thermonuclear fusion, but presumably due to
 accelerated deuterons formed by the longitudinal Ampere forces along the
 axis. This might be a cheap alternative to Tokamak fusion, and is called
 filament fusion by the authors. There is reference to cluster impact fusion,
 now known to be an artifact.}
}
@article{Groe1992,
 author    = {F. Gr{\o}nlund},
 title     = {Electrolysis in calorimetry},
 journal   = {J. Thermal Anal.},
 volume    = {38},
 year      = {1992},
 pages     = {229--238},
 keywords  = {Discussion, polemic, res-},
 published = {01/1992},
 annote    = {This paper takes a critical look at the paper of Fleischmann
 et al 1990 or FPALH-90. Instead of the empirical and hard-to-follow method
of
 analysis used by FPALH, Groenlund starts from basics, not unlike Balej and
 Divisek. Only known thermodynamic relations and reactions are
 considered. Input power, heat flow out of the cell, enthalpy of electrolysis
 and of water evaporation (in the saturation of evolved gases) are all known
 and can be related. The numbers from the grand Table in FPALH are used; the
 only missing variable, cell temperature, is calculated indirectly. The
 calculated excess heats are about an order of magnitude smaller than those
 given by FPALH, i.e. 0-5\% of input power. There is a linear, rather than
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 power-, relation between excess heat and current, and an exponential one
with
 -Ea/RT (Ea = activation energy). The heat bursts of FPALH remain unexplained
 but no evidence exists for an anomalous effect for their origin. Conclusions
 are: At low current densities, the present analysis agrees with FPALH,
 i.e. FPALH's method agrees with the thermodynamic approach; at higher cd's,
 FPALH's values are too high by an order of magnitude and may be due to
error;
 the apparent large accumulation of excess energy could be due to small rates
 of recombination, despite FPALH's insistence that no recombination
 occurred.}
}
@article{Hage1992,
 author    = {P.~L. Hagelstein},
 title     = {Coherent and semicoherent neutron transfer reactions I:
              The interaction Hamiltonian},
 journal   = {Fusion Technol.},
 volume    = {22},
 year      = {1992},
 pages     = {172--180},
 keywords  = {Theory, res+},
 submitted = {11/1991},
 published = {08/1992},
 annote    = {Highly theoretical work, with quintuple discrete and continuous
 integrals, taxing this bibliographer's ability to keep up. The interaction
 Hamiltonian describing coherent neutron capture and neutron removel from a
 lattice are presented, leading to a new nonlinear phonon operator. Increased
 phonon coupling relative to Lamb theory predictions is an immediate
 result. Old work by Lamb, Moessbauer and Josephson etc is invoked. Under
some
 conditions, gamma emissions are expected.}
}
@article{Jaen1992,
 author    = {M. Jaendel},
 title     = {The fusion rate in the transmission resonance model},
 journal   = {Fusion Technol.},
 volume    = {21},
 year      = {1992},
 pages     = {176--178},
 keywords  = {Theory, res0},
 submitted = {06/1991},
 published = {03/1992},
 annote    = {The model of Turner, worked out in more detail by Bush, is
 examined. In this model, it is proposed that although there is a large
 potential barrier to cold fusion, a pair of such barriers might, by
 resonance, enhance the process. Bush did not offer any quantitative
 calculations of expected fusion rates based on this model; Jaendel makes
 these calculations, based on the WKB model. The conclusion is that
 transmission resonance cannot account for the observed cold fusion
 rates. Jaendel notes that this does not exclude some other mechanism, and
 that experimental evidence is paramount.}
}
@article{Jone1992,
 author    = {S.~E. Jones},
 title     = {Current issues in cold fusion research: heat, helium, tritium,
              and energetic particles},
 journal   = {Surf. Coatings Technol.},
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 volume    = {51},
 year      = {1992},
 pages     = {283--289},
 keywords  = {Discussion},
 annote    = {Four major issues current in cold fusion are explored in this
 paper.  Transfer, by some cooperative process, of released nuclear energy
 into the metal hydride lattice a heat: the distances are too large, and the
 Moessbauer effect is not relevant in this context. Thus, the (4)He branch,
 without the accompanying commensurate radiation, is impossible. There is
 considerable doubt about the China Lake results. At least two data points
 were thrown out, both of some significance. The results are considered in
 error, the helium no doubt coming in as contamination. The calorimetry at
 China Lake, too, was poor and the excess heat well within the probable
 error. Thirdly, tritium production without secondary neutrons is
 inconsistent. Lastly, large amounts of heat without commensurate nuclear
 emissions are not possible, so excess heat claims, too, are in error. This
 leaves the Jones et al findings of very low level neutron emissions,
possibly
 connected with geological tritium and (3)He production; the phenomenon is of
 academic, rather than practical, importance.}
}
@article{Kama1992,
 author    = {K. Kamada},
 title     = {Electron impact H-H and D-D fusions in molecules embedded in
Al.
             1. Experimental results},
 journal   = {Jpn. J. Appl. Phys.},
 volume    = {31 Part 2},
 year      = {1992},
 pages     = {L1287--L1290},
 keywords  = {Experimental, electron beam, cp's, res+},
 submitted = {05/1992},
 published = {09/1992},
 annote    = {Hydrogen and deuterium were embedded into Al and then bombarded
 by electron beams of 200 keV and 400 keV. Fusion events during the
 bombardment were detected by a CR39 polymer film, as charged particles.
 Fusion was detected for both hydrogen and deuterium in the Al, not strongly
 dependent on the energy of the electrons. The author is able to
differentiate
 the rates of fusion not due to and due to electron-hydrogen/deuterium
 collisions and concludes that most of the fusion is not due to such
 collisions.}
}
@article{Karab1992,
 author    = {A.~B. Karabut and Ya.~R. Kucherov and I.~B. Savvatimova},
 title     = {Nuclear product ratio for glow discharge in deuterium},
 journal   = {Phys. Lett. A170},
 year      = {1992},
 pages     = {265--272},
 keywords  = {Experimental, electrical discharge, Pd, neutrons, heat, helium,
             res0},
 submitted = {09/1992},
 published = {11/1992},
 annote    = {A chamber with a Pd foil of 0.1-1 mm thickness in an atmosphere
 of D2 at 3-10 Torr was used. Thermistors measured the foil temperature and
 this served as calorimeter. Also in the chamber were detectors for neutrons,
 gammas and charged particles (cp's) as well as x-rays. The Pd foil acted as
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 cathode for a discharge beam of 10-100 mA at 100-500V in the chamber. During
 running, excess heat, neutrons, gammas and cp's were detected. These
 paramaters were however not in the ratios expected from a fusion
 reaction. Postmortem examination of the foil revealed some increase in (3)He
 and an increase by factors of 4-100 in (4)He. All nuclear products, however,
 were at levels 3-4 orders of magnitude lower than commensurate with excess
 heat. The authors regard the calorimetry results as promising.}
}
@article{Kawa1992,
 author    = {J. Kawarabayashi and H. Takahashi and T. Iguchi and M.
Nakazawa},
 title     = {Low level neutron detection system for cold-fusion},
 journal   = {J. Facul. Eng., Univ. Tokyo B},
 volume    = {41},
 year      = {1992},
 pages     = {595--602},
 keywords  = {Experimental, neutron detector design},
 submitted = {04/1992},
 annote    = {A new neutron detector is described, using a new digital
 waveform analysis technique in order to suppress noise and to resolve bursts
 of pile-up. High sensitivity 3-He detectors were used to catch neutrons (8
 set around the detection space) optimally. Pulse height and wave for
analysis
 completes the setup. The lowest observable neutron rate was 0.022 n/s. This
 was tested in a mixture of heavy and light water, irrradiated by a gamma ray
 source (24Na) and the count rate found to be linear with heavy water
 concentration, as required.  It works.}
}
@incollection{Kitc1992,
 author    = {P. Kitcher},
 title     = {Authority, deference, and the role of individual reason},
 booktitle = {The Social Dimensions of Science},
 editor    = {E. McMullin},
 publisher = {U. Notre Dame Press},
 address   = {Notre Dame, USA},
 year      = {1992},
 pages     = {244--271},
 keywords  = {Soc/sci discussion},
 annote    = {A sci-soc/phil paper; it is concerned with "the constitution
 of epistemic authority", as seen in the case of 'cold fusion'. There is
 mathematical handling of such topics as authority functions, prestige
 effects, alliances, assessment of others' work, replication and more.}
}
@article{Kuzm1992,
 author    = {E. Kuzmann and M. Varsanyi and L. Korecz and A. Vertes
              and T. Masumoto and Y. Ujihira and A. Kiss and L. Kiss},
 title     = {Moessbauer study of cold nuclear fusion in Fe-Zr alloy},
 journal   = {Hyperfine Interactions},
 volume    = {71},
 year      = {1992},
 pages     = {1417--1420},
 keywords  = {Experimental, electrolysis, Fe-Zr alloy, neutrons, gammas,
              Moessbauer, res-},
 published = {04/1992},
 annote    = {Amorphous Fe89Zr11 ribbon was used as cathode and deuterised
 electrolytically both "in air and nitrogen" (i.e. in the cell head space),
in
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 an electrolyte of D2O or H2O and 0.005 M D2SO4 (or H2SO4) + 0.495 M Na2SO4,
 for 5000 s at constant potential. A plastic scintillator and a BF3 tube
 detected neutrons, a Ge-Li device detected gamma emissions, and Moessbauer
 spectra were taken in transmission geometry using a $10^9$ Bq activity
 (57)Co(Pd) gamma source. No dependence of the neutron emissions on cathode
 potential was found.  Moessbauer spectrum changes with loading could be
 explained simply by changes in deuterium (hydrogen) occupancy in the alloy.
 Spectrum changes due to the gas in the cell head space were likely due to
the
 gases' effect on loading. So no cold fusion effects were seen.}
}
@article{Laso1992,
 author    = {L. Lason and M. Przytula and R. Wojtkiewicz and J. Baczynski
             and J. Bauer},
 title     = {Search for neutrons from cold fusion of deuterium absorbed
             in palladium},
 journal   = {Acta Univ. Lodz., Fol. Phys.},
 volume    = {16},
 year      = {1992},
 pages     = {3--12},
 keywords  = {Experimental, gas phase, Pd, neutrons, res-},
 annote    = {A Pd tube, closed at one end, could be filled with deuterium up
 to a pressure of 1 atm, and heated by an electric coil around its outside. A
 BF3 and a 3He detector of neutrons were arranged around the chamber, with a
 paraffin moderator allowing detection of continuous neutron emission, and
the
 pulses from the 3He detector were recorded as well. To detect bursts, a GM
 beta counter with a Ag or In sample was used. The Pd tube was saturated with
 deuterium and measurements performed over 7 days, twice. No continuous or
 burst neutron emissions above background were observed.}
}
@article{Lewe1992a,
 author    = {B. Lewenstein},
 title     = {Cold fusion saga: Lesson in science},
 journal   = {Forum Appl. Res. Public Policy},
 volume    = {7},
 number    = {4},
 year      = {1992},
 pages     = {67--77},
 keywords  = {Sci-soc},
 annote    = {The author examines the question whether cnf is a unique
 phenomenon in the science sociological sense. He briefly outlines the
history
 of events for the three years up to the time of writing, and then finds that
 the characteristics one might name for cold fusion, are in fact not anything
 new after all. The role of the press, press conferences, the intrusion of
 politics, competition between universities, double discovery (Jones and
FPH),
 controversy; all are fairly normal in science. The one special feature might
 be the confluence of all these in a single issue.}
}
@article{Lewe1992b,
 author    = {B.~V. Lewenstein},
 title     = {Cold fusion and hot history},
 journal   = {Osiris},
 volume    = {7},
 year      = {1992},
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 pages      = {135--163},
 keywords   = {Sci-soc},
 annote     = {A soc-sci paper, following the cold fusion saga and its
 conflicts and problems it engendered. There is a chronology up to mid-1991
 and some publication statistics. Some interviews are quoted.}
}
@article{Liaw1992,
 author     = {B.~Y. Liaw and P. Tao and B.~E. Liebert},
 title      = {On charging palladium in an Al|LiCl-KCl eutectic,
               excess LiH(D)|Pd cell},
 journal    = {Proc. Electrochem. Soc. (Proc. 8th Int. Symp. Molten Salts)},
 volume     = {16},
 year       = {1992},
 pages      = {1--13},
 keywords   = {Experimental, molten salt, excess heat res+},
 annote     = {On high current-density charging of Pd with deuterium, excess
 heat was found. Various aspects of the experiments are discussed. Excess
heat
 was observed only sporadically.}
}
@article{Lips1992a,
 author     = {A.~G. Lipson and B.~V. Deryagin and V.~A. Klyuev
               and Yu.~P. Toporov and M.~G. Sirotyuk and O.~B. Khavroshkin
               and D.~M. Sakov},
 title      = {Initiation of nuclear fusion by cavitation action on
               deuterium-containing media},
 journal    = {Zh. Tekh. Fiz.},
 volume     = {62},
 year       = {1992},
 pages      = {121--130},
 number     = {12},
 note       = {In Russian},
 keywords   = {Experimental, Ti, some alloys, vibromill, fractofusion,
               neutrons, res+},
 submitted = {11/1991},
 annote     = {This is an update of an earlier work by the same team (in
 Pis'ma Zh. Teo.  Fiz. 16(9) (1990) 89), providing much the same data. Heavy
 and light water cells, with and without suspensions of LaNi5 or LaNi5Dx
 particles, were subjected to an ultrasonic Ti vibrator (22 kHz) while
 neutrons were measured by a block of 7 proportional counters immersed in an
 oil bath and shielded by 1mm of Cd; overall efficiency: 1.5\%. As before,
the
 ultrasound vibrations induce cavitation and for D2O, and D2O plus LaNi5Dx
 suspension, this produces neutrons at about 5 sigmas above the background,
 ceasing when the ultrasound is turned off. For a suspension of LaNi5,
 neutrons are only detected after the ultrasound is turned off - the
 "after-effect". }
}
@article{Lips1992b,
 author     = {A.~G. Lipson and V.~A. Kluev and V.~N. Mordovin
               and D.~M. Sakov and B.~V. Derjaguin and Yu.~P. Toporov},
 title      = {On the initiation of DD reactions in the zirconium-deuterium
               system},
 journal    = {Phys. Lett. A},
 volume     = {166},
 year       = {1992},
 pages      = {43--46},
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 keywords  = {Experimental, Zr, vibromill, fractofusion, neutrons, res+},
 submitted = {03/1990},
 published = {06/1992},
 annote    = {The authors suggest that group IV metals should be good
 materials, and high dispersivity should, by favouring cracks and
 dislocations, favour the dissociation of D2 into atoms, and thus loading
into
 the metal. Here, Zr is tried, in a vibromill, together with several
 deuterated substances such as D2O and polypropylene PP(D6). 10 g of
untreated
 Zr chips were used, mixed with 4\% PPD6 + 10\% D2O, placed into a steel
 cylinder with steel balls and milled at an applied power of 10W/g. Seven
 proportional counters measured neutron emission.  The cosmic background was
 0.03 n/s. Control experiments with just Zr in the mill produced no excess
 neutrons. The charged mill was frozen to -160 C and then vibrated for 3 min,
 then allowed to warm up to about 25 C to get the "post-effect" previously
 reported. The cell was then again taken down to -160 C. This cycle was
 repeated several times. Spectra show neutron event differences between these
 runs and blank runs, both during freezing and the post-effect, of 7 and 6
 sigmas, and of a strongly unsteady nature. Other transition metals that form
 deuterides should do the same.}
}
@article{Lips1992c,
 author    = {A.~G. Lipson and V.~A. Kutsnetsov and D.~M. Sakov
              and B.~V. Deryagin},
 title     = {Yield of nuclear fusion products from absorption of
              elastic energy in deuterated metals},
 note      = {In Russian},
 journal   = {Dokl. Akad. Nauk},
 volume    = {323},
 number    = {6},
 year      = {1992},
 pages     = {1097--1101},
 keywords  = {Theory, fracto-, res+},
 submitted = {11/1992},
 annote    = {An explanation is sought for the source of energy, about
 5-10 keV, required for deuterons to overcome their mutual repulsion, in a
 metal deuteride. The authors state that in a conducting medium, acceleration
 to these energies (by the fracto-mechanism) is improbable. The present
theory
 involves supercondensates, i.e. small volumes with high energy, supplied by
 external forces such as vibration (the Ti vibrator, ultrasonics,
cavitation),
 or internal phase transitions. Feynman diagrams are invoked, as well as
 phonons, and the model seems to explain observed results reasonably well,
 both for the Ti vibrator and electrolysis.}
}
@article{Lips1992d,
 author    = {A.~G. Lipson and B.~F. Lyakhov and B.~V. Deryagin
              and D.~M. Sakov},
 title     = {Parallel recording of pulsed thermal effects and neutron bursts
              in heterostructural Au/Pd/PdO, saturated with deuterium
              by electrochemical means},
 journal   = {Pis'ma Zh. Tekh. Fiz.},
 volume    = {18},
 number    = {20},
 year      = {1992},
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 pages     = {58--63},
 note      = {In Russian},
 keywords  = {Experimental, Pf film, electrolysis, neutrons, heat, res+},
 submitted = {10/1992},
 published = {12/1992},
 annote    = {A 30 mu cold-rolled Pd film was heated and annealed at up to
 600 C, forming an oxide layer. A 5000 A layer of gold was then
 electrolytically laid down on one side, and the sandwich electrolysed in
 NaOD/D2O at 20-30 mA/cm$^2$.  Temperature was measured by a gas thermometer,
 and neutrons by a block of 7 proportional counters with 3\% efficiency.
 Overall, no correlation between thermal and neutron events was observed.}
}
@article{Lips1992e,
 author    = {A.~G. Lipson and D.~M. Sakov and V.~B. Kalinin
              and B.~V. Deryagin},
 title     = {Neutron emission in monocrystals of KD2PO4, stimulated
              by ferroelectric phase transition},
 journal   = {Pis'ma Zh. Tekh. Fis.},
 volume    = {18},
 number    = {16},
 year      = {1992},
 pages     = {90--95},
 note      = {In Russian},
 keywords  = {** Experimental, ferroelectrics, neutrons, res+},
 submitted = {06/1992},
 published = {08/1992},
 annote    = {Essentially the same paper as that published by the same
authors
 (with Khodyakov) in Zh. Eksp. Teor. Fiz. 103 (1993) 2142, or JETP 76 (1993)
 1070 in English translation.  See the abstract for that paper.}
}
@article{Lope1992,
 author    = {A. R. {Lopez Garcia} and H. Vucetich and A.~E. Bolzan
              and A.~J. Arvia},
 title     = {Gamma-radiation detection limits for electrochemically induced
              deuterium cold-fusion rates},
 journal   = {Il Nuovo Cimento A},
 volume    = {105},
 year      = {1992},
 pages     = {987--992},
 keywords  = {Experimental, Pd, electrolysis, gama, res-},
 submitted = {12/1991},
 published = {07/1992},
 annote    = {The fact that the 2.45 MeV neutrons expected from d-d fusion
 are thermalised by water and then yield 2.224 MeV gamma radiation, was made
 use of here; a single NaI scintillation detector was used here, in
 conjunction with an electrolysis cell, with LiOH in D2O, at a Pd rod
cathode,
 and rather small currents. These were stepped occasionally from 0.8
mA/cm$^2$
 to double or ten times that, in order to provoke fusion. Measured emissions
 were three orders of magnitude below those of FPH but more in line with
those
 of the Jones team.  The FPH results may be due to errors.}
}
@article{Ma1992,
 author    = {Y. Ma and H. Yang and X. Dai},
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 title     = {A theoretical study of the possibility of cold nuclear fusion
              in condensed matter},
 journal   = {Nucl. Fusion Plasma Phys.},
 volume    = {12},
 year      = {1992},
 pages     = {171--177},
 note      = {In Chinese},
 keywords  = {Theory, res+},
 annote    = {(From the English abstract:) A strongly couple cold plasma
model
 of cold fusion. Strong Coulomb screening and micro-heat analysis show that
 the fusion rate is insensitive to temperature and density of deuterium ions,
 but sensitive to the screening correction factor of the total deuterium
ions.
 For certain values of this factor, cold fusion may be detectable.}
}
@article{Matsu1992a,
 author    = {T. Matsumoto},
 title     = {Interference phenomena observed during cold fusion},
 journal   = {Fusion Technol.},
 volume    = {21},
 year      = {1992},
 pages     = {179--182},
 keywords  = {Analysis, film tracks, quad neutrons, res+, no FPH/Jones refs},
 submitted = {02/1991},
 published = {03/1992},
 annote    = {Matsumoto has previously observed circular areas of damage on
 nuclear emulsions held outside a cold fusion electrolysis cell, and
 attributes them to micro-explosions of quad neutrons produced in palladium
 deuteride. These quad-neutrons decay within the metal lattice and produce
two
 different kinds of waves: gravitational and antigravitational. M has now
done
 more experiments and sees evidence of both of these. Known radiation such as
 electromagnetic or sonic, do not behave in this way, so these must be due to
 entirely new particles; one of them seems to oppose gravity.}
}
@article{Matsu1992b,
 author    = {T. Matsumoto},
 title     = {Observation of gravity decays of multiple-neutron nuclei
              during cold fusion},
 journal   = {Fusion Technol.},
 volume    = {22},
 year      = {1992},
 pages     = {164--171},
 keywords  = {Analysis, film tracks, nattoh, gravity decay, res+,
              no FPH/Jones refs},
 submitted = {07/1991},
 published = {08/1992},
 annote    = {According to M's nattoh (soya bean) theory of cold fusion
 involving the new elementary particle, the iton, cold fusion should leave
 behind di- and quad- neutrons; these, as described earlier by M, should
 suffer gravity decay, leading to micro-explosions. Nuclear emulsions
 previously placed in a cold fusion cell space were examined for evidence of
 such events. Under the microscope, many circles, clearly indicating gravity
 decay, were seen. The first group of such circles were up to 0.364 mm large;
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 in a second group of smaller circles, these were always smaller than those
of
 the first group, at about 22 mu. A third group had circles of intermediate
 size. There were other groups. Some of these could be assigned to the decay
 of di-neutrons, others to higher-n assemblies. Clearly, many-body fusions of
 hydrogen atoms at grain boundaries are responsible, leading to the
production
 of heavy elements such as Zn, Fe, and even Ru and In. All this might lead to
 a change in mass, but this has not been observed, which supports
 transmutation.  There are 10 references, all of them to previous work by the
 author.}
}
@article{Matsu1992c,
 author    = {T. Matsumoto},
 title     = {Searching for tiny black holes during cold fusion},
 journal   = {Fusion Technol.},
 volume    = {22},
 year      = {1992},
 pages     = {281--286},
 keywords  = {Analysis, film tracks, black holes, res+, no FPH/Jones refs},
 submitted = {12/1991},
 published = {09/1992},
 annote    = {The author continues in his efforts to support his Nattoh
 theory of cold fusion, which proposes the formation of neutron clusters
which
 collapse by gravity and then explode. This might also be expected to produce
 tiny black holes, and a careful search for these is described here. As
 before, post-experiment microscopic analysis of the Pd surface was carried
 out. The several figures clearly show black holes, from 10 to 100 mu in
 diameter, one of them with a tail. The region of space around this tail has
 asymmetrical curvature. Some others show associated other particles. There
 are six references, all to prior work by the author.}
}
@article{Matsu1992d,
 author    = {T. Matsumoto},
 title     = {Observation of stars produced during cold fusion},
 journal   = {Fusion Technol.},
 volume    = {22},
 year      = {1992},
 pages     = {518--523},
 keywords  = {Analysis, film tracks, star formation, res+, no FPH/Jones
refs},
 submitted = {01/1992},
 published = {12/1992},
 annote    = {M has searched for more features on nuclear emulsions held
close
 to a cnf electrolysis at a thin Pd foil. His theory of quad-neutrons
predicts
 various events. Multiple neutrons formed within the PdD matrix are covered
 with the itonic mesh. This slowly fades, but it might be so sticky that it
 will allow the multiple neutrons to react with the nuclei of the media, e.g.
 in the emulsion. One of the expected features is the formation of star-
shaped
 tracks, and they were indeed found. Some of these have long tracks and some
 have short tracks, and they obviously are the result of cold fusion taking
 place in the cell.}
}
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@article{Maye1992,
 author    = {F.~J. Mayer and J.~R. Reitz},
 title     = {Response to 'Comments on "Nuclear energy release in metals"'},
 journal   = {Fusion Technol.},
 volume    = {21},
 year      = {1992},
 pages     = {95--96},
 keywords  = {Polemic},
 submitted = {08/1991},
 published = {01/1992},
 annote    = {Answer to Bryan and Gibson's polemic (FT 21 (1992) 95) denying
 the validity of M\&R's claim for nuclear reactions between deuterium and Pd,
 leading to changes in Pd isotope distribution. M \& R agree that the
evidence
 for such changes is not there, but insist that their hydron theory of cold
 fusion fits the facts.}
}
@article{McAl1992,
 author    = {J.~W. McAllister},
 title     = {Competition among scientific disciplines in
              cold nuclear fusion research},
 journal   = {Science in Context},
 volume    = {5},
 year      = {1992},
 pages     = {17--49},
 keywords  = {Soc/sci discussion},
 annote    = {Science sociologist and philosopher McAllister looks at the
 sociological phenomenon of cold fusion, as rare evidence of competition
 between different disciplines (here: chemistry vs. physics), rather than the
 more usual intra- discipline strife. He gathers convincing evidence for such
 inter-discipline competition; certainly "the chemists" appear at times to
 have cheered each other, while "the physicists" have damned the phenomenon
of
 cold fusion. He also cites some dissent from chemists. The paper concludes
 that cold fusion put at stake the corporate interests of parts of the
 communities of chemists and physicists; that these challenges evoked
 corporate responses; and that the knowledge claims of the participants are
 molded in part by their disciplines' roles in the controversy.}
}
@article{McKe1992,
 author    = {J.~S.~C. McKee and G.~R. Smith and J.~J.~G. Durocher
              and H.~L. Johnston and M.~S. Mathur and J.~K. Mayer
              and A. Mirzai and Y.~H. Yeo and A. Hempel and H. Hnatiuk
              and S. King},
 title     = {The role of fractofusion in the creation of anomalies
              in neutron production from deuterium-implanted solids},
 journal   = {Nucl. Instr. Methods Phys. Res. B},
 volume    = {67},
 year      = {1992},
 pages     = {448--451},
 keywords  = {Discussion, fracto},
 annote    = {Purely on the basis of d-d separation (389 pm in Pd, 404 pm in
 PdD, 74 pm in D2 gas), cold fusion is unlikely. Here, the fracto-scenario is
 examined.  Can the material fracture, and might there be metal-dielectric
 transitions in the deuteride? Cracks are well documented, and in an ionic
 crystal, the time constant of potential decay of a 1 mu crack is long enough
 to support the required acceleration. In a metallic conductor, however, the
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 times are much smaller, unless the region around a crack becomes a
 dielectric, and this is thought to be possible. Fusion from acceleration
 should be accompanied by the emission of x-rays, and work is in progress.}
}
@article{Mell1992,
 author    = {R.~E. Mellican},
 title     = {From fusion frenzy to fraud: Reflections on science and
              its cultural norms},
 journal   = {Bull. Sci. Tech. Soc.},
 volume    = {12},
 year      = {1992},
 pages     = {1--9},
 keywords  = {sci-soc},
 published = {01/1992},
 annote    = {The philosopher author here associates cold fusion and science
 fraud in one article. Again, science-by-press conference is mentioned.
 Merton's conception of modern science is discussed. One of the features of
 "science" is that of "organised skepticism", or self-doubt, mentioned also
by
 CP Snow. Peer review acts as a social control. Cold fusion researchers have
 been charged with a lack of this self-doubt, and criticised for their press
 conferences. However, this is not unusual for exciting new fields; what is
 more, the critics themselves engaged in the same activity.  However,
Mellican
 points out that one feature of the cold fusion affair is that money plays a
 large role, and that this is an increasingly important aspect of
 research. The author concludes that society may need to reconsider, in the
 light of "scientific misconduct and the cold fusion episode", the
 relationship between science and the public.}
}
@article{Meng1992,
 author    = {G. Mengoli and M. Fabrizio and C. Manduchi and G. Zannoni
              and L. Riccardi and A. Buffa},
 title     = {Tritium and neutron emission in D2O electrolysis at Pd and
              Ti cathodes},
 journal   = {J. Electroanal. Chem.},
 volume    = {322},
 year      = {1992},
 pages     = {107--117},
 keywords  = {Experimental, electrolysis, Pd, Ti, tritium, neutrons, res+},
 submitted = {07/1991},
 published = {01/1992},
 annote    = {Previous work by this team, in which some evidence of tritium
 was found, indicated that large cathode area would be favourable, as would
be
 some sort of nonequilibrium. Here, this is followed up with larger Ti and Pd
 plates, rods and tubes, with the geometry providing asymmetric electric
 fields for nonequilibrium (unequal current densities over the cathode
 surfaces). The Ti was cleaned prior to use in either boiling 20\% oxalic
acid
 (3 min) or 5\% HF, to remove the blocking oxide layers; Pd was dipped in 5M
 HCl to remove traces of contaminant metals (Fe, Cr, etc). Tritium was looked
 for in the electrolyte and evolved gases; tritium in the cathodes was
 believed to appear in these phases eventually, so was not looked for in the
 metals. Neutrons were detected by a single scintillation counter, in a
 constant temperature room, regarded as important; pulse height
discrimination
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 was used; overall efficiency was 0.3-0.35\%. No significant neutrons were
 found, and none correlating with tritium peaks. This is probably due to the
 high background of above 100 c/s.  Tritium enrichment was observed, but
could
 not account for all of the tritium found, even if an infinite separation
 factor is assumed; no relationship (other than one negative one) between
 current and tritium produced could be discerned. Some tritium deficit was
 observed as well and put down to evaporation loss. What tritium excess was
 found appeared early in the electrolysis at Ti, in conformity with a
 near-surface effect.}
}
@article{Mill1992,
 author    = {R.~L. Mills},
 title     = {Reply to 'Comments on "Excess heat production by the
             electrolysis of an aqueous potassium carbonate electrolyte
             and the implications for cold fusion"'},
 journal   = {Fusion Technol.},
 volume    = {21},
 year      = {1992},
 pages     = {96.},
 keywords  = {Polemic},
 submitted = {09/1991},
 published = {01/1992},
 annote    = {Reponse to a polemic by Mayer (FT 20 (1991) 511), who doubts
 Mills and Kneizys's report; Mills shows that electrolyte conductivity
changes
 due to natural K isotopes are irrelevant. He concludes that, although
quantum
 mechanics is indeed, as Mayer notes, firmly entrenched, this does leave room
 for new ideas such as his; experimental results rule.}
}
@article{Mish1992,
 author    = {H. Mishima},
 title     = {Experimental trial for cold fusion using electrolysis technique
             of heavy water with palladium electrode Part 1},
 journal   = {Shigen to kankyou, Resources and Environment},
 volume    = {1},
 year      = {1992},
 pages     = {273--281},
 note      = {In Japanese},
 keywords  = {Experimental, Pd, electrolysis, gamma, neutrons, heat, res-},
 annote    = {"Possibility of the cold fusion by the electrolysis method with
 deuterized water and palladium and palladium alloy as the cathode has been
 studied. Gamma ray, neutron, and change in the solution temperature were
 measured as parameters as evidence for the cold fusion. The present
 experiments, however, did not indicate clear evidence for the cold fusion,
 since no significant difference in above parameters was obtained between
 electrolysis and background." (Direct reproduction of the English
abstract).}
}
@article{Mizu1992,
 author    = {T. Mizuno and T. Akimoto and K. Azumi and M. Enyo},
 title     = {Diffusion rate of deuterium in Pd during cathodic charging},
 journal   = {Denki Kagaku oyobi Kogyo Butsuri Kagaku},
 note      = {In Japanese, Engl. abstr.},
 volume    = {60},
 year      = {1992},
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 pages     = {405--411},
 keywords  = {Experimental, fundamental, electrolysis, Pd, loading,
diffusion},
 submitted = {12/1991},
 annote    = {A more fundamental paper on the absorption and release rates
for
 deuterium during electrolysis at a Pd cathode in 0.5M LiOD. The Pd rod was
 degassed in vacuum at 200 degC for about 20 h. This abstractor infers that
 loading was measured by gas volumetry. At a charging current of 44
mA/cm$^2$,
 the rod was fully charged to a D/Pd ratio of close to 0.8 in 16 days;
 discharge (presumably by current reversal) led to a rapid initial decrease
of
 this ratio to about 0.3, followed by a slower decline to zero over a 25-day
 period. From these experiments, the authors draw the conclusion that there
 exist phases within the metal with different diffusion coefficients for
 deuterium, i.e.  $10^{-6}$ cm$^2$/s in the alpha and beta phases, and and
 $10^{-8}$ cm$^2$/s in a new hypothetical gamma phase.}
}
@article{Noni1992,
 author    = {V.~C. Noninski},
 title     = {Excess heat during the electrolysis of a light water solution
              of K2CO3 with a nickel cathode},
 journal   = {Fusion Technol.},
 volume    = {21},
 year      = {1992},
 pages     = {163--167},
 keywords  = {Experimental, electrolysis, light water, calorimetry, res+},
 submitted = {07/1991},
 published = {03/1992},
 annote    = {The Mills \& Kneizys scenario; Noninski has visited the
Franklin
 and Marshall College where Mills and Farrell work, and carried out a
 confirmation experiment. He points out in the introduction that Pons, too,
 initially reported excess heat from H2O solutions. Calorimetry was by means
 of the difference between two identical Dewar cells, both containing the
same
 solutions and components. One cell had electrolysis plus an inactive heater,
 the other the reverse. Blank Dewars were also used as checks. Ni foil, 7.5 *
 4 * 0.0125 cm$^3$ was used as cathode, and the electrolyte was 0.57 M Na2CO3
 and K2CO3. There were significant differences in the behaviour of the
 solutions, with the K2CO3 electrolyte showing an excess heat at about 60\%
 over the input power. Noninski cannot see any trivial explanation for this
 excess; neither can it be due to temperature gradients in the cell, which
 were checked for by means of multiple thermistors, all showing the same. The
 extent of recombination of evolved hydrogen with oxygen is not known,
 although this was assumed zero in the calculation of excess heat. N does not
 comment further, except to say that a closed cell with a recombiner would
add
 to the complications. As others have done, N ends with a statement that
 experimental evidence is more important at this stage than theory.}
}
@article{Pinc1992,
 author    = {T.~J. Pinch},
 title     = {Opening black boxes: Science, technology and society},
 journal   = {Social Studies of Science},
 volume    = {22},
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 year      = {1992},
 pages     = {487--510},
 keywords  = {Soc/sci},
 annote    = {This was given as a talk at a conference and later published
 here. It is a sci-soc/phil paper, discussing 'the role of errors and
 mistakes' in 'cold fusion', among other subjects. Pinch points out that
 different standards are applied by critics of 'cold fusion' to its advocates
 and its critics. Authors Close and Broad are singled out as examples.}
}
@article{Pons1992,
 author    = {S. Pons and M. Fleischmann},
 title     = {Concerning the detection of neutron and gamma-rays from cells
              containing palladium cathodes polarized in heavy water},
 journal   = {Nuovo Cimento A},
 volume    = {105},
 year      = {1992},
 pages     = {763--772},
 keywords  = {Experimental, electrolysis, Pd, gammas, neutrons, helium,
res+},
 submitted = {04/1991},
 published = {06/1992},
 annote    = {P\&F have apparently now improved their expertise in radiation
 measurement, and here admit that their first attempt was insufficient. They
 now report the use of an efficient Ge detector for gamma rays, placed in a
 lab together with three electrolysis cell baths, each containing 4-6 cells,
 with various sized Pd cathodes, various current densities, plus a Pt cathode
 control. The Ge detector presumably would pick up radiation from any of
these
 cells. This was left to itself for up to 205 days, while some of the cells
 gave off excess heat. The integrated gamma spectrum has some sharp peaks at
 2224 keV, and some other features convince P\&F that this indeed comes from
 thermalisation of neutrons given off d-d by cold fusion, that branch that
 also produces (3)He.  There is some polemic about the Salamon measurements.}
}
@article{Prat1992,
 author    = {P. Prati and G. Ricco and M. Taiuti and C. Boragno
              and R. Eggenhoffner and U. Valbusa},
 title     = {Search for neutron emission from titanium-deuterium systems},
 journal   = {Nuovo Cimento A},
 volume    = {105},
 year      = {1992},
 pages     = {293--299},
 keywords  = {Experimental, Ti, gas phase, neutrons, detector design, res-},
 submitted = {10/1991},
 published = {02/1992},
 annote    = {This team designed a new type of multiparameter, high-
efficiency
 neutron detector, recognising that this is required for cold fusion
 experiments. The aim was to verify the results of Scaramuzzi et al, for high
 D loadings in Ti.  Three coaxial scintillator shells were used, 20 cm long
 and about 5 cm thick.  The inner shell was filled with NE213 liquid and the
 two outer ones are plastic NE102A.  Cd sheets between the shells capture
 neutrons thermalised within the detector. An anticoincidence cosmic ray
 detector was placed over the setup and the whole surrounded by a paraffin
(20
 cm) and Cu (2 cm) and Pb (10 cm) wall. A 30 cm$^3$ sample could be placed in
 the centre of all this.  A pulse shape discriminator separated gamma events
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 from neutrons. Detection efficiency at 2.45 MeV was calibrated at 12.5\%. Ti
 shavings were exposed to D2 gas under pressure; when the Ti was not heated
in
 vacuum, no D2 was absorbed and the neutron count was the same as the
 background; the same was obtained with Ti powder. When the powder was heated
 in vacuum at 560 C for about 7 h, and then exposed to 16 atm of D2 gas, it
 did absorb it and the temp. went up to 600 C; still no neutrons were
 detected. This loaded Ti was then subjected to several thermal cycles
between
 liquid N2 and room temperature, and at no time was there any neutron
emission
 above background.  The authors conclude that the Scaramuzzi-type experiment
 is not suitable, because no D2 is absorbed.}
}
@article{Qiu1992,
 author    = {W.~C. Qiu and Q.~H. Dong and F.~X. Gan and S.~J. Wang},
 title     = {PAS studies on the new topic: Cold nuclear fusion},
 journal   = {Mat. Sci. Forum},
 volume    = {105-110},
 year      = {1992},
 pages     = {1961--1964},
 keywords  = {Experimental, Pd, electrolysis, positron anihilation, fracto-,
              res-},
 annote    = {The behaviour of H and D in palladium hydride might be
analogous
 to positrons in electric flows, so positron annihilation spectroscopy might
 be a useful tool. By this method, as well as by the electrochemical hydrogen
 permeation (EHP) method, the behaviour of H and D in Pd were compared. The
Pd
 plates (15*15*2 mm$^3$) were annealed at 550 C for 8 h, and electrolysis
 carried out in 0.5 M LiOH/D for 5 h at 800 mA. An Ortec lifetime
spectrometer
 with a fast-fast coincidence system and BaF2 detectors was used, with a
 (22)Na source, for 1E06 counts. Results are that H and D behave in nearly
the
 same way; both change one of the PAS parameters (tau1) but this can be
 attributed to volume changes and not to crack formation, since the value
 recovered after final annealing. No cold fusion effects were observed.}
}
@article{Ramb1992,
 author    = {M. Rambaut},
 title     = {Double screened Coulomb barrier accounts for neutrons
              productions in cluster and other fusion experiments},
 journal   = {Phys. Lett. A},
 volume    = {164},
 year      = {1992},
 pages     = {155--163},
 keywords  = {Theory, screening, CIF connection, res+},
 submitted = {09/1991},
 published = {04/1992},
 annote    = {A dense medium like Pd deuteride can be considered as a non-
ideal
 plasma.  Assuming full ionisation, electron mobility and a Poisson ion
 spatial distribution, the rate of d-d fusion is enhanced by both collisions
 between d-d pairs and electron screening, and this might explain both cold
 fusion and cluster impact fusion (the latter is now disproved, however.}
}
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@article{Ray1992,
 author    = {M.~K.~S. Ray and R.~D. Saini and D. Das and G. Chattopadhyay
              and R. Parthasarathy and S.~P. Garg and R. Venkataramani
              and B.~K. Sen and T.~S. Iyengar and K.~K. Kutty and D.~N. Wagh
              and H.~N. Bajpai and C.~S.~P. Iyer},
 title     = {The Fleischmann-Pons phenomenon - a different perspective},
 journal   = {Fusion Technol.},
 volume    = {22},
 year      = {1992},
 pages     = {395--399},
 keywords  = {Experimental, Pd, electrolysis, multiparameter, oxygen, res+},
 submitted = {10/1991},
 published = {11/1992},
 annote    = {Lacking precise definitions of the conditions favourable for
 cold fusion, this team tried a wide variety of physical, chemical and
 electromagnetic perturbations of a cold fusion experiment in an attempt to
 elicit the effect.  A divided cell was chosen, which separates the evolved
 gases from the start.  The porous alumina membrane also acted as a thermal
 separator, increasing the sensitivity of thermal transient measurement. Ti
 and Pd cathodes of various shapes, size and metallurgical charactersistics
 were used, in various concentraions of LiOH, LiOD, NaOH and NaOD, over
 electrolysis periods going up to 300 h. The Pd electrodes were degassed at
 800 C in vacuum. Loadings exceeding 0.8 in Pd were repeatedly achieved, but
 none of the perturbations resulted in any tritium, neutron or temperature
 rise effects in any runs, and no explosions took place; other attempts at
 perturbing the cell failed equally (cooling with ice water, ultrasonics,
 cooling to liquid nitrogen temperature).  It is concluded that dividing the
 cell removes the effect. Three isolated incidents, where oxygen was allowed
 to enter the cell, led to both tritium and excess heat production;
 conventional (chemical) explanations having to do with oxygen etc, were not
 sufficient to explain this. Thus it appears that oxygen plays a role in cold
 fusion.}
}
@article{Rile1992,
 author    = {A.~M. Riley and J.~D. Seader and D.~W. Pershing},
 title     = {An in-situ volumetric method for dynamically measuring the
              absorption of deuterium in palladium during electrolysis},
 journal   = {J. Electrochem. Soc.},
 volume    = {139},
 year      = {1992},
 pages     = {1342--1347},
 keywords  = {Experimental, Pd, electrolysis, loading, diffusion, res0},
 submitted = {03/1991},
 published = {05/1992},
 annote    = {This team refined the method used by Divisek et al, i.e. they
 measured the deuterium loading in real time by the deuterium volume lost.
The
 paper thoroughly reviews a large number of other methods for loading
 monitoring. A thermostated cold fusion electrolysis cell is attached to a
 pair of gas burettes (not thermostatted but room temperature was controlled
 to some extent). Pressure in the sealed cell was kept at 1 atm by adjusting
 the burette levels. The cell was initially cleared of air by evacuating and
 refilling with deuterium, repeating once. A catalytic recombiner in the cell
 removed all the oxygen and a stoichiometric amount of deuterium with it,
 which registered in the gas burette as a loss. Electrolytes were 0.1 M LiOD
 as well as an acid solution made by acidifying that solution to a pH of 1.7
 by addition of D2SO4. Control experiments were carried out, and gave small
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 signals, setting the measurement error.  Results showed loadings generally
of
 0.75-0.8. At current density above about 30-60 mA/cm$^2$, loading rate was
 constant, being controlled by the diffusion within the Pd; at lower current
 densities, loading is slowed down. From these results, the diffusion
 coefficient of deuterium in the deuteride could be determined, and was
 $1.7\times 10^{-11}$m$^2$/s, in good agreement with the literature (Lewis,
 $1.6\times 10^{-11}$). In a few experiments, loading levels of about unity
 were achieved; it was not possible to identify the factors leading to
 this. The conclusion is that gas volumetry is a good method of monitoring
the
 loading within about 5\% accuracy and is useful for closed-system
 calorimetry.}
}
@article{Robe1992,
 author    = {D.~A. Roberts and F.~D. Becchetti and K. Ashktorab and D.
Stewart
              and J. Jaenecke and H.~R. Gustafson and M.~J. Dueweke},
 title     = {Deuterated liquid scintillator (NE230) as a fast neutron
              detector for cold fusion and other research},
 journal   = {IEEE Trans. Nucl. Sci.},
 volume    = {39},
 number    = {4},
 year      = {1992},
 pages     = {532--535},
 keywords  = {Experimental, Pd, electrolysis, neutrons, res-},
 annote    = {NE230 scintillator detectors with deuterium can provide neutron
 spectra without time of flight, unlike the type NE213. The authors report
the
 use of these. They are small and and have good collection efficiency and
 n-gamma discrimination. One of these was used around a cold fusion
 electrolysis cell, with a Pd wire and a 13 g Pd casting. An upper limit for
 the fusion rate of $< 7\times 10^{-24}$ fusions/s/dd-pair was measured. In
 another experiment, Ti sponge was charged from the gas phase at liquid
 nitrogen temperature, and here the upper fusion limit was $< 3\times
 10^{-24}$ fusions/s/d-d-pair. No comment is made.}
}
@article{Rous1992,
 author    = {D.~L. Rousseau},
 title     = {Case studies in pathological science},
 journal   = {Amer. Scientist},
 volume    = {80},
 number    = {Jan-Feb},
 year      = {1992},
 pages     = {54--63},
 keywords  = {Discussion},
 annote    = {Polywater, cold fusion and Benveniste's homeopathic paper in
 Nature are used here as examples of PS. The author was himself involved in
 the first of these three, and its debunking; he found the impurities that
 caused the "anomalous" behaviour of water, i.e. traces of sweat. DLR
believes
 that cold fusion, like the other two cases, is one of self delusion. There
is
 a good Johnny Hart cartoon.}
}
@article{Shah1992,
 author    = {M. Shaheen and M. Ragheb},
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 title      = {Anomalous deuteron to hydrogen ratio in naturally occurring
               fission reactions and the possibility of deuteron
               disintegration},
 journal    = {J. Radioanal. Nucl. Chem.},
 volume     = {158},
 year       = {1992},
 pages      = {323--342},
 keywords   = {Comment},
 submitted  = {06/1991},
 annote     = {This paper chiefly addresses the Oklo phenomenon, i.e.,
anomalous
 (235)U/(238)U ratios in geological samples from that region in Gabon,
Africa,
 and an anomalous D/H ratio. A theory is deuteron disintegration, followed by
 reaction with metal nuclei, is described and quantified.It can explain the
 anomalies. The authors then go on to speculate that a similar disintegration
 might be at the base of cnf in metals, and suggest that isotopic changes be
 searched for.}
}
@article{Shib1992,
 author     = {T. Shibata and M. Imamura and S. Shibata and Y. Uwamino
               and T. Ohkubo and S. Satoh and K. Yamakoshi and N. Oyama
               and T. Ohsaka and N. Yamamoto and O. Hatozaki and N. Niimura},
 title      = {A low background neutron measuring system and its application
to
               the detection of neutrons produced by the D2O electrolysis},
 journal    = {Nucl. Instrum. Methods Phys. Res. A},
 volume     = {316},
 year       = {1992},
 pages      = {337--342},
 keywords   = {Experimental, neutron detector design, res-},
 submitted  = {08/1991},
 annote     = {For cold fusion experiments as well as others, it is important
 to be able to measure low-level neutron emission and distinguish it from the
 background, largely due to cosmic rays and natural radioactivity. A suitable
 system was developed and tested in an underground lab, on a cold fusion
 electrolysis. The choice was two spherical (3)He detectors at 10 atm
 pressure, 5 cm diameter and buried in polyethylene moderator, with another
 (background) detector in another part of the moderator block. The block was
 shielded by paraffin blocks containing boric acid. Counts and discriminator
 counts were stored on a floppy disk. The lab's temperature was kept constant
 at about 23 C, humidity at 65\%.  An air flow prevented radon
 accumulation. The detector's efficiency was 4\% or so, and the background
was
 1/20 that at sea level, depending on the material placed into the cell
 (i.e. its atomic mass). For pure Cu, it was about $0.3 \times 10^{-4}$
 n/s/mol. A number of Pd cathodes were tried for D2O electrolysis, and the
 measured neutron emission did not deviate, either in intensity or in count
 frequency distribution, from the background. There was also analysis of the
 electrolyte for tritium before and after, with none found.}
}
@article{Siod1992,
 author     = {R.~E. Sioda and T.~Z. Fahidy},
 title      = {A simplified approach to the thermal behaviour of electrolytic
               Dewar cell calorimeters},
 journal    = {J. Appl. Electrochem.},
 volume     = {22},
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 year      = {1992},
 pages     = {347--350},
 keywords  = {Comment, suggestion, calorimetry},
 submitted = {05/1991},
 published = {04/1992},
 annote    = {Calorimetry is central to much of cold fusion research, and
has'
 been dogged by problems. In this paper, the authors describe a simplified
 thermal analysis in terms of a single nonlinear thermal balance for the
 prediction of temperature time variations in such cells. The overall heat
 loss coefficient can be estimated accurately. The model can be reduced to a
 simple one, or made more complex. In the simplest case, constant input power
 is assumed, as well as constant radiative emissivity and emission area for
 both source and sink.  The heat balance differential equation can then be
 solved, and numbers are tabulated as examples. Varying input power is also
 allowed. Results show that heat loss can be estimated experimentally and
this
 may help decide whether excess heat is produced.}
}
@article{Soyf1992,
 author    = {V.~N. Soyfer and V.~A. Goryachev and A.~N. Salyuk
              and A.~F. Sergeyev},
 title     = {Neutron emission during heavy water electrolysis},
 journal   = {Appl. Radiat. Isot.},
 volume    = {43},
 year      = {1992},
 pages     = {1041--1044},
 keywords  = {Experimental, Ti, Pd, TiV alloy, electrolysis, discharge,
              neutrons, res-},
 submitted = {09/1989},
 annote    = {Electrolysis in heavy water and NaOH at Ti (and other) cathodes
 and Ni anodes at a range of current densities from 0.05 to 300 A/cm$^2$ was
 carried out, motivated by press reports of the FPH work. Neutrons were
 detected using a proportional methane counter, with cosmic background
 rejection by an anticoincidence chamber. This had a neutron efficiency of
 about 7\%. Ti plates, a stainless steel wire, a Ti-V alloy and Pt and V
wires
 were tried as cathodes. Spark discharges were also tried. No neutrons even
16
 orders of magnitude lower than the rates required by the excess heats
 reported by FPH were seen in any of these runs. This seems to be the same
 paper as that of Soifer et al.}
}
@article{Sun1992,
 author    = {D.~L. Sun and Y.~Q. Lei and Y.~L. Chen and J. Wu
              and Q.~D. Wang and X.~N. Lu},
 title     = {A study of existing forms of deuterium in palladium by
              positron lifetime spectroscopy},
 journal   = {Chinese Sci. Bull.},
 volume    = {37},
 year      = {1992},
 pages     = {1073--1075},
 keywords  = {Experimental, Pd, positrons, res-},
 submitted = {12/1990},
 published = {07/1992},
 annote    = {It is of value to know what form deuterium takes in palladium
 deuteride.  Positron lifetime spectroscopy can produce some information. The
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 authors did such an experiment, and conclude that (1) electrochemical
loading
 of Pd with deuterium causes increases in the density of dislocations and
 vacancies, and (2) that part of the deuterium exists in the Pd lattice as D+
 ions and that this prevents nuclear fusion by simple electron screening.}
}
@article{Swar1992,
 author    = {M.~R. Swartz},
 title     = {Quasi-one-dimensional model of electrochemical loading of
              isotopic fuel into a metal},
 journal   = {Fusion Technol.},
 volume    = {22},
 year      = {1992},
 pages     = {296--300},
 keywords  = {Theory},
 submitted = {01/1992},
 published = {09/1992},
 annote    = {A cold fusion electrolysis cell, with a Pt anode, a Pd cathode
 and intervening electrolyte, is modelled as a 1-D system for the transport
of
 deuterium ions. The flux of deuterons in the direction of the model is
 derived, using 18 equations in all. The implications for cold fusion are
that
 loading and D2 formation are mutually antagonistic, and the crystal
structure
 of the Pd is important (defects, dislocations, zeolite-like diffusion of
 deuterons in the lattice), as well as its overall shape and small surface
 features such as spikes.}
}
@article{Szef1992,
 author    = {Z. Szeflinski and M. Kozlowski and S. Osuch and P. Sawicki
              and G. Szeflinska and Z. Wilhelmi and K.~B. Starowieyski
              and M. Tkacz},
 title     = {Upper limit of neutron emission from the chemical reaction
              of LiD with heavy water},
 journal   = {Phys. Lett. A},
 volume    = {168},
 year      = {1992},
 pages     = {83--86},
 keywords  = {Experimental, chemical, LiD, heavy water, neutrons, res-},
 submitted = {06/1992},
 published = {08/1992},
 annote    = {Claims (Arzhannikov et al 1991) that chemical reactions, too,
 can cause cold fusion, inspired this work, in which neutrons were measured
 next to a test tube of heavy water, to which crystals of LiD were gradually
 added. Five liquid scintillation neutron detectors were used to exclude
noise
 events, with additional shape discrimination. The upper limit for neutron
 emission was measured to be $1.2 \times 10^{-26}$ n/d-atom/s, one order of
 magnitude lower than the previous workers (Arzhannikov et al). No bunched
 emissions were seen either. The authors conclude that no fusion was seen.}
}
@article{Szpa1992,
 author    = {S. Szpak and P.~A. Mosier-Boss and S.~R. Scharber},
 title     = {Charging of the Pd/(n)H system: role of the interphase},
 journal   = {J. Electroanal. Chem.},
 volume    = {337},
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 year      = {1992},
 pages     = {147--163},
 keywords  = {Experimental, basic study, loading},
 submitted = {11/1991},
 published = {10/1992},
 annote    = {The success of electrochemical compression of a hydrogen
isotope
 into Pd - and of obtaining the Fleischmann-Pons effect - depends on what
 happens at the interface between the Pd surface and the electrolyte. Most of
 what is known refers to hydrogen, and cannot simply be transferred to
 deuterium, hence this study. Slow scan cyclic voltammetry was employed.
 Examined were: the time behaviour of voltammograms, effect of scan rate, the
 difference between light and heavy water, pH effects, weakly adsorbable ions
 (Cl-, OH-), and surface active species such as CN-. The team concludes that
 the interphase is an active participant in the bulk charging process.}
}
@article{Takah1992a,
 author    = {A. Takahashi and T. Iida and T. Takeuchi and A. Mega},
 title     = {Excess heat and nuclear products by D2O/Pd electrolysis
             and multibody fusion},
 journal   = {Int. J. Appl. Electromagn. Mater.},
 volume    = {3},
 year      = {1992},
 pages     = {221--230},
 keywords  = {Experimental, Pd, electrolysis, excess heat, res+},
 submitted = {05/1992},
 annote    = {A detailed description of a series of electrolysis experiments,
 in which both cell temperature and neutron emission were monitored, cell
 temp. by a single thermistor between the cathode and a cooling coil, and
 neutrons by an method described elsewhere. The cathodes were Pd plates,
25*25
 mm$^2$ by 1 mm thick, mounted between two polyethylene insulators, which was
 wound with the Pt anode at a pitch of 5 mm. This allowed a loading of close
 to 1, believe the authors. The cell temperature (mixing) time constant was
 measured at about 15 min, and a rough calibration of power output vs cell
 temperature was made. The applied (controlled) current was either ramped or
 pulsed at around 1A/cm$^2$, for long periods, with topping up of D2O every
 4-8 days. Several anomalous excess heat events were observed, in one
instance
 an accumulated excess of 160 MJ over a week. Some neutron events were seen,
 but correlated somewhat negatively with excess heat events. Neutron flux was
 generally higher for high current, however. Also, neutron flux remained low
 for 1-2 days after one D2O topping up.
 The authors present their theory to explain the dearth of neutrons. At high
 loadings, 3-body and 4-body fusions might take place, some producing no
 neutrons or tritons, but alpha particles instead.}
}
@article{Takah1992b,
 author    = {A. Takahashi},
 title     = {Cold fusion research: Recent progress},
 journal   = {Kaku Yugo Kenkyu},
 volume    = {68},
 number    = {4},
 year      = {1992},
 pages     = {360--367},
 keywords  = {Review},
 submitted = {07/1992},
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 annote    = {Review of three years' accumulated cold fusion work, observing
 weak neutron emission, tritium generation with anomalous n/t ratios, charged
 particle emission with anomalies, (4)He generation, excess heat, and
 anomalous D/Pd loading. Some of these suggest a nuclear process, but the
 relationship between excess heat and nuclear products is not yet clear.
 14 refs.}
}
@article{Tana1992,
 author    = {M. Tanaka},
 title     = {Parametric enhancement of the tunneling transmission through
              a potential barrier},
 journal   = {J. Nucl. Sci. Technol.},
 volume    = {29},
 year      = {1992},
 pages     = {1129--1132},
 keywords  = {Theory},
 submitted = {06/1992},
 published = {12/1992},
 annote    = {On the basis of a simple model, it is shown that an auxiliary
 potential in parametric resonance with incident particles may effectively
 modify the tunneling transmission of particles through a potential barrier.
 This might explain neutron bursts observed by some cold fusion workers.}
}
@article{Tian1992,
 author    = {Z.~Q. Tian},
 title     = {A proposal for a cold fusion study in the Ti/D system},
 journal   = {Fusion Technol.},
 volume    = {21},
 year      = {1992},
 pages     = {92--94},
 keywords  = {Comment, suggestion},
 submitted = {06/1991},
 published = {01/1992},
 annote    = {Three conditions are required for cold fusion to take place:
 (1) a high deuterium loading; (2) triggering the system to a nonequilibrium
 state and (3) capturing the reaction products to sufficient
 sensitivity. Point (2) is often overlooked, says the author. The most
 promising system is the Ti/D system. The use of a special electrolysis
method
 would ensure high loading, and triggering might be done by passing a high
 current through the sample. Electrolysis can, for example, be carried out at
 low temperatures in methanol or other nonaqueous electrolytes. Surface
 treatment, to control oxide layers, is also important.}
}
@article{Tsar1992a,
 author    = {V.~A. Tsarev and V.~A. Chechin},
 title     = {On the nonstationary quantum-mechanical nature of anomalous
              nuclear effects in a solid},
 journal   = {Kratk. Soobshch. Fiz.},
 year      = {1992},
 number    = {9--10},
 pages     = {47--52},
 note      = {In Russian},
 keywords  = {Suggestion, theory},
 submitted = {11/1992},
 annote    = {A model of nuclear fusion enhancement in a solid matrix is
 proposed, in which Coulomb barrier penetration is increased by the breaking
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 of the stationary state of deuterons in the crystal lattice. This effect is
 said to be well known, and confirmed. Roughly, the argument hinges on the
 tails of energy distributions, and some mathematics such as Joost functions,
 Fourier transforms and ikonal functions are invoked to support this.}
}
@article{Tsar1992b,
 author    = {V.~A. Tsarev and D.~H. Worledge},
 title     = {Cold fusion studies in the USSR},
 journal   = {Fusion Technol.},
 volume    = {22},
 year      = {1992},
 pages     = {138--155},
 keywords  = {Review},
 submitted = {10/1991},
 published = {08/1992},
 annote    = {This sums up cold fusion work in the (former) USSR up to
 mid-1991, mainly drawing on the first Soviet National Conferencue on Cold
 Nuclear Fusion, in March 1991. There is very modest support for cnf research
 in the USSR [sic], at about 0.5 million roubles. Some thorough work has been
 done, but little on calorimetry. "Mechanofusion", normally called
 fractofusion in the West, is given the prominence it deserves. Ten research
 institutes in the USSR [sic] are named as places where cnf research is being
 done. Of the 59 references given, 30 are unresolved (unpublished or
 conferences), although known to others (e.g. contained in this
 bibliography).}
}
@article{Tsar1992c,
 author    = {V.~A.~Sov. Tsarev},
 title     = {Anomalous nuclear effects in solids ("cold fusion"):
              questions still remain},
 journal   = {Sov. Phys. Usp.},
 note      = {Orig. in: Usp. Fiz. Nauk 162 (1992) 63; this journal now
              goes under the new name of Physics Uspekhy in translation.},
 volume    = {35},
 year      = {1992},
 pages     = {842--856},
 keywords  = {Comment, res0},
 submitted = {04/1992},
 published = {10/1992},
 annote    = {A short history of LTF (low temperature fusion, as the Russians
 call it) mentions the quick succession of surprise and demise, and some
juicy
 quotes are given. Tsarev writes that the hard words are justified. LTF
 enthusiasts are inclined to acknowledge as fully reliable all positive
 results, and call their critics the scientific mafia; again, a few quotes.
 Tsarev draws no conclusions from all this, but turns to recent experimental
 data, which is summarised compactly. Theories are classified into exotic or
 more natural models; the acceleration model (fractofusion) falls into the
 latter class, although Tsarev points out problems here as well. No
conclusion
 is drawn.}
}
@article{Uhm1992,
 author    = {H.~S. Uhm and W.~M. Lee},
 title     = {High concentration of deuterium in palladium},
 journal   = {Fusion Technol.},
 volume    = {21},
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 year      = {1992},
 pages     = {75--81},
 keywords  = {Comment, suggestion},
 submitted = {07/1991},
 published = {01/1992},
 annote    = {A high ratio D/Pd is required for solid state fusion, say the
 authors, as well as being interesting for other electrochemical studies. At
 beyond 1, the substance PdD2 forms, with a d-d distance of only 0.94 A. New
 schemes for high loading are presented here. One is plasma ion implantation
 into a Pd rod coated with a diffusion-barrier layer. Parameters are found
for
 which large loadings are possible. The other scheme is the use of a
 temperature gradient, with the D-loaded Pd rod placed into a snugly fitting
 steel tube; a portion of the Pd is heated, which leads to high
concentrations
 in some regions. Both proposed techniques can increase the D/Pd ration to
 several times the usually obtained values.}
}
@article{Vokh1992,
 author    = {O.~M. Vokhnik and B.~I. Goryachev and A.~A. Zubrilo
              and G.~P. Kutznetsova and Yu.~V. Popov and S.~I. Svertilov},
 title     = {Search for effects related to nuclear fusion in the optical
              breakdown of heavy water},
 journal   = {Sov. J. Nucl. Phys.},
 volume    = {55},
 number    = {12},
 year      = {1992},
 pages     = {1772--1773},
 keywords  = {Experimental, laser beam, neutrons, res-},
 submitted = {04/1992},
 published = {12/1992},
 annote    = {Going by the accelerator (fracture) model of cold fusion, this
 team reasoned that laser breakdown of water, resulting in strong cavitation,
 laser sparking and acoustic signals, should produce similar results. A ruby
 laser with pulses of 20-30 mJ energy was used; the cell was placed in a 130-
L
 fast neutron scintillation detector. No neutrons beyond the background were
 detected.}
}
@article{Wass1992,
 author    = {A. Wasserman},
 title     = {Electrochemical method of reducing aluminum oxide and
              producing additional energy},
 journal   = {Fusion Technol.},
 volume    = {21},
 year      = {1992},
 pages     = {168--169},
 keywords  = {Discussion, suggestion},
 submitted = {05/1991},
 published = {03/1992},
 annote    = {W has, for a long time, observed that when aluminium is used as
 the cathode to clean the surface of oxides, ready for plating, more heat is
 produced than is put in. This has been a puzzle for 35 years, until the
 appearance of the FPH paper, suggesting an explanation. Heat production was
 never accompanied by weight loss of the Al cathode, so cannot be due to
 dissolving metal. W writes that the oxide layer is not reducible by
hydrogen,
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 except at high temperatures, so such high temperatures must be produced at
 the sample. He does not suggest an origin of this heat.}
}
@article{Wils1992,
 author    = {R.~H. Wilson and J.~W. Bray and P.~G. Kosky and H.~B. Vakil
              and F.~G. Will},
 title     = {Analysis of experiments on the calorimetry of LiOD-D2O
              electrochemical cells},
 journal   = {J. Electroanal. Chem.},
 volume    = {332},
 year      = {1992},
 pages     = {1--31},
 keywords  = {Analysis, experimental, Pd, electrolysis, heat, neutrons,
              tritium, res-},
 submitted = {06/1991},
 published = {08/1992},
 annote    = {This paper is in two parts. The first is a detailed analysis of
 the calorimetry and data treatment of Fleischmann, Pons et al (1990)
 (FPALH-90).  The authors conclude that FPALH-90 overestimated their excess
 heat, by neglecting some crucial factors such as evaporation at high
 temperatures, and overestimated the cell's heat transfer coefficient. Also
 the errors in the FPALH work are likely to be in the 5-10\% range, which
 brings most of the excess heats, when correctly calculated, within the
 error. Further, the correlation between excess heat and current reported in
 FPALH disappears upon correct calculation. Short-term excess heat excursions
 remain apparently valid, however.  In a smaller part of the paper, the
 authors' own calorimetric experiments are described. Several kinds of cells
 were used and a number of palladium cathodes, including ones as used by
 FPALH, with and without pretreatment, using open and closed cells. All of
 these experiments resulted in zero excess heat, i.e. excess heat within the
 error band, fluctuating above and below the zero line. A manganese nitrate
 solution was used to capture any possible neutrons, and none were found; nor
 was any tritium, beyond that from electrolytic enrichment.}
}
@article{Yang1992,
 author    = {J. Yang},
 title     = {$^2_1 H-e$ touched capturing and $^2_1 H - ^2_0 N$ fusion},
 journal   = {Acta Sci. Nat. Univ. Norm. Hunan},
 volume    = {15},
 number    = {1},
 year      = {1992},
 pages     = {18--25},
 keywords  = {Theory, res0},
 submitted = {05/1991},
 published = {03/1992},
 annote    = {The two nuclei are deuterium and a dineutron, respectively.
 The author puts forward a theoretical model for the fusion of a deuteron and
 a dineutron produced by the capture of an electron by a deuteron. This would
 explain some of the anomalies of cold fusion, such as neutron bursts. The
 fusion leads to (3)He and a free neutron, plus energy; secondary processes
 would also take place, producing some tritium and beta and gamma
 emission. One of these secondary reactions is the absorption of neutrons,
 which would explain the anomaly of heat but few neutrons observed by
 FPH. Some interesting questions remain.}
}
@article{Yasu1992,
 author    = {K. Yasui},
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 title     = {Fractofusion mechanism},
 journal   = {Fusion Technol.},
 volume    = {22},
 year      = {1992},
 pages     = {400--406},
 keywords  = {Theory, fracto-, res+},
 submitted = {01/1992},
 published = {11/1992},
 annote    = {There is a lot of experimental and theoretical evidence for the
 fracture mechanism of cold fusion. Yasui addresses three important problems
 of this theory: the origin of the electrical field; the necessary
conditions;
 whether cold fusion can in fact be ascribed to this effect. The first of
 these might be crack formation, leading to separation of crystal faces with
 different work functions. Considering the speed of crack formation and gas
 pressure within a crack, a high resistance would be required around the
 crack, for a discharge to occur. As well as this, cracks must form at grain
 boundaries with high grain angles; the cracks must form rapidly and be wide;
 there must be many of them. In general, cnf shows few neutrons, and these
 often in bursts, and the Pd is deformed at the same time. All can be
 explained by fractofusion, so this is a possible mechanism, roughly in line
 with observations, although some other mechanism might be at work
 simultaneously.  Corrigendum: Fusion Technol. 24 (1993) 130. Equations 3, 7,
 8, 9, 19, 29, 30, 31, 32, 33 and 34 are changed, and some changes indicated
 to Figs. 1 and 2.  The conclusions are basically unchanged.}
}
@article{Zhan1992,
 author    = {W.~X. Zhang},
 title     = {Possibility of phase transitions inducing cold fusion
              in palladium/deuterium systems},
 journal   = {Fusion Technol.},
 volume    = {21},
 year      = {1992},
 pages     = {82--85},
 keywords  = {Theory, suggestion, phase transitions},
 submitted = {04/1991},
 published = {01/1992},
 annote    = {The authors believe that cold fusion is a real phenomenon, and
 propose a mechanism for it. There are two possibilities: (1) localised
energy
 concentrations, giving small numbers of deuterons in the Pd lattice an
energy
 of some 100 eV and thus enabling low-efficiency fusion; (2) muon catalysis.
 The latter does not agree with observations, so the local-energy mechanism
 must be responsible. In this paper, it is suggested that local transitions
 from the beta phase to a mixture of alpha- and beta- produce very high local
 stresses and thus cracks, which induce fusion. This leads to some of the
 observations, such as long charging times before something happens,
irregular
 neutron emission, deactivation of the Pd samples, poor reproducibility, and
 the fact that the effect appears only in Pd and Ti.}
}
@article{Zywo1992,
 author    = {A. Zywocinski and H.~L. Li and P. Campbell and J.~Q. Chambers
              and W. A. {van Hook}},
 title     = {Calorimetric measurements during long-term electrolysis of
              some LiOD solutions},
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 journal   = {Thermochim. Acta},
 volume    = {197},
 year      = {1992},
 pages     = {277--283},
 keywords  = {Experimental. Pd, electrolysis, heat, res-},
 submitted = {07/1991},
 annote    = {This team has also measured (4)He and tritium production under
 electrolysis in heavy water (in press), and supplements that here with
 calorimetry. A simple diathermal calorimeter, able to operate for long times
 without attendance, was used. Thermal power is exchanged with the bath at a
 constant rate (at equilibrium), the bath being held constant; if the
 temperature difference (bath/cell) is not large, then heat transfer is first
 order with the difference. Then the time-function of cell temperature
changes
 is simple and parameters can be extracted by simple least-squares
 analysis. The accuracy appears to be a few \%. Electrodes (Pd) were a rod,
 6.35 mm dia. and 25 mm length, and Ti of the same dia and 60 mm length, in
 0.25 M LiOD in D2O, and 0.25 M LiOH in H2O as a control. The thermal
 relaxation of the system is long compared with the sampling interval, so
heat
 bursts would be seen. Runs lasted from 2 days to 2 weeks. During 18 months
of
 such operation, no bursts were seen and there was no excess heat at any
 time. Pulsed operation also showed good heat balance.}
}
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# YEAR: 1993

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% Year 1993; there are  94 entries.
@article{Anta1993,
 author    = {R. Antanasijevic and I. Lakicevic and Z. Maric and D. Zevic
             and A. Zaric and J.~P. Vigier},
 title     = {Preliminary observations on possible implications of new Bohr
             orbits (resulting from electromagnetic spin-spin and spin-orbit
             coupling) in 'cold' quantum mechanical fusion processes
             appearing in strong 'plasma focus' and 'capillary fusion'
             experiments},
 journal   = {Phys. Letters A},
 volume    = {180},
 year      = {1993},
 pages     = {25--32},
 keywords  = {Theory, spin-spin, res+},
 submitted = {04/1993},
 published = {08/1993},
 annote    = {After 1989, there was some disillusionment with cold fusion,
 because the phenomenon could not be reproduced, and no satisfactory model
was
 proposed. At Nagoya, new evidence appeared which changes the picture: excess
 heat is confirmed, and ash has been found, although not in sufficient
 amounts. The nuclear processes may not be due to the same process yielding
 the heat. This may instead come from new (hitherto neglected) spin-spin and
 spin-orbit couplings appearing under special conditions. The nuclear ash may
 be due to large effective electron masses; and this leads to magnetic
effects
 from the splitting of currents in capillaries. All this suggests an
 experiment, reported in this paper. Both plasma focus PF and capillary
fusion
 CF were tried. For PF, energies up to 40 kJ, with potentials up to 40 kV
were
 applied, with Pd foils mounted on one electrode. For CF, materials used were
 LiOD, D2O, deuterated ferrocyanide, deuterated Pd powder and Pd. Neutron
 busts were measured with a large NE232 liquid scintillation tank and 12
 photomultipliers around it. Neutron yields smaller than 1000/pulse were
 obtained in these preliminary experiments; higher input energies may be
 needed.}
}
@article{Arat1993,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Excess heat in a double structure deuterated cathode},
 journal   = {Kakuyuogo Kenkyo},
 volume    = {69},
 number    = {8},
 year      = {1993},
 pages     = {963--967},
 note      = {In Japanese},
 keywords  = {Experimental, complex cathode, palladium, electrolysis, heat,
             pressure, res+},
 submitted = {02/1992},
 published = {04/1993},
 annote    = {"A new type cathode, a double structure cathode which contained
 another Pd inside a Pd-rod was developed. Using the new cathode, remarkable
 excess heat larger than the input energy was observed consistently after a
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 certain incubation period". (Cited directly from the English abstract).
There
 are some Figures showing excess heat, and a picture of a double structure,
 with pressures of H and D marked, as well as the Nernst equation, noting
 pressures up to 5000 atm. One cathode apparently deformed explosively after
 prolonged electrolysis.}
}
@article{Azum1993,
 author    = {K. Azumi and S. Ishiguro and T. Mizuno and M. Seo},
 title     = {Acoustic emission from a palladium electrode during hydrogen
              charging and its release in a LiOH electrolyte},
 journal   = {J. Electroanal. Chem.},
 volume    = {347},
 year      = {1993},
 pages     = {111--121},
 keywords  = {Experimental, acoustic emission, electrolysis, fracto, res0},
 submitted = {04/1992},
 published = {04/1993},
 annote    = {A Pd plate was mounted tightly coupled to a microphone in a
 0.1 M LiOH solution in normal water, and the sound emissions collected. Time
 traces of these emissions showed that they peaked markedly when gas was
being
 evolved, both at the cathodic and anodic potential scale ends. Power spectra
 showed that during cathodic charging, there were other acoustic components
 besides those due to hydrogen bubbles, and these were tentatively ascribed
to
 metal cracking.}
}
@article{Bert1993,
 author    = {L. Bertalot and F. {De Marco} and A. {De Ninno}
              and A. {La Barbera} and F. Scaramuzzi and V. Violante
              and P. Zeppa},
 title     = {Study of deuterium charging in palladium by the electrolysis
              of heavy water: heat excess production},
 journal   = {Nuovo Cimento D},
 volume    = {15},
 year      = {1993},
 pages     = {1435--1443},
 keywords  = {Experimental, electrolysis, loading, correlations, calorimetry,
              res+},
 submitted = {08/1993},
 published = {11/1993},
 annote    = {One of the few things known from all previous excess heat
 observations is that the D/Pd ratio must be > 0.8. Here, an electrolysis
 experiment with calorimetry is reported, and was successful; further, some
 correlations were demonstrated. Special features of the experiment were:
high
 current densities (cd) (hundreds of mA/cm$^2$); forcing of high D/Pd by
using
 an alternating high/low cd with a semiperiod of 6 h; using a cathode whose
 other side faced a pressure chamber where extra hydrogen/deuterium gas could
 be introduced; using Pd as anode as well, thereby causing continuous
 dissolution of Pd from the anode and deposition of Pd on the cathode and
thus
 preventing poisoning, which might prevent a high D/Pd ratio. A constant flow
 calorimeter was used, with no recombination of evolved gases. A flow meter
 was used to ensure that the gas evolved checked with the charge passed
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 through the cell. Excess power was found, uncorrelated with current density,
 at 3W and lasting about 20 h, for a high input of 3 W alternating with a low
 input of 0.3 W. Shorter periods of high/low alternation are favourable;
 overpotential was clearly an important factor, as was the flow of deuterium
 gas into the back of the cathode. A follow-up paper (ADN and VV) is on the
 way, interpreting these results in terms of matter waves of deuterium
through
 Pd.}
}
@article{Bitt1993,
 author    = {M. Bittner and A. Meister and D. Seeliger and R. Schwierz
              and P. W{\"u}stner},
 title     = {Observation of d-d fusion neutrons during degassing of
              deuterium-loaded palladium},
 journal   = {Fusion Technol.},
 volume    = {23},
 year      = {1993},
 pages     = {346--352},
 keywords  = {Experimental, degassing, Pd, neutrons, res+},
 submitted = {07/1991},
 published = {05/1993},
 annote    = {High temperature degassing Pd charged with deuterium is
expected
 to allow a higher fusion rate than during electrolytic charging, because of
 the higher deuteron mobility, and the greater concentration of deuterium in
 the interstitial plasma, as well as higher deuterium energy. Also, the
 experiment is shorter. Here, 2.45 MeV neutrons from the 3He branch were
 searched for. Two massive chunky Pd cylinders, respectively 86 and 518 g
 mass, were electrolytically charged, and then degassed on a heating plate,
 with temperatures at the plate and top of the samples 375 C and 205 C, resp.
 and duration of degassing (and neutron monitoring) about 10 minutes per
 run. A total of 18 runs (large sample) and 11 runs (small sample) were run,
 in air, for a single deuterium charge. There was heat shielding between the
 samples and the neutron detector, which was NE-213 liquid scintillators
 coupled to photomultipliers, detecting recoil protons. Gamma events were
 suppressed to $2-5.10^{-4}$. Results show significant neutron emission in
the
 1.9-3.3 MeV slot, but none in the 3.3-5.2 MeV slot. The emissions decayed to
 background as the samples lost deuterium after about 50-100 min, i.e.
neutron
 emission correlated with deuterium content of the samples. The calculated
 maximum fusion rate was about $3.10^{-25}$ fus/d-d pair/s.}
}
@article{Bouc1993,
 author    = {G.~R. Boucher and F.~E. Collins and R.~L. Matlock},
 title     = {Separation factors for hydrogen isotopes on palladium},
 journal   = {Fusion Technol.},
 volume    = {24},
 year      = {1993},
 pages     = {200--201},
 keywords  = {Experimental, electrolysis, tritium, separation factor, res-},
 submitted = {07/1992},
 published = {09/1993},
 annote    = {It is well known that there is hydrogen isotope separation
 during the electrolysis of water. Until now, there has only been indirect
 evidence for the separation factor for tritium enrichment due to this
effect,
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 in heavy water electrolysis. Here, an experiment is reported where this
 factor, calculated from that for h/d and h/t separation (about 2) is used to
 predict tritium concentration in a cell containing heavy water and 0.1M
LiOD,
 and to compare this with measured tritium. The measured points fall on the
 predicted line. The line showed an "event", i.e. a sudden increase in
tritium
 on day 21, but this was due to a greater tritium background in a
 replenisher. The cell had a Pd cathode, Pt anode and a recombiner. }
}
@article{Ceci1993,
 author    = {F.~E. Cecil and H. Liu and J.~S. Yan},
 title     = {Measurements of branching ratios of low energy deuteron-induced
              nuclear reactions on 2H, 6Li, and 10B},
 journal   = {Phys. Rev. C},
 volume    = {47},
 year      = {1993},
 pages     = {1178--1183},
 keywords  = {Experimental, branching ratio, ion beam, res-},
 submitted = {06/1992},
 published = {03/1993},
 annote    = {The Oppenheimer-Phillips effect suggests that different target
 electric polarisation may, at low energies of impinging deuterons, affect
the
 branching ratio of the fusion path. The deuteron is roughly seen as a proton
 and neutron, with the neutron leading due to electric effects from the
 targets, just prior to impact. Deuteron induced reactions have here been
 measured at d beam energies of 6, 27.5 and 70 keV on targets of 2H (i.e. D),
 6Li and 10B.  No appreciable dependence of the branching ratios on beam
 energy was found in the energy range looked at.}
}
@article{Cero1993,
 author    = {G.~F. Cerofolini and A. {Foglio Para}},
 title     = {Can binuclear atoms solve the cold fusion puzzle?},
 journal   = {Fusion Technol.},
 volume    = {23},
 year      = {1993},
 pages     = {},
 keywords  = {Theory, suggestion},
 submitted = {02/1992},
 published = {01/1993},
 annote    = {The evidence for cold fusion is inconsistent with known
physical
 laws and self-contradictory. The authors have previously proposed a model of
 binuclear atoms (dd)2e, but this is not a sufficient explanation. Here, they
 examine the possibility that these binuclear atoms partly activate cold
 fusion by the capture of a thermal neutron, which then leads to the breakup
 of the group, into various fragments, among them D, T, and (4)He. This would
 cause neutron depletion, and delayed emission, and cnf can be stimulated by
 thermal neutrons. All this can explain tritium enrichment, the formation of
 (4)He and neutron bursts. The theory can be tested experimentally.}
}
@article{Chat1993,
 author    = {L. Chatterjee and S. Mandal and A. Chakrabarty},
 title     = {Electron accumulation and reproducibility of cold fusion},
 journal   = {Indian J. Pure Appl. Phys.},
 volume    = {31},
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 year      = {1993},
 pages     = {131--133},
 keywords  = {Theory, suggestion},
 submitted = {10/1991},
 published = {02/1993},
 annote    = {The authors have previously suggested stochastic electron
 accumulation as a possible mechanism for fusion, by momentarily increased
 electron screening; Burrows has also suggested enhanced capture reaction
 pathways. This paper suggests active promotion of electron accumulation, by
 making the Pd cathode the negative end of a capacitor, thereby forcing a
 higher electron density (up to a factor of 100) into the metal. Most
suitable
 as dielectric is TiO2, with its high dielectric constant. The technique
would
 be simple to adapt to gas charging experiments. Enhancement of fusion rates
 from the observed normal rate of 1E-23 to as much as 1E-13 fusions/pair/s
 might be achieved, as well as better reproducibility.}
}
@article{Chen1993,
 author    = {X. Chen and J. Yang},
 title     = {Studies on dineutron model of cold fusion (I)},
 journal   = {Hunan Shifan Daxue Ziran Kexue Xuebao},
 volume    = {16},
 number    = {1},
 year      = {1993},
 pages     = {42--45},
 keywords  = {Theory, dineutrons, res+},
 submitted = {11/1992},
 published = {03/1993},
 annote    = {"This paper review the present condition and new development of
 nuclear phenomena, deeply discuss the physical foundation of the dineutron
 modle of cold fusion, and given the formula to calculate the fusion rate of
 the dinutron, then explain x ray with 20 keV energy and blue light
 phenomenon".  (This is the English abstract provided at the end of this
 otherwise all- Chinese paper). Clearly, the formation of 2n is suggested and
 its fusion with a deuteron to produce a triton, a neutron and excess
 energy.}
}
@article{Choi1993,
 author    = {E. Choi and H. Ejiri and H. Ohsumi},
 title     = {Application of a Ge detector to search for fast neutrons
              from DD fusion in deuterized Pd},
 journal   = {Jpn. J. Appl. Phys. A},
 volume    = {32},
 year      = {1993},
 pages     = {3964--3967},
 keywords  = {Experimental, electrolysis, Pd plate, neutrons, res-},
 submitted = {03/1993},
 published = {09/1993},
 annote    = {A sensitive Ge detector for fast neutrons was used to measure
 neutrons at 2.45 MeV, right up close to an electrochemical cold fusion
 cell. 0.1M LiCl in heavy water, a 5cm * 5 cm * 2 mm Pd plate cathode and two
 Pt sheets as anode, were the cell; current was held constant at 0.7 A, and
 cell voltage was 8 V.  On both sides of the cell there was a 16mm thick Fe
 slab to scatter neutrons, with the Ge detector on the other side of one
 slab. After 471 h of electrolysis, the upper limit of cold fusion rate was
 about 1.6*10$^{-24}$ fusions/dd pair/s, i.e. this is a null result.}
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}
@article{Chub1993,
 author    = {S.~R. Chubb and T.~A. Chubb},
 title     = {Ion band state fusion: reactions, power density, and the
             quantum reality question},
 journal   = {Fusion Technol.},
 volume    = {24},
 year      = {1993},
 pages     = {403--416},
 keywords  = {Theory, res+},
 submitted = {01/1993},
 published = {12/1993},
 annote    = {This paper discusses the QM basis of d ion-band state fusion
 and the nuclear reactions predicted, and provides a derivation of a relation
 between d band-state concentration and power density which shows that when
 electrochemical loading is used, steady-state power should scale with
 current.  Fusion reactions are different in the lattice than in free
 space. Solid state conditions are important, and different lattices,
 e.g. PdDx and TiDx may well behave differently. The theory can account for
 both "standard" cold (dd) fusion, as well as the more recent Ni/H2O fusion
 results, and accounts also for 4He as ash and heat.}
}
@incollection{Coll1993,
 author    = {H. Collins and T. Pinch},
 title     = {The sun in a test tube: the story of cold fusion},
 booktitle = {The Golem. What Everyone Should Know about Science},
 editor    = {H. Collins and T. Pinch},
 publisher = {Cambridge University Press},
 year      = {1993},
 ISBN      = {0 521 35601},
 pages     = {57--78},
 keywords  = {Sci-soc-phil},
 annote    = {Chap. 3. Collins and Pinch, two sociologists of science, here
 more or less relate the story of cold fusion "as is", without much attempt
at
 comment. They extract from the story the message that here, the workings of
 science are exposed; but that claims of greed or publicity seeking are not
 unusual, i.e.  that in this affair, science works as usual.}
}
@article{Das1993,
 author    = {D. Das and M.~K.~S. Ray},
 title     = {Fusion in condensed matter - a likely scenario},
 journal   = {Fusion Technol.},
 volume    = {24},
 year      = {1993},
 pages     = {115--121},
 keywords  = {Theory},
 submitted = {07/1992},
 published = {08/1993},
 annote    = {Despite mounting evidence for cold fusion, there is still the
 problem of irreproducibility, and the lack of a "sure success recipe", owing
 to the lack of understanding of its mechanism. A new approach is tried here
 to explain it.  Pivotal roles are attributed to the presence of negative
 elements, oxide at the metal surface, and a desorption process. Oxygen forms
 an oxide film on Pd and this acts on the structure of the deuteride to
create
 the equivalent of heavy electrons, which will bring deuterons close together
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 by muon-like screening. Also, the metal/insulator layer might induce the
 formation of (D+D+)2e- species, again reducing nuclear separation. This
 theory is consistent with enhanced fusion rates and a near-surface reaction,
 and explains a number of observations such as the induction by oxygen of
 excess heat and tritium anomalies, Matsumoto's explosive cold fusion, heat
 and neutron bursts during deloading, results with a solid-state cell, and
 with gas phase systems; also, the theory encompasses the experiments with
Ni,
 light water and K2CO3.}
}
@article{Demi1993,
 author    = {V.~S. Demidenko and V.~I. Simakov},
 title     = {The state of deuterium and probability of cold nuclear fusion
              in solids},
 note      = {In Russian},
 journal   = {Izv. Vysch. Uchebn. Zaved. Fiz.},
 volume    = {36},
 number    = {10},
 year      = {1993},
 pages     = {20--30},
 keywords  = {Theory, res+},
 annote    = {It is necessary to focus on electric fields in solids and their
 effect on fusion, in particular band models. The metals Pd and Ti alloys
 (with V, Mn, Co, Cu) were considered. The "muffin tin" model was tried, with
 various electron shell configurations in the Ti atom. Tunnelling was
 considered, and found most effective at low energies; but not sufficient in
 itself. The answer might lie in zone (band-) models, and excited Wannier
 states, related to Bloch wave functions (no real conclusions). Phase
 transitions may also increase Coulomb screening sharply. In general, the
high
 mobility of deuterons in metals, and the application of external fields
 (pressure etc) might yield several orders of magnitude in fusion rates, so
 that solids can favour fusion.}
}
@article{Dill1993a,
 author    = {C.~T. Dillon and B.~J. Kennedy},
 title     = {The electrochemically formed palladium-deuterium system.
              I. Surface composition and morphology},
 journal   = {Australian J. Chem.},
 volume    = {46},
 year      = {1993},
 pages     = {663--679},
 keywords  = {Experimental, Pd electrolysis, surface analysis},
 submitted = {05/1992},
 published = {05/1993},
 annote    = {To achieve consensus among workers on what processes take
place,
 the role of surface treatment and activation in the formation of PdD(x) must
 be characterised. This first paper of a series carries out surface analysis
 upon prolonged electrolysis at Pd cathodes in D2O electrolytes. For
 particle-induced x-ray emission, Pd foil ($7.5 \times 7.5 \times 0.5$ mm)
was
 used, while for scanning electron microscopy, rods of various sizes up to
1.5
 cm diameter were prepared. The D2O was analysed for traces of Zn and Cu, and
 1 ppm Zn, 0.03 ppm Cu were found; none in H2O. These traces will deposit on
 the cathode.  Common surface impurities after electrolysis were Pt, Ni, Zn,
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 Cu Cr, Fe and Ag, on one occasion Pb; none of these was present before
 electrolysis. The use of Ni anodes did lead to some Ni deposition, but not
as
 much as perhaps expected (of similar order as, e.g. Cr); much Ni must be
 codeposited in the black precipitate formed at the Ni anode. The Ag probably
 came from the naked Ag/Ag+ reference electrode used. Proton-induced gamma
 emission analysis was also used to look for Li, but very little was found on
 the cathodes. Electron microscopy revealed differences between differently
 pretreated Pd samples, but nothing surprising (to this abstracter);
 post-electrolysis scans showed cracks due to void formation, ans some black
 and white deposits. No dendritic growth was observed. An important
 observation is that if Pd is vacuum annealed and cooled off in vacuum, it
 will not absorb much deuterium. It can be made to do so by preliminary
 potential cycling, which seems to work through oxide film formation and
 reduction, and the formation of some Pd black.}
}
@article{Dill1993b,
 author    = {C.~T. Dillon and B.~J. Kennedy and M.~M. Elcombe},
 title     = {The electrochemically formed palladium-deuterium system.
             II. In situ neutron diffraction studies},
 journal   = {Australian J. Chem.},
 volume    = {46},
 year      = {1993},
 pages     = {681--692},
 keywords  = {Experimental, Pd, electrolysis, crystal structure},
 submitted = {05/1992},
 published = {05/1993},
 annote    = {In this follow-up of Part I, the team examined the crystal
 structure of deuterated palladium by neutron diffraction, which shows up
 hydrogen isotope atoms. The aim was to find out how high a loading was
 possible, and just where the deuterons are in the lattice. Is there
 supersaturation during electrolysis and are tetrahedral sites occupied?
 Loading was under potentiostatic control, at -2.5 V vs Ag/AgCl, but the
 counter electrode was placed so as to favour asymmetric loading. The change
 in time of the diffraction pattern confirms the formation of the beta phase,
 and after 36 h electrolysis, no Pd remained as such. The loading was
 calculated from the diffraction pattern to be 0.59.  Attempts to increase
 this, by long electrolyses at very high overpotentials failed. Despite this,
 there was vigorous outgassing when the current was stopped; the authors
 speculate that a super-loaded near-surface layer may exist.}
}
@article{Dufo1993,
 author    = {J. Dufour},
 title     = {Cold fusion by sparking in hydrogen isotopes},
 journal   = {Fusion Technol.},
 volume    = {24},
 year      = {1993},
 pages     = {205--228},
 keywords  = {Experimental, spark discharge, calorimetry, Pd, res+},
 submitted = {11/1992},
 published = {09/1993},
 annote    = {This (24-page) paper follows a patent by the author, and
reports
 results from a "campaign" of many runs. In all experiments, Pd and stainless
 steel cylinders were placed in various gases and subjected to a spark
 discharge. The whole system was placed in a calorimeter bath and the power
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 from the cell measured and compared with the input power. The controls,
using
 nitrogen and argon as well as heater calibrations, all lie close to zero
 excess heat (for the gas controls: 0.63 W average), while both the deuterium
 (5 points) and hydrogen (2 points) runs, with Pd and stainless steel, showed
 excess heat up to 2.4 W or 20\%. Some active and passive radiation devices
 were also employed, but nothing definite was detected, nor was tritium
 found. A better detector of ionising radiation was later used, and the level
 as a function of time during some runs was clearly different for D2 and
 H2. Since there was excess heat for both hydrogen and deuterium, a theory is
 needed to explain both. This is provided, in the form of 3-body reactions,
of
 hydrogen isotope particles with virtual neutrons or dineutrons, with most of
 the energy being carried off by neutrinos. }
}
@article{Enyo1993a,
 author    = {M. Enyo and P.~C. Biswas},
 title     = {Hydrogen pressure equivalent to overpotential on Pd + Ag alloy
              electrodes in acidic solutions in the presence of thiourea},
 journal   = {J. Electroanal. Chem.},
 volume    = {357},
 year      = {1993},
 pages     = {67--76},
 keywords  = {Experimental, electrolysis, Pd/Ag, loading, fugacity, res0},
 submitted = {09/1992},
 published = {10/1993},
 annote    = {In order to get an estimate of the internal hydrogen(deuterium)
 pressure in palladium hydride under electrolysis, it is sufficient to
measure
 the chemical potential of the adsorbed monatomic hydrogen on the Pd
 surface. The electrolytic overpotential yields an overestimate of the
 pressure (through the Nernst equation). This species, H(ads) can react in
two
 directions, forming either H2 gas, or entering the Pd bulk to form hydride;
 the relative rates of the two reactions can be controlled by a surface
 blocker such as thiourea, which suppresses the H2 branch. Enyo and Biswas
use
 current interruption to measure the true chemical potential of H(ads) for a
 range of Pd/Ag alloy electrodes (it is believed that F\&P are using such
 alloys in France). Chemical potentials as large as -200 mV were measured,
 from which the workers infer an internal hydrogen pressure as high as $10^6$
 atm. This exceeds their previous results (JEC 335 (1992) 309) by a factor of
 100, although still far below the figure of $10^{26}$ atm estimated (simple
 Nernst argument) by FPH-89. The new figure might, however, be in the range
 for the formation of metallic hydrogen, thought to be some $10^6$ atm. The
 figure also allows an estimate of the loading ratio H/Pd, which came to
about
 1.0.}
}
@article{Enyo1993b,
 author    = {M. Enyo},
 title     = {Key points in the evaluation of experimental results
             (the excess heat)},
 note      = {In Japanese},
 journal   = {Oyo Buturi},
 volume    = {62},
 year      = {1993},
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 pages     = {716.},
 keywords  = {Discussion, no references.}
}
@article{Fedo1993a,
 author    = {G.~V. Fedorovich},
 title     = {Nuclear fusion in crystal hydrides of light elements},
 journal   = {Fusion Technol.},
 volume    = {23},
 year      = {1993},
 pages     = {442--464},
 keywords  = {Theory, fractofusion, res+},
 submitted = {12/1991},
 published = {07/1993},
 annote    = {Radiation defects in the crystal lattice of compounds like AxHy
 (e.g. LiD) are thought to form so-called E-cells, within which there is
 Coulomb barrier suppression, and acceleration to around 1 keV of charged
 particles. This can explain fractofusion in such crystals. This paper
 examines the theory of these E-cells exhaustively, and the next step is now
 to obtain experimental evidence.}
}
@article{Fedo1993b,
 author    = {G.~V. Fedorovich},
 title     = {A possible way to nuclear fusion in solids},
 journal   = {Fusion Technology},
 volume    = {24},
 year      = {1993},
 pages     = {288-291},
 keywords  = {Theory, fractofusion, res+},
 submitted = {02/1992},
 published = {11/1993},
 annote    = {Once again, the author proposes his E-cell theory, and an
 experiment to test it. E-cells are radiation defects in certain low atomic
 weight element (Li, Be, B) hydrides/deuterides, and fission events, caused
by
 neutron capture, start an E-cell.  Within it, extremely high electron
 densities ($10^{24}/cm^3$) hold and this can act as a Coulomb shield for
 fusion. Also, crystalline lattice forces can be focussed up to hundreds of
eV
 and reduce internuclear distances to $10^{-9}$ cm, resulting in a measurable
 hydrogen fusion rate. An experiment is suggested, in which a sample is
 compressed in a diamond anvil to some Mbar, and a neutron beam aimed at it
to
 stimulate fusion. "The further is the matter of experimental physics".}
}
@article{Fedo1993c,
 author    = {G.~V. Fedorovich},
 title     = {Parametric excitation of crystalline structures as a
              possible cause of high-energy emissions},
 journal   = {Tech. Phys.},
 volume    = {38},
 number    = {10},
 year      = {1993},
 pages     = {866--870},
 note      = {Orig. in: Zh. Tekh. Fiz. 63(10) (1993) 65},
 keywords  = {Theory, fractofusion, res+},
 submitted = {04/1993},
 published = {10/1993},
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 annote    = {The well known phenomenon of high energy (radio- to x-ray)
 emissions from stressed crystals became more interesting with the discovery
 of fractofusion in 1986 by Kluev et al, who found neutrons being emitted;
 they were also observed by Yaroslavsky in the same year. In this paper, a
 theory is developed, based on parametric excitation of vibration in a system
 of coupled oscillators, to account for these effects. Alternate layers of Pd
 and deuterium ions oscillate relative to one another in the PdD crystal and
 this can lead, in regions of shear stress to energies up to 10 eV or $10^5$
 K. The simple model needs to be refined.}
}
@article{Flei1993,
 author    = {M. Fleischmann and S. Pons},
 title     = {Calorimetry of the Pd-D2O system: from simplicity
              via complications to simplicity},
 journal   = {Phys. Lett. A},
 volume    = {176},
 year      = {1993},
 pages     = {118--129},
 keywords  = {Experimental, electrolysis, Pd, calorimetry, res+},
 submitted = {12/1992},
 published = {05/1993},
 annote    = {Without providing much experimental detail, this paper focusses
 on a series of cells that were brought to the boil and in fact boiled to
 dryness at the end, in a short time (600 s). The analysis of the
calorimetric
 data is once again described briefly, and the determination of radiative
heat
 transfer coefficient demonstrated to be reliable by its evolution with
 time. This complicated model yields a fairly steady excess heat, at a Pd
 cathode of 0.4 cm diameter and 1.25 cm length, of about 20 W/cm$^3$ or
around
 60\% input power (not stated), in an electrolyte of 0.6 M LiSO4 at pH
 10. When the cells boil, the boiling off rate yields a simply calculated
 excess heat of up to 3.7 kW/cm$^3$. The current flow was allowed to continue
 after the cell boiled dry, and the electrode continued to give off heat for
 hours afterwards.}
}
@article{Fox1993,
 author    = {H. Fox},
 title     = {Comments on 'Experiments of one-point cold fusion'},
 journal   = {Fusion Technol.},
 volume    = {24},
 year      = {1993},
 pages     = {347--348},
 keywords  = {Polemic},
 submitted = {02/1993},
 published = {12/1993},
 annote    = {Polemic on a paper by T. Matsumoto. It has been shown in a US
 patent that under the conditions described by Matsumoto, electron beads can
 form, and Matsumoto has inadvertently formed high-energy clusters as taught
 by that patent. The clusters have $10^8$ to $10^{12}$ electrons. Fox
suggests
 that Matsumoto place a radio receiver near his cell and listen to noises
like
 that of a lightning strike from these clusters. These can accelerate
 deuterons and induce fusion by locally swamping the Coulomb barrier.}
}
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@article{Fred1993,
 author    = {T. Frederico and Groote. de JJ and J.~E. Hornos
              and M.~S. Hussein},
 title     = {Microscopic calculation of the molecular-nuclear
              d + d--> 3He + n $\oplus$ 3H + p reactions at close to
              zero energies},
 journal   = {Braz. J. Phys.},
 volume    = {23(1)},
 year      = {1993},
 pages     = {96--99},
 keywords  = {Theory, res0},
 submitted = {04/1992},
 published = {03/1993},
 annote    = {This Brazilian team looks at theoretical fusion rates for a
 number of fusion reactions (dd, dp, pt) at low energies, in order to assess
 the likelihood of cold fusion. The model is fully microscopic and the
 sensitivity of lambda to the short distance behaviour of the radical d+d
wave
 function is of interest, rather than absolute fusion rates. Fadeev functions
 and the B-O approximation finally yield no clear results.}
}
@article{Fuka1993,
 author    = {Y. Fukai},
 title     = {Present status on cold fusion},
 journal   = {Nippon Butsuri Gakkaishi},
 volume    = {48},
 number    = {5},
 year      = {1993},
 pages     = {354--360},
 note      = {In Japanese},
 keywords  = {Review},
 annote    = {Review with 29 references. A few experimental results are
 selected and discussed, such as the many excess heats vs D/Pd loading by
 McKubre. Some theory is discussed, and the Salamon vs Pons story. All the
 books and conferences on cold fusion to date are in the references.}
}
@article{Gamm1993,
 author    = {B.~E. Gammon},
 title     = {Cathode cooling by expansion of hydrogen in calorimetric tests
              for cold fusion},
 journal   = {Fusion Technol.},
 volume    = {23},
 year      = {1993},
 pages     = {342--345},
 keywords  = {Polemic, calorimetry},
 submitted = {05/1992},
 published = {05/1993},
 annote    = {The author points out an effect that might explain, by
 conventional means, apparent excess heat observations. It is the negative
 Joule-Thompson coefficient of hydrogen, which thus becomes warmer as it
 expands from high to low pressure. Any deuterium escaping from charged
 palladium, where it exists at high effective pressure, into the electrolyte
 at atmospheric pressure, will carry some heat with it and therefore cool
down
 the Pd. The heat to keep the Pd at its steady temperature is in part
supplied
 by the metal leads going into the calorimeter, and this is the source of the
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 apparent excess. The effect also explains heat bursts, produced as bubbles
of
 deuterium form. Calorimetric experiments should eliminate this effect by
 making sure that the leads have the same temperature as the cell at the
point
 of entry into the calorimeter.  The author's own experiments with this
 precaution showed zero excess heat.  His calculations show, moreover, that
 considerable heat can be generated, even sufficient to cause cell boiling.}
}
@article{Glue1993,
 author    = {P. Gl{\"u}ck},
 title     = {The surfdyne concept: an attempt to solve (or to rename)
              the puzzles of cold nuclear fusion},
 journal   = {Fusion Technol.},
 volume    = {24},
 year      = {1993},
 pages     = {122--126},
 keywords  = {Theory, surfdyne (catalysis)},
 submitted = {07/1992},
 published = {08/1993},
 annote    = {The author notes that both successes and failures in
reproducing
 cold fusion (success having now increased from an initial 10\% to 35\%) are
 correct observations, and must be reconciled. He believes that the
phenomenon
 has a "mimosaceous" sensitivity to an extremely small factor, that has not
 been under control. A body of evidence indicates that the phenomenon takes
 place at surfaces: the activity of fresh surfaces, fractofusion, the
presence
 of tritium in the electrolyte soon after electrolysis, bursts of neutrons,
 etc.  The cause is likely to be a dynamic effect; this, too, is backed up by
 observations. This effect is something like heterogeneous catalysis, and
 information input from this research area is desirable. So fusion takes
place
 not in the lattice, but on the lattice and theory, as well as future
 experiments, should look along these lines, such as the use of thin or
ultra-
 thin metal films.}
}
@article{Gran1993,
 author    = {P. Graneau and N. Graneau},
 title     = {Ampere force calculation for filament fusion experiments},
 journal   = {Phys. Lett. A},
 volume    = {174},
 year      = {1993},
 pages     = {421--427},
 keywords  = {Discussion, ampere forces, filament fusion},
 submitted = {10/1992},
 published = {03/1993},
 annote    = {Filament fusion, described by the authors in an earlier paper,
 is here related to cold fusion. Storms and Talcott find evidence of filament
 capillaries in PdD, and cold fusion may thus be taking place along such
 channels. Acoustic emissions would be expected, and sometimes have been
 detected; also, the process would stop when the material breaks up, and
this,
 too, is supported by experiments. The authors attempt to calculate the
 feasibility of this type of fusion, but under conditions rather more severe
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 that those of cold fusion. Results are not encouraging for cold fusion in
 these terms, but more work is desirable.}
}
@article{Hage1993,
 author    = {P.~L. Hagelstein},
 title     = {Coherent and semicoherent neutron transfer reactions III:
              Phonon frequency shifts},
 journal   = {Fusion Technol.},
 volume    = {23},
 year      = {1993},
 pages     = {353--361},
 keywords  = {Theory, res+},
 submitted = {08/1992},
 published = {05/1993},
 annote    = {Third in a series, this paper focusses on what the author calls
 the Duschinsky effect, i.e. that which accounts for the change in the
lattice
 mode definitions in the lattice states before and after the fusion event, to
 gain an understanding of phonon generation. H recognises the problem of a
 suitable mechanism for energy transfer from high-energy neutrons, yielding
 only phonons, but believes he has found one, in terms of frequency shifts of
 three phonon modes. Results of a lengthy analysis are encouraging, but
 further work is needed.}
}
@article{He1993,
 author    = {J. He and Y. Zhang and G. Ren and G. Zhu and Z. Qian and X.
Dong
              and C. Dai and S. Hu and L. Wang and S. Yi},
 title     = {Study of anomalous nuclear fusion reaction by using HV pulse
              discharge},
 journal   = {Chin. Phys. Lett.},
 volume    = {10},
 number    = {11},
 year      = {1993},
 pages     = {652--655},
 keywords  = {Experimental, high voltage discharge, neutrons, gamma, res-},
 submitted = {07/1993},
 annote    = {A Pd cathode in a chamber was subjected to high voltage
 discharges, up to 10 kV. There were detectors for neutrons and gamma rays.
As
 the authors write, if there is emission during the discharge, this would be
 normal thermonuclear fusion, whereas if there is emission without the
 discharge, it would be evidence of cold fusion. D2 gas was let into the
 chamber, for the Pd to absorb for 1 h. Then the HV was applied in pulses of
 150 microsec. width and 10 Hz rate. Results showed that no emissions above
 background were detected between pulses.}
}
@article{Hodk1993,
 author    = {D. Hodko and J.~O.~M. Bockris},
 title     = {Possible excess tritium production on Pd codeposited with
              deuterium},
 journal   = {J. Electroanal. Chem.},
 volume    = {353},
 year      = {1993},
 pages     = {33--41},
 keywords  = {Experimental, electrolysis, Pd, tritium, res+},
 submitted = {06/1992},
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 published = {07/1993},
 annote    = {The problem of confusing conventional electrolytic enrichment
 with the production, by a nuclear reaction, of tritium in a cold fusion cell
 is tackled here using the Szpak and Boss technique of codepositing deuterium
 and Pd from an electrolyte containing a Pd salt. This completely excludes
 contamination with tritium in the Pd, since one starts with a gold
 cathode. Another precaution was the use of the same supply of heavy water
 throughout, eliminating the problem of different tritium levels in different
 D2O batches.  The electrolyte was LiCl and PdCl2 in D2O. Tritium was
analysed
 in samples from both the electrolyte and evolved gas. During two weeks,
 excess tritium, well above enrichment levels, were observed in four out of
 six cells; the tritium appeared in bursts.}
}
@article{Hora1993,
 author    = {H. Hora and J.~C. Kelly and J.~U. Patel and M.~A. Prelas
             and G.~H. Miley and J.~W. Tompkins},
 title     = {Screening in cold fusion derived from D-D reactions},
 journal   = {Phys. Lett. A},
 volume    = {175},
 year      = {1993},
 pages     = {138--143},
 keywords  = {Theory, res+},
 submitted = {12/1992},
 published = {04/1993},
 annote    = {Motivated by earlier experimental work by Prelas et al in 1990,
 this paper looks at the model of PdD as a dense plasma, with moving ionised
 deuterium particles, screened from each other both by the swimming electrons
 and those around the metal nuclei. This model differs from those which
 consider the deuterons essentially fixed in place. It is found that d-d
pairs
 at an energy of 2.33 eV would, by screening, behave as if they were at 470
 eV; i.e. there is fusion enhancement due to the screening. Preparata's
 similar model also offers an explanation for anomalous branching
 ratios. These models explain steady cold fusion, where neutrons and (4)He
are
 generated, but an alternative explanation for cold fusion in bursts is
 needed. These must be associated with phase transitions in the metal
 deuteride. Neutron swapping with the metal (Pd + d --> Rh + (4)He, or Ni + p
 --> Co + (4)He) is proposed.}
}
@article{Ichi1993,
 author    = {S. Ichimaru},
 title     = {Nuclear fusion in dense plasmas},
 journal   = {Rev. Mod. Phys.},
 volume    = {65},
 year      = {1993},
 pages     = {255--299},
 keywords  = {Theory, review, astronomy connection},
 published = {04/1993},
 annote    = {45p theoretical view of the area, considering astrophysical and
 laboratory condensed plasmas. The theory is based on screening effects and
 multibody correlations. Of the metal hydrides PdD and TiD2, PdD provides
more
 favourable conditions for fusion, but enhancement yields a fusion rate
 (independent of temperature) of only 1-2 fusions/year/cm$^3$.}
}
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@article{Ikeg1993,
 author    = {H. Ikegami},
 title     = {Next step to promote cold fusion research},
 journal   = {Oyo Buturi},
 volume    = {62},
 year      = {1993},
 pages     = {717.},
 note      = {In Japanese},
 keywords  = {Discussion.},
 submitted = {03/1993},
 published = {07/1993}
}
@article{Jian1993,
 author    = {S. Jiang and G. Yang and S. Wang},
 title     = {Coulomb screening effect of deuterium-ion in metal - numerical
             solution of nonlinear Poisson equation},
 journal   = {Lanzhou Daxue Xuebao, Ziran Kexueban,
             J. Lanzhou Univ. Nat. Sci.},
 note      = {In Chinese, Engl. Abstr.},
 volume    = {29},
 number    = {2},
 year      = {1993},
 pages     = {70--73},
 keywords  = {Theory, res0},
 annote    = {The nonlinear Poisson equation, describing the potential field
 within Pd deuteride, is here solved numerically for various temperatures and
 loading densities of deuterium. The abtract says that, based on the results,
 Coulomb screening and its significance in low-temp. nuclear fusion, are
 discussed, but does not tell what conclusions are drawn.}
}
@article{Kali1993a,
 author    = {K.~A. Kaliev and A.~N. Baraboshkin and A.~L. Samgin
             and E.~G. Golikov and A.~L. Shalyapin and V.~S. Andreev
             and P.~I. Golubnichiy},
 title     = {Reproducible nuclear reactions during interaction of deuterium
             with oxide tungsten bronze},
 journal   = {Phys. Lett. A},
 volume    = {172},
 year      = {1993},
 pages     = {199--202},
 keywords  = {Experimental, tungsten bronze, high voltage discharge,
neutrons,
             res+},
 submitted = {10/1992},
 published = {01/1993},
 annote    = {This team used Na(0.9)WO(3), which has mobile alkali metal
(Na+)
 ions, which can be replaced by H or D ions, either electrochemically of from
 the gas phase. Into a stainless steel chamber were placed a monocrystalline
 Na(0.9)WO(3) plate, 10*10*2 mm, contacting a tungsten anode, and another
 tungsten piece served as cathode. The chamber was evacuated to $10^{-6}$ to
 $10^{-5}$ mm Hg, and the sample heated to 720-760 C. A voltage of 500-1000 V
 was then applied between the two electrodes and the current recorded, for 1-
5
 h. A total charge of 0.1-1 C was thus passed. The current was switched off,
 the electrodes allowed to cool, and H2 or D2 allowed into the chamber up to
a
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 pressure of 1 mm Hg. From this moment on, neutrons were monitored with two
 independent blocks of four counters each, of the SNM-42 type, with total
 efficiency 1.4\%. After 10 min, the chamber was reevacuated, and more gas
led
 in, repeating this cycle 15 times, monitoring neutrons and sample
temperature
 all along. The neutron flow increases sharply every time gas is introduced,
 and decays again within 10-20 min. A smaller but still significant increase
 is seen upon evacuating. Sample temperature also increases upon the
 introduction of both H2 and D2 gas. If the neutrons come from d-d fusion,
 this roughly translates into a fusion rate of $2 \times 10^{-18}$/s/dd-
pair.}
}
@article{Kali1993b,
 author    = {K.~A. Kaliev and A.~N. Baraboshkin and A.~L. Samgin
              and E.~G. Golikov and A.~L. Shalyapin and V.~S. Andreev
              and P.~I. Golubnichii},
 title     = {Reproducible nuclear reactions by interaction of deuterium
              with tungsten oxide bronze},
 journal   = {Dokl. Akad. Nauk},
 volume    = {330},
 number    = {2},
 year      = {1993},
 pages     = {214--216},
 note      = {In Russian},
 keywords  = {Experimental, tungsten bronze, high voltage discharge,
neutrons,
              res+},
 submitted = {02/1993},
 annote    = {The authors note that reproducibility is a major problem in
cold
 fusion work. Here, they use a novel material, for which they have their own
 technique for growing single crystals of, and an electrochemical method for
 extracting sodium out of. This is tungsten bronze with the general formula
 Na(x)WO4, i.e.  a range of different stoichiometries. The material had Na
 removed from it and replaced by deuterium. This was kept in an evacuated
 chamber and 500-1000 V applied between it and an opposing cathode, for
 several hours, passing in all 0.1-1 Coulombs. Neutron emissions were
measured
 with two blocks of four SNM-42 detectors and paraffin moderating blocks. As
 well, the sample's temperature was monitored throughout. After switching off
 the current, the crystals were brought to room temp. and D2 or H2 gas
 introduced, still monitoring for neutrons. Results showed that there was a
 greater temp. rise when introducing D2 gas than for H2 gas, and a
 correspondingly greater neutron flux for D2, so the process is definitely
 nuclear. In the acknowledgements, one M. Rambo is thanked for discussions of
 the results.}
}
@article{Kali1993c,
 author    = {V.~B. Kalinin},
 title     = {On the question of the possibility of cold nuclear fusion at
              the point of ferroelectric phase transition in K2DPO4},
 journal   = {Neorg. Mater.},
 volume    = {29},
 number    = {5},
 year      = {1993},
 pages     = {656--658},
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 note      = {In Russian},
 keywords  = {Discussion, ferroelectrics},
 submitted = {12/1992},
 annote    = {This is a summarising commentary on previous work by the author
 and others, showing that the title compound and other related compounds show
 some anomalies, to do with transitions between the ferroelectric and
 paraelectric states. In particular, KD2PO4 has been seen by Lipson et al to
 emit neutrons when thermocycled closely around the temperature of
transition,
 in a bimodal manner. Neutrons at the 15 sigma levels have been observed,
 while nothing but noise is observed from controls, e.g. KH2PO4, or KD2PO4
 cycled around other temperatures. The author theorises that small volume
 changes and polarisation effects due to the transitions could stimulate
 fusion of deuterons.}
}
@article{Kees1993,
 author    = {R.~G. Keesing and A.~J. Gadd},
 title     = {Thermoelectric heat pumping and the 'cold fusion' effect},
 journal   = {J. Phys.: Condens. Matter},
 volume    = {5},
 year      = {1993},
 pages     = {L537--L540},
 keywords  = {Discusssion, res-},
 submitted = {08/1993},
 published = {10/1993},
 annote    = {Once again, Peltier heat is considered as an explanation of
 excess heat, prompted by the observation that claimed excess heat appears to
 scale with electrolysis current. The thermoelectric coefficient at a Pd/Pt
 junction reverses and gets four times larger in magnitude, as Pd absorbs
 hydrogen. K\&G make a rough measurement of the change for the absorption of
 deuterium. The effect is roughly the same, and amounts to about 6 mW/A. This
 is still about 2 orders of magnitude too small to explain excess heat
 claims. But semiconductor junctions do have a sufficiently large Peltier
 effect, so the authors then speculate that there might be migration of,
e.g.,
 Ni within the Pt and Pd towards either the Pt/Pd or the Pd/electrolyte
 junction; the NiD might act as a semiconductor. They will examine this in
 future experiments.}
}
@article{Koba1993,
 author    = {M. Kobayashi},
 title     = {Present of 'cold fusion'},
 journal   = {Kagaku Kogaku},
 volume    = {57(10)},
 year      = {1993},
 pages     = {715--717},
 note      = {In Japanese},
 keywords  = {Review},
 annote    = {Short review of cold fusion, drawing mainly on the 3rd Int.
Conf.
 at Nagoya (9 out of the 11 references are to papers given there), and
 focussing on the McKubre work, and that of Takahashi at NTT, both presenting
 correlations: McKubre correlates excess heat with D/Pd loading; Takahashi
 correlated heat with the production of (4)He.}
}
@article{Lewis1993,
 author    = {F.~A. Lewis and S.~G. McGee and R.~A. McNicholl},
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 title     = {Limits of hydrogen contents introduced by electrolysis
              into palladium and palladium-rich alloys},
 journal   = {Z. phys. Chem.},
 volume    = {179},
 year      = {1993},
 pages     = {63--68},
 keywords  = {Experimental, electrolysis, loading, pressure, res-},
 annote    = {Fundamental study to measure the maximum effective pressure at
 high loading of Pd and some Pd alloys, loaded electrolytically. Upon current
 interruption, electrode potentials were followed and gave the result that
 mostly the pressure did not exceed 100 bar or $10^7$ Pa. This illustrates
the
 need to be careful when using overpotentials to state pressures in these
 metals while loading with hydrogen (or deuterium).}
}
@article{Li1993,
 author    = {X.~Z. Li and D.~W. Mo and L. Zhang and S.~C. Wang
              and T.~S. Kang and S.~J. Liu and J. Wang},
 title     = {Anomalous nuclear phenomena and solid state nuclear track
              detector},
 journal   = {Nucl. Tracks Radiat. Meas.},
 volume    = {22},
 year      = {1993},
 pages     = {599--604},
 keywords  = {Experimental, gas phase, Pd, cps, res0},
 annote    = {This team reasoned that the nuclear reactions in cold fusion
 would produce charged particles, and with gas phase experiments, it is
 feasible to detect these, using track detectors. A CR-39 can be put on a Pd
 surface and has much greater efficiency than the usual neutron
 detectors. This was done. Pd foil (0.02*0.5*0.5 cm$^3$) was sandwiched with
 CR-39 film, both exposed to D2 gas at 9 atm. at liquid N2 temperature for 4
 hours. The sample was then allowed to warm up to room temperature
 slowly. Preliminary results from 1989-90 showed some pits that could be due
 to alpha particles from the Pd, but later results were not conclusive.}
}
@article{Liaw1993,
 author    = {B.~Y. Liaw and P.~L. Tao and B.~E. Liebert},
 title     = {Helium analysis of palladium electrodes after molten salt
              electrolysis},
 journal   = {Fusion Technol.},
 volume    = {23},
 year      = {1993},
 pages     = {92--97},
 keywords  = {Experimental, salt melt electrolysis, Pd, helium, res+},
 submitted = {10/1991},
 published = {01/1993},
 annote    = {This team, which has previously claimed large amounts of excess
 heat from an electrolysis in molten LiD, has now both SEM-examined some 4 mm
 Pd rods used in these runs (as well as controls), and sent them for He
 assay. The technique used was able to measure a He fraction in the material
 as low as $10^{-11}$. Although the results showed considerable fluctuations,
 the deuterated samples stood out with somewhat more (4)He than blanks and
 controls, especially when looking at a distribution of the number of He
atoms
 released, which brings out a distinct grouping. For some events, the
 statistical significance (probability of event being random) is
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 $1/2^{14}$. No significant (3)He was found. The amounts of (4)He found were
8
 orders of magnitude below the level that would be commensurate with excess
 heat, and the authors speculate that there was escape of the He from the
 samples at the elevated melt temperature (about 400 C), only a trace
 remaining for analysis.  Contamination from the atmosphere is considered
 unlikely but not entirely ruled out.}
}
@article{Libo1993,
 author    = {R.~L. Liboff},
 title     = {Feasibility of fusion of an aggregate of deuterons in the
              ground state},
 journal   = {Phys. Lett. A},
 volume    = {174},
 year      = {1993},
 pages     = {317--319},
 submitted = {12/1992},
 published = {03/1993},
 keywords  = {Discussion, suggestion},
 annote    = {The author suggests that a ribbon beam of deuterons at about
 4 keV will, at a current of 0.2 A, undergo a transition to
superconductivity,
 and the deuterons in the beam will then fuse. This must be called cold
 fusion, since the fusing deuterons have a low energy relative to each other
 within the beam.  The model is based more on wave function overlap than on
 Coulomb barrier tunnelling.}
}
@article{Lihn1993,
 author    = {C.~J. Lihn and C.~C. Wan and C.~M. Wan and T.~P. Perng},
 title     = {The influence of deposits on palladium cathodes in
              D2O electrolysis},
 journal   = {Fusion Technol.},
 volume    = {24},
 year      = {1993},
 pages     = {324--331},
 keywords  = {Experimental, electrolysis, Pd, post mortem, res0},
 submitted = {12/1992},
 published = {11/1993},
 annote    = {Fundamental study of a cell as used in cold fusion
electrolysis,
 but using quartz for purity; post mortem surface analysis was done, as well
 as a study of permeation of deuterium through Pd, and some cyclic
voltammetry
 to study the electrochemistry of heavy water reduction at Pd. These factors
 might be involved in the poor reproducibitlty of cold fusion. Despite
 precautions, after long electrolysis there was (besides Pd) Pt, Si and even
 Zn on the cathode. When the cell temperature was raised to 90C, the deposits
 formed very quickly, especially silicon. SEM analysis showed needle-like
 crystals formed on a Pt cathode, and a black layer of Pt formed on Pd. These
 layers reduce the diffusivity of deuterium in Pd and change the
 electrochemistry. The diffusion coeff (D in Pd) was found to be about
 $10^{-7}$ cm$^2$/s. D/Pd loadings were found to be about 0.72, as expected.
}
}
@article{Lips1993a,
 author    = {A.~G. Lipson and B.~F. Lyakhov and E.~I. Saunin
              and B.~V. Deryagin and Yu.~P. Toporov and V.~A. Klyuev
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              and D.~M. Sakov},
 title     = {The generation of nuclear fusion products by a combination
              of cavitation action and electrolysis at the titanioum surface
              in deuterated electrolyte},
 journal   = {Zh. Tekh. Fiz.},
 volume    = {63},
 number    = {7},
 year      = {1993},
 pages     = {187--196},
 note      = {In Russian},
 keywords  = {Experimental, fracto, Ti, cavitation, neutrons, tritium, res+},
 annote    = {The team used a vibrating Ti electrode, going at an amplitude
 of about 15 mu and 15 kHz, input power 1W/cm$^2$, in D2O (and H2O as
control)
 in both acid (D2SO4) and alkaline (NaOD) electrolyte, applying a cathodic
 current of 1-100 mA/cm$^2$ to the Ti electrode. Neutrons were searched for
by
 a block of seven boron detectors (described in another paper), tritium by
 scintillation.  In NaOD, neutrons were seen at 20-30 sigma above the
 background, with a pronounced "post-effect", i.e. after vibration was
 stopped, while in the acid there was 25 sigma during, but only 4 sigma after
 vibration. Significant levels of tritium were found in NaOD but much more
 while vibrating than with plain electrolysis, and about 7-8 times the
neutron
 emission rate. In some runs, Ti powder was dispersed in the electrolyte and
 this too gave neutrons.}
}
@article{Lips1993b,
 author    = {A.~G. Lipson and B.~F. Lyakhov and B.~V. Deryagin
              and D.~M. Sakov},
 title     = {Is 'cold nuclear fusion' necessary to understand the anomalous
              thermal effects in the Pd-D(H) system?},
 note      = {Orig. in: Dokl. Akad. Nauk 331 (1993) 39, in Russian},
 journal   = {Phys. Dokl.},
 volume    = {38},
 year      = {1993},
 pages     = {286--288},
 keywords  = {Discussion},
 submitted = {01/1993},
 published = {07/1993},
 annote    = {Reports of excess heat are not accompanied by observations of
 the required huge amounts of radiation. The Mills et al scenario is even
less
 likely than cold fusion, with its fusion of K with H. The present authors,
 too, have observed anomalous heat, with their heterostructures of Pd/PdO and
 Au/Pd/PdO, charged with hydrogen/deuterium. Neutron emissions from some of
 these have been reported elsewhere. However, again, cold fusion cannot be
the
 cause because of the incommensurate amounts of heat and radiation. It is
 suggested that the cause is the formation of quasimetallic hydrogen at the
 Pd-PdO interface. The loss of stability of this phase can lead to bursts of
 heat.  This explains both the fact that deuterium gives more heat than
 hydrogen, as well as the small neutron emission, due to enhanced dd fusion
of
 metallic deuterium. The two are thus due to two different mechanisms.}
}
@article{Lips1993c,
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 author    = {A.~G. Lipson and D.~M. Sakov and E.~I. Saunin
              and B.~V. Deryagin},
 title     = {Possibilities for increasing the neutron emission in KD2PO4
              crystals at the phase transition through the Curie point},
 journal   = {Tech. Phys. Lett.},
 note      = {Orig. in: Pis'ma Zh. Tekh. Fiz. 19(11) (1993) 74, in Russian},
 volume    = {19},
 number    = {11},
 year      = {1993},
 pages     = {729--730},
 keywords  = {Experimental, ferroelectrics, neutrons, res0},
 submitted = {10/1993},
 published = {11/1993},
 annote    = {The authors have previously reported observation of cold fusion
 in this material, due to the ferro-paraelectric phase transition when
passing
 through Tc, the Curie point. The S/N ratio was, however, low at about 2, due
 to the diffuseness of the transition and the small mass of material
 used. Therefore, better signals might be obtained by using a larger sample
 and a sharper transition. This was successful, and a S/N ratio of 10 was
 obtained using powdered crystalline material mixed and compacted with 70\%
 (by mass) of Cu powder into 1.5 g tablets to increase the thermal
 conductivity and thereby sharpen the transition. Another 0.45 g sample of
 single crystal material, gave the same low S/N as before, while another
large
 (10 g) polycrystalline one gave an even lower signal. This points the way to
 further work on this system.}
}
@article{Lips1993d,
 author    = {A.~G. Lipson and D.~M. Sakov and E.~I. Saunin
              and V.~B. Kalinin and M.~A. Kolovov and B.~V. Deryagin
              and A.~A. Khodyakov},
 title     = {Cold nuclear fusion induced in KD2PO4 single crystals by a
              ferroelectric phase transition},
 journal   = {JETP},
 note      = {Orig. in: Zh. Eksp. Teor. Fiz. 103 (1993) 2142, in Russian},
 volume    = {(76},
 number    = {6},
 year      = {1993},
 pages     = {1070--1076},
 keywords  = {Experimental, ferroelectrics, neutrons, res+},
 submitted = {12/1992},
 published = {06/1993},
 annote    = {Most cnf studies have used deuterated group IV and V metals,
 expecting high local deuteron concentrations, cracking and phase
 transitions. All this would hold better in ferroelectric deuterated KD2PO4
 crystals, where cracking can give us deuteron accelerations of 10-1000 eV,
 and thus fusion, from strong phase transitions. This team made single
 crystals of this kind and temperature cycled them from 100 K upwards,
 measuring neutron emission with an array of 8 proportional BF3 counters.
 Controls were run, counting neutrons under various non-fusion conditions.
The
 crystals' Curie point Tc was at 222 K, and at this temperature, neutrons at
 2.45 MeV were found. The effect wears off after a large number (80-90) of
 cycles, when there is a network of cracks in the cystals. The suggested
 mechanism is a combination of close d-d approach (0.45A and acceleration to
 about 10 eV; this is enough to explain the results.}
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}
@article{Lyak1993,
 author    = {B.~F. Lyakhov and A.~G. Lipson and D.~M. Sakov and A.~A.
Yavich},
 title     = {Anomalous heat release in the Pd/PdO system electrolytically
              saturated with hydrogen},
 journal   = {Russ. J. Phys. Chem.},
 note      = {Orig. in: Zh. Fiz. Khimii 67 (1993) 545, in Russian},
 volume    = {67},
 year      = {1993},
 pages     = {491--495},
 keywords  = {Experimental, Pd foil, electrolysis, excess heat, res-},
 annote    = {If d-d fusion were the cause of the F\&P excess heat, the
fusion
 rate would need to be $10^{-10}$q fusions/s/pair, and this is unlikely.
 Therefore, another explanation must be sought. This team carried out an
 experiment to observe heat bursts, and provides a clue as to their
 non-nuclear origin. A Pd foil, 55 mu thick and of 4.5 cm$^2$ area, was used
 as cathode, and 1M KOH as electrolyte. The current was controlled at 10
 mA/cm$^2$, at a cell voltage of 1.5 - 2 V. Hydrogen loading was determined
by
 post-experiment evacuation and measurement of H2 given off; and on occasion
 electrochemically, as well as by four-probe Pd resistance measurement. In
all
 cases, H loadings of about 0.72 (read off a Fig.) were obtained. Results,
 showing some heat bursts, indicated that a surface oxide plays a role,
 leading to the formation of some metallic hydrogen, which breaks down due to
 mechanical relaxation, forming dihydrogen as well as water by oxidation,
 thereby releasing heat. This is sufficient to explain excess heat
 observations. and a nuclear origin is not required.}
}
@article{Ma1993,
 author    = {Y.~L. Ma and H.~X. Yang and X.~X. Dai},
 title     = {Nuclear-fusion enhancement in condensed matter
              with impacting and screening},
 journal   = {Europhys. Lett.},
 volume    = {24},
 year      = {1993},
 pages     = {305--310},
 keywords  = {Theory, res+},
 submitted = {06/1993},
 published = {11/1993},
 annote    = {Theory, based on the idea that there is accelerated diffusion
 and channel collimation in materials that absorb hydrogen, such as Pd, Ti or
 C. Cluster impact fusion is included, even though it is now admitted to be
an
 artifact even by the original workers in CIF. For cold fusion in a metal,
the
 theory predicts observed fusion rates at energies as low as 0.2 eV.}
}
@article{Maly1993,
 author    = {J.~A. Maly and J. Vavra},
 title     = {Electron transitions on deep Dirac levels I},
 journal   = {Fusion Technol.},
 volume    = {24},
 year      = {1993},
 pages     = {307--318},
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 keywords  = {Theory, deep Dirac levels, res+},
 submitted = {10/1992},
 published = {11/1993},
 annote    = {Quantum mechanics was used, early this century, to explain the
 spectral lines of hydrogen, helium, etc. Other spectral lines that might
 exist but had not been observed were not considered. This is done here, and
 it seems that there are solutions to the Schroedinger equation that have
thus
 been overlooked, such as the deep Dirac levels. Some of these are tabulated,
 and allow an explanation of both F\&P cold fusion, as well as the Mills \&
 Farrell results, among other phenomena.}
}
@article{Marc1993,
 author    = {M. Marcus},
 title     = {Cold fusion research is alive and well -
             but not in the mass media},
 journal   = {St. Louis Journalism Rev.},
 volume    = {22},
 year      = {1993},
 number    = {153, Feb.},
 pages     = {16--18},
 keywords  = {Sci-soc discussion},
 published = {02/1993},
 annote    = {A sci-soc/phil/journalism paper. Marcus makes a case for a mass
 effort by the media to declare 'cold fusion' defunct, by stressing the
 problems, ridicule, and suppression of positive results. Marshal McKluhan
 [sic] is quoted "What if they are right?", referring to the decreasing group
 that still believes in CNF. Funding for CNF research is said to have been
 affected adversely by the negative publicity.}
}
@article{Matsu1993a,
 author    = {T. Matsumoto},
 title     = {Observation of meshlike traces on nuclear emulsions
             during cold fusion},
 journal   = {Fusion Technol.},
 volume    = {23},
 year      = {1993},
 pages     = {103--113},
 keywords  = {Experimental, Pd foil, electrolysis, film tracks, res+},
 submitted = {11/1991},
 published = {01/1993},
 annote    = {A cold fusion experiment, using as cathode a thin Pd foil at
 the bottom of a cell, was performed. Below the foil, a stack of 30 nuclear
 emulsions was mounted and this was examined afterwards by microscope. The
 foil was then refrigerated to increase the deuterium loading and then taken
 out. It continued to warm above room temperature for three hours, showing
 that cold fusion was taking place. This is the process 2d + 2e --> (4)n + i2
 + d, the (4)n being a quad neutron (which has been shown to then collapse by
 gravity and to form black holes) and the i2 is the double iton. In highly
 compressed deuteride, these itons are in the form of beads with a mesh-like
 structure, and such meshes have been found on the emulsions.}
}
@article{Matsu1993b,
 author    = {T. Matsumoto},
 title     = {Cold fusion experiments with ordinary water
             and thin nickel foil},
 journal   = {Fusion Technol.},
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 volume    = {24},
 year      = {1993},
 pages     = {296--306},
 keywords  = {Experimental, electrolysis, Ni, Pd, film tracks, light water,
              res+},
 submitted = {09/1992},
 published = {11/1993},
 annote    = {The Nattoh (soya bean) model encompasses both heavy- and
 light-water cold fusion. Here, the discoverer of the model performs an
 experiment on a Ni foil cathode in light water and potassium carbonate. 30
 nuclear emulsion plates were placed under the Ni foil and produced a rich
 harvest of tracks. Another three plates were placed 5m distant from the
cell,
 as references (but not referred to again). Also, the temperature was clearly
 higher when Ni was used, than when Pt was used as the cathode. Optical
 examination (50X) of the emulsions revealed circular spots, evidence of
 "fermented" dineutrons, gravity decays, black and white holes, all as
 predicted by the theory. Conical shapes, typical of black holes, are also
 clearly seen, as are stars, white strings and perhaps superstrings. 17
 references, 10 of them to Matsumoto.}
}
@article{Matsu1993c,
 author    = {T. Matsumoto},
 title     = {Experiments of one-point cold fusion},
 journal   = {Fusion Technol.},
 volume    = {24},
 year      = {1993},
 pages     = {332--339},
 keywords  = {Experimental, electrolysis, Cu, high voltage, gravity decay,
              res+},
 submitted = {10/1992},
 published = {11/1993},
 annote    = {Electrical discharges can be expected to facilitate cold
fusion,
 and pin anodes might be a good way. Here, one-point anodes were tried, and
 the usual features predicted by the Nattoh model were observed. Copper was
 used because of its low capacity and permeability for hydrogen, good
 conductivity and good sensitivity to energy deposit. The first causes a high
 surface hydrogen concentration, effectively aiding cold fusion. 70-90 V ac
 voltage was used for the discharge, at 50 Hz, for 5 to 20 min. Afterward,
the
 Cu surface was examined optically (50X). Evidence of gravity decay of
 dineutrons and single neutrons without the itonic mesh was found, along with
 itonic hydrogen clusters, tiny black holes, white holes, a whirling trace
 whose meaning is uncertain and string-like features as evidence of gravity
 decay. There is a Figure to explain all this. Only 7 self-references out of
 13.}
}
@article{Matsu1993d,
 author    = {T. Matsumoto},
 title     = {Response to 'Comments on 'Experiments of one-point
              cold fusion''},
 journal   = {Fusion Technol.},
 volume    = {24},
 year      = {1993},
 pages     = {347--348},
 keywords  = {Polemic},
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 submitted = {03/1993},
 published = {12/1993},
 annote    = {Matsumoto responds to a Comment by H Fox in the same journal
 (same page), suggesting that he has inadvertently hit upon huge electron
 clusters in his experiments. But M refuses to be congratulated by Fox,
 because he observes something different, i.e the new particles itons,
 consisting of electrons, positrons and neutrinos and have a mesh structure
 and cover fusion products such as quad-neutrons. Itons also enclose hydrogen
 clusters, and it is not possible to decide whether these are the same as the
 high-charge clusters of Shoulders in his patent. Also, Shoulders believes
 that the energy is extracted from the vacuum but Matsumoto's Nattoh theory
 relies on fusion. Zero point energy might be better, and M will search for
it
 in his experiments. If he finds it, he will accept congratulations.}
}
@article{Maye1993,
 author    = {R.~E. Mayer and N.~E. Patino and P.~C. Florido and S.~E. Gomez
              and J.~R. Granada and V.~H. Gillette},
 title     = {Neutron detection system for extremely low count rate.
              Calculation, construction and employment in search for
              'cold fusion'},
 journal   = {Nucl. Instrum. Meth. Phys. Res. A},
 volume    = {324},
 year      = {1993},
 pages     = {501--510},
 keywords  = {Experimental, design, neutron detector},
 submitted = {12/1991},
 published = {02/1993},
 annote    = {A paper written for those who want to measure the extremely
 low-level neutrons thought to emanate from cold fusion experiments, but who
 are not specialists in the field of neutron measurement. The aims were high
 efficiency and reliability, as well as rejection of background
 noise. Therefore, the (3)He proportional counter was used, which however
 restricts a detailed energy analysis. Design calculation dictated a ring of
 18 detectors, arranged as three clusters of six each. The tubes were kept at
 10 atm helium pressure.  High voltage leads were covered with paraffin
melted
 onto them to prevent humidity problems. Pulse shape discrimination and an
 anticoincidence stage helped to guard against background. Measurements with
a
 blank or no cell established a background of about 0.1 counts/s. No new
 results are reported, but previously reported results are summarised. These
 indicate a low-level neutron emission from cold fusion electrolyses.}
}
@article{Meng1993,
 author    = {G. Mengoli and M. Fabrizio and C. Manduchi and G. Zannoni},
 title     = {Surface and bulk effects in the extraction of hydrogen
              from highly loaded Pd sheet electrodes},
 journal   = {J. Electroanal. Chem.},
 volume    = {350},
 year      = {1993},
 pages     = {57--72},
 keywords  = {Experimental, electrolysis, Pd, light water, loading, res0},
 submitted = {07/1992},
 published = {05/1993},
 annote    = {The cold fusion affair has sparked interest in the "hydrogen in
 metals" field. Most previous work has stayed within the low-loading regime,
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 i.e. the alpha phase. Fundamental questions remain: what loadings can be
 achieved? What is the hydrogen diffusivity at high loading? Can the
 absorption- desorption processes be controlled? Some electrolysis
experiments
 are done here, sticking to normal water (hydrogen). Pd foils of thickness of
 0.02 cm were used, as well as a rotating Pd disk exposed in an insulating
 Teflon plane. Electrolysis was at controlled potential of -2 to -2.5 V
 vs. the reference electrode (SCE), for some minutes to three days. Loading
 was then determined by anodic extraction at around zero V and values of 0.97
 or so were achieved. The surprising result was that different extraction
 currents (at similar loadings) were observed at different LiOH
 concentrations; the higher the concs, the higher the currents. Also,
 different rotation rates of the disk gave different extraction currents,
 indicating a solution-side process. None of this is followed up; instead,
 some diffusion theory is presented and a large number of diffusion
 coefficients tabulated.}
}
@article{Miles1993,
 author    = {M.~H. Miles and R.~A. Hollins and B.~F. Bush and J.~J. Lagowski
             and R.~E. Miles},
 title     = {Correlation of excess power and helium production during D2O
             and H2O electrolysis using palladium cathodes},
 journal   = {J. Electroanal. Chem.},
 volume    = {346},
 year      = {1993},
 pages     = {99--117},
 keywords  = {Experimental, electrolysis, Pd, calorimetry, helium, res+},
 submitted = {03/1992},
 published = {03/1993},
 annote    = {Two standard CNF electrolysis cells, test-tube shaped, were
 placed in a water cooling bath, which functioned as heat detector. The
 electrolyte was 18g of 0.2M LiOD or LiOH in heavy or light water, resp. The
 Pd cathode was a 0.63 cm dia., 1.1 cm long cylinder, surrounded by a Pt/Rh
 (80:20\%) wire spiral as anode. The heat response time constant was about 30
 minutes. Helium was taken from the effluent gases, and great care was taken
 to avoid contamination. The helium detection limit was estimated at 1-2 ppb,
 and analysis was done elsewhere, by high-res. MS, able to distinguish (4)He
 from D2. Indium and gold foils, as well as dental x-ray film, were also
 mounted around the cells to detect neutrons or (the film) any radiation.
 Excess power was calculated with subtraction for the electrolysis power
 consumed, and evolved gas checked with the assumption that no recombination
 took place. Excess heat was found, at up to 27\% (a peak value), but
 remaining positive for long periods. Large excess heat values were
 accompanied by large (4)He peaks, and small excess heat by small (4)He
 peaks. Thus, excess heat and (4)He detections were correlated, in roughly
 commensurate quantities. Controls with light water produced neither excess
 heat nor helium. No (3)He was found in any experiments. Some dental films
 registered radiation exposure, but the metal foils showed no activation.
 This sets the neutron emission limit at $< 10^5$ n/s. Tritium assay of the
 final electrolyte showed some increase but electrolytic enrichment could not
 be ruled out as its cause. Subsequent experiments with new Pd cathodes
failed
 to reproduce the excess heat and dental film exposures. Errors were
carefully
 examined but considered insufficient to explain the positive results. The
 experiment is consistent with the (4)He reaction being the major fusion
 branch.}
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}
@article{Noni1993,
 author    = {V.~C. Noninski and C.~I. Noninski},
 title     = {Notes on two papers claiming no evidence for the existence of
              excess energy during the electrolysis of 0.1M LiOD/D2O with
              palladium cathodes},
 journal   = {Fusion Technol.},
 volume    = {23},
 year      = {1993},
 pages     = {474--476},
 keywords  = {Polemic},
 submitted = {11/1992},
 published = {07/1993},
 annote    = {This is a polemic on the paper by Lewis et al, Nature
 340 (1989) 525, and by Albagli et al, J. Fusion Energy 9 (1990) 133, both of
 which reported a negative result for a cold fusion calorimetry experiment.
In
 both papers, an isoperibolic calorimeter was used, adjusting the power so as
 to keep the cell temperature constant, above bath temperature. N\&N point
out
 that in both cases the analysis in effect uses two equations to solve for
 three unknowns, one of them the excess power; this is then assumed to be
zero
 and reported as such.  Therefore, both papers are in error.}
}
@article{Noto1993a,
 author    = {R. Notoya},
 title     = {Cold fusion by electrolysis in a light water-potassium
              carbonate solution with a nickel electrode},
 journal   = {Fusion Technol.},
 volume    = {24},
 year      = {1993},
 pages     = {202--204},
 keywords  = {Experimental, electrolysis, light water, Ni, calorimetry,
res+},
 submitted = {09/1992},
 published = {09/1993},
 annote    = {The Mills-Kneizys/Bush scenario, which predicts the formation
 of calcium.  The author used a sintered Ni slab (10*5*1 mm$^3$) and currents
 from 10 to 550 mA, with cell voltages up to about 5 V. The cell was placed
in
 a calorimeter with calibration heaters, and the temperature measured as a
 function of input power (corrected for enthalpy of water electrolysis). The
 electrolysis runs (2 cells) show a straight line relation of temperature
 against total input power, much steeper that than for electrical heating,
 implying excess heat linear with input power, up to close to 4 W, greater
 than recombination heat. An increase in Ca concentration from 21-22 ppm to
 about 25 ppm resulted from the electrolysis, confirming Bush's theory of
 fusion of hydrogen with potassium. Further study is required here.}
}
@article{Noto1993b,
 author    = {R. Notoya},
 title     = {Current status of cold fusion research},
 journal   = {Genshiryoku Koyo},
 volume    = {39},
 number    = {9},
 year      = {1993},
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 pages     = {34--36},
 note      = {In Japanese},
 keywords  = {Review},
 annote    = {"A review with 8 refs. is presented on the research of hydrogen
 electrode reaction of cold fusion in light water using K soln. Emphasis is
on
 the discussion of heavy water-Pd and K-light water-Ni systems" (CA).}
}
@article{Ohmo1993,
 author    = {T. Ohmori and M. Enyo},
 title     = {Excess heat evolution during electrolysis of H2O with nickel,
              gold, silver, and tin cathodes},
 journal   = {Fusion Technol.},
 volume    = {24},
 year      = {1993},
 pages     = {293--295},
 keywords  = {Experimental, light water, Ni, Au, Ag, Sn, calorimetry, res+},
 submitted = {11/1992},
 published = {11/1993},
 annote    = {An attempt to verify the Mills and Kneizys results, i.e.
 electrolysis in light water and potassium carbonate at a Ni cathode, in
which
 excess heat was claimed found (although surprisingly, others claimed tritium
 as well). These authors, however, also use the other title metals as
 cathode. All were in the form of foil strips 2-3 cm by 10-20 cm, and the Pt
 mesh anode was placed flat on the cell bottom. Various electrolytes were
 tried such as K2CO3, Na2CO3, Na2SO4 and Li2SO4, all at 0.5 M. A constant
 current of 1A was run for 20 h each time. Hydrogen gas was used to stir the
 cell contents, and the temperature monitored by a single thermistor. The
 temp. was 1.3C higher with Ni and K2SO4 than with Na2SO4, thus supporting
 Mills \& Kneizys' results. Other electrolytes also gave excess heat (up to
 almost 1 W with Sn, mechanically abraded) with all metals except Ni. Thus,
in
 addition to the Mills proposal of the fusion of K with protons, there might
 also be fusion of Na and Li with protons, producing, e.g., Mg and 4He.}
}
@article{Okab1993,
 author    = {S. Okabe},
 title     = {Some new scientific fields related to exoelectron emission
              and fracto-emission},
 journal   = {Poverkhnost. Fis. Khim. Mech.},
 year      = {1993},
 number    = {7},
 pages     = {34--42},
 keywords  = {Discussion, fracto},
 submitted = {06/1992},
 annote    = {The author is concerned with the field of exoelectron emission
 (EEE) and deplores the lack of interest in it among scientists. In this
 paper, he surveys the field and how EEE impinges on, among other areas, cold
 fusion, through fracto-emission. This started with Klyuev et al in 1986, and
 there has been some confirmation since then, by others.}
}
@article{Ota1993,
 author    = {K. Ota and H. Yoshitake and N. Kamiya},
 title     = {Present status of cold fusion},
 journal   = {Hyomen Kagaku},
 volume    = {14},
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 number    = {9},
 year      = {1993},
 pages     = {570--573},
 note      = {In Japanese},
 keywords  = {Review},
 submitted = {08/1993},
 published = {09/1993},
 annote    = {A review with 9 refs. The references are up to 1993, including
 the F\&P paper in Phys. Lett. A and the Nagoya conference procs, Frontiers
 of Cold Fusion.}
}
@article{Park1993,
 author    = {A.~E. Park},
 title     = {Some thoughts on a simple mechanism for the 2H + 2H --> 4He
              cold fusion reaction},
 journal   = {Fusion Technol.},
 volume    = {24},
 year      = {1993},
 pages     = {319--323},
 keywords  = {Discussion, suggestion},
 submitted = {11/1992},
 published = {11/1993},
 annote    = {Six references are cited as evidence for 4He production
 correlated with excess heat; thus, the reaction d + d --> 4He must be the
 one. The author calls it the compressed-rotational-shielded (CRS) cold
fusion
 reaction. It has not been proven not to take place in the cold fusion
 environment. At one stage of this reaction, two d nuclei are brought close
 together by momentum, compression and internal ground-state rotations in the
 presence of an excess of electrons at the Pd surface; e.g. in the presence
of
 a magnetic field. An alternative stage might be the attraction of the two
 neutrons to each other.  The second stage is then the formation of the
 excited 4He. Other mechanisms are possible. The essence of this seems to be
 the formation of pn-np pairs by Coulomb repulsion and compression. In the
 final stage, the excited 4He comes to rest, releasing its energy to
 photons. Some suggestions are made for experimentally enhancing this
 mechanism. }
}
@article{Pokr1993,
 author    = {V.~V. Pokropivnyi},
 title     = {Bineutron theory of cold nuclear fusion},
 journal   = {Dokl. Akad. Nauk. Ukr.},
 number    = {4},
 year      = {1993},
 pages     = {86--92},
 keywords  = {Theory, bineutrons},
 submitted = {10/1992},
 note      = {In Russian, Engl. abstr.},
 annote    = {In a previous paper, the author has suggested, simultaneously
 with Timashev, that the formation of dineutrons might be the cold fusion
 mechanism.  In this paper, he elaborates on this idea.  The abstract says
 (with some paraphrasing): "Possibilities are considered for stabilisation of
 the dineutron pair in the deuteron-containing crystals, in particular
 beta-decay without recoil. Also, the temperature criterion T < Tc are
 proposed to explain neutron 'flashes'".  The author calculates the lifetime
 of 2n as $2.4 \times 10^{-12}$ s at 3K. More work is needed, and there are
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 many possibilities for reactions other than just 2n-d fusion, e.g. reactions
 of 2n with the Pd itself.}
}
@article{Pric1993,
 author    = {P.~B. Price},
 title     = {Advances in solid state nuclear track detectors},
 journal   = {Nucl. Tracks Radiat. Meas.},
 volume    = {22},
 number    = {1-4},
 year      = {1993},
 pages     = {9--21},
 keywords  = {Detector design, cps, res-},
 annote    = {Price writes a general paper on nuclear detectors, with a small
 section on their application to cold fusion, which, he writes, is now (1993)
 a dead issue.  He reports again on his lab's own attempts to detect charged
 particles (cps) which were not rewarded, yielding about 1/200 the flux
 claimed by FPH and Jones. Fractofusion is also mentioned and likewise
 rejected (Price had previously tried it).}
}
@article{Quic1993,
 author    = {T.~I. Quickenden and T.~A. Green},
 title     = {A calorimetric study of the electrolysis of D2O and H2O
              at palladium cathodes},
 journal   = {J. Electroanal. Chem.},
 volume    = {344},
 year      = {1993},
 pages     = {167--185},
 keywords  = {Experimental, Pd, electrolysis, calorimetry, res-},
 submitted = {04/1992},
 published = {01/1993},
 annote    = {A very thorough calorimetric study, with 5 series of 4
 experiments each, always comparing heavy and light water electrolysis in the
 same bath and, as far as possible, the same conditions. Variously
(un)treated
 Pd rods and wires were used, in 0.1 M LiOH(D) and in one case 0.25 M
 Li2SO4. Gases produced were vented, so the cells were of the "open"
 type. Calorimetry was by means of a cooling coil, measuring the difference
 between inlet and outlet temperature.  This kept cell temperature down and
 provided a very accurate calibration of cell power, independent of
 electrolyte volume. Charging was carried out prior to calorimetry, at low
 current to avoid fracturing of the palladium.  Experiments were continued
 over a period of up to 6 weeks, and careful error analysis showed an error
 level in of 1.5\% cell power. Results were within this limit at all times,
so
 no excess (or deficit) heat was observed.}
}
@article{Rout1993,
 author    = {R.~K. Rout and A. Shyam and M. Srinivasan and M.~S. Krishnan},
 title     = {Update on observation of low-energy emissions from deuterated
              and hydrated palladium},
 journal   = {Indian J. Technol.},
 volume    = {31},
 year      = {1993},
 pages     = {551--554},
 keywords  = {Experimental, Pd, gas phase, x-ray autoradiography, cps, res0},
 submitted = {08/1992},
 published = {08/1993},
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 annote    = {In a previous paper (1991) the authors reported emissions, most
 likely of electrons, in the range of tens to hundreds of eV from hydrated or
 deuterated Pd-Ag alloys. Here, new results are reported. Gas loading was
 used, at 1 bar, after vacuum treatment at 600C for 2 h. In this new study,
 pure Pd samples, 18 mm by 2 mm, were used, 10 freshly loaded, and 6
 reloaded. Except where fusion products were looked for, only H2 was used, to
 avoid interference from such fusion emissions. Emissions were measured by
 autoradiography of sensitive film, typically kept 0.2 mm from the samples
for
 96 h. No fogging was seen for samples of PdHx held in vacuum, and an average
 fogging density of 0.08 for samples kept in air (as controls). Similarly, no
 or little fogging was seen for samples in nitrogen, helium or argon, while
 pure oxygen seemed to help a little. In other measurements, charged
particles
 (cp's) were detected with a CR-39 detector close up, and in two out of 7
 samples of deuterated Pd, above-background cp's were seen, but not with
 hydrated Pd or pure Pd. The authors conclude that oxygen might be involved
in
 assisting the phenomenon, and that perhaps fractures are the cause of the
 emissions; but nothing is clear.}
}
@article{Russ1993,
 author    = {J. L. {Russell Jr}},
 title     = {On the nature of the cold fusion process},
 journal   = {Ann. Nucl. Energy},
 volume    = {20},
 year      = {1993},
 pages     = {227--228},
 keywords  = {Discussion},
 submitted = {09/1992},
 annote    = {Based on reports by Chambers et al at the BYU conference in
 1990, of 5.1 MeV tritons produced at Ti irradiated with a deuteron beam at
 300-1000 eV, Russell proposes that the only possible reaction to explain
this
 is that of a virtual dineutron (deuteron captures an electron) with two
other
 deuterons.  This is expected to be a rare event, accounting for the low
 yield. It cannot however be the source of excess heat, and cannot be the
only
 one producing tritium in cold fusion experiments. Logically, a more probable
 reaction is that of a virtual dineutron with a single deuteron; it may be
 this one that produces the heat, but somehow without energetic nuclear
 particles.}
}
@article{Scar1993,
 author    = {F. Scaramuzzi},
 title     = {La fusione fredda quattro anni dopo
             (Cold fusion four years later)},
 journal   = {Chim. Ind. (Milano)},
 volume    = {75},
 number    = {5},
 year      = {1993},
 pages     = {425--426},
 note      = {In Italian},
 keywords  = {Commentary},
 annote    = {Scaramuzzi, who is one of the Italian contributors to the
 experimental work in the field, here provides a roundup of the field after
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 four years. There was initial wide skepticism, but after four years of
 research, the cnf research community has obtained some results, despite
being
 dogged by lack of reproducibility, and more work is needed. No references.}
}
@article{Shib1993,
 author    = {T. Shibata},
 title     = {Critical points for the evaluation of measured results on
              cold fusion},
 journal   = {Oyo Buturi},
 volume    = {62},
 number    = {7},
 year      = {1993},
 pages     = {715--716},
 note      = {In Japanese},
 keywords  = {Comment},
 submitted = {03/1993},
 published = {07/1993},
 annote    = {All in Japanese, this one-page paper baffles this abstracter.
 There is mention of 3He, 4He, gammas and x-rays, presumably in a discussion
 about what ought to be given off by cold fusion. No references.}
}
@article{Shir1993,
 author    = {T. Shirakawa and M. Chiba and M. Fujii and K. Sueki
              and S. Miyamoto and Y. Nakamitu and H. Toriumi and T. Uehara
              and H. Miura and T. Watanabe and K. Fukushima and T. Hirose
              and T. Seimiya and H. Nakahara},
 title     = {A neutron emission from lithium niobate fracture},
 journal   = {Chem. Lett.},
 year      = {1993},
 pages     = {897--900},
 keywords  = {Experimental, fracto, Nb, neutrons, res-},
 submitted = {02/1993},
 published = {05/1993},
 annote    = {When an ionic crystal is crushed, fracture separates charges on
 the new surfaces, leading to high fields, which may accelerate deuterons if
 present.  Here, rather than wait for cracking, the team crushed single
 crystals of lithium niobate in a vibromill in the presence of D2 gas, and
 monitored the neutrons emitted with a ring of 10 3He proportional counters,
a
 paraffin block thermalising the neutrons; efficiency 2.6\%. This was carried
 out at an underground, low cosmic background location (100 m water depth
 equivalent, 7.6 neutrons/h during 132 h). Crushing was maintained for 1 h at
 a time. 12 such runs were summed, and the neutron spectrum in excess over
the
 background is shown. It is close to zero in the region of channels >1600,
but
 in clear excess (34.8 neutrons) in the region below this. The Fig. states
 that channel 1400 lies at 760 keV thermalised neutrons. There was no
 observable effect of D2 pressure (1.1 to 101 kPa), nor of the addition of
 LiD. No excess neutrons were found when Ti or Pd metal was crushed under
D2O,
 to emulate the Russian work (Klyuev et al), which is thus not confirmed.}
}
@article{Silv1993,
 author    = {D.~S. Silver and J. Dash and P.~S. Keefe},
 title     = {Surface topography of a palladium cathode after electrolysis
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              in heavy water},
 journal   = {Fusion Technol.},
 volume    = {24},
 year      = {1993},
 pages     = {423--430},
 keywords  = {Experimental, post mortem, surface, neutrons, gammas, tritium,
              res-},
 submitted = {03/1992},
 published = {12/1993},
 annote    = {It has been suggested that the cold fusion reaction might be
 d + p, not d + d; here, large amounts of hydrogen have been generated
 alongside deuterium to test this. Scanning electron, scanning tunneling and
 atomic force microscopy (SEM, STM, AFM resp.) were used for a post mortem
 look at the Pd surface.  Various features such as pits and craters were
 found, and suggest violent events, energetically beyond chemistry. In
 experiments with heavy water, higher temperatures were reproducibly reached
 than in light water. Attempts to detect fusion products (tritium, neutrons,
 gammas) were not successful.  However, some heavy elements accumulated
 locally; this has been reported elsewhere.}
}
@article{Stor1993,
 author    = {E. Storms},
 title     = {Measurements of excess heat from a Pons-Fleischmann-type
              electrolytic cell using palladium sheet},
 journal   = {Fusion Technol.},
 volume    = {23},
 year      = {1993},
 pages     = {230--245},
 keywords  = {Experimental, Pd, electrolysis, excess heat, res+},
 submitted = {07/1992},
 published = {03/1993},
 annote    = {An isoperibolic calorimeter was constructed and here used with
 a Pd cathode in the form of a sheet about 0.5 mm thick and about 6 cm$^2$
area
 (similar to that used by Takahashi). The calorimeter was of the closed kind,
 using a recombination catalyst, and with a cooling coil, the measurement
 being the temperatures at inlet and outlet. A Pt mesh placed around the
 cathode served as anode. The electrolyte was 0.3M LiOD in heavy water. There
 were extra thermocouples at two levels within the cell itself, as a check
 against gradients in temperature; calibrations proved these not to be
 significant.  Also, an additional Pt plate, similar to the Pd cathode, was
 used as a control, and cell power showed about 3\% scatter or 1 W at 35 W
 input. At this input, excess heat was not claimed unless exceeding the 1W
 level. The sealed cell allowed, initially, the measurement of deuterium
 loading by D2 pressure; this became inaccurate later due to some artifact. A
 loading of about 0.82 was achieved. One cathode showed slight excess heat at
 0-2 W, then went up to a maximum of 7.5 W (20\%) when the catalyst was
 renewed; this only at the highest current, 2.5 A. The other cathode never
 showed excess heat. The excess heat was judged to be coming from the Pd
 plate.}
}
@article{Stro1993,
 author    = {A. Stroka and B. Baranowski and S.~M. Filipek},
 title     = {Search for 3He and 4He in Pd-D2 system long term cumulation
              experiment in high pressure},
 journal   = {Pol. J. Chem.},
 volume    = {67},
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 year      = {1993},
 pages     = {353--354},
 keywords  = {Experimental, He, MS, res-},
 submitted = {10/1992},
 annote    = {The He results of the study reported in another paper from this
 lab (Baranowski et al, J. Less-Common Metals 158 (1990) 347). In an enclosed
 cnf experiment, it should be easy to detect He, e.g. by mass spectrometry
 (MS), if any is formed, as it should be. A 1.1*5.63 cm$^2$ Pd cylinder (67
g)
 was kept for more than 2 years at a D2 pressure of not less than 6 kbar, 298
 K. This gives a D/Pd loading of no less than 0.9. This Pd sample is larger
 than the critical size described by FPA-89, who reported "IGNITION". A
 quadrupole MS was used, capable of detecting $10^{-10}$ mol He. No He was
 found above this detection limit. This sets an upper limit of $10^6$
 fusions/s, which lies between claimed emission measurements of 1/s and the
 much larger (and lethal) emissions corresponding to excess heat
 claims. Another negative.}
}
@article{Stuk1993,
 author    = {P.~A. Stukan and Yu.~M. Rumyantsev and A.~V. Shishkov},
 title     = {Generation of hard radiation and accumulation of tritium
              during electrolysis of heavy water},
 journal   = {High Energy Chem.},
 volume    = {27},
 year      = {1993},
 pages     = {461--465},
 keywords  = {Experimental, electrolysis, tritium, radiation, heat, res+},
 annote    = {In 1990, this team began the experiment described here. They
 electrolysed a 2\% solution of Li2CO3 in heavy water at cathodes of Pd and
 Ti, both 4 mm dia.  rods and measured hard radiation given off over time,
 using a beta-type scintillator and photomultipliers. The cell current was
 1A/cm$^2$.  This showed a radiation sequence with time, roughly 10-20 times
 in counts/s of the sequence before the current was turned on. A control run
 with light water shows only the background itself. By using a paraffin
shield
 and noting the effect, they were able to state that the radiation consisted
 largely of neutrons, and estimated the flux to be about $2\times 10^3$
 n/s. They also measured tritium accumulation in the cell, by removing
 aliquots repeatedly and, after an initial quiescent period, there was a
 steady, roughly linear rise in the amount of tritium produced vs time,
 somewhat greater for the Pd cathode than for the Ti one. With the current
 off, or current on with light water, much smaller amounts of tritium were
 seen; in the case of light water, the team suspects tritium coming out of
the
 Pd from previous heavy water runs.  The tritium production on Pd in heavy
 water translates into about $2\times 10^8$ t/s, 5 orders of magnitude larger
 than the neutron flux. They note the discrepancy but do not attempt an
 explanation. No unexpected heating of the cell was observed.}
}
@article{Sun1993,
 author    = {D.~L. Sun and Y.~Q. Lei and J. Wu and Q.~D. Wang and R. Wang},
 title     = {An explanation for the abnormal temperature rise of palladium
              cathode during electrochemical deuterium charging},
 journal   = {Science in China A},
 volume    = {36},
 year      = {1993},
 pages     = {1501--1508},
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 keywords  = {Experimental, Pd, electrolysis, excess heat, res0},
 submitted = {12/1992},
 published = {12/1993},
 annote    = {This team performed 7 long-term 'cold fusion' electrolyses,
 searching for excess heat. Three types of Pd cathodes rods, 6 mm diameter
 and 33.5 mm length, were used: as-cast, annealed and deformed. Current
 densities varied from 54 to 540 mA/cm$^2$, and electrolysis times were up to
 300 h. The cell was of the open type and the calorimeter was of the cooling
 coil type.  Measurement accuracy was 1.5-5\%, and all but one experiment
 resulted in excess heat within this band. In that one experiment (as-cast,
 518 mA/cm$^2$), there was a single temperature excursion at about 130 h
 lasting about 30 h, giving a 28\% excess heat or a total of 112 kJ/cm$^3$ of
 Pd. The authors possible chemical origins of this heat but dismiss them. D-d
 fusion, too, is not believed to be possible by the team. There remains the
 release of stress in microcracks, proposed here.}
}
@article{Takah1993a,
 author    = {A. Takahashi},
 title     = {Production of neutron, tritium and excess heat},
 journal   = {Oyo Butsuri},
 volume    = {62},
 year      = {1993},
 pages     = {707--709},
 note      = {In Japanese},
 keywords  = {Review},
 submitted = {03/1993},
 annote    = {Chemical Abstracts (119:280105) calls this a review but it is
 limited in this respect, with only 11 refs. largely to Japanese
 work. Storms. The figures are taken from Takahashi's own work, and show
 neutron counts going up with electrolysis current, a neutron peak at 2.5
MeV,
 a figure with a large number of points showing excess heat increasing with
 D/Pd loading.}
}
@article{Takah1993b,
 author    = {A. Takahashi},
 title     = {Cold fusion research: present status},
 journal   = {Koon Gakkaishi},
 volume    = {19},
 number    = {5},
 year      = {1993},
 pages     = {179--185},
 note      = {In Japanese},
 keywords  = {Review},
 annote    = {Chem. Abstr. 120:87961 (1993): "A review with 11 refs. is
 presented with the emphasis on the important exptl. results and theor.
 model". The review seems to be up to date to the symposium ICCF3, and shows
 the familiar graphs of the dependence of excess heat on the D/Pd loading and
 on current density, mentions surface layers, radiation measurements, He
 detection.}
}
@article{Tise1993a,
 author    = {Yu.~A. Tisenko},
 title     = {Possible ways to achieve cold fusion. I},
 journal   = {Sov. Phys. J.},
 volume    = {36},
 year      = {1993},
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 pages     = {764--768},
 keywords  = {Comment, suggestion},
 submitted = {11/1991},
 published = {08/1993},
 annote    = {An attempt to find conditions (alloys) in which deuterons are
 close enough to each other for fusion. Indeed, some alloys do cause a
 reduction in the d-d distance, but not enough. }
}
@article{Tise1993b,
 author    = {Yu.~A. Tisenko},
 title     = {Possible ways to achieve cold fusion. II},
 journal   = {Sov. Phys. J.},
 volume    = {36},
 year      = {1993},
 pages     = {769--773},
 keywords  = {Comment, suggestion},
 submitted = {11/1991},
 published = {08/1993},
 annote    = {In this paper, thought is given to making practical use of cold
 fusion (e.g. generation of 2.45 MeV neutrons) and the possibility of
 stimulating it, by mechanically causing vibrational standing waves in single
 crystal TiD rods.}
}
@article{Tsve1993,
 author    = {S.~A. Tsvetkov and N.~B. Bondarenko and I.~L. Bel'tyukov
              and A. Varaksin and A.~A. Zhivoderov},
 title     = {Molecular-dynamics calculation of phase transitions in the
              Pd-D system and cold nuclear fusion},
 journal   = {Phys. Metals Metallogr.},
 volume    = {76},
 year      = {1993},
 pages     = {399--401},
 keywords  = {Theory, calculation, phase transition, PdD, res+,
              no FPH/Jones refs.},
 submitted = {11/1992},
 published = {10/1993},
 annote    = {This team has previously proposed that phase transitions may
 play a role in initiating cold fusion, and have developed some models. Here,
 they attempt by means of molecular dynamics to find the optimum conditions.
 The beta-alpha transition in palladium deuteride in particular was
 considered.  Microcrystallites with free boundaries containing $10^3$ Pd
 atoms were the basis for the MD calculations, at temperatures 300, 350 400
 and 450 K. The results of computer runs are that both energetic deuterons,
 and favourable d-d approach are possible, optimum at about 300K. This agrees
 with some experimental results (Zelenskii et al 1990).}
}
@article{Vaid1993,
 author    = {S.~N. Vaidya},
 title     = {Comments on the model for coherent deuteron-deuteron fusion
              in crystalline Pd-D lattice},
 journal   = {Fusion Technol.},
 volume    = {24},
 year      = {1993},
 pages     = {112--114},
 keywords  = {Theory, suggestion},
 submitted = {05/1992},
 published = {08/1993},
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 annote    = {This builds on earlier work by the author, here trying to
 estimate the limits of d-d fusion enhancements, and to address a problem
with
 the transmission resonance model of Bush. In Vaidya's approach (quoting
him),
 "only the deuterons that meet the transmission resonance criterion are
 considered to be fully itinerant and to form a band state". Coherent
 interactions between these can occur. The theory predicts that fusion
 enhancement can be increased by the application of ultrasonics. An
experiment
 is suggested.}
}
@article{Wang1993,
 author    = {D. Wang and S. Chen and Y. Li and R. Liu and M. Wang and Y. Fu
             and X. Zhang and W. Zhang},
 title     = {Neutrons, gamma-rays and x-rays in a gas discharge},
 journal   = {Chin. J. Atomic Mol. Phys.},
 volume    = {10},
 number    = {3},
 year      = {1993},
 pages     = {2789--2794},
 note      = {In Chinese},
 keywords  = {Experimental, gas phase, discharge, neutrons, x-rays, res+},
 annote    = {An anomalous phenomenon in a metal loaded with D was studied
 by using the gas-discharge method, and ca. $10^4$ n/s were detected. The
 prodn. of n is controllable and repeatability is 100\%. Neutrons at energies
 of 1.0-3.0 MeV were measured by the NE213 detector. Anomalous x-rays of
 av. energy (27.6 $\pm$2.1) keV were measured. Anomalous gamma-rays of energy
 ca. 470 keV were measured (Direct quote from CA 120:228892 (1994)).}
}
@article{Will1993,
 author    = {F.~G. Will and K. Cedzynska and D.~C. Linton},
 title     = {Reproducible tritium generation in electrochemical cells
             employing palladium cathodes with high deuterium loading},
 journal   = {J. Electroanal. Chem.},
 volume    = {360},
 year      = {1993},
 pages     = {161--176},
 keywords  = {Experimental, Pd, electrolysis, tritium, res+},
 submitted = {01/1993},
 published = {11/1993},
 annote    = {Reproducible generation of tritium during the electrolysis of
 heavy water is reported here; it takes place when loading ratios D/Pd near
 unity are achieved. A closed cell design is used, with gas recombination,
and
 the head space analysed for tritium before and after electrolysis. A light
 water cell in series with the heavy water cell was run every time as a
 control; there were also Pd controls. A glass frit was used to physically
 separate the liquid cathode and anode compartments. The electrolyte was 0.5
M
 D2SO4, to avoid alkali leaching of the cell walls by LiOD. Cathodes were 1
 and 2 mm cold-drawn Pd wire, and 2x0.5 mm cold-rolled ribbon Pd alloyed with
 5\% Li. To achieve high loading, repeated charging and discharging at low
 current densities were required (described in a patent appl.). Only the 2 mm
 Pd wires produced T, and none was produced in the control cells. Enhancement
 factors, that is T(after)/T(before) of up to 50-60 were found in the four
 successful runs, and amount to around $10^5$ T atoms/cm$^2$/s, or of the
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 order of $10^{11}$ atoms/cm$^2$ over the whole run; a survey of previous
work
 by others (10 groups) shows a range of $10^9 - 10^{15}$ T/cm$^2$. Most of
the
 T is in the liquid phase; but the four Pd wires that were successful also
had
 more tritium inside the PdD after the experiment than before, so this must
 have a nuclear origin.}
}
@article{Yamag1993a,
 author     = {E. Yamaguchi and T. Nishioka},
 title      = {Helium-4 production and its correlation with heat evolution},
 journal    = {Oyo Butsuri},
 volume     = {62},
 number     = {7},
 year       = {1993},
 pages      = {712--714},
 note       = {In Japanese},
 keywords   = {Experimental, Pd, gas phase, helium, MS, res+},
 annote     = {The Chem. Abstracts translation (CA 119:280106 (1993) has:
  "A review with 8 refs. Using the authors' 'in vacuo' method with a
  heterostructure of deuterated Pd(Pd-D) at low temps. < 300C, the authors
  have detected in situ 4He prodn. The real-time observation has been
  performed by high-resoln.  quadrupole mass spectroscopy (0.001 amu at 4
  amu). The signal attributable to 4He prodn. appeared when the samples
  exhibited a sudden increase in temp. The system of H-loaded Pd(Pd-H)
  heterostructure, on the other hand, produced no 4He. A new class of nuclear
  fusion occurred in condensed matter".  The paper's Fig. 1 shows a mass
  spectrogram and shows a clear distinction between 4He and D2, the major
  peak. Fig. 2 shows a 4He peak appearing at a time where the temperature
rose
  from about 120C by about 10C. The peak lasts about 100 m.}
}
@article{Yamag1993b,
 author    = {E. Yamaguchi and T. Nishioka},
 title     = {Helium-4 production from deuterated palladium},
 journal   = {Kakuyuogo Kenkyo},
 volume    = {69},
 number    = {7},
 year      = {1993},
 pages     = {743--751},
 keywords  = {Experimental, Pd, MS,  helium, res+},
 submitted = {04/1993},
 annote    = {Another paper describing the heterostructures arising in Pd
 coated on one side with an oxide film and with gold on the other. High
 resolution quadrupole mass spectroscopy showed the production of 4He at
 4.0026 amu, distinct from the peak due to D2. The authors rule out
 contamination from the air, and conclude that a new type of nuclear fusion
is
 the cause.}
}
@article{Zhan1993,
 author    = {F.~X. Zhang and S.~X. Jin},
 title     = {Effect of electron screening and ionic correlation on the
             fusion rate of deuterium in Pd/D system},
 journal   = {Chinese Sci. Bull.},
 volume    = {38},
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 number    = {9},
 year      = {1993},
 pages     = {718--722},
 keywords  = {Theory, res0},
 submitted = {02/1992},
 published = {05/1993},
 annote    = {This team considers the strongly coupled plasma model of PdD,
 and tries to see if there might be fusion. They conclude that this does not
 seem possible, unless some effect unaccounted for, such as nonequilibrium or
 local high energies, cause it. 021992/051993}
}
@article{Zhu1993,
 author    = {S. Zhu and X. Xiao and T. Lu and Q. Chen and Z. Que and J. Liu
              and H. Xie and R. Sha and F. Liu and H. Sun},
 title     = {An investigation of cold fusion},
 journal   = {Nucl. Techniques},
 note      = {In Chinese, Engl. abstr.},
 volume    = {16},
 number    = {8},
 year      = {1993},
 pages     = {475--478},
 keywords  = {Experimental, Pd, electrolysis, neutrons, res+},
 submitted = {06/1992},
 published = {08/1993},
 annote    = {Both an electrolysis experiment (LiOD, 10-30 mA/cm$^2$) and a
 gas phase experiment were run. Neutron detection was by liquid scintillation
 and a BF3 counter, and showed much the same results, i.e. a large n burst
 after 90 h of electrolysis, lasting about 4 h with an intensity of 400
fus/s,
 with counting rates 15 times background.}
}
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## YEAR: 1994

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% Year 1994; there are  66 entries.
@article{Andr1994,
 author    = {B.~D. Andresen and R. Whipple and A. Alcazar and J.~S. Haas
              and P.~M. Grant},
 title     = {Potentially explosive organic reaction mechanisms in Pd/D2O
              electrochemical cells},
 journal   = {Chem. Health Safety},
 volume    = {1},
 year      = {1994},
 pages     = {44--47},
 keywords  = {Postmortem of explosion},
 published = {10/1994},
 annote    = {One of several papers published by this forensic team, asked to
 examine some remaining fragments of the cold fusion cell that exploded at
SRI
 and killed Andrew Riley. The cause of the explosion is not clear, there are
 competing hypotheses. One of them, put forward here, is that some long-chein
 organic oils spontaneously combusted with pressurised oxygen. Fragments were
 wiped and the wipings examined by gas chromatography and mass
 spectroscopy. Hydrocarbon (lubricating) oil, silicone oil and some other
 organics were found in sufficient amounts to uphold the hypothesis. In
 itself, combustion of these oil residues could account for as much as 10% of
 the total energy generated in the explosion, but it may have acted as a
 trigger for the more powerful explosive H2-O2 recombination.}
}
@article{Arat1994a,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {A new energy generated in DS-cathode with 'Pd-black'},
 journal   = {Koon Gakkaishi},
 volume    = {20},
 year      = {1994},
 number    = {4},
 pages     = {148--155},
 keywords  = {Experimental, Pd black, excess heat, res+},
 annote    = {This is, as far as can be seen and going by the abstract, much
 the same paper as that of the same authors in Proc. Japan. Acad. 70 Ser. B
 (1994) 106. It reports on "spill-over deuterium" in a long-term closed-cell
 electrolysis using a bottle-shaped Pd cathode with Pd powder inside the
 bottle. Excess energy at ca. 200 MJ was released over a period of 3000 h and
 there were clear signs of the excess power decreasing after the cell current
 was turned off, and recovery upon switching on again.}
}
@article{Arat1994b,
 author    = {Y. Arata and Y.C. Zhang},
 title     = {A new energy caused by 'spillover-deuterium'},
 journal   = {Proc. Japan. Acad. Ser. B},
 volume    = {70},
 year      = {1994},
 pages     = {106--111},
 keywords  = {Experimental, Pd powder, gas phase, surface structure,
              excess heat. Res+},
 submitted = {091994},
 annote    = {The authors make three points at the outset: (A) surface
 structure of Pd is important; (B) lattice imperfections, cracks, local
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 stresses are important. From this, they conclude that (C) "bottle-shaped" Pd
 electrodes, hollow, evacuated but filled with Pd powder, might be ideal for
 CNF. They used these "double-structured" cathodes in some experiments
 starting in 1992 and still in progress. Excess heat was found reproducibly
 and the authors theorise about "spillover deuterium".}
}
@article{Bara1994,
 author    = {B. Baranowski and S. Filipek and W. Raczynski},
 title     = {Electrolytic charging of palladium by deuterium at normal
             and high pressure conditions},
 journal   = {Pol. J. Chem.},
 volume    = {68},
 year      = {1994},
 pages     = {845--857},
 keywords  = {Experimental, electrolysis, Pd, pressure, loading, res-},
 submitted = {12/1993},
 annote    = {The authors wish to clear up some of the confusion in the
 'cold fusion' field, e.g. the figure of $10^{26}$ atm, and comment on the
 problems of electrolytic loading of Pd with deuterium. High pressure
 electrochemical loading was also tried. 0.1 M LiOD and D2SO4 were the
 electrolytes used, and Pd wires as cathodes. Ambient pressure electrolysis
at
 current densities up to 200 mA/cm$^2$ produced loadings corresponding only
to
 some 400 atm, nowhere near the fugacity figure of $10^{26}$ stated by
 FPH-89. High pressure electrolysis was also carried out, at up to 4.5
 kbar. Here, loadings are achieved that place the Pd resistance on the
falling
 branch. The authors conclude that the formation of D2 bubbles limits loading
 into Pd, and actual pressures within the metal.}
}
@article{Bast1994,
 author    = {A.~V. Basteev and L.~A. Nechiporenko},
 title     = {Activation of solid-phase deflagration of hydrogen-containing
             energy-storing substances},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {19},
 year      = {1994},
 pages     = {739--741},
 keywords  = {Suggestion, fractofusion},
 submitted = {09/1993},
 annote    = {The authors do not believe in fractofusion in conductors,
 pointing to the lack of convincing results. In certain nonconducting
 substances containing hydrogen (isotopes), however, there may be
 'deflagration' effects that just might lead to fusion. The authors here
 examine ND4NO3 and ND4ClO4, both of which can store energy and release it in
 deflagration events within the solid matrix when irradiated by gamma
 rays. Such events might enable d-d fusion.  Experiments lend some support to
 this idea.}
}
@article{Blag1994,
 author    = {S. Blagus and M. Bogovac and A. Drasner and M. Vukovic},
 title     = {Evidence for neutron production during heavy water
             electrolysis on palladium electrode},
 journal   = {Fusion Technol.},
 volume    = {26},
 year      = {1994},
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 pages     = {105--109},
 keywords  = {Experimental, sintered Pd, electrolysis, neutrons, res-},
 submitted = {03/1993},
 published = {08/1994},
 annote    = {An attempt to reproduce the results of Gozzi et al. A Pd
 cyclinder was made by pressing 99.95\% pure Pd powder at 216 MPa and
sintering
 at 1173 K for 12 H.  The final mass of the pellet was 8.2 g at a density of
 80\% that of solid Pd.  An undivided cell was used, filled with 0.2M D2SO4
in
 D2O, kept at 298 K; current density was 0.2 A/cm$^2$. Neutrons were
monitored
 with a single 6Li-glass scintillation counter with appropriate electronics
 for pulse height discrimination etc. Over a period of about 10 days, 12 runs
 were recorded with an overall duration of 677660 s. All recordings were
 indistinguishable from those for the background, except in one run, where
two
 neutron bursts were seen, with durations of 200 and 100 s, counting, resp.,
 193 and 63 neutrons or 256 total in 300 s. Postmortem analysis of the
cathode
 indicated a D/Pd loading of 0.7. The team noted the exact times of x-ray
 bursts from the Sun (there is a table of such events) and the neutron bursts
 are not correlated with these. Neutron emissions were about 1/10 of Gozzi et
 al.}
}
@incollection{Brus1994,
 author    = {M. Bruschi and U. Marconi and A. Zoccoli},
 title     = {The neutron spectrometer of the cold fusion experiment under
             the Gran Sasso Laboratory},
 booktitle = {Hadronic. Phys. and Course 8th 1993},
 year      = {1994},
 pages     = {332--354},
 editor    = {M. Giblisco and G. Preparata and A. Zenoni},
 publisher = {World Scientific},
 address   = {Singapore},
 keywords  = {Experimental, neutron detector design, res0. No FPH/Jones
refs.},
 annote    = {This team designed the sensitive coincidence neutron
spectrometer
 that was used in the Gran Sasso cold fusion studies (Italian style, Ti and
D2
 gas, temp. cycling). Within the 10*10*10 cm$^3$ cell there were 3 1.5 mm
 NE905,  6Li glass scintillator plates, in NE213C liquid matched to the
glass's
 refractive index. Pulse shape discriminators filtered out gamma background.
 This setup was extensively tested and all is reported here. Monte Carlo
 calculations also confirmed the performance.}
}
@article{Chec1994a,
 author    = {V.~A. Chechin and V.~A. Tsarev and M. Rabinowitz and Y.~E.
Kim},
 title     = {Critical review of theoretical models for anomalous effects
             in deuterated metals},
 journal   = {Int. J. Theo. Phys.},
 volume    = {33},
 year      = {1994},
 pages     = {617--670},
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 keywords  = {Review},
 submitted = {08/1993},
 annote    = {A large review (54 pp, ca. 180 refs) of the field. Most
theories
 come in for heavy criticism, with "acceleration models" the most plausible,
 albeit not free from problems either. Part of the problem is that "... not
 all of the experiments are equally valid...". Theories are neatly classified
 into barrier circumvention, barrier reduction, barrier ascent, narrow
nuclear
 resonances, multibody fusion and exotic chemistry.}
}
@article{Chec1994b,
 author    = {V.~A. Chechin and V.~A. Tsarev},
 title     = {On the nonstationary quantum-mechanical origin of nuclear
              reactions in solids},
 journal   = {Fusion Technol.},
 volume    = {25},
 year      = {1994},
 pages     = {469--474},
 keywords  = {Theory, fractofusion, res+},
 submitted = {08/1992},
 published = {07/1994},
 annote    = {A new theory of 'cold fusion'. The authors start by listing the
 successes and failures of the fractofusion theory in explaining the diverse
 observations. They then postulate the appearance of high-momentum components
 in the deuteron wave function in the solid state, due to violation of
 stationarity there. They give no explanation of the origin of this, but it
 may indirectly have to do with fracture formation. Thus this model is based
 on energetic barrier penetration, not on acceleration (as in the
fractofusion
 model). This might be called the 'perestroyka (reorganisation) model'.
 Preliminary calculations fall roughly within the ball park.}
}
@article{Chee1994,
 author    = {G.~T. Cheek and W.~E. O'Grady},
 title     = {Measurement of H/D uptake characteristics at palladium using
              a quartz crystal microbalance},
 journal   = {J. Electroanal. Chem.},
 volume    = {368},
 year      = {1994},
 pages     = {133--138},
 keywords  = {Experimental, EQCM, basic study},
 submitted = {01/1993},
 published = {04/1994},
 annote    = {Having previously found that the EQCM (electrochemical quartz
 crystal microbalance) shows anomalous behaviour when used to measure
 D-loading of a Pd film, they now extend the study to look at the details of
 film stress as charging proceeds, especially in mixtures of light and heavy
 water. At 10\% or more light water, H dominates in the Pd film, but if the
Pd
 is precharged with D, this is not replaced by H upon electrolysis in a
 mixture, a surprising finding.}
}
@article{Chen1994,
 author    = {Y.~P. Chen and S.~D. Cai},
 title     = {Dynamic screening effect from acoustic plasmons},
 journal   = {Science in China A},
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 volume    = {37},
 number    = {1},
 year      = {1994},
 pages     = {62--69},
 keywords  = {Theory, res+},
 submitted = {05/1993},
 published = {01/1994},
 annote    = {Theoretical paper. The interaction of charged particles in a
 medium is shielded by the action of the many other particles around
 them. Acoustic plasmons may be excited in two-band metals, and will then do
 such shielding.  This is the n applied to deuterons in Pd, and fusion rates
 are calculated. It comes out many orders of magnitudes higher than normal.}
}
@article{Czer1994,
 author    = {A. Czerwinski},
 title     = {Influence of lithium cations on hydrogen and deuterium
              electrosorption in palladium},
 journal   = {Electrochim. Acta},
 volume    = {39},
 year      = {1994},
 pages     = {431--436},
 keywords  = {Experimental, Pd, electrolysis, lithium},
 submitted = {04/1993},
 published = {02/1994},
 annote    = {Lithium is known to be incorporated to some extent into Pd
 during electrolysis in an electrolyte containing Li+; various processes have
 been suggested involving incorporated Li. In this paper, C reports the
 results of a cyclic voltammetric study of thin (2000-2500 atomic layers) Pd
 layers laid down on Au. Acidic and basic solutions, in light and heavy water
 were used.  Incorporated Li affects the alpha-beta transition, which in turn
 has an effect on the oxidation rate of absorbed hydrogen (or deuterium);
H/Pd
 or D/Pd loading ratios were not changed by Li incorporation.}
}
@article{Davi1994,
 author    = {F. David},
 title     = {Hypoth{\`e}se de la diafluidit{\'e}},
 note      = {In French, English translation appended to the pdf file},
 journal   = {Fusion},
 volume    = {1994},
 number    = {49},
 year      = {1994},
 pages     = {58--62},
 keywords  = {Theory, res+},
 published = {01/1994},
 annote    = {The author outlines his hypothesis of cold fusion.  It answers
 the question of excess heat yet few neutrons, as well as
 irreproducibility. The hypothesis is based on the idea that groups of
 deuterons assemble in a state similar to superfluid helium(4), inside the Pd
 lattice, and the author suggests the term "diafluidity" for the
 phenomenon. This would enable a fusion chain reaction.  Some tests of the
 hypothesis are suggested.}
}
@article{Deni1994,
 author    = {A. {De Ninno} and V. Violante},
 title     = {Study of deuterium charging in palladium by electrolysis
              of heavy water},
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 journal   = {Fusion Technol.},
 volume    = {26},
 year      = {1994},
 pages     = {1304--1310},
 keywords  = {Experimental. Pd, electrolysis, deuterium, diffusion, loading,
              res0. No FPH/Jones refs.},
 submitted = {03/1994},
 published = {12/1994},
 annote    = {By means of a membrane experiment, with D2 gas on one side of
 the 0.5 mm thick Pd membrane and 0.1 M LiOD on the other, and a current that
 is switched between high and low densities, the workers measured the
 transport of deuterium through Pd. With some numerical analysis, they
 concluded that transport depends on the current through concentration
 gradients, and on the surface concentration of adsorbed deuterium. Loadings
 up to about 0.95 were inferred. No actual 'cold fusion' results are
 reported.}
}
@article{Dery1994a,
 author    = {B.~V. Deryagin and E.~I. Andriankin and A.~G. Lipson
              and E.~V. Metelkin and D.~M. Sakov and G.~V. Fedorovich},
 title     = {On the possibility of initiation of nuclear fusion in
deuterated
              ferroelectrics by polarisation reversal waves at $T < T_c$},
 journal   = {Dokl. Akad. Nauk. Fiz.},
 volume    = {334(3)},
 year      = {1994},
 pages     = {291--295},
 keywords  = {Theory, ferroelectrics, external stimulation, res+},
 submitted = {10/1993},
 annote    = {Previous Russian work has shown that 'cold fusion' takes place
 at the Curie temp., $T_c$, in ferroelectrics, such as KD2PO4. The authors
 suggest that at lower temperatures, $T < T_c$, cnf might be initiated by
 stimulation be polarisation effects. Repolarisation can be induced by the
 application of an external electric field. The authors theorise about this
 and conclude that it is feasible. They then performed an experiment to test
 the idea and were able to detect neutrons at 7 sigma above the
 background. External stimulation of ferroelectrics is thus a fruitful
 direction for cnf research.}
}
@article{Dery1994b,
 author    = {B.~V. Deryagin and E.~I. Andriankin and A.~A. Kutikov
              and A.~G. Lipson and D.~M. Sakov and G.~V. Fedorovich},
 title     = {On the initiation of the nuclear fusion reaction in deuterated
              ferroelectric at its polarisation reversal induced by an
              electric field},
 note      = {In Russian},
 journal   = {Dokl. Akad. Nauk},
 volume    = {336},
 year      = {1994},
 pages     = {753--756},
 keywords  = {Theory, ferroelectrics, polarisation reversal, fractofusion,
              res+},
 submitted = {01/1994},
 annote    = {The Deryagin team here theoretically underpins its previous
 experimental findings of cold fusion in ferroelectrics due to polarisation
 reversal induced by an externally applied electric field. The old standby
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 DKDP (KD2PO4) as well as some other ferroelectrics are taken as examples.
The
 idea is that polarisation reversal causes abrupt changes in the crystal
ions'
 oscillation and thus oscillating electric fields in the crystal. This inturn
 can lead to deuteron acceleration.  Energies of several hundreds eV might be
 achieved in DKDP and Ba(0.4)Sr(0.6)Nb2O6 and Pb titanate, and it seems that
 fusion is feasible as a result in these ferroelectrics. These results agree
 with experimental results reported in previous publications from this
 laboratory.}
}
@article{Fedo1994,
 author    = {G.~V. Fedorovich},
 title     = {Screening of the Coulomb potential in a nondegenerate hydrogen
              isotope gas},
 journal   = {Fusion Technol.},
 volume    = {25},
 year      = {1994},
 pages     = {120--123},
 keywords  = {Theory, res+},
 submitted = {11/1992},
 published = {01/1994},
 annote    = {Theoretical look at screening of deuterons from each other by
 electrons, invoking special (exotic) solid state plasma effects. The result
 is that cold fusion is feasible, due to this effect in the metal lattice.}
}
@article{Fern1994,
 author    = {J.~F. Fernandez and F. Cuevas and C. Sanchez},
 title     = {Deuterium concentration profiles in electrochemically
deuterated
              titanium and their evolution after electrolysis},
 journal   = {J. Alloys Comp.},
 volume    = {205},
 year      = {1994},
 pages     = {303--309},
 keywords  = {Experimental, electrolysis, Ti, loading, res-},
 submitted = {09/1993},
 annote    = {The techniques of elastic recoil detection (ERD) and Rutherford
 backscattering spectroscopy (RBS) were used to measure D profiles in Ti
 plates electrochemically charged with deuterium in heavy water
 electrolyte. Unlike Pd, Ti is loaded only near its surface by
 electrolysis. The two techniques could be applied, using the one set-up,
 conosisting of a 4He beam aimed at the Ti sample at an angle of 78deg to the
 normal. After 768 hours of electrolysis in 0.1M LiOD, at cd's of 0.5-1
 A/cm$^2$, there was a fairly level loading D/Ti of 1.6 to a depth of about
 120 mu, falling off sharply there. There is a rather thinner layer, about
 10-20 mu thick, in which the loading is a little higher, but not as high as
 2, said by the authors to be a requirement for cold fusion to take place.}
}
@article{Flei1994a,
 author    = {M. Fleischmann and S. Pons and G. Preparata},
 title     = {Possible theories of cold fusion},
 journal   = {Nuovo Cimento A},
 volume    = {107},
 year      = {1994},
 pages     = {143--156},
 keywords  = {Suggestions, res+},
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 submitted = {06/1993},
 published = {01/1994},
 annote    = {Using 'cold fusion' as the generic name for phenomenology of
 Pd-hydride anomalies, the authors review some of the key facts, some
 'impossible theories' and lastly present their own views of what is
happening
 in CNF.  There are anomalies even in the well known fact of the hydrogen
 absorbing capacity of Pd; in a 600-1000 M sea of electrons, there is a
 solution of protons at 60-100 M, without the formation of dihydrogen. To
 explain this, a many-body model must be invoked, rather than single
particles
 or pairs, as well as collective states. Other known anomalies include the
 high diffusion rate of hydrogen in the Pd lattice and the series D(d) > D(p)
 > D(t), rather than the expected D(p) > D(d) > D(t) (D being the diffusion
 coefficient); and the high H/D separation factor under electrolysis. The
 authors agree that, given the low but definite neutron and tritium
production
 and the anomalous t/n ratio together with the absence of secondary neutrons
 from the tritium, the process cannot be conventional d-d fusion, but that
the
 conventional branches are a rare occurrence. The main process is the
 formation of 4He, with absorption of the resultant energy by strong-dipole
 coupling; hence the absence of gamma radiation. Possible models, then,
 include collective states and possibly three-body processes.}
}
@article{Flei1994b,
 author    = {M. Fleischmann and S. Pons},
 title     = {Reply to the critique by Morrison entitled
             'Comments on claims of excess enthalpy by FLeischmann
              and Pons using simple cells made to boil'},
 journal   = {Phys. Lett. A},
 volume    = {187},
 year      = {1994},
 pages     = {276--280},
 keywords  = {Polemic},
 submitted = {06/1993},
 published = {04/1994},
 annote    = {Point-by-point rebuttal. F\&P did not use the complicated
 differential equation method as claimed by Morrison; the critique by Wilson
 et al does not apply to F\&P's work; very little electrolyte leaves the cell
 in liquid form; current- and cell voltage fluctuations are absent or
 unimportant; the problem of the transition from nucleate to film boiling was
 addressed; recombination (cigarette lighter effect) is negligible.}
}
@article{Foca1994,
 author    = {S. Focardi and R. Habel and F. Piantelli},
 title     = {Anomalous heat production in Ni-H systems},
 journal   = {Nuovo Cimento},
 volume    = {107A},
 year      = {1994},
 pages     = {163--167},
 keywords  = {Experimental, Ni, gas phase hydrogen, calorimetry, res+},
 submitted = {01/1994},
 published = {01/1994},
 annote    = {One of the authors (FP) observed, in 1989, during a
calorimetric
 experiment at about 200K with a deuterated organic substance in hydrogen,
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 some anomalous heat, and suspected the Ni support used. This led to the
 experiments described here. A Ni rod, 5 mm diameter and 90 mm long, was
 placed in a cylindrical chamber, surrounded by a Pt heater coil. The chamber
 could be evacuated or filled with gas (H2 or D2) at various pressures. The
 system was checked by replacing the Ni rod with a stainless steel one, and
 its temperature noted as a function of heater power applied, and gas
 pressure. With the Ni rod, the best temperature for H2 absorption was found
 to be 173 C. Some Ni rods showed the expected temperature as a function of
 heater power in a H2 atmosphere, while others had elevated temperatures,
 showing that there was excess heat, of the order of 20-50 W, with heater
 power at 40-120 W. No nuclear radiation was detected. The excess power,
 integrated over time, amounted to such a large energy excess, that a
chemical
 explanation will not suffice. The authors propose the (p,D) reaction, that
is
 fusion between hydrogen and the natural component of deuterium and more work
 is in progress.}
}
@article{Frol1994,
 author    = {A.~M. Frolov and V.~H. Smith Jr},
 title     = {On stimulated nuclear fusion in the cold generalized DT
hydrides
              of fissionable elements},
 journal   = {Phys. Lett. A},
 volume    = {196},
 year      = {1994},
 pages     = {217--222},
 keywords  = {Discussion, suggestion, fission},
 submitted = {10/1994},
 published = {12/1994},
 annote    = {Following suggestions made by others, that cold fusion is
 possible in compounds of the composition M(x)D(y)T(y), where M is a
 fissionable element and x << y, the authors theorise on this process. A
 simple model might e.g.  be a DT gas containing a single nucleus of, say,
 239Pu or 251Cf, which fissions. The two fast fission fragments (90 an 70
MeV,
 modelled both as 80) then collide with many DT's, producing shock waves
 etc. Calculations seem to indicate that for sufficiently high DT densities,
 some fusion might occur.  Its probability would however be negligible for D2
 gas. The authors do not comment on implications for 'cold fusion'.}
}
@article{Fuka1994,
 author    = {S. Fukada and S. Furuya and T. Sakae and N. Mitsuishi},
 title     = {Measurement of exoelectrons from palladium and palladium
              deuteride with gas proportional counter},
 journal   = {J. Alloys Compds},
 volume    = {204},
 year      = {1994},
 pages     = {223--229},
 keywords  = {Experimental, fractofusion, charged particles (electrons), Pd,
              res-},
 annote    = {Many materials emit electrons when, e.g., strained. In this
work,
 hydrided and deuterated Pd, as well as Pd itself is strained to see whether
 the hydrogen or deuterium makes a difference, in view of fractofusion
 claims. There was indeed a difference, deuteration enhancing the emission of
 electrons; hydrogen did this as well. The energy of the emission was however
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 below 0.5 keV, not enough to aid fusion.}
}
@article{Gran1994,
 author    = {P.~M. Grant and R.~E. Whipple and A. Alcaraz and J.~S. Haas
              and B.~D. Andresen},
 title     = {Hydrocarbon oil found in the interior of a 'cold fusion'
              electrolysis cell after fatal explosion},
 journal   = {Fusion Technol.},
 volume    = {25},
 year      = {1994},
 pages     = {207--208},
 keywords  = {Discussion},
 submitted = {10/1992},
 published = {03/1994},
 annote    = {This team of forensic scientists here report on the explosion
 of a cnf electrolysis cell at SRI on Jan 2, 1992, which killed Andrew Riley
 and injured McKubre. Examination of the debris showed the presence of
 hydrocarbon oil, presumably from the lubricant residues from the machining
of
 some parts of the cell. This oil may have reacted with the pressurised
oxygen
 generated in the cell and this could in turn have initiated the explosion.}
}
@article{Gree1994,
 author    = {T.~A. Green and T.~I. Quickenden},
 title     = {Electrolytic preparation of highly loaded deuterides of
              palladium},
 journal   = {J. Electroanal. Chem.},
 volume    = {368},
 year      = {1994},
 pages     = {121--131},
 keywords  = {Experimental, electrolysis, Pd, calorimetry, loading study},
 submitted = {05/1993},
 published = {04/1994},
 annote    = {A high loading ratio D/Pd is sometimes said to be important for
 the success of cold fusion, but it is not clear in most work, what the
 loading was or how high a loading can indeed be achieved. These authors
 survey the field and describe the methods of measuring loading. They then
 report their own results, using in situ resistance measurement and known
 calibration curves of resistance vs loading. Even this seemingly best method
 has its pitfalls. In the first series of measurements, the Pd wires (1mm)
 were used without pretreatment; conventional loadings of about 0.8 were
 achieved for these. When pretreatment as used by McKubre's team was used
 (vacuum annealing, acid etching), the loadings increased to about 0.9. These
 figures were rather independent of the electrolyte used. It was found that
 vacuum annealing alone was sufficient. Thus, in situ resistance measurement
 can be used to measure the D/Pd loading.}
}
@article{Guer1994,
 author    = {T.~M. G{\"u}r and M. Schreiber and G. Lucier and J.~A. Ferrante
              and J. Chao and R.~A. Huggins},
 title     = {An isoperibolic calorimeter to study electrochemical insertion
              of deuterium into palladium},
 journal   = {Fusion Technol.},
 volume    = {25},
 year      = {1994},
 pages     = {487--501},
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 keywords  = {Experimental, calorimeter design},
 submitted = {11/1993},
 published = {07/1994},
 annote    = {Description of a newly designed closed-cell calorimeter,
 apparently of high quality. It avoids the errors of previous designs for
 'cold fusion' calorimetry. At the heart of the setup are two heavy
concentric
 Al cylinders, separated by a well defined conduction gap. There is
uniformity
 of temperature within the cylinders. 1/e settling time was around 13 min.
The
 design has been confirmed to be stable and reproducible over long
 periods. The conduction gap is filled with alumina powder and thus the setup
 is suitable for high temperature work up to 600 C. }
}
@article{Hand1994,
 author    = {P.~H. Handel},
 title     = {Thermoelectric excess heat effect in electrolytic cells},
 journal   = {Z. Phys. B},
 volume    = {95},
 year      = {1994},
 pages     = {489--492},
 keywords  = {Theory, Peltier, artifacts, res-},
 submitted = {06/1993},
 published = {09/1994},
 annote    = {This is an attempt to explain the excess heat claimed by F\&P
 and others, in terms of unequal Peltier heats at the junctions between the
 external leads and the two (different) electrodes in the electrolytic cells,
 i.e. normally a Pd cathode and a Pt anode. Power would be dissipated at
these
 junctions.  Normally these effects are small but Handel speculates on cases
 where they are large enough to mimick excess heat as observed. For a Ni/Pt
 system and an open cell, he estimates up to 26\% "excess heat" as this
 artifact. In closed cells the error is smaller but in any case, he concludes
 that the effect should be corrected for before making excess heat claims.}
}
@article{Ito1994,
 author    = {T. Ito and T. Kursawa and T. Yaguchi},
 title     = {Concerning 'cold fusion'},
 journal   = {Meiji Daigaku Nogakubu Hokoku},
 volume    = {100},
 year      = {1994},
 pages     = {1-12},
 note      = {In Japanese},
 keywords  = {Review},
 annote    = {A review, with 10 refs., is presented on socalled 'cold fusion'
 and the evolution of excess heat during D2O electrolysis on a Pd
 electrode. The phenomenon (in the author's opinion) is due, not to a D-D
 fusion reaction, but to an ordinary nuclear reaction between D and Pd
 accompanied by the emission of neutrons and gamma-rays (Direct quote from CA
 122:117268 (1995)).}
}
@article{Jin1994,
 author    = {S.-X. Jin and F.-X. Zhang and Y.-Z. Liu and W.-Q. Shi
             and W. Ou and S.-X. Liu and X.-J. Liu},
 title     = {Deuterium absorbability and anomalous nuclear effect of
             YBCO high temperature superconductors},
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 journal   = {Chinese Sci. Bull.},
 volume    = {39},
 number    = {2},
 year      = {1994},
 pages     = {101--103},
 keywords  = {Experimental, HTSC connection, nuclear effects, res+},
 submitted = {05/1993},
 published = {01/1994},
 annote    = {The HTSC family of compounds Y1Ba2Cu3O7-delta can absorb
 hydrogen, which is then found on the Cu-O surface, write the authors, who
 have studied the absorption of deuterium. They found some anomalous effects
 during this study.  CR-39 nuclear track etch was used, placed close to the
 absorbing samples, and some tracks were found. These tracks were not found
in
 controls without deuterium. The mechanism is not clear and further work is
 needed.}
}
@article{Jorn1994,
 author    = {J. Jorne},
 title     = {Neutron emission studies during the electrolysis of deuterium
              by using BaCeO3 solid electrolyte and palladium electrodes},
 journal   = {Fusion Technol.},
 volume    = {26},
 year      = {1994},
 pages     = {244--247},
 keywords  = {Experimental. Solid electrolyte, gas phase electrolysis, res-},
 submitted = {04/1993},
 published = {11/1994},
 annote    = {The author set up a solid state electrochemical cell:
 (-) D2(gas),Pd//BaCeO3//Pd,D2 (+). The BaCeO3 is a proton conductor at
higher
 temperatures and is the electrolyte in this gas/solid cell, capable of
 charging Pd with deuterium from the gas phase. He ran this cell at whatever
 current it would give him at 20 V total voltage and a range of temperatures
 up to 800C (where it gave 160 mA/cm$^2$), with 4 banks of 3He neutron
 counters around it. He does not use coincidence readings, however, just
 presents some traces of neutron signals from individual banks. These show a
 few cases of large excursions from the mean count. The long term mean for
 active cells is the same as for the background, and due to the Poisson
 distribution of the neutron rate, these large-sigma excursions are in fact
 expected, so this is a null result.}
}
@article{Kapa1994,
 author    = {V. Kapali and M. Ganesan and M.~A. Kulandainathan
              and A.~S. Mideen and K.~B. Sarangapani and V. Balaramachandran
              and S.~V. Iyer and B. Muthuramalingam},
 title     = {Comparison of electrochemical behaviour of the Pd-NaOD
              and Pd-NaOH systems},
 journal   = {J. Electroanal. Chem.},
 volume    = {364},
 year      = {1994},
 pages     = {95--102},
 keywords  = {Experimental, electrolyusis, Pd foil, optical study, res0},
 submitted = {01/1993},
 published = {01/1994},
 annote    = {Experimental investigation of Pd electrolysis in NaOD and NaOH
 electrolytes, H and D electropermeation through Pd and ionisation of H and D
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 at the Pd-alkaline solution interface, optical studies of these systems and
H
 or D loading of the Pd. Foils of thickness 0.025 mm and wires of diameter
 0.25-4mm were used. Permeation measurements yielded diffusion coefficients
of
 D ($1.2\times 10^{-8}$ cm$^2$/s) and H ($3-4 \times 10^{-9}$) in Pd. Optical
 studies showed the formation of deuterium clusters, especially with thicker
 Pd specimens. This may be due to electrochemical compression, and may be the
 cause of fusion.  No clusters were formed by H. All the findings taken
 together leave some things unexplained and cannot prove or rule out cold
 fusion.}
}
@article{Kova1994,
 author    = {E.~P. Koval'chuk and O.~M. Yanchuk and O.~V. Reshetnyak},
 title     = {Electromagnetic radiation during electrolysis of heavy water},
 journal   = {Phys. Lett. A},
 volume    = {189},
 year      = {1994},
 pages     = {15--18},
 keywords  = {Experimental, Ni, electrolysis, emr, res0},
 submitted = {04/1993},
 published = {06/1994},
 annote    = {Both Pd sheets (5 * 1.5 * 0.6 cm  and Ni foil (4 * 2.5 * 0.2
cm)
 were used as cathodes in a quartz cell containing LiClO4 (0.1-2M), while
 monitoring emr given off with a photomultiplier. For Ni, at currents above
 about 25 mA/cm$^2$, there was emr emission, increasing with time and with
 increasing current density. The effect itself was quite reproducible
although
 the emission intensity was not; it was up to 10$^5$ cps or more. The effect
 peaked with time and then decreased again. It can readily be explained as a
 result of electrode cracking and thus triboluminescence, except that it was
 not observed in light water, and in fact was considerably quenched by small
 admixtures of light to heavy water (1/3 intensity at 1.2 vol\%, e.g.) The
 authors draw no conclusions but more work is needed.}
}
@article{Kozi1994a,
 author    = {H. Kozima},
 title     = {Neutron Moessbauer effect and the cold fusion in
              inhomogeneous materials},
 journal   = {Il Nuovo Cimento A},
 volume    = {107},
 year      = {1994},
 pages     = {1781--1783},
 keywords  = {Theory, Moessbauer, trapped neutron model. Res+},
 submitted = {04/1994},
 published = {09/1994},
 annote    = {The author takes as fact that such elements as Ti, Pd and Ni
 induce cold fusion, and examines (mainly by discussion) the Moessbauer
effect
 as a possible process involved. Neutron absorption and reemission in the
 crystal lattice can act as a neutron reservoir with certain elements. The
 author suggests that besides Pd, Ti and Ni, Si might be worth a look.}
}
@article{Kozi1994b,
 author    = {H. Kozima},
 title     = {How the cold fusion occurs?},
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 journal   = {Rept. Fac. Sci., Shizuoka Univ.,},
 volume    = {28},
 year      = {1994},
 pages     = {31--52},
 keywords  = {Theory, trapped neutrons, res+},
 submitted = {10/1993},
 annote    = {Accepting many reports of excess heat, neutron, tritium and
other
 particles generation, K seeks a theoretical basis for these observations.
All
 the diverse observations appear to fit the model involving trapped neutrons.
 Neutrons that happen to enter the sample are thermalised and trapped as
 standing waves, bounded by the reflecting walls of ordered arrays of
 deuterons or protons. These neutrons then essentially fuse with
 deuterons/protons, producing tritium or deuterium. Tritons go on to fuse
 with deuterons to produce the odd 4He, and the high-energy fusion product
 neutrons cause other d-d pairs to fuse. All this explains the Pd/D2O, Ni/H2O
 as well as the exotic systems such as ceramics etc. }
}
@article{Kueh1994,
 author    = {R.~W. K{\"u}hne},
 title     = {The possible hot nature of cold fusion},
 journal   = {Fusion Technol.},
 volume    = {25},
 year      = {1994},
 pages     = {198--202},
 keywords  = {Discussion},
 submitted = {03/1993},
 published = {03/1994},
 annote    = {The author has previously suggested fractofusion or, as he
calls
 it, micro-hot fusion (MHF) as the most plausible mechanism of cold fusion.
 He cites a large volume of supporting literature among the 84 references
 given at the end. Here he provides more evidence for MHF and claims that it
 can explain observations, including the burst nature of cnf. The model is
 based on the formation of "deuterid bubbles", which cause cracks to form
near
 the surface in Pd but away from the surface in Ti. This would be accompanied
 by acoustic emissions, which have in fact been detected. The bubbles and
 cracks are charged and thus, radio and low electron emission is also
 expected, and found.  Deuterons will then be accelerated by the potential
 fields up to 100 keV, enough to allow fusion. Most of them will however just
 be slowed down again without fusion; this explains the anomalous
heat/neutron
 results. Electrons are bound and cannot neutralise the fields. There are
some
 problems with the model but these are easily swept aside. Finally, K{\"u}hne
 suggests how to optimise cnf experiments. One must not clean the Pd cathodes
 too well or use Pd of too high a purity;there must be no oxide layer;
 precharging is bad.}
}
@article{Kuni1994,
 author    = {K. Kunimatsu},
 title     = {Current status of room-temperature nuclear fusion.
             Excess heat measurement},
 journal   = {Petrotech. (Tokyo)},
 volume    = {17},
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 number    = {12},
 year      = {1994},
 pages     = {998--1003},
 note      = {In Japanese},
 keywords  = {Small review, 12 refs.},
 annote    = {"A review with 12 refs is given on measurement of excess heat
 related to cold fusion using an electrolytic method comprising open-type
 water electrolysis, and fuel cell type heavy water electrolysis". (From CA).
 One notes figures out of Fleischmann \& Pons's papers showing excess heat
 bursts, a calibration curve of R/Ro vs loading for PdH and PdD (both
 extending to loading of 1), the famous SRI figure of excess heat vs loading
 with many data points, showing an exponential-like relation, a cold fusion
 electrolysis cell (presumably Kunimatsu's) and (his own?) excess heat vs
 loading figure (much steeper relation) (Cited from CA 122:224620 (1995).}
}
@article{Lewe1994,
 author    = {B. Lewenstein},
 title     = {La saga de la fusion froide (The cold fusion saga)},
 journal   = {Recherche},
 volume    = {25},
 year      = {1994},
 pages     = {636--641},
 note      = {In French},
 keywords  = {Remark},
 annote    = {This is a sci/soc report on cold fusion, from Cornell science
 sociologist Bruce Lewenstein.  He recounts the story and the controversy it
 roused, and produces some bibliographic statistics, comparing with other
 newsworthy technical events such as the Exxon Valdez accident and high
 temperature superconductivity.}
}
@article{Lips1994a,
 author    = {A.~G. Lipson and D.~M. Sakov},
 title     = {Increase in the intensity of the external neutron flux in the
              irradiation of a KD2PO4 crystal at the point of the
ferroelectric
              transition},
 journal   = {Tech. Phys. Lett.},
 note      = {Orig. in: Pis'ma Zh. Tekh. Fiz. 20 (1994) 46, in Russian},
 volume    = {20},
 year      = {1994},
 pages     = {954--956},
 keywords  = {Ferroelectric, background effect, experimental, res+},
 submitted = {09/1994},
 published = {12/1994},
 annote    = {This paper addresses the frequent observation that as the
 neutron background radiation level decreases, so does the observed neutron
 emission level in 'cold fusion' experiments. The authors irradiate a sample
 of deuterated ferroelectric, KD2PO4, with a range of neutron flux levels and
 measure its emissions. These are indeed correlated with and about 10\%
above,
 the input fluxes, thereby confirming the proposition. Moreover, an
anisotropy
 in the emissions is observed, supposed to have to do with crystal axes.}
}
@article{Lips1994b,
 author    = {A.~G. Lipson and I.~I. Bardyshev and D.~M. Sakov},
 title     = {Generation of hard gamma-radiation in KD2PO4 single crystals
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             during the ferroelectric phase transition},
 journal   = {Tech. Phys. Lett.},
 note      = {Orig. in: Pis'ma Zh. Tekh. Fiz. 20 (1994) 53, in Russian},
 volume    = {20},
 year      = {1994},
 pages     = {957--959},
 keywords  = {Experimental, ferroelectrics, gamma, res+},
 submitted = {09/1994},
 published = {12/1994},
 annote    = {Continuing with their study of fractofusion in ferroelectrics
 around the Curie point, the team here measures gamma emissions from the
title
 substance (called DKDP by the authors) single crystals put through
 cooling/heating cycles. Gamma ray background was measured before, between
and
 after the experiments, and all measurements were taken with a high-purity Ge
 detector calibrated with a 60Co source. The ferroelectric phase transition
 has a maximum around the Curie point, 221K, and in the range 212-222K, a
 clear gamma excess over the background is reported. Previously, tritium and
 neutrons have been observed with this system. After about 10 temp. cycles,
 the crystals deteriorated, presumably due to cracking, and the emission
 curves distorted. The gamma emissions were at 3.5-4.5 MeV, consistent with
 4He formation, in its excited state, by d-d fusion.}
}
@article{Liu1994,
 author    = {R. Liu and D. Wang and S. Chen and Y. Li and Y. Fu
             and X. Zhang and W. Zhang},
 title     = {Measurement of neutron energy spectra from the gas discharge
            facility},
 journal   = {Yuanzi Yu Fenzi Wuli Xuebao},
 volume    = {11},
 number    = {2},
 year      = {1994},
 pages     = {115--118},
 note      = {In Chinese},
 keywords  = {Experimental, discharge, neutrons, res-},
 annote    = {Chem. Abstr. 121:93277 (1994) writes: "In the process of
 research on cold fusion phenomenon with the gas discharge method, the NE-213
 org. liq.  scintillation neutron spectrometer was used to measure neutron
 energy spectra from the gas discharge facility. Neutrons were emitted from
 the gas discharge facility. The peak energy in neutron spectra is about 2.38
 MeV. Neutrons whose energy is larger than about 3 MeV haven't been found.
The
 neutron spectra from the gas discharge facility and D-D neutron source are
 compared. The exptl.  error of neutron spectra is about $\pm$ 6\%".  The
 paper is almost entirely in Chinese and little else can be gained by this
 abstracter. There are the usual FPH-89 and Jones+89 references.}
}
@article{Maly1994,
 author    = {J.~A. Maly and J. Vavra},
 title     = {Response to 'Comments on 'Electron transitions on
             deep Dirac levels I'},
 journal   = {Fusion Technol.},
 volume    = {26},
 year      = {1994},
 pages     = {111--112},
 keywords  = {Polemic},
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 submitted = {02/1994},
 published = {08/1994},
 annote    = {Reponse to the polemic of Rice et al, ibid 111, referring to an
 earlier paper by Maly and Vavra on neglected solutions to wave equations for
 hydrogen.  Contrary to the claim by Rice et al, that the solutions found are
 nonphysical, Maly and Vavra here conclude that Rice et al are simply wrong
 and that the deep energy levels indeed can exist.}
}
@article{Mand1994,
 author    = {C. Manduchi and G. Zannoni and E. Milli and L. Riccardi
              and G. Mengoli and M. Fabrizio and A. Buffa},
 title     = {Anomalous effects during the interaction of subatmospheric
              D2(H2) with Pd from 900C to room temperature},
 journal   = {Nuovo Cimento A},
 volume    = {107},
 year      = {1994},
 pages     = {171--183},
 keywords  = {Experimental, Pd, gas phase, neutrons, cp's, res0},
 submitted = {04/1992},
 published = {02/1994},
 annote    = {The authors have previously reported experiments with beam
 discharges and electrolysis together, but there were some alternative
 explanations for the results. Here, the team reports a fairly standard
 "Italian style" CNF experiment, that is metal (here: Pd) and D2 gas, at a
 range of temperatures. A tube with some Pd sheets, 6 cm$^2$ and thicknesses
 from 0.002 to 0.1 cm at its bottom was connected to a vacuum system, and
 placed into a furnace chamber.  The Pd was vacuum treated at 900C and then
 heated in the presence of 900 mbar of D2 or H2 gas to clean the surface.
 After removing the gas, 900 mbar of gas was again admitted and the
 temperature allowed to fall to room temperature, which required about 30
 h. The pressure change was used to measure loading, having calibrated in the
 absence of Pd. Neutrons were monitored using a stilbene detector for the
 background and a NE123 scintillator for the cell. A plastic track CR-39
 detector was used for charged particles (cps) at room temperature at the end
 of the cycles. An interesting finding was that there was some H2 or D2
 absorption to about 0.2 (H/Pd) between 700 and 300 C, then falling to zero
at
 200-150C, and rising at 80C to room temp to a maximum of 0.89, unexpectedly
 high. This was reproducible. Absorption at low temperatures, without prior
 heating, was down at about 0.17. Also, the figure shows a distinct neutron
 emission at the point where the large loading begins during cooling, as well
 as during the early, higher temp., phase. This was not seen in the blank
 controls. Cp's were also found, roughly proportional to Pd film thickness
but
 not correlated with loading level. Runs with H2 achieved loadings of 0.75
and
 also neutron emissions around the loading point, but no cp's. The neutron
 results are a puzzle and indicate that either there was an error here or
that
 PdH also emits neutrons.}
}
@article{Matsuz1994,
 author    = {A. Matsuzaki and T. Nishina and I. Uchida},
 title     = {In situ low incident angle XRD technique with electrochemical
              methods. Application to deuterium charging into palladium
              cathode},
 journal   = {Hyomen Gijutsu},
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 volume    = {45},
 year      = {1994},
 pages     = {106--107},
 keywords  = {Experimental, electrolysis, res-},
 submitted = {06/1994},
 annote    = {The average d-d separation in PdD is greater than the 0.72 Ang
 in molecular D2; if 'cold fusion' were real, there would need to be
 tetrahedral site occupation of deuterium in the Pd lattice, and x-ray
 diffraction might then reveal this. The authors have developed the
technique,
 low incident angle x-ray diffraction at electrodes, that might do the job,
 and applied it to this problem. They electrolysed at a Pd cathode in 0.1M
 LiOD at 30 mA/cm$^2$ for 10 days. They found only some (expected) structural
 changes in the Pd, but no close approach of deuterons to each other. Thus
 'cold fusion' is not supported by this experiment.}
}
@article{McKu1994,
 author    = {M.~C.~H. McKubre and S. Crouch-Baker and R.~C. Rocha-Filho
              and S.~I. Smedley and F.~L. Tanzella and T.~O. Passell
              and J. Santucci},
 title     = {Isothermal flow calorimetric investigations of the D/Pd
              and H/Pd systems},
 journal   = {J. Electroanal. Chem.},
 volume    = {368},
 year      = {1994},
 pages     = {55--66},
 keywords  = {Experimental, electrolysis, Pd, calorimetry, res+},
 submitted = {02/1993},
 published = {04/1994},
 annote    = {Thought by many to be one of the most thorough studies in this
 area, and long delayed in publication, this paper at last reports the
 results. A quality isothermal flow calorimeter was used here, and D/Pd (or
 H/Pd) loadings were monitored in situ by resistance measurements. The cells
 were closed, and gases recombined within them, so that recombination was
 fully accounted for. Excess powers were observed only for D/Pd above 0.9 and
 reached 28\% input power, but were typically about 5-10\%, with the noise
 lying at about 1/20 the excess power level. No excess power was observed
 under other conditions, the output balancing the input within the error.}
}
@article{Miao1994a,
 author    = {B. Miao},
 title     = {Experimental exploration on possible mechanism of D-D
              cold fusion in titanium lattice},
 journal   = {Xibei Shifan Daxue Xuebao, Ziran Kexueban},
 volume    = {30},
 year      = {1994},
 pages     = {44--48},
 note      = {In Chinese},
 keywords  = {Experimental, electrolysis, excess heat, tritium, neutrons,
              res+},
 annote    = {From the English abstract, it appears that this was an attempt
 at scale-up of an electrolysis at a large Ti rod (in the text I find 86 mm,
 120 mm), at current densities 500 mA/cm$^2$. Excess heat was found, but
 little neutrons or tritium. The results support the theory of Qing-Quan
 Gou. The abstract also mentions 4He in the keyword list.}
}
@article{Miao1994b,
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 author    = {B. Miao},
 title     = {Experimental exploration on the possible mechanism of
              D-D cold fusion in titanium lattice},
 journal   = {Xibei Shifan Xuebao. Ziran Kexueban},
 note      = {In Chinese, Engl. abstr.},
 volume    = {30},
 number    = {1},
 year      = {1994},
 pages     = {39--43},
 keywords  = {Experimental, electrolysis, Ti, calorimetry, res+},
 annote    = {"The present paper reports in detail the experiments of
 electrolysing D2O made by the group using Titanium cathode. The primary
 results of experiments have proved exothermal effect and product 4He of
 nuclear fusion, the two specific feature predicted by the mechanism of
 professor Gou Qingquan" (direct quote of the abstr.). Fig. 2 shows an
 electrolytic cell with a Ti cathode and two thermistors in the cell, one at
 the Ti, the other away from it. The electrolyte was 0.1M NaOD in D2O. Fig. 5
 shows some temperature excursions, one lasting 2753 min.}
}
@article{Miles1994a,
 author    = {M.~H. Miles and B.~F. Bush and J.~J. Lagowski},
 title     = {Anomalous effects involving excess power, radiation, and helium
              production during D2O electrolysis using palladium cathodes},
 journal   = {Fusion Technol.},
 volume    = {25},
 year      = {1994},
 pages     = {478--486},
 keywords  = {Experimental, electrolysis, Pd, helium, res+},
 submitted = {05/1993},
 published = {07/1994},
 annote    = {The previous paper by these authors, claiming the observation
of
 helium generated in a 'cold fusion' cell, was criticised by many; the
authors
 now agree that error limits had not been sufficiently defined. In more
recent
 experiments, they have now established the detection limits for 4He in their
 500 ml Pyrex glass flasks: it is $3\times 10^{13}$ atoms. This gives some
 credence to their measured rate of production of 4He, $10^{11} \dots
10^{12}$
 atoms/s/W(excess power), which is about right for d-d fusion giving 4He (the
 rare branch, thought by some to dominate in PdD). The authors admit to
 experimental problems, including excess heat errors a large fraction of the
 excess heat itself, but the double blind nature of these studies makes them
 more confident that the new results are trustworthy.}
}
@article{Miles1994b,
 author    = {M.~H. Miles and B.~F. Bush and D.~E. Stilwell},
 title     = {Calorimetric principles and problems in measurements of
              excess power during Pd-D2O electrolysis},
 journal   = {J. Phys. Chem.},
 volume    = {98},
 year      = {1994},
 pages     = {1948--1952},
 keywords  = {Experimental, electrolysis, calorimetry, res+},
 submitted = {06/1993},
 published = {02/1994},
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 annote    = {Calorimetry of electrolysis cells as used in cold fusion will
 yield false results, if steady state is assumed for such variables as cell
 temperature, -voltage etc, and this has been done in other's work. The
 present authors single out such teams as Lewis et al, Williams et al,
Albagli
 et al and Wilson et al; all teams reporting null results. Here, two types of
 isoperibolic calorimeters were used, one similar to that used by the above
 teams and also by Fleischmann et al, the other being more sophisticated and
 similar to that also used by Williams et al. The first type of setup
measures
 the temperature directly within the cell, and this, as the electrolyte
 changes during electrolysis, produces a changing cell constant; when the
 temperature is measured outside the cell, this effect goes and better
results
 are obtained.  Other details are described. The calorimeter had an overall
 error of only $\pm$0.020 W with an input power of around 5-10 W (an informed
 guess). In the light of these insights, old null results are reexamined, and
 Lewis et al should have reported an excess of 1 W/cm$^3$, in line with
 Fleischmann et al, and Miles et al. Similar errors may hold for the other
 prominent null report papers.}
}
@article{Mill1994,
 author    = {R.~L. Mills and W.~R. Good and R.~M. Shaubach},
 title     = {Dihydrino molecule identification},
 journal   = {Fusion Technol.},
 volume    = {25},
 year      = {1994},
 pages     = {103--119},
 keywords  = {Theory, experimental, electrolysis, hydrinos, res+},
 submitted = {06/1993},
 published = {01/1994},
 annote    = {First, there is an outline of the Mills theory. The classical
 wave equation is solved, not with the usual boundary conditions but with
 those derived from the Maxwell equations. This novel theory can account for
a
 large number of phenomena, including gravitation, the masses of leptons, the
 neutron and proton, magnetic moments of nucleons, ultraviolet emission by
 dark matter, etc. The theory leads also to the postulate of the hydrino, a
 hydrogen atom with electrons in states below ground. In the second part of
 the paper, experimental evidence for the hydrino is provided, partly by
 reinterpretation of old data from other workers (e.g. 4He found by MS was
 really dideuterinos) and partly by new "thermacore" experiments in
 calorimetry. Power output/input ratios as high as 20 were found with light
 water electrolysis at 100\% current efficiency, i.e. no recombination
 artifacts. Because the dihydrino has a higher ionisation potential than H2,
 it was possible to distinguish between the two by mass spec (MS) by varying
 the ionisation voltage. Such an experiment confirmed the presence of
 dihydrino for the authors.}
}
@article{Mori1994,
 author    = {S. Morioka},
 title     = {Nuclear fusion triggered by positron annihilation at vacancies
              in deuterated metals},
 journal   = {Il Nuovo Cimento A},
 volume    = {107},
 year      = {1994},
 pages     = {2755--2765},
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 keywords  = {Theory, cnf activation by positron annihilation, res+},
 submitted = {03/1994},
 published = {05/1994},
 annote    = {The author states that positrons beamed at PdD will be trapped
 in crystal vacancies, as will deuterons. So, when positrons annihilate with
 electrons, the approx. 1 MeV energy from this might be given to the
deuteron,
 which would then crash into others, causing fusion. This argument is then
 backed up by theory, and the result is that the fusion rate is, among other
 things, limited by the concentration of vacancies and, using reasonable
 parameters, might be about 4 orders of magnitude above those reported by
 Jones et al (1989) (now retracted).  This is a testable hypothesis. }
}
@article{Morr1994,
 author    = {D.~R.~O. Morrison},
 title     = {Comments on claims of excess enthalpy by Fleischmann and Pons
             using simple cells made to boil},
 journal   = {Phys. Lett. A},
 volume    = {185},
 year      = {1994},
 pages     = {498--502},
 keywords  = {Polemic},
 submitted = {06/1993},
 published = {02/1994},
 annote    = {This polemic, communicated by Vigier (an editor of the
journal),
 as was the original paper under discussion (Fleischmann et al, ibid 176
 (1993) 118), takes that paper experimental stage for stage and points out
its
 weaknesses.  Some of the salient points are that above 60C, the heat
transfer
 calibration is uncertain, that at boiling some electrolyte salt as well as
 unvapourised liquid must escape the cell and (upon D2O topping up) cell
 conductivity will decrease; current fluctuations are neglected and so is the
 Leydenfrost effect; recombination; and the cigarette lighter effect,
 i.e. rapid recombination of Pd-absorbed deuterium with oxygen.}
}
@article{Mukh1994,
 author    = {D. Mukherjee and A. Wordsworth},
 title     = {Stress relieving of palladium foils, controls its
             electro-catalytic properties},
 journal   = {Tool \& Alloy Steels},
 year      = {1994},
 pages     = {323--325},
 keywords  = {Experimental, Pd foil, open circuit potentials, corrosion
rates,
             pretreatment, res0, no FPH/Jones refs.},
 annote    = {A pair of corrosion workers try to throw some light on cold
 fusion, by looking at open circuit potentials of Pd foils in a 3\% NaCl
 electrolyte, as well as its corrosion rate in conc. nitric acid, as a
 function of various pretreatments such as "normalising" at 700 C, annealing
 at 680 C, quenching in water at 30 C and at 19 C. Some of the foils were
 loaded with hydrogen, using a 5\% HCl solution and a Zn sacrificial
 anode. The hydrogen was then driven out of the Pd again by heating at 200 C,
 resting for 5 min and then heating at 400 C. Results show that stress
 relieving treatment activates the Pd surface, leading to a higher "galvanic
 current" where the counter electrode was mild steel. More active Pd also
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 corroded faster.}
}
@article{Naka1994,
 author    = {Y. Nakamitsu and M. Chiba and K. Fukushima and T. Hirose
              and K. Kubo and M. Fujii and H. Nakahara and T. Seimiya
              and K. Sueki and M. Katada and N. Baba and S. Kamasaki
              and S. Ikuta and K. Endo and T. Shirakawa},
 title     = {Study of cold nuclear fusion with electrolysis at
              low-temperature range},
 journal   = {Nuovo Cimento A},
 volume    = {107},
 year      = {1994},
 pages     = {117--128},
 keywords  = {Experimental, electrolysis, Ti, neutrons, res+},
 submitted = {06/1993},
 published = {01/1994},
 annote    = {Previous Italian work indicated that low temperatures might be
 favourable for CNF, so the team performed electrolysis at a range of
 temperatures -80C to room temp, using deuterated methanol with DCl (2M)
 instead of heavy water.  An added benefit is said to be the higher deuterium
 loadings at low temperatures. The cell was placed into a neutron detection
 space, surrounded by 10 3He detectors in paraffin. The 10 detectors were
 divided into 5 pairs and signals rejected if they did not appear on all 5
 pairs within 1 microsec.  The cathode material was cold rolled Pd rod (5mm
 dia, 20 mm long), known to have many defects, as well as some of this
 stretched to 3 mm dia to produce more defects still, and the same for Ti
 rods. At current densities 100-250 mA/cm$^2$ and electrolysis times up to
267
 h, the average neutron count was within one standard deviation of the
 background in all cases, and the frequency distribution of the counts was
 that of the background (Poisson).  Initially, there appeared to be some
 excess neutrons over the background, but these were found to be due to
 cryostat switching. With these results, it was possible to set an upper
limit
 to fusion of $3.1 \times 10^{-24}$ fus/pair/s, comparable with the results
of
 Jones et al (1989). }
}
@article{Nomu1994,
 author    = {K. Nomura and E. Akiba},
 title     = {Trial of nuclear fusion},
 journal   = {Busshitsu Kogaku Gijutsu Kenkyusho Hokoku},
 volume    = {2},
 number    = {4},
 year      = {1994},
 pages     = {439--450},
 keywords  = {Experimental. Gas phase, Ti, Pd, alloy LaNi5, Mg2Ni, neutrons,
              bursts, res-},
 annote    = {This reports a long term 'cold fusion' trial, lasting 32
months,
 using gas-phase charging of D2 into the alloy LaNi5, becoming LaNi5D6 in the
 process. Other alloys, such as Mg2Ni and the metals Ti and Pd were also
 tried. Neutron emissions were monitored with two counters. There were cases
 of apparent neutron bursts but not on both counters simultaneously; overall,
 nothing other than background noise was seen. This implies that, e.g., the
 neutron bursts observed by the de Ninno team could have been caused by noise
 events.}
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}
@article{Noto1994,
 author    = {R. Notoya and Y. Noya and T. Ohnishi},
 title     = {Tritium generation and large excess heat evolution by
              electrolysis in light and heavy water-potassium carbonate
              solutions with nickel electrodes},
 journal   = {Fusion Technol.},
 volume    = {26},
 year      = {1994},
 pages     = {179--183},
 keywords  = {Experimental, electrolysis, Ni, light water, tritium,
              calorimetry, res+},
 submitted = {11/1993},
 published = {09/1994},
 annote    = {The authors believe that in a cell of light water, K2CO3 and a
 Ni cathode, the excess heat observed arises from fusion of protons with
 alkali metal (K) at the Ni surface. The authors believe tritium is also
 generated. Some electrolysis runs, with durations from 6 to 26 h, are
 reported here; heat and tritium were measured, the tritium by taking samples
 out of the electrolyte after electrolysis. Some of the runs were done in
 heavy water. A table shows that all runs resulted in excess heat, in one
case
 169\%. Electrolysis runs resulted in about an order of magnitude more
tritium
 than in control measurements with pure water (light and heavy). Some rough
 linear relations were shown between tritium generated and excess heat. Less
 tritium was generated than Ca (from the p+K fusion) and two possible fusion
 reactions are suggested for tritium formation.}
}
@article{Pyun1994,
 author    = {S. Pyun and C. Lim and K.~B. Kim},
 title     = {An investigation of the electrochemical kinetics of deuterium
              insertion into a Pd membrane electrode in 0.1M LiOD solution
              by the a.c. impedance technique},
 journal   = {J. Alloys Comp.},
 volume    = {203},
 year      = {1994},
 pages     = {149--156},
 keywords  = {Experimental, Pd, electrolysis, fundamental},
 annote    = {A double cell was used, divided by a thin Pd foil. Thus,
 deuterium inserted by electrolysis on one side of the foil could be detected
 on the other side.  When steady state was reached, impedance measurements
 were carried out on the electrolysis side using a correlator. Results show
 that a mechanism involving absorption of adsorbed deuterium, produced from
 reduction, is consistent with the measurements; some rate constants are
 given, as well as the diffusion coefficient of deuterium in PdDx, as $(5.10
 \pm 1.04) \times 10^{-7}$ cm$^2$/s, somewhat higher than that of hydrogen.}
}
@article{Reif1994,
 author    = {O. Reifenschweiler},
 title     = {Reduced radioactivity of tritium in small titanium particles},
 journal   = {Phys. Lett. A},
 volume    = {184},
 year      = {1994},
 pages     = {149--153},
 keywords  = {Experimental, Ti, tritium, res-},
 submitted = {11/1993},
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 published = {01/1994},
 annote    = {Reports results obtained as long ago as 1958 but not fully
 reported, while working with Ti soot with absorbed tritium. In one
 experiment, with T/Ti loading at 0.0035, the sample was slowly heated in a
 closed space and the radioactivity measured by the x-radiation. Any tritium
 released was pumped out continuously. A separate experiment established the
 temperature (about 350C) at which the tritium begins to be released from the
 Ti; the radioactivity is seen to decrease clearly at 115C, at first rapidly,
 then more slowly, finally to increase again at 275C, going through a maximum
 slightly higher than the starting value at 360C (R calls it "the initial
 value"), and then dropping rapidly to zero as expected. Two other runs
showed
 similar behaviour; however, one run with a loading 10 times these and a
 faster temperature rise did not show the effect. An explanation in terms of
 tritium movement within the counting space is not likely. In an attempt to
 find an explanation, beta-electron emission was measured as a function of
the
 T/Ti loading x, and found to be not linear with x. There is an activity
 minimum, about the same as the one found in the first experiment, at an
 intermediate x of $3\times 10^{-4}$. The same minimum was found separately,
 measuring x-rays instead of beta electrons. The author proposes the
formation
 of nuclear pairs by the absorbed tritons, and a smaller decay of these pairs
 than for isolated tritons. This might have a bearing on the behaviour of
 deuterium in metals as well. The author plans to publish more on this
 subject.}
}
@article{Rice1994,
 author    = {R.~A. Rice and Y.~E. Kim},
 title     = {Comments on 'Electron transitions on deep Dirac levels I'},
 journal   = {Fusion Technol.},
 volume    = {26},
 year      = {1994},
 pages     = {110--111},
 keywords  = {Polemic},
 submitted = {09/1993},
 published = {08/1994},
 annote    = {Polemic on the named paper by Maly and Vavra, which claimed
some
 neglected solutions to Schroedinger's and Dirac's equation for hydrogen and
 gave support to the Mills theory. Rice et al state here that these solutions
 are not physical and that therefore these deep energy levels cannot exist.}
}
@article{Siod1994,
 author    = {R. Sioda},
 title     = {Cavity ion metal (hohlraum) limited-radiation effect and law},
 journal   = {Curr. Topics Electrochem.},
 volume    = {3},
 year      = {1994},
 pages     = {349--355},
 keywords  = {Theoretical, res+},
 annote    = {The author presents his theory of "hot spot plasma", to explain
 the cold fusion results of Fleischmann et al (1989) and Jones (1989) and
 others. He proposes the existence of small cavities with the metal, "hot
 spots", where high temperatures obtain. He addresses mainly the problem of
 how quickly these hot spots would cool, in order to know whether they might
 facilitate fusion. So he considers heat transport. The conclusion is that
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 some fusion might happen.}
}
@article{Stor1994,
 author    = {E. Storms},
 title     = {Warming up to cold fusion},
 journal   = {Techology Review},
 number    = {May/June},
 year      = {1994},
 pages     = {20--29},
 keywords  = {Review},
 annote    = {As the author writes, 5 years have passed and he writes a sort
 of summing-up of 'cold fusion', without any references. He covers the field
 well and discusses existing theories, not uncritically.}
}
@article{Sull1994,
 author    = {D.~L. Sullivan},
 title     = {Exclusionary epideictic: NOVA's narrative excommunication
              of Fleischmann and Pons},
 journal   = {Sci., Technol. \& Human Values},
 volume    = {19},
 year      = {1994},
 pages     = {283--306},
 keywords  = {Sci-soc/phil},
 published = {07/1994},
 annote    = {Sci-soc/phil paper by an English lit specialist. Analysis of
the
 video tape of the NOVA TV program "Confusion in a Jar", shown on 30 April
 1991 by Public Broadcasting. The author makes a case for this show's being
an
 epideictic rhetoric, defined as an effort publically to lay blame on someone
 and (here) in effect to excommunicate them (F\&P) from the ranks of serious
 scientists.  This can also be categorised as a narrative, and strong
 parallels are drawn between F\&P and the Jesus Christ story. The difference
 is that in the latter case, there was a final vindication after
 excommunication, not the case (yet) with F\&P.}
}
@article{Szpa1994,
 author    = {S. Szpak and P.~A. Mosier-Boss and R.~D. Boss},
 title     = {Comments on the analysis of tritium content in electrochemical
              cells},
 journal   = {J. Electroanal. Chem.},
 volume    = {373},
 year      = {1994},
 pages     = {1--9},
 keywords  = {Comment},
 submitted = {07/1993},
 published = {08/1994},
 annote    = {Most workers looking for tritium in their cold fusion cells
take
 aliquots out of the electrolyte and analyse these. It is important to know
 how the tritium, if any, is distributed in the cell; i.e. between the gas
 phase, electrolyte and electrode bulk. This paper takes a theoretical look
at
 this problem, as well as at the data acquisition procedure. It concludes
that
 isotope separation can be determined from analysis of the gas and liquid
 phases; analysis error can be minimised by increasing counting time in the
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 liquid scintillation method; care must be taken with open cells.}
}
@article{Tise1994,
 author    = {Yu.~A. Tisenko},
 title     = {Possible ways to achieve cold fusion. III},
 journal   = {Russ. Phys. J.},
 volume    = {37},
 year      = {1994},
 pages     = {590--592},
 keywords  = {Theory, glow discharge, res+},
 submitted = {04/1992},
 published = {06/1994},
 annote    = {Continuing his series of speculative calculations on how to
 bring forth 'cold fusion', T here proposes charging small (0.1 mm) PdD
 particles to MV voltages, and then exposing them to a low-pressure deuterium
 atmosphere. This would cause a glow discharge and deuteron ions, which might
 then accelerate towards the particle and, hitting it, lead to some d-d
 fusion. T then does some rough calculations of the mimimum particle radius
 required for this to happen, from several different models, which roughly
 agree with each other. T concludes that the idea is feasible.}
}
@article{Vyso1994,
 author    = {V.~I. Vysotskii and R.~N. Kuz'min},
 title     = {Nonequilibrium Fermi condensate of deuterium atoms in
microvoids
              of crystals and the problem of barrier-free cold nuclear
fusion},
 journal   = {Tech. Phys.},
 volume    = {39},
 number    = {7},
 year      = {1994},
 pages     = {663--666},
 keywords  = {Theory, microvoids in PdD, res+},
 submitted = {10/1993},
 published = {07/1994},
 annote    = {A new mechanism for 'cold fusion' is described here. It is
based
 on the suppression of all forms of local electromagnetic interaction in a
 Fermi condensate of deuterium atoms in microvoids in a metal deuteride. One
 outcome of the theory is that thermal cycling is a requirement for fusion;
 this has not been understood before. The presence of microchannels and
 -cracks or -cavities make all this possible, as evidencd by the Kamiokande
 results with deuterated concrete and some Russian results.}
}
@article{Yang1994,
 author    = {J. Yang and D. Chen and G. Zhou and Q. Wu and J. Huang
              and L. Tang and X. Cheng and D. Xie and L. Gu},
 title     = {'Abnormal' nuclear phenomena and possible nuclear process},
 journal   = {Fusion Technol.},
 volume    = {25},
 year      = {1994},
 pages     = {203--206},
 keywords  = {Discussion},
 submitted = {12/1992},
 published = {03/1994},
 annote    = {Disputes on cold fusion are based on traditional fusion theory,
 say the authors, and a new theoretical framework must be established to
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 explain cold fusion, which takes place in the low energy range. This is
 provided by electron capture of excited deuterons, forming a dineutron,
which
 can then fuse without difficulty with a further deuteron. This is aided by a
 weak interaction in the nuclear force, hitherto not believed to exist. As
 well as d-2n fusion, there may be other fusion reactions between the
 dineutron and, e.g., the Pd isotopes, leading to a number of energies of
 emissions. The authors have calculated expected fusion rates, and these lie
 around observed rates. The authors acknowledge that this model is as yet
 primitive but they ask others to consider it and flesh it out.}
}
@article{Yi1994,
 author    = {K. Yi and D. Jiang and X. Qian and J. Lin and Y. Ye},
 title     = {A study of D-D fusion in TiD target induced by
              197Au bombardment},
 journal   = {Nucl. Tech. (China)},
 volume    = {17},
 year      = {1994},
 pages     = {722--728},
 keywords  = {Experimental, ion beam, res+},
 note      = {In Chinese, Engl. abstr.},
 submitted = {07/1993},
 published = {12/1994},
 annote    = {A TiD target was bombarded with beams of Au ions at 1-5.2 MeV
 energies, and the resulting proton flux measured. The beam induces d-d
fusion
 in the target.  The abstract says that the resulting fusion can be explained
 by a two stage cascade collision model, indicating that the energy transfer
 is carried out by elastic collisions between deuterons and the Au ions.
There
 are references to F\&P-89 as well as to Beuhler et al 89, but it is not
clear
 to this abstracter how this might be considered cold fusion.}
}
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# YEAR: 1995

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% Year 1995; there are  52 entries.
@article{Alek1995,
 author    = {V.~A. Alekseev and V.~I. Vasil'ev and V.~A. Romodanov
              and Yu.~F. Ryshkov and S.~V. Rylov and V.~I. Savin
              and Ya.~B. Skuratnik and V.~M. Strunnikov},
 title     = {Tritium production in the interaction of dense streams of
              deuterium plasma with metal surfaces},
 journal   = {Tech. Phys. Lett.},
 volume    = {21},
 year      = {1995},
 pages     = {231--232},
 note      = {Orig. in: Pis'ma Zh. Tekh. Fiz. 21 (1995) 64.},
 keywords  = {Self targeting ion beam, Ti, V, Fe, Zr, Nb, tritium, res+,
              no FPH/Jones refs},
 submitted = {12/1994},
 published = {03/1995},
 annote    = {The authors regard this as a cold fusion paper but it is in
fact
 about a plasma discharge experiment, in a 30 mbar atmosphere of D2 between
 two stainless steel electrodes, about 12 kV passed across them. Along part
of
 the axis, cylinders of various metals are placed, so that the plasma pinch
 pushes onto the cylinder surface. The authors state that the resulting
fusion
 favours the tritium branch over the neutron one, and they analyse for
tritium
 after many discharges, both in the gas and the metal (but do not report any
 neutron measurements). Group-IV metals were more effective than the others
in
 producing tritium, and the metals contained more tritium than the gas. The
 authors find that tritium production correlates with hydrogen solubility in
 the metal. }
}
@article{An1995,
 author    = {H.~K. An and E.~I. Jeong and J.~H. Hong and Y. Lee},
 title     = {Analysis of deformed palladium cathodes resulting from heavy
              water electrolysis},
 journal   = {Fusion Technol.},
 volume    = {27},
 year      = {1995},
 pages     = {408--416},
 keywords  = {Experimental, Pd deformation by electrolysis; res+},
 submitted = {06/1993},
 published = {07/1995},
 annote    = {This follows the work of Yamaguchi, who observed the
deformation
 of a Pd plate exposed to D2 gas, where a gold layer was evaporated, from
 which Y inferred high temperatures and thus anomalous heat production. The
 Korean team attempted to observe this by doing an electrolysis experiment on
 Pd plates as cathodes. Two cathodes were made up, as Pd sandwiches, 10*10*1
 mm$^3$, between a gold layer, 200 nm, on one side and a Ti layer, 20 nm,
 coated with Pd, also 20 nm thick, on the other. Temperatures were monitored
 during electrolysis, in 0.1 M LiOD at up to 200 mA, with a bit of current
 reversal now and then. The two electrodes faced each other. Electrolysis was
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 sustained for 18 days, when the cell exploded; the authors believe that D2
 and O2 gas may have played a role in that and strongly recommend a good
 recombiner. The plates were deformed and it seems that, just as with
 Yamaguchi, high temperatures may have been reached; e.g. there was some Au-
Pd
 alloying, seen by surface analysis (OM, SEM and SAM). There was some
evidence
 of temp. increases within the plates (up to maybe 1000 C) before the
 explosion.  There is some diffusion maths.}
}
@article{Arat1995a,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Cold fusion reactions driven by 'Latticequake'},
 journal   = {Proc. Japan Acad.},
 volume    = {71B},
 year      = {1995},
 pages     = {98--103},
 keywords  = {Theory, res+},
 submitted = {03/1995},
 annote    = {The authors begin by pointing out that powdered metal presents
 a large surface and will be a key factor in future developments of cold
 fusion. They then state that one of the authors (they do not say which)
 thought of solid state fusion 40 years ago, and that Fleischmann et al later
 rediscovered this, by using electrolysis. The paper then goes on to describe
 the latticequake model.  Energetic helium nuclei (at MeV energies) can by
 crashing into the Pd and d nuclei in the crystal create hollow spaces, which
 then quickly collapse and lead to high implosion pressures, yielding
 densities up to 10 times that of solid deuterium as well as temperatures of
 several times $10^8$ C, thus favouring fusion. This process might be
 autocatalytic if more energetic helium nuclei are produced; they do not
 explain how the process starts.}
}
@article{Arat1995b,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Achievement of solid-state plasma fusion ("cold fusion")},
 journal   = {Proc. Japan Acad. Ser. B},
 volume    = {71},
 year      = {1995},
 pages     = {304--309},
 keywords  = {Experimental, helium, mass spec, theory, res+,
              no FPH/Jones refs.},
 submitted = {12/1995},
 annote    = {This paper reports again the finding of 4He by the use of
narrow
 M-range periodic mass spectroscopy cycling of the gases from Pd under
 pressured D2.  Distinct He peaks are seen under the correct conditions, and
 not in control runs. The authors' lattice quake theory is outlined once
 again.}
}
@article{Arat1995c,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Peculiar relation between hot plasma fusion and solid-state
              plasma fusion ("cold fusion")},
 journal   = {Koon Gakkaishi},
 volume    = {21},
 year      = {1995},
 pages     = {130--141},
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 keywords  = {Experimental, theory, deuteron clusters, excess heat, res+,
             no FPH/Jones refs},
 submitted = {05/1995},
 published = {07/1995},
 annote    = {This continues the authors' report on their results of excess
 heat with time in a long-term electrolyses, now extended to 3500 and 4000 h
 respectively.  Excess heat events continue to occur, and the authors'
lattice
 quake theory is reiterated. There is also some discussion on similarities
and
 differences between solid state plasma, and gaseous plasma, fusion.}
}
@article{Arat1995d,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Achievement of solid-state plasma fusion ("cold fusion")},
 journal   = {Koon Gakkaishi},
 volume    = {21},
 year      = {1995},
 number    = {6},
 pages     = {303--306},
 keywords  = {Experimental, gas phase Pd, D2, mass spec, helium, excess heat,
             no FPH or Jones refs, res+},
 submitted = {10/1995},
 note      = {In Japanese, Engl. abstr. and Fig. captions},
 annote    = {This pair of authors has been producing a steady stream of
 papers, using their Pd powder in a Pd bottle, and D2 gas, and producing
 excess heat. They now add a high-resolution mass spectrometer. They
 repeatedly scan for masses between 3.95 to 4.05, and find a distinct 4He
peak
 at 4.00260 appearing next to that for D2, 4.02820, under those conditions
 where they see excess heat and claim cold fusion. No 3He or tritium was
 detected. There are controls, and the He appears only when heating the Pd
 sufficiently, indicating that it is produced within the metal.}
}
@article{Arat1995e,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Cold fusion caused by 'lattice quake'},
 journal   = {Koon Gakkaishi},
 volume    = {21},
 year      = {1995},
 pages     = {43--51},
 keywords  = {Experimental, theory, composite cell, gas phase charging,
             excess heat, no FPH/Jones refs, res+},
 submitted = {01/1995},
 note      = {In Japanese, Engl. abstr.},
 annote    = {The authors have described their "lattice quake" model
elsewhere
 and do it again here, as well as presenting experimental results. A
 multilayer cathode is used, charged with D2 gas. Excess heat was
 observed. There is more lattice quake theory.}
}
@article{Chen1995,
 author    = {S. Chen and D. Wang and G. Cui and M. Wang and Y. Fu
             and X. Zhang and W. Zhang},
 title     = {X-ray diagnostics in gas discharge},
 journal   = {Trends Nucl. Phys.},
 volume    = {12},
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 number    = {3},
 year      = {1995},
 pages     = {58--60},
 keywords  = {Experimental, x-rays, gas phase, res?},
 submitted = {05/1994},
 published = {09/1995},
 annote    = {What I know about the paper (which is all in Chinese) is what I
 can see in the figures, and in the Chem. Abstr. item 126:243528 (1997), not
 much. A metal is loaded with D2 (and maybe with a mixture of D2 and H2) by a
 gas discharge, and x-rays measured by two methods. They agree on x-ray peaks
 at about 27 keV.}
}
@article{Chib1995,
 author    = {M. Chiba and T. Shirakawa and M. Fujii and T. Ikebe
              and S. Yamaoka and K. Sueki and H. Nakahara and T. Hirose},
 title     = {Measurement of neutron emission from LiNbO3 fracture process
              in D2 and H2 atmosphere.},
 journal   = {Nuovo Cimento A},
 volume    = {108},
 year      = {1995},
 pages     = {1277--1280},
 keywords  = {Experimental, fractofusion, superconductivity, neutrons, res+},
 submitted = {06/1995},
 published = {10/1995},
 annote    = {This aims to confirm the results of Russian work, in which
 neutron emission was observed at the Curie temperature Tc during temperature
 scanning of superconducting ceramics, as well as earlier work by the present
 team on the title substance.  The Russian workers ascribe the emissions to
 mechanical effects due to phase transitions. The title substance was
 mechanically crushed in a steel vibromill in an atmosphere of H2 or D2 while
 monitoring for neutrons, using 10 3He counters divided into 5 sets, placed
 closely around the sample.  Experiments were conducted in an underground
 environment with a low background count of 9.3 +- 0.1 c/h. For H2 at 101
kPa,
 the count rate was 8.7 +- 1.2 c/h, or the same as the background, but for a
 D2 atmosphere (same pressure) it was 10.3 +- 0.7 c/h, or an excess of 1.0 +-
 0.2 c/h, regarded as significantly higher than the background. There is some
 speculation about high voltages generated by the mechanical action, possibly
 up to 10 keV, and acceleration of deuterons across cracks. Rough
calculations
 agree with the observations. Thus, mechano-nuclear fusion can be added to
the
 other fusion techniques, conclude the authors.}
}
@article{Cont1995,
 author    = {E. Conte},
 title     = {A generalization of Schroedinger's equation using
biquaternions:
              the possibility of fusion for particles},
 journal   = {Phys. Essays},
 volume    = {8},
 year      = {1995},
 pages     = {52--59},
 keywords  = {Theory, biquaternion QM, res+},
 submitted = {10/1993},
 published = {03/1995},
 annote    = {This paper revises quantum mechanics, using biquaternions.
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 Schroedinger's equation becomes a sub-case of this wider theory. The bottom
 line is that low-energy (e.g. cold) fusion is possible.}
}
@article{Daro1995,
 author    = {S. Dar{\'o}czy and A. Boly{\'o}s and Z. Dezs{\"o} and
              T. Scharbert and Z. Papp and J. K{\'o}nya and B. Bert{\'o}k},
 title     = {Search for neutrons from electrochemically deuterated
              palladium sheets},
 journal   = {Acta Univ. Debr. Ludov. Kossuth Nom. Ser. Phys. Chim.},
 volume    = {30},
 number    = {1},
 year      = {1995},
 pages     = {49--61},
 submitted = {12/1995},
 published = {12/1995},
 keywords  = {Experimental, neutrons, electrolysis, Pd, res-},
 annote    = {This team from Hungary made an attempt to verify F\&P's
results,
 in this case by monitoring neutrons during the electrolysis of heavy water
at
 a Pd cathode in 0.1 M LiOD. Large Pd foils (25 cm$^2$ area) were used, of
 thickness 0.125 mm and 0.5 mm resp.; they were mounted so that their back
 sides were not exposed to the electrolytes, and the deuterium gas released
 through the back was used to estimate the D/Pd loading (0.72). The neutron
 detector was a three-chamber type in an Fe tank, using heavy water as
 moderator, with an efficiency of ($5.07\pm 0.03) \times 10^{-4}$. The
overall
 neutron flux was the same as for the background; however, examination of
 short-term periods showed some bursts not seen in the background, especially
 with the thinner of the Pd foils and upon gas release from the thicker foil,
 upon switching off the current. The authors checked on the possibility of
 solar flares causing these effects, but there was none during their
 experiment.}
}
@article{Fate1995,
 author    = {E.~G. Fateev},
 title     = {Possibilities for establishing the mechanism of neutron
              generation in deuterated materials under mechanical loading},
 journal   = {Tech. Phys. Lett.},
 volume    = {21},
 number    = {5},
 year      = {1995},
 pages     = {373--374},
 keywords  = {Theory, fractofusion, res+},
 submitted = {02/1995},
 published = {05/1995},
 annote    = {Since 1986, when Kluev et al discovered fractofusion, the
 mechanism has not been explained satisfactorily. Fateev offers his
 "rheological explosion" model, resulting from shock waves in a crystal that
 has been mechanically stressed.  Some mathematics is presented, developing
 the Gamow formula and using estimated pressures, and the author concludes
 that this could accelerate deuterons sufficiently to explain the neutrons
 detected experimentally. He proposes an experiment, using electrical
 low-voltage pulses as well as mechanical stress, to test the model.}
}
@article{Fedo1995,
 author    = {G.~V. Fedorovich},
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 title     = {The possible nature of cold fusion in the Earth's mantle},
 journal   = {Fusion Technol.},
 volume    = {28},
 year      = {1995},
 pages     = {1749--1762},
 keywords  = {Theory, geological, fractofusion, res+},
 submitted = {12/1993},
 published = {11/1995},
 annote    = {Fedorovich has previously outlined a theory of CNF, and here
 connects it with the possibility of p-d fusion in the Earth, which (under
the
 name of pycnofusion) originally motivated the Jones team towards their
 experiments.  The author points out the phenomenon of rock burst, a sudden
 release of energy often seen in tunnel walls etc. Some experiments with this
 have yielded evidence of neutrons in the past. Geological and fractofusion
 are related, and further evidence comes from the electron emission from
 ferroelectrics undergoing polarisation reversal.}
}
@article{Gozz1995a,
 author    = {D. Gozzi and R. Caputo and P.~L. Cignini and M. Tomellini
              and G. Gigli and G. Balducci and E. Cisbani and S. Frullani
              and F. Garibaldi and M. Jodice and G.~M. Urciuoli},
 title     = {Calorimetric and nuclear byproduct measurements in
              electrochemical confinement of deuterium in palladium},
 journal   = {J. Electroanal. Chem.},
 volume    = {380},
 year      = {1995},
 pages     = {91--107},
 keywords  = {Experimental. Pd, electrolysis, excess heat, neutrons, helium,
              tritium, correlation, res0},
 submitted = {02/1994},
 published = {01/1995},
 annote    = {The authors recognise that the simultaneous detection of excess
 heat and nuclear products would be indicative of cold fusion, and report on
 their attempts to do this. Ten electrolysis cells, some of them controls
with
 Au or Pt cathodes, are surrounded by a ring of neutron detectors, and the
 head space gases from the cells are analysed for 4He and T, after some
 filtering to cut down on the large excess of D2. The cells are of the open
 type and there is a complicated program of current densities with time. Some
 small levels of excess heat are found (up to about 60\%), scaling more or
 less with input power, and some 4He is found at apparently commensurate
 amounts but after time lags of some hundreds of hours after excess heat
 events. The authors carefully measure Ne along with He and find some; they
 recognise that this could mean that the 4He - or at least some it - was
 contamination from the lab air. No neutrons or significant levels of tritium
 were found.}
}
@article{Gozz1995b,
 author    = {D. Gozzi and R. Caputo and P.~L. Cignini and M. Tomellini
              and G. Gigli and G. Balducci and E. Cisbani and S. Frullani
              and F. Garibaldi and M. Jodice and G.~M. Urciuoli},
 title     = {Quantitative measurements of helium-4 in the gas phase of
              Pd + D2O electrolysis},
 journal   = {J. Electroanal. Chem.},
 volume    = {380},
 year      = {1995},
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 pages     = {109--116},
 keywords  = {Experimental, Pd electrolysis, helium, mass spec, correlation,
             res0. No FPH/Jones ref.},
 submitted = {02/1994},
 published = {01/1995},
 annote    = {Here, the method used to measure helium in the gas emitted from
 electrolysis cells described in their other paper (ibid p.91) is described
in
 detail. A mass spectrometer with a resolving power of 660 (mass/delta-mass)
 was used.  The complex chain of traps and lines between the headspace and MS
 is described. The authors were aware of some leaks and indeed some Ne was
 detected, at levels correlated with helium levels; this indicates
atmospheric
 contamination. The paper does provide information on how to improve such
 measurements, however.}
}
@article{Gran1995a,
 author    = {P. Grant},
 title     = {Author response},
 note      = {Response to the polemic by E.S. Shanley, ibid, same page},
 journal   = {Chem. Health Saf.},
 volume    = {2},
 number    = {2},
 year      = {1995},
 pages     = {4--5},
 keywords  = {Polemic, SRI explosion},
 annote    = {Grant, who led the forensic team that investigated the
explosion
 of a cold fusion cell in the SRI labs in Jan. 1992, responds to a polemic by
 E.S.  Shanley, who throws doubts upon the team's conclusions regarding the
 presence of oil traces on the internal cell walls, that might have set off
 the explosion. Shanley's main points were that the oil could not have
reached
 the "Pd" oxidation catalyst in order to react with oxygen, and that such a
 reaction should have resulted in left-over deuterium. Grant responds with
 several points. Explosions are normally less than 100\% efficient, so the
 residue would not be useful in this way; that there was no way of knowing
 just how much oil there had been in the cell prior to the explosion; and
that
 the Pd cathode was not the recombination catalyst, which was Pt-coated
 instead; there is no need to postulate transport of oil to the catalyst, to
 explain an explosion; and that SRI's reconstruction of the accident is only
 one of several possible scenarios, and not necessarily the most likely.}
}
@article{Gran1995b,
 author    = {P.~M. Grant and R.~E. Whipple and B.~D. Andresen},
 title     = {Comprehensive forensic analyses of debris from the fatal
             explosion of a 'cold fusion' electrochemical cell},
 journal   = {J. Forensic Sci.},
 volume    = {40},
 year      = {1995},
 pages     = {18--26},
 keywords  = {Discussion},
 annote    = {This team of forensic chemists was charged with the detailed
 examination of the debris left after the explosion of a cold fusion cell at
 SRI, in which Andrew Riley was killed. Some of his tissues were in fact
found
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 left on the steel of the cell. SRI had at this stage already examined the
 debris and concluded that the cause of the explosion was a blockage, by a
 small PTFE flap, of a pressure valve, resulting in a high internal pressure
 in the sealed cell; and that when Riley moved it, he exposed the
 deuterium/oxygen mixture to bare palladium.  Grant et al do not find any
 evidence of such a blockage, and their main finding is of residues of oil on
 the inside of the steel mantle around the cell. They appear to believe that
 this oil started a combustion process with the pressurised oxygen, that then
 set off the gas mixture. The steel container was deformed, indicating a peak
 pressure of about 300 atm.  They also found incomplete welds in the
container
 bottom (54\% weld penetration), no doubt resulting in the rocket effect
after
 the bottom blew off. They conducted some elemental analysis but some of the
 results are confidential, probably part of SRI's secret ingredients for
'cold
 fusion'.  They express some surprise at the absence of nitrate or nitrite,
 usually present after explosions. They also performed some radionuclide
 measurements but will publish the findings elsewhere, prevented by the
 referee from doing so here.}
}
@article{Gran1995c,
 author    = {P.~M. Grant and . Whipple and F. Bazan and J.~L. Brunk
              and K.~M. Wong and R.~E. Russo and B.~D. Andresen},
 title     = {Search for evidence of nuclear involvement in the fatal
              explosion of a "cold fusion" experiment},
 journal   = {J. Radioanal. Nucl. Chem.},
 volume    = {193},
 year      = {1995},
 pages     = {165--169},
 keywords  = {Postmortem analysis, explosion, radiowaste.},
 annote    = {The forensic team asked to investigate the fatal explosion at
 the SRI lab, in which Riley was killed, report on their main measurements in
 the J. Forensic Sci.). They also searched for emissions due to nuclear
 processes and report the results here. The measurements were delayed until
 3.5 months after the explosion, so short-lived products would have been
 missed but there is a Table of isotopes that could have been produced by
 neutron activation, and that would survive for this length of time. The
 samples were placed in a gamma ray detector for several days while counting.
 No evidence of any such activated isotope species was found.}
}
@article{Gree1995,
 author    = {T.~G. Green and T.~I. Quickenden},
 title     = {Calorimetric studies of highly loaded deuterides and hydrides
             of palladium},
 journal   = {J. Electroanal. Chem.},
 volume    = {389},
 year      = {1995},
 pages     = {91--103},
 keywords  = {Calorimetry, high loading, res0},
 submitted = {10/1994},
 published = {06/1995},
 annote    = {G\&Q report here the results of a painstaking study of the
 calorimetry of the title systems.  Many of the published recommendations for
 producing excess heat were tried (with particular attention to the work of
 McKubre et al and Hasegawa et al): high loading (up to 0.93), low-high
 charging current regime, prolonged electrolysis (30 days) and additives (Al
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 and SiO2). An isoperibolic calorimeter was used and the error in the heat
 balance was 1.5\%. The result of 48 separate measurements (including
 controls) is that no excess heat outside the error limits was found in any
 run.}
}
@article{Hols1995,
 author    = {P. Holst-Hansen and D. Britz},
 title     = {Can current fluctuations account for the excess heat claims
              of Fleischmann and Pons?},
 journal   = {J. Electroanal. Chem.},
 volume    = {388},
 year      = {1995},
 pages     = {11--16},
 keywords  = {Experimental, instrumentation, res0},
 submitted = {09/1994},
 published = {05/1995},
 annote    = {This responds to some discussion about the possible role of
 current fluctuations in the F\&P galvanostatic setup in the production of
 excess heat artifacts. Analysis of the dynamics of F\&P's galvanostat shows
 that it would indeed produce some high frequency current fluctuations and an
 experiment with an electrolytic cell confirmed this. However, the
 fluctuations are very small in magnitude and essentially uncorrelated with
 cell voltage, so that this error in instrumentation did not lead to
 artifactual excess heat in F\&P's calculations.}
}
@article{Iida1995,
 author    = {T. Iida},
 title     = {Deuteron fusion experiments with some foils implanted
              with deuteron beams},
 journal   = {Genshikaku Kenkyu},
 volume    = {40},
 number    = {5},
 year      = {1995},
 pages     = {77--83},
 keywords  = {Experimental, ion beam 300 keV, Pd, charged particles, res-},
 annote    = {A Pd plate was the target of a 300 keV deuteron beam, and was
 additionally stimulated with large electrical currents; a Zr plate was first
 loaded from a He+ beam and then targeted with the deuteron beam. Charged
 particles were looked for with a Si-SSD detector; nothing significant was
 found, so that the Fleischmann-Pons effect is still unexplained, write the
 authors.}
}
@article{Jone1995a,
 author    = {S.~E. Jones and L.~D. Hansen},
 title     = {Examination of claims of Miles et al in Pons-Fleischmann-Type
              cold fusion experiments},
 journal   = {J. Phys. Chem.},
 volume    = {99},
 year      = {1995},
 pages     = {6966--6972},
 keywords  = {Polemic, excess heat, helium correlation, res-},
 submitted = {09/1994},
 published = {05/1995},
 annote    = {Reacting to criticism by Jones, Miles has challenged Jones to
 show why the previous results of Miles et al, which appeared to show
evidence
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 of excess heat/ helium correlation, are not reliable. Jones and Hansen
comply
 here.  They point out many weaknesses in the several reports by Miles et al,
 all throwing strong doubts on the excess heat, the helium, as well as any
 correlation between them. There has been data selection and overconfident
 conclusions from poor data, it seems. Claims of x-rays, too, are highly
 doubtful.}
}
@article{Jone1995b,
 author    = {J.~E. Jones and L.~D. Hansen and S.~E. Jones and D.~S. Shelton
             and J.~M. Thorne},
 title     = {Faradaic efficiencies less than 100\% during electrolysis of
             water can account for reports of excess heat in
             'cold fusion' cells},
 journal   = {J. Phys. Chem.},
 volume    = {99},
 year      = {1995},
 pages     = {6973--6979},
 keywords  = {Polemic and experimental, excess heat is an artifact, res-},
 submitted = {09/1994},
 published = {05/1995},
 annote    = {The Jones team has been stating for some time that claims of
 excess heat are due to poor calorimetry and in many cases recombination of
 evolved deuterium with oxygen. If the heat of water electrolysis is then
 subtracted, this leads to inflated estimates of excess heat. Here they
report
 their own experiments, using both Ni/light water, as well as conventional
 Pd/heavy water cells. They find excess heat if they do not take care to
 separate the evolved gases; if they do, however, or flush the cells with
 nitrogen, the excess heat goes to zero, thus supporting their criticism.
They
 do address one case of excess heat greater than the applied cell power (by
 Mills et al); however, calorimetric error is likely in this case.}
}
@article{Kali1995,
 author    = {V.~B. Kalinin},
 title     = {Dipole ordering, ionic conductivity, and cold nuclear fusion:
             three types of cation mobility in the orthophosphates KTiOPO4,
             Na3M2(PO4)3 (M = Sc, Fe, Cr), NaTh2(PO4)3, KD2PO4,
             and related compounds},
 journal   = {Inorg. Mater.},
 volume    = {31},
 year      = {1995},
 pages     = {558--566},
 keywords  = {Discussion of ionic conductors, ferroelectrics, fractofusion,
             res+,},
 submitted = {05/1994},
 published = {05/1995},
 annote    = {Lengthy theoretical discussion of a class of ionic conductors,
 tying in with earlier Russian work on ferroelectrics and fractofusion. Phase
 transitions and repolarisation in such compounds might give rise to cold
 fusion. Four compound structure types that share cation position splitting
 are discussed, as in the title. Only one of these, KD2PO4, has been tried
out
 with CNF in mind. There are 44 references. }
}
@article{Kueh1995,
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 author    = {R.~W. K{\"u}hne and R.~E. Sioda},
 title     = {An extended micro hot fusion model for burst activity
             in deuterated solids},
 journal   = {Fusion Technol.},
 volume    = {27},
 year      = {1995},
 pages     = {187--189},
 keywords  = {Theory/speculation, fractofusion, bursts, res+},
 submitted = {02/1993},
 published = {03/1995},
 annote    = {This paper describes a model that the authors believe can
explain
 all the disparate observations of 'cold fusion'. Cracks with up to 10 keV
 energies can be formed in PdD and K\&S state that 10 keV ions have been
 detected and d-d fusion can occur. The cracks can become hot spots,
 explaining heat generation, while some nuclear reactions are initiated
 simultaneously, thus explaining the heat/nuclear products anomaly. The
 authors appear unaware that the hot spots require energy input, so this
model
 falls flat.}
}
@article{Lewe1995a,
 author    = {B. Lewenstein},
 title     = {From facts to fax: communication in the cold fusion saga},
 journal   = {Soc. Stud. Sci.},
 volume    = {25},
 year      = {1995},
 pages     = {403--436},
 keywords  = {Soc/sci},
 annote    = {An early (34-page) Lewenstein paper, taking science-
sociological
 look at cold fusion. He argues that the pupular view of how science operates
 is wrong, and that in fact communication among scientists uses many
 media. New models are needed to account for the boundaries between formal
 publication, preprints, computer networks, fax machines, mass media
 presentations and other scientific forums. Increased communication activity
 may lead to some instability, especially initially in a controversial
 scientific event.}
}
@article{Lewe1995b,
 author    = {B.~V. Lewenstein},
 title     = {Do public electronic bulletin boards help create scientific
             knowledge? The cold fusion case},
 journal   = {Science, Technol. \& Human Values},
 volume    = {20},
 year      = {1995},
 pages     = {123--149},
 keywords  = {Sci-soc},
 annote    = {The author, a science sociologist, examines the title question,
 looking at how electronic mail, news groups etc (computer-mediated
 communication or CMC) affect the spread of knowledge. CMC has certain
 characteristics of its own.  BVL takes the cold fusion as a case study.  CMC
 (and the telefax) played a significant role in the spread of the cold fusion
 news. Bulletin boards (by which BVL means news groups) have certain
 properties, and one that interests the author is the "big and little ideas"
 distribution. He concludes that, despite the faster spread of news, these
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 news groups do not all help professionals very much and will not soon
replace
 face-to-face communication.  A cold fusion chronology is appended.}
}
@article{Lin1995,
 author    = {G.~H. Lin and R. Bhardwaj and J.~O.~M. Bockris},
 title     = {Response to Noninski et al: Observation of beta radiation decay
              in low energy nuclear reaction},
 journal   = {J. Sci. Exploration},
 volume    = {9},
 year      = {1995},
 pages     = {207--208},
 keywords  = {Polemic, transmutation, res+},
 annote    = {A polemic arguing against the paper in the same journal
 (9 (1995) 201), by Noninski et al, who found no evidence of gamma radiation
 from purported transmutation experiments. In this paper, the authors report
 their own experiments, using about the same mixture, and found beta
emissions
 after the burn, decaying in the expected manner. See Noninski et al (9
(1995)
 317) for a comment on this and further experiments.}
}
@article{Lips1995a,
 author    = {A.~G. Lipson and B.~F. Lyakhov and V.~A. Kuznetsov
              and T.~S. Ivanova and B.~V. Deryagin},
 title     = {The nature of excess energy liberated in a Pd/PdO
heterostructure
              electrochemically saturated with hydrogen (deuterium)},
 journal   = {Russ. J. Phys. Chem.},
 volume    = {69},
 year      = {1995},
 pages     = {1810--1813},
 keywords  = {Theory, fractofusion, polywater, res0},
 submitted = {08/1994},
 published = {11/1995},
 annote    = {Deryagin, deceased, was the leader of the team in which Lipson
 still works.  Deryagin is remembered as the originator (or the person who
 took over from the originator) of "polywater", also called "Deryagin water",
 which excited world-wide interest in the late 60's and early 70's, until it
 was definitively proved to be an artifact due to impurities on quartz
 capillaries. Lipson has, until this paper, been defending the Russian
 fractofusion theory, which explains the nuclear events in terms of cracks
 formed in the PdD and charged particles accelerating across them. Here, he
 adds what resembles polywater to the theories; i.e. that water forms highly
 structured layers at some surfaces, e.g. at Pd, and that this layer can
 harbour large amounts of energy in hydrogen bonds, that could release
"excess
 heat" when broken. The authors do not calculate the amounts of such
energetic
 substance, or they might not make these claims (they do guess at the layer
 thickness, about 50 {\AA}ngstrom). The theory is given the name of
 mechanochemical destruction of hydrogen bonds. As well, quasimetallic
 hydrogen is invoked, the addition of electrons to protons, and the
 "molization" of hydrogen atoms, and the abstraction of two protons from
 water. The paper concludes saying that a definition of cold fusion is now
 possible without recourse to highly unusual nuclear reactions, but as
 isolated fusion events - apparently not presumed unusual.}
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}
@article{Lips1995b,
 author    = {A.~G. Lipson and D.~M. Sakov and B.~F. Lyakhov
              and E.~I. Saunin and B.~V. Deryagin},
 title     = {Generation of the products of DD nuclear fusion in
              high-temperature superconductors YBa2Cu3O7-deltaDy near the
              superconducting phase transition},
 journal   = {Tech. Phys.},
 note      = {Orig. in: Zh. Tekh. Fiz 65 (1995) 166, in Russian},
 volume    = {40},
 year      = {1995},
 pages     = {839--845},
 keywords  = {Experimental, superconductivity, fractofusion, phase
transition,
              neutrons, tritium, res+},
 submitted = {07/1994},
 published = {08/1995},
 annote    = {Previous results of this team from work with KD2PO4, a
 ferroelectric, showed evidence of fractofusion and emission of neutrons, due
 to phase transitions around the Curie point. The authors predict that the
 high temperature super- conductor (title substance), a ceramic, when
 deuterated, also should show this effect.  Previous experiments in 1990-2
 left some unanswered questions, addressed in this work. Here,
 (electrochemical) deuteration of the ceramic (8.5 cm diameter tablets, 1 mm
 thick, coated with Pd) was monitored by vacuum flushing and correlated with
 sample resistance, and the temperature of maximum neutron emission was
 closely observed. Also the rate of tritium generation was measured by liquid
 scintillation. The neutron detector was a set of seven proportional BF3
 counters with an efficiency of $2.9\pm 0.5$\%, shielded by 150 mm
 polyethylene. Background was measured before, during and after the
 experiments and fluctuations over 1 h did not exceed 2 sigma from the value
 $0.012\pm 0.003$ c/s. It was found that in the Curie range 88-93 K, the
 neutron yield was above the background by a factor of 2-3, but not in other
 temp. ranges. Also, the emission statistics were distinctly different in the
 active range from that of the background. Tritium levels significantly
higher
 than in controls were found in the active samples, up to about $2\times
10^9$
 t atoms per g sample. This was not correlated with the neutron flux. The
 authors speculate that electrolytic deuteration is different from gas
 charging, and that this has to do with the results. They conclude that they
 have clear evidence for cold fusion. }
}
@article{Lips1995c,
 author    = {A.~G. Lipson and D.~M. Sakov and E.~I. Saunin},
 title     = {Interaction of weak neutron flux with triglycine sulphate
              (D0.6H0.4) at the paraelectric-ferroelectric phase transition},
 journal   = {Pis'ma Zh. Tekh. Fiz.},
 volume    = {21},
 number    = {24},
 year      = {1995},
 pages     = {25--31},
 note      = {In Russian},
 keywords  = {Experiment and theory, ferroelectric phase transition,
              fractofusion, neutrons, res+, no FPH/Jones refs.},
 submitted = {10/1995},
 published = {12/1995},
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 annote    = {Partly deuterated TGS, with a Curie temperature (Tc) of
 transition from para- to ferroelectric property at 330.6 K, was cycled
around
 this temperature while monitoring for neutrons with a block of counters and
 Cd shielding. 50 such temperature cycles showed that the neutron flux
 decreased by 5 sigma below the background, thus indicating neutron
absorption
 by the sample at the Tc. There has been previous Russian work on
 repolarisation in ferroelectric; here it is suggested that this process
 absorbs energy, which here comes from hot neutrons of the background, which
 are captured. }
}
@article{Lu1995,
 author    = {R. Lu},
 title     = {X-ray emission and cold nuclear fusion in glow discharge
process
              of a kind of gas},
 journal   = {Trends Nucl. Phys.},
 volume    = {12},
 number    = {1},
 year      = {1995},
 pages     = {44--46},
 keywords  = {Theoretical analysis, glow discharge, neutrons, x-ray, gamma,
              res+},
 submitted = {12/1993},
 published = {03/1995},
 annote    = {This looks like a theoretical analysis of earlier results. The
 charge-dipole model was introduced to solve the Schroedinger equation and
 this results in the prediction of x-ray emission from such experiments. Cold
 fusion took place, says the abstract. }
}
@article{Mand1995,
 author    = {C. Manduchi and S. Salviato and C. Ciricillo and E. Milli
              and G. Zannoni and G. Mengoli and M. Fabrizio},
 title     = {Electric-field effects on the neutron emission from
              Pd deuteride samples},
 journal   = {Nuovo Cimento A},
 volume    = {108},
 year      = {1995},
 pages     = {1187--1205},
 keywords  = {Experimental, Pd, gas phase loading, neutrons, deuteron drift,
              res+},
 submitted = {04/1995},
 published = {10/1995},
 annote    = {The paper starts by noting that if one separates claims of
 excess heat and those of nuclear emissions into two different causes,
 conflicts disappear.  In the present work, they examine the effect of
 electric current going through Pd sheets as they are loaded with deuterium
 from D2 gas, on the neutron emission. Alternatively, kV electrostatic fields
 were applied around the samples. Pd foils of up to 0.1 mm and various sizes
 were exposed to various D2 pressures while passing currents in the range
200-
 800 mA through them.  Loading was monitored by simultaneous measurement of
 the foil resistances; loadings up to about 0.7 were inferred (results appear
 somewhat rough, as resistance ratios of 2 were measured, whereas a maximum
of
 1.8 is known; abstractor's remark). Neutrons were detected using NE213
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 scintillator, previously described, as well as a time- of-flight one in
later
 runs. Neutron emission rates vs time, for the active runs, were
significantly
 higher, and more irregular, than the low and steady counts of the
background.
 This was both for currents and external fields.  The authors remark that
 loading levels were not important, but deuteron drift was.}
}
@article{Matsu1995,
 author    = {T. Matsumoto},
 title     = {Mechanisms of cold fusion: Comprehensive explanations
              by the Nattoh model},
 journal   = {Mem. Fac. Eng. Hokkaido Univ.},
 volume    = {19},
 number    = {2},
 year      = {1995},
 pages     = {201--224},
 keywords  = {Theory, review, Nattoh model; res+},
 submitted = {08/1995},
 annote    = {The author here sums up his large body of work on his "Nattoh"
 (soya bean) model of "cold fusion", which among other things involves the
new
 fundamental particle, the iton, as well as numerous anomalous phenomena such
 as micro- black holes, white holes, tiny neutron stars, meshes and much
 more.}
}
@article{Meng1995,
 author    = {G. Mengoli and M. Fabrizio and C. Manduchi and E. Milli
              and G. Zannoni},
 title     = {Absorption-desorption of deuterium at Pd95\%-Rh5\% alloy.
              II: Neutron emission},
 journal   = {J. Electroanal. Chem.},
 volume    = {395},
 year      = {1995},
 pages     = {249--260},
 keywords  = {Experimental, alloy, Pd, Rh, neutrons, res+},
 submitted = {04/1994},
 published = {10/1995},
 annote    = {Part I of this double paper was a peripheral, not dealing
 directly with cold fusion. Here, the team reports results of neutron
 measurements at the title alloy loaded either electrochemically or from D2
 gas. Neutrons were detected by a 100 cm$^3$ NE213 scintillation detector,
 with severe pulse-shape gamma discrimination, resulting in a neutron
 efficiency of $3.3\times 10^{-3}$. The alloy cathode sheet was inside two
 anode Pt sheets, ensuring fairly even loading.  0.1M (and in one run. 0.5 M)
 LiOD was the electrolyte. The alpha/beta phase transition was passed many
 times, and in many cases, neutrons were observed in excess by 1-2 sigma
above
 the background (sigma being the background fluctuation rms). With the gas
 phase runs, the most neutrons were observed at loadings below the beta
 phase. Neutron emissions were also correlated with temperature increase
 (sample heating). The paper discusses why neutrons were observed
reproducibly
 in this work and not in earlier work.}
}
@article{Mill1995,
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 author    = {R.~L. Mills and W.~R. Good},
 title     = {Fractional quantum energy levels of hydrogen},
 journal   = {Fusion Technol.},
 volume    = {28},
 year      = {1995},
 pages     = {1697--1719},
 keywords  = {Experiment, theory, hydrinos, x-rays, mass spec, res+},
 submitted = {05/1994},
 published = {11/1995},
 annote    = {Mills, the originator of the theory of sub-base electron shells
 in hydrogen, here again outlines his theory and provides more experimental
 evidence. Once again, a Ni/light water electrolysis cell is shown to produce
 excess heat with K2CO3 (17 times the input power) but not with Na2CO3. The
 large factor rules out recombination (which was in any case checked for) as
a
 cause of excess heat. Critics of the hydrino hypothesis have asked for
 spectroscopic and other direct evidence, and some is provided here. XPS
 spectra from Ni cathode surfaces showed some bumps that cannot easily be
 explained conventionally, and this bump is not seen at Ni mot electrolysed
 with K2CO3. It is ascribed to hydrinos with the electron at the N=1/2
 level. Old astronomical evidence is also brought in, in the form of soft
 x-rays, some of them matching predictions of sub-basement transition
 emissions. Lastly, predicted ionisation energies are compared with mass
 spectra at various energies and these were consistent with the dihydrino
 molecule, thus providing indirect evidence for its existence for the first
 time. The authors also reinterpret earlier MS results of others, and find it
 likely that dideutrino molecules have been observed, unbeknownst to these
 workers.}
}
@article{Noni1995a,
 author    = {V.~C. Noninski and J.~L. Ciottone and P.~J. White},
 title     = {Experiments on a possible gamma-ray emission caused by a
              chemical process},
 journal   = {J. Sci. Exploration},
 volume    = {9},
 year      = {1995},
 pages     = {201--206},
 keywords  = {Experimental, transmutation, gamma, no FPH/Jones refs, res-},
 annote    = {This team tries to do a serious verification of the
transmutation
 claims of Bockris et al, by monitoring for gamma emissions during the
burning
 of a mixture of KNO3, S, C, SiO2, FeSO4, Hg2Cl2, PbO, Ag and CaO. The
Bockris
 group has been reported by Bishop to have produced gold from this mix. The
 present team ground up the ash from the burned mixture and placed it under
 the active window of a Radalert Geiger counter. Later, a NaI(Tl)
 scintillation device was added. Nontrivial emissions would have been
 detected, but were not.}
}
@article{Noni1995b,
 author    = {V.~C. Noninski and J.~L. Ciottone and P.~J. White},
 title     = {Experiments on claimed beta-particle emission decay},
 journal   = {J. Sci. Exploration},
 volume    = {9},
 year      = {1995},
 pages     = {317--321},
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 keywords  = {Experimental, transmutation, beta, no FPH/Jones refs, res-},
 annote    = {Following the first paper of this team in the same journal
 9(1995)201, Lin et al published an argument that beta emissions can be
 measured, decaying after the burn, and this was tried here. A Ludlum 44-1
 beta survey detector was used, with NE102 as scintillator. The sample was
 prepared in the same way as Lin et al, and indeed, a beta signal decreasing
 with time after the burn was found.  However, when the ash was protected
from
 oxidation in air during detection, by placing it in a vacuum, the signal
 remained steady, so that its previous decrease can be attributed to dilution
 by oxidation, and no anomaly remains.}
}
@article{Sapo1995,
 author    = {L.~G. Sapogin and I.~V. Kulikov},
 title     = {Cold nuclear fusion in the unitary quantum theory},
 journal   = {Chinese J. Nucl. Phys.},
 volume    = {17},
 year      = {1995},
 pages     = {360--370},
 keywords  = {Theoretical, QM, res+},
 submitted = {03/1995},
 published = {04/1995},
 annote    = {The authors claim that their new theory, called unitary quantum
 theory or UQT, explains cold fusion, as the orthodox quantum theory cannot,
 because UQT includes the phase of the wave function, not just the energy.
 Apart from cold fusion, UQT can also account for other effects. "If a wave
 packet arrives at a potential barrier in a phase when its amplitude is small
 enough, it crosses the barrier easily". So this theory allows for cold
 fusion.}
}
@article{Shan1995,
 author    = {E.~S. Shanley},
 title     = {The simplest explanation...},
 journal   = {Chem. Health Saf.},
 volume    = {2},
 number    = {2},
 year      = {1995},
 pages     = {4},
 keywords  = {Polemic, SRI explosion},
 annote    = {Shanley criticises one of the conclusions reached by the
forensic
 team led by P. Grant (see Grant et al, several papers), i.e. that traces of
 oil on the cold fusion cell walls trigered the explosion in the SRI lab in
 Jan. 1992, where one person was killed and another injured. Shanley comments
 that chemicals need to mix before they react and that the oil traces could
 not have reached the Pd catalyst in the head space. He suggests that a
 balance of the resulting gases after the explosion should have revealed the
 participation of such oil, by some remaining unused deuterium. Finally, he
 remarks that the simplest explanation is that the catalayst did not
function,
 leading to a build-up of oxygen and deuterium, and that a hot spot on the
 catalyst then set off the explosion. See the response by Grant, same
journal.}
}
@article{Shke1995,
 author    = {Z. Shkedi and R.~C. McDonald and J.~J. Breen and S.~J. Maguire
              and J. Veranth},
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 title      = {Calorimetry, excess heat, and Faraday efficiency in Ni-H2O
               electrolytic cells},
 journal    = {Fusion Technol.},
 volume     = {28},
 year       = {1995},
 pages      = {1720--1731},
 keywords   = {Experimental, Ni, light water, recombination, res-},
 submitted  = {05/1994},
 published  = {11/1995},
 annote     = {This team challenges claims of excess heat from Ni cathodes in
 light water containing K2CO3. They argue that a small degree in current
 efficiency, i.e.  some recombination of evolved hydrogen and oxygen, can
 fully account for some of these claims. This is demonstrateed with a very
 careful experiment in which recombination is measured. Integrated power
 errors of < 0.03\% were achieved, and ca. 20-25\% apparent excess heat could
 be accounted for by about 20\% recombination or 80\% current efficiency,
 which was in fact measured independently.  The authors suggest that Faradaic
 efficiency should always be checked when doing CNF calorimetry.}
}
@article{Shma1995,
 author     = {{Yu}. F. Shmal'ko and M. V. Lototsky and {Ye}. V. Klochko
               and V. V. Solovey},
 title      = {The formation of excited H species using metal hydrides},
 journal    = {J. Alloys Compds},
 volume     = {231},
 year       = {1995},
 pages      = {856--859},
 keywords   = {Theory, metal hydrides, res0, no FPH/Jones refs.},
 annote     = {This is a short description of and evidence for the formation
 of energetic ionised and monatomic species of hydrogen as it is released
from
 a metal.  Within the metal it can freely exchange between positive, neutral
 and even negatively charged hydrogen, but is released with energies up to
 about 20 eV.  There is a short discussion of the relevance of this to "cold
 fusion"; if this is real, then other hydrogen-absorbing metals should be
 looked at. The authors do not mention that their work also implies that
 sorption/desorption conditions should also be favourable to "cold fusion".}
}
@article{Stel1995,
 author     = {B. Stella and F. Celani and M. Corradi and F. Ferrarotto
               and N. Iucci and V. Milone and A. Spallone and G. Villoresi},
 title      = {A high efficiency, low background neutron and gamma detector
               for cold fusion experiments},
 journal    = {Nucl. Instrum. Methods Phys. Res. A},
 year       = {1995},
 volume     = {355},
 pages      = {609--617},
 keywords   = {Experimental, neutron detector design, res0},
 submitted  = {12/1993},
 published  = {02/1995},
 annote     = {Description of the design of a high-efficiency neutron
detector,
 "FERMI". It is built up on 7 BF3 plus 2 3He detectors, and a complex system
 of electronic logic around them. Efficiency is between 40 and 80\% in the
 range 0.1 - 20 MeV, and when tested in the Gran Sasso tunnel, 1200 m
 underground, the background was measured at 0.09 c/s. Gamma rays are also
 detected, by a large single NaI crystal. Neutron multiple events ("bursts")
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 can be handled.}
}
@article{Stor1995,
 author    = {E. Storms},
 title     = {Cold fusion, a challenge to modern science},
 journal   = {J. Sci. Exploration},
 volume    = {9},
 year      = {1995},
 pages     = {585--594},
 keywords  = {Discussion, summing up CNF results.},
 annote    = {This "Guest column" paper is a sort of short review, from the
 point of view of an enthusiast of cold fusion. Storms himself has produced
 several kinds of results that might be thought to verify the phenomenon. In
a
 slightly philosophic vein, he here sums up the successes in the field, and
 argues away any counterarguments.}
}
@article{Takah1995,
 author    = {A. Takahashi and T. Iida and H. Miyamaru and M. Fukuhara},
 title     = {Multibody fusion model to explain experimental results},
 journal   = {Fusion Technol.},
 volume    = {27},
 year      = {1995},
 pages     = {71--85},
 keywords  = {Theory, multibody, res+},
 submitted = {09/1993},
 published = {01/1995},
 annote    = {The authors address the main problems posed by experimental
 evidence of CNF: weak neutron emission; some proton emission; some tritium
 but not sufficient to match excess heat; high levels of 4He, in line with
 excess heat; high levels of excess heat. These are linked, and may be
 explained by clusters of 2, 3 or 4 deuterons, fusing as such and leading to
 excited 4He, 5Li, 6Li, 7Be, etc.  Such clusters would have enhanced fusion
 cross sections. The paper then discusses expected decay channels at length.
 Finally, some experimental support is mentioned. The clusters are thought to
 form by transients acting on deuterons getting close to each other at tetra-
 and octahedral sites in highly loaded PdDx.}
}
@article{Thac1995,
 author    = {B. Thacker and J.~E. Stratman},
 title     = {Transmuting common substances. The cold fusion controversy
              and the rhetoric of science},
 journal   = {J. Business Tech. Commun.},
 volume    = {9},
 year      = {1995},
 pages     = {389--424},
 keywords  = {Sci-soc comment},
 annote    = {The authors, using science-sociolology specialist language,
 show by using three important cnf papers as examples, how the three kinds of
 rhetoric are employed in this field. These are: forensic (establishment of
 'facticity', definition), deliberative (implications) and epideictic (laying
 blame, giving praise) (all definitions due to Aristotle). The papers of
 F\&P-89, Lewis et al 89 and Williams et al 89 are all examined for these,
and
 they are found.}
}
@article{Tima1995,
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 author    = {S.~F. Timashev},
 title     = {Nuclear-chemical transformations in the condensed phase},
 journal   = {Zh. Fiz. Khim.},
 volume    = {69},
 year      = {1995},
 pages     = {1396--1400},
 note      = {In Russian},
 keywords  = {Theory, electron capture, dineutrons, res+},
 annote    = {The author here describes, rather than derives, his theory of
 cold fusion.  Two mechanisms are suggested: the formation of virtual
 dineutrons by electron capture by deuterons, and three-particle processes
 like d + p + e -> t + nu (nu being an energy quantum) or d + d + e -> t + n
+
 nu, apparently suggested in 1969 by Bahcall as p + p + e -> d + nu. Other
 support comes from high energy electrons emitted by the rupture of adhesive
 contacts, discovered by Deryagin and Krotov, and cluster impact fusion (CIF,
 in fact now disproved).}
}
@article{Tsuc1995,
 author    = {K.~I. Tsuchiya and K. Ohashi and M. Fukuchi},
 title     = {A possible mechanism for nuclear reactions in solids},
 journal   = {Fusion Technol.},
 volume    = {27},
 year      = {1995},
 pages     = {452--457},
 keywords  = {Theoretical, Boson clusters, res+},
 submitted = {05/1993},
 published = {07/1995},
 annote    = {The authors improve on the model of Bush and Eagleton,
 proposing Boson clusters as the mechanism for CNF. Electronic screening may
 reduce the mutual deuteron repulsion, which would otherwise prevent
 clustering.  The model tries direct Coulomb screening, Thomas-Fermi
 screening, and other theory, and concludes that F\&P-level CNF is feasible,
 i.e. about 10 W/cm$^3$.}
}
@article{Uchr1995,
 author    = {J. Uchrin and R. Uchrin and K. {Gerasimsov [sic]}
              and O. Lomovski},
 title     = {Reactions of titanium and niobium deuterides under intensive
              mechanical treatment},
 journal   = {Mater. Sci. Forum},
 volume    = {179-181},
 year      = {1995},
 pages     = {389--390},
 keywords  = {Experimental, fractofusion, ball mill, Ti, Nb, mass spec,
              res0, no FPH/Jones refs.},
 annote    = {This is one of a number of papers on the mechanical treatment
 in a ball mill of bits of TiDx and (in this case) NbDx, deuterated in the
 gas. Mass spectrometry was applied to the gas phase during treatment.
Species
 of mass 1, 2, 3 and 4 were found, as expected, as well as 5 and 6. Mass 5
 increased by 30\% the initial level and is attributed to HT+ [sic], while
 mass 6 is not identified but is said to be 15\% less than mass 5. These
might
 be the result of cold fusion, the authors write.}
}
@article{Wang1995,
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 author    = {D. Wang and S. Chen and Y. Li and M. Wang and Y. Fu},
 title     = {Research and progress of nuclear fusion phenomenon
              at normal temperature},
 journal   = {Trends Nucl. Phys.},
 volume    = {12},
 number    = {4},
 year      = {1995},
 pages     = {31--32},
 keywords  = {Analysis, neutrons, x-rays, res+},
 published = {12/1995},
 annote    = {This looks like a roundup of the work of others. The abstract
 mentions work with deuterium (electrolysis and gas phase) and claims that
 neutrons and x-rays at 27 keV have been found, with 100\% reproducibility.}
}
@article{Zhan1995a,
 author    = {Q. Zhang and Q. Gou and Z. Zhu and J. Luo and F. Liu
              and J. Sun and B. Miao and A. Ye and X. Cheng},
 title     = {The excess heat experiments on cold fusion in titanium
lattice},
 journal   = {Chin. J. Atom. Mol. Phys.},
 volume    = {12},
 number    = {2},
 year      = {1995},
 pages     = {165--169},
 keywords  = {Experimental, electrolysis, Ti rod, heavy water, excess heat,
              res+},
 annote    = {Electrolysis experiment, using 0.1 M NaOD (or NaOH) in heavy
 and light water, and a Ti rod, 2 mm diameter (length not stated but
 apparently several cm) as cathode. Two thermocouples monitored the Ti rod's
 temp., two more that in the electrolyte. 250 mA/cm$^2$ was run through the
 cell, and the electrolyte was topped up with 1 ml D2O every 2 h. After 10
 days in a mix of 10\% H2O, 90\% D2O, the temperatures were steady. After
 cutting up the Ti rod, it was found to have absorbed much more hydrogen than
 deuterium. The same experiment in pure D2O showed a remarkable temperature
 rise of the Ti rod, a larger rod (12 mm diameter, described earlier by Gou,
 Zhu \& Zhang 1990) much more (24 C) than the 2 mm rod (1.5 C). Surface sweep
 electron microscopy of the Ti afterward showed that the Ti had become
 brittle. Also, surface hardness increased after the excess heat events, due
 to temp. increase. From x-ray diffraction, the authors are sure that the Ti
 surface structure changed due to excess heat, but more work is really
 needed.}
}
@article{Zhan1995b,
 author    = {Z. Zhang and X. Sun and W. Zhou and L. Zhang and B. Li
              and M. Wang and B. Yan and F. Tan},
 title     = {Precision calorimetric studies of H2O electrolysis},
 journal   = {J. Thermal Anal.},
 volume    = {45},
 year      = {1995},
 pages     = {99--108},
 keywords  = {Experimental, calorimetry, Pd, light water, res0.},
 annote    = {The authors ask the questions: does excess heat exist, or is it
 perhaps a fabrication? They report a calorimetry experiment, using a Pd
 cathode in NaOH in light water, using a Calvet type calorimeter, with both
 open and closed cells. Current densities (cd) up to about 40 mA/cm$^2$ were
 used. For the closed system, ratio of output to input power was close to
 unity (about 5\% error), while the open system showed ratios > 1
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consistently, greater at smaller cd. However, using heavy water, the ratio increased (up to 12.4) with cd. The authors conclude that excess heat is a nonlinear function of cd.}
}

## YEAR: 1996

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% Year 1996; there are  67 entries.
@article{Algu1996,
 author    = {M. Alguero and J.~F. Fernandez and F. Cuevas and C. Sanchez},
 title     = {An interpretation of some postelectrolysis nuclear effects in
              deuterated titanium},
 journal   = {Fusion Technol.},
 volume    = {29},
 year      = {1996},
 pages     = {390--397},
 keywords  = {Experimental and theory, electrolysis, neutrons, Ti, res+},
 submitted = {10/1994},
 published = {05/1996},
 annote    = {The team focusses on the observation that neutron emission
 sometimes persists after electrolysis is stopped. First, an experiment is
 done, using a 15*15*1 mm$^3$ Ti plate as cathode in LiSO4/D2O, applying 4-10
V
 to the cell. Neutron emissions clearly greater than for the background were
 detected and found to persist up to 40-50 min after electrolysis. Diffusion
 dynamics and phase changes within the metal/deuterium system are then
invoked
 to explain these results, in terms of the "active volume" model. The results
 show that not only high loading is required for "cold fusion" to take place,
 it must also be triggered somehow. This trigger was not identified.}
}
@article{Arat1996a,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Generation and mechanism of solid-state plasma fusion
              ("cold fusion")},
 journal   = {Koon Gakkaishi},
 volume    = {22},
 number    = {1},
 year      = {1996},
 pages     = {29--47},
 keywords  = {Discussion, theory, res+},
 submitted = {12/1995},
 annote    = {Arata and Zhang, who have extensively published their
 experimental work, here outline some ideas on how cold fusion might work,
 their "strongly coupled plasma" theory. It suggests that large amounts of
 helium should accumulate in the host lattice; and helium has in fact been
 detected by these authors.}
}
@article{Arat1996b,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Deuterium nuclear reaction process within solid},
 journal   = {Proc. Japan Acad. Ser. B},
 volume    = {72},
 year      = {1996},
 pages     = {179--184},
 keywords  = {Theory and experimental, helium, mass spec, res+},
 submitted = {11/1996},
 annote    = {The authors continue to develop their "latticequake" theory of
 cold fusion, that is, violent events in the "solid plasma" formed by Pd
 loaded with deuterium. Not much detail is given as this paper is a
 restatement of work reported earlier. A quadrupole mass spectrometer was
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 cycled around the mass of 4He as the loading experiment advanced, and 4He
was
 seen to develop, clearly separated from that of deuterium.}
}
@article{Bert1996a,
 author    = {A. Bertin and M. Bruschi and V.~M. Bystritsky
              and V.~M. Bystritsky and M. Capponi and S. {De Castro}
              and B. Cereda and V.~D. Dugar-Zhabon and A. Ferreti and D.
Galli
              and B. Giacobbe and V.~I. Kirpal and A.~I. Knyazev
              and I.~M. Kravchenko and U. Marconi and I. Massa
              and S.~I. Merzlyakov and C. Moroni and M. Piccinini and M. Poly
              and L.~A. Rivkis and N.~V. Samsonenko and N. Semprini-Cesari
              and V.~N. Shvetsov and V.~T. Sidorov and V.~N. Smirnov
              and S.~I. Sorokin and R. Spighi and E.~P. Starshin
              and V.~A. Stolupin and A.~V. Strelkov and S. Vecchi
              and A. Vezzani and M. Villa and A. Vitale and J. Wozniak
              and G. Zavattini and N.~I. Zhuravlev and A. Zoccoli},
 title     = {Negative result of an experiment aimed at verifying the
              hypothesis that cold and hot nuclear fusion occurs in Ti/(D-T)
              and ZrNbV/(D-T) systems},
 journal   = {Phys. Atomic Nucl.},
 volume    = {59},
 year      = {1996},
 pages     = {744--751},
 keywords  = {Experimental, neutrons, Ti, alloy, tritium, res-},
 submitted = {01/1995},
 published = {05/1996},
 annote    = {A team from four countries (Italy, Poland, Russia, USA) and six
 institutions, carried out (at Dubna) a very careful neutron emission study
of
 two systems that others had claimed to have seen neutrons from. These are
the
 Ti/hydrogen isotope system with temperature cycling ("Italian mode") and the
 title alloy, also with the gas. In order to improve neutron detection they
 used a mixture of protium, deuterium and tritium gas. The d-t fusion
reaction
 has 1-2 orders of magnitude greater fusion cross section and the resulting
 neutrons have a higher energy (17.6 MeV), making measurements more
 precise. Three detectors were used in parallel, one of them a scintillation
 type and the others BF3.  Up-to-date electronics assured background
rejection
 etc. Spongy Ti was degassed and then left to absorb the hydrogen mixture
over
 a period of about 22 hours. Thermal cycling was between 78K and 280K and 5
 cycles were run over the whole period. The same was done with the
 intermetallic compound ZrNbV.  The results show families of neutron
detection
 data points, clearly staying within the bounds of the background
 measurements. The authors thus calculate the upper fusion rate limits of
 (e.g., one of the Ti samples) 5*$10^{-4}$ /s/g Ti or roughly $10^{-27}$
/s/d-t
 pair (at 1:1 loading), and a similar limit for the alloy, thus pushing back
 the upper limit considerably. The authors conclude that this result "casts
 some doubt on the possibility of observing low temperature fusion (the
Russian
 term for CNF) in metal-deuterium systems" as well as on fractofusion ("hot"
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 solid state fusion due to accelerated particles).}
}
@article{Bert1996b,
 author    = {A. Bertin and M. Bruschi and V.~M. Bystritsky and
              V.~M. Bystritsky and M. Capponi and S. {De Castro} and B.
Cereda
              and V.~D. Dugar-Zhabon and A. Ferreti and D. Galli
              and B. Giacobbe and V.~I. Kirpal and A.~I. Knyazev
              and I.~M. Kravchenko and U. Marconi and I. Massa
              and S.~I. Merzlyakov and C. Moroni and M. Piccinini and M. Poly
              and L.~A. Rivkis and N.~V. Samsonenko and N. Semprini-Cesari
              and V.~N. Shvetsov and V.~T. Sidorov and V.~N. Smirnov
              and S.~I. Sorokin and R. Spighi and E.~P. Starshin
              and V.~A. Stolupin and A.~V. Strelkov and S. Vecchi
              and A. Vezzani and M. Villa and A. Vitale and J. Wozniak
              and G. Zavattini and N.~I. Zhuravlev and A. Zoccoli},
 title     = {Negative result of an experiment aimed at verifying a report on
              cold nuclear fusion in systems of the Na$_x$WO$_3$/D;D-T)
type},
 journal   = {Phys. Atomic Nucl.},
 volume    = {59},
 year      = {1996},
 pages     = {752--756},
 keywords  = {Experimental, neutrons, Ti, alloy, tritium, res-},
 submitted = {01/1995},
 published = {05/1996},
 annote    = {Further study as in Bert1989, this time with sodium tungstate
 (tungsten bronze). Experimental conditions were similar to those in the
 earlier paper.  No neutrons above the background were observed, and the
 hypothesis that dt fusion can occur in this system is not confirmed.}
}
@article{Bert1996c,
 author    = {A. Bertin and M. Bruschi and V.~M. Bystritsky and M. Capponi
              and S. {De Castro} and B. Cereda and A. Ferretti
              and T. Florkowski and D. Galli and B. Giacobbe
              and V.~V. Gushchin and U. Marconi and I. Massa and C. Moroni
              and M. Piccinini and M. Poly and L.~A. Rivkis and V.~I.
Sakharov
              and N. Semprini-Cesari and R. Spighi and V.~A. Stolupin
              and V.~N. Tebus and S. Vecchi and A. Vezzani and M. Villa
              and A. Vitale and J. Wozniak and G. Zavattini and A. Zoccoli},
 title     = {Absence of tritium yield in metal-deuterium systems},
 journal   = {Phys. At. Nucl.},
 note      = {Originally in Yad. Fiz. 59 (1996) 976, in Russian},
 volume    = {59},
 year      = {1996},
 pages     = {934--937},
 keywords  = {Experimental, Ti, deuterium, gas phase temp. cycling, tritium,
              no FPH/Jones ref., res-},
 submitted = {01/1996},
 published = {06/1996},
 annote    = {This joint Italian/Russian/Polish team continues to refine its
 search for nuclear effects in the Italian-style cold fusion experiments,
 loading deuterium as the gas, into Ti chips and cycling the temperature
 between liquid nitrogen and room temperatures. After a number of these
 cycles, the gas was driven off again by raising the temperature and the
 presence of tritium was checked for. For Ti, and some alloys such as Zr/Nb,
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 La/Ni/Al etc, no tritium was found.}
}
@article{Bock1996,
 author    = {{J. O'M}. Bockris and G.~H. Lin and R.~T. Bush},
 title     = {Do nuclear reactions take place under chemical stimulation?},
 journal   = {J. Sci. Expl.},
 volume    = {10},
 year      = {1996},
 pages     = {245--248},
 keywords  = {Polemic, cold fusion, transmutation},
 published = {06/1996},
 annote    = {Gathering under one blanket such diverse alleged phenomena as
 cold fusion, biofusion (Kervran, Komaki, Alper), chemical transmutation and
 ampere force fusion (Graneaus), this polemic argues for all of these,
 suggesting that there is sufficient evidence, in the form of 0.1-1%
 commensurate tritium, 50\% He, etc. Some theoretical rationale is given,
 citing Bohm, Hegelstein \[sic\] and others.}
}
@article{Bushu1996,
 author    = {V.~S. Bushuev and V.~B. Genodman and L.~N. Jerikhina
              and S.~P. Kuznetsov and Yu.~A. Lapushkin and I.~P. Matviyenko
              and A.~I. Nikitenko and A.~D. Perekrestenko
              and N.~P. Saposchnikov and S.~M. Tolokonnikov
              and A.~M. Tzkhovrebov},
 title     = {Experiments on detection of nuclear radiation at heavy water
              electrolysis},
 journal   = {J. Optics Res.},
 volume    = {4},
 year      = {1996},
 pages     = {171--179},
 keywords  = {Experimental, electrolysis, neutrons, gamma, res+},
 annote    = {This Russian team (with some questionable name transliteration)
 had a go at detecting neutrons and gammas simultaneously during electrolysis
 of a smallish Pd foil (2.5 cm$^2$, a larger foil (30 cm$^2$) and a 10 mm
 dia. rod, 90 mm long, at Ampere currents. Gamma radiation was measured by a
 scintillator and neutrons by six 3He tubes. Background measurements were
 taken before and after and are graphically shown. For the small foil and the
 rod, the whole series was just like the background, while the large foil
 showed some incidents of neutron emission, but not accompanied by gamma
 events. These results wwere actually obtained in 1989 but not published
 because they could not be repeated. They were published now, inspired by the
 similar work of Celani et al (also 1989, a Rept.).}
}
@article{Cela1996a,
 author    = {F. Celani and A. Spallone and P. Tripodi and A. Petrocchi
              and D. {Di Gioacchino} and A. Boutet and P. Marini
              and V. {Di Stefano} and M. Diociaiuti and W. Collis},
 title     = {Reproducible D/Pd ratio > 1 and excess heat correlation
              by 1-microsec-pulse, high-current electrolysis},
 journal   = {Fusion Technol.},
 volume    = {29},
 year      = {1996},
 pages     = {398--404},
 keywords  = {Experimental, pulse electrolysis, high loading, excess heat,
              res+},
 submitted = {09/1994},
 published = {05/1996},
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 annote    = {A flow calorimeter was used, and the cathode was a number of
 25*25*1 mm$^3$ Pd sheets, with surrounding Pt anode, in 0.3 M LiOD. Loading
 was driven by high- level (100 A peak), short-time (< 300 ns) current pulses
 corresponding to a mean current of 64 mA. Loading was measured by the
deficit
 in the gases released and checked by weighing the cathodes afterwards,
 heating to drive out the deuterium and reweighing; the two measures
 agreed. Checks with nonabsorbing Au cathodes showed an error of only 0.01 in
 loading. Loading time was about 3 days and loadings well above 1 - up to 1.2
 - were achieved. Excess heat, calculated after correction for the heat of
 water electrolysis, was up to nearly 100\%, but not reproducible, possibly
 due to surface effects. The absorption rate seemed to be an indicator of
 success.}
}
@article{Cela1996b,
 author    = {F. Celani and A. Spallone and P. Tripodi and A. Petrocchi
              and D. {Di Gioacchino} and P. Marini and V. {Di Stefano}
              and S. Pace and A. Mancini},
 title     = {Deuterium overloading of palladium wires by means of high
              power microsecond pulsed electrolysis and electromigration:
              suggestions of a "phase transition" and related excess heat},
 journal   = {Phys. Lett. A},
 volume    = {214},
 year      = {1996},
 pages     = {1--13},
 keywords  = {Experimental, pulsed electrolysis, loading, excess heat,
              correlations, Coehn effect, res+},
 submitted = {07/1995},
 published = {05/1996},
 annote    = {To achieve high D/Pd loadings, electrolysis is better than
 pressured gas; but a limit is soon hit. The authors suggest some tricks to
 achieve very high loadings. These are based in part on electrical migration
 (the Coehn effect).  The electrolytic current is applied through a diode, in
 pulses. No discharge current can flow, due to the diode's blocking it,
during
 no-current periods.  So short-period pulses, coupled with large current
 pulses through the Pd wire to help migration along, resulted in very high
 loadings, up to 0.95, checked by the wire resistance. At the same time, some
 60\% or so excess heat was observed. Some suggestions are listed for
 optimising the conditions in future work. Finally, there is a remark that
 possibly, some of the resistance measurements (R/R0<1) indicated a brief
 superconducting state.}
}
@article{Cerr1996,
 author    = {E. Cerron-Zeballos and I. Crotty and D. Hatzifotiadou
              and J. {Lamas Valverde} and M.~C.~S. Williams and A. Zibichi},
 title     = {Investigation of anomalous heat production in Ni-H systems},
 journal   = {Nuovo Cimento A},
 volume    = {109},
 year      = {1996},
 pages     = {1645--1654},
 keywords  = {Experimental, Ni, gas phase, hydrogen, calorimetry, res-},
 submitted = {07/1996},
 published = {12/1996},
 annote    = {This team tried to reproduce the results of Focardi et al
(1994),
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 who reported excess heat from a Ni/hydrogen experiment. Focardi et al
thought
 that they had observed a pd fusion reaction (considered by Schwinger as the
 most likely).  A Ni rod, 6mm dia., 90 mm long, was surrounded by a Pt heater
 coil in a gas chamber, with thermocouples strategically placed. In a given
 run, 360 Torr of hydrogen was let into the cell, and the heater power ramped
 up and then down.  Input power, pressure and temperature were recorded. A
 pressure decrease was taken to indicate loading of hydrogen into the Ni.
Some
 cells could not be loaded, some could. Experiments were continued for over a
 year, with many cycles. In some runs where hydrogen was absorbed, there were
 heat events, but the authors put these down to changed thermal properties of
 hydrided Ni with respect to the Ni itself, rather than to an anomaly, as did
 Focardi et al. So no excess heat was deemed to have been found here.}
}
@article{Chen1996,
 author    = {S.~K. Chen and C.~M. Wan and .  and S.~B. Chu},
 title     = {The microstructure of electrocatalytically deuterium-loaded
             palladium rods},
 journal   = {Fusion Technol.},
 volume    = {29},
 year      = {1996},
 pages     = {302--305},
 keywords  = {Experimental, fundamental, crystal structure, TEM, SEM, res0},
 submitted = {05/1994},
 published = {03/1996},
 annote    = {This paper aims to provide some fundamental data on the
 structure change in palladium as a result of loading with deuterium, in the
 cold fusion context. The Pd specimens were loaded in a molten salt (LiD), as
 used by Liaw et al (not mentioned), and subsequently the Pd surface was
 examined by scanning electron microscopy (SEM) and transmission ditto. Small
 crystal grains were seen, and energy dispersive x-ray measurements showed
 that some of these contained pure Pd. Many of these grains were subgrains
 formed within larger grains. Only the larger grains were seen in unloaded Pd
 etched with nitric acid. A SEM picture of an equally etched section cut from
 a loaded Pd sample showed the same substructures as the surface. Similar
 results were obtained in samples electrolysed in heavy water. The authors
 conclude that for loading both in heavy water and salt melt, the
 microstructures appear. Cold fusion effects are suggested here to take place
 in the grain boundary sub- structure regions, rather than in uniformly
 structured crystals.}
}
@article{Choi1996,
 author    = {E. Choi and H. Ejiri and H. Ohsumi and T. Kishimoto},
 title     = {Search for time-correlated fast neutrons from DD fusion
             at room temperature},
 journal   = {Jpn. J. Appl. Phys.},
 volume    = {35},
 year      = {1996},
 pages     = {2793--2796},
 keywords  = {Experimental, neutrons, Pd electrolysis, res-},
 submitted = {12/1995},
 published = {05/1996},
 annote    = {The same team has published a description of a very sensitive
 neutron detector suitable for CNF work, and here reports its use. An
 electrolytic cell, Pd in D2O was surrounded by Fe baffles to scatter the
 neutrons, with Ge detectors outside these. Results showed that the time
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 distribution of the (few) neutrons emitted was not different from the
 background; no bursts were seen; and the upper limit for dd fusion
 (calculated from the background) was 2.8 * 10$^{-24}$ fusions/d-d pair/s, an
 order of magnitude smaller that that found by DeNinno et al. This can be
 counted as a quality negative.}
}
@article{Elli1996,
 author    = {C.~H. Ellison and J.~A. Mahaffey},
 title     = {An investigation of reports of fusion reactions occurring
              at the cathode in glow discharges},
 journal   = {Fusion Technol.},
 volume    = {29},
 year      = {1996},
 pages     = {178--187},
 keywords  = {Experimental, glow discharge, neutrons, polemic, res-},
 submitted = {05/1994},
 published = {01/1996},
 annote    = {There has been some Russian work in which neutron emission is
 claimed for glow discharge at Pd in a D2 atmosphere (the Kucherov group). At
 the low voltages used, fusion would be anomalous. The present team tries to
 confirm these results by experiment.  Only neutrons were looked for. The
 apparatus was similar to the Russian but adding temperature control.  Some
 problems with the Russian work are mentioned. Thus, the currents claimed
(500
 mA or 40-50 mA/cm$^2$) cannot be attained at the claimed pressure of 500 Pa,
 and a spark does not always travel by the shortest route. In the present
 work, 25 mA was used to load the Pd by deuteron ion implantation. The
neutron
 detector used was a BF3 counter in a paraffin moderator. This would produce
 1527 counts/min if the Kucherov group's results were confirmed. This was not
 observed.  There is some discussion of possible explanations of some of the
 Russian results. The supposed degradation of the Pd is likely to have been
 temperature rise and unloading. Some theories are discussed critically, such
 as resonance, and dineutrons. Experimental results do not support these.}
}
@article{Ferr1996,
 author    = {C. Ferrari and F. Papucci and G. Salvetti and E. Tognoni
              and E. Tombari},
 title     = {A calorimeter for the electrolytic cell and other open
systems},
 journal   = {Il Nuovo Cimento D},
 volume    = {18},
 year      = {1996},
 pages     = {1333--1346},
 keywords  = {Experimental, calorimeter design.},
 submitted = {11/1996},
 published = {11/1996},
 annote    = {The team recognises that a good calorimeter is required to
 measure any possible excesss heat in cold fusion, and they present a design
 for a differential type that produces a readout directly in watts, without
 calibration. Two electrolytic cells are placed in series, the same current
 going through both and thus the amount of gas produced and evaporation rates
 being identical, as are the changes in electrolyte level etc. Extensive
 testing assures the team that their design performed well and they suggest
 its use not only in cold fusion, but in other areas as well.}
}
@article{Fimi1996,
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 author    = {N.~N. Fimin},
 title     = {Quantum-interference effects and the mechanism of
              cold nuclear fusion},
 journal   = {Pis'ma Zh. Teo. Fiz.},
 volume    = {22},
 number    = {5},
 year      = {1996},
 pages     = {17--19},
 note      = {In Russian},
 keywords  = {Theoretical, QM, Bose condensate, fractofusion, res+},
 submitted = {01/1996},
 published = {03/1996},
 annote    = {Using quantum mechanics, Wigner function and Liouville's
 equation, the author concludes that fractofusion (in effect) might be
 real. He suggests that there exists a critical charging beam energy or
 electrolysis voltage, at which the effect turns on, and that Bose
condensates
 of deuterons might be involved and also acoustic effects are expected
 resulting from shock wave fronts. So the Russian fractofusion model is
 upheld.}
}
@article{Fris1996,
 author    = {F. Frisone},
 title     = {Study of the probability of interaction between the plasmons
              of metal and deuterons},
 journal   = {Nuovo Cimento D},
 volume    = {18},
 year      = {1996},
 pages     = {1279--1285},
 keywords  = {Theory, res0, no FPH/Jones refs},
 submitted = {02/1996},
 published = {11/1996},
 annote    = {This evidently hastily written paper tries to build on from
 previous papers of Baldo et al (1990) and Rabinowitz (1990). It presents the
 results of some computations of a 1-D model of a metal lattice with
deuterium
 as well as other (metallic) impurities, using the WKB approximation. The
 result is that the fusion probability increases by several tens of orders of
 magnitude, or the Coulomb barrier becomes much narrower, for an impure metal
 of the type Pt, Pd or Ti, compared with the purer metal. This is not however
 spelled out in terms of actual probable dd fusion rates, so the bottom line
 is not clear.}
}
@article{Good1996,
 author    = {W. R. {Good II}},
 title     = {Comments on 'Calorimetry, excess heat, and Faraday efficiency
              in Ni-H2O electrolytic cells'},
 journal   = {Fusion Technol.},
 volume    = {30},
 year      = {1996},
 pages     = {132--133},
 keywords  = {Polemic},
 submitted = {11/1995},
 published = {09/1996},
 annote    = {W.R. Good, of the Hydrocatalysis Power Corp., polemicises
against
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 the paper from the Bose lab, by Shkedi et al. Good reckons that the Bose
team
 did not follow recommended procedure and for this reason failed to detect
 hydrinos as proposed by Mills.}
}
@article{Hora1996,
 author    = {H. Hora and J.~A. Patterson},
 title     = {The d and p reactions in low-energy nuclear fusion,
              transmutation, and fission},
 journal   = {Trans. Am. Nucl. Soc.},
 volume    = {76},
 year      = {1996},
 pages     = {144--145},
 keywords  = {Discussion, res+},
 annote    = {Discursive argument for a possible mechanism of cold fusion in
 solid metals, based on screening of the swimming electron layer (SEL) at the
 metal surface or at interfaces between different metals or metal and glass,
 etc. Such screening could provide the short dd distances required for
 appreciable fusion to take place.}
}
@article{Isag1996,
 author    = {S. Isagawa},
 title     = {Mass spectroscopic means for determining 4He in the presence
              of large amounts of D2},
 journal   = {Vacuum},
 volume    = {47},
 year      = {1996},
 pages     = {497--499},
 keywords  = {Experimental, 4He, mass spec, electrolysis, res-},
 annote    = {One of the current theories of CNF predicts the generation of
 4He from an electrolysis cell in heavy water and a Pd cathode. Previous
 attempts to detect the gas have been criticised for lack of demonstration
 that contamination from the air was ruled out; and the detection of 4He
 itself is difficult in the presence of a large excess of deuterium gas, with
 a mass very close to that of 4He. Isagawa built an apparatus that rigorously
 exluded contamination, and the MS was of sufficient resolution to clearly
 resolve the two gases and enhance the 4He signal; the detection limit was 17
 ppb, 3 orders of magnitude below the air content. This was then used to
 detect possible 4He from a long electrolysis. So far, after 3 weeks, none
was
 found.}
}
@article{Jorn1996,
 author    = {J. Jorne},
 title     = {Ultrasonic irradiation of deuterium-loaded palladium particles
              suspended in heavy water},
 journal   = {Fusion Technol.},
 volume    = {29},
 year      = {1996},
 pages     = {83--89},
 keywords  = {Experimental, ultrasonics, Pd suspension, neutrons, res+},
 submitted = {01/1994},
 published = {01/1996},
 annote    = {Ultrasonic irradiation is known to cause intense local energy
 spots and high temperatures, and is tried here with the hope of initiating
 fusion in small Pd particles, previously loaded with deuterium, suspended in
 a slurry. Loading was done by prior electrolysis in 0.1 M LiOD and from D2
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 gas. The Pd particles had a mean diameter of about 1 micrometre.  Loading
 levels achieved were not measured. Sonification was done using 50W/cm$^2$. A
 20-tube 3He counter monitored for neutrons in 4 independent channels. The
 background was found to be stable at about $7 \pm 0.5$ c/min. It was found
 that gas loading was preferable. A figure shows a marked neutron spike about
 10 min after sonification was turned on followed by another 40 min or so
 later. No such spikes were seen in the background. There follows some
 statistical argument, strengthening the fusion hypothesis. Post-mortem
 examination of the Pd particles showed that the particles were partially
 oxidised and some particles appeared to fuse with each other.  It is
 concluded that the ultrasonic action induced d-d fusion in the particles.}
}
@article{Kama1996,
 author    = {K. Kamada and H. Kinoshita and H. Takahashi},
 title     = {Anomalous heat evolution of deuterium-implanted Al upon
              electron bombardment},
 journal   = {Jpn. J. Appl. Phys.},
 volume    = {35},
 year      = {1996},
 pages     = {738--747},
 keywords  = {Experimental, Al, electron beam, excess heat, res+},
 submitted = {12/1994},
 published = {02/1996},
 annote    = {An Al sample is first bombarded with either a proton beam or a
 deuteron beam, at 25 keV and a "fluence" of $5 \times 10^{17}$ ions/cm$^2$
 (/s is probably meant), and then looked at with a transmission electron
 microscope, itself using a beam of electrons at 175 keV and various
 fluences. The prominent finding is that for the deuteron-implanted sample,
 but not for the proton-implanted one, TEM sees a speckled structure, which
is
 concluded to arise from a change of the Al surface layers to the
 polycrystalline form; this can only come about by melting and
 recrystallisation. Where is the heat coming from, then? The authors look at
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 conventional possible causes, but these are insufficient to explain the
heat,
 which they calculate to be roughly 260 MeV. Thus, they consider an anomalous
 nuclear cause. They postulate, as an example, the d-d fusion reaction, and
 calculate the fraction of the local population of d's that must fuse to
 produce the required energy. It is quite small (between about $10^{-5}$ and
 $10^{-3}$), so the postulate is considered reasonable. More work needs now
to
 be done.}
}
@article{Kaza1996,
 author    = {O.~D. Kazachkovskii},
 title     = {A possible mechanism for cold fusion},
 journal   = {At. Energy},
 volume    = {81},
 year      = {1996},
 pages     = {749--750},
 keywords  = {Theory, res+, no FPH/Jones ref},
 submitted = {07/1996},
 published = {10/1996},
 annote    = {K refers to an earlier unpublished paper of his on the the
 discrete structure of an electron field in conductors, which leads him to an
 explanation of cold fusion. Lattice defects in PdD cause potential energy
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 peaks, restricting the conduction electrons there. This divides the lattice
 into cells, which can get excited by migrating deuterons. At certain cell
 dimensions, the dd reaction might take place. The model predicts that a
 pulsed current would favour fusion and a material should be used that has a
 small lattice defect density.}
}
@article{Khra1996,
 author    = {P.~P. Khramtsov and O.~G. Martynenko},
 title     = {Peculiar processes of cathodic scattering by electrical
             discharge through the saturated heavy water - vapour
interface},
 journal   = {Inzh.-Fiz. Zh.},
 volume    = {69},
 number    = {5},
 year      = {1996},
 pages     = {721--725},
 note      = {In Russian},
 keywords  = {Experimental, discharge, neutrons, res+, no FPH/Jones refs.},
 submitted = {07/1996},
 annote    = {In this experiment, the liquid phase, heavy water, was also the
 cathode, and the anode was of tungsten and hanging in the vapour head
 space. Voltages around 4 kV were used and the discharge current varied from
 80 to 150 mA, while monitoring for neutrons with a single detector plus
 discriminator circuitry.  The neutron background was 1-15 n/min, and a
 roughly linear dependence of neutron flux with current was observed, with a
 flux of around 1000 n/s at 100 mA.}
}
@article{Kita1996a,
 author    = {A. Kitamura and T. Saitoh and H. Itoh},
 title     = {In situ elastic recoil detection analysis of hydrogen isotopes
             during deuterium implantation into metals},
 journal   = {Fusion Technol.},
 volume    = {29},
 year      = {1996},
 pages     = {372--378},
 keywords  = {Experimental, ion implantation, charged particles, res0.},
 submitted = {05/1994},
 published = {05/1996},
 annote    = {A deuterium ion beam of up to 30 kV energy was aimed at a Ti or
 Pd target and some detectors of charged particles (cp's) positioned; as
well,
 elastic recoil detection (ERD) was carried out to measure depth profiles and
 energies of implanted hydrogen isotope species. Cp's at some unexpected and
 as yet unexplained energies were detected, and a penetration profile maximum
 was found at around 20 nm below the surface, extending down to 100 nm. This
 cannot be regarded as a "cold" fusion experiment but is thought to be
germane
 to the phenomenon by the authors.}
}
@article{Kita1996b,
 author    = {H. Kitamura and S. Ichimaru},
 title     = {Dynamic evolution of fusion processes in ultrahigh-pressure
             liquid-metallic hydrogen: Effects of self-heating and
             radiative cooling},
 journal   = {J. Phys. Soc. Japan},
 volume    = {65},
 year      = {1996},
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 pages     = {1250--1255},
 keywords  = {Theoretical, liquid hydrogen, pycnofusion, res+},
 submitted = {12/1995},
 published = {05/1996},
 annote    = {The authors examine theoretically the possibility of fusion in
 hydrogen under high pressures and low temperatures, where it has metallic
 properties, or pycnofusion. The most promising cases of p-d and d-t fusion
 are examined. There is some hope for the d-t case, which may have an energy
 gain, but not for p-d.}
}
@article{Klem1996,
 author    = {E.~D. Klema and G.~W. Iseler},
 title     = {Spark-induced radiation from hydrogen or deuterium-loaded
              palladium},
 journal   = {Fusion Technol.},
 volume    = {30},
 year      = {1996},
 pages     = {114--115},
 keywords  = {Experimental, Pd gas phase loading, sparks, res+},
 submitted = {01/1996},
 published = {09/1996},
 annote    = {Following the spark work by such teams as Uchikawa et al and
 DuFour, as well as Rout, the authors applied sparks to various Pd samples
 exposed to hydrogen and deuterium, as well as to air as a control. For the
 control, no x-rays were detected, but they were for both hydrogen isotopes,
 at about 20 keV. More work is planned.}
}
@article{Kona1996,
 author    = {K. Konashi and H. Kayano and M. Teshigawara},
 title     = {Analysis of heavy-ion-induced deuteron-deuteron fusion
              in solids},
 journal   = {Fusion Technol.},
 volume    = {29},
 year      = {1996},
 pages     = {379--384},
 keywords  = {Theory, low energy beam fusion, enhancement effect, res-},
 submitted = {06/1994},
 published = {05/1996},
 annote    = {The possibility is examined of fusion due to bombardment of a
 metal/deuterium target with heavy ions from an accelerator, with up to 10
keV
 energy. Numerical calculations indicate that masses of about 30-50 are
 optimal. Comparison with known experimental data did not find good
agreement,
 however - no enhancements are evident; but the theory does predict them and
 new experiments might show them in future.}
}
@article{Kuni1996,
 author    = {K. Kunimatsu},
 title     = {Surface modification of the cathode in the study of cold
fusion},
 journal   = {Hyomen Gijutsu},
 volume    = {47},
 number    = {3},
 year      = {1996},
 pages     = {218--222},
 note      = {In Japanese},
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 submitted = {12/1995},
 keywords  = {Discussion, loading, excess heat},
 annote    = {This is a round-up of results obtained in a number of places,
 among them SRI and Japanese work. The crystal structure of PdD is described,
 and a Fig.  shows a collection of results of excess heat plotted against the
 loading ratio D/Pd (looks roughly exponential) from SRI work. Surfactants
and
 their effect on the loading ratio are discussed.}
}
@article{Li1996a,
 author    = {X. Li},
 title     = {A new approach towards nuclear fusion without strong nuclear
             radiation},
 journal   = {Nucl. Fusion Plasma Phys.},
 volume    = {16},
 number    = {2},
 year      = {1996},
 pages     = {1--8},
 keywords  = {Theory, resonance tunneling, res+},
 submitted = {12/1995},
 published = {02/1996},
 annote    = {Li goes through some QM theory and concludes that
 lattice-confined ions react in a different way from beams hitting a
 target. Because of the Coulomb barrier, only the long-life energy levels
have
 a chance to resonate, and thus (fast) reactions emitting neutrons do not
 occur; instead, only those not emitting neutrons do occur, which supports
the
 cold fusion claim.}
}
@article{Li1996b,
 author    = {D. Li},
 title     = {The measuring principle and the experimental method of the
             cold fusion - reaction cross section},
 note      = {In Chinese, Engl. abstract. Title as given in the English
             abstract; a librarian hand-corrected the title in my copy
             to "Principle and experimental method for the measurement
             of the cold fusion - reaction cross section"},
 journal   = {Jishou Daxue Xuebao, Ziran Kexueban},
 volume    = {17},
 number    = {3},
 year      = {1996},
 pages     = {65--68},
 submitted = {05/1996},
 published = {09/1996},
 keywords  = {Discussion, theoretical, apparatus, res0},
 annote    = {"This paper discussed the measuring principle and the
 experimental method of the cold fusion-reaction cross section in detail,
 which provided a possible path for verifying the existence or no of the cold
 fusion. The principle and method discussed in this paper can be applied to
 some practical problems in electrochemistry" (Direct quote from the
 summary). One notes some mathematics in the text, and some figures of a
 two-compartment cell (but without diaphragm) as well as some simple
 thermodynamics relations. There is a single reference, to FPH-89, referred
to
 as "submitted to Electroanal. Chem".}
}
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@article{Liu1996,
 author    = {F.~S. Liu},
 title     = {The phonon mechanism of the cold fusion},
 journal   = {Mod. Phys. Lett. B},
 volume    = {10},
 year      = {1996},
 pages     = {1129--1132},
 keywords  = {Theory, phonons, res+},
 submitted = {10/1996},
 annote    = {Using phonon theory, the Wannier function and more, the author
 considers the movement of deuterons in metal deuteride as affected by
 acoustics. The conclusion is that predicted d-d fusion rates come to roughly
 observed values, near the surface where there is strong nonequilibrium and a
 higher electron density. }
}
@article{Maly1996,
 author    = {J.~A. Maly and J. Vavra},
 title     = {Reply to 'Letter to the Editor' Fusion Technol. 27, 348
(1995)},
 journal   = {Fusion Technol.},
 volume    = {30},
 year      = {1996},
 pages     = {386--387},
 keywords  = {Polemic, theoretical},
 submitted = {08/1994},
 published = {12/1996},
 annote    = {This is a reply to a letter by Rice et al in the title issue of
 FT. That letter was itself a reply to another by the present authors, who
now
 defend their letter, hoping for a collegial discussion of deep Dirac levels,
 which Rice et al believe they have disproved. Not so, say Maly \& Vavra.
This
 Letter was inadvertently delayed by the journal.}
}
@article{Mizu1996a,
 author    = {T. Mizuno and T. Akimoto and K. Azumi and M. Kitaichi
             and K. Kurokawa},
 title     = {Anomalous heat evolution from a solid-state electrolyte under
             alternating current in high-temperature D2 gas},
 journal   = {Fusion Technol.},
 volume    = {29},
 year      = {1996},
 pages     = {385--389},
 keywords  = {Experimental, metal oxide, gas phase loading, excess heat,
res+},
 submitted = {02/1995},
 published = {05/1996},
 annote    = {Instead of the usual Pd or Ti, the proton conductors, pressed
 tablets of mixed strontium, cerium, yttrium and niobium oxides were loaded
 with deuterium gas at 400-700C after careful treatment at high temperature
 and vacuum to drive out initial gases. While charging, alternating voltages
 of 5-45 V were applied to the oxide plates, at frequencies from 0.0001 to 1
 Hz. Some minor differences in curves of system temperature vs input power
 were observed between runs with H2 and D2, and are taken to be signs of
 excess heat generated in the deuterium loading runs.  There are shown some
 correlations of excess heat appearance with the the introduction of
deuterium
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 and stopping its flow. Only 5\% of samples showed the effect.}
}
@article{Mizu1996b,
 author    = {T. Mizuno and T. Ohmori and K. Kurokawa and T. Akimoto
              and M. Kitaichi and K. Inoda and K. Azumi and S. Shimokawa
              and M. Enyo},
 title     = {Anomalous isotopic distribution of elements deposited on
              palladium induced by cathodic electrolysis},
 journal   = {Denki Kagaku oyubi Kogyo Butsuri Kagaku},
 volume    = {64},
 year      = {1996},
 pages     = {1160--1165},
 note      = {In Japanese},
 keywords  = {Experimental, isotope distribution, transmutation, res+,
              no FPH/Jones refs.},
 submitted = {03/1996},
 annote    = {From the English-language abstract and Figures, one can glean
 that this was a long-term (one month), high-current-density electrolysis
 experiment in a heavy water electrolyte (LiOH and Li2CO3), and surface
 analysis using several methods, before and after electrolysis. The usual
 forest of peaks is found, as expected from long electrolysis (and previously
 found by others); the authors checked for isotope ratios, however, and found
 some that deviated significantly from the normal values and concluded that
 this shows that some isotopes were produced during electrolysis. They go on
 to speculate on possible nuclear mechanisms to fit the data.}
}
@article{Naka1996,
 author    = {K. Nakamura and T. Kawase and I. Ogura},
 title     = {Possibility of element transmutation by arcing in water},
 journal   = {Kinki Daigaku Genshiyoku Kenkyusho Nenpo},
 volume    = {33},
 year      = {1996},
 pages     = {25--31},
 keywords  = {Experimental, electrolysis, calorimetry, res+},
 annote    = {The abstract reveals that this was electrolysis in heavy water
 electrolyte (electrodes or electrolyte not given), with arcing. In the text
 we find "15V", a largish cell voltage. The head space gas was analysed as a
 function of arcing time, and the abstract notes that carbon was converted to
 nitrogen. No visible explanation of where the carbon is from. Excess heat is
 said to have been found, by 21\% over consumed power.}
}
@article{Nich1996,
 author    = {J.~P. Nicholson},
 title     = {A search for particle emission from a gas-loaded
              deuterium-palladium system in the alpha-beta phase},
 journal   = {Fusion Technol.},
 volume    = {30},
 year      = {1996},
 pages     = {383--385},
 keywords  = {Experimental, Pd, deuterium gas, neutrons, protons, res0},
 submitted = {01/1995},
 published = {12/1996},
 annote    = {Pressurised D2 gas was applied to Pd samples in a chamber
 containing a proton detector (s/c) and with a neutron detector (a single 3He
 tube). In most runs, nothing was observed but there were two brief
excursions
 above the background of the proton counter, corresponding to fusion rates of
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 $4 \times 10^{-21}$ fus/dd/s or so, or about Jones et al levels. The authors
 regard these results as inconclusive.}
}
@article{Noni1996,
 author    = {V.~C. Noninski and J.~L. Ciottone and P.~J. White},
 title     = {Experiments on claimed transmutation of elements caused
              by a chemical process},
 journal   = {J. Sci. Expl.},
 volume    = {10},
 year      = {1996},
 pages     = {249--252},
 keywords  = {Experimental, transmutation, res-},
 published = {06/1996},
 annote    = {This team has recently reported artifacts that mimick beta
 emission under conditions reported by Bockris et al, who claim chemical
 transmutation. Here they try again, to wrap up these studies. Various
 mixtures used by the Bockris team are fused, and neutron activation used to
 detect the transmutation. No non-trivial effects were observed. }
}
@article{Noto1996,
 author    = {R. Notoya},
 title     = {Cold fusion arising from hydrogen evolution reaction on
              active metals in alkali metallic ions' solutions},
 journal   = {Env. Res. Forum},
 volume    = {1-2},
 year      = {1996},
 pages     = {127--140},
 keywords  = {Experimental, res+},
 annote    = {The author believes that alkali metal ions codeposit with
 hydrogen to some extent during water reduction at a cathode and play a role
 in the mechanism of the hydrogen evolution reaction. She believes further
 that these species, which penetrate the cathode metal to some extent, also
 play a role in cold fusion, and suggests fusion between protons and these
 metals (in their intermetallic state in the host metal) at Pd or Ni.  She
 reports here some experiments with a Ni/light water cell. She observed
excess
 heat, tritium, gammas and (by ICP-MS) new species from the above proton
 capture by alkali metals.}
}
@article{Oria1996,
 author    = {R.~A. Oriani},
 title     = {An investigation of anomalous thermal power generation from a
              proton-conducting oxide},
 journal   = {Fusion Technol.},
 volume    = {30},
 year      = {1996},
 pages     = {281--287},
 keywords  = {Experimental, calorimetry, high temperature, excess heat,
res+},
 submitted = {04/1996},
 published = {11/1996},
 annote    = {This is a high-temperature (ca. 400C) calorimetry experiment,
 using a solid state electrolyte, perovskite Sr Ce0.9 Y0.08 Nb0.02 O2.97, an
 ion conductor, supplied by Mizuno. A Seebeck-effect calorimeter of refined
 design was used for accuracy.  The solid electrolyte was simply heated at a
 known power, and deuterium or helium (as a control) allowed into the
chamber,
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 monitoring the heat given off. There appears to be clear evidence of up to
 4-sigma excess power (relative to noise) with deuterium, but never with
 helium. Small dc power currents were applied to the electrolyte disks, but
 the results show no clear effect correlating with this. The success rate was
 low, and so were the excess powers. More work is needed, concludes the
 author.}
}
@article{Pons1996,
 author    = {S. Pons and M. Fleischmann},
 title     = {Etalonnage du systeme Pd-D2O: effets de protocole et feed-back
              positif. (Calibration of the Pd-D2O system: protocol and
              positive feed-back effects)},
 journal   = {J. Chim. Phys.},
 volume    = {93},
 year      = {1996},
 pages     = {711--730},
 note      = {In French, Eng. abstr.},
 keywords  = {Theory, discussion, loading enthalpy, res+},
 annote    = {P\&F point first to the standing problem of observed excess
heat
 and the lack of commensurate nuclear products expected for a fusion
reaction.
 They discuss their own previous results, in the light of a theory of
positive
 feedback.  This arises from the reaction enthalpy for the formation of the
 various deuterides PdD(x), as a function of x. The authors believe that it
 crosses zero at x = 0.85 or so and the addition of more D is endothermic. So
 if $x>0.85$ and a calibration heating pulse causes some outgassing, this is
 magnified by positive feedback; but as x goes below 0.85, it is quenched.
 The authors have observed the oscillations expected from this. The authors'
 previous results, including the boiling cell, are discussed. See Sakamoto et
 al (1996) for confirmation of the enthalpy function.}
}
@article{Prep1996,
 author    = {G. Preparata and M. Scorletti and M. Verpelli},
 title     = {Isoperibolic calorimetry on modified Fleischmann-Pons cells},
 journal   = {J. Electroanal. Chem.},
 volume    = {411},
 year      = {1996},
 pages     = {9--18},
 keywords  = {Experimental, excess heat calorimetry, electrolysis, res+},
 submitted = {09/1995},
 published = {08/1996},
 annote    = {This is an attempt to verify the excess heat claims of FPH-89,
 but with some improvements in the cell arrangement. Nevertheless, the
 original open cell design is used here and in fact the authors state that
 excess heat can indeed be measured accurately in such a cell. They like the
 recent concept of "positive feedback" of Fleischmann's, which can "obscure
or
 even wipe out" the effect. Heat transfer rate constants that change with
time
 must also be allowed for, and are. There is a lengthy analysis of the way to
 calculate excess heat, similar to (and as complex as) that in Fleischmann et
 al 1990 and finally, some results the authors believe show excess heat in
 some runs, up to about 25 W (not clear how much the input power is). The
 authors can achieve this despite the fact that they have temperature
 gradients in the cell, and only three thermistors, strategically distributed
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 in the cell. No excess heat was observed when there should be none (e.g. Pt
 cathode).}
}
@article{Rao1996,
 author    = {K.~R. Rao and S.~L. Chaplot},
 title     = {Computer experiments concerning palladium-deuterium and
             titanium-deuterium lattices - implications to phenomenon of
             low-energy nuclear reaction},
 journal   = {Fusion Technol.},
 volume    = {30},
 year      = {1996},
 pages     = {355--362},
 keywords  = {Theory, computation, lattice fluctuations, res0},
 submitted = {07/1994},
 published = {12/1996},
 annote    = {The authors look at the possibility of short lived large energy
 fluctuations within the metal deuteride lattice, using a computer model.
They
 find an energy distribution tail out to about 0.2 eV and, depending on the
 effective charge of deuterons, the rate of fusion varies over a wide
 range. The authors believe that energies up to 2 eV might happen and might
 result in about 1 fusion event per day in a 1 cm$^3$ PdD(0.67) sample. }
}
@article{Reif1996,
 author    = {O. Reifenschweiler},
 title     = {Some experiments on the decrease of tritium radioactivity},
 journal   = {Fusion Technol.},
 volume    = {30},
 year      = {1996},
 pages     = {261--272},
 keywords  = {Experimental, Ti, tritium, radioemission, res+},
 submitted = {04/1996},
 published = {11/1996},
 annote    = {Reifenschweiler here reports in great detail what appears to be
 his work of many years ago, only published recently in a short note, now
 fully. A large glass bulb is vacuum coated with Ti on its inside surface,
 tritium allowed in to form the tritide, and the gas pumped out. A
temperature
 program is applied, and the radiation from the tritide layer goes down
 markedly, before tritium has escaped from the layer (checked by monitoring
 pressure changes). The author connects these puzzling findings with cold
 fusion but cannot explain them.}
}
@article{Rout1996,
 author    = {R.~K. Rout and A. Shyam and M. Srinivasan and A.~B. Garg
             and V.~K. Shrikhande},
 title     = {Reproducible, anomalous emissions from palladium
             deuteride/hydride},
 journal   = {Fusion Technol.},
 volume    = {30},
 year      = {1996},
 pages     = {273--280},
 submitted = {06/1996},
 published = {11/1996},
 keywords  = {Experimental, electrolysis, autoradiography, res+},
 annote    = {The authors did a large number of electrolyses at a Pd cathode
 (as well as some other metals) in normal and heavy water electrolyte (not
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 specified), and after electrolysis placed the electrodes close to
 radiographic film. Between the film and the electrode, various substances
and
 effects were applied.  There was fogging of the film after electrolysis in
 both heavy and light water, mostly with Pd but much less with Ni and Ti, not
 at all with Zr, Hf, Cu and Fe. Various experiments with blocking the
 radiation indicated that neither electromagnetic radiation, neutrons, cp's,
 nor temperature, voltage or pressure artifacts were responsible for the
 effects, claimed to be reproducible.  Thus, a mysterious new form of
 radiation has been found.}
}
@article{Saka1996,
 author    = {Y. Sakamoto and M. Imoto and K. Takai and T. Yanaru
             and K. Ohshima},
 title     = {Calorimetric enthalpies for palladium-hydrogen (deuterium)
             systems at H(D) contents up to about [H]([D])/[Pd] = 0.86},
 journal   = {J. Phys.: Condens. Mater.},
 volume    = {8},
 year      = {1996},
 pages     = {3229--3244},
 keywords  = {Experimental, loading enthalpy, excess heat, res-},
 submitted = {10/1995},
 published = {04/1996},
 annote    = {One key argument about "cold fusion" centres about the enthalpy
 of formation of the variously loaded deuterides of Pd, PdD(x), with varying
 x. The literature is scanty on this, mostly providing just the figure, about
 -17 kJ per mole D at x = 0.72 or so. There has been speculation that
 deuteration is endothermic above some x (see Pons \& Fleischmann, 1996
citing
 earlier work by Wipf). The present team performed very thorough calorimetric
 measurements of these enthalpies for gas-phase loading under pressure (both
H
 and D) up to 0.85 and a range of temperatures. They find that the -17 kJ
 figure holds for x $<$ 0.6, then there is a peak of about -24 kJ at x =
0.64,
 followed by a roughly linear move towards zero, crossing zero at about x =
 0.85. In other words, above 0.85 it requires energy to put more deuterium
 into Pd. The plots behave properly according to van't Hoff even at 0.85, so
 there was no evidence of any excess heat.}
}
@article{Sams1996,
 author    = {N.~V. Samsonenko and D.~V. Tahti and F. Ndahayo},
 title     = {On the Barut-Vigier model of the hydrogen atom},
 journal   = {Phys. Lett. A},
 volume    = {220},
 year      = {1996},
 pages     = {297--301},
 keywords  = {Theory, tight Bohr orbit model, res+},
 submitted = {05/1996},
 published = {09/1996},
 annote    = {This is a follow-up of work by Barut \& Vigier, who proposed
 non-Bohr lower level electron orbits for hydrogen, similar to the Mills
 theory. This is developed here; the Pauli equation is solved with the
 Hamiltonian, and the Schroedinger equation as well, using the Barut-Vigier
 potential. Along with the usual Coulomb states, a tight state at about 40
keV
 was found. The work will be continued.}
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}
@article{Sank1996,
 author    = {T.~K. Sankaranarayanan and M. Srinivasan and M.~B. Bajpai
              and D.~S. Gupta},
 title     = {Investigation of low-level tritium generation
              in Ni-H2O electrolytic cells},
 journal   = {Fusion Technol.},
 volume    = {30},
 year      = {1996},
 pages     = {349--354},
 keywords  = {Experimental, Ni cathode, light water, tritium, res+},
 submitted = {06/1994},
 published = {12/1996},
 annote    = {This team has previously reported the generation of tritium
from
 Ni/light water electrolyses (Mills scenario), and here adds to the evidence.
 They find that in some cells the tritium data oscillates in a sawtooth
 fashion over a month or more (but at all times, at positive levels). More
 recent experiments reproduce this effect. They are strongly tempted to
 suggest a tritium cleansing mechanism operating.}
}
@article{Savv1996a,
 author    = {I.~B. Savvatimova and A.~B. Karabut},
 title     = {Nuclear reaction products detected at the cathode after a
              glow discharge in deuterium},
 journal   = {Poverkhnost'},
 year      = {1996},
 number    = {1},
 pages     = {63--75},
 note      = {In Russian},
 keywords  = {Experimental, glow discharge, Pd, fusion-fission,
              isotope distribution, res+, no FPH/Jones refs.},
 submitted = {06/1995},
 annote    = {A Pd cathode was subjected to a glow discharge at 10-40
mA/cm$^2$
 and 100-500 V in an atmosphere of hydrogen, deuterium and a mixture of both,
 and the surface analysed before and after by SIMS, surface MS and microprobe
 x-ray analysis.  After discharge in deuterium, and to a lesser extent in the
 mixture, 109Ag and 107Ag were found, greatly in excess of that found when
 hydrogen alone was used. Other elements apparently generated in deuterium
 included Br, Rb, Nb, Sr, Y, As and Cd. Also, the ratio of 109Ag to 107Ag
 changed during the experiment in deuterium. The authors propose
 "fusion-fission" reactions of Pd with 1, 2 or 3 deuterons, producing a wide
 spectrum of elements from the fission of the result of fusion.}
}
@article{Savv1996b,
 author    = {I.~B. Savvatimova and A.~B. Karabut},
 title     = {Radioactivity of palladium cathodes after irradiation
              in a glow discharge},
 journal   = {Poverkhnost'},
 year      = {1996},
 number    = {1},
 pages     = {76--81},
 note      = {In Russian},
 keywords  = {Experimental, Pd, Nb, As, Ti, glow discharge, autoradiography,
              res+, FPH/Jones refs.},
 annote    = {Foils of Pd, Nb, As and Ti and other metals were subjected to a
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 glow discharge (10-50 mA/cm$^2$, 100-500V) in hydrogen, deuterium or a
 mixture of the two, and afterwards the radioactivty of the foils was
measured
 as a function of time.  When using deuterium, there was radioactivity,
 decaying with a half life of 13.8 h, which the authors comclude to be
 consistent with the decay of 109Pd, formed by fusion. The level was 5-10
 times that of the background.}
}
@ARTICLE{Shke1996,
   author    = {Z. Shkedi},
   title     = {Response to "Comments on 'calorimetry, excess heat, and
                Faraday efficiency in Ni-H2O electrolytic cells'"},
   journal   = {Fusion Technol.},
   volume    = {30},
   year      = {1996},
   pages     = {133},
   submitted = {01/1996},
   published = {09/1996},
   annote    = {Argues against the comment by Good (Good1996), stating that
 that author's critical points do not apply.}
}
@article{Smil1996,
 author    = {A.~V. Smilga and V.~P. Smilga},
 title     = {A small physical effect},
 journal   = {Ross. Khim. Zh.},
 volume    = {40},
 number    = {3},
 year      = {1996},
 pages     = {122--126},
 note      = {In Russian},
 keywords  = {Theoretical, polemic, res0},
 annote    = {This pair of theoretical physicists give some thought to cold
 fusion. They first go through the reasons why cold fusion might not be
 possible, e.g. the fact that 1-5 eV (obtainable from electrolysis) is not
 enough to penetrate the Coulomb barrier to dd fusion (with the proviso of
 tunneling); they reiterate some CNF history, neutron measurements, Frascati
 and the Russian fracto-scenario. In the final summing up, they find that
 there is an optimistic and a pessimistic attitude, both reasonable to some
 extent. They leave it up to the reader to decide.}
}
@article{Stor1996a,
 author    = {E. Storms},
 title     = {Review of the 'cold fusion' effect},
 journal   = {J. Sci. Expl.},
 volume    = {10},
 year      = {1996},
 pages     = {185--241},
 keywords  = {Review, +},
 published = {06/1996},
 annote    = {A large review of the entire cold fusion field, with many
 references. The  author concludes that there is ample proof of a new
 phenomenon.}
}
@article{Stor1996b,
 author    = {E. Storms},
 title     = {How to produce the Pons-Fleischmann effect},
 journal   = {Fusion Technol.},
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 volume    = {29},
 year      = {1996},
 pages     = {261--268},
 keywords  = {Discussion.},
 submitted = {08/1994},
 published = {03/1996},
 annote    = {Storms claims that conditions for cold fusion to occur are now
 so well known that skeptics can, if they wish, reproduce the effect for
 themselves, although he goes on to say that they are difficult to achieve.
He
 terms these conditions SCM, for special condition of matter and sees an
 analogy with superconductivity, also a special state. He believes that a
 variety of nuclear reactions occur, chemically assisted. He lists some
 requirements: a D/Pd loading of at least 0.84-0.9, minimum loading rate
 (current density) at about 0.4 A/cm$^2$, certain additives such as Al or a
 surfactant such as thiourea, certain characteristics of the Pd electrode
 used, a minimum of crack formation, nonequilbrium conditions, etc. He ends
 with a definite recipe for success.}
}
@article{Stuk1996,
 author    = {R.~A. Stukan and Yu.~M. Rumyantsev},
 title     = {Effect of tritium on the generation of hard radiation in the
              electrolysis of D2O with a palladium cathode (T-D cold fusion
              reactions)},
 journal   = {High Energy Chem.},
 volume    = {30},
 year      = {1996},
 pages     = {343--346},
 keywords  = {Experimental, Pd, heavy water, pretritiation, radiation,
              neutrons, res+},
 submitted = {12/1994},
 annote    = {This team continues earlier work on Pd electrolysis in heavy
 and light water from the gas phase. Hard radiation was monitored at 1-min
 intervals. The radiation from electrolysis in D2O with prior T-loading was
 significantly higher (about 8-10 times) than for electrolysis with light
 water, or without prior tritiation. A control, using light water and prior
 tritiation, was not carried out.}
}
@article{Suga1996,
 author    = {V.~I. Sugakov},
 title     = {Conditions for inducing, dynamics and manifestation of atom
              acceleration in nonequilibrium crystals},
 note      = {In Ukrainian, Engl. abstr.},
 journal   = {Ukr. Fiz. Zh.},
 volume    = {41},
 year      = {1996},
 pages     = {834--839},
 keywords  = {Theory, crystal defects, energy focussing, solitons, res+},
 submitted = {11/1995},
 published = {09/1996},
 annote    = {As some other Russian/Ukrainians like Zelentsov have done,
 S considers that crystal rearrangements due to defects and stresses can lead
 to acceleration of lattice particles, perhaps sufficient for anomalous
 effects. S considers the possibility of potential energy well pairs in close
 proximity and with the help of some maths comes to the conclusion that such
 strange phenomena as mechano-luminescence in metals, accustoluminescence in
 semiconductors and dielectrics, and cold fusion (the fracto-kind) are
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 possible.}
}
@article{Szpa1996a,
 author    = {S. Szpak and P.~A. Mosier-Boss and J.~J. Smith},
 title     = {On the behavior of the cathodically polarized Pd/D system:
              Search for emanating radiation},
 journal   = {Phys. Lett. A},
 volume    = {210},
 year      = {1996},
 pages     = {382--390},
 keywords  = {Experimental, x-rays, Pd, heavy water, res+},
 submitted = {11/1994},
 published = {01/1996},
 annote    = {If CNF is a nuclear process, the energetic products should give
 rise to x-ray emissions. Three types of electrolysis cells were set up,
using
 Pd foil or codeposited Pd and deuterium from heavy water and LiOD, while
 monitoring for x-rays, both soft and wide spectrum up to 300 keV. Careful
 extended background measuremments were made to rule out contamination, and 5
 cm Pb shielding reduced the background by a factor of 20. Some anomalous
 x-ray peaks at around 11 and 20 keV were found, consistent with some ideas
of
 a CNF mechanism. Also, overall emissions correlated with addition of, e.g.,
 thiourea, known to enhance deuterium ingress into Pd, as well as berrylium,
 and increases in current density. There were also correlations between gamma
 and x-ray emissions.}
}
@article{Szpa1996b,
 author    = {S. Szpak and P.~A. Mosier-Boss},
 title     = {On the behavior of the cathodically polarized Pd/D system:
              a response to Vigier's comments},
 journal   = {Phys. Lett A},
 volume    = {221},
 year      = {1996},
 pages     = {141--143},
 keywords  = {Polemic},
 submitted = {05/1996},
 published = {09/1996},
 annote    = {A response to Vigier's polemic in the same issue, p. 138,
 in which Vigier comments on previous work by Szpak et al and his own, as
well
 as others. S \& M here add a few more experimental effects that are
 consistent with the "tight" Bohr orbit theory. }
}
@article{Takah1996,
 author    = {A. Takahashi},
 title     = {Recent results and activities on the new hydrogen energy
              ("cold fusion")},
 journal   = {Suiso Enerugi Shisutemu},
 volume    = {21},
 year      = {1996},
 pages     = {39--44},
 keywords  = {Sm. review.},
 note      = {In Japanese, Eng. abstr.}
 annote    = {This is a smallish roundup with only 11 references, most of
 them to conference proceedings. From the abstract it is clear that the
author
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 believes that CNF has been demonstrated, excess heat found but without
fusion
 taking place; and that some unconfirmed reports claim helium-4 and should be
 repeated. The key is to pin down the nuclear or chemical origin of excess
 heat.}
}
@article{Toum1996,
 author    = {C.~P. Toumey},
 title     = {Conjuring science in the case of cold fusion},
 journal   = {Public Understand. Sci.},
 volume    = {5},
 year      = {1996},
 pages     = {121--133},
 keywords  = {Sci-phil-soc polemic},
 annote    = {Anthropologist Toumey looks at the behaviour of scientists,
 here in the cold fusion field. The history of the affair is recounted (with
 some evidence for the author's lack of feel for the science of the subject)
 and the social behaviour of the scientists involved is remarked on.
Hyperbole
 and the public's feeling that they understood cold fusion acted to make the
 subject popular. Toumey also notes that while confirmations received
 publicity but null findings tend not to, thus distorting the picture. He
 repeats the (exaggerated) claim by people such as Storms that CNF workers
are
 denied access to scientific journals, and the myth that CNF became an
 argument between chemists (pro) and physicists (con). He concludes that the
 public understanding of cold fusion is "a kind of mischief with images
 ... the business of the conjurer".}
}
@article{Vaid1996,
 author    = {S.~N. Vaidya},
 title     = {Deuteron screening, nuclear reactions in solids,
              and superconductivity},
 journal   = {Fusion Technol.},
 volume    = {29},
 year      = {1996},
 pages     = {405--408},
 keywords  = {Theory, screening, superconductivity, Bose condensates, res+},
 submitted = {07/1994},
 published = {05/1996},
 annote    = {The author considers, besides PdD, substances other than Pd,
 i.e. mixed metal oxides that are superconducting, and looks at deuteron
 mobility as a means of enhanced screening to promote both d-d fusion and
 superconductivity. Results appear encouraging and might also explain the
 anomalous isotope effect in PdD.}
}
@article{Vigi1996,
 author    = {J.~P. Vigier},
 title     = {On cathodically polarized Pd/D systems},
 journal   = {Phys. Lett. A},
 volume    = {221},
 year      = {1996},
 pages     = {138--140},
 keywords  = {Polemic},
 submitted = {03/1996},
 published = {09/1996},
 annote    = {Vigier points out that the proposal of Szpak et al in the same
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 journal A210 (1996) 382 is significant for cold fusion and in fact in line
 with his (Vigier's) own previous theories, as well as others. Essentially,
 "tight" Bohr orbits are proposed, with attendant implications.}
}
@article{Wang1996,
 author    = {X. Wang and P. Tang and W. Zhang and H. Liu and Z. Chen
              and Z. Li and C. Zhou and R. Zhu and D. Ding},
 title     = {Time distribution of neutron burst in thermal D/soiled system},
 journal   = {Chin. Sci. Bull.},
 volume    = {41},
 number    = {1},
 year      = {1996},
 pages     = {73--78},
 keywords  = {Experimental, Ti, D2 gas, neutrons, ress+, no FPH/Jones ref.},
 submitted = {05/1995},
 published = {01/1996},
 annote    = {This is an Italian-style CNF experiment, i.e. Ti chips loaded
 from gaseous D2 (at about 60-80 atm pressure), and neutrons counted, using
18
 3He tubes arranged around the chamber. Some neutron bursts were seen, with
 remarkable time distributions, impossible to explain in terms of background
 or cosmic infall.}
}
@article{Yamaz1996,
 author    = {O. Yamazaki and Y. Watanabe and H. Yoshitake and N. Kamiya
              and K. Ota},
 title     = {Hydrogen absorption in Pd cathode in alkaline solutions},
 journal   = {Oyobi Kogyo Butsuri Kagaku},
 volume    = {64},
 year      = {1996},
 pages     = {62--68},
 keywords  = {Experimental, H/Pd loading},
 note      = {In Japanese, Engl. abstr.},
 submitted = {07/1995},
 published = {01/1996},
 annote    = {There are some who believe that the hydrogen evolution reaction
 (HER) in alkaline electrolytes involve the alkali metal ion. Various ions
are
 tried here: K+, Na+ and Li+, and the H/Pd loading as a function of time
 followed.  Loadings were measured by gas volumetry as well as by gravimetry.
 The electrolyte with Li+ gave results different in character from those with
 the other ions. SEM photographs of the Pd surface after electrolysis also
 revealed differences.  So perhaps Li+ is involved, or involved in a
different
 way from the other ions, in the HER.}
}
@article{Yang1996a,
 author    = {J. Yang and L. Tang and X. Chen},
 title     = {Possible nuclear process in deuterium-metal system},
 journal   = {J. Changsa Univ. Elec. Power (Nat. Sci.)},
 volume    = {11},
 number    = {3},
 year      = {1996},
 pages     = {289--295},
 keywords  = {Analysis, theoretical, dineutrons, res0},
 submitted = {04/1996},
 published = {08/1996},
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 annote    = {The team looks at cold fusion claims in the light of the
 dineutron theory, proposed by several groups. The "hitherto unknown" process
 of Fleischmann et al (1989) might be one involving dineutrons. The problems
 of this are discussed.  As well, the idea of a new particle is discussed.
 Some early references to dineutrons are given, back to 1950.}
}
@article{Yang1996b,
 author    = {J. Yang and L. Tang and X. Chen},
 title     = {Dineutron model research of cold fusion},
 journal   = {Acta Sci. Nat. Univ. Norm. Hunan},
 volume    = {19},
 number    = {2},
 year      = {1996},
 pages     = {25--29},
 keywords  = {Theoretical, dineutron, res+},
 submitted = {04/1996},
 published = {06/1996},
 annote    = {This paper proposes (among others) the idea of electron capture
 by a deuterium atom to produce a dineutron, which then eliminates the
Coulomb
 barrier to its fusion with another deuterium nucleus and can explain other
 anomalies as well such as 111Ag.}
}
@article{Zhan1996,
 author    = {Q. Zhang and Q. Gou and Z. Zhu and F. Liu and J. Luo and Y.
Sun},
 title     = {The relationship of crystal structure transition of Ti-cathode
             and 'excess heat' on cold fusion},
 journal   = {Chin. J. At. Molec. Phys.},
 volume    = {13},
 number    = {3},
 year      = {1996},
 pages     = {257--261},
 keywords  = {Experimental, theory, phase transition, res+, no FPH/Jones
ref},
 submitted = {11/1995},
 published = {07/1996},
 note      = {In Chinese, Engl. abstr.},
 annote    = {"This paper presents an experiment result of crystal structure
 transition of Ti-cathode due to "excess heat" of cold fusion. It has been
 found that the crystal structure of Ti-cathode is changed from hexagonal to
 face-centered cube structure after cold fusion with "excess heat". On the
 contrary if there is no "excess heat", we can not observe any change"
(Direct
 quote of the abstract).  There is a number of plots of measured lattice
 parameters illustrating the change from the one structure to the other.}
}
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## YEAR: 1997

% Year 1997; there are 43 entries.

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@article{Arat1997a,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Helium (4/2He, 3/2He) within deuterated Pd-black},
 journal   = {Proc. Jap. Acad. B},
 volume    = {73},
 year      = {1997},
 pages     = {1--6},
 keywords  = {Experimental, theoretical, helium, mass spec, lattice quake,
              res+, no FPH/Jones ref.},
 submitted = {01/1997},
 published = {01/1997},
 annote    = {A separate smaller paper, reporting the helium results only
 (see the large paper in J. High Temp. Soc 1997 for all details).}
}
@article{Arat1997b,
 author    = {Y. Arata and C. Zhang},
 title     = {Presence of helium (4/2He, 3/2He) confirmed in deuterated
              Pd-black by the "vi-effect" in a "closed QMS" environment},
 journal   = {Proc. Japan. Acad. Ser. B},
 volume    = {73},
 year      = {1997},
 pages     = {62--67},
 keywords  = {Experimental, electrolysis, mass spec, helium, res+,
              no FPH/Jones ref.},
 submitted = {04/1997},
 annote    = {Another report from the A\&Z pair of their finding of helium
 (now both 4He and 3He) using their mass spec cycling technique. This paper
 presents more details than before (in English) of results using a range of
 ionisation energies in the MS; this "vi-effect" can, they say, discriminate
 between species of similar masses that would otherwise overlap, and only by
 using this technique can they be sure that they have helium after long
 electrolysis time. This is released from their double cathode upon
 heating. The ratio of amounts of 4He to 3He found ranged from 2 to 10. No
 helium was found when hydrogen, rather than deuterium, was used. }
}
@article{Arat1997c,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Solid-state plasma fusion ('cold fusion')},
 journal   = {J. High Temp. Soc.},
 volume    = {23},
 year      = {1997},
 pages     = {1--56},
 keywords  = {Experimental, theoretical, helium, heat, mass spec,
              lattice quake, res+},
 submitted = {09/1996},
 published = {01/1997},
 annote    = {In this long paper, the authors extend their reports on ongoing
 research and, for the first time, present evidence of the formation of 3He,
 as well as (again) for 4He, both detected by close repeated cycling of a
high
 resolution mass spectrometer around a very narrow mass range (for 4He:
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 3.95-4.05). They also give many details of their experiments, using the
 double cathode, i.e. a Pd cathode with a hollow space, into which they pack
 some Pd powder. As they electrolyse and deuterium gas forms outside the
 cathode, it diffuses through the thin wall and saturates the Pd black
 within. Loadings up to 1.0 are said to be achieved. When they are, the MS
 cyclings show peaks of 4He and 3He growing in time, as the sample is heated
 to temperatures where He is expected to be released from the metal.  The
 authors are aware of and believe they have eliminated He contamination from
 pump oil and the like, and their all-steel apparatus should be impervious to
 ambient He. They theorise that tritium too should be found, if 3He is, but
 they do not find any; with their technique, however, (MS cycling) this is
 difficult because of the large number of species the tritium would
distribute
 into (TT, TD, TH, etc). They are helped in their detection also by varying
 the MS ionisation voltage, an interesting technique, allowing them to
 separate interfering masses.  Without this, they would probably not have
 found the 3He. They find that roughly 1 out of a few hundred deuterium
nuclei
 fuse to 4He; their heat results are in order-of-magnitude agreement with
 this. They round up the results with an outline of their "lattice quake"
 theory.}
}
@article{Arat1997d,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Presence of helium (4/2He, 3/2He) confirmed in highly
deuterated
             Pd-black by the new detecting methodology},
 note      = {In Japanese, Engl. abstr.},
 journal   = {J. High Temp. Soc.},
 volume    = {23},
 year      = {1997},
 pages     = {110--117},
 keywords  = {Experimental, helium, mass spec, res+},
 submitted = {03/1997},
 published = {03/1997},
 annote    = {This paper focusses in more detail on both the detection of 3He
an
cycled mass spectroscopy technique of the authors, as well as their technique
of varying the MS ionisation voltage to help separate the masses (their "Vi
effect").  Here they present many results that they believe confirm the
finding of both 3He and 4He from deuterated Pd black in their double
structured cathode. }
}
@article{Asam1997e,
 author    = {N. Asami and T. Senjuh and H. Kamimura and M. Sumi
             and E. Kennel and T. Sakai and K. Mori and H. Watanabe
             and K. Matsui},
 title     = {Material characteristics and behaviour of highly deuterium
             loaded palladium by electrolysis},
 journal   = {J. Alloys Comp.},
 volume    = {253--254},
 year      = {1997},
 pages     = {185--190},
 keywords  = {Experimental, deuterium loading, Pd, res0, surface anal.,
             no FPH/Jones refs.},
 annote    = {This team was funded under MITI/NEDO's "New Hydrogen Energy"
 project and reports results here. The intent was to find out how to achieve
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 high D/Pd loading ratios; also, crystal microstructure and surfaces were
 looked at. A cell not unlike that of F\&P was used (4 mm dia. Pd rod, 20 mm
 long) in 1M LiOD/D2O, and various commercial Pd samples were tried out,
under
 some current regimes such as stepped curent (50 mA/cm$^2$ 6 days, then 2
days
 each at 100, 200, 400 and 600 mA/cm$^2$, back down again etc). Loading was
 measured by the amount of gas evolved. Loadings up to 0.9 were
 achieved. Microstructural changes were observed upon loading, and some
 blistering. Surface impurities like S, Cl, C and O were detected but only to
 a depth of 2 nm. Factors favouring high loading were found to be high purity
 materials, cleaning by ultrasonics or etching, vacuum \& high temp.
treatment,
 annealing and a suitable current program.}
}
@article{Cuev1997,
 author    = {F. Cuevas and J.~F. Fernandez and C. Sanchez},
 title     = {A search for nuclear reactions in deuterated fresh
              iodide-titanium films},
 journal   = {Fusion Technol.},
 volume    = {32},
 year      = {1997},
 pages     = {644--654},
 keywords  = {Experimental, Ti film, gas phase, neutrons, gammas, res-},
 submitted = {11/1996},
 published = {12/1997},
 annote    = {This team decided that a very pure Ti film, highly loaded with
 deuterium and some nonequilibrium applied to it, would be the optimal
 conditions for bringing fusion about. To get very pure Ti, they used "iodide
 titanium", made from TiI4 evaporated onto heated tungsten filament, where it
 decomposed into the metal. The upper layers of the Ti were indeed very pure
 (with less than 1/10 the imputrities in normal "pure" Ti), and not even
 containing W. This was carefully kept away from air, so that no oxide could
 form, and deuterated with D2 gas (300 mbar) to a loading of 1.5 D/Ti, said
to
 be high. Large lateral electrical currents were applied to the film.
Neutrons
 were detected with two scintillation counters (one Ne-213, one BC-501) with
 gamma discrimination etc. Long-time background counts were taken. No clear
 evidence of significant neutron emissions was found, although there were a
 few anomalous events. The results set the upper limit for the cold fusion
 rate at 3*10$^{-21}$ f/s/pair or about Jones et al level.}
}
@article{Drag1997,
 author    = {A. Dragic and Z. Maric},
 title     = {Comment on 'On the Barut-Vigier model of the hydrogen atom'
              by Samsonenko et al.},
 journal   = {Phys. Lett. A},
 volume    = {229},
 year      = {1997},
 pages     = {130--132},
 keywords  = {Polemic, no FPH/Jones ref},
 submitted = {11/1996},
 published = {05/1997},
 annote    = {The authors attempt to show that the figure of 128 keV
allegedly
 arrived at by Samsonenko et al, for the ground state for the hydrogen atom,
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 should instead be 13.6 eV. They do this by modifying the Ozcelik-Simsek
 method, used by Samsonenko et al, taking into account an aspect of angular
 momentum.}
}
@article{Dufo1997,
 author    = {J. Dufour and J. Foos and J.~P. Millot and X. Dufour},
 title     = {Interaction of palladium/hydrogen and palladium/deuterium
              to measure the excess energy per atom for each isotope},
 journal   = {Fusion Technol.},
 volume    = {31},
 year      = {1997},
 pages     = {198--209},
 keywords  = {Experimental, spark discharge, Pd, deuterium, excess heat,
res+},
 submitted = {10/1995},
 published = {03/1997},
 annote    = {Another in the series of experiments with high voltage spark
 discharges at deuterium (and hydrogen-) loaded Pd wire and foil in a
 calorimeter. Voltages presumably in the kV range (not stated) were used, and
 wattages up to 100-200 Watt were input. Excess heat was detected, and some
 hydrogen disappeared at the same time, but no nuclear ash was found. The
 "hydrex" or "deutrex" theory of Vigier (seeming a bit like Mills'
 hydrino/deuterino) is invoked to explain the results. }
}
@article{Fern1997,
 author    = {J.~F. Fernandez and F. Cuevas and M. Alguero},
 title     = {Experimental investigation of neutron emissions during thermal
              cycling of TiDx (x = ca. 2.00)},
 journal   = {Fusion Technol.},
 volume    = {31},
 year      = {1997},
 pages     = {237--247},
 keywords  = {Experimental, Ti, gas phase,, temp. cycling, neutrons, res-},
 submitted = {04/1995},
 published = {03/1997},
 annote    = {A Spanish reenactment of the Italian-style gas phase deuterium
 loading into Ti (sponge and rod) up to a D-Ti load of 2, temperature cycling
 between liquid nitrogen and room temperature, was carried out while
 monitoring for neutrons, using 3 separate detectors (2 NE213 and one BF3).
No
 neutron flux above the background was observed, even at the phase transition
 at D/Ti = 2. The upper fusion rate limit was about $10^{-23}$ fus/dd/s.}
}
@article{Gabo1997,
 author    = {A.~M. Gabovich},
 title     = {Possibility of cold fusion in palladium deuterides: screening
              effects and connection to superconducting properties},
 journal   = {Phil. Mag. B},
 volume    = {76},
 year      = {1997},
 pages     = {107-118},
 keywords  = {Theory, superconductivity, res+},
 submitted = {08/1996},
 annote    = {Gabovich looks again at some earlier theories attempting to
 judge the possibility of CNF, such as that of Leggett \& Baim (1989). He
 reckons they made some unallowable simplifications. He further looks at the
 connection with superconductivity, palladium hydride (deuteride) being
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 superconductors at higher Tc's than Pd itself. Rather than going ab initio,
 he does a reverse study, to see what certain parameters would have to be for
 CNF to be possible.  The result is plausible. It is all based on screening,
 and heavy electrons.  He states at the end, however, that if fusion does
take
 place, it will be normal fusion, implying the usual branching ratios. He
also
 suggests that the addition of other noble metals to Pd might favour CNF,
just
 as it raises the Tc.}
}
@article{Gozz1997,
 author    = {D. Gozzi and F. Cellucci and P.~L. Cignini and G. Gigli
              and M. Tomellini and E. Cisbani and S. Frullani
              and G.~M. Urciuoli},
 title     = {X-ray, heat excess and 4He in the D/Pd system},
 journal   = {J. Electroanal. Chem.},
 volume    = {435},
 year      = {1997},
 pages     = {113--136},
 keywords  = {Experimental, electrolysis, Pd, heavy water, x-rays,
              excess heat, helium, res+},
 submitted = {01/1997},
 published = {09/1997},
 annote    = {This long paper reports on electrolysis in several special
 Pyrex/stainless steel cells, designed to keep out helium from the air, so
 that helium detection was possible below the ambient level (5.24 ppm).
Excess
 heat and 4He were monitored, and x-ray film was placed 5 cm from the Pd
 cathode.  Effluent gases were carried out with helium-free nitrogen from
 liquid N2, which also circulated around the cell, the gas stream going out
 through stainless steel vacuum tubing. He was detected by a high-Q mass
 spectrometer working in the M-range up to 27 amu. The cathode was a bundle,
4
 mm by 40 mm, of Pd wire, held together at the ends by a Pd rod cap. A large
 Pt mesh cage was the counter electrode (anode). The cathode was vacuum
 annealed at 970 C for 24 h. Excess heats were measured by a cooling coil
 calorimeter. Controls were run on everything. Although there appeared to be
 some helium leaks, there were none at other times and 4He was found, roughly
 commensurate with the excess heat also found. Time correlations were not
 possible to obtain however. A check, using the Ne/He ratio, was tried but
 there was too little Ne to get a figure (this points to the 4He being
 generated in the cell, not from the air, which contains Ne).  One of the
 several cells employed put out 8 MJ excess heat, or 80\% over input.  The
 x-ray film showed sharply defined spots, and the authors explain these by
 shadowing through the Pd bundles, the x-rays coming from the central Pd
 strands for an unknown reason. X-ray film away from the cell showed no
spots.
 The x-rays are tentatively explained by alpha particles (the 4He) hitting
Pd.
 Another result is that the 4He was produced only on the Pd surface and not
 found in the wire interior.}
}
@article{Jabo1997,
 author    = {V.~D.~D. Jabon and G.~V. Fedorovich and N.~V. Samsonenko},
 title     = {Catalitically induced d-d fusion in ferroelectrics},
 journal   = {Braz. J. Phys.},
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 volume    = {27},
 year      = {1997},
 pages     = {515--521},
 keywords  = {Experimental, fractofusion, ferroelectrics, res+},
 submitted = {03/1997},
 published = {12/1997},
 annote    = {This paper comes from Colombia, where two Russians visited
 Jabon. The Russian idea of fractofusion is tested on the ferroelectrics
 LiTaO3 (LT) and Ba(0.4)Sr(0.6)Nb(2)O(6) (SNB). First, some theory is
 presented, showing how deuterons, arising from deuteration of the
 ferroelectric, can be accelerated by polarization reversal or phase
 transition. For the test substances, deuteron energies up to 185 eV (LT) and
 92 eV (SNB) are postulated.  The samples were placed in a vacuum chamber and
 first evacuated to degass them.  They were then deuterated under D2 at 0.6
to
 1.2 atm for 5 days. High ac voltages (up to 75 kV/cm) were then applied to
 the crystals, under vacuum after deuteration. Neutrons were detected using
10
 proportional 3He tubes surrounded by paraffin moderator and a boron
 polyethylene wall.  This had an efficiency of 3\%. Although the results are
 not presented clearly in the paper, the authors conclude that the LT sample
 emitted significant numbers of neutrons, corresponding to a fusion rate of
 about $(1-8) \times 10^{-21}$ fus/s/pair, or 1-2 orders of magnitude higher
 than the Jones level. Nothing was seen with the SNB sample.}
}
@article{Jian1997,
 author    = {X. Jiang and L. Han},
 title     = {Non-equilibrium conditions of electrolysis and abnormal
              nuclear phenomena},
 note      = {In Chinese, Engl. Abstr.},
 journal   = {Nucl. Phys. Rev. (China)},
 volume    = {14},
 year      = {1997},
 pages     = {111--113},
 keywords  = {Theory, suggestion, res+},
 submitted = {03/1996},
 published = {06/1997},
 annote    = {The abstract says that the pin-point effect and the magnetic
 self-pinch of electrolysis are suggested as relevant to promoting
 nonequilibrium, essential for CNF. They also suggest further study of the
 structural and electronic properties of deuterium in bulk Pd, the role of
the
 electrical double layer (between the Pd and electrolyte) and the localised
 emission sites on surface protusions on the electrode, in order to
understand
 CNF.}
}
@article{Kaus1997,
 author    = {T.~C. Kaushik and L.~V. Kulkarni and A. Shyam and M.
Srinivasan},
 title     = {Experimental investigations on neutron emission from
              projectile-impacted deuterated solids},
 journal   = {Physics Lett. A},
 volume    = {232},
 year      = {1997},
 pages     = {384--390},
 keywords  = {Experimental, fractofusion, projectile, res+},
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 submitted = {04/1996},
 published = {08/1997},
 annote    = {This Bhabha team tries to confirm the Russian fractofusion
 hypothesis, by shooting nylon projectiles at high velocity at
polycrystalline
 solid LiD, TiDx, PdDx etc) and counting neutrons. Velocities were up to 1000
 m/s. Neutron detection was by a bank of 12 BF3 detectors embedded in a
 plexiglass moderator, all shielded by a metal(Al) enclosure, giving about
 12\% efficiency. By careful consideration of the neutron data obtained, it
 was concluded that the LiD samples did indeed emit more neutrons than the
 background when shot at, though only marginally, and not in all cases. No
 PdDx or TiDx samples showed neutrons above background. Thus the fractofusion
 theory of cold fusion is tentatively supported here.}
}
@article{Kozi1997a,
 author    = {H. Kozima and K. Kaki and T. Yoneyama and S. Watanabe
              and M. Koike},
 title     = {Theoretical verification of the trapped neutron catalyzed model
              of deuteron fusion in Pd/D and Ti/D systems},
 journal   = {Repts Fac. Sci. Shizuoka Univ.},
 volume    = {31},
 year      = {1997},
 pages     = {1--12},
 keywords  = {Theory, trapped neutrons, res+},
 submitted = {08/1996},
 annote    = {Kozima has previously given his explanation of cold fusion. He
 reasons that there are a lot of low-energy neutrons around, from cosmic
 infall and reaction with hydrogen. These low-energy neutrons get trapped by
 deuterons in metal, so that we have reactions n+d--> t + gamma, and then the
 triton reacts further as t+d--> 4He + n. The gamma is absorbed quietly
 somehow, and the high-energy neutron produced accelerates other deuterons
 into more fusion. The authors examine this model theoretically and
 semiquantitatively, and find that the model is at least consistent with
 observations.}
}
@article{Kozi1997b,
 author    = {H. Kozima and S. Watanabe and K. Hiroe and M. Nomura
              and K. Kaki},
 title     = {Analysis of cold fusion experiments generating excess heat,
              tritium and helium},
 journal   = {J. Electroanal. Chem.},
 volume    = {425},
 year      = {1997},
 pages     = {173--178},
 keywords  = {Analysis, theoretical, excess heat, tritium, res+},
 submitted = {02/1996},
 published = {03/1997},
 annote    = {The results of Fleischmann et al (1989) and others are
condidered
 in the light of the authors' model of trapped neutron catalysed fusion. They
 believe that surface layers of Li, laid down under electrolysis, as well as
 other chemical species, contribute to a number of nuclear reactions
involving
 neutrons. Their model also suggests the possibility of a chain reaction,
 consistent with the melt-down claimed by Fleischmann et al (1989).}
}
@article{Kuro1997,
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 author    = {K. Kuroiwa and Y. Ohtsu and G. Tochitani and H. Fujita},
 title     = {Experimental investigation on loading ratio D/Pd using
              high pressure and deuterium glow discharge methods},
 journal   = {Rept. Fac. Sci. Eng., Saga Univ.},
 volume    = {26},
 year      = {1997},
 pages     = {33--38},
 keywords  = {Experimental, loading, gas phase, glow discharge, res0.},
 annote    = {A 12.5 * 12.5 * 0.2 mm plate of 99.9\% pure Pd was mounted in a
 chamber and deuterated with D2 gas at up to 6 atm pressure. This achieved
 D/Pd ratios of about 0.75 after 50 hours or so. The Pd sample was then
 weighed at intervals while being kept in air, and did not lose much
 deuterium. For the glow discharge, it seems to have been done at 20 Torr and
 10 mA through a 50 kohm resistor, i.e. about 500 V total applied. The
results
 of this are not clear to this abstracter, who has to find stuff in between
 the Japanese text and in figures. The abstract says that after glow
discharge
 charging, the ratio was kept at 0.70 by cooling the Pd sampling.}
}
@article{Lips1997,
 author    = {A.~G. Lipson and V.~A. Kuznetsov and T.~S. Ivanova
              and E.~I. Saunin and S.~I. Ushakov},
 title     = {Possibility of mechanically stimulated transmutation of
              carbon nuclei in ultradisperse deuterium-containing media},
 note      = {Orig. in Zh. Tekh. Fiz. 67 (1997) 100, in Russian},
 journal   = {Tech. Phys.},
 volume    = {42},
 year      = {1997},
 pages     = {676--682},
 keywords  = {Experimental, fractofusion, vibrating mill, carbon, heavy
water,
              neutrons,  res+, no FPH/Jones refs.},
 submitted = {01/1996},
 published = {06/1997},
 annote    = {The fractofusion scenario is continued here, using the
vibratory
 mill used previously with Ti and heavy water, the Ti here replaced with
 carbon particles.  The drums were periodically cooled to increase the
action,
 and the air within was replaced by argon to stop the C catching fire as it
 heats up. The team has a theory about mechanical effects on the carbon
 leading to virtual neutrons, which can be captured by carbon atoms, changing
 the isotope distribution of the carbon (more 14C). They apply a small
neutron
 source next to the mill, to speed things up, to release these virtual
 neutrons. These come from the splitting of deuterons into protons and the
 virtual neutron.  Indeed, an increase in the 14C content was measured with
 heavy water but not with light water, thus confirming the hypothesis. The
 team goes on to note that this could happen in deep groundwater and falsify
 radiocarbon dating. More work needs to be done and is planned.}
}
@article{Lu1997a,
 author    = {R. Lu},
 title     = {The (d,d) fusion in solar flares},
 note      = {In Chinese, Engl. abstr.},
 journal   = {J. Qingdao Univ.},
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 volume    = {1997},
 number    = {6},
 year      = {1997},
 pages     = {70--75},
 keywords  = {Discussion, theory.},
 annote    = {The author refers to F\&P-89 and this paper is meant to relate
 to cold fusion; temperatures in solar flares are essentially "cold" compared
 to those assumed to be required for plasma dd fusion, so if it took place
 there, fusion would be cold. Lu believes that there is evidence for dd
 fusion, by (it seems) 3He detected in some flares.}
}
@article{Lu1997b,
 author    = {R. Lu},
 title     = {Analysis of x-rays and gamma-ray production mechanism under
             condition of discharge with D2 gas},
 note      = {In Chinese, Engl. Abstr.},
 journal   = {Nucl. Phys. Rev. China},
 volume    = {14},
 year      = {1997},
 pages     = {114--117},
 keywords  = {Theoretical, discussion, gas discharge, res+,
             no FPH/Jones refs.},
 submitted = {09/1995},
 published = {06/1997},
 annote    = {The abstract says this is an opinion, i.e. that with an
electric
 discharge in D2 gas, x- and gamma-rays are produced, and that the gammas
 provide evidence of cold fusion. The theory seems to include the capture, by
 p or d, of an electron, presumably to yield a (virtual?) neutron.  The sort
 of voltage for the discharge is probably 20 kV or so, so this might not
 really be cold fusion.}
}
@article{Mizu1997,
 author    = {T. Mizuno and K. Inoda and T. Akimoto and K. Azumi
             and M. Kitaichi and K. Kurokawa and T. Ohmori and M. Enyo},
 title     = {Anomalous gamma peak evolution from SrCe solid state
electrolyte
             charged in D2 gas},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {22},
 year      = {1997},
 pages     = {23--25},
 keywords  = {Experimental, solid state ion conductor, radiation emissions,
             transmutation, res+, no FPH/Jones refs.},
 submitted = {04/1996},
 published = {01/1997},
 annote    = {This team "electrolysed" disks of the high temperature ionic
 conductor consisting of mixed oxides of Sr, Ce, Y and Nb, sintered into
disks
 at 1300- 1480 C and coated with Pt on both sides for contact. Voltages up to
 5-45 V and frequencies of 0.0001-1 Hz were then applied to these disks
 ("electrolysis") in atmospheres of deuterium or hydrogen, and a gamma
 detector was used to measure the gamma spectrum emitted. These showed peaks
 that were not there before electrolysis, and the authors assign them to
 various isotpes such as 197Pt, 153Sm and 155Sm, thought to have been
produced
 during the experiment.  They go on to surmise various nuclear reactions that
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 might lead to these isotopes and speculate that they may be the key to
 understanding cold fusion.}
}
@article{Nedo1997,
 author    = {A.~V. Nedospasov and E.~V. Mudetskaya},
 title     = {Comments on the possible nature of 'cold fusion' phenomena},
 journal   = {Fusion Technol.},
 volume    = {31},
 year      = {1997},
 pages     = {121--122},
 keywords  = {Theory, new fundamental particle, the eleptino},
 submitted = {05/1995},
 published = {01/1997},
 annote    = {The authors very briefly explain that they believe that cold
 fusion may be due to a new fundamental particle which they name the
eleptino,
 hitherto absolutely rejected by science, they write. These particles are
 contained in the cosmic flux hitting the Earth.}
}
@article{Noni1997,
 author    = {V.~C. Noninski and J.~L. Ciottone and P.~J. White},
 title     = {On an experimental curiosity that if undetected may lead to
             erroneous far-reaching conclusions},
 journal   = {Fusion Technol.},
 volume    = {31},
 year      = {1997},
 pages     = {248--250},
 keywords  = {Discussion, transmutation},
 submitted = {02/1996},
 published = {03/1997},
 annote    = {In this Letter to the Editor, the authors point out the origin
 of an artifact they have observed, and which might mislead others into
 accepting chemical transmutation. In such an experiment, they observed a 412
 keV gamma peak after the "transmutation" burn; this could be thought to be
 due to newly formed 198Au. They were able to track the peak down to a
neutron
 activation artifact and it was in fact present even in the unburned
 sample. Transmutation experimenters are encouraged to look out for this
 artifact and not to assign it to chemical transmutation.}
}
@article{Numa1997,
 author    = {H. Numata and M. Fukuhara},
 title     = {Low-temperature elastic anomalies and heat generation of
             deuterated palladium},
 journal   = {Fusion Technol.},
 volume    = {31},
 year      = {1997},
 pages     = {300--309},
 keywords  = {Experimental, solid state properties, excess heat, res+},
 submitted = {04/1995},
 published = {05/1997},
 annote    = {The authors note the poor reproducibility of cold fusion work
 and the fact that the solid state properties such as elastic parameters have
 not been measured.  They make up for this lack here. They measure Young's
 shear and bulk moduli, the Lame parameter, the Poisson ratio and Debye
 temperature over a range of temperatures from 116-190 K, for deuterated
 Pd. Deuteration was by long-term electrolysis (1 month) and the specimen was
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 then placed in the cryostatic apparatus. Excess heat was measured during
 cooling of the sample, and about 6W excess was found for the 7mm dia., 9mm
 long Pd rod. Some elastic anomalies were found. The authors do not state
 where the excess heat might come from.}
}
@article{Ohmo1997a,
 author    = {T. Ohmori and M. Enyo and T. Mizuno and Y. Nodasaka
              and H. Minagawa},
 title     = {Transmutation in the electrolysis of lightwater - excess energy
              and iron production in a gold electrode},
 journal   = {Fusion Technol.},
 volume    = {31},
 year      = {1997},
 pages     = {210--217},
 keywords  = {Experimental, transmutation, Au cathodes, light water,
              Fe production, no FPH/Jones refs, res+},
 submitted = {01/1996},
 published = {03/1997},
 annote    = {This team used a gold cathode and light water containing the
 Mills-recipe potassium salts. The cell and materials were chosen so as to
 minimise initial Fe contamination. Days-long electrolyses at about 0.1
 A/cm$^2$ were run, checking for excess heat. Up to 22\% excess was found.
 Afterwards, the Au cathodes were examined under AES (Auger emmission),
 electron probe and SIMS, and some small blips that could be Fe were seen. A
 number of other elements were also found.  The authors however discount
 contamination as the source of Fe; they checked for this and there was none
 at the levels found. Also, isotopic ratio arguments indicated transmutation
 origins. The newly formed isotopes may have been due to either fusion or
 fission.}
}
@article{Ohmo1997b,
 author    = {T. Ohmori and T. Mizuno and H. Minagawa and M. Enyo},
 title     = {Low temperature nuclear transmutation forming iron on/in gold
              electrode during light water electrolysis},
 journal   = {J. Hydrogen Energy},
 volume    = {22},
 year      = {1997},
 pages     = {459--463},
 keywords  = {Experimental, transmutation, Au, light water, res+},
 submitted = {06/1996},
 annote    = {This team used an Au cathode in light water with Na2SO4, K2SO4
 and K2CO3 as electrolytes. Electrolysis was applied for 7 days at 1A
 (electrode area 2.5 and 5 cm$^2$), adding water as required, and then the Au
 electrode was analysed for its component elements by several techniques such
 as AES and SIMS. The AES spectra showed mainly Fe as a new product,
 accumulating with time. The amount produced depended on mechanical
 pretreatment of the Au (glass scraping etc).  Some excess heat was found, in
 the range 210-715 mW. SIMS analysis showed some anomalies in the isotopic
 distribution of the Fe, with 57Fe being at 6.6 times the natural
 value. Accumulation from the solution is ruled out by the authors.  Many
 other elements were found, but their isotopic distributions showed that they
 were impurities. The authors are not clear about the origin of the Fe,
 e.g. whether it comes from fusion or fission.}
}
@article{Ohmo1997c,
 author    = {T. Ohmori and T. Mizuno},
 title     = {Nuclear transmutation occurring in the electrolysis on
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               several metal electrodes},
 journal   = {Curr. Topics Electrochem.},
 volume    = {5},
 year      = {1997},
 pages     = {37--70},
 keywords  = {Review, mainly light water electrolysis, res+},
 annote    = {The authors review the field of cold fusion, concentrating
 mainly on work with light water with Au and Pd electrodes. Excess heat was
 found often, and so were helium 4, tritium and other (heavier) isotopes,
both
 in their own work and others'. Transmutation is the main theme, and some
 possible transmutation reactions are suggested at the end. 48 references.}
}
@article{Ota1997,
 author    = {K. Ota and T. Kobayashi},
 title     = {Cold fusion and calorimetry},
 journal   = {Netsu Sokutei},
 volume    = {24},
 number    = {3},
 year      = {1997},
 pages     = {138--145},
 note      = {In Japanese, Engl. abstr.},
 keywords  = {Review},
 submitted = {02/1997},
 annote    = {This is a smallish review or roundup of CNF, with 17
references,
 concentrating on calorimetry. One notes the usual equations of the three
 branches of dd fusion, energy discussion (chemical vs. nuclear), there is a
 Figure of a Fleischmannian heat burst, several kinds of cells (open and
 closed), some discussion of loading levels vs excess heat (going steeply
 upwards around 0.9) and a few alternative orthodox explanations, tabled in
 English.}
}
@article{Pozw1997,
 author    = {A.~E. Pozwolski},
 title     = {Comments on composite electrolytes and cold fusion},
 journal   = {Fusion Technol.},
 volume    = {31},
 year      = {1997},
 pages     = {120--121},
 keywords  = {Polemic, high voltage discharge},
 submitted = {06/1996},
 published = {01/1997},
 annote    = {The author comments on the theory of Hora et al, and recommends
 the use of a composite mixture of Pd powder, sand, D2O, NaOD and pyrogallol
 (to absorb oxygen and reduce explosion hazard thereby). The sand isolates
the
 Pd grains from each other and high voltage discharge would then be much more
 efficient in promoting fusion on the large Pd surface exposed to the
 discharge through the electrolyte.}
}
@article{Reif1997,
 author    = {O.~J.~A. Reifenschweiler},
 title     = {About the possibility of decreased radioactivity
               of heavy nuclei},
 journal   = {Fusion Technol.},
 volume    = {31},
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 year      = {1997},
 pages     = {291--299},
 keywords  = {Polemic, (old) experimental, res+},
 submitted = {09/1995},
 published = {05/1997},
 annote    = {Building on from the author's previous report of very old work,
 in which he observed the disappearance of tritium, he now searches for an
 explanation, as well as for the more recent reports by others of similar
 observations with heavier elements. He proposes experiments that might throw
 light on the phenomenon.}
}
@article{Sada1997,
 author    = {H. Sada},
 title     = {Theory of nuclear reactions in solids},
 journal   = {Fusion Technology},
 volume    = {32},
 year      = {1997},
 pages     = {107--125},
 keywords  = {Theory, Bloch, res+},
 submitted = {10/1994},
 published = {08/1997},
 annote    = {Sada, of the Mitsubishi company, develops his theory of cold
 fusion, using the Bloch theorem and field operator formalism (the abstract
 says). Then, using Fermi's Golden Rule, Sada calculates reaction rates. He
 finds that calculated ratios of triton to 4He production are consistent with
 published observations, and has an explanation for the lack of nuclear
 byproducts. From the random distribution of the number of "primitive cells"
 in a Pd lattice, S explains the irreproducibility of observations. In
 summary, CNF is a clean energy source; the author has solved a number of
 problems, but there remain some, such as the production of tritium without
 excess heat.}
}
@article{Sams1997,
 author    = {N.~V. Samsonenko and D.~V. Tahti and F. Ndahayo},
 title     = {Reply to the comment on 'On the Barut-Vigier model of
              the hydrogen atom' by Samsonenko et al.},
 journal   = {Phys. Lett. A},
 volume    = {229},
 year      = {1997},
 pages     = {133--134},
 keywords  = {Polemic, no FPH/Jones ref},
 submitted = {11/1996},
 published = {05/1997},
 annote    = {Reply to the polemic by Drazic and Maric in the same issue, who
 modified the Barut-Vigier model previously presented by the present authors,
 in which they arrived at the figure 128 keV for the ground state of the
 hydrogen atom; Drazic and Maric believe this should be 13.6 eV only.
 Samsonenko et al here state that this is an error, a wrong use of the radial
 wave function which cannot be normalised. In fact, they do (and did) not
 claim 128 keV, but get about 40 keV by numerical methods and stand by this
 figure.}
}
@article{Sapo1997,
 author    = {L.~G. Sapogin},
 title     = {Energy generation processes and cold nuclear fusion
              in terms of Schroedinger equation},
 journal   = {Chin. J. Nucl. Phys.},
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 volume    = {19},
 number    = {2},
 year      = {1997},
 pages     = {115--120},
 keywords  = {Theory, res+, no FPH/Jones refs.},
 submitted = {05/1996},
 annote    = {This continues the author's previous theoretical work on the
 subject (there are 14 references, all of them to his own work). The
formalism
 of the Schroedinger equation can, he writes, account for cold fusion and
 excess heat. He calls his theory the unitary quantum theory (UQT). After
 supporting CNF, he goes on to explain nuclear events in biological (enzyme)
 reactions, which others have swept under the carpet; and mentions the
 Griggs/Potapov, CETI and other devices.}
}
@article{Shel1997,
 author    = {D.~S. Shelton and L.~D. Hansen and J.~M. Thorne and S.~E.
Jones},
 title     = {An assessment of claims of 'excess heat' in 'cold fusion'
              calorimetry},
 journal   = {Thermochim. Acta},
 volume    = {297},
 year      = {1997},
 pages     = {7--15},
 keywords  = {Polemic and experimental, excess heat, res-},
 submitted = {01/1997},
 annote    = {The Jones and coworkers team takes a close look at how cnf
 calorimetry has been done. They point out several weaknesses in prior
 designs, and design a calorimeter of their own. Theory is outlined. It turns
 out that stability and repeatability of a given design are no guarantee of
 good performance. Every calorimeter should be checked using a chemical
 reaction of known enthalpy, yet this has not been done previously. Simple
 calibration using electrical heating is not sufficient. Inadequate mixing
 might occur and thus temperature gradients in the commonly used cells,
making
 any results quite unreliable.  Another defect has been unstable heat
 paths. The authors suggest that purported excess heat would not be observed
 if calorimeter design were improved along the lines described in the paper.}
}
@article{Song1997,
 author    = {X. Song and J. Liu},
 title     = {Cold fusion and its lessons},
 journal   = {Juaxue Tongbao},
 year      = {1997},
 number    = {1},
 pages     = {54--58},
 note      = {In Chinese},
 keywords  = {Analysis},
 submitted = {05/1995},
 published = {01/1997},
 annote    = {Chem. Abstr. 126:255991 (1997) has a short abstract and I
quote:
 "A review with 6 refs is given on the definition of cold fusion, hypothesis
 proposed by C. Walling and J. Simon for explaining the exptl. results of
 Fleischmann and Pons and rough expts., and enlightenment of cold fusion".
One
 sees the three normal dd fusion reactions tabled with their relative rates,
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 Walling and Simons referred to and then Langmuir's paper on self-deception.
 Bruce Lewenstein is cited, as are Paneth \& Peters (1926), Tandberg
(1930's).
 The first reference in the list is to Huizenga's book, so one assumes that
 the authors are skeptical of the reality of cold fusion. }
}
@article{Swar1997a,
 author    = {M.~R. Swartz},
 title     = {Consistency of the biphasic nature of excess enthalpy in
             solid-state anomalous phenomena with the quasi-one-dimensional
             model of isotope loading into a material},
 journal   = {Fusion Technol.},
 volume    = {31},
 year      = {1997},
 pages     = {63--74},
 keywords  = {Experimental, Ni cathode, light water, excess heat, res+},
 submitted = {06/1995},
 published = {01/1997},
 annote    = {The author has previously outlined his one-dimensional model
for
 loading of hydrogen into a metal. He has performed a series of measurements
 of the heat balance in an electrolysis cell using a Ni spiral cathode in
 light water solutions. A Peltier heat calorimeter measured the heat balance.
 A power gain of up to 1.44 was found for the Ni spiral, none for Fe or Al
 cathodes. Some false positives were found and eliminated, and recombination
 was also eliminated as the source of the excess heat. The power gain was a
 function of input power, showing a notch or plateau, and this may account
for
 some negative results of others.}
}
@article{Swar1997b,
 author    = {M.~R. Swartz},
 title     = {Phusons in nuclear reactions in solids},
 journal   = {Fusion Technol.},
 volume    = {31},
 year      = {1997},
 pages     = {228--236},
 keywords  = {Theory},
 submitted = {08/1996},
 published = {03/1997},
 annote    = {The author tries to explain the anomalous branching ratio
 (deviating from the 50:50 ratio of conventional fusion) seen in CNF, by
means
 of phusons, i.e.  the stereoconstellation of the fully loaded metal acting
in
 a cooperative fashion. A simultaneous Bose-Einstein cooperative reaction of
a
 phuson - a cluster of phonons - occurs with de-excitation of the excited 4He
 produced by the reaction. The effect is brought into line with the
Moessbauer
 effect, and special relativity is invoked.}
}
@article{Swar1997c,
 author    = {M. Swartz},
 title     = {Codeposition of palladium and deuterium},
 journal   = {Fusion Technol.},
 volume    = {32},
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 year      = {1997},
 pages     = {126--130},
 keywords  = {Theory, loading ratio, mass transport, res+},
 submitted = {03/1995},
 published = {08/1997},
 annote    = {The author here extends his quasi-one-dimensional (Q1D) model
of
 the loading of palladium with deuterium. Both diffusion and migration are
 considered for the case of codeposition of deuterium and Pd itself, present
 in solution as the salt (as done by Szpak et al). This has the advantage of
 creating a continually renewed Pd surface. Some impressive equations are
 given, spanning two columns, and the bottom line is that large loadings can
 be achieved quickly if redistribution of the deuterium into the metal
 interior is slow.}
}
@article{Viol1997,
 author    = {V. Violante and Ninno. De A},
 title     = {Lattice ion trap: a possible mechanism inducing a strong
              approach between two deuterons in condensed matter},
 journal   = {Fusion Technol.},
 volume    = {31},
 year      = {1997},
 pages     = {219--227},
 keywords  = {Theoretical, no FPH/Jones refs, res0},
 submitted = {05/1995},
 published = {03/1997},
 annote    = {A lot of theory of the past 40 years treats charged particles
 contained electrodynamically, and this is applied here to the case of
 hydrogen in palladium. Computer simulations were carried out for deuterons
in
 the lattice and it was found that minumum approach distances down to $<$ 0.1
 A, small enough to account for fusion, are possible. The model is not,
 however, intended to prove cold fusion.}
}
@article{Will1997,
 author    = {F. Will},
 title     = {Hydrogen + oxygen recombination and related heat generation
              in undivided electrolysis cells},
 journal   = {J. Electroanal. Chem.},
 volume    = {426},
 year      = {1997},
 pages     = {177--184},
 keywords  = {Theory, recombination, res0},
 submitted = {03/1996},
 published = {04/1997},
 annote    = {Will quantitatively examines the claim of Jones et al (backed
 by experiments) that observed excess heat in CNF electrolysis can be
 explained by recombination of hydrogen and oxygen in the cell. Jones et al
 used only currents up to 8 mA.  Will shows by a mathematical analysis that
 recombination decreases with current density and at levels of, resp., 10\%,
 4\% and 2\% at 10, 100 and 1000 mA/cm$^2$.  Thus excess heats at these
higher
 current densities cannot be explained in these terms. Also, if there no bare
 metal in the cell head space, what is called recombination is not that of
the
 dissolved gases, but rather the reduction of oxygen at the cathode, which
 process has the same effect. Jones et al were therefore incorrect in their
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 postulates.}
}
@article{Yuki1997,
 author    = {H. Yuki and T. Sato and T. Ohtsuki and T. Yorita and Y. Aoki
              and H. Yamazaki and J. Kasagi and K. Ishii},
 title     = {Measurement of the D(d,p) reaction in Ti for 2.5 < Ed < 6.5 keV
              and electron screening in metal},
 journal   = {J. Phys. Soc. Japan},
 volume    = {66},
 year      = {1997},
 pages     = {73--78},
 keywords  = {Experimental, ion beam, Ti, screening, res0, no FPH/Jones ref},
 submitted = {08/1996},
 published = {01/1997},
 annote    = {This is a self targeting experiment, shooting a deuteron beam
of
 a few keV at a thick Ti target, where deuterons become implanted. Soon,
 deuterons hit deuterons, and some fusion occurs. This is detected by
 measuring the flux of protons, using an SSI device in the chamber. The
 hypothesis is tested that at lower energies, there is some enhancement of
the
 d-d fusion rate. The enhancement is calculated by normalising measured
fusion
 rates to those at the fixed energy of 6.5 keV. Some slight enhancement is
 indeed found, but no more than about a factor of 1.2. Some theory is
 presented, invoking improved electron screening to explain this unexciting
 effect.}
}
@article{Zhan1997a,
 author    = {W.~S. Zhang and X.~W. Zhang and H.~Q. Li},
 title     = {The maximum hydrogen (deuterium) loading ratio in the
              Pd|H2O(D2O) electrochemical system},
 journal   = {J. Electroanal. Chem.},
 volume    = {434},
 year      = {1997},
 pages     = {31--36},
 keywords  = {Theoretical, loading, res0},
 submitted = {04/1996},
 published = {08/1997},
 annote    = {This is a fundamental study of of hydrogen (or deuterium)
 loading into Pd by reduction in water, apparently inspired by F\&P's cold
 fusion results. The hydrogen evolution reaction is described and analysed,
 and a change from the Volmer-Tafel to the Volmer-Heyrovsky mechanism at some
 current density is asserted (again). This implies a maximum loading,
 independently of the overpotential; calculations suggest a maximum of about
 1. The authors go on to suggest methods for optimising loading: smooth
 electrodes, raising pressure, use of surfactants etc.}
}
@article{Zhan1997b,
 author    = {Z. Zhang and F. Liu and M. Liu and Z. Wang and F. Zhong
              and F. Wu},
 title     = {Calorimetric studies on the electrorefining process of copper},
 journal   = {J. Thermal Anal.},
 volume    = {50},
 year      = {1997},
 pages     = {89--103},
 keywords  = {Experimental, calorimetry, excess heat, res+},
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 annote    = {In this work, the Chinese team use a cell and calorimeter
rather
 like that of F\&P, and the work is motivated by F\&P CNF results. Instead of
 calorimetry in Pd/D2O, they applied it to copper deposition. They find that
 there is excess heat, roughly linear with current density, and conclude that
 something anomalous is going on, some unknown process; and that
 thermodynamics might be wrong.}
}
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## YEAR: 1998

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% Year 1998; there are  51 entries.
@article{Aoki1998,
 author    = {T. Aoki and Y. Kurata and H. Ebihara and N. Yoshikawa},
 title     = {Search for nuclear products of the D + D nuclear fusion},
 journal   = {Int. J. Soc. Mat. Eng. Resources},
 volume    = {6},
 number    = {1},
 year      = {1998},
 pages     = {22--25},
 keywords  = {Experimental, Pd, tungsten bronze, electrolysis, gas phase,
             calorimetry, neutrons, gammas, tritium, helium, res-},
 submitted = {09/1997},
 annote    = {This is a multivariable study, using Pd foil under electrolysis
 (where some excess heat had been observed), a Pd wire in D2 gas, and sodium
 tungsten bronze (NaxWO3), also under D2 gas, were tried. A number of nuclear
 products were searched for, and not found.}
}
@article{Arat1998a,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Anomalous difference between reaction energies generated
             within D2O-cell and H2O-cell},
 journal   = {Jpn. J. Appl. Phys. Pt.2},
 volume    = {37},
 year      = {1998},
 pages     = {L1274--L1276},
 keywords  = {Experimental, electrolysis, excess heat, res+},
 submitted = {09/1998},
 published = {11/1998},
 annote    = {The Arata and Zhang team has now connected two new cells in
 series, the same current (5.5 A or 200 mA/cm$^2$) going through both. The
D2O
 cell shows a rise in excess heat increase after about 600 h from the start
of
 this experiment, rising more sharply from 1800 h.  The H2O cell is steady at
 zero excess. There is also a "mixed" cell, containing a 2:1 (in weight)
 mixture of D2O:H2O; this one also shows episodes of excess heat.}
}
@article{Arat1998b,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Anomalous 'deuterium-reaction energies' within solid},
 journal   = {Proc. Japan. Acad. B},
 volume    = {74},
 year      = {1998},
 pages     = {155--158},
 keywords  = {Experimental, electrolysis, Pt, Pt black, excesss heat, res+},
 submitted = {09/1998},
 annote    = {The authors consider that others' unreliable results may be due
 to uneven deuterium loading of bulk Pd cathodes, and use their own Pd black,
 which is more easily loaded, in their own Pd bottle. The deuterium is
 generated at the bottle's outer surface by electrolysis, and diffuses into
 the inner chamber, loading the Pd black there. This results in high
effective
 pressures of deuterium. In this experiment, two cells, one with heavy and
one
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 with light water, were put in series, the same current going through
 them. Current density of 200 mA/cm$^2$ or 5.5 A was applied to this double
 cell, and the results were 100\% reproducible. In all reported experiments,
 excess power of up to about 25 W was observed with the D2O system, but
around
 zero with light water. Another cell, in which both light and heavy water was
 present, also showed excess heat but at greater input powwer; and this could
 be turned on and off by cutting or resuming the current.}
}
@article{Chat1998,
 author    = {L.~G. Chatterjee},
 title     = {Electrolysis in thin-film nickel coatings: mimicking
              supernova physics?},
 journal   = {Fusion Technol.},
 volume    = {34},
 year      = {1998},
 pages     = {147--150},
 keywords  = {Theory, suggestion, res+, no FPH/Jones refs.},
 submitted = {02/1997},
 published = {09/1998},
 annote    = {The author has previously tried to explain CNF, and here
applies
 her previous thoughts, as well as the swimming electron model (SEM) of
 Hora's, to the claims of transmutation by electrolysis at Ni in light water,
 where in particular, Fe, Ag, Cu, Mg and Cr appear to be made. She finds it
 feasible that there is a chain or reactions, starting with electron capture
 by a proton, leading to a neutron and neutrino, just as happens at the
 collapse of a start going supernova. This is helped by the squeeze
 electrolysis puts on electrons, into the Ni cathode. There then follow
 further reactions, leading to heavier elements.}
}
@article{Chen1998,
 author    = {L. Chen and X. Qiu and S. Song},
 title     = {Experimental research of excess heat under high pulse current},
 note      = {In Chinese, Engl. abstr.},
 journal   = {High Power Laser Part. Beams},
 volume    = {10},
 number    = {2},
 year      = {1998},
 pages     = {312--314},
 keywords  = {Experimental, Pd, high current discharge, neutrons, excess
heat,
              res-},
 submitted = {12/1997},
 published = {05/1998},
 annote    = {This Chinese paper gives a few details away in the Figs. The
 experiment seems to be a high voltage discharge from a capacitor, through Pd
 wires in D2O. A coil is used to shape the pulse, and current peaks of up to
 30 kA are used, fed through what seems to be bundles of 15-30 wires about
150
 mm long. The abstract notes that neither excess heat nor neutrons were
 observed but that it is not impossible that they will be, under suitable
 conditions.}
}
@article{Cher1998,
 author    = {I.~P. Chernov and T.~N. Mel'nikova and Yu.~P. Cherdantsev
              and M. Kreining and Kh. Baumbakh},
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 title     = {Yield of nuclear reaction products from deuterium-saturated
              composite materials and layered structures},
 journal   = {Russ. Phys. J.},
 volume    = {41},
 year      = {1998},
 pages     = {642--646},
 note      = {Orig. in: Izv. Vyssh. Ucheb. Zaved. Fiz. (1998) (7) 36},
 keywords  = {Experimental, Ni-WC, electrolysis, acoustics, gamma, neutrons,
              res+},
 submitted = {10/1997},
 published = {07/1998},
 annote    = {The paper starts with some history of cold fusion, going back
 to early Soviet workers in the 1960's and 1980 (Klyuev et al, 1986, are not
 mentioned). It then states that cold fusion has been established, but still
 has some irreproducibility problems. In this work, a layered cathode is
used,
 made from a composite pressed from a 50:50 mix of Ni and WC powder and
 plasticiser, and layered structures of Ti sputtered onto Pd, silicon and
 ceramic plates.  Acoustic energy, gamma emission and neutrons were
 measured. Gammas were observed at levels higher than the background, and
 correlated with sound emissions. The authors conclude that the required
 energy for the fusion comes from crack formation, as predicted by Rodimov in
 1980, and film delamination.  No neutrons above the background were
 detected.}
}
@article{Chic1998,
 author    = {D. Chicea and D. Lupu and I. Cheregi},
 title     = {Experimental evidence of neutron emission from TiDx samples},
 journal   = {Hadronic J.},
 volume    = {21},
 year      = {1998},
 pages     = {567--582},
 keywords  = {Experimental, Ti, gas phase, neutrons, res+},
 submitted = {05/1998},
 annote    = {Cleaned Ti slabs were loaded with D2 gas in a chamber, and
 neutrons monitored, using a BF3 proportional counter. Background
measurements
 were taken over three periods lasting up to 73 h, and the number of events
 going over 3 sigma noted (about 6/h). Temperature cycling of the Ti sample
 was also tried. Neutrons in excess of 3 sigma, and coming in bursts, were
 observed, especially during heating. These are taken as proof of a low
energy
 nuclear reaction taking place.}
}
@article{Cres1998a,
 author    = {C.~L. Crespo and R.~F.~C. Carvalhal and C.~A.~C. Sequeira},
 title     = {Anomalous effects during electrolysis of aqueous solutions},
 note      = {In Portuguese},
 journal   = {Ciencia \& Tecnol. Materiais},
 volume    = {10},
 number    = {1/2},
 year      = {1998},
 pages     = {43--50},
 keywords  = {Experimental, Ni, light water, cell voltage, res0},
 annote    = {This team of materials scientists attempted a confirmation of
 the Ni/H2O mode of cold fusion proposed by Bush et al and Notoya. Two cells
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 were run together, each with 1 cm$^2$ Ni cathodes and Pt anodes, in
solutions
 of K2SO4 and Na2SO4. Currents of 200-500 mA were applied, and total cell
 voltage monitored; in some cases also the cell temperature. There were a few
 hints of anomalous events but nothing definite.}
}
@INCOLLECTION{Cres1998b,
   author    = {C. L. Crespo and R. F. C. Carrvalhal and C. A. C. Sequeira},
   title     = {Electrochemically induced cold fusion and environment},
   booktitle = {Chemistry, {E}nergy and the {E}nvironment},
   editor    = {C. A. C. Sequeira and J. B: Moffat},
   year      = {1998},
   publisher = {Royal Society of Chemistry},
   address   = {Cambridge, UK},
   note      = {Proceedings 3rd {E}uropean {W}orkshop on {C}hemistry,
{E}nergy
                and the {E}nvironment, Estoril, Portugal, 1997},
   pages     = {363--376},
   annote    = {A review, with 8 refs, with special attention to environmetal
 aspects such as the production of energy.}
}
@article{Dufo1998,
 author    = {J. Dufour},
 title     = {Response to 'Comments on 'Interaction of palladium/hydrogen and
             palladium/deuterium to measure the excess energy per atom for
             each isotope''},
 journal   = {Fusion Technol.},
 volume    = {33},
 year      = {1998},
 pages     = {385.},
 keywords  = {Polemic},
 submitted = {04/1998},
 published = {05/1998},
 annote    = {Response to the polemic by Mills, same issue, page 384, in
which
 Mills charges Dufour with using his hydrino concept (just changing the name
 to "hydrex"), without attribution to Mills. Dufour replies that the hydrex
 has nothing in common with Mills' hydrinos, but describe a tightly bound
 virtual neutron formed when the proton (or deuteron) and electron
equilibrate
 to a position where the attraction and repulsion between them balance.
Dufour
 suggests that Mills attend a few cold fusion conferences.}
}
@article{Engv1998,
 author    = {K.~C. Engvild},
 title     = {Nuclear reaction by three-body recombination beteween deuterons
             and the nuclei of lattice-trapped D2 molecules},
 journal   = {Fusion Technol.},
 volume    = {34},
 year      = {1998},
 pages     = {253--255},
 keywords  = {Theory, hypothesis, res0, no FPH/Jones ref.},
 submitted = {05/1997},
 published = {11/1998},
 annote    = {This is a hypothesis to explain the results of Karabut, with
 glow discharge at special Pd electrodes. The effect built up, went through a
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 maximum and decreased again. Engvild suggests several key components: active
 areas on the electrode that are not the pure metal but some compound with
it;
 the presence of deuterium molecules of limited mobility in the lattice;
 deuterons arriving due to the glow discharge, striking the trapped D2; a
 three-body reaction of the three deuterium nuclei, causing two of them to
 fuse and leading to 4He and the propulsion of a deuteron. The hypothesis is
 speculative, but allows some predictions, such as some of Karabut's
 observations, the formation of 4He rather than tritium or 3He, or
 neutrons. Some radioactive and stable isotopes should also be formed by
 flying deuterons and alphas hitting other elements.}
}
@article{Fish1998,
 author    = {J.~C. Fisher},
 title     = {Liquid-drop model for extremely neutron rich nuclei},
 journal   = {Fusion Technol.},
 volume    = {34},
 year      = {1998},
 pages     = {66--75},
 keywords  = {Theory, polyneutrons, res+},
 submitted = {08/1997},
 published = {08/1998},
 annote    = {Fisher once again elaborates his theory of polyneutrons as the
 agent of cold fusion, now using a liquid-drop model. Both lithium and
 palladium are involved in the nuclear reactions.}
}
@article{Foca1998,
 author    = {S. Focardi and V. Gabbani and V. Montalbano and F. Piantelli
              and S. Veronesi},
 title     = {Large excess heat production in Ni-H systems},
 journal   = {Nuovo Cimento A},
 volume    = {111},
 year      = {1998},
 pages     = {1233--1242},
 keywords  = {Experimental, Ni, H, gas phase, heat, res+, no FPH/Jone refs.},
 submitted = {03/1996},
 published = {11/1998},
 annote    = {In addition to a cell used by this team earlier, consisting of
 a tubular vacuum chamber with a heating mantle around a Ni rod and a single
 temperature probe on the outside and the inside of the mantle, a new cell
has
 now been designed with multiple probes. Hydrogen gas was admitted to the
 chambers, which were heated, and temperatures measured.  Transient lowering
 of the input power produced, upon restoring the power, temperatures higher
 than before the transients.  This showed the presence of nuclear phenomena
 and calibrations performed calculated roughly 20 W of excess power generated
 by the hydrided Ni rods.  The effect, once started, lasted for 278 days, the
 duration of the experiment.}
}
@article{Fris1998,
 author    = {F. Frisone},
 title     = {Can variations in temperature influence deuteron interaction
              within crystalline lattices?},
 journal   = {Il Nuovo Cimento D},
 volume    = {20},
 year      = {1998},
 pages     = {1567--1580},
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 keywords  = {Theory, chain reaction in lattice, res+},
 submitted = {03/1998},
 published = {10/1998},
 annote    = {The author has previously proposed that the Coulomb barrier
 between deuterons in metal lattices like Ti, Pd and Pt, is lowered by the
 lattice conditions.  Here the effect of temperature on this effect is
 examined theoretically. It is found that increases up to 40 orders of
 magnitude in fusion rates are possible. This is not enough, however, to
 explain F\&P's results. Impure metals favour the fusion rate.}
}
@article{Fuku1998,
 author    = {M. Fukuhara},
 title     = {Possible dynamic interaction of deuterons between tetrahedral
             and octahedral interstices of palladium lattice at cryogenic
             temperatures},
 journal   = {Fusion Technol.},
 volume    = {34},
 year      = {1998},
 pages     = {151--155},
 keywords  = {Theory, suggestion, res+, no FPH/Jones ref.},
 submitted = {09/1997},
 published = {09/1998},
 annote    = {The author has done experiments with electrolytically loaded
Pd,
 kept at cryogenic temperatures (96-300K), where some anomalies were
observed.
 He suggests that deuterons jump between tetrahedral and octahedral crystal
 sites, and that this might produce heat, and possibly lead to fusion,
 although this is not established. Virtual pions may well be involved. More
 work is needed.}
}
@article{Gou1998,
 author    = {Q. Gou},
 title     = {Further discussion on the mechanism of cold fusion and
             cold fusion materials},
 journal   = {Chin. J. Atomic Molec. Phys.},
 volume    = {15},
 number    = {1},
 year      = {1998},
 pages     = {7--12},
 note      = {In Chinese, Eng. abstr.},
 keywords  = {Discussion, no references.},
 submitted = {09/1997},
 published = {01/1998},
 annote    = {The abstract just says that there is more detail in the paper,
 and that the ionic crystals TiD2 and PdD may be good cold fusion materials.}
}
@article{Gozz1998,
 author    = {D. Gozzi and F. Cellucci and P.~L. Cignini and G. Gigli
             and M. Tomellini and E. Cisbani and S. Frullani
             and G.~M. Urciuoli},
 title     = {X-ray, heat excess and 4He in the D/Pd system},
 journal   = {J. Electroanal. Chem.},
 volume    = {452},
 year      = {1998},
 pages     = {251--271},
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 keywords  = {Experimental, electrolysis, Pd, heavy water, x-rays, excess
heat,
              helium, res+},
 submitted = {01/1997},
 published = {09/1997},
 annote    = {This is an Erratum,  but unusual in that it is the complete
 paper printed once more, without the (apparently) many errors in the
original
 version. The original annotation at the time for the paper in JEC 435 (1997)
 113, was: This long paper reports on electrolysis in several special
 Pyrex/stainless steel cells, designed to keep out helium from the air, so
 that helium detection was possible below the ambient level (5.24 ppm).
Excess
 heat and 4He were monitored, and x-ray film was placed 5 cm from the Pd
 cathode.  Effluent gases were carried out with helium-free nitrogen from
 liquid N2, which also circulated around the cell, the gas stream going out
 through stainless steel vacuum tubing. He was detected by a high-Q mass
 spectrometer working in the M-range up to 27 amu. The cathode was a bundle,
4
 mm by 40 mm, of Pd wire, held together at the ends by a Pd rod cap. A large
 Pt mesh cage was the counter electrode (anode). The cathode was vacuum
 annealed at 970 C for 24 h. Excess heats were measured by a cooling coil
 calorimeter. Controls were run on everything. Although there appeared to be
 some helium leaks, there were none at other times and 4He was found, roughly
 commensurate with the excess heat also found. Time correlations were not
 possible to obtain however. A check, using the Ne/He ratio, was tried but
 there was too little Ne to get a figure (this points to the 4He being
 generated in the cell, not from the air, which contains Ne).  One of the
 several cells employed put out 8 MJ excess heat, or 80\% over input.  The
 x-ray film showed sharply defined spots, and the authors explain these by
 shadowing through the Pd bundles, the x-rays coming from the central Pd
 strands for an unknown reason. X-ray film away from the cell showed no
spots.
 The x-rays are tentatively explained by alpha particles (the 4He) hitting
Pd.
 Another result is that the 4He was produced only on the Pd surface and not
 found in the wire interior.}
}
@article{Gran1998,
 author    = {P. Grant and D. Chambers and L. Grace and D. Phinney
              and I. Hutcheon},
 title     = {Advanced techniques in physical forensic science},
 journal   = {Physics Today, Oct.},
 year      = {1998},
 pages     = {32--38},
 keywords  = {Discussion},
 published = {10/1998},
 annote    = {The forensic team describe one of their tools, an
ultrasensitive
 mass spectrometer, and its application to a few cases. One of these was the
 cold fusion electrolysis cell that exploded at SRI, killing Andrew Riley.
The
 article does not state just what role MS played, but does say that a large
 number of tests on the debris indicated the possibility that an explosive
 oxidation of residual lubricating oil might have started the explosion. This
 has been reported in a fuller paper by these authors.}
}
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@article{Hans1998,
 author    = {L.~D. Hansen and S.~E. Jones and D.~S. Shelton},
 title     = {A response to hydrogen + oxygen recombination and related
              heat generation in undivided electrolysis cells},
 journal   = {J. Electroanal. Chem.},
 volume    = {447},
 year      = {1998},
 pages     = {225--226},
 keywords  = {Polemic},
 submitted = {10/1997},
 published = {04/1998},
 annote    = {This is a response to a paper by F. Will, ibid 426 (1997) 177.
 The authors state that Will misquoted them, ignores some of their points and
 otherwise errs. There is a difference between (purportedly) saying that
 recombination explains all excess heat and (in fact) saying that it (and
 other prosaic explanations) must be ruled out for excess heat to be taken as
 real. The authors here state that they do not believe that recombination can
 account for all claims of excess heat. Also, Will should not have included
 Notoya's demonstration at Nagoya as evidence, as it has been shown to be
 faulty (heat being dissipated into the air by a fine lead wire). Thermal
 gradients in calorimetric cells have not been ruled out.}
}
@article{Hora1998a,
 author    = {H. Hora},
 title     = {Magic numbers and low energy nuclear transmutation by protons
              in host metals},
 journal   = {Czech. J. Phys.},
 volume    = {48},
 year      = {1998},
 pages     = {321--328},
 keywords  = {Theory, res+ no FPH/Jones refs},
 submitted = {07/1997},
 published = {03/1998},
 annote    = {Theoretical physicist Hora has a theory of cold fusion, or
 transmutation.  He examines such reactions theoretically, and finds maximum
 reaction rates close to magic numbers 2, 8, 20... (with the exception of
 Z=20). He concludes that the way to reproducibility is to realise that they
 are surface reactions or reactions at interfaces between dissimilar metals
 (layered cathodes). There is also a connection with powers of 3, possibly
 connected with quarks.}
}
@article{Hora1998b,
 author    = {H. Hora and G.~H. Miley},
 title     = {New magic numbers from low energy nuclear transmutations
              predict element (306)X(126) for compound reactions},
 journal   = {Czech. J. Phys.},
 volume    = {48},
 year      = {1998},
 pages     = {1111--1116},
 keywords  = {Theory, transmutation, res+},
 submitted = {05/1998},
 annote    = {Hora, who has previously published on his magic numbers idea,
 here teams up with George Miley on the same subject. The magic numbers
 sequence starts with 2, 8, 20, 28, 50, 82 and 126 and has been predicted to
 continue with 180, 246, 324 "etc". This paper shows that these new numbers
 are related to the predicted stable transuranic elements beyond Z=126. A
 recent experiment has enabled the derivation of the number 180 and this is
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 consistent with the hypothesis. A nuclide with mass 306 and atomic number
126
 is very probable. It arises from the number 126 of protons plus the other
 magic number 180 of neutrons.}
}
@article{Isag1998,
 author    = {S. Isagawa and Y. Kanda and T. Suzuki},
 title     = {Present status of cold fusion experiment at KEK},
 journal   = {Int. J. Soc. Mat. Eng. Resources},
 volume    = {6},
 number    = {1},
 year      = {1998},
 pages     = {60--67},
 keywords  = {Discussion, report, experimental, multistudy, res+},
 submitted = {11/1997},
 annote    = {This is a roundup of the results of a long study of cold fusion
 at the KEK site in Japan, going on since 1989. There are experimental
details
 of excess heat, neutron and other nuclear measurements. Excess heat was
found
 at high level, neutrons 3.8 sigma above background, and some x-ray
 emissions. These were not simultaneous, however.}
}
@article{Iwam1998,
 author    = {Y. Iwamura and T. Itoh and N. Gotoh and I. Toyoda},
 title     = {Detection of anomalous elements, x-ray, and excess heat in a
             D2-Pd system and its interpretation by the electron-induced
             nuclear reaction model},
 journal   = {Fusion Technol.},
 volume    = {33},
 year      = {1998},
 pages     = {476--492},
 keywords  = {Experimental and theory; transmutation, res+},
 submitted = {09/1997},
 published = {07/1998},
 annote    = {A well designed and careful multiparameter experiment. A Pd
 cathode, 1 mm thick, was placed at the bottom of an electrolysis cell, the
 lower side facing a vacuum chamber; in this way, a steady flux of deuterium
 could be induced through the Pd membrane. Various coatings were tried, such
 as Cu, Pt, Al and MgO. Parameters measured included excess heat, x-rays and
 neutrons. There was x-ray emission from the Pd side exposed to the
 electrolyte, and some neutrons but uncorrelated with the x-rays, which were
 not correlated with excess heat either. The team therefore posits different
 nuclear reactions as the origin of these products. Also, certain elements
 were apparently produced at the upper Pd surface, such as Ti and Ca. Careful
 analysis seems to rule out prior contamination, at least for Ti. The authors
 then go on to invoke their EINR model to explain the results.}
}
@article{Jone1998,
 author    = {S.~E. Jones and L.~D. Hansen and D.~S. Shelton},
 title     = {An assessment of claims of excess heat in cold fusion
             calorimetry},
 journal   = {J. Phys. Chem. B},
 volume    = {102},
 year      = {1998},
 pages     = {3647},
 keywords  = {Polemic},
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 submitted = {07/1996},
 published = {04/1998},
 annote    = {This is a rebuttal of Miles' rebuttal (ibid, p.3542) of these
 authors' polemic paper (JPC 99 (1995) 6966) criticising Miles' work. The
 authors write that Miles' response fails to address some of the main
 conclusions of their paper.  They are critical of Miles' radiation evidence,
 and of his earlier suggestion (not made in his rebuttal) that deuterium
fuses
 mainly to 4He and that the 23.8 MeV goes off into the lattice; this is not
 possible, the authors write.  Also, Miles' calorimetry is said to be
 suspect.}
}
@article{Kozi1998a,
 author    = {H. Kozima and K. Kaki and M. Ohta},
 title     = {Anomalous phenomenon in solids described by the TCNF model},
 journal   = {Fusion Technol.},
 volume    = {33},
 year      = {1998},
 pages     = {52--62},
 keywords  = {Theory, commentary, res+},
 submitted = {08/1996},
 published = {01/1998},
 annote    = {The Kozima team has had the TCNF theory for some years, for
 "trapped thermal neutron catalyzing fusion". In this model, neutrons (likely
 from an outside source) trigger a sequence of nuclear reactions, possibly
 starting with the absorption of a neutron by 6Li. Here they make some rough
 and simple assumption (order of magnitude) such as: there is a layer of Li
 deposit on Pd cathodes, about 1 micrometer thick; the neutron reaction takes
 place near the surface, and others. They then look at 28 papers published on
 CNF by other labs, and assess the results in the light of their model. They
 conclude that all of them, including those with null results, are consistent
 with TCNF. Null results, for example, in shielded environments, can be due
to
 the lack of thermal neutrons, required for a reaction. The model thus also
 accounts for the sporadic nature of CNF, and for practically everything else
 observed.}
}
@article{Kozi1998b,
 author    = {H. Kozima},
 title     = {How the cold fusion occurs (2)},
 journal   = {Rept. Fac. Sci. Shizuoka Univ.,},
 volume    = {32},
 year      = {1998},
 pages     = {1--43},
 keywords  = {Theoretical, TCNF model, res+},
 submitted = {06/1997},
 annote    = {This is Part 2, following the author's first paper of 1994,
 same journal.  The authors' TCNF (trapped neutron catalyzed fusion) model is
 again examined critically, appplying it to 40 different CNF reports,
 comprising the most prominent CNF publications. The model is consistent with
 these. He ends by urging scientists off their chairs and to produce
 convincing theory of the phenomenon, so that it does not remain obscure.}
}
@article{Kozi1998c,
 author    = {H. Kozima},
 title     = {The cold fusion phenomenon},
 journal   = {Int. J. Soc. Mat. Eng. Resources},
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 volume    = {6},
 number    = {1},
 year      = {1998},
 pages     = {68--77},
 keywords  = {Review},
 submitted = {10/1997},
 annote    = {Kozima reviews cold fusion after almost 9 years of its
 discovery. Theory is still lacking but there is some progress. }
}
@article{Lu1998,
 author    = {R. Lu},
 title     = {Electron-ion bound state and it initiating a little nuclear
              fusion},
 journal   = {High Power Laser Part. Beams},
 volume    = {10},
 number    = {2},
 year      = {1998},
 pages     = {315--320},
 keywords  = {Theory, res0},
 submitted = {09/1995},
 published = {05/1998},
 annote    = {The abstract is not clear, but this seems to be a suggestion
 that in metal- deuterium systems, three-body clumps of deuterons held
 together by electrons can form, and may aid cold fusion. There is reference
 to solar flares, giving the same sort of x-rays at 12.5 and 25 keV as might
 be expected from cold fusion.}
}
@article{Meng1998a,
 author    = {G. Mengoli and M. Bernardini and C. Manducchi and G. Zannoni},
 title     = {Anomalous heat effects correlated with electrochemical
hydriding
              of nickel},
 journal   = {Il Nuovo Cimento D},
 volume    = {20},
 year      = {1998},
 pages     = {331--352},
 keywords  = {Experimental, electrolysis, light water, Ni, excess heat,
res+},
 submitted = {07/1996},
 published = {03/1998},
 annote    = {This is a confirmation of CNF in the Ni/light water system, but
 the Mills theory is rejected (a good brief history is provided). The authors
 note that this system shows better reproducibility than F\&P-type heavy
water
 systems but the Mills' theory is refuted by experiments of Piantelli where
no
 alkali metal ions were involved. They first looked at hydriding of sintered
 and solid Ni, and found better loading in sintered Ni; this was used
 thereafter.  The electrolyte was potassium carbonate, as well as sodium
 carbonate (according to Mills, not conducive to CNF; both worked).  A single
 thermometer was used to measure the cell temperature. Evaporated water was
 refluxed back into the cell and mixing was assured by means of a constant
 influx of nitrogen bubbles. Both isothermal and non-isothermal calorimetry
 was used, at three working bath temperatures: 50C, 80C and 99C.  Significant
 (up to 20-30 sigma) excess heat was found, increasing with temperature; but
 no blank controls were possible. Some (few) runs failed, producing no excess
 heat; in these, the cathodes were either preoxidised, or organic impurities
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 had been in these cells. Thus, surface treatment is important. There was a
 marked after-effect, i.e. excess heat after current cut-off.}
}
@article{Meng1998b,
 author    = {G. Mengoli and M. Bernardini and C. Manduchi and G. Zannoni},
 title     = {Calorimetry close to the boiling temperature of the
             D2O/Pd electrolytic system},
 journal   = {J. Electroanal. Chem.},
 volume    = {444},
 year      = {1998},
 pages     = {155--167},
 keywords  = {Experimental, excess heat, calorimetry, res+},
 submitted = {01/1996},
 published = {03/1998},
 annote    = {This team of electrochemists and physicists decided that a hot
 near-boiling electrolyte might be the secret of reproducibility for excess
 heat, and tested the idea. Their cells operated at about 95C and due
 consideration was given to the heat of evaporation of the water etc. The
 calorimeter was kept at the operating temperature by additional heating with
 a heating coil, whose power was adjusted so as to keep the temperature
 constant. They also - emulating the F\&P "heat after death" report - checked
 the effect of cutting the current.  Constant current was used, and the
 cathodes were platelets and 4mm rods of Pd.  The electrolyte was K2CO3, the
 reasoning being that alkali would attack the glass; so no Li was present in
 these experiments. Nor were there any high D/Pd loadings. In most runs,
 excess heat was found and found to go on after the current was cut. Rods
were
 less effective than plates, due perhaps to their smaller surface/volume
 ratio.}
}
@article{Miles1998a,
 author    = {M.~H. Miles},
 title     = {Reply to 'Examination of claims of Miles et al. in
             Pons-Fleischmann-type cold fusion experiments'},
 journal   = {J. Phys. Chem. B},
 volume    = {102},
 year      = {1998},
 pages     = {3642--3646},
 keywords  = {Polemic},
 submitted = {06/1996},
 published = {04/1998},
 annote    = {Miles at last rebuts the polemic paper by Jones et al, J. Phys.
 Chem. 99 (1995) 6966; this rebuttal has taken 3 years to come out. It is
 unusually long for a rebuttal (4.5 pp), and details where Jones et al went
 wrong, and Miles was right. Miles' excess heat was not erroneous, the
 calorimetric constant was in fact constant, there was no recombination,
there
 were controls, the helium evidence is good, etc.}
}
@article{Miles1998b,
 author    = {M.~H. Miles},
 title     = {Reply to 'An assessment of claims of excess heat in
             cold fusion calorimetry'},
 journal   = {J. Phys. Chem. B},
 volume    = {102},
 year      = {1998},
 pages     = {3648.},
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 keywords  = {Polemic},
 submitted = {02/1998},
 published = {04/1998},
 annote    = {A rebuttal of Jones et al's rebuttal (p. 3646) of Miles'
rebuttal
 (p. 3642) in this issue of the journal of Jones et al's original polemic in
 J. Phys. Chem.  99 (1995) 6966. Unusually, Miles' rebuttal was followed, in
 the same issue, by another one from Jones et al, and here by yet another
from
 Miles. He briefly points out that he normally only presents experimental
 results, not theories (which others provide), that his calorimetry does not
 suffer from thermal gradients due to insufficient stirring, that larger
 current densities were used than those of Jones et al, and that
recombination
 is not an issue.}
}
@article{Mill1998,
 author    = {R.~L. Mills},
 title     = {Comments on 'Interaction of palladium/hydrogen and
             palladium/deuterium to measure the excess energy per atom
             for each isotope'},
 journal   = {Fusion Technol.},
 volume    = {33},
 year      = {1998},
 pages     = {384--385},
 keywords  = {Polemic},
 submitted = {04/1998},
 published = {05/1998},
 annote    = {Mills here accuses Dufour of using his (Mills') theory of
 below-ground electron energy levels - the hydrino theory - without
 attribution to Mills.  Dufour, writes Mills, just renamed them to hydrex or
 deutrex. Mills lists a number of his own publications Dufour could (and
 should) have cited. See Dufour's response, same issue page 385.}
}
@article{Mizu1998,
 author    = {T. Mizuno and T. Akimoto and T. Ohmori and M. Enyo},
 title     = {Confirmation of the changes of isotopic distribution for the
             elements on palladium cathode after strong electrolysis
             in D2O solutions},
 journal   = {Int. J. Soc. Mat. Eng. Resources},
 volume    = {6},
 number    = {1},
 year      = {1998},
 pages     = {45--59},
 keywords  = {Experimental, Pd rods, isotopic changes, res+,
             no FPH/Jones ref.},
 submitted = {10/1997},
 annote    = {High-purity Pd rods (about 1cm dia., 10 cm long, 33 cm$^2$
area)
 were electrolysed for 32 days at 0.2 A/cm$^2$ or about 6A total, after
 initial preelectrolysis at 1A for 7 days to remove solution impurities.
After
 electrolysis the rods were cut into 1 cm lengths and again into half-
 cylinders, and analysed for elements by energy dispersive spectroscopy
(EDX),
 Auger electron spec (AES), secondary ion mass spec (SIMS) and the electron
 probe microanalyser (EPMA). As expected, a wide range of elements was found;
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 however, the isotopic distribution of some of them (Cr, Fe, Cu, Zn, Xe, Pd
 and Pt) was drastically different from the natural; these were concentrated
 at the surface, notably in cracks and holes. There were large amounts of Xe,
 which does not accumulate in metals and in any case, the Pd was degassed
 prior to the runs. Thus the authors conclude that a nuclear process took
 place.}
}
@article{Nage1998,
 author    = {D.~J. Nagel},
 title     = {The status of 'cold fusion'},
 journal   = {Radiat. Phys. Chem.},
 volume    = {51},
 year      = {1998},
 pages     = {653--668},
 keywords  = {Review},
 annote    = {This is review of cnf, reasonably critical but not overly so.
 It was written about June 1997 and is up to date until then.}
}
@article{Nass1998,
 author    = {V. Nassisi},
 title     = {Transmutation of elements in saturated palladium hydrides
             by an XeCl excimer laser},
 journal   = {Fusion Technol.},
 volume    = {33},
 year      = {1998},
 pages     = {468--475},
 keywords  = {Experimental, gas charging, Pd, laser excitation, res+},
 submitted = {12/1997},
 published = {07/1998},
 annote    = {The author discards dd fusion as the cold fusion mechanism, and
 instead looks to higher elements as the origin. He loaded Pd with gaseous D2
 at about 2 atm for 30 days and excited the result by shining a XeCl laser on
 it, again for 30 days, 60 min per day. Controls with H2 and He were
 tried. Analysis for transmuted elements were by SEM and EPMA, on the Pd wire
 after the experiment.  In some experiments, a thermistor was placed close to
 the Pd target. The Pd was also checked by optical microscopy. Also, after
the
 runs, the cell was checked for neutrons. Elements found were Al, Au, C, Ca,
 Fe, Mg, Na, Nd, In, O, S and Si, the number found increasing upon laser
 application.  Less of all this was found for the controls, or if the Pd was
 loaded for less than the 30 days or not laser excited. The author was also
 interested in the fact that the chamber window tended to break. The
 deuterated Pd showed cracks and pits, but the controls did not.}
}
@article{Ohmo1998a,
 author    = {T. Ohmori and T. Mizuno and K. Kurokawa and M. Enyo},
 title     = {Nuclear transmutation reaction occurring during the light water
             electrolysis on Pd electrode},
 journal   = {Int. J. Soc. Mat. Eng. Resources},
 volume    = {6},
 number    = {1},
 year      = {1998},
 pages     = {35--44},
 keywords  = {Experimental, Pd foil, H2O, isotopic changes, res+,
             no FPH/Jones refs},
 submitted = {10/1997},
 annote    = {This paper is very similar to the one in the same journal issue
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 p. 45, except that here, the electrolysis was in light water, and instead of
 Pd rods, foils were used for the cathode, 5 cm$^2$ in area. The Pd surface
 was deliberately scratched to cause crystal disorder. Electrolysis was in
100
 ml 0.5M Na2SO4, at 1A for 7 days. As in the other paper, various techniques,
 like AES, EDX, EPMA and SIMS were used to analyse the surface
 post-electrolysis. As usual, a large number of elements were found at the
 surface, but the group: K, Fe, Cu, Zn was found to have a significantly
 different isotopic distribution from the natural. Some nuclear reactions are
 proposed to account for the changes.}
}
@article{Ohmo1998b,
 author    = {T. Ohmori and T. Mizuno and Y. Nodasaka and M. Enyo},
 title     = {Transmutation in a gold-light water electrolysis system},
 journal   = {Fusion Technol.},
 volume    = {33},
 year      = {1998},
 pages     = {367--382},
 keywords  = {Experimental, electrolysis, transmutation, no F\&P/Jones refs,
             res+},
 submitted = {03/1997},
 published = {05/1998},
 annote    = {An electrolysis experiment, in a fused quartz cell, carefully
 cleaned, is described, using gold foil cathodes of 5 cm$^2$ area, and a Pt
 mesh as anode.  The electrodes were assayed initially for trace element
 content, to provide a base.  The electrolyte was 0.5M K2SO4 or 0.5M K2CO3,
 using suprapur grade.  Constant currents were used, for 7-30 days at 1-3
 A. At 1A, excess heat was also checked for, the method not being specified
(a
 single temperature probe seems to be implied by the brief wording).
Elemental
 analysis of some black precipitate and the electrode surfaces and bulk were
 done by a number of techniques such as Auger electron spec., electron probe
 microanalysis, SIMS, etc. The SIMS spectrum was dense, with some peaks
 sticking out for, e.g., Hg, Ni, Pb, Cs, Fe, Kr and others.  Isotopic
 distributions were significantly different from the natural distributions.
 For example, 200Hg and 202Hg were present at higher levels, especially at
 some depth in the gold and at higher currents, than expected. The Au cathode
 also showed some pits, cracks and microcraters seeming to point to
 temperature events. Some possible transmutation reactions are suggested.
Some
 excess heat, at low currents, was found but at higher currents the relation
 to current was unclear. The authors attribute this to the extensive
 transmutation taking place.}
}
@article{Olay1998,
 author    = {M.~G. Olayo and G.~J. Cruz and L. Balderas and L. Melendez
             and A. Chavez and R. Valencia and E. Chavez and A. Flores
             and R. Lopez},
 title     = {Absorption of deuterium in titanium plates induced by
             electric discharges},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {23},
 year      = {1998},
 pages     = {885--890},
 keywords  = {Experimental, gas phase, Ti, discharge, res+},
 annote    = {The team deuterium-loaded a Ti plate in a chamber, having first
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 heated it to drive out initial gases. Deuterium absorption was followed by
 monitoring the pressure in the (sealed) chamber. After absorption, an ac
 voltage up to 5000V was applied between the Ti plate and the chamber, and
the
 loading, as well as neutron emission, were checked, the latter by some Cr39
 probes around the cell; as well as three temperature probes at the plate. It
 was found that the high voltage discharge led to further loading (all
 expressed in g D2, not as a D/Ti ratio) and some heating.  Some slight
 neutron emission was found, and thought by the authors to be of anomalous
 origin.}
}
@article{Oria1998,
 author    = {R.~A. Oriani},
 title     = {Anomalous heavy atomic masses produced by electrolysis},
 journal   = {Fusion Technol.},
 volume    = {34},
 year      = {1998},
 pages     = {76--80},
 keywords  = {Experimental, polyneutrons, res0},
 submitted = {12/1997},
 published = {08/1998},
 annote    = {Oriani here tests Fisher's theory of polyneutrons as the source
 of CNF. he reasons that if this is correct, then heavy carbon and nitrogen
 generated might be detectable by chemical means. He therefore took some
 cathodes used for cold fusion electrolysis, some of them having shown excess
 heat, and heated them in an oxygen atmosphere. The elements should diffuse
to
 the surface and oxidise, and the oxides can then be detected by
 high-resoslution MS. Some masses were found only from the previously
 deuterated Pd, and not in the blanks. These are in the range 222-351, and
the
 range 231-240 could be heavy CO2, although this is not proved. Oriani
 considers the evidence as support for Fisher's theory and urges more work on
 this.}
}
@article{Ota1998,
 author    = {K. Ota and T. Kobayashi and N. Motohira and N. Kamiya},
 title     = {Effect of boron for the heat production during the heavy water
              electrolysis using palladium cathode},
 journal   = {Int. J. Soc. Mat. Eng. Resources},
 volume    = {6},
 number    = {1},
 year      = {1998},
 pages     = {26--34},
 keywords  = {Experimental, Pd, electrolysis, calorimetry, res+},
 published = {09/1997},
 annote    = {This team chose a flow calorimeter for accuracy, and tried to
see
 the effect of boron in the Pd cathodes. Boron is present as an impurity, and
 was measured here to be present at levels from 127 to 1000 ppm. Only small
 excess heats were found, uncorrelated with boron content.}
}
@article{Prem1998,
 author    = {F. Premuda},
 title     = {Coulomb barrier total screening by Bose-Einstein-condensed
              deuterium in palladium blisters and reaction chains in
              high-density hysteresis},
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 journal   = {Fusion Technol.},
 volume    = {33},
 year      = {1998},
 pages     = {350--366},
 keywords  = {Theory, screening, Bose-Einstein condensate, res+},
 submitted = {07/1993},
 published = {05/1998},
 annote    = {Premuda here considers electron screening in the solid state
 plasma, thus accounting for fusion reactions. He invokes Bose-Einstein
 condensates of deuterium, exploring the model extensively, and ends with a
 list of problems that still need solving.}
}
@article{Shya1998,
 author    = {A. Shyam and T.~C. Kaushik},
 title     = {Absence of neutron emission during interaction of deuterium
              with metal at low energies},
 journal   = {Pramana},
 volume    = {50},
 year      = {1998},
 pages     = {75--83},
 keywords  = {Experimental, Pd, electrolysis, NaOD \& LiOD,  res-},
 submitted = {06/1997},
 published = {01/1998},
 annote    = {The authors conducted a thorough experiment to detect neutrons
 around a Pd electrolysis in heavy water and NaOD and LiOD, with two rings of
 neutron detectors around the cell (BF3 tubes, grouped into 3 groups).
Several
 sets of experiments at currents of 2000A/m$^2$ (200 mA/cm$^2$) were run, and
 no neutrons exceeding the background were found, steady or in bursts.}
}
@article{Stop1998,
 author    = {G. Stoppini},
 title     = {Nuclear processes in hydrogen-loaded metals},
 journal   = {Fusion Technol.},
 volume    = {34},
 year      = {1998},
 pages     = {81--85},
 keywords  = {Theory, neutron clustering, Ni \& light water, res0;
              no FPH/Jones refs.},
 submitted = {12/1997},
 published = {08/1998},
 annote    = {The author considers the results of Miley et al, who propose
 Ni-Ni fusion.  Instead, he proposes neutron clusters and inelastic nuclear
 reactions. As well, at high hydrogen loading, H might be involved, and
 electron capture.  The author suggests, as a result of his thoughts, looking
 for neutrinos, using metals different from Ni, searching for low-energy
 protons and neutrons and to try different temperatures (using H2 gas).}
}
@article{Szpa1998a,
 author    = {S. Szpak and P.~A. Mosier-Boss and R.~D. Boss and J.~J. Smith},
 title     = {On the behavior of the Pd/D system: Evidence for
              tritium production},
 journal   = {Fusion Technol.},
 volume    = {33},
 year      = {1998},
 pages     = {38--51},
 keywords  = {Experimental, tritium, Pd, electrolysis, res+},
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 submitted = {11/1996},
 published = {01/1998},
 annote    = {Another report from this team on tritium. They used heavy water
 with very low tritium levels, and a Pd film deposited onto an Ag film
 deposited onto a Cu base, all by electrolysis. Smooth and rough films were
 made. Constant current charging was used, and tritium assayed both in the
 electrolyte and head space gas. Tritium was detected in bursts, presumed to
 be generated at or near the Pd/electrolyte interface. When Al3+ ions were
 added to the electrolyte, some bulk tritium was found in the Pd, presumed
 forced into the metal from the interface. What tritium was found, would not
 have been found in a closed cell, the authors conclude.}
}
@article{Szpa1998b,
 author    = {S. Szpak and P.~A. Mosier-Boss},
 title     = {On the release of n/1H from cathodically polarized palladium
             electrodes},
 journal   = {Fusion Technol.},
 volume    = {34},
 year      = {1998},
 pages     = {273--278},
 keywords  = {Theory, res+},
 submitted = {01/1998},
 published = {11/1998},
 annote    = {These researchers attempt a rationale for tritium production
 during heavy water electrolysis in D2O. The paper is based on earlier
 observations that tritium, generated within the Pd, seems to get out in two
 ways - one leading to enrichment in the gas phase only, the other in both
the
 gas and the electrolyte; and the process was retarded by deposition of Al3+
 ions, and there were some X-rays emitted. The model's main feature is that
 the reaction takes place close to the metal surface.  The model deals only
 with tritium transport, the nuclear reaction producing it being assumed.
 Conclusions are that high D/Pd loading is needed, as well as gradients
 (present at the interface) and bubble formation playing a part in the
 process.}
}
@article{Takah1998a,
 author    = {A. Takahashi and H. Fukuoka and K. Yasuda and M. Taniguchi},
 title     = {Experimental study on correlation between excess heat and
             nuclear products by D2O/Pd electrolysis},
 journal   = {Int. J. Soc. Mat. Eng. Resources},
 volume    = {6},
 number    = {1},
 year      = {1998},
 pages     = {4--13},
 keywords  = {Experimental, Pd, electrolysis, excess heat, helium, tritium,
             neutrons,  res0, no FPH/Jones refs.},
 submitted = {07/1997},
 annote    = {Both open- and closed-cell electrolyses were run, monitoring
 for excess heat and the nuclear products helium, tritium and neutrons, using
 the Takahashi Pd plate cathode. In several cases out of > 20 runs, clear
 signs of excess heat were observed; but no x-rays or fast neutrons as
 expected. Some runs showed a little 4He associated with heat, but not
enough;
 no tritium was found.}
}
@article{Takah1998b,
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 author    = {A. Takahashi and K. Maruta and K. Ochiai and H. Miyamaru
              and T. Iida},
 title     = {Anomalous enhancement of three-body deuteron fusion
              in titanium-deuteride with low-energy D+ beam implantation},
 journal   = {Fusion Technol.},
 volume    = {34},
 year      = {1998},
 pages     = {256--272},
 keywords  = {Experimental, ion beam, Ti, res+},
 submitted = {02/1998},
 published = {11/1998},
 annote    = {Previously, the authors have observed some features, but not
 all that are required, of their hypothesised three-body fusion reaction in
Ti
 targets of a deuteron beam. They found about 7.9 MeV alphas, but not the
 partner at 15.9 MeV. Here they repeat the experiment, using a 5-100 uA d-
beam
 at 150 keV and a precharged TiD target, kept cool to prevent unloading. A
SSB
 detector measured the charged particles given off, giving a broad spectrum
of
 0.3-20 MeV.  A highly enhanced rate of 3-particle fusion was indeed found
and
 also some 4-body fusion. The former's products, tritons and 3He, were
 detected.  The ultimate aim would be, say the team, the promotion of the
 four-body reaction for clean energy.}
}
@article{Viol1998,
 author    = {V. Violante and A. Torre and G. Dattoli},
 title     = {Lattice ion trap: classical and quantum description of a
              possible collision mechanism for deuterons in metal lattices},
 journal   = {Fusion Technol.},
 volume    = {34},
 year      = {1998},
 pages     = {156--162},
 keywords  = {Theory, Schroedinger, res+, no FPH/Jones ref},
 submitted = {12/1997},
 published = {09/1998},
 annote    = {The quantum mechanics of deuterons' interaction within the PdD
 lattice is examined in a preliminary way, using numerical solution of the
 Schroedinger equation. The results are not so different from those arising
 from classical models; both can result in rather high interaction energies.
 Cold fusion is not mentioned but appears to be hovering in the background.}
}
@article{Yama1998,
 author    = {H. Yamada and T. Fujiwara},
 title     = {Neutron emission from palladium point electrode in pressurised
              deuterium gas under DV voltage application},
 journal   = {Int. J. Soc. Mat. Eng. Resources},
 volume    = {6(1)},
 year      = {1998},
 pages     = {14--21},
 keywords  = {Experimental, electric discharge, Pd, gas phase, neutrons,
res+},
 submitted = {08/1997},
 annote    = {Two types of chamber cells, both with a Pd needle as cathode,
 were used to make discharge sparks between the Pd and brass anodes, in D2 at
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 2 atm. The Pd was found to be loaded to a ratio of 0.6 D/Pd. In one cell, a
 flashover was caused by a high voltage spike of 10 kV on a base of 4.5kV. In
 the other, a glow discharge was caused by 4 and 8 kV. Neutrons were measured
 using a 3He proportional counter. Neutron bursts above the background were
 detected for D-loaded Pd in both D2 and H2, but not for H-loaded Pd. Carbon
 was seen at the electrode tips, presumably from a nuclear reaction.}
}
@article{Zang1998,
 author    = {Q. Zang and F. Liu and Y. Sun and L. Cheng and X. Zhou
              and X. Cheng},
 title     = {The experimental study on the 'excess heat' for deuteron
              absorbed in the lattice of titanium},
 journal   = {Chin. J. Atomic Molec. Phys.},
 volume    = {15},
 year      = {1998},
 pages     = {210--214},
 keywords  = {Experimental, electrolysis, Pd, excess heat, res+},
 submitted = {12/1997},
 published = {04/1998},
 note      = {In Chinese, Engl. abstr.},
 annote    = {This is an open-cell calorimetry experiment, to confirm F\&P's
 results. The abstract states that it is important to consider evaporation
and
 to take care in the excess heat determination. Currents of 128 mA/cm$^2$,
and
 LiOD at 3.9 M were used.  Excess heats of $(1.6-6.9 \pm 0.3)$ W were found.}
}
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# YEAR: 1999

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% Year 1999; there are  32 entries.
@article{Arat1999a,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Definitive difference between [DS-D2O] and [Bulk-D2O] cells
              in 'deuterium-reaction'},
 journal   = {Proc. Japan Acad. Ser. B},
 volume    = {75},
 year      = {1999},
 pages     = {71--75},
 keywords  = {Experimental, electrolysis, excess heat, helium, res+},
 submitted = {04/1999},
 published = {04/1999},
 annote    = {Here, the old faithful DS (double structure) cathode is
 compared with a solid one, both electrolysed in D2O and the cells in series
 with the same DC source. The DS cell showed intense "excess energy" and
 "helium" (authors' quote marks) but the solid cathode only with difficulty.}
}
@article{Arat1999b,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Critical condition to induce 'excess energy' within
              [DS-H2O] cell},
 journal   = {Proc. Japan Acad. Ser. B},
 volume    = {75},
 year      = {1999},
 pages     = {76--80},
 keywords  = {Experimental, electrolysis, excess heat, helium, res+},
 submitted = {04/1999},
 published = {04/1999},
 annote    = {In order to see whether the use of normal water in conjunction
 with the authors' DS (double structure) cell really does generate excess
 heat, as well as heavy water, two cells: one with light water and one with
 heavy water, were connected in series with a DC source, and their excess
 geats compared. The light water cell did produce a little, but only under
 very restricted regimes and very long electrolysis. The heavy water cell
 produced helium, but the light water cell hardly any.}
}
@article{Arat1999c,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Anomalous production of gaseous 4He at the inside of
              'DS cathode' during D2O-electrolysis},
 journal   = {Proc. Japan. Acad. Ser. B },
 volume    = {75},
 year      = {1999},
 pages     = {281--286},
 keywords  = {Experimental, electrolysis, helium, res+},
 submitted = {12/1999},
 published = {12/1999},
 annote    = {This describes an experiment a little different from their
 previous ones.  The usual double structure (DS) cathode was used, but here
 pierced early in the experiment, and gas samples taken out at intervals. A
 mass spectrometer was set at mass 4, thus looking for 4He. This was
initially
 not seen, but after some hours of electrolysis, it exceeded that of D2. This
 time, A\&Z also checked for 22Ne, whose presence would indicate that the 4He
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 came from a leak; none was found, thus the 4He is considered to come from a
 nuclear reaction in the Pd. 3He was also looked for; the MS could
distinguish
 it from HD by mass, but by ionisation current; this showed that no 3He was
 present.}
}
@article{Arat1999d,
 author    = {Y. Arata and Y. Zhang},
 title     = {Observation of anomalous heat release and helium-4 production
             from highly deuterated palladium fine particles},
 journal   = {Jpn. J. Appl. Phys.},
 volume    = {38},
 year      = {1999},
 pages     = {L774-L776},
 keywords  = {Experimental, Pd, gas phase, res+},
 submitted = {04/1999},
 published = {07/1999},
 annote    = {The old palladium bottle scenario, where Pd powder is sealed
 inside a Pd "bottle", which is made the cathode in a long-term
 electrolysis. Deuterium diffuses to the inside of the bottle (in a very pure
 form) and deuterates the powder. Anomalous heat was measured, as well as
 rising amounts of helium-4. No quantitative measurements of the helium
 produced were made, but control experiments with air and electrolysis in
 normal water electrolyte confirmed that the helium was not from leaks from
 the environment.}
}
@article{Batt1999,
 author    = {A. Battaglia and L. Daddi and S. Focardi and V. Gabbani
             and V. Montalbano and F. Piantelli and P.~G. Sona
             and S. Veronesi},
 title     = {Neutron emission in Ni-H systems},
 journal   = {Nuovo Cimento A},
 volume    = {112},
 year      = {1999},
 pages     = {921--931},
 keywords  = {Experimental, Ni, hydrogen, neutrons, res+},
 submitted = {03/1999},
 published = {09/1999},
 annote    = {This team has previously reported observation of excess heat,
 but previous attempts to detect penetrating radiation, which they consider
 must accompany excess heat, were without success, perhaps due to the less
 sensitive instrumentation then used. This has now been improved, by using
 three separate 3He detectors. As well, neutrons were measured indirectly by
 the neutron activation of Au, and detecting gamma radiation from that. The
 experiments involve Ni metal and hydrogen. In one experiment, one detector
 was placed close to the cell (which showed excess heat), the other far
 away. The close one showed neutrons, the far one only the background; at the
 same time, there was some Au activation. In another run, all detectors were
 placed close, but no neutrons were detected, and Au was not activated. The
 authors conclude that the neutron flux is not constant, even for excited
 cells.}
}
@article{Bott1999,
 author    = {E. Botta and T. Bressani and D. Calvo and C. Fanara
             and F. Iazzi},
 title     = {On the neutron emission from the Ti/D system},
 journal   = {Nuovo Cimento A},
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 volume    = {112},
 year      = {1999},
 pages     = {607--617},
 keywords  = {Experimental, Ti, gas phase, neutrons, res+},
 submitted = {02/1999},
 published = {06/1999},
 annote    = {Although the 4He branch seems to be the main branch in CNF,
this
 team looks for neutrons from the usual free-space fusion branch, in this
 experiment on Ti and D2. Ti shavings and sponge are used, in a chamber into
 which D2 is let in under various pressures. A thermometer is inserted inside
 the Ti, and a pressure gauge in the chamber. The Ti was degassed at 700C in
 vacuum.  Temperatures were cycled, as usual in "Italian mode". A TOF neutron
 spectrometer was used, using two arrays of NE 110 scintillators. The
 background was reduced to about 68 events/h. There is a curve of loading
 ratio D/Ti as a function of temperature (about 1.36 at low temps, declining
 from about 500C). A weak 2-3 sigma neutron emission is observed at times,
 unrelated to the loading, some bursts were observed. In any case neutrons
are
 not such a good sign of cold fusion taking place, and a search for 4He might
 be more fruitful, write the authors.}
}
@article{Buch1999a,
 author    = {A.~L. Buchachenko and V.~V. Chaikovskii},
 title     = {Contraction of electronic shells and a new strategy for
             cold fusion},
 journal   = {Russ. J. Phys. Chem.},
 volume    = {73},
 year      = {1999},
 pages     = {1614--1618},
 keywords  = {Theory, suggestion, res+},
 submitted = {01/1999},
 published = {10/1999},
 annote    = {These two chemical physicists discuss the possibility of
 compressing the electron shell systems of some atoms, e.g. hydrogen (or
 deuterium).  They give evidence that the hyperfine electron-nucleus coupling
 constant for an atom in a foreign matrix can be made to deviate from that of
 the atom in isolation by as much as 50\%. This leads to deep electron
 levels. If a hole were to be made in one of these levels, then a jump down
 from a higher level into that hole could provide hard-x-ray or even gamma-
ray
 energies. Holes could for example be punched by mechanical action on
crystals
 like LiD, as done by the Deryagin group. Also, such a hole might make d-d
 close approach, and therefore fusion, easier.}
}
@article{Buch1999b,
 author    = {A.~L. Buchachenko},
 title     = {Chemistry on the border of two centuries - achievements
             and prospects},
 journal   = {Russ. Chem. Rev.},
 volume    = {68},
 number    = {2},
 year      = {1999},
 pages     = {85--102},
 note      = {Orig. in: Usp. Khim. 68(2) (1999) 99, in Russian},
 keywords  = {Remark},
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 submitted = {10/1998},
 annote    = {The author does a walk-through of chemistry as it is at the
 time of writing.  Among other topics, he very briefly mentions cold fusion,
 stating that it has been wittily renamed "confusion", and that it is now
 pursued only by a small group of enthusiasts. He speculates that there has
 indeed been no chemically induced fusion, but perhaps nuclear processes
 initiated by mechanical means.  This amounts to the Russian interpretation
of
 CNF in terms of fractofusion.  The author gives no CNF references in this
 brief one-paragraph note on CNF and expresses himself very neutrally.}
}
@article{Hora1999,
 author    = {H. Hora and G.~H. Miley and J.~C. Kelly and G. Salvaggi
              and A. Tate and F. Osman and R. Castillo},
 title     = {Proton-metal reactions in thin films with Boltzmann
distribution
              similar to nuclear astrophysics},
 journal   = {Fusion Technology},
 volume    = {36},
 year      = {1999},
 pages     = {331--336},
 keywords  = {Theory, heavy isotope generation, res+},
 submitted = {01/1999},
 published = {11/1999},
 annote    = {This paper tries to explain how heavy isotopes claimed to be
 formed in experiments by Miley and others, and which cannot be artifacts,
 might arise.  As well, it tries to account for the missing radiation given
 off by normal fusion events leading to these nuclei.}
}
@article{Kasa1999,
 author    = {J. Kasagi},
 title     = {Medium effects: nuclear reactions in solids and
              nucleon resonances in nuclei},
 journal   = {Front. Sci. Ser.,},
 volume    = {28 (Nuclear Responses and Medium Effects)},
 year      = {1999},
 pages     = {229-236},
 keywords  = {Experimental, enhancement, targeting, res+, no FPH/Jones refs},
 annote    = {The authors did some self targetting experiments at a range of
 rather low beam energies, to see whether there is an enhancement of the
 fusion rate at low energies, which might provide a clue to PdD cold
 fusion. Their results did indeed show enhancement over calculated rates,
 increasing at lower energies. The lowest was about 2-3 keV, so it is
possible
 that at cold fusion energies (at most 1 eV) there is even more enhancement.}
}
@article{Kend1999,
 author    = {A. Kendl},
 title     = {Zehn jahre danach: Was blieb von der 'kalten Kernfusion'?
              (Ten years after: what has become of 'cold fusion'?},
 journal   = {Skeptiker},
 volume    = {12},
 number    = {1/2},
 year      = {1999},
 pages     = {32--39},
 note      = {In German},
 keywords  = {Discussion},
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 annote    = {Alexander Kendl is a plasma physicist at a Max Planck institute
 as well as a rather prolific science writer in Germany. He reviews the CNF
 field in a rather skeptical light, tending towards the pathological science
 view, which he makes plausible. He recounts the history of CNF, the role of
 the media, publication statistics etc. He is quite up to date with the
recent
 somewhat bizarre offshoots. He has talked with Douglas Morrison, Heirich
Hora
 and Rothwell, one skeptic and two proponents and cites their views. Finally,
 he reports the appearance of a novel by G. Kreysa (a skeptical CNF author),
 with CNF as its theme.}
}
@article{Kirk1999,
 author    = {V.~A. Kirkinskii and Yu.~A. Novikov},
 title     = {A new approach to theoretical modelling of nuclear fusion
              in palladium deuteride},
 journal   = {Europhys. Lett.},
 volume    = {46},
 year      = {1999},
 pages     = {448--453},
 keywords  = {Theory, screening, res+},
 submitted = {06/1998},
 published = {05/1999},
 annote    = {The authors provide a useful run-through of theories so far,
 both in favour and against CNF. They then use computer calculations to check
 whether the s- and d-electrons in the host Pd might increase the rate of pp,
 dp and dd fusion enough to account for the claims. This rests on the idea
 that pairs to fuse might both reside in octagonal sites, or one of them,
 briefly, in a tetragonal site. Various involvement of several screening
 electrons are tried, combining d- and s-orbit ones. Some of the resulting
 fusion rates are close to, and even exceed, past claims. The paper suggests
 in summary that high D-loading and high mobility of the D in the lattice
 would be favourable.  Mobility can be enhanced by gradients, sonics, phase
 transitions etc.}
}
@article{Kozi1999a,
 author    = {H. Kozima and K. Arai and M. Fujii and H. Kudoh
              and K. Yoshimoto and K. Kaki},
 title     = {Nuclear reactions in surface layers of deuterium-loaded
solids},
 journal   = {Fusion Technol.},
 volume    = {36},
 year      = {1999},
 pages     = {337--345},
 keywords  = {Theory, res+},
 submitted = {09/1998},
 published = {11/1999},
 annote    = {The release of such gases as helium and tritium from cold
fusion
 in Pd indicates a near-surface reaction. This, and the isotopic distribution
 changes also observed, are accounted for by Kozima's theory, the TCNF model.
 During the five years since the drafting of this model, new results have
been
 able to be accommodated by the theory, as it evolved with these new results.
 Most recently, the anomalous elimination of radioactive species could also
be
 interpreted in the light of TCNF.}
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}
@article{Kozi1999b,
 author    = {H. Kozima and M. Ohta and M. Fujii and K. Arai and H. Kudoh
             and K. Kaki},
 title     = {Analysis of energy spectrum of neutrons in cold-fusion
             experiments by the TCNF model},
 journal   = {Nuovo Cimento A},
 volume    = {112},
 year      = {1999},
 pages     = {1431--1438},
 keywords  = {Analysis, theory, res+},
 submitted = {02/1998},
 published = {12/1999},
 annote    = {The paper looks at the neutron results of Bressani et al (1991,
 1992, 1999), in the light of Kozima's trapped neutron theory, which can
 explain a large variety of cold fusion results. Bressani et al have observed
 neutrons with their Ti/D experiments, and TCNF is able to account for the
 neutron spectra with the help of a single adjustable parameter.}
}
@article{Kozi1999c,
 author    = {H. Kozima},
 title     = {Present status of cold fusion research. 1},
 journal   = {Hoshasen Kagaku (Tokyo)},
 volume    = {42},
 number    = {10},
 year      = {1999},
 pages     = {310--315},
 note      = {In Japanese},
 keywords  = {Review},
 annote    = {There is little to glean from this all-Japanese paper for those
 of us who know no Japanese. There are tables of results, both for heavy and
 light water systems and a row of metals.}
}
@article{Kozi1999d,
 author    = {H. Kozima},
 title     = {Present status of cold fusion research. 2},
 journal   = {Hoshasen Kagaku (Tokyo)},
 volume    = {42},
 number    = {11},
 year      = {1999},
 pages     = {351--358},
 note      = {In Japanese},
 keywords  = {Review},
 annote    = {Part 2 of the review; here, there is mention of the author's
 TCNF theory, that is, trapped neutrons.}
}
@article{Lewis1999,
 author    = {E. Lewis},
 title     = {Comments on 'Transmutation in a gold-light water electrolysis
             system'},
 journal   = {Fusion Technol.},
 volume    = {36},
 year      = {1999},
 pages     = {242--243},
 keywords  = {Polemic, transmutation},
 submitted = {11/1998},
 published = {09/1999},
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 annote    = {E. Lewis, who has his own maverick ideas on 'cold fusion',
 remarks on a report by Ohmori et al (FT 33 (1998) 367), claiming anomalous
 (nuclear) events and the appearance of some isotopes on a gold cathode
 electrolysed in light water. The evidence was, in part, some craters formed
 on the gold surface.  Others have observed these craters and connected them
 with such anomalous phenomena. Lewis interprets these craters with the help
 of his postulated 'plasmoids' that he believes are behind 'cold fusion'.}
}
@article{Li1999a,
 author    = {X.~Z. Li and C.~X. Li and H.~F. Huang},
 title     = {Maximum value of the resonant tunneling current through
              the Coulomb barrier},
 journal   = {Fusion Technol.},
 volume    = {36},
 year      = {1999},
 pages     = {324--330},
 keywords  = {Theory, res+},
 submitted = {11/1998},
 published = {11/1999},
 annote    = {Examines the idea that tunneling through the Coulomb barrier
 can account for the observation of cold fusion. Resonant tunneling, together
 with crystal lattice effects, might indeed do the job.}
}
@article{Li1999b,
 author    = {X. Z. Li},
 title     = {Overcoming of the Gamow tunneling insufficiencies by
              maximizing the damp-matching resonant tunneling},
 journal   = {Czech. J. Phys.},
 volume    = {49},
 year      = {1999},
 pages     = {985--992},
 submitted = {10/1998},
 keywords  = {Theory, res+},
 annote    = {Li has expounded his theory before, and does it again.  His
 resonant tunnelling model can account for d-d fusion in Pd, that is unlike
 hot fusion and chooses the normally unlikely branch to 4He, although Li only
 mentions (d+d)x species. Nevertheless, cold and hot fusion are in harmony,
as
 written by Hora in the same journal.}
}
@article{Mele1999,
 author    = {L. Melendez and E. Chavez and R. Lopez and G.~J. Cruz
              and M.~G. Olayo},
 title     = {Titanium deuteration with neutron emission through
              electrical discharges},
 journal   = {Fusion Technol.},
 volume    = {35},
 year      = {1999},
 pages     = {71--77},
 keywords  = {Experimental, discharge, Ti, neutrons, res0},
 submitted = {09/1997},
 published = {01/1999},
 annote    = {Surface-cleaned titanium samples were placed in a stainless
steel
 chamber that was then evacuated, and deuterium let in at 100 Torr. High
 voltage discharges were then applied, and pressure increases, as well as
 sample temperature rises, were noted. Three types of neutron detectors were
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 used to search for neutron emissions, but none were found that were not most
 likely to be artifacts. There were some anomalous peaks, but not
 unambiguously indicating cold fusion. More work is needed.}
}
@incollection{Miley1999,
 author    = {G.~H. Miley},
 title     = {Emerging physics for a breakthrough thin-film electrolytic
              power unit},
 booktitle = {Space Technol. Applic. Int. Forum},
 editor    = {M. S. El-Genk},
 publisher = {American Institute of Physics},
 volume    = {458},
 year      = {1999},
 pages     = {1227--1231},
 keywords  = {Discussion, res+},
 annote    = {Miley here summarises results obtained by himself and others
 from electrolysis of thin Ni films on small inert packed beads in light
water
 and LiSO4. Apart from excess heat, the observations include isotope shifts
in
 the Pd and the production of elements (isotopes) not present
 initially. Little radiation is emitted. When this phenomenon is developed
 further, it may provide power sources for space applications, for example a
 1kW cell using only 500 cc of active electrode material.}
}
@article{Mosi1999,
 author    = {P.~A. Mosier-Boss and S. Szpak},
 title     = {The Pd/(n)H system: transport processes and development
              of thermal instabilities},
 journal   = {Nuovo Cimento A},
 volume    = {112},
 year      = {1999},
 pages     = {577--589},
 keywords  = {Theory, Discussion, analysis},
 submitted = {12/1998},
 published = {06/1999},
 annote    = {The Szpak team has published a number of cold fusion papers,
 usually using their interesting codeposition technique, in which Pd is
 deposited onto the Pd cathode, along with hydrogen evolution taking place
 there, thereby providing a fresh Pd surface. They have previously modelled
 what happens there by means of their multilayer concept; here they analyse
 thermal events at this interface.  Infrared studies of the interface reveal
 the existence of sporadic, randomly distributed heat events of short
 duration, often later merging into larger areas. They present some figures
of
 some of these hot spots. They imply high temperature gradients, and indicate
 that near-surface deuterium activity that is unstable. These regions of
 activity are the source of excess heat. Among some general conclusions
 reached are: higher electrolyte temperature favours these events; in the
end,
 these areas overlap; gas evolution, although not the trigger for thermal
 events, modify the interface structure.}
}
@article{Oh1999,
 author    = {H.~K. Oh},
 title     = {Some observatins on the cavity of creation for cold fusion
              and the generation of heat},
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 journal   = {J. Mater. Proc. Technol.},
 volume    = {94},
 year      = {1999},
 pages     = {60--65},
 keywords  = {Theory, res+, no FPH/Jones refs},
 submitted = {08/1997},
 annote    = {Referring to the patented work of Patterson, Oh develops the
 concept of pi-rays, generated when two electrons with opposing rotation
 (spin?) meet.  These are rotating rays, bent by an attraction gravitational
 force between plus and minus fields. If a proton and electron with different
 spins meet, they disappear; gravity is caused by two opposite charges
looking
 at each other.  Pi-far-IR rays are found in many experiments, such as the
 finger's force tester, the Meridian, the Quantum Resonance Spectrometer and
 the Quantum Fafa. There follows the Schroedinger equation and a lot of
 diagrams, concluding that agglomerated pi-rays create cold fusion. One
 reference is to J. Rothwell, an expert in Japanese literature, the other 5
 to Oh himself.}
}
@article{Ohmo1999,
 author    = {T. Ohmori},
 title     = {Reply to 'Comments on 'Transmutation in a gold-light water
              electrolysis system''},
 journal   = {Fusion Technol.},
 volume    = {36},
 year      = {1999},
 pages     = {243.},
 keywords  = {Polemic, transmutation},
 submitted = {01/1999},
 published = {09/1999},
 annote    = {Ohmori replies to the title polemic by E. Lewis on the previous
 page of the same journal issue, where Lewis explained Ohmori et al's
 observation of craters formed on a gold cathode electrolysed in light water,
 in the light of his postulated 'plasmoids'. Ohmori downplays the craters and
 points out that the appearance of new isotopes is strong evidence of a
 nuclear reaction having taken place. Also, the craters found by others
(cited
 by Lewis) are quite different from the Ohmori team's. He leaves open the
 question of the validity of Lewis's 'plasmoids'.}
}
@article{Shio1999,
 author    = {Y. Shioe and N.~N. Mondal and M. Chiba and T. Hirose
              and M. Fujii and H. Nakahara and K. Sueki and T. Shirakawa
              and M. Utsumi},
 title     = {Measurement of neutron production rate regarding the quantity
              of LiNbO3 in the fracturing process under D2 atmosphere},
 journal   = {Nuovo Cimento A},
 volume    = {112},
 year      = {1999},
 pages     = {1059--1066},
 keywords  = {Experimental, fractofusion, gas phase, no FPH/Jones refs,
res+},
 submitted = {11/1998},
 published = {10/1999},
 annote    = {This is a confirmation attempt of the Russian fractofusion
 scenario, but here using the piezoelectric (single) crystal LiNbO3, ball
 milling it under D2 gas. Prior to milling, the substance was annealed for 30
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 h at 1200C in normal air. Neutrons were detected using 16 3He proportional
 counters spread around the sample. In three runs with a different number (1,
 2 and 3) of cells contained in the mill, the run with 2 cells gave an excess
 of neutrons over the background by 1.9 sigma, the other two much less. The
 authors conclude that neutrons were observed, and moreover, that their flux
 is proportional to the amount of substance milled, from a 3-point plot that
 might also fit a constant.}
}
@article{Stre1999,
 author    = {C. Stremmenos},
 title     = {Fusione fredda. Un dibattito che prosegue
              (Cold fusion. A debate that continues)},
 journal   = {Chim. Ind.},
 volume    = {81},
 year      = {1999},
 pages     = {361--363},
 note      = {In Italian},
 keywords  = {Polemic.},
 published = {04/1999},
 annote    = {In a piece in the same journal in 1998, Garlaschelli named
 Stremmenos, who here takes the opportunity to defend his involvement with
 cold fusion. He mentions a few successes in the field and remarks that he
 will continue to do research on CNF.}
}
@article{Sun1999,
 author    = {Y. Sun and {Q-D.} Yang and {Q-F.} Zhang},
 title     = {Application of real time surveillance technique to precision
              calorimetry system},
 journal   = {Sichuan Lianhe Daxue Xuebao, Gongcheng Kexueban
             (J. Sichuan Union Univ., Eng. Sci. Ed.)},
 note      = {In Chinese, Engl. abstr.},
 volume    = {3},
 number    = {6},
 year      = {1999},
 pages     = {119--122},
 keywords  = {Comment, suggestion, calorimetry},
 submitted = {09/1998},
 published = {11/1999},
 annote    = {The abstract says that this is a critique of the F\&P
 calorimeter, and a suggestion for a better one. A PC real time system has
 been developed, which enables the detection of cold fusion onset and
 simltaneous recording of excess heat.}
}
@article{Szpa1999,
 author    = {S. Szpak and P.~A. Mosier-Boss and M. Miles},
 title     = {Calorimetry of the Pd+D codeposition},
 journal   = {Fusion Technol.},
 volume    = {36},
 year      = {1999},
 pages     = {234--241},
 keywords  = {Discussion, electrolysys, Pd, calorimetry, res+},
 submitted = {11/1998},
 published = {09/1999},
 annote    = {The Szpak team introduced the (good) idea of depositing Pd
while
 electrolysing at Pd, thereby making sure of fresh and clean Pd during the
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 whole electrolysis.  Here, they theorise about previous experimental
results.
 The equations pertaining to calorimetry are gone through, open cell systems
 discussed, and calorimetry design, and hot spots. The paper concludes that
 excess heat can now be achieved reproducibly, and that the phenomenon is a
 near-surface one.}
}
@article{Takah1999,
 author    = {A. Takahashi and K. Maruta and K. Ochiai and H. Miyamaru},
 title     = {Detection of three-body deuteron fusion in titanium deuteride
              under the stimulation by a deuteron beam},
 journal   = {Phys. Lett. A},
 volume    = {255},
 year      = {1999},
 pages     = {89--97},
 keywords  = {Experimental, deuteron beam, Ti target, cps, res+},
 submitted = {07/1998},
 published = {05/1999},
 annote    = {Triple collisions are very rare events by nature, but can occur
 in two steps.  Takahashi has proposed such a mechanism for ddd fusion:
 d+d->4He; 4He+d->6Li, for example. No neutrons would be emitted. If ddd
 fusion does occur, then tritons at 4.75 MeV and/or 3He at the same energy
 should be observed, so this was looked for. Highly D-preloaded Ti was the
 target of a deuteron beam at 150 keV in vacuum, and detectors detected
 particles emitted and measured their energies. Some 4.75 MeV particles were
 found, and taken as evidence of triple collision fusion events, roughly
 10$^{-4}$ as frequent as dd fusion events.}
}
@article{Xiao1999,
 author    = {J. Xiao and P. Li},
 title     = {The possibilities for initiation of the cold fusion
              of the deuterons in the hydrogen storage materials},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {24},
 year      = {1999},
 pages     = {741--746},
 keywords  = {Review, discussion.},
 annote    = {The authors run through some features of cold fusion that might
 take place in materials that absorb hydrogen (or deuterium). Fusion is
 described, as well as reactions with the material. The Russian idea of
 acceleration across cracks is mentioned, and also screening models. They
 conclude by suggesting more research in this area.}
}
@article{Zhan1999a,
 author    = {Q. Zhang and F. Kiu and Y. Sun and L. Chen and Q. Yang},
 title     = {Research of calorimeter of water electrolysis open system},
 journal   = {Sichuan Lianhe Daxue Xuebao, Gongcheng Kexueban
               (J. Sichuan Union Univ., Eng. Sci. Ed.)},
 volume    = {3},
 number    = {5},
 year      = {1999},
 pages     = {33--39},
 keywords  = {Comment, suggestion, experimental, calorimetry.},
 submitted = {07/1998},
 published = {09/1999},
 note      = {In Chinese, Engl. abstr.},
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 annote    = {The authors looked at the calorimetry of F\&P and reanalysed
it,
 taking into account evaporation and the calculation of overpotential, rather
 than using the measured value. They also built their own, and the results
 agree with calculations.}
}
@article{Zhan1999b,
 author    = {Z. Zhang and Z. Zhang},
 title     = {A probable theoretical model on deuterion-deuterion
              two-body tight bound states},
 journal   = {Nucl. Phys. Rev.},
 volume    = {16},
 year      = {1999},
 pages     = {95--98},
 keywords  = {Theory, res+},
 submitted = {11/1997},
 published = {06/1999},
 annote    = {Schroedinger equation with tightly bound states, results in
 energies up to 25 keV (from the abstract). So this might be the basis for a
 new energy source.}
}
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# YEAR: 2000

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% Year 2000; there are  34 entries.
@article{Agel2000,
 author    = {G. Agelao and M.~C. Romano and F. Italiano},
 title     = {Heat and helium production during exothermic reactions between
              gases through palladium geometrical elements loaded with
              hydrogen},
 journal   = {Fusion Technol.},
 volume    = {38},
 year      = {2000},
 pages     = {224--237},
 keywords  = {Experimental, Pt, gas phase, D2, helium, heat, res+},
 submitted = {02/1998},
 published = {09/2000},
 annote    = {This team of nuclear engineers and a geochemist exposed Pd to
 hydrogen and deuterium gas, and monitored for temperature changes, helium,
 and particles using photographic film. They used rolled or folded Pd
 foil. They believe that surface reactions are the key, in which energetic
 hydrogen atoms are given off and collide with others from other, opposite,
 surfaces (this in fact contradicts the hypothesis of somehow different
fusion
 in the metal bulk, as here, the fusion would have to be conventional and
thus
 result in all the usual nuclear signatures). Heat was either simply observed
 to evolve, or helped along by external heating. Helium was measured by
 quadrupole MS. Of 100 runs, all produced heat, whether using hydrogen or
 deuterium. Films showed some radiation tracks. Helium was detected,
 especially in the rolled foils, where there was a lot of opposing surface
for
 mutual bombardment.}
}
@article{Arat2000,
 author    = {Y. Arata},
 title     = {Developmental challenge in new energy source. 'Solid state
              plasma fusion'},
 journal   = {Kotai Butsuri},
 volume    = {35},
 number    = {1},
 year      = {2000},
 pages     = {67--75},
 note      = {In Japanese},
 keywords  = {Review, 18 refs.},
 annote    = {"The author has demonstrated that highly deuterated material
 can be generated by the two different methods discussed here. In
consequence,
 we have proven the possibility of inducing solid-state plasma fusion within
 extremely deuterated materials over 100at.\% in spite oof different
methods".
 This is as given in Chem. Abstr. The paper is uncompromisingly in Japanese,
 even the abstract being in that language. I note the occasional English word
 like "Pons", "back", "Fleischmann" (several times), "Latticequake" (many
 times; Arata's theory), "sonoluminescence" (several times), "impossible";
and
 the references are in English.}
}
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@article{Bock2000,
 author    = {{J. O'M.} Bockris},
 title     = {Accountability and academic freedom. The battle concerning
              research on cold fusion at Texas A\&M University},
 journal   = {Accountability Res.},
 volume    = {8},
 year      = {2000},
 pages     = {103--116},
 keywords  = {Sci/soc/phil.},
 annote    = {Eminent electrochemist Bockris here recounts (for the first
 time?) in detail his cold fusion involvement. The piece begins with a brief
 summary of the results obtained in several labs at Texas A\&M under Bockris'
 guidance. Then he recounts the more personal aspects, including attacks on
 the work and its practitioners by the press and other academics
 within. Bockris is thought by those who know him superficially as very
 robust, but his account makes clear that both he and his wife suffered
during
 these years.}
}
@article{Chub2000,
 author    = {S. R. Chubb},
 title     = {Introduction to the special series of papers in
              Accountability in Research dealing with 'cold fusion'},
 journal   = {Accountability Res.},
 volume    = {8},
 year      = {2000},
 pages     = {1--12},
 keywords  = {Sci/soc/phil.},
 annote    = {Occam's Razor sometimes fails, and Chubb argues that it fails
 in the case of cold fusion. It fails in those cases, like CNF, where the
 simplest explanation is not the correct one. There is still conflicting
 evidence in cold fusion, and disagreement, none of which shows that the
 phenomenon does not exist. Chubb was instrumental in getting the journal to
 devote one issue to cold fusion, and describes the background here, in the
 introductory paper.}
}
@article{Drag2000,
 author    = {A. Dragic and Z. Maric and J.~P. Vigier},
 title     = {New quantum mechanical tight bound states and 'cold fusion'},
 journal   = {Phys. Lett. A},
 volume    = {265},
 year      = {2000},
 pages     = {163--167},
 keywords  = {Theory, no FPH/Jones refs,  res+},
 submitted = {10/1999},
 published = {01/2000},
 annote    = {This paper considers interaction terms with $1/r^3$ and $1/r^4$
 behaviour, which they believe may be comparable with Coulombic interactions
 at short distances (small r). The observed excess heat of cold fusion may be
 related to these interactions; and there are other implications.}
}
@article{Flei2000,
 author    = {M. Fleischmann},
 title     = {Reflections on the sociology of science and social
              responsibility in science, in relationship to cold fusion},
 journal   = {Accountability in Res.},
 volume    = {8},
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 year      = {2000},
 pages     = {19--54},
 keywords  = {Sci/soc/phil},
 annote    = {Fleischmann here tells the interesting story of how he and Pons
 came to do their cold fusion research, and reflects on some of the
 implications for science in general. It seems that F became dissatisfied by
 current theory of electrolytes (Debye-Huckel) in the 1960's, and realised
 that a Q.E.D.  approach was needed. He also stumbled on the 1930's work of
 Coehn, who showed that there were protons in PdH, highly mobile in the
 matrix. This led to many ideas for research projects but only cold fusion
 could realistically be carried out. This was started in the early 1980's,
 with the well known results. F is concerned with the military apects of the
 work.  The paper goes on to some fascinating musings on science, and the
 reception of new results, the role of serendipity, paradigms, science and
 society. 36 pp in all.}
}
@article{Fris2000,
 author    = {F. Frisone},
 title     = {Fusion reaction within a microcrack in a crystalline lattice
              at room temperature},
 journal   = {AIP Conf. Proc (Nuclear and Condensed Matter Physics).},
 volume    = {513},
 year      = {2000},
 pages     = {282--285},
 keywords  = {Theoretical, computation, no FPH/Jones refs},
 annote    = {The author has computed the probable fusion rate of deuterons
 in impure Pd, not giving much detail here. He concludes that the rates are
 raised above those for pure Pd. There is some enhancement, though the
numbers
 do not look promising. This was a conference address and it seems a paper
has
 been submitted to a journal.}
}
@article{Good2000,
 author    = {D. Goodstein},
 title     = {Whatever happened to cold fusion?},
 journal   = {Accountability Res.},
 volume    = {8},
 year      = {2000},
 pages     = {59--71},
 keywords  = {Sci/soc/phil.},
 annote    = {This is a reprint of an article that appeared in the American
 Scholar 63 (1994) 527. Since that time (he writes, "In the three years
 since", indicating when this introduction was written), much has happened
but
 little has changed - in the sense that there is increasingly reliable
 evidence, but mainstream science has continued to ignore and dismiss the
 field. Goodstein reports his relationship with Scaramuzzi, and provides a
 beautifully clear description, in words, of the issues in the fusion of
 deuterons, including the problems with it that are the cause of mainstream
 scientists' dismissal.}
}
@article{Hora2000,
 author    = {H. Hora and G.~H. Miley},
 title     = {Heavy nuclide synthesis by neutrons in astrophysics and by
              screened protons in host metals},
 journal   = {Czech. J. Phys.},
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 volume    = {50},
 year      = {2000},
 pages     = {433--439},
 keywords  = {Theory, transmutation, res+},
 submitted = {08/1999},
 annote    = {Another paper from the Hora/Miley collaboration. Here, they
 shed light on the problem of how the elements heavier than Fe ever got
 produced. A plot of the relative abundance of the elements vs their atomic
 numbers Z is shown, falling off toward high Z. This is also seen in elements
 created by low energy transmutation experiments using host metals such as
Ni,
 Pd, Ti and others.}
}
@article{Jone2000,
 author    = {S.~E. Jones},
 title     = {Chasing anomalous signals: the cold fusion question},
 journal   = {Accountability Res.},
 volume    = {8},
 year      = {2000},
 pages     = {55--58},
 keywords  = {Discussion, neutron detection.},
 annote    = {Jones here muses on the question of an unrepeatable result that
 appears to be statistically improbable? This was his own experience when his
 team found weak neutron signals.  It turned out that further checking
 revealed instrumental artifacts, which disappeared when they used better
 gear. So, Jones has not seen any compelling evidence for cold fusion, yet.
He
 is now looking at evidence of fusion from sonoluminescence in collapsing
 bubbles, now using state-of-the-art instrumentation.}
}
@article{Kim2000,
 author    = {Y.~E. Kim and A.~L. Zubarev},
 title     = {Nuclear fusion for Bose nuclei confined in ion traps},
 journal   = {Fusion Technol.},
 volume    = {37},
 year      = {2000},
 pages     = {151--155},
 keywords  = {Theory, res+, no FPH/Jones refs.},
 submitted = {08/1999},
 published = {03/2000},
 annote    = {The authors have recently developed the theory they call the
 equivalent linear two-body (ELTB) theory, and apply it here to deuteron pair
 fusion. They obtain an approximate ground state solution of the many-body
 Schroedinger equation for a system of identical charged bosons confined by
an
 isotropic harmonic oscillator potential.  The theory may be able to account
 for recent reports of enhanced d-d fusion by Yuki et al (1998, Peripherals)
 and the Arata \& Zhang observations.}
}
@article{Kozi2000a,
 author    = {H. Kozima and K. Yoshimoto and K. Arai},
 title     = {First reliable tritium data by Packham et al. analyzed
              by TCNF model},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {25},
 year      = {2000},
 pages     = {505--507},
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 keywords  = {Theory, analysis, tritium, res+},
 annote    = {Kozima has the TCNF theory, that he believes can explain all
 cold fusion results with a single parameter. The Packham tritium claims are
 from 1989, but have not been widely accepted until now. The authors
calculate
 the parameter, n(n), the trapped neutron density, and get a figure of $3.6
 \times 10^7$ cm$^{-3}$.  They warn that this is an order-of-magnitude
thing.}
}
@article{Kozi2000b,
 author    = {H. Kozima and K. Arai and K. Yoshimoto},
 title     = {Tritium and 4He data by Chien et al. confirmed the
             cold fusion phenomenon},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {25},
 year      = {2000},
 pages     = {509--511},
 keywords  = {Theory, analysis, tritium, helium, res+},
 annote    = {Another use of Kozima's TCNF model (trapped neutrons), now
 applied to the old results of Chien et al (1992). The calculated TN density
 (other paper, ibid p. 505) is not the same as that inferred from the
 experimental data, but this is copnsistent with the different electrode
 geometries assumed. There was also a discrepancy between the amount of
 tritium and helium produced, but this, too, can be accommodated, so TCNF
 still does not fall down.}
}
@article{Kozi2000c,
 author    = {H. Kozima and K. Arai},
 title     = {Localized nuclear transmutation in PdHx observed by Bockris
             and Minevski revealed a characteristic of CF phenomenon},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {25},
 year      = {2000},
 pages     = {513--516},
 keywords  = {Theory, res+},
 annote    = {Recently, transmutation has been added to the observations of
 cold fusion events. The author's TCNF theory was therefore applied to these
 results. A case in point is the work of Bockris \& Minevski, who found
 evidence of fission products in the metal surface layers. TCNF can account
 for the formation of polyneutrons in this surface region, and this can
 explain the results. It also explains the poor reproducibility.}
}
@article{Kozi2000d,
 author    = {H. Kozima and K. Arai},
 title     = {Local coherence, condensation and nuclear reaction of neutrons
             at crystal boundary of metal hydrides and deuterides},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {25},
 year      = {2000},
 pages     = {845--851},
 keywords  = {Theoretical, TNCF model, res+, no FPH/Jones refs},
 annote    = {Kozima teams up with Arai and they explore the possibilities of
 local coherence, Cooper pair formation, neutron condensation etc in metals
 with hydrogen isotopes. They conclude that nuclear reactions are likely but
 more study is needed.}
}
@article{Kozi2000e,
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 author    = {H. Kozima and K. Kaki},
 title     = {Anomalous nuclear reactions in solids revealed by CF
              experiments},
 journal   = {Rep. Fac. Sci., Shizuoka Univ.},
 volume    = {34},
 year      = {2000},
 pages     = {1--35},
 keywords  = {Theory, res+},
 submitted = {11/1999},
 annote    = {A unified picture is given of a number of cold fusion
 observations, using Kozima's TNCF theory.}
}
@article{Kozi2000f,
 author    = {H. Kozima},
 title     = {Neutron drop: condensation of neutrons in metal hydrides
              and deuterides},
 journal   = {Fusion Technol.},
 volume    = {37},
 year      = {2000},
 pages     = {253--258},
 keywords  = {Theory, res+, no FPH/Jones refs.},
 submitted = {03/1999},
 published = {05/2000},
 annote    = {There are two possible explanations for anomalous nuclear
 reactions in solids: the author's TCNF theory, or neutron drops, as seen by
 the mass spectrum of nuclei produced by transmutation. Neutron drops are
 high-density regions of neutrons and protons clumped together. Kozima
 considers that these might form within the PdD lattice and suggests that
they
 may be detectable by means of neutron diffraction, or NMR.}
}
@article{Kueh2000,
 author    = {R.~W. K{\"u}hne},
 title     = {Response to 'Strange behavior of tritiated natural water'.},
 journal   = {Fusion Technol.},
 volume    = {37},
 year      = {2000},
 pages     = {265--266},
 keywords  = {Polemic.},
 submitted = {07/1999},
 published = {05/2000},
 annote    = {The author first summarises the area of cold fusion, starting
 with the Klyuev et al fractofusion paper of 1986, then the geophysical
 evidence of the Jones team and the 1989 electrolysis work of F\&P.  Some
have
 reported the formation of tritium in these papers. Now, Shyam, in a Letter
on
 the previous page, reports tritium arising from distilled (and other) water,
 so the tritium observed in cold fusion work does not necessarily come from
 nuclear reactions.  The author states that micro-hot fusion (his term for
 fractofusion) is unable to explain tritium, and is thus supported by this
new
 evidence.}
}
@article{Lewis2000,
 author    = {E. Lewis},
 title     = {Reply to "Comments on 'Transmutation in a gold-light water
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             electrolysis system'"},
 journal   = {Fusion Technol.},
 volume    = {37},
 year      = {2000},
 pages     = {266.},
 keywords  = {Polemic},
 submitted = {10/1999},
 published = {05/2000},
 annote    = {Lewis thanks Ohmori for his Comments in a previous issue.
Ohmori
 appears to have seen voids with connections to the surface, but Lewis did
 not, and for that reason suggested transmutation of elements appearing below
 the surface.  He then explains his plasmoid idea again, and cites Matsumoto
 for support.}
}
@article{Lips2000,
 author    = {A.~G. Lipson and B.~F. Lyakhov and A.~S. Roussetski
             and T. Akimoto and T. Mizuno and N. Asami and R. Shimada
             and S. Miyashita and A. Takahashi},
 title     = {Evidence for low-intensity D-D reaction as a result of
            exothermic deuterium  desorption from Au/Pd/PdO:D
heterostructure},
 journal   = {Fusion Technol.},
 volume    = {38},
 year      = {2000},
 pages     = {238--252},
 keywords  = {Experimental, Pd heterostructure, electrolysis, neutrons, cps,
             res+},
 submitted = {07/1999},
 published = {09/2000},
 annote    = {The Russian team visited a Japanese lab and an experiment was
 done, using the Au/Pd/PdO layered electrode in an electrolyte of either 1M
 NaOD in D2O or NaOH in H2O.Electrolysis time varied from 5 min for thin foil
 up to 90 min for thicker foil. Loadings up to 0.7 were achieved. Neutrons
 were measured by two NE-213 detectors on opposite sides of the cell with
 appropriate electronics to filter out gamma rays, in a low-background
 underground environment. For charged particles, SSB detectors were
 used. Results were very low neutron emissions, indicating fusion rates below
 the Jones level at $10^{-23}$/s/dd.  Even less cp emission was detected but
 can be explained by absorption within the foils. Thus, both measurements
 confirm cold fusion.}
}
@article{Miles2000,
 author    = {M.~H. Miles},
 title     = {Calorimetric studies of Pd/D2O+LiOD electrolysis cells},
 journal   = {J. Electroanal. Chem.},
 volume    = {482},
 year      = {2000},
 pages     = {56--65},
 keywords  = {Experimental, electrolysis, excess heat, Pd, res+},
 submitted = {07/1999},
 published = {02/2000},
 annote    = {Miles has previously reported excess heat from his cold fusion
 cells but recognises that the levels have been such as not to convince all.
 He has now developed a more sensitive calorimeter in order to improve the
 measurements Heat transfer is mainly by conduction and temperature is
 measured in the mantle between the (long tube-) cell and the insulation
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 around it.  This mantle is a layer of Al foil packing, which evens out
 temperatures, so that the probes measure an average.  Heavy water was
 occasionally added, and the total volume of electrolyte in the cell checked
 to an accuracy of 0.5 ml.  The Pd cathode was a rod 1 x 20mm.  Two similar
 cells were made and run, at constant current of some hundreds of mA
(changing
 the level at times).  Cell A had a Pd rod that had produced results before,
 cell B had one that had failed and acted as control.  No dramatic effects
 were observed in either cell but excess was found in cell A, at multiples of
 the smallest measurable.  Some of these events happened while the total cell
 voltage decreased, so they were not ohmic effects.  There was no correlation
 between excess heat and such factors such as current changes.  Recombination
 was ruled out as an explanation, and the control, which behaved normally,
 confirmed the effect in cell A.}
}
@article{Miley2000,
 author    = {G.~H. Miley},
 title     = {Some personal reflections on scientific ethics
              and the cold fusion 'episode'},
 journal   = {Accountability Res.},
 volume    = {8},
 year      = {2000},
 pages     = {121--135},
 keywords  = {Discussion, sci/soc},
 annote    = {George Miley, editor of the journal Fusion Technology and two
 others, reflects on some personal issues arising in the wake of CNF. Many
 were personally affected by the affair, perhaps, as he muses, because of the
 impact CNF would have if it were real. He then goes on the ethics of
 publishing CNF papers, for example in his journal. He decided early on to
 take such papers, but filtered out problem papers by subjecting all to the
 normal strict review process. This resulted in controversy and GHM added
 reviewers from the hot fusion community after some time, which resulted in
an
 increased rejection rate but did not stop papers appearing. He then
discusses
 the role of Internet - email and web pages, which had good and bad
 effects. Thus, Infinite Energy published a paper given by GHM at a meeting,
 without asking him, a breach with usual practice. Other examples are given,
 and the author concludes that a course on professional ethics might be
 appropriate as part of scientists' training.}
}
@article{Mill2000,
 author    = {R. Mills},
 title     = {Novel hydrogen compounds from a potassium carbonate
              electrolytic cell},
 journal   = {Fusion Technol.},
 volume    = {37},
 year      = {2000},
 pages     = {157--182},
 keywords  = {Experimental, light water, Ni, electrolysis, res+,
              no FPH/Jones refs},
 submitted = {03/1999},
 published = {03/2000},
 annote    = {Mills believes that hydrino chemistry is a whole new field, and
 many new compounds can form, once hydrinos have been formed in an
 electrolytic cell.  A large number of physical analytical techniques have
 been marshalled to detect these new compounds, such as TOF-SIMS, XPS, XRD,
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 FTIR and Raman spectroscopy, as well as NMR. Some of these were carried out
 blindly by other laboratories.  Especially alkali metal (hydrino)hydrides
 were found, thus supporting Mills' theory.}
}
@article{Mizu2000,
 author    = {T. Mizuno and T. Ohmori and T. Akimoto and A. Takahashi},
 title     = {Production of heat during plasma electrolysis in liquid},
 journal   = {Jpn. J. Appl. Phys.},
 volume    = {39},
 year      = {2000},
 pages     = {6055--6061},
 keywords  = {Experimental, electrolysis, W, calorimetry, high currents,
res+},
 submitted = {03/2000},
 published = {10/2000},
 annote    = {This is a high-voltage electrolysis setup, using a W (tungsten)
 cathode (5*10mm foil) and Pt anode in K2CO3 electrolyte. All metals and salt
 were checked for impurities, and these noted. Currents as high as 6 A/cm$^2$
 and cell voltages up to 200V were used. Current decreased at constant
voltage
 as the cells boiled. Excess heat was found, too large to be due to chemical
 reactions in the cell. The rectangular W foils were partly eroded to a
 rounded shape.}
}
@article{Nage2000,
 author    = {D. J. Nagel},
 title     = {Fusion physics and philosophy},
 journal   = {Accountability Res.},
 volume    = {8},
 year      = {2000},
 pages     = {137--155},
 keywords  = { Sci/soc/phil.},
 annote    = {Nagel first summarises the rise of cold fusion, and like
 Goodstein in the same issue of the journal, describes the problems presented
 by cold fusion claims of d-d fusion. He then goes on to a philosophical
 discussion of how we know things. There is an appendix on "uncertain
 sciences", echoing some of the remarks by H.H. Bauer (HYLE J. Phil.
 Chem. 8(1)(2002) 5) on the term "pseudoscience"), and accountability.}
}
@article{Nass2000,
 author    = {V. Nassisi and M.~L. Longo},
 title     = {Experimental results of transmutation of elements observed
              in etched palladium samples by an excimer laser},
 journal   = {Fusion Technol.},
 volume    = {37},
 year      = {2000},
 pages     = {247--252},
 keywords  = {Experimental, Pd, D2, gas phase, transmutation, res+},
 submitted = {04/1999},
 published = {05/2000},
 annote    = {The authors looked at Pd exposed to D2 gas. The Pd was cleaned
 by etching with nitric acid before the runs. It was then degassed in the
 chamber at 150C and its surface checked with the analytical tool, the
excimer
 laser and a quadrupole gas analyser. Then the Pd was exposed to D2 gas at 2
 atm, and again surface analysed by the laser, as well as by energy
dispersive
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 x-ray analysis (EDAX). Both showed the formation of Zn. No mechanism for its
 formation is suggested but it is suggested that the laser acted to
accelerate
 whatever reaction that might be.}
}
@article{Ohmo2000a,
 author    = {T. Ohmori},
 title     = {Reply to Comments on 'Transmutation in a gold-light
              water electrolysis system'},
 journal   = {Fusion Technol.},
 volume    = {38},
 year      = {2000},
 pages     = {274--275},
 keywords  = {Polemic},
 submitted = {12/1999},
 published = {09/2000},
 annote    = {The author rebuts remarks made by Lewis (not cited! This would
 be Lewis, ibid 36 (1999) 242 and/or Lewis, ibid 37 (2000) 266). The
electrode
 surface features previously observed by Ohmori et al are not, as Lewis
wrote,
 caused by plasmoids, and have nothing to do with features found by
Matsumoto,
 but are caused by transmutation.}
}
@article{Ohmo2000b,
 author    = {T. Ohmori},
 title     = {Recent development in solid state nuclear transmutation
              occurring by the electrolysis},
 journal   = {Curr. Topics Electrochem.},
 volume    = {7},
 year      = {2000},
 pages     = {101--118},
 keywords  = {Review or progress report, transmutation, res+,
              no FPH/Jones refs.},
 annote    = {Ohmori describes once again his plasma electrolysis, in which
 large currents or voltages are applied, so that there is a plasma film
 generated at the electrodes. There are colour pictures of the resulting
light
 emission at a tungsten cathode under these conditions. Both excess heat and
a
 number of de novo elements (isotopes) are produced. The transmutation
 reactions lead to surface features such as craters and lines.}
}
@article{Scar2000,
 author    = {F. Scaramuzzi},
 title     = {Ten years of cold fusion: an eye-witness account},
 journal   = {Accountability Res.},
 volume    = {8},
 year      = {2000},
 pages     = {77--92},
 keywords  = {Sci/soc/phil.},
 annote    = {This is a a personal history of the author's involvement in
 cold fusion research, and gives some insight into the development of
 "Italian-style" cold fusion, using titanium loaded from the gas phase and
 temperature cycling.  He also addresses the lack of reproducibility and the
 anomalous features of cold fusion results. He deplores the still holding
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 division between cold fusion researchers and mainstream scientists but
points
 out that progress is being made; also, that mistakes have been made on both
 sides.}
}
@article{Shya2000,
 author    = {A. Shyam},
 title     = {Strange behavior of tritiated natural water},
 journal   = {Fusion Technol.},
 volume    = {37},
 year      = {2000},
 pages     = {264},
 keywords  = {Comment, tritium elimination, res0},
 submitted = {05/1999},
 published = {05/2000},
 annote    = {Shyam has previously observed strange effects with tritium and
 adds new evidence here in a one-page brief Letter. This is a number of
 samples, not subjected to electrolysis, containing some tritium, that were
 sent for tritium analysis at some time, and again 6 months later. Some
gained
 tritium, some lost it. Therefore, the electrolysis experiments previously
 reported should be viewed with caution.}
}
@article{Toki2000,
 author    = {H. Toki and K. Sugimoto},
 title     = {Deuteron-alpha Bose-Einstein condensation for coherent
              deuteron fusion in Pd double structure cathode},
 journal   = {Proc. Jpn. Acad., Ser. B},
 volume    = {76},
 number    = {3},
 year      = {2000},
 pages     = {35--40},
 keywords  = {Theory, res+, no FPH/Jones refs},
 submitted = {03/2000},
 annote    = {The authors theorise on the results of Arata \& Zhang's double
 structure cell, and propose a Bose-Einstein condensate and coherent
 deuterons, so that fusion rates are controlled by trapped deuterons in the
Pd
 powder in the bottle. This explains a number of observations.}
}
@article{Upad2000,
 author    = {C.~S. Upadhyay},
 title     = {Some views on spin relativity and its impact on science},
 journal   = {Ind. J. Theo. Phys.},
 volume    = {48},
 year      = {2000},
 pages     = {149--160},
 keywords  = {Theoretical, experimental, res+, no FPH/Jones refs.},
 submitted = {01/1999},
 annote    = {The author feels that spin relativity plays an important role
 in science and leads to cold fusion. He carried out an experiment with
 distilled water to which he applied 300-500 V and measured the resulting
 magnetic field. The results, and his theory, show that ionic velocities up
to
 $10^7$ m/s are achieved, and the curvature focussing leads to cold nuclear
 fusion.}
}
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@article{Urut2000,
 author    = {L.~I. Urutskoev and V.~I. Liksonov},
 title     = {Experimental detection of 'strange' radiation and
              transformations of chemical elements},
 journal   = {Prikl. Fiz.},
 year      = {2000},
 number    = {4},
 pages     = {83--100},
 note      = {Russian, Engl. abstr.},
 keywords  = {Experimental, transformation. Res+, no FPH/Jones refs.},
 published = {04/2000},
 annote    = {The authors zapped foils of mainly Ti, but also tried other
 metals like Zr, with large voltages in the KV range. They had radiation
 monitors to detect x-, gamma-rays and neutrons. X-ray films were placed
 nearby. The foils disintegrated into powder, which was analysed by MS. In
the
 case of Ti, the main isotope, the (main) 48Ti fraction was found to be
 lowered and some new elements not previously present were found, such as Al,
 Si, Fe among others.  No radiation was detected but the photographic film
 showed strange tracks that cannot be explained, hinting at GeV energies.}
}
@article{VanV2000,
 author    = {R.~J.~A.~R. {Van Veen}},
 title     = {Koude fusie},
 journal   = {Ned. Tijdschr. Natuurkd.},
 volume    = {66(4)},
 year      = {2000},
 pages     = {132--135},
 note      = {In Dutch},
 keywords  = {Short critical review},
 published = {04/2000},
 annote    = {A rather critical review of the cold fusion field.}
}
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# YEAR: 2001

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% Year 2001; there are  22 entries.
@article{Chic2001,
 author    = {D. Chicea and D. Lupu},
 title     = {Low-intensity neutron emission from TiDx samples under
              nonequilibrium conditions},
 journal   = {Fusion Technol.},
 volume    = {39},
 year      = {2001},
 pages     = {108--113},
 keywords  = {Experimental, gas phase, Ti, neutrons, res+},
 submitted = {08/1999},
 published = {01/2001},
 annote    = {Invoking nonequilibrium once again, the authors loaded D2 gas
 into small Ti plates 1.5mm*8mm*9mm, and temperature variation from 20C to
 700C applied, while monitoring for neutrons, using a single BF3
 detector. Some bursts above the background were detected. No controls with
 hydrogen were done.}
}
@article{Cisb2001,
 author    = {E. Cisbani and G.~M. Urciuoli and S. Frullani and F. Garibaldi
              and F. Guiliani and D. Gozzi and M. Gricia and M. Iodice
              and M. Lucentini and F. Santavenere},
 title     = {A neutron detector for cold fusion experiments},
 journal   = {Nucl. Instrum. Meth. Phys. Res. A},
 volume    = {459},
 year      = {2001},
 pages     = {247--255},
 keywords  = {Experimental, design, neutrons, tritium, res-,
              no FPH/Jones refs},
 submitted = {04/2000},
 published = {02/2001},
 annote    = {This team designed and tested a sensitive neutron detector
 suitable, among other uses, for cold fusion work. There are two rings with
30
 detectors each, surrounding 10 electrolytic cnf cells. They are of the 3He
 type. Data acquisition makes sure that the accepted signals are coincident
 etc. The setup was calibrated with a standard 252Cf neutron source, and its
 sensitivity found to be 22\% and 13\%. It was tested on some real F\&P-type
 cold fusion cells, and while some excess heat, 4He and some tritium were
 detected, no neutrons were observed.}
}
@article{Clar2001a,
 author    = {B. Clarke},
 title     = {Search for 3He and 4He in Arata-style palladium cathodes I:
              a negtive result},
 journal   = {Fusion Sci. Technol.},
 volume    = {40},
 year      = {2001},
 pages     = {147--151},
 keywords  = {Experimental, post-mortem, helium, MS, res-},
 submitted = {07/2000},
 published = {09/2001},
 annote    = {The author was supplied with some samples of Pd black that had
 been inside the double cell of Arata \& Zhang; three samples had yielded
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 excess heat while a fourth had not. Clarke examined these for 3He and 4He,
 using a mass spectrometer with a greater resolution than that of A\&Z. The
 samples were folded into Al foil and both the Al and (most of) the Pd were
 evaporated by a tungsten heating coil at 2300 K. The amounts of helium
 detected were less by many orders of magnitude that those claimd by A\&Z,
but
 the Al blanks gave off some 3He, whose origin is not clear.}
}
@article{Clar2001b,
 author    = {B. Clarke and B.~M. Oliver and M.~C.~H. McKubre
              and F.~L. Tanzella and P. Tripodi},
 title     = {Search for 3He and 4He in Arata-style palladium cathodes II:
              Evidence for tritium production},
 journal   = {Fusion Sci. Technol.},
 volume    = {40},
 year      = {2001},
 pages     = {152--167},
 note      = {15},
 keywords  = {Experimental, post-mortem, helium, tritium, MS, res+},
 submitted = {07/2000},
 published = {09/2001},
 annote    = {In this second paper by Clarke and here, et al, two Arata-style
 double walled cells were examined for helium and tritium, after they had
been
 electrolysed at SRI in light and heavy water respectively. In the D2O cell,
a
 large amount of tritium and 3He were found and if it is assumed that the 3He
 comes from decay of tritium, and that this was generated somehow in a short
 time, calculations place that event within the duration of the approx.  90
 day cathodic run, which was followed by a similar period of anodic
 polarisation. The amount of tritium produced was about 2*10$^{15}$ atoms.
This
 would have yielded (under the assumption that it came from d-d fusion) a few
 kJ, rather than the MJ observed by the SRI team and by A\&Z by calorimetry.
 Nevertheless, tritium was apparently produced by some process.}
}
@article{Dadd2001,
 author    = {L. Daddi},
 title     = {Proton-electron reactions as precursors of anomalous nuclear
              events},
 journal   = {Fusion Technol.},
 volume    = {39},
 year      = {2001},
 pages     = {249--252},
 keywords  = {Theory, suggestion, res+, no FPH/Jones refs},
 submitted = {09/1999},
 published = {03/2001},
 annote    = {Argues that suggestions of the reaction p+e=n +energy or the
 analogous reaction with d, might be possible by way of virtual neutrons.}
}
@article{Dufo2001,
 author    = {J. Dufour and D. Murat and X. Dufour and J. Foos},
 title     = {Experimental observation of nuclear reactions in palladium
              and uranium - possible explanation by hydrex mode},
 journal   = {Fusion Sci. Technol.},
 volume    = {40},
 year      = {2001},
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 pages     = {91--106},
 keywords  = {Experimental, U, Pd hydrides, calorimetry, hydrex,
transmutation,
              res+, no FPH/Jones refs.},
 submitted = {12/2000},
 published = {07/2001},
 annote    = {This team has previously done spark discharge work, but this
 time, large currents are passed through uranium lathe turnings and Pd wires,
 in direct but pulsed mode. At the same time, a magnetic field is applied, up
 to 1T.  Heat output is measured. Calibration is done by assuming that a dc
 current without pulsing produces no excess heat. In pulsed mode, some
 harmonics are observed, but power input is thought to be measured accurately
 anyway. There was excess heat of a few \% about input powers of up to 150
 W. New species (elements) were found after the runs in the Pd, notably Zn,
 Cu, Ni, Fe, Mn and Cr. The results are compared with those of others, that
 appear mutually inconsistent, and a consistent explanation offered, in terms
 of fission reactions helped along by the hydrex species, similar, but not
 identical with, Mills' hydrinos. The scheme is given the name of nuclear
 catalysis with neutron sink.}
}
@article{Feug2001,
 author    = {J. Feugeas},
 title     = {Comments on "Evidence of micrometre-sized plasmoid emission
              during electrolysis cold fusion"},
 journal   = {Fusion Sci. Technol.},
 volume    = {40},
 year      = {2001},
 pages     = {109--110},
 keywords  = {Polemic, no FPH/Jones refs.},
 submitted = {11/2000},
 published = {07/2001},
 annote    = {Feugeas wishes to point out that he has himself, as early as
 1983, been involved in work in which he observed the circle features
 described by Lewis on p. 107, same issue. This was in the context of
electron
 beams, and the markings are considered to be due to high-energy electrons
 forming surface plasmas.}
}
@article{Fris2001a,
 author    = {F. Frisone},
 title     = {Deuteron interaction within a microcrack in a lattice
              at room temperature},
 journal   = {Fusion Technol.},
 volume    = {39},
 year      = {2001},
 pages     = {260--265},
 keywords  = {Theory, fracto-, res+, no FPH/Jones refs},
 submitted = {01/1999},
 published = {03/2001},
 annote    = {The author theorises on the possibility of fusion in
 cubic-face-centered crystals, such as in Pd, of deuterons, especially the
 role of microcracks formed by lattice deformation, and impurities. The
 conclusion is that if the temperature is increased slowly, tunnelling
effects
 are produced and fusion might take place in microcracks. Calculated fusion
 probabilities do not seem very great but the author is optimistic.}
}
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@article{Fris2001b,
 author    = {F. Frisone},
 title     = {Theoretical model of the probability of fusion between
              deuterons within deformed crystalline lattices with microcracks
              at room temperature},
 journal   = {Fusion Sci. Technol.},
 volume    = {40},
 year      = {2001},
 pages     = {139--146},
 keywords  = {Theory, res+},
 submitted = {07/2000},
 published = {09/2001},
 annote    = {The author considers deuterated Pd, loaded by glow discharge at
 some 100 eV, so that microcracks have formed. He arrives at the likelihood
 that then, d-d fusion rates might be enhanced, and the Coulomb barrier
 lowered, thus providing a theory of cold fusion, perhaps for the first
time.}
}
@article{Glue2001,
 author    = {P. Gl{\"u}ck},
 title     = {A new definition for 'chemical element'?},
 journal   = {Chem. Innov.},
 volume    = {31},
 number    = {10},
 year      = {2001},
 pages     = {44--45},
 keywords  = {Polemic, hydrinos},
 published = {10/2001},
 annote    = {Roumanian Dr. Glueck here describes Mills' hydrinos rather
 clearly, and suggests that the hydrino in some ways acts as a new element.
He
 proposes the name "millsium" for it. He also proposes, analogously to
 isotopicity, the new term orbitality, to distinguish between the different
 orbital states of, for example, normal hydrogen with its ground state, and
 "millsium" with its sub-ground states.}
}
@article{Jami2001,
 author    = {M. Jaminon},
 title     = {La fusion froide},
 journal   = {Bull. Soc. Roy. Sci. Liege},
 volume    = {70},
 number    = {3},
 year      = {2001},
 pages     = {119--135},
 note      = {In French},
 keywords  = {Review, no FPH/Jones refs.},
 submitted = {10/2002},
 annote    = {Review of cold fusion, comparing the results of Fleischmann
 \& Pons with those of Jones et al. The present situation in thermonuclear
and
 muonic fusion is summarised. Past history is mentioned, such as the prior
 attempts by Tandberg in the 30's to realise fusion, and the 1926 work of
 Paneth \& Peters and muonic cold fusion. The author is skeptical of the
 reality of cold fusion.}
}
@article{Jian2001,
 author    = {X. Jiang and X. Wen},
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 title     = {Localised nuclear reactions and dynamic Casimir effect
              in electrochemical process},
 note      = {In Chinese, Engl. Abstr.},
 journal   = {J. Beijing Univ. Aeronaut. Astronaut.},
 volume    = {27},
 number    = {6},
 year      = {2001},
 pages     = {729--732},
 keywords  = {Theory, res+},
 submitted = {04/2001},
 published = {12/2001},
 annote    = {The paper discusses previous observations of nuclear activation
 by electrolysis, in the form of detected charged particles and
 autoradiography and x-ray effects. These can be interpreted in terms of the
 model quasar vortex structure with extremely high energy cosmic rays.}
}
@article{Kama2001,
 author    = {K. Kamada},
 title     = {Heating of deuteron implanted Al on electron bombardment and
              its possible relation to 'cold fusion' experiment},
 journal   = {Fusion Eng. Design},
 volume    = {55},
 year      = {2001},
 pages     = {541--548},
 keywords  = {Experimental, ion implantation, heat, res-, no FPH/Jones refs},
 annote    = {The author aimed a 15 keV beam of protons and of deuterons at
 an Al target and subsequently examined the surface with a 200 keV electron
 beam used for transmission microscopy. He found that this resulted, in the
 case of the deuteron beam (but not with protons) in melted areas in the
 Al. He then looks at a number of orthodox explanations for this but discards
 them all, in favour of a phonon scenario. Fusion of d-d would produce, among
 other products, 3He at 0.82 MeV and this is a possible cause of the
 melting. The fusion should also result in 2.45 MeV neutrons, so these were
 looked for but not found, even though the detectors were sensitive enough.
So
 this scenario too is discarded. The likely explanation involves impinging
 electrons producing phonons with the deuterium bubbles forming in the Al,
 especially in tunnels seen under the microscope, leading to a maser-like
 action and heating. So this is not cold fusion.  See also the corrigendum by
 the author, Fusion Eng. Des. 60 (2002) 219-226.  The author corrects his
 earlier paper, which had some incorrect equations in Sect. 5.2.}
}
@article{Kozi2001,
 author    = {H. Kozima and M. Ohta and M. Fujii and K. Arai and H. Kudoh},
 title     = {Possible explanation of 4He production in a Pd/D2 system
              by the TNCF model},
 journal   = {Fusion Sci. Technol.},
 volume    = {40},
 year      = {2001},
 pages     = {86--90},
 keywords  = {Discussion, theory, TNCF model, res+, no FPH/Jones refs.},
 submitted = {07/2000},
 published = {07/2001},
 annote    = {The 4He data of Botta et al are here analysed in terms of
 Kozima's TNCF (trapped neutrons) model. 4He is not formed from dd fusion,
but
 from a reaction between Pd and trapped neutrons. As usual, Kozima's single
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 parameter that can fit all, is adjusted and this time found to deviate by
 some orders of magnitude from previous values. This is no problem.}
}
@article{Lewis2001,
 author    = {E. Lewis},
 title     = {Evidence of micrometre-sized plasmoid emission during
              electrolysis cold fusion},
 journal   = {Fusion Sci. Technol.},
 volume    = {40},
 year      = {2001},
 pages     = {107--108},
 keywords  = {Polemic, no FPH/Jones refs.},
 submitted = {08/2000},
 published = {07/2001},
 annote    = {Lewis, who espouses his theory that plasmoids are the source
 of cold fusion, here points out that the circles found on film by Matsumoto
 are very like those found by Nardi in 1980 in discharge experiments.
 Basically, atoms are plasmoids and can behave like ball lightning, so this
 confirms the theory.}
}
@article{Matsu2001,
 author    = {T. Matsumoto},
 title     = {Comments on "Evidence of micrometre-sized plasmoid emission
              during electrolysis cold fusion"},
 journal   = {Fusion Sci. Technol.},
 volume    = {40},
 year      = {2001},
 pages     = {108--109},
 keywords  = {Polemic, no FPH/Jones refs.},
 submitted = {10/2000},
 published = {07/2001},
 annote    = {Matsumoto remarks on the polemic by Lewis on p. 107, same
issue,
 in which Lewis interprets Matsumoto's results (circles found on film) as
 evidence for his plasmoid theory. Matsumoto prefers his own theory of itons,
 the Nattoh (soya bean) model.}
}
@article{Miles2001,
 author    = {M.~H. Miles and M.~A. Imam and M. Fleischmann},
 title     = {Calorimetric analysis of a heavy water electrolysis experiment
              using a Pd-B alloy cathode},
 journal   = {Proc. Electrochem. Soc.},
 volume    = {2001-23},
 year      = {2001},
 pages     = {194--205},
 keywords  = {Experimental, electrolysis, Pd alloy, heat, res+},
 annote    = {The hidden agenda in the work of F\&P was to design experiments
 that would help establish that quantum electrodynamics (QED) is the correct
 paradigm of Nature. The experiments reported here continue this effort.
 Hydrogen mobility in Pd requires QED, as does cold fusion. High loading is
 required, 4He is the main product.  In the present experiments, a Pd-boron
 alloy was electrolysed in 0.1M LiOD, and two probes in the cell monitored
 temperature against that outside the cell. Excess heat and "heat after
death"
 was observed, thus confirming cold fusion.}
}
@article{Mill2001,
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 author    = {R.~L. Mills and B. Dhandapani and M. Nansteel and J. He
              and A. Voigt},
 title     = {Identification of compounds containing novel hydride ions by
              nuclear magnetic resonance spectroscopy},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {26},
 year      = {2001},
 pages     = {},
 keywords  = {Experimental, hydrinos, NMR shifts, res+, no FPH/Jones refs.},
 annote    = {Mills proposes the hydrino, a hydrogen atom with electron
levels
 at 1/N, below the hitherto supposed lowest level at 1. In the experiments
 carried out in his laboratories, a number of novel hydrides have been
 synthesized and their NMR response is described in this paper. A number of
 independent labs have done these measurements, on compounds of the types
MH*,
 MH*2 and MH*X, where M is a metal such as alkali or alkaline earth, H* is a
 hydrino and X is a halide. Their synthesis is described in detail, and the
 NMR results are presented. They show shifts that are considered to support
 Mills' hydrino hypothesis. Controls in the form of MH and MX (or mixtures of
 these) do not. Some of these novel substances may be useful for batteries.}
}
@article{Mizu2001,
 author    = {T. Mizuno and T. Akimoto and T. Ohmori and A. Takahashi},
 title     = {Neutron evolution from a palladium electrode by alternate
              absorption treatment of deuterium and hydrogen},
 journal   = {Jpn. J. Appl. Phys.},
 volume    = {40},
 year      = {2001},
 pages     = {L989--L991},
 keywords  = {Experimental, Pd, electrolysis, neutrons, res+},
 submitted = {02/2001},
 published = {09/2001},
 annote    = {The team observe that after long electrolysis, H2O often
appears
 in the cell electrolyte. They also noted that in D2O, excess heat appears
 after long electrolysis and sometimes when the D2O is replenished. So cold
 fusion seems to need a trigger. They here used 1mm, 30 mm long Pd wire and
 0.2M K2CO3, in a quartz cell. After 3 h electrolysis, the wire was put into
 an H2O electrolyte and 8A was applied, then reduced to 1A (the cell
 boiled). Neutrons were detected using 3 3He probes. Out of 10 experiments, 7
 of them showed neutrons after transfer into light water, sometimes soon
 after, and sometimes after some delay. Neutron count rates were as much 2
 c/s, with the background at 0.008 $\pm$ 0.003 c/s. The number of neutrons
 counted was from $10^5$ to $10^6$.}
}
@article{Szpa2001,
 author    = {S. Szpak and P.~A. Mosier and S.~R. Chubb},
 title     = {Cold fusion},
 journal   = {C \& EN},
 volume    = {24},
 number    = {December},
 year      = {2001},
 pages     = {5},
 keywords  = {Polemic},
 annote    = {The authors comment on the Fleischmann \& Pons findings, and
 that in the years since, much evidence has been gathered, so that today
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 (2001) there is little doubt that the phenomenon is real, and cannot be
 regarded as pathological science. Nevertheless, the subject is not covered
in
 mainstream journals, claim the authors, due perhaps to experiments not being
 performed any longer. This situation will not change until editorial
policies
 change.}
}
@article{Viol2001,
 author    = {V. Violante and A. Torre and G. Selvaggi and G.~H. Miley},
 title     = {Three-dimensional analysis of the lattice confinement effect
              on ion dynamics in condensed matter and lattice effect
              on the d-d nuclear reaction channel},
 journal   = {Fusion Technol.},
 volume    = {39},
 year      = {2001},
 pages     = {266--281},
 keywords  = {Theory, res+},
 submitted = {02/2000},
 published = {03/2001},
 annote    = {This paper looks at charge oscillations within PdD and
 calculates numerically excess heat expected from fusion events for different
 energies. It concludes that claimed excess heats up to 10 kW/cm$^3$ might be
 feasible and the theory also explains x-ray emissions observed (e.g. by
 Iwamura et al 1998). The dynamics of such oscillations can lead to close d-d
 approach.}
}
@article{Yama2001,
 author    = {H. Yamada and K. Uchiyama and N. Kawata and Y. Kurisawa
              and M. Nakamura},
 title     = {Producing a radioactive source in a deuterated palladium
              electrode under direct-current glow discharge},
 journal   = {Fusion Technol.},
 volume    = {39},
 year      = {2001},
 pages     = {253--259},
 keywords  = {Experimental, discharge, gas phase, Pd, gamma, isotopes, res+,
              no FPH/Jones refs.},
 submitted = {10/1999},
 published = {03/2001},
 annote    = {A Pd foil was placed in a chamber under D2 gas at about 3 Torr
 pressure, and a glow discharge applied with 500-1600 V. Gammas were recorded
 by NaI, and after the experiment, radiographic film placed close to the
 treated Pd foil to detect gamma and x-rays. The gamma spectrum showed an
 anomalous peak at about 106 keV, not seen in a control without the
discharge.
 Also, the film was blackened by the Pd foil, and weakly so without the
 discharge (the control). Post-run SIMS analysis showed the presence of newly
 formed 56Fe, and 63Cu, sometimes possibly some Al. The results indicated
that
 56Fe and 63Cu were formed in a thin surface layer, by a nuclear reaction.}
}
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# YEAR: 2002

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% Year 2002; there are  20 entries.
@article{Arat2002,
 author    = {Y. Arata and Y.~C. Zhang},
 title     = {Formation of condensed metallic deuterium lattice and
              nuclear fusion},
 journal   = {Proc. Japan. Acad. Ser. B},
 volume    = {78},
 year      = {2002},
 pages     = {57--62},
 keywords  = {Experimental, gas phase, loading, pycnonuclear fusion, res+},
 submitted = {02/2002},
 published = {03/2002},
 annote    = {Hydrogen under very high pressure might become metallic and
 fuse. This might also be realised by loading hydrogen (deuterium) into a
 metal, causing the hydrogen to coagulate into clumps, and thus precipitate a
 pycnonuclear fusion reaction. The electrons make this process easier. In one
 experiment, small Pd particles embedded in a ZrO2 matrix were evacuated for
2
 days and then exposed to H2/D2 gas flowing in at a constant rate. Both the
 pressure in the chamber and the temperature were followed against time. The
 pressure yielded the loading, which came to about 2.2 and 2.5, at resp. 3
atm
 and 10 atm. The ZrO2 did not absorb any hydrogen. In another experiment, the
 weight of the powder was measured as H2/D2 was absorbed. Pd powder alone
 absorbed up to a loading of about 1, while the Pd/ZrO2 mix went to 3. The
 paper then discusses crystal structure and where the hydrogen might sit
 within it. The paper concludes that Pd particles of 50A size can absorb
large
 amounts of hydrogen quickly, and that the hydrogen must form clumps in the
 lattice. These will then favour pycnonuclear fusion.}
}
@article{Baue2002,
 author    = {H.~H. Bauer},
 title     = {'Pathological Science' is not scientific misconduct (nor is it
              pathological)},
 journal   = {HYLE Int. J. Phil. Chem.},
 volume    = {8},
 number    = {1},
 year      = {2002},
 pages     = {5--20},
 keywords  = {Sci/phil},
 published = {04/2002},
 url       = {http://www.hyle.org/journal/issues/8-1/bauer.htm},
 annote    = {Science philosopher and chemist H. H. Bauer argues that the
 charges levelled at cold fusion and its proponents are unfounded. The field
 has most of the purported failings in common with other, respected,
 fields. There are no clear and agreed upon definitions of pathological
 science or scientific misconduct, and the cases usually given as examples
are
 not clearly different from what is regarded as normal science. The phrase
 'pathological science' is outdated and should be abandoned.}
}
@article{Chub2002,
 author    = {T. Chubb},
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 title      = {Comments on 'Search for 3He and 4He in Arata-style palladium
               cathodes I: a negative result' and 'Search for 3He and 4He in
               Arata-style palladium cathodes II: evidence for tritium
               production'. (Letter to the Editor)},
 journal   = {Fusion Sci. Technol.},
 volume    = {41},
 year      = {2002},
 pages     = {151.},
 keywords  = {Polemic},
 submitted = {09/2001},
 published = {03/2002},
 annote    = {Talbot Chubb writes that the 3-helium inside Arata \& Zhang's
 Pd bottle was historic evidence of a nuclear reaction, independently of
where
 it came from; Clarke et al, in the paper under scrutiny here, wrote that it
 was extraneous tritium that caused the production of 3He. The lack of 4He
 observed by C et al is in contrast with that of A\&Z, who did indeed find
 4He.  Addressing Part II, Chubb criticises the loss of most of the analysed
 sample (90\% of it), and the fact that this was not adequately looked at.}
}
@article{Clar2002a,
 author    = {W. B. Clarke},
 title     = {Response to 'Comments on 'Search for 3He and 4He in Arata-style
              palladium cathodes I: a negative result'. (Letter to the
Editor)},
 journal   = {Fusion Sci. Technol.},
 volume    = {41},
 year      = {2002},
 pages     = {152.},
 keywords  = {Polemic},
 submitted = {10/2001},
 published = {03/2002},
 annote    = {Clarke rebuts the criticism by Chubb of his and coauthors'
 findings that it was tritium that caused the appearance of 3He and that no
 4He was found, writing that both were wrong. Clarke, on the contrary, here
 defends this conclusion, citing some text from an Arata \& Zhang
 paper. Clarke believes that a well known memory effect in mass spectroscopy
 is the origin of the 4He, not a nuclear reaction.}
}
@article{Clar2002b,
 author    = {W. B. Clarke and B. M. Oliver},
 title     = {Response to 'Comments on 'Search for 3He and 4He in Arata-style
               palladium cathodes II: evidence for tritium production'.
               (Letter to the Editor)},
 journal   = {Fusion Sci. Technol.},
 volume    = {41},
 year      = {2002},
 pages     = {153--154},
 keywords  = {Polemic}
}
@article{Digi2002,
 author    = {M. DiGiulio and E. Filippo and D. Manno and V. Nassisi},
 title     = {Analysis of nuclear transmutations observed in D- and
               H-loaded films},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {27},
 year      = {2002},
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 pages     = {527--531},
 keywords  = {Experimental, Pd, gas loading, transmutation, res+,
              no FPH/Jones refs},
 published = {05/2002},
 annote    = {The team made Pd films on Si by evaporation onto the base, and
 loaded these with H2 or D2 gas at up to 6 atm, for a week or so. After the
 loading, the films were subjected to a number (2000) of laser burst shots of
 a UV excimer laser. The samples were then analysed by SEM and EDX to study
 the surface morphology. Pd, Si and O were always found. Some of both the H2
 and D2 loaded films also showed other, unexpected elements such as Ca, Fe,
S,
 Zn, Ti, Cu and Cr, not initially present. This implies that they were the
 products of transmutation.}
}
@article{Isob2002,
 author    = {Y. Isobe and S. Uneme and K. Yabuta and Y. Katayama
              and H. Mori and T. Omote and S. Ueda and K. Ochiai
              and H. Miyamaru and A. Takahashi},
 title     = {Search for multibody nuclear reactions in metal deuteride
              induced with ion beam and electrolysis methods},
 journal   = {Jpn. J. Appl. Phys.},
 volume    = {41 Part 1},
 year      = {2002},
 pages     = {1546--1456},
 keywords  = {Experimental, electrolysis, ion beam, Pd, Ti, res+,
              no FPH/Jones ref.},
 submitted = {04/2001},
 published = {03/2002},
 annote    = {This is a double-barrelled paper, reporting the results of both
 an electrolysis experiment in D2O at a Pd cathode, and an ion beam. The
 electrolysis cell was of the closed type, stainless steel coated with
Teflon,
 and calorimetry was done by the cooling coil method. The initial head space
 gas was D2. Loading was measured by the gas pressure. A neutron detector was
 placed next to the cell, and the head space gas and the cathode were
examined
 for 4He after each run. Some cathodes were annealed, some were coated with
Ti
 or Au layers by vacuum evaporation. Out of 8 runs, 5 showed some 4He, but
 none showed any neutron emissions, and only one showed excess heat, and not
 much of that. For the ion beam runs, 100-300 keV deuteron and beam was aimed
 at a Ti target preloaded (from the gas phase) with deuterium. The resulting
 signals were consistent with a d+d+d triple fusion proposed by the
 authors. To test whether this was 3 deuterons in the Ti jostled together by
 the beam, or two deuterons hit by another in the beam itself, the proton
beam
 was used, to see whether there still was a d+d+d triple fusion signal. The
 results confirmed this.}
}
@article{Iwam2002,
 author    = {Y. Iwamura and M. Sakano and T. Itoh},
 title     = {Elemental analysis of Pd complexes: effects of
              D2 gas permeation},
 journal   = {Jpn. J. Appl. Phys.},
 volume    = {41 Part 1},
 year      = {2002},
 pages     = {4642--4650},
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 keywords  = {Experimental, gas phase, D2, Pd, transmutation, res+,
              no FPH/Jones ref.},
 submitted = {07/2001},
 published = {07/2002},
 annote    = {The authors used a complex layered Pd membrane, consisting of a
 thin top film of Pd (400 A), a 5-fold CaO/Pd composite layer beneath that
 (1000 A), and a base Pd layer (0.1 mm). One side of the film was exposed to
 D2 gas, the other to vacuum. The top Pd layer was coated thinly with Cs or
 Sr, thickness not stated, by electrolysis. The surface was analysed, from
 time to time, by XPS and SIMS. For the membrane coated with Cs (at.no. 55),
 Pr (at.no. 59) was found after the run, while none was found if there was no
 CaO or no Cs. For the Sr (at.no. 38) coat and CaO layer, Mo (at.no. 42) was
 found.  Also, the isotope distribution of the found Mo was not the same as
 the natural distribution, having a main peak at mass 96, and a smaller one
at
 the normally largest at 98. Both the Pr and Mo signals increased with time
in
 concert with a decrease of the Cs or Sr signals, respectively. The authors
 take all this to mean that their own EINR model is confirmed (Iwam1998)}
}
@article{Kama2002,
 author    = {K. Kamada},
 title     = {Heating of deuteron implanted Al on electron bombardment and
              its possible relation to 'cold fusion' experiment},
 journal   = {Fusion Eng. Design},
 volume    = {60},
 year      = {2002},
 pages     = {219--226},
 keywords  = {Experimental, ion implantation, heat, res-, no FPH/Jones refs},
 annote    = {This is a correction of the earlier paper Kama2001, which had
 some incorrect equations in Sect. 5.2.}
}
@article{Kirk2002,
 author    = {V.~A. Kirkinskii and V.~A. Drebushchak and A.~I. Khmelnikov},
 title     = {Excess heat release during deuterium sorption-desorption
              by finely powdered palladium deuteride},
 journal   = {Europhys. Lett.},
 volume    = {58},
 year      = {2002},
 pages     = {462--467},
 keywords  = {Experimental, gas phase, Pd, heat, res+},
 submitted = {01/2002},
 published = {05/2002},
 annote    = {A steel chamber containing powdered Pd and Pd foil deuteride
 (prepared by electrolysis) was heated to desorb the deuterium, then cooled
 again, whereupon the deuterium was absorbed in the powder to a loading of
 0.6. Eight series of experiments were carried out. Results showed excess
heat
 if deuterium gas was used, but not with hydrogen gas. Thus, fusion occurred
 in the chamber.}
}
@article{Krym2002,
 author    = {V.~V. Krymskii and V.~F. Balakirev},
 title     = {Effect of nanosecond electromagnetic pulses on the properties
              of matter},
 journal   = {Dokl. Phys. Chem.},
 volume    = {385},
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 year      = {2002},
 pages     = {197--198},
 keywords  = {Transmutation by em},
 submitted = {05/2002},
 published = {08/2002},
 annote    = {Powerful em pulses: 0.5 ns duration, > 8 kV amplitude, 1000 kHz
 rep. rate, were applied to salt solutions and metal melts. A solution of
 copper sulphate and zinc sulphate was irradiated and the copper content
 increased while the zinc content decreased ("vanished"). In one run, 0.16 M
 Cu increased to 0.18M, while 0.03 M Zn went to zero. In another run, the
same
 salts were used but at a low pH, and the process went the other way, showing
 that pH determines the direction of the nuclear reaction. Lastly, an 8 kg
 casting alloy melt was irradiated and out of the metals initially present
 (Cu, Fe, Si, Mg, Mn) all increased in concentration, except Mg, which
 decreased, though not, it seems, in the same measure as the increase of the
 other elements.  There is reference to Kervran, but the name does not appear
 in list of references.}
}
@article{Li2002,
 author    = {J.~Q. Li and L.~R. Shen and G.~S. Li},
 title     = {Study on physical basis of cold fusion},
 journal   = {Plasma Sci. Technol.},
 volume    = {4},
 year      = {2002},
 pages     = {1585--1589},
 keywords  = {Theory, res-},
 submitted = {06/2002},
 published = {12/2002},
 annote    = {The authors calculate the expected rate of cold fusion of
 deuterons confined in a Ti lattice and arrive at a small rate of $10^{-76}$
/
 cm$^3$ / s, too small to be detected. So more research is needed into
thermal
 fusion if future energy needs are to be met.}
}
@article{Mill2002a,
 author    = {R.~L. Mills and P. Ray},
 title     = {Spectral emission of fractional quantum energy levels of
              atomic hydrogen from a helium-hydrogen plasma and the
              implications for dark matter},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {27},
 year      = {2002},
 pages     = {301--322},
 keywords  = {Theory, experimental. res+},
 published = {04/2002},
 annote    = {Mills writes "Mills predicts...", in this case atomic hydrogen
 reacting with other atomic or ionised elements such as He, involving a
 nonradiative energy transfer. Nevertheless, radiation is detected, in the
 extreme UV.  Astrophysical data is reviewed and such emission lines are
 found. This may solve the solar neutrino problem (again).}
}
@article{Mill2002b,
 author    = {R. L. Mills and P. Ray},
 title     = {Vibrational spectral emission of
              fractional-principal-quantum-energy-level hydrogen
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              molecular ion},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {27},
 year      = {2002},
 pages     = {533--564},
 published = {05/2002},
 keywords  = {Theory, experimental. res+},
 annote    = {Ar too, having an ionisation energy almost equal to that given
 off when a hydrino is formed (27.6 eV, compared with 27.2, resp.), can
 catalyse hydrino formation, since something has to be there to receive the
 energy given off upon the jump down to the below-ground state. Again,
extreme
 UV has been detected and spectral lines in the solar spectrum found, that
 confirm all this.}
}
@article{Mill2002c,
 author    = {R.~L. Mills and P. Ray},
 title     = {The grand unified theory of classical quantum mechanics},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {27},
 year      = {2002},
 pages     = {565--590},
 keywords  = {Theory.},
 published = {05/2002},
 annote    = {The Big One. Along the way, the hydrino comes into the
picture.}
}
@article{Mill2002d,
 author    = {R.~L. Mills and P.~C. Ray and B. Dhandapani and R.~M. Mayo
              and J. He},
 title     = {Comparison of excessive Balmer alpha line broadening of
              glow discharge and microwave hydrogen plasmas with
              certain catalysts},
 journal   = {J. Appl. Phys.},
 volume    = {92},
 year      = {2002},
 pages     = {7008--7021},
 keywords  = {Experimental, hydrinos, plasma emissions, res+},
 submitted = {09/2002},
 published = {12/2002},
 annote    = {Mixtures of Sr and H2, and of Mg/H2, were subjected to plasma
 temperatures using either microwaves or glow discharges. The hydrogen Balmer
 alpha lines were seen to broaden in the former case, but not the
 latter. Mixtures of hydrogen with He and Ar also showed strong
 broadening. These results are consistent with Mills' hypothesis of resonant
 energy transfer.}
}
@article{Oria2002,
 author    = {R.~A. Oriani and J.~C. Fisher},
 title     = {Generation of nuclear tracks during electrolysis},
 journal   = {Jpn. J. Appl. Phys.},
 volume    = {41},
 year      = {2002},
 pages     = {6180--6183},
 keywords  = {Experimental, electrolysis, Pd, charged particles, res+},
 submitted = {04/2002},
 published = {10/2002},
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 annote    = {The authors placed some cp detectors, in the form of CR-39
chips
 to be etched after exposure, directly under the Pd cathode undergoing
 electrolysis in Li2SO4 in D2O electrolyte. The Pd was a 25X25 mm foil.
 Results showed that a significant number of cp's were emitted by the
cathode,
 but not commensurate with heat observations in other experiments. No strong
 conclusions were drawn here.}
}
@article{Schu2002,
 author    = {U. Schulte},
 title     = {Die 'Kalte Kernfusion' - ein wissenschaftlicher Artifakt},
 journal   = {Deutsche Apotheker Zeitung},
 volume    = {142},
 number    = {14},
 year      = {2002},
 pages     = {77--79},
 note      = {In German},
 keywords  = {Discussion},
 published = {04/2002},
 annote    = {The author reviews cold fusion, beginning with a section titled
 "pathological science". This is the tone of the review. Paneth \& Peters and
 Tandberg are mentioned. Cold fusion would require four miracles. Some hardy
 workers persist in working on cnf and receive funding, publishing in obscure
 journals.  All this work belongs on the dung heap. The recent sonofusion
 claims by Taleyarkhan et al are in the same category, as it is unlikely that
 temperatures sufficiently high for fusion can be achieved inside the
 cavitating bubbles (although the author begins by stating that no one knows
 what temperatures can be achieved). Taleyarkhan et al are not daunted by the
 examples of F\&P, and show either strong courage or fanaticism.}
}
@article{Shan2002,
 author    = {K. Shanahan},
 title     = {A systematic error in mass flow calorimetry demonstrated},
 journal   = {Thermochim. Acta},
 volume    = {387},
 year      = {2002},
 pages     = {95--100},
 keywords  = {Polemic, res-},
 submitted = {10/2001},
 published = {05/2002},
 annote    = {Shanahan here argues that the published results of Storms (and
 others using similar data treatment) are flawed. The flaw resides in
applying
 the global statistically determined calorimetry parameters to specific runs,
 rather than locally measured parameters for each run. When Shanahan applies
 the latter to some data made available by Storms, the purported excess heat
 claimed by Storms becomes more like noise hovering around the zero line.}
}
@article{Yama2002,
 author    = {T. Yamamura and Y. Shiokawa and A. Inoue and Y.~C. Zhang
              and Y. Arata},
 title     = {Neutron activation analysis of Pd atom clusters caused
              pycnonuclear fusion},
 journal   = {J. High. Temp. Soc.},
 volume    = {28},
 year      = {2002},
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 pages      = {144--149},
 keywords  = {Experimental, nano-sized Pd, electrolysis, neutron activation,
             res+},
 submitted = {05/2002},
 annote    = {Nano-sized Pd particles, which had been inside Arata's
 double-structure Pd bottles and exposed to hydrogen or deuterium from
 electrolysis, and then irradiated afterwards with neutrons, were found to
 have different isotopic products due to the neutron activation. A possible
 explanation is nuclear fusion between two PD atoms during the activation,
 aided by the deuterium.}
}
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## YEAR: 2003

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% Year 2003; there are  11 entries.
@article{Afon2003,
 author    = {D.~D. Afonichev and M.~A. Murzinova},
 title     = {Indicator of the process of cold fusion},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {28},
 year      = {2003},
 pages     = {1005--1010},
 keywords  = {Experimental, Ti alloy, D2, gas phase, neutrons, tritium,
             SEM, EM, res+},
 submitted = {04/2002},
 published = {09/2003},
 annote    = {Ti alloyed with Al, Mo, Zr and Si was loaded with D2 gas, and
 neutrons measured, as well as tritium. Electromagnetic radiation was found
to
be emitted, probably from surface layers, as the samples were deformed
mechanically to possibly induce cold fusion. Tritium, uniformly distributed
through the material was found, exceeding by 50\% the ambient levels. The
authors suggest that cold fusion took place via the normal tritium branch and
that radio emissions may have led other workers to believe they had detected
neutrons, which were not found in this study.}
}
@article{Arat2003,
 author    = {Y. Arata and Y.~C. Zhang and H. Fujita and A. Inoue},
 title     = {Discovery of solid deuterium nuclear fusion of
             pycnodeuterium-lumps solidified locally within nano-Pd
             particles},
 journal   = {Koon Gakkaishi},
 volume    = {29},
 year      = {2003},
 number    = {2},
 pages     = {68.},
 keywords  = {Experimental, gas phase, Ti, excess heat, helium, res+},
 submitted = {02/2003},
 annote    = {The Arata et al team deviates from their previous electrolysis
 experiments and does a gas-phase one, using nano-sized Pd particles and D2
 gas. There were temperature excursions and 4He was produced. The team
 speculates that there may have been metallic deuterium inside the Pd
 particles, causing the nuclear reaction. A practical nuclear reactor will
 very soon be realised on this basis.}
}
@article{Bush2003,
 author    = {B. Bush and J.~J. Lagowski},
 title     = {Comments on 'Search for 3He and 4He in Arata-style palladium
             cathodes I: a negative result.' and 'Search for 3He and 4He
             in Arata-style palladium cathodes II: evidence for tritium
             production'},
 journal   = {Fusion Sci. Technol.},
 volume    = {43},
 year      = {2003},
 pages     = {134--135},
 keywords  = {Polemic},
 submitted = {10/2001},
 published = {01/2003},
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 annote    = {The authors of the papers commented on here assumed that the
 tritium they found originated inside the Arata/Zhang Pd bottle; B \& L say
 that it could have been produced by cold fusion outside the bottle and
 transported through the walls along with the deuterium. Their own
experiments
 also indicate a nuclear origin of the 3He, as its ratio to atmospheric 4He
 and Ne is too low for it to be due to contamination from the air.}
}
@article{Clar2003a,
 author    = {W.~B. Clarke and B.~M. Oliver},
 title     = {Reponse to 'Comments on 'Search for 3He and 4He in Arata-style
              palladium cathodes I: a negative result.' and 'Search for 3He
              and 4He in Arata-style palladium cathodes II: evidence for
              tritium production'},
 journal   = {Fusion Sci. Technol.},
 volume    = {43},
 year      = {2003},
 pages     = {135--136},
 keywords  = {Polemic},
 submitted = {12/2001},
 published = {01/2003},
 annote    = {Responding to the polemic of Bush and Lagowski in the same
 issue, p. 134, the authors write that among other evidence, there was a
 negative gradient of 3He in the bottle wall, showing that the tritium was
 generated inside the bottle. The B \& L hypothesis, that tritium was
 generated outside the bottle and transported into it, was considered but is
 contradicted by the experimental results.}
}
@article{Clar2003b,
 author    = {W.~B. Clarke},
 title     = {Production of 4He in D2-loaded palladium-carbon catalyst I},
 journal   = {Fusion Sci. Technol.},
 volume    = {43},
 year      = {2003},
 pages     = {122--127},
 keywords  = {Experimental, Pd/C gas phase, res-},
 submitted = {11/2001},
 published = {01/2003},
 annote    = {Clarke performed a check on Case's experiment, in which he
 heated some Pd-laced carbon powder with D2 and H2, and found a steady
 increase in 4He; this was also repeated by some other workers. Clarke used
Pb
 tubes, which he knew from experience were impervious to He. Results showed
no
 4He content or 3He/4He rations other than what could be expected from simple
 contamination or prior content in the materials used, so Case and the others
 were either lucky, or victims of a systematic error. Clarke leans towards
the
 latter explanation.}
}
@article{Fuku2003,
 author    = {M. Fukuhara},
 title     = {Neutral pion-catalyzed fusion in palladium lattice},
 journal   = {Fusion Sci. Technol.},
 volume    = {43},
 year      = {2003},
 pages     = {128--133},
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 keywords  = {Theory, res +},
 submitted = {01/2002},
 published = {01/2003},
 annote    = {The author applies symmetric meson theory and concludes that
 cold fusion is  reasonable.}
}
@article{Krug2003,
 author    = {E.~P. Kruglyakov and I.~B. Khriplovich},
 title     = {On the experiments in the field of 'low-energy nuclear
              transformations'},
 journal   = {Dokl. Phys. Chem.},
 volume    = {392},
 year      = {2003},
 pages     = {249.},
 keywords  = {Polemic},
 submitted = {06/2003},
 published = {10/2003},
 annote    = {This comments on a paper in the same journal by Krymskii et al,
 ibid 385 (2002) 197, which had claimed observation of nuclear changes
 effected by em pulses. The present authors state that the elements claimed
to
 have been produced in the earlier work (Cu, Fe) could simply be the result
of
 redistribution of existing elements in a nonhomogeneous lump of alloy. Also,
 none of the references cited is to serious refereed journals, and the
authors
 are not competent in nuclear physics, write the authors. They do ignore the
 disappearance of Zn in the aqueous solution experiment, which cannot have
the
 same explanation.}
}
@article{Mill2003,
 author    = {R. L. Mills},
 title     = {No title},
 note      = {Author's Response to a Letter to the Editor},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {28},
 year      = {2003},
 pages     = {359--360},
 keywords  = {Polemic},
 annote    = {Mills responds here to a Letter on a preceding page (Seifritz
W;
 ibid. p. 357) pointing out an inconsistency in Mills' book. In a large
number
 of points, Seifritz' criticism is refuted. The Big Bang is not real either.}
}
@article{Ohmo2003,
 author    = {T. Ohmori and H. Yamada and S. Narita and T. Mizuno and Y.
Aoki},
 title     = {Enrichment of 41K isotope in potassium formed on and
              in a rhenium electrode during plasma electrolysis in
              K2CO3/H2O and K2CO3/D2O solutions},
 journal   = {J. Appl. Electrochem.},
 volume    = {33},
 year      = {2003},
 pages     = {643--646},
 keywords  = {Transmutation, Re, plasma electrolysis, res+},
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 submitted = {06/2002},
 published = {07/2003},
 annote    = {Plasma electrolysis is electrolysis at very high current
density,
 here 4A/cm$^2$, where a glowing plasma layer is formed between the electrode
 and the electrolyte.  A rhenium cathode was used here, in the title
 electrolyte.  The plasma mostly glowed with a bluish violet colour, with
 intermittent bursts of reddish violet. After electrolysis, surface layer
 analysis using Auger electron spectroscopy and time of flight mass
 spectroscopy showed that in both light and heavy water electrolytes, there
 was an overabundance of 41K in the surface layers of the cathode, around
 21-36\%, compared to the natural isotope level of 7\%.  The method was
 checked by measuring on electrodes before electrolysis.  The expected 7\%
was
 found here. No error bars are provided.}
}
@article{Seif2003,
 author    = {W. Seifritz},
 title     = {(Letter to the Editor)},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {28},
 year      = {2003},
 pages     = {357},
 keywords  = {Polemic},
 annote    = {Seifritz comments on the book by R. Mills. He points out an
 inconsistency between eq. (165) in Chap. 28 and eq. (168). Also, the Big
Bang
 is not included in Mills' model.}
}
@article{Sun2003,
 author    = {Y. Sun and Q.~F. Zhang and Q.~Q. Gou},
 title     = {The crystal change and 'excess heat' produced by long time
             electrolysis of heavy water with titanium cathode},
 journal   = {Chin. J. At. Mol. Phys.},
 volume    = {20},
 year      = {2003},
 pages     = {69--74},
 keywords  = {Experimental, electrolysis, Ti, calorimetry, res+},
 submitted = {05/2002},
 published = {01/2003},
 annote    = {Their earlier experiment was repeated here, at longer times.
 Excess heat increased with time, appearing only after 10 days. It was also
 obtained by a "boiling dry" experiment. Excess energy was about 3.6 times
 that input, coming out as 122 W/cm$^3$. Post mortem crystallography showed
 that the metal's crystal structure had changed from its original hexagonal
to
 the new cubic structure of TiD2.}
}
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# YEAR: 2004

% Year 2004; there are 8 entries.

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@article{Arat2004,
 author    = {Y. Arata},
 title     = {The formation of 'solid deuterium' solidified inside crystal
              lattice and intense solid-state nuclear fusion ('cold
fusion')},
 journal   = {Il Nuovo Saggiatore},
 volume    = {20},
 number    = {5--6},
 year      = {2004},
 pages     = {66--71},
 keywords  = {Experiment, theory, discussion, res+},
 annote    = {Arata refers to early work of his in 1958, in which he found
 solid state fusion. He then describes his (and Zhang's) double structure
 bottle, into which they allow deuterium to diffuse through the walls by
 electrolysing heavy water on the outside of the bottle. This has been their
 main setup, in which they detected 4He. There follows some discussion and
 theory, concluding that solid deuterium is produced in this setup, and 4He
 arises from the fusion. Solid deuterium is a better fuel for fusion than
 gaseous.}
}
@article{Czer2004,
 author    = {K. Czerski and A. Huke and P. Heide and G. Ruprecht},
 title     = {The $^2$H(d,p)$^3$H reaction in metallic media at very low
              energies},
 journal   = {Europhys. Lett.},
 volume    = {68},
 year      = {2004},
 pages     = {363--369},
 keywords  = {Theory, screening, ion beams, res+},
 submitted = {01/2004},
 published = {11/2004},
 annote    = {This is theory for possible screening effects. A deuteron beam
 at 5-60 keV is shot at a slightly deuterium-loaded Pd target, so this is not
 cold fusion, but the screening effect of the Pd lattice that the paper
 suggests is thought to possibly explain neutron levels observed by Jones et
 al (1989). The paper is also interesting in not only considering electron
 screening but also cohesive screening by positive ions in the lattice.}
}
@article{Kalm2004,
 author    = {P. K{\'a}lm{\'a}n and T. Keszthelyi},
 title     = {Solid state internal conversion},
 journal   = {Phys. Rev. C},
 volume    = {69},
 year      = {2004},
 pages     = {031606-1--031606-3},
 keywords  = {Theory; no FPH/Jones refs.},
 submitted = {07/2003},
 published = {03/2004},
 annote    = {This paper examines the possibility of a d+d fusion reaction in
 a solid containing deuterium. It concludes that there is reason to believe
 that phonon exchange can help deuterons go through the Coulomb barrier and
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 fuse. The authors call this process the solid state internal conversion
 process, SS-ICP, yet another name for "cold fusion". The process creates
fast
 moving charged particles that carry off the fusion energy as heat. This
might
 also explain the correlation between He and excess heat production. Some of
 the faster particles undergo further nuclear reactions, explaining the
 isotopes sometimes observed (the article says "isomers", but isotopes must
be
 meant).}
}
@article{Kuch2004,
 author    = {M.~Yu. Kucherov and B.~L. Altshuler and V.~V. Flambaum},
 title     = {Exponential enhancement of nuclear reactions in a
              condensed matter environment},
 journal   = {Phys. Rev. C},
 volume    = {70},
 year      = {2004},
 pages     = {047601--047601-4},
 note      = {see Erratum, ibid. C 71 (2005) 029901(E)-1)},
 keywords  = {Theory, suggestion},
 submitted = {12/2003},
 published = {10/2004},
 annote    = {A mechanism is suggested and theorised on, which might increase
 the probability of nuclear reaction of a beam of acccelerated nuclei
 impinging on a target. For a t+p collision, the mechanism can act at
energies
 below 1 keV. The mechanism consists of using a beam of particles heavier
than
 those in the target. Although these probabilities are very low, theory
 suggests that they can be boosted by as much as $10^8$ at low beam
velocities
 (energies). Whether the energies concerned can be considered "cold" is a
 matter of choice.}
}
@article{Li2004,
 author    = {X.~Z. Li and B. Liu and Q.~M. Wei and S.~X. Zheng and D.~X.
Cao},
 title     = {A Chinese view on summary of condensed matter nuclear science},
 journal   = {J. Fusion Energy},
 volume    = {23},
 year      = {2004},
 pages     = {217--221},
 keywords  = {Theory, tritium puzzle, res+},
 published = {09/2004},
 annote    = {The authors state the basic problem of tritium production that
 has been confirmed repeatedly, but the lack of neutrons that should also be
 emitted, by cold fusion. Their "selective resonant tunnelling model" can
 explain all, and has in fact been applied to solve a problem in hot fusion.
 Their model involves the fusion of a proton with a deuteron, and they point
 out that there is always light water present in heavy water, as a
 contaminant.  The authors suggest some experiments to further test their
 hypothesis.}
}
@article{Phil2004,
author   = {J. Phillips and R. L. Mills and X. Chen},
title    = {Water bath calorimetric study of excess heat generation
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           in ``resonant transfer'' plasmas},
journal  = {Journal of Applied Physics},
year     = {2004},
volume   = {96},
number   = {6},
pages    = {3095--3102},
submitted = {11/2002},
published = {09/2004},
keywords = {plasma heating; plasma density; plasma production;
            plasma chemistry; calorimetry, res+},
annote   = {This time the Mills team led various gases, some of which
  contained hydrogen and some (controls) did not, into a microwave heated
  chamber and heated them. The heat went into a surrounding water bath. The
  gases containing hydrogen emitted up to 50\% more heat then the controls,
  corresponding to reactions up to 150 eV per hydrogen atom, confirming the
  Mills fractional ground state model. This requires a catalyst, some species
  present that can absorb the energy given off by hydrogen as it drops into a
  below-ground state, but the paper does not mention what was used.}
}
@article{Szpa2004,
 author    = {S. Szpak and P.~A. Mosier-Boss and M.~H. Miles
              and M. Fleischmann},
 title     = {Thermal behavior of polarized Pd/D electrodes prepared by
              co-deposition},
 journal   = {Thermochim. Acta},
 volume    = {410},
 year      = {2004},
 pages     = {101--107},
 keywords  = {Experimental, electrolysis, excess heat, Pd, res+},
 submitted = {12/2002},
 published = {02/2004},
 annote    = {Several groups got together and reenacted the Szpak group's
 codeposition technique, looking for excess heat. Excess heat was found,
 during and after electrolysis. It was higher with the codeposition method
 used, than it is with conventional Pd wire electrodes. Heat after death was
 observed.}
}
@article{Tsuc2004,
 author    = {K. Tsuchiya},
 title     = {Quantum states of deuterons in Pd},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {29},
 year      = {2004},
 pages     = {1513--1519},
 keywords  = {Theory, res+},
 submitted = {02/2004},
 published = {11/2004},
 annote    = {The authors examine the energy states of deuterons interacting
 with the electron in a Pd lattice, using the equivalent linear two-body
 (ELTB) method.  They conclude that fusion rates can be as large as those
 observed, by Bose-Einstein condensation (BEC).}
}
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# YEAR: 2005

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% Year 2005; there are   7 entries.
@article{Horo2005,
 author    = {M. Horoi},
 title     = {Can one measure the temperature dependence of the fusion
              reaction rates?},
 journal   = {Nucl. Phys. A},
 volume    = {758},
 year      = {2005},
 pages     = {138--141},
 keywords  = {Theory, res0},
 published = {07/2005},
 annote    = {This is not actually a cold fusion paper, but might be
 interpreted as such.  It seeks to analyse fusion rates in solids or gases
 bombarded with ion beams at rather low energies. One result is that a cold
 plasma target can yield enhanced fusion rates at energies as low as 1-10 eV,
 which is in the "cold fusion" range, so this might encourage cold fusion
 researchers.}
}
@article{Iwam2005,
 author    = {Y. Iwamura and T. Itoh and M. Sakano and S. Kuribayashi},
 title     = {Observation of nuclear transmutation induced by
              deuterium permeation through Pd complex},
 journal   = {Mitsubishi Juko Giho},
 volume    = {42},
 number    = {1},
 year      = {2005},
 pages     = {50--51},
 note      = {In Japanese},
 keywords  = {Experimental},
 annote    = {The observation of nuclear transmutation is discussed induced
 by deuterium permeation through CaO/Pd complex.  Cold fusion is a possible
 explanation.  (Cited from CA 2005:393935). There is a diagram showing a Pd
 base, coated with a 2 nm layer of CaO, which in turn is coated with a 10 nm
 layer of Pd.  Presumably deuterium is made to pass through these layers, and
 this causes transmutation to new elements.}
}
@article{Labi2005,
 author    = {J.~A. Labinger and S.~J. Weininger},
 title     = {Controversy in chemistry: how do you prove a negative?
              The cases of phlogiston and cold fusion},
 journal   = {Angew. Chem. Int. Ed.},
 volume    = {44},
 year      = {2005},
 pages     = {1916--1922},
 keywords  = {sci-soc-phil},
 submitted = {09/2004},
 published = {03/2005},
 annote    = {Two cases are considered, deliberately chosen to be separated
 widely in time. Phlogiston is considered to have expired by 1800, while cold
 fusion only started in 1989 (unless one consideres its historical
 predecessors by Paneth and Peters, 1926, and Klyuev et al, 1986, both not
 mentioned here).  The phlogiston theory initially was able to explain a lot
 and seemed to fit the facts, while the (now known) oxygen theory did not,
 always. Eventually the latter was accepted. Cold fusion, in the opinion of
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 the authors, fits well within two concepts; pathological science as defined
 by Langmuir in 1953, and the concept of the "experimenter's regress" by
 Collins (1993), which argues that questions about the reality of a novel
 phenomenon cannot be separated from questions about the experiments designed
 to detect it.  Thus, a negative finding can be challenged as being based on
 incorrect experiment - which has indeed happened. The result is what the
 authors call the "short life but long afterlife" of cold fusion.}
}
@article{Shan2005,
 author    = {K. Shanahan},
 title     = {Comments on 'Thermal behavior of polarized Pd/D electrodes
              prepared by co-deposition'},
 journal   = {Thermochim. Acta},
 volume    = {428},
 year      = {2005},
 pages     = {207--212},
 keywords  = {Polemic, theory, calorimetry, res-},
 submitted = {09/2004},
 published = {04/2005},
 annote    = {Shanahan argues for recombination under the electrolyte
surface,
 which is a simpler explanation of apparent excess heat than nuclear fusion.
 This, together with the same author's previous theory of calorimetry
 calibration shifts, puts the nuclear origin of excess heat in doubt.}
}
@article{Son2005,
 author    = {S. Son and N.~J. Fisch},
 title     = {Pycnonuclear reaction and possible chain reactions in an
              ultra-dense DT plasma},
 journal   = {Physics Lett. A},
 volume    = {337},
 year      = {2005},
 pages     = {397--407},
 keywords  = {Theory, pycnonuclear fusion, res+},
 submitted = {11/2004},
 published = {04/2005},
 annote    = {The authors develop theory and calculate the possible fusion
 rates under very high pressure, of deuterium and tritium at temperatures
 close to absolute zero.  Th result is that such fusion reactions might take
 place, as well as possible chain fission-like reactions. This is certainly
 "cold" fusion.}
}
@article{Szpa2005a,
 author    = {S. Szpak and P.~A. {Mosier Boss} and C. Young and F.~E.
Gordon},
 title     = {Evidence of nuclear reactions in the Pd lattice},
 journal   = {Naturwiss.},
 volume    = {92},
 year      = {2005},
 pages     = {394--397},
 keywords  = {Experimental, electrolysis, Pd, transmutation, high voltage,
              res+},
 submitted = {09/2004},
 published = {10/2005},
 annote    = {This is electrolysis, as usual for this group with a small
 amount of palladium salt in the electrolyte, providing a continuously fresh
 deposit of Pd on the electrode (initially gold foil). Here, two Cu plates
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 were placed on both sides and outside the cell, and a large voltage applied
 between these, 6000V, up to 48 hours. EDX analysis of the electrode showed
 interesting globular structures. The external electric field, applied after
 electrolysis, causes molten-like features, which probably are of nuclear
 origin. New elements are found, among them Al, Ca, Mg, Si and more, which
 could have arisen from transmutation or contamination. The latter is less
 likely because of the purity of the electrolyte. More work is needed,
 however.  The paper provides some interesting old classics of the nuclear
 literature in the reference section such as Oliphant et al (1934),
 Dee (1935).}
}
@article{Szpa2005b,
 author    = {S. Szpak and P.~A. Mosier-Boss and C. Young and F.~E. Gordon},
 title     = {The effect of an external electric field on surface morphology
              of co-deposited Pd/D films},
 journal   = {J. Electroanal. Chem.},
 volume    = {580},
 year      = {2005},
 pages     = {284--290},
 keywords  = {Experimental, Pd, electrolysis, codeposition, res0},
 submitted = {06/2004},
 published = {05/2005},
 annote    = {The Szpak team continues its work with codeposition of Pd and D
 on another metal substrate, in this case Au foil. It is gradually covered
 with deuterated Pd. At the same time, an electrostatic field of 2500-3000 V
 is applied externally across the electrolysis cell. The application of the
 field causes substantial changes in the morphology of the deposit, and the
 authors are unable to explain the results in terms of energy requirements
and
 shapes seen in the deposit. "Cold fusion" is not mentioned at all, but there
 are two references to papers on the subject, justifying classifying this as
a
 cold fusion paper.}
}
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## YEAR: 2006

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% Year 2006; there are   8 entries.
@article{Acke2006,
 author    = {E. Ackerman},
 title     = {Indicators of failed information epidemics in the scientific
             journal literature: a publication analysis of polywater and
             cold nuclear fusion},
 journal   = {Scientometrics},
 volume    = {66},
 year      = {2006},
 pages     = {451--466},
 keywords  = {Bibliometric},
 submitted = {03/2005},
 published = {03/2006},
 annote    = {A literature review by the author found some signs of a failed
 phenomenon and they were applied to both the polywater affair (1962-1974)
and
 cold fusion (1989-), both considered failed epidemics. For the latter, the
 Britz files were used as data. The study showed that some characteristic
 signs were present in both affairs: presence of seminal papers, rapid growth
 and decline in author frequency, multidisciplinary work and epidemic growth
 and decline in journal publication frequency.  A further indicator,
 predominance of rapid publication, might apply, while the sixth sign,
 increasingly multi-authorship, did not apply to these two affairs. See also
 the paper by the same author, ibid 63 (2005) 189, on polywater itself (a
 "peripheral")}
}
@article{Afon2006,
 author    = {D.~D. Afonichev},
 title     = {Mechanism of cold fusion via tritium channel},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {31},
 year      = {2006},
 pages     = {551--553},
 keywords  = {Theory, res+},
 submitted = {02/2005},
 published = {03/2006},
 annote    = {The author proposes that the tritium channel is the predominant
 fusion reaction in cold fusion. The reaction, he writes, occurs only within
a
 thin layer of metal, and a non-steady-state of the system is necessary for
 the reaction to take place. It is accompanied by radio-frequency
 electromagnetic radiation. Some of the proposals have been made in earlier
 papers by the author.}
}
@article{Czer2006,
 author    = {K. Czerski and A. Huke and P. Heide and G. Ruprecht},
 title     = {Experimental and theoretical screening energies for the
              $^2$H(d,p)$^3$H reaction in metallic environments},
 journal   = {Eur. Phys. J. A},
 volume    = {27},
 year      = {2006},
 pages     = {83--88},
 keywords  = {Theory, electron screening, enhancement effect, res+},
 submitted = {07/2005},
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 published = {02/2006},
 annote    = {Following their 2004 paper, the authors again theorise about
 enhanced fusion in metal targets hit by deuteron beams, and conclude that
 indeed electrons can screen the deuterons, raising fusion rates to levels
 comparable with those reported by Jones et al (1989).}
}
@article{Davi2006,
 author    = {F. David},
 title     = {A propos des quasicristaux},
 journal   = {Fusion (Paris)},
 number    = {112},
 year      = {2006},
 pages     = {56--58},
 keywords  = {Remark},
 annote    = {David starts by explaining quasicrystals, that is, crystals
 formed by two different unit cells that are not quite compatible. These were
 controversial for some time before becoming accepted. It seems David
 considers deuterium in palladium as an example of a quasicrystal, and
 stresses and anharmonic vibrations might explain fusion events}
}
@article{Huke2006,
 author    = {A. Huke and K. Czerski and T. Dorsch and A. Biller and A. Heide
              and G. Ruprecht},
 title     = {Evidence for a host-material dependence of the n/p branching
              ratio of low-energy d+d reactions within metallic
environments},
 journal   = {Eur. Phys. J. A},
 volume    = {27--s01},
 year      = {2006},
 pages     = {187--192},
 keywords  = {Experimental, ion beams, branching ratio, res+},
 submitted = {07/2005},
 published = {03/2006},
 annote    = {As with the other papers (Czerski et al (2004) (2006)) this
 confirms that dd fusion might be different in Pd. Here the target metals are
 Al, Zr, Ta and Pd and the branching ratios of the dd fusion reactions are
 examined. For some target metals, the branching ratio of neutrons to protons
 emitted falls (somewhat) below unity at low beam energies, unlike
 observations in plasma experiments. This is taken as evidence that the cold
 fusion claims of greatly different branching ratios for dd fusion in PdD
 might be real. There are no references to actual cold fusion papers,
however,
 and the crucial rate of helium emission was not examined.}
}
@article{Shan2006,
 author    = {K.~L. Shanahan},
 title     = {Reply to 'Comments on papers by K. Shanahan that propose to
              explain anomalous heat generated  by cold fusion'},
 journal   = {Thermochim. Acta},
 volume    = {441},
 year      = {2006},
 pages     = {210--214.},
 keywords  = {Polemic, calorimetry, res0},
 submitted = {11/2005},
 published = {02/2006},
 annote    = {Shanahan replies to a polemic by Storms (2006, same issue,
 p. 207) against an earlier paper by Shanahan in the same journal (428 (2005)
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 207). Shanahan's arguments rest mainly on unaccounted calibration shifts due
 to shifting heat souurces, and unaccounted recombination due to the
transport
 of deuterium and oxygen bubbles to the electrodes, both catalysts for such
 recombination, as well as, possibly, metal deposited on the glass walls of
 the cell. Storms points out that this is unimportant at the higher currents
 employed, and that the location of a heat source within a cell does not
 affect calorimetry in most systems used. Shanahan rejects these arguments.
He
 considers chemical, not electrochemical, recombination, and points out that
 there is evidence for this in Storms' cold fusion data. Shanahan proposes a
 chemical origin for what he calls the "Fleischmann-Pons-Hawkins effect".}
}
@article{Stor2006,
 author    = {E. Storms},
 title     = {Comments on papers by K. Shanahan that propose to explain
             anomalous heat generated  by cold fusion},
 journal   = {Thermochim. Acta},
 volume    = {441},
 year      = {2006},
 pages     = {207--209.},
 keywords  = {Polemic, calorimetry, res+},
 submitted = {07/2005},
 published = {02/2006},
 annote    = {Storms refutes Shanahan's arguments in an earlier paper in the
 same journal (428 (2005) 207). Shanahan's arguments rest mainly on
 unaccounted calibration shifts due to shifting heat sources, and unaccounted
 recombination due to the transport of deuterium and oxygen bubbles to the
 electrodes, both catalysts for such recombination. Storms points out that
 this is unimportant at the higher currents employed, and that the location
of
 the heat source within a cell does not affect calorimetry in most systems
 used.}
}
@ARTICLE{Wido2006,
 author    = {A. Widom and L. Larsen},
 title     = {Ultra low momentum neutron catalyzed nuclear reactions
             on metallic hydride surfaces},
 journal   = {Eur. Phys. J. C},
 volume    = {46},
 year      = {2006},
 pages     = {107--111},
 keyword   = {low momentum neutrons, electron capture},
 submitted = {10/2005},
 published = {04/2006},
 annote    = {This paper does not mention cold fusion as such but is clearly
 relevant to it, describing a scenario that might explain some observations
 made by cold fusion workers, such as the production of 4He. Widom and Larsen
 propose the capture of electrons by protons (and presumably deuterons) in
 metal hydride, resulting in low momentum neutrons. These can induce a cycle
 of reactions starting with a neutron combining with 6Li, ending with 4He and
 energy emission at 26.9 MeV. The process ends with the production of 6Li
 again, plus energy at 2.95 MeV. The authors comment that the production of
 4He thus does not necessarily indicate d-d fusion in these systems}
}
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# YEAR: 2007

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% Year 2007; there are   9 entries.
@article{Bour2007,
 author    = {R.~C. Bourgoin},
 title     = {Inverse quantum mechanics of the hydrogen atom:
              a general solution},
 journal   = {Adv. Studies Theor. Phys.},
 volume    = {1},
 year      = {2007},
 pages     = {381--393},
 keywords  = {Theory, inverse-N orbitals, res+},
 annote    = {Using the wave equation, the author finds that the Mills
 proposal of inverse-N electron orbitals is supported.}
}
@article{He2007,
 author    = {J.-T. He},
 title     = {Nuclear fusion inside condense matters},
 journal   = {Front. Phys. China},
 volume    = {1},
 year      = {2007},
 pages     = {96--102},
 submitted = {11/2006},
 published = {01/2007},
 keywords  = {Comment, no FPH/Jones refs},
 annote    = {The article is a run-through of cold fusion up to 2007. It
 concludes that while there is a lack of theory, cnf is science and prospects
 are good.}
}
@article{Hora2007,
 author    = {H. Hora and G.~H. Miley},
 title     = {Maruhn-Greiner maximum of uranium fission for confirmation of
              low energy nuclear reactions LENR via a compound nucleus with
              double magic numbers},
 journal   = {J. Fusion Energy},
 volume    = {26},
 year      = {2007},
 pages     = {349--355},
 keywords  = {Theory, suggestion, res+},
 published = {06/2007},
 annote    = {It has been observed that when uranium splits, the spectrum of
 fission products has a local maximum within a minimum. Similar observations
 of transmutation products in deuterated palladium have been made, and the
 authors here theorise about how deuterons, due to screening by electrons,
 might act like neutrons in the metal lattice and lead to low energy nuclear
 reactions.}
}
@article{Hubl2007,
 author    = {G.~K. Hubler},
 title     = {Anomalous effects in hydrogen-charged palladium - a review},
 journal   = {Surf. Coat. Technol.},
 volume    = {201},
 year      = {2007},
 pages     = {8568--8573},
 keywords  = {Review, suggestions},
 submitted = {10/2005},
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 published = {08/2007},
 annote    = {This is somewhat brief review with only 23 references, rather
 selective. The author reports briefly on the history of cold fusion, mainly
 on excess heat and ends up with some suggestions for further experiments
that
 might throw light on the matter.}
}
@article{Mill2007a,
 author   = {R. L. Mills and J. He and Y. Lu and M. Nansteel and Z. Chang
             and B. Dhandapani},
 title    = {Comprehensive identification and potential applications
              of new states of hydrogen},
 journal  = {Int. J. Hydrogen Energy},
 volume   = {32},
 number   = {14},
 pages    = {2988--3009},
 year     = {2007},
 keywords = {Mills model},
 annote   = {Helium, argon and potassium are able to catalyse the drop of
 hydrogen electrons to below-ground levels, and this was confirmed here, in
 a series of experiments on hydrogen plasma produced by an electron beam,
with
 admixtures of these elements, and calorimetry and NMR for detection. The
 Mills theory is confirmed.}
}
@article{Mill2007b,
 author    = {R.~L. Mills and H. Zea and J. He and B. Dhandapani},
 title     = {Water bath calorimetry on a catalytic reaction of
              atomic hydrogen},
 journal   = {Int. J. Hydrogen Energy},
 volume    = {32},
 year      = {2007},
 pages     = {4258--4266},
 keywords  = {Experimental, subground state electrons, excess heat, res+},
 submitted = {06/2006},
 published = {12/2007},
 annote    = {More from the Mills mill. They start by reiterating the theory
 of electron orbitals below ground level for hydrogen, and then describe
 experiments in which a hydrogen plama is generated in a tube. This was both
 observed for H Balmer emissions and, submerged in a thermally insulated
water
 bath, for temperature rise in that bath, after calibration. Strong Balmer
 emission was seen, and excess heat was found, and these results agreed with
 Mills' theory.}
}
@article{Mosi2007,
 author    = {P.~A. Mosier-Boss and S. Szpak and F.~E. Gordon
              and L.~P.~G. Forsley},
 title     = {Use of CR-39 in Pd/D co-deposition experiments},
 journal   = {Eur. Phys. J. Appl. Phys.},
 volume    = {40},
 year      = {2007},
 pages     = {293--303},
 keywords  = {Experimental, codeposition, electrolysis, cps, res+},
 submitted = {06/2007},
 published = {12/2007},
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 annote    = {The Szpak/Mosier-Boss group continues to work on their
specialty,
 electrolysis at a Pd electrode which is directly deposited onto another
metal
 like Cu or Al, thus ensuring a fresh Pd surface at all times - a problem
with
 all other cold fusion electrolysis set-ups. They also apply their usual high
 electric and magnetic field across the cell. Here they put a charged
particle
 detector in the form of CR-39 foil directly near the Pd cathode. After
 etching, the entry holes and track depth can be used to measure the
direction
 and energy of the incoming particles. The results show good evidence for
cp's
 generated at the Pd film surface, whereas controls do not. Thus, this is
 evidence of a nuclear reaction taking place.}
}
@article{Phil2007,
 author   = {J. Phillips and C.-K. Chen and K. Akhtar and B. Dhandapani
            and R. Mills},
 title    = {Evidence of catalytic production of hot hydrogen in
            RF generated hydrogen/argon plasmas},
 journal  = {International Journal of Hydrogen Energy},
 volume   = {32},
 number   = {14},
 pages    = {3010--3025},
 year     = {2007},
 submitted = {11/2006},
 published = {04/2007},
 keywords = {Mills, Balmer series, line broadening, RF plasma, argon,
hydrogen,
            GEC cell},
 annote   = {There is almost universal agreement, except among the Mills
team,
 that the Balmer line broadening observed in RF heated hydrogen plasma is due
 to a field acceleration mechanism. Line broadening indicates high-energy
 hydrogen atoms, and Mills et al feel that this model cannot account for so
 much ebergy, but that their model involving sub-ground electron levels can
 explain it. In this paper, the team performed such an experiment, with
 hydrogen admixed with argon heated up by an RF discharge. The resulting line
 broadening due to Doppler shifts agrees with previous findings. The field
 acceleration models is found not to be valid, but the results can be
explained
 by Mills' CQM model, which predicts the high energy atoms observed.}
}
@article{Szpa2007,
 author    = {S. Szpak and P.~A. Mosier-Boss and F.~E. Gordon},
 title     = {Further evidence of nuclear reactions in the {Pd/D} lattice:
             emission of charged particles},
 journal   = {Naturwiss.},
 volume    = {94},
 year      = {2007},
 pages     = {511--514},
 keywords  = {Experimental, codeposition, electric and magnetic fields, cps,
             res+},
 submitted = {09/2005},
 published = {05/2007},
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 annote    = {The team from the Space and Naval Warfare Systems Center
 continues with the work, in which Pd is codeposited with deuterium onto some
 metal, and here an external high electric or magnetic field is applied as
 well. A CR-39 film was used to detect charged particles emitted from the
 Nickel mesh cathode and they were indeed found, the pictures showing the
 shadow thrown by a mesh detail. These particles must be from a nuclear
 process, claim the authors.}
}
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## YEAR: 2008

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% Year 2008; there are   8 entries.
@article{Arat2008,
 author    = {Y. Arata and Y. Zhang},
 title     = {The establishment of solid nuclear fusion reactor},
 note      = {In Japanese, Engl. abstr.},
 journal   = {J. High Temp. Soc.},
 volume    = {34},
 year      = {2008},
 pages     = {85--96},
 keywords  = {Experimental, Pd, gas phase, res+},
 published = {02/2008},
 annote    = {This time they used a material containing 20\% Pd nano-
particles
 (10 nm) in a matrix consisting of ZrO2, previously (P.Yama2002) found to
 absorb large amounts of hydrogen, and applied highly pure D2 gas. There is a
 temperature spike upon onset of the D2 stream, and the abstract says that
 there is evidence of a nuclear reaction in the comparatively slow
temperature
 decline upon full loading. The nuclear reactor thus produced can act both as
 a generator of 4He (the fusion product) and heat.}
}
@article{Kalm2008,
 author    = {P. K{\'a}lm{\'a}n and T. Keszthelyi and D. Kis},
 title     = {Solid state modified nuclear processes},
 journal   = {Eur. Phys. J. Appl. Phys.},
 volume    = {44},
 year      = {2008},
 pages     = {297--302},
 keywords  = {Theory},
 submitted = {05/2008},
 published = {10/2008},
 annote    = {The authors follow up on their 2004 paper postulating the SS-
ICP,
 internal conversion idea, which attempted to explain cold fusion in solids.
 In this paper they address a number of basic questions and contradictory
 observations and show that some of them can be accounted for.  Their theory
 explains the enhanced rate of fusion in deuterated solids, again based on
 fast charged particles. The fusion reactions are d+d, and possibly also
p+7Li
 and d+6Li.  Thus the presence of protons and lithium in the solid may play
an
 important role in the process.}
}
@article{Kowa2008,
 author    = {L. Kowalski},
 title     = {Comment on 'The use of CR-39 in Pd/D co-deposition experiments'
              by P.A. Mosier-Boss, S. Szpak, F.E. Gordon and L.P.G. Forsley},
 journal   = {Eur. Phys. J. Appl. Phys.},
 volume    = {44},
 year      = {2008},
 pages     = {287--290},
 keywords  = {Polemic},
 submitted = {06/2008},
 published = {12/2008},
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 annote    = {Retired physicist Kowalski challenges the title paper, focusing
 on the pits in film, that were used as evidence of nuclear reactions taking
 place at a Pd electrode produced by codeposition (i.e. along with deuterium
 gas) of Pd in D2O. K states that additional evidence on the pits is needed
to
 prove that a nuclear reaction has taken place, as neither protons nor alpha
 particles could have caused the pits. In experiments by other workers also
 using film, however, the pits could have been due to such reactions.}
}
@article{Kriv2008,
 author    = {S. Krivit},
 title     = {Low energy nuclear reaction research - global scenario},
 journal   = {Curr. Sci.},
 volume    = {94},
 year      = {2008},
 pages     = {854--857},
 keywords  = {Review},
 submitted = {02/2008},
 published = {04/2008},
 annote    = {A review of cold fusion, with 35 references.}
}
@article{Mosi2008,
 author    = {P.~A. Mosier-Boss and S. Szpak and F.~E. Gordon
             and L.~P.~G. Forsley},
 title     = {Reply to comment on 'The use of CR-39 in Pd/D co-deposition
             experiments': a response to Kowalski},
 journal   = {Eur. Phys. J. Appl. Phys.},
 volume    = {44},
 year      = {2008},
 pages     = {291--295},
 keywords  = {Polemic},
 submitted = {09/2008},
 published = {12/2008},
 annote    = {The authors of the paper criticised by Kowalski in the same
 journal respond.  Contrary to Kowalski's claims, the pits observed are
indeed
 consistent with nuclear reactions having caused them. This is supported by
 control experiments which showed that the pits were not due to stray
 radioactivity, impingement of bubbles from the electrolysis, from chemical
 attack or from metal dendrites (from the co-depeoosition of Pd) piercing the
 film.}
}
@article{Phil2008a,
 author   = {J. Phillips and C.-K. Chen and R. L. Mills},
 title    = {Evidence of energetic reactions between hydrogen and oxygen
            species in RF generated H2O plasmas},
 journal  = {Int. J. Hydrogen Energy},
 volume   = {33},
 number   = {10},
 pages    = {2419--2432},
 year     = {2008},
 submitted = {12/2007},
 published = {04/2008},
 keywords = {Mills, Plasma, RF, Balmer series, line broadening, Water},
 annote   = {More evidence for the Mills CQM model from RF heated hydrogen
 plasma. See Phil2007 for more detail.}
}
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@article{Phil2008b,
 author   = {J. Phillips and C.-K. Chen},
 title    = {Evidence of catalytic production of hot atomic hydrogen
             in RF generated hydrogen/helium plasmas},
 journal  = {Int. J. Hydrogen Energy},
 volume   = {33},
 number   = {23},
 pages    = {7185--7196},
 year     = {2008},
 submitted = {07/2008},
 published = {11/2008},
 keywords = {Mills, RF plasma, hydrogen, helium, Balmer line broadening,
             Classical Quantum Mechanics},
 annote   = {More evidence for the Mills CQM model from RF heated hydrogen
 plasma. See Phil2007 for more detail.}
}
@article{Russ2008,
 author    = {L. J. {Russell Jr}},
 title     = {Low energy nuclear reaction polyplasmon postulate},
 journal   = {Annals Nucl. Energy},
 volume    = {35},
 year      = {2008},
 pages     = {2059--2072},
 keywords  = {Theory, res+},
 submitted = {08/2007},
 published = {08/2008},
 annote    = {An explanation is proposed for the nuclear reaction taking
place
 during electrolysis at Pd in heavy water. This is, that protons or deuterons
 in the metal lattice temporarily absorb their associated electron and enter
a
 neutron-like state; at the same time, a neutrino is emitted. For this to
 happen, however, an energy of at least 783 keV is required. Russell
 calculates, using realistic experimental parameters, that such energies can
 arise from polyplasmons arising in the metal crystal grains, making the
 mechanism feasible. The short-lived neutron-like particle is called a dion
 when it comes from a proton, and a dineutron when coming from a deuteron.
 These particles can then capture other nearby ions, producing more energy,
so
 that a chain reaction can take place. The theory explains a number of
 otherwise mysterious phenomena observed in cold fusion experiments.}
}
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## YEAR: 2009

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% Year 2009; there are  24 entries.
@incollection{Chub2009,
  author    = {S. R. Chubb},
  title     = {Resonant electromagnetic interaction in low-energy nuclear
               reactions},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2009},
  editor    = {J. Marwan},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {1},
  pages     = {99--123},
  ISBN      = {9780841269668, 0841269661},
  annote    = {Theory}
}
@incollection{DeNi2009,
  author    = {A. {De Ninno} and E. {Del Giudice} and A. Fratolillo},
  title     = {Excess heat and calorimetric calculation: evidence of coherent
               nuclear reactions in condensed matter},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2009},
  editor    = {J. Marwan},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {1},
  pages     = {127--152},
  ISBN      = {9780841269668, 0841269661},
  annote    = {Experimental. The paper starts with some theory based on QED
and
 the M{\"o}ssbauer effect, which can explain the helium and heat
observations.
 In the Pd lattice, fusion goes via a different route than in a plasma. The
 authors' own experiments and those of others produce results that support
the
 theory, and lead to further work.}
}
@ARTICLE{Eric2009,
   author    = {G. Ericsson and S. Pomp and H. Sj{\"o}strand and E. Traneus},
   title     = {{Comment on 'Piezonuclear decay of thorium' [Phys. Lett. A
                373 (2009) 1956]}},
   journal   = {Phys. Lett. A},
   volume    = {373},
   year      = {2009},
   pages     = {3795--3796},
   annote    = {* Comment on the paper in an earlier issue (Card2009a)
claiming
 the observation of a nuclear reaction of thorium exposed to strong
sonication,
 in which its concentration halved, and the alpha emission also halved, thus
 indicating an unknown nuclear reaction. The Swedish team point to a number
of
 weaknesses in that paper, among them poor statistics: a t-test shows a
 probability of 0.26 that in fact nothing happened, and that the change in
 thorium concentration had sufficiently large errors that a ratio of 1 rather
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 than 2 is equally possible.}
}
@incollection{Flei2009,
  author    = {M. Fleischmann},
  title     = {Background to cold fusion: the genesis of a concept},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2009},
  editor    = {J. Marwan},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {1},
  pages     = {19--36},
  ISBN      = {9780841269668, 0841269661},
  annote    = {Fleischmann is interested in the application of Quantum
 Electrodynamics (Q.E.D.) to the natural sciences, in particular he believes
 that cold fusion may be explained by the theory. Here he explains this and
 provides some interesting background to the field and his own work in it.}
}
@incollection{Hage2009,
  author    = {P. L. Hagelstein and I. U. Chaudhary},
  title     = {Models relevant to excess heat production in Fleischmann-Pons
               experiments},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2009},
  editor    = {J. Marwan},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {1},
  pages     = {249--267},
  ISBN      = {9780841269668, 0841269661},
  annote    = {Theory. The paper addresses the anomaly of excess heat without
 radiation. "Models based on excitation transfer and anomalous energy
exchange
 within the context of lossless spin-boson models" were looked at. This can
 account for the observations. Conditions were varied to try to find out how
 the reactions proceed, and if the keys are found, they can contribute to the
 energy shortage.}
}
@article{Kita2009,
 author  = {A. Kitamura and T. Nohmi and Y. Sasaki and A. Taniike
           and A. Takahashi and R. Seto and Y. Fujita},
 title   = {Anomalous effects in charging of Pd powders with high density
            hydrogen isotopes},
 journal = {Physics Lett. A},
 volume  = {373},
 number  = {35},
 pages   = {3109--3112},
 year    = {2009},
 submitted = {04/2009},
 published = {07/2009},
 keywords = {Pd.Zr nano-powder, deuterium absorption, hydrogen absorption,
             D/Pd ratio, isotope effect},
 annote   = {This team tried to replicate the recent work of Arata and Zhang
 (Arat2008), in which excess heat was found upon venting D2 into a mixture of
 Pd and ZrO2. They led both D2 and H2 (as control) into samples of pure Pd
 powder, Pd black and the same mixture of oxides as use dby A\&Z, and
measured
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 output heat. They also monitored for nuclear emissions. They were able to
 measure loading ratios, and these appear to vary with the material used,
 higher loadings being observed for the oxides than pure Pd. Two phases were
 identified: the loading phase, during which gas pressure within the chamber
 did not rise; and phase 2, in which gas pressure rose. For hydrogen, heat
 release was roughly that of hydride formation, and no further heat was
 released in phase 2. For deuterium, especially using the oxide mix, extra
 heat was emitted in both phases, pointing to a nuclear process, state the
 authors. No nuclear emissions above background were detected.}
}
@incollection{Kriv2009a,
   author    = {S. B. Krivit},
   title     = {Cold fusion - precursor to low-energy nuclear reactions},
   booktitle = {{Encyclopaedia of Electrochemical Power Sources}},
   publisher = {Elsevier},
   address   = {Amsterdam},
   editor    = {J. Garche and C. Dyer and P. Moseley and Z. Ogumi
                and D. Rand and B. Scrosati},
   volume    = {2},
   year      = {2009},
   pages     = {255--270},
   annote    = {A kind of review of cold fusion, with the strong message
 that the term is inappropriate, as the process underlying the various
 observations is very unlikely to be fusion of deuterons. The author prefers
 the term low-energy nuclear reaction or LENR. The strongest evidence for
such
 an as yet unknown process is the excess heat claimed by many. The chapter
 draws heavily on results from the SRI laboratories, and concludes that the
 Widom-Larsen theory of 2006 is the most likely candidate for an explanation
 of the reaction taking place.}
}
@incollection{Kriv2009b,
   author    = {S. B. Krivit},
   title     = {Cold fusion - history},
   booktitle = {{Encyclopaedia of Electrochemical Power Sources}},
   publisher = {Elsevier},
   address   = {Amsterdam},
   editor    = {J. Garche and C. Dyer and P. Moseley and Z. Ogumi
                and D. Rand and B. Scrosati},
   volume    = {2},
   year      = {2009},
   pages     = {271--276},
   annote    = {This is a backup chapter to the main one by the same author,
 on the preceding pages of the same volume. The history is rather selective
 and truncated but does point out the important highlights. The role of Jones
 is however presented in a way that differs markedly from all other accounts.
 The history does go back to Paneth and Peters (1926) and even to Wendt and
 Irion (1922), who are not often mentioned in this context.}
}
@article{Kriv2009c,
Author = {S. B. Krivit and J. Marwan},
Title = {A new look at low-energy nuclear reaction research},
Journal = {J. Environ. Monit.},
Year = {2009},
Volume = {11},
Number = {10},
Pages = {1731--1746},
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submitted = {07/2009},
published = {10/2009},
annote    = {A review of the field, from its prehistory (Paneth \& Peters
1926,
 Wendt \& Irion 1922) to 2006, including the most recent theories of Widom
and
 Larsen and Kozima. 57 References. The author clearly favours the term LENR,
 and this accounts for the mention of Wendt \& Larsen, whose observations
 probably point to fission, rather than fusion.}
}
@incollection{Kriv2009d,
  author    = {S. B. Krivit},
  title     = {Low energy nuclear reactions: the emergence of condensed
               matter nuclear science},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2009},
  editor    = {J. Marwan},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {1},
  pages     = {3--16},
  ISBN      = {9780841269668, 0841269661},
  annote    = {A general run-through of the field, briefly covering the
history
 and the evidence for LENR or CMNS as it is also called. This is similar to
the
 article the author wrote in Encyclopaedia of Electrochemical Power Sources,
 Kriv2009a.}
}
@incollection{Lett2009,
  author    = {D. Letts and D. Cravens and P. L. Hagelstein},
  title     = {Thermal changes in palladium deuteride induced by laser beat
               frequencies},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2009},
  editor    = {J. Marwan},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {1},
  pages     = {337--352},
  ISBN      = {9780841269668, 0841269661},
  annote    = {Two lasers aimed at a spot on a deuterated Pd electrode can
 induce more heat than by laser heating alone. "Optical phonon modes may be
 involved in the excess heat process".}
}
@incollection{Li2009,
  author    = {X. Z. Li and Q. M. Wei and B. Liu},
  title     = {An approach to nuclear energy without strong nuclear
radiation},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2009},
  editor    = {J. Marwan},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {1},
  pages     = {39--56},
  ISBN      = {9780841269668, 0841269661},
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  annote    = {Theory paper. Physicists hesitate to believe chemists when
they
 stray into physics, as happened with cold fusion. Heat without radiation was
 considered impossible, and so was cold fusion, because of the Coulomb
barrier.
 However, there are theories that can explain how this barrier might be
 overcome by resonant tunnelling. The paper then develops this theme, and
makes
 suggestions for future work.}
}
@incollection{Marw2009,
  author    = {J. Marwan},
  title     = {Study of the nanostructured palladium hydride system},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2009},
  editor    = {J. Marwan},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {1},
  pages     = {353--375},
  ISBN      = {9780841269668, 0841269661},
  annote    = {Using surfactants of varying concentrations results in various
 surface phases such as sparse adsorption, amd micellar and ordered layers,
 which can guide deposited metal into various nanostructures on the surface.
 This can then be used in cold fusion electrolysis to find optimal conditions
 and also to affect hydrogen absorption by the metal.}
}
@incollection{McKu2009,
  author    = {M. C. H. {McKubre} and F. L. Tanzella and I. Dardik
               and A. {El Boher} and T. Zilov and E. Greenspan and S. Sibilia
               and V. Violante},
  title     = {Replication of condensed matter heat production},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2009},
  editor    = {J. Marwan},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {1},
  pages     = {219--247},
  ISBN      = {9780841269668, 0841269661},
  annote    = {The work of the laboratory Energetics which found excess heat
 was independently reproduced by the two other labs at SRI and ENEA, using
two
 different types of calorimeter. Critical factors were found to be the
 micro-structure of the Pd, enabling high loading without damage, and the
 current function for the loading.}
}
@incollection{Miles2009,
  author    = {M. Miles and M. Fleischmann},
  title     = {Accuracy of isoperibolic calorimetry used in a cold fusion
               control experiment},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2009},
  editor    = {J. Marwan},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {1},
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  pages     = {153--171},
  ISBN      = {9780841269668, 0841269661},
  annote    = {Excess heat claims have been criticised as due to
inaccuracies.
 The authors here describe a control experiment in which no fusion takes
place,
 and show that an accuracy of 0.1 mW can be achieved, thereby  confirming
 previous observations, in which up to 1W excess was measured. This rests not
 only on the experiment itself but also on the calculation method.}
}
@incollection{Miley2009,
  author    = {G. H. Miley and P. J. Shrestha},
  title     = {Transmutation reactions and associated low-energy nuclear
               reactions effects in solids},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2009},
  editor    = {J. Marwan},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {1},
  pages     = {173--218},
  ISBN      = {9780841269668, 0841269661},
  annote    = {A review of work done on cold fusion or low-energy
 transmutation, supporting the idea that H or D can interact with metals to
 undergo nuclear reactions. 102 references.}
}
@article{Mill2009a,
 author  = {R.L. Mills and K. Akhtar},
 title   = {Tests of features of field-acceleration models for the
            extraordinary selective H Balmer [alpha] broadening in certain
            hydrogen-mixed plasmas},
 journal = {Int. J. Hydrogen Energy},
 year    = {2009},
 volume  = {34},
 number  = {15},
 pages   = {6465--6477},
 submitted = {10/2008},
 published = {07/2009},
 keywords = {DC plasma, He/H2 and Ar/H2 plasmas, Excessive line broadening,
           Resonant energy transfer mechanism, Field-acceleration mechanism,
           Mapping, Role of reflector and divertor,
           Pressure and field dependence},
 annote  = {** In plasmas obtained by glow, RF or microwave discharges, it is
 observed that the alpha lines from mixtures of hydrogen and argon are
broader
 than expected. They can be explained by the author's FAM (field-acceleration
 model), and his RTM (not defined or explained but presumably meaning
Resonant
 Transmission Model), argon playing a special role. Experiments confirm the
 theory.}
}
@incollection{Mizu2009,
  author    = {T. Mizuno},
  title     = {Transmutation reactions in condensed matter},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2009},
  editor    = {J. Marwan},
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  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {1},
  pages     = {271--294},
  ISBN      = {9780841269668, 0841269661},
  annote    = {Transmutation in cold fusion cells have been observed,
producing
 new elements from hydrogen up to lead.}
}
@article{Mosi2009a,
 author    = {P. A. {Mosier-Boss} and S. Szpak and  F. E. Gordon
              and L. P. G. Forsley},
 title     = {Triple tracks in CR-39 as the result of Pd-D co-deposition:
              evidence of energetic neutrons},
 journal   = {Naturwiss.},
 volume    = {96},
 year      = {2009},
 pages     = {135--142},
 submitted = {07/2008},
 published = {01/2009},
 keywords  = {Experimental, electrolysis, codeposition, res+},
 annote    = {This team continues to use their sensible codeposition
 technique, again using CR-39 film which previously showed tracks indicating
 nuclear products.  Triple track marks have been found and these are here
 looked at more closely.  Triple tracks from a real experiment and those from
 exposure to a standard neutron source (241Am) are very similar, and indicate
 emission of >= 9.6 MeV neutrons. It is not clear what is producing them, but
 this is the first time they have been detected.}
}
@article{Mosi2009b,
 author    = {A. Mosier-Boss and S. Szpak and F.~E. Gordon
              and L.~P.~G. Forsley},
 title     = {Characterization of tracks in CR-39 detectors obtained
              as a result of Pd/D Co-deposition},
 journal   = {Eur. Phys. J. Appl. Phys.},
 volume    = {46},
 year      = {2009},
 pages     = {30901-p1--30901-p12},
 keywords  = {Experimental, codeposition, CR-39, mylar spacer},
 submitted = {01/2009},
 published = {06/2009},
 annote    = {The team was able to roughly measure the energy of particles
 emitted from a codeposition experiment by inserting a 6 $\mu m$ mylar film
 between the cathode and the CR39 detector. The tracks recorded pointed to dd
 fusion and, for the first time, secondary fusion reactions between deuterons
 and fusion products such as tritons, 3He and alpha particles.}
}
@incollection{Mosi2009c,
  author    = {P. A. Mosier-Boss and S. Szpak nd F. E. Gordon
               and L. P. G. Forsley},
  title     = {Detection of energetic particles and neutrons emitted during
               Pd/D co-deposition},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2009},
  editor    = {J. Marwan},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
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  volume    = {1},
  pages     = {311--334},
  ISBN      = {9780841269668, 0841269661},
  annote    = {More experiments with CR-39 detection of emitted radiation
from
 a cold fusion electrolysis using their codeposition method. Pits on the CR-
39
 suggest the emission of neutrons.}
}
@incollection{Stor2009,
  author    = {E. Storms},
  title     = {How to explain cold fusion?},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2009},
  editor    = {J. Marwan},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {1},
  pages     = {85--98},
  ISBN      = {9780841269668, 0841269661},
  annote    = {Theory. There have been many attempts at theories to explain
 cold fusion, many of them inadequate. The author evaluates some of them here
 and makes suggestions.}
}
@incollection{Taka2009,
  author    = {A. Takahashi and N. Yabuuchi},
  title     = {Study on {4D/tetrahedral} symmetrical condensate condensation
             motion by non-linear {L}angevin equation},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2009},
  editor    = {J. Marwan},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {1},
  pages     = {57--83},
  ISBN      = {9780841269668, 0841269661},
  annote    = {Theory, proposing that cold fusion is not the fusion of two
 deuterons but of four, producing two 4He nuclei. The four deuterons are
 positioned at the vertrices of a tetrahedron, and interact with four
 electrons, also so positioned. This is backed up by a lot calculations. }
}
@incollection{Vyso2009,
  author    = {V. I. Vysotskii and A. B. Tashhyrev and A. A. Kornilova},
  title     = {Experimental observation and modeling of {Cs}-137 isotope
             deactivation and stable isotopes transmutation in
             biological cells},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2009},
  editor    = {J. Marwan},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {1},
  pages     = {295--309},
  ISBN      = {9780841269668, 0841269661},
  annote    = {Experiments with microbiological cultures resultet in the
 observation of new isotopes in the Fe region and the fast deactivation of
 radioactive Cs-137.}
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}

## YEAR: 2010

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% Year 2010; there are  16 entries.
@incollection{Bibe2010,
  author    = {J.-P Biberian},
  title     = {Low energy nuclear reactions in gas phase:
               a comprehensive review},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2010},
  editor    = {J. Marwan and S. Krivit},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {2},
  pages     = {9--34},
  ISBN      = {9780841224544},
  annote    = {"Low energy nuclear reactions have been demonstrated
 experimentally mainly through electrochemical experiments. However, a great
 deal of work has been performed in gas phase. The existence of anomalous
 excess heat, production of neutrons, tritium, helium-4 and helium-3 as well
 as the existence of transmutation of elements has been shown by many
 experimentalists. This chapter reviews all the work that has been done
during
 the past 20 years in low energy nuclear reactions in gas phase." (Abstract
 reproduced from the book)}
}
@incollection{Chub2010,
  author    = {S. R. Chubb},
  title     = {Overcoming the {C}oulomb barrier and related effects through
               resonant electrodynamics and quantum mechanics in the
               {Fleischmann-Pons} excess heat effect},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2010},
  editor    = {J. Marwan and S. Krivit},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {2},
  pages     = {177--192},
  ISBN      = {9780841224544},
  annote    = {"Science requires measurements.  Interpreting measurements
 involves recognizing patterns.  How this happens is intimately related to
the
 instruments that are used and how the measurements are performed.
Abstractly,
 this can be viewed in a somewhat radical way: Nature is telling us
something,
 but how we interpret it involves how we understand what Nature is telling
us.
 An important point is that, for communication to take place, involving
 real-life experiences, electromagnetism is required.  In higher-energy
 environments, how this takes place can be inferred in an approximate manner,
 in which changes in electromagnetism, as a function of time, can be treated
 as being independent of time.  In solids, when many particles are allowed to
 interact, this assumption is not required, and this can lead to important
 consequences.  This alternative perspective can explain how the
 Fleischmann-Pons effect can take place." (Abstract reproduced from the
book)}
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}
@incollection{Dash2010,
  author    = {J. Dash and Q. Wang and D. S. Silver},
  title     = {Excess heat and anomalous isotopes and isotopic ratios
               from the interaction of palladium with hydrogen isotopes},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2010},
  editor    = {J. Marwan and S. Krivit},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {2},
  pages     = {61--80},
  ISBN      = {9780841224544},
  annote    = {"Surface studies of 40 $\mu$ thick Pd foils after electrolysis
 in D2O/H2SO4 electrolyte for six minutes found inversions in isotopic
 ratios. Anomalous isotopes and isotopic ratios were also found on the
surface
 of a 350 $\mu$ thick Pd foil which produced excess heat during electrolysis
 in a similar electrolyte. Further research is necessary to establish the
 reproducibility of these results." (Abstract reproduced from the book)}
}
@ARTICLE{Eric2010,
   author    = {G. Ericsson and S. Pomp and H. Sj{\"o}strand and E. Traneus},
   title     = {Piezonuclear reactions - do they really exist?},
   journal   = {Phys. Lett. A},
   volume    = {374},
   year      = {2010},
   pages     = {750--753},
   annote    = {* A last word on the earlier paper of Cardone et al
 (Card2009a) and their rebuttal (Card2009b) of the authors' critical Comment
 (Eric2009). Cardone et al did not, in their comment, address most of the
 points raised, and it is still very doubtful that a nuclear process occurs
at
 all during sonication of the thorium solutions.}
}
@ARTICLE{Hage2010,
   author    = {P. Hagelstein},
   title     = {Constraints on energetic particles in the Fleischmann-Pons
                experiment},
   journal   = {Naturwiss.},
   volume    = {97},
   year      = {2010},
   pages     = {345--352},
   submitted = {11/2009},
   published = {04/2010},
   keywords  = {Theory, helium-4 problem},
   annote    = {Physicist Hagelstein examines the problem of emission of He4
  from cold fusion experiments, accompanied by an amount of heat energy
  commensurate with the fusion reaction d+d--> He4 which also results in a 24
  MeV emission.  If the alpha particle (He4) were created with this energy,
  this should be observed in several other ways besides heat, but is not. H
  then computes the energy of the alpha required for several potential
  reactions, such as alpha-induced deterium break-up, secpondary neutrons
from
  knock-on deuteron fusion, K-shell x-rays from alphas knocking out electrons
  from Pd or Pt atoms, and alpha-induced gamma emission from Li7. The
  calculations show that the alphas are created with an energy between 6.5 -
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  20 keV, meaning that they carry less than 0.1\% of the total 24 MeV from
the
  fusion reaction.  Therefore, "efforts to account for excess energy in the
  Fleischmann-Pons experiment based on models that involve energetic
particles
  are unlikely to be successful in light of the upper limits discussed
here".}
}
@incollection{Hora2010,
  author    = {H. Hora and N. Ghahramani and G. H. Miley and  M. Ghanaatian
               and M. Hooshmand and K. Philberth and F. Osman},
  title     = {Quark-gluon model for magic numbers related to low energy
               nuclear reactions},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2010},
  editor    = {J. Marwan and S. Krivit},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {2},
  pages     = {219--234},
  ISBN      = {9780841224544},
  annote    = {"A new three-fold symmetry is presented for derivation of the
 magic numbers of nuclei and is compared with the model based on the
Boltzmann
 distribution from the standard abundance distribution (SAD) of nuclei in the
 universe in the endothermic branch. This results in a 3n relation leading to
 the motivation to explore the quark state in nuclei. But this is in contrast
 (duality) to the fact that the confinement of nuclei by a generalized Debye
 layer can be based only on a nucleon, not on a quark structure. This Debye
 model result led to a change in the Fermi energy of the nucleons into the
 relativistic range at higher-than-nuclear density, resulting in a mass
 independent state at higher-than-nuclear densities for the quark state in
 neutron stars. This result and the 3n-relation motivated consideration of
the
 quark state in nuclei. Success is reported by quark-like statistics for
 nuclei reproducing magic numbers up to 126, identical with the Boltzmann
 model. But for the next-higher number, the Boltzmann model definitely
arrives
 at 180, while the new quark-like model leads to the number 184. The paradox
 may be solved by accurate measurements of a local Maruhn-Greiner maximum
from
 low energy nuclear reactions (LENR)." (Abstract reproduced from the book)}
}
@ARTICLE{Jian2010,
   author    = {S. Jiang and J. Liu and M. He},
   title     = {A possible in situ $^3$H and $^3$He source in {E}arth's
                interior: an alternative explanation of origin of $^3$He
                in deep {E}arth},
   journal   = {Naturwiss.},
   volume    = {97},
   year      = {2010},
   pages     = {655--662},
   annote    = {In some volcanic lakes, the authors have found more tritium
 and 3-helium than expected, and propose a nuclear origin operating currently
 for these. The process may be cold fusion or a LENR. This might then also
 explain the missing energy emanating from the Earth.}
}
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@incollection{Lett2010,
  author    = {D. Letts and D. Cravens and P. L. Hagelstein},
  title     = {Dual laser stimulation and optical phonons in
               palladium deuteride},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2010},
  editor    = {J. Marwan and S. Krivit},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {2},
  pages     = {81--93},
  ISBN      = {9780841224544},
  annote    = {"In work done in 2007, we observed that two laser beams
 irradiating a deuterated palladium cathode at a single spot induced
 significant thermal increases many times larger than those expected from
 laser heating alone. This effect was observed only when the lasers were
tuned
 to produce a beat frequency near 8 THz, 15 THz and 20 THz. These preliminary
 experiments support the conjecture that optical phonons are involved in the
 heat-producing mechanism (THz = 1012 Hz).
 In recent experiments, results from more than 20 runs appear to confirm the
 three thermally sensitive frequencies at 8, 15 and 20 THz. Further, the
 experiments allowed us to produce an initial thermal response spectrum."
 (Abstract reproduced from the book)}
}
@incollection{Lips2010,
  author    = {A. Lipson and I. Chernov and A. Roussetski and Yu.
ChÐµrdantsev
               and A. Tsivadze and B. Lyakhov and E. Saunin and M. Melich},
  title     = {Hot deuteron generation and charged particle emissions on
               excitation of deuterium subsystem in metal deuterides},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2010},
  editor    = {J. Marwan and S. Krivit},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {2},
  pages     = {95--117},
  ISBN      = {9780841224544},
  annote    = {"Statistically significant emissions of DD-reaction products,
 3 MeV protons and high-energy alpha particles (11-20 MeV) were observed in
 specially prepared Pd/PdO:D$_x$ and TiD$_x$ targets in vacuum, stimulated by
 electron beam (J $\approx$ 0.6 mA/cm$^2$, U = 30 keV).  These charge
 particles' energies and identities were determined using a set of CR-39
 detectors covered with various metal foils. In contrast, the Pd/PdO:D$_x$
and
 the TiD$_x$ samples show no sign of nuclear emissions in vacuum without
 e-beam stimulation. Extrapolation of both DD-reaction cross section and the
 enhancement factor (consistent with a calculated screening potential Ue =
750
 eV) to very low deuteron energy satisfactorily describes the detected
 DD-reaction yield in Pd/PdO:D$_x$ targets, under the assumption of hot
 deuteron (<Ed> ~ 3.0 eV) generation under e-beam bombardment. This result
 strongly supports the theoretical prediction (1, 2) for electron excitation
 of the D- subsystem in Pd- deuterides." (Abstract reproduced from the book)}
}
@incollection{Miley2010,
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  author    = {G. H. Miley and H. Hora and K. Philberth and A. Lipson
               and P. J. Shrestha},
  title     = {Radiochemical comparisons on low energy nuclear reactions
               and uranium},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2010},
  editor    = {J. Marwan and S. Krivit},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {2},
  pages     = {235--252},
  ISBN      = {9780841224544},
  annote    = {"The discovery of nuclear fission by Otto Hahn and Friedrich
 Strassmann was based on a very rare microanalytical result that provided the
 first realization that neutrons could fission uranium. However, this was
only
 the beginning of many discoveries about this complex process. An analogy
 related to the discovery of low energy nuclear reactions (LENRs) is noted
 here. It is remarkable that the reaction product distribution measured in
 LENR experiments using thin-film palladium/nickel electrodes heavily loaded
 with either hydrogen or deuterium has a strong similarity to the element
 distribution from uranium fission. Thus, the LENR reaction process is
 hypothesized to pass through a heavy complex nucleus similar to the fission
 process in uranium. Further, a detailed structure is observed in the LENR
 distribution corresponding to the Maruhn-Greiner local maximum of the
 distribution within the large-scale minimum of the fission product
 distribution curve.  This observation leads to the proposed explanation that
 the fissioning compound nucleus in the LENR case is element 306X126 with
 double magic numbers. A major difference, however, is that in uranium
fission
 the compound nucleus arises after single-neutron absorption, whereas in LENR
 a multi-body process is needed to create the heavy complex nucleus. Indeed,
 subsequent analysis of the various observations associated with these LENR
 experiments suggests that the multi-body reaction involved follows from the
 formation of Bose-Einstein condensed clusters formed in dislocation void
 regions in the electrode. Consequences and proposed future studies based on
 this cluster conjecture are discussed." (Abstract reproduced from the book)}
}
@incollection{Mosi2010,
  author    = {P. A. Mosier-Boss and F. E. Gordon and L. P. G. Forsley},
  title     = {Characterization of energetic particles emitted during {Pd/D}
               co-deposition for use in a radioisotope thermoelectric
               generator ({RTG})},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2010},
  editor    = {J. Marwan and S. Krivit},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {2},
  pages     = {119--135},
  ISBN      = {9780841224544},
  annote    = {"CR-39 is a solid-state nuclear-track etch detector. Using
these
 detectors in Pd/D co-deposition experiments, researchers have detected
 energetic particles and neutrons. The source of these particles and neutrons
 is the cathode. In this communication, spacer experiments and track modeling
 are done to characterize the energetic particles emitted. The potential use
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 of these energetic particles to power a RTG is discussed." (Abstract
reproduced
 from the book)}
}
@incollection{Srin2010,
  author    = {M. Srinivasan},
  title     = {Wide-ranging studies on the emission of neutrons and tritium
               by {LENR} configurations: an historical review of the early
               {BARC} results},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2010},
  editor    = {J. Marwan and S. Krivit},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {2},
  pages     = {35--57},
  ISBN      = {9780841224544},
  annote    = {"On receipt of news of the Fleischmann-Pons announcement in
 March 1989, scientists loaded samples of Pd and Ti metal with deuterium
using
 both electrolytic methods and gas/plasma-based absorption techniques. Twelve
 research groups and 50 scientists were involved in this massive effort.
Clear
 evidence was accumulated for the generation of neutrons and tritium. Not
only
 was the rate of neutron emission measured, but also, in some cases, a
 sophisticated analysis of the stastistical characteristics of neutron
 emission was carried out. The most important findings were: (a) Tritium
 production is much more probable than neutrons, with the neutron to tritium
 yield ratio being ~ 10-7; (b) A fraction of the neutrons released is in the
 form of bursts of tens to hundreds of simultaneously emitted neutrons; and
 (c) The nuclear reactions responsible for the production of these seem to be
 occurring in highly localized hot spots in the host metal. These results
 strongly suggest the possible occurrence of some type of micro-nuclear
 explosions in selected lattice sites." (Abstract reproduced from the book)}
}
@incollection{Sriv2010,
  author    = {Y. N. Srivastava and  A. Widom and L. Larsen},
  title     = {A primer for electro-weak induced low energy nuclear
reactions},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2010},
  editor    = {J. Marwan and S. Krivit},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {2},
  pages     = {253--270},
  ISBN      = {9780841224544},
  annote    = {"In a series of papers, cited in the main body of the paper
 below, detailed calculations have been presented which show that
 electromagnetic and weak interactions can induce low energy nuclear
reactions
 to occur with observable rates for a variety of processes. A common element
 in all these applications is that the electromagnetic energy stored in many
 relatively slow-moving electrons can, under appropriate circumstances, be
 collectively transferred into fewer, much faster electrons with energies
 sufficient for the latter to combine with protons (or deuterons, if present)
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 to produce neutrons through weak interactions. The produced neutrons can
then
 initiate low energy nuclear reactions through further nuclear
transmutations.
 The aim of this paper is to extend and enlarge on various examples analyzed
 previously, present simplified order-of-magnitude estimates for each and
 illuminate a common unifying theme among them." (Abstract reproduced from
the
 book)}
}
@incollection{Stri2010,
  author    = {R. S. Stringham},
  title     = {Sonofusion, deuterons to helium experiments},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2010},
  editor    = {J. Marwan and S. Krivit},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {2},
  pages     = {159--173},
  ISBN      = {9780841224544},
  annote    = {"Experimentally, heat and 4He are generally the byproducts of
 sonofusion. Sonofusion uses the leverage of argon-saturated
 cavitation-induced D2O bubbles and their collapse to transient high-energy
 density jets to implant deuteron clusters into a target lattice matrix. The
 coherent electromagnetic environment within these transient clusters
produces
 deuteron fusion events. Mass spectra and calorimetric measurements of the
 fusion products are described. What has been increasingly evident in
 sonofusion is the parallel that exists between sonofusion and high-density
 experiments of inertial confined fusion (1), Bose-Einstein condensates,
 astrophysical phenomena, and muon fusion. All of these help to explain our
 ecological fusion results." (Abstract reproduced from the book)}
}
@incollection{Taka2010,
  author    = {A. Takahashi},
  title     = {The basics of deuteron-cluster dynamics as shown by a
               {L}angevin equation},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2010},
  editor    = {J. Marwan and S. Krivit},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {2},
  pages     = {193--217},
  ISBN      = {9780841224544},
  annote    = {"Pertaining to quantum mechanics, the basics of a new approach
 using the stochastic differential equation (the Langevin equation) are
 written for quantifying the dynamic motion of known molecules as D2+, D2 and
 D3+ as well as the D-atom state. The role of Platonic symmetry in these
known
 molecules is discussed for deducing a simple one-dimensional (Rdd dependent;
 here Rdd is the distance between the nearest d-d pair) Langevin equation and
 using quantum-mechanical ensemble averaging to obtain an equation for
 expectation value. The methodology is applied for more complicated D-
clusters
 such as 4D/TSC and 6D/OSC, which would keep Platonic symmetry by introducing
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 the force fluctuation deviating from ideal Platonic symmetry. Time-dependent
 TSC and OSC trapping potentials, which take balance to get back to Platonic
 symmetry from the distorted states, were defined and used for a numerical
 solution of the Langevin equation." (Abstract reproduced from the book)}
}
@incollection{Tale2010,
  author    = {R. P. Taleyarkhan and C. D. West and R. T. {Lahey Jr.}
               and R. I. Nigmatulin and R. C. Block and J. S. Cho and Y. Xu},
  title     = {Recent advances and results in acoustic inertial confinement
               bubble nuclear fusion},
  booktitle = {{Low-Energy Nuclear Reactions Sourcebook}},
  year      = {2010},
  editor    = {J. Marwan and S. Krivit},
  publisher = {Oxford University Press},
  address   = {Washington, USA},
  volume    = {2},
  pages     = {139--157},
  ISBN      = {9780841224544},
  annote    = {"This paper provides an update on developments (1,2,3,4,5,6)
 since the first announcement of the discovery in 2002 of acoustic inertial
 confinement (a.k.a bubble) nuclear fusion.  A theoretical foundation for the
 supercompression of acoustically driven deuterated bubble clusters has been
 developed and published (4). Initially, bubble fusion experiments used
 external neutron sources for nucleating bubble clusters, and despite
 compelling evidence (2), lingering doubts remained because of the use of
 external neutrons to maintain neutron production.  This was overcome using a
 self-nucleation method (5). In those novel experiments, seeding of nanometer
 bubbles was accomplished using nuclear-decay recoils from dissolved uranyl
 nitrate.  Bubble fusion experiments have been replicated successfully, and
 confirmatory results were reported at least five times since 2005 (7,8,9,10,
 11,12). Moreover, speculations and controversies about the discovery
 related to our bubble fusion experiments (13,14) have now been conclusively
 addressed, rebutted, and dismissed (15,16,17)." (Abstract reproduced from
the
 book)}
}
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## YEAR: 2011

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% Year 2011; there are   0 entries.
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# YEAR: 2012

```
% Year 2012; there are   2 entries.
@ARTICLE{Ciri2012a,
   author    = {D. Cirillo and R. Germano and V. Tontodonato and A. Widom
                and Y. N. Srivastava and E. {Del Giudice} and G. Vitiello},
   title     = {Experimental evidence oof a neutron flux generation in a
                plasma discharge electrolytic cell},
   journal   = {Key Eng. Mater.},
   volume    = {495},
   year      = {2012},
   pages     = {104--107},
   keyword   = {Experimental, plasma discharge, neutrons, res+},
   published = {01/2012},
   annote    = {Electrolysis with high cell voltage, in potassium carbonate
  solution in water at a tungsten cathode leads to a plasma around the
cathode.
  CR-39 detected neutrons.}
}
@ARTICLE{Ciri2012b,
   author    = {D. Cirillo and E. {Del Giudice} and R. Germano and
                S. Sivasubrammanian and Y. N. Srivastava and V. Tontodonato
                and G. Vitiello and A. Widom},
   title     = {Water plasma modes and nuclear transmutations on the metallic
                cathode of a plasma discharge electrolytic cell},
   journal   = {Key Eng. Mater.},
   volume    = {495},
   year      = {2012},
   pages     = {124--128},
   keyword   = {Theory, neutrons, transmutation},
   published = {01/2012},
   note      = {The name Sivasubrammanian is normally written as
                Sivasubramanian},
   annote    = {Water is said to contain regions of coherence which contain
  a plasma of of quasi-free electrons, and close to a metal electrode, this
  is stabilised and can hold a negative charge. During high voltage
  electrolysis, neutrons and neutrinos can be produced and lead to
  transmutation reactions.}
}
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