



# New Energy News

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## SPECIAL EDITION FOR ATTENDEES AT THE LOW-ENERGY NUCLEAR REACTIONS CONFERENCE, SEPTEMBER 13-14, 1996, HOLIDAY INN, COLLEGE STATION, TEXAS

### CHANGE THE RULES NOT THE RULERS

Hal Fox, Editor

L. Hunter Lovins [1] lists three methods for effecting change: 1. Change the paradigm of those who have power over the rules. 2. Don't waste time trying to change the people who make the rules. 3. Advocate changes in the rules. In the socio-political world, following these three steps may be a big challenge. We who are working in science have a much easier job. Let's explore these ideas.

#### THE SCIENTIFIC RULE MAKERS

The first step is to determine who makes the rules. That is relatively easy: the scientific rule makers are the editors and the peer-reviewers of the scientific and technical journals. Behind the scenes are advisory boards to these journals, and are often peer reviewers. Another group of rule makers are those bureaucrats who oversee the distribution of the funds from the DOE, National Science Foundation, etc. However, we know that bureaucrats are very cautious about making decisions so they set up advisory committees. These advisory committee members often come from the advisors and peer reviewers of the journals.

#### CHANGING THE MINDS OF RULE MAKERS

Can you change the minds of these "rule makers"? Have you tried to convince any of the writers of anti-cold fusion articles that they made a mistake? One hundred years ago, scientists dealt with an energetic aether. Since about 1905-1915 the accepted scientific dogma has been that there is no aether. Now we call it zero-point energy and over 400 peer-reviewed articles have been published about ZPE (aether by another name). How many scientists

accept the idea of ZPE alias aether? So why waste time on trying to change the minds of people who make the rules?

**Time wounds all Heels.**

*T.H. Bell*

#### CHANGING THE PARADIGM

A paradigm is an example, a pattern, or a model. The course of science is to discover, measure, suggest models to explain the discovery and the data, recycle and improve the model. If and when the model has excellent explanatory power, and the experiments are replicable, **and the model is sold to peers so that it is taught in institutions of higher learning**, then it becomes the current paradigm. What current paradigms needs changing? We suggest the following two paradigm changes:

- ◆ Nuclear reactions is a metal lattice differ from nuclear reactions in hot plasma physics.
- ◆ There is an energetic aether.

There is a difference between a new model (paradigm) based on new scientific discoveries and the acceptance of that paradigm. However, a scientific paradigm is based on scientific facts. **A new paradigm for low-energy nuclear reactions is needed.** We have many new scientific facts but not, as yet, an adequate model. The experimental data being presented at the second conference on

Low-Energy Nuclear Reactions should provide additional data from which a better paradigm can be developed. **The existing paradigm does not support the new discoveries!** That is the first step to a paradigm shift. Now we must provide the new model and we must also be intensely involved in selling the concept that the old paradigm no longer has sufficient explanatory power.

***True genius resides in the capacity for evaluation of uncertain, hazardous, and conflicting information.*** *Winston Churchill.*

## CHANGE THE RULES

Consider advice number 3: "Change the rules." We have already established that the old paradigm is outmoded, **therefore, the rule makers are now at a strong disadvantage, they know their paradigm is inadequate.** In essence, we are close to accomplishing the first strategy. Now we need to explore what rules need to be changed. Here are some rules to be changed:

- ◆ Change "Nuclear reactions in or on a metal lattice **must be the same as found in hot-plasma physics,**" to "Nuclear reactions in or on a metal lattice can be produced at low-energy levels."
- ◆ Change "The vacuum is empty and has no energy," to "There is an energetic aether that is a potential source of energy."
- ◆ Change "The red shift is caused by an expanding universe," to "The red shift can be explained by an interaction between photons and the aether."
- ◆ Change "Any device that produces more output energy than input energy is against the Law of Conservation of Energy," to "A device which produces more output energy than input energy is admissible if the device is transforming available energy from the environment."
- ◆ Change "Government employees have the right to classify inventions developed using private funds," to "Government employees shall have the right to classify inventions only if such inventions were produced using government funds."

Every dogma must have its Day. *H.G. Wells*  
It's time for some to go away. *Peter Glück*

- ◆ Change "Articles from the *New York Times* and the *Washington Post* can be used by government agencies to deny constitutional rights to inventors," to "The U.S. Office of Patents and Trademarks shall use only peer-reviewed articles from respected journals as published evidence in responding to patent applications.

## ORGANIZED PRO-ENERGETIC APPROACH

There is a tendency to treat the adversary as a powerful organized unit. Assume that is true. Organized action is their strength. Scientific truth is their weakness. The game to be played should be considered as a game between two opponents. They are organized, we are not.

Professor John O'M. Bockris and Dr. Guang H. Lin (both at Texas A&M) have suggested that it is time to form a professional membership organization, solicit dues-paying members, have a peer-reviewed journal, and become energetically involved in fostering important new scientific discoveries.

Don't mourn, organize!  
- *Joe Hill, labor organizer (advice to workers before he was shot by firing squad.)*

It has been said, "There are three kinds of people: People that make things happen. People that watch things happen. People that don't know anything is happening." We must be numbered among those that make things happen. You may ask, "**What can one person do?**" The answer is: "**Something great.**" **Lead if you can. Follow if you can't lead. If you can't follow, send money.**

What can a group do? **CHANGE THE WORLD!**

If we are energetically committed to changing the world, what are the rules that can really help us? Here are some rules to use:

- ◆ Publish or perish. **Publish in your own peer-reviewed journal.**
- ◆ Academic tenure. Freedom of speech. Freedom of assembly. **Meet and share information.**
- ◆ Cite your sources. **Quote each other often.**
- ◆ Scientists will believe what they are paid to believe. **Fund them.**
- ◆ Use of academic consultants. **Advertise availability in your Journal.**
- ◆ Organize conferences. **Appoint a conference committee, select the topics, and select the papers that support the new paradigm.**
- ◆ Use the media. **New scientific information from prestigious scientists is often welcome by the media. The media also likes conflict. Issue press releases.**

### FIRST STEPS FIRST

Step One: Agree to organize a professional scientific organization with yearly membership fee, and a professional peer-reviewed journal, to support Low-Energy Nuclear Reactions.

Step Two: Pay your membership fees.

Step Three: Elect a president, a secretary, and a journal editor and ask them to serve as an organizing committee. Committee volunteers are welcome. Issue a press release on the name, purpose, and officers of the new scientific organization.

Step Four: File non-profit scientific and educational corporate articles.

Step Five: Committee to adopt bylaws and mail to existing members for suggested changes. Mail final copy of bylaws to all existing and new members.

Step Six: Every member will be asked to be pro-energetic (as contrasted with proactive) and be involved in active support of the organization.

Step Seven: Provide mutual support among members in obtaining grants, receiving awards, distributing press releases to the local media, contacting political leaders to support new scientific projects exploring low-energy nuclear reactions.

Step Eight: Redirect your professional research, publications, teaching, letters, etc., to the support of the chosen paradigm shift to recognize the fact of low-energy nuclear reactions. Advertise your availability as a consultant to government and industry on low-energy nuclear reactions.

Step Nine: Solicit and publish peer-reviewed papers on experiments and theory supportive of low-energy nuclear reactions. Avoid papers that are a rehash of

previously published work. Cite liberally the work of other members and of papers that were presented in conferences. Insist on rapid response to requests to peer review papers. Speed up the process of submission, review, and publication.

Step Ten: Use the Internet. Establish a web site. Each member to have e-mail. Each member expected to act professionally in being mutually supportive **of scientific fact**. Avoid ridicule and "flaming" of contrary views. Ignore the pathological skeptics. Support all who publish and seek the scientific truth. Encourage all to join the professional organization either as professional members, associate members (lay persons), **and especially student members**.

**Our strength and our tools are SCIENTIFIC TRUTH!** Our mission is to promote a paradigm shift. Our reward is changing the minds and hearts of a new generation. Our personal motives may differ but we have the ability and the opportunity to change the world, **establish a new and more scientifically correct paradigm**. The result will be new science, new industry, new jobs, and a better world. **What can you do better?**

### REFERENCES

- [1] L. Hunter Lovins, Executive Director of Rocky Mountain Institute, in her editorial in the *Rocky Mountain Institute Newsletter*, Summer 1996. Lovins cites Dana Meadows (co-author of *Beyond the Limits*) as providing several rules by which a system can be changed.

## Fusion Briefings

### JAPAN - LATTICEQUAKE CF

Courtesy of Dr. Peter Glück

Yoshiaki Arata and Yue-Chang Zhang (Osaka Univ., Japan), "Solid-State Plasma Fusion ("Cold Fusion")," 16 refs, 29 figs.

### AUTHORS' ABSTRACT

It is well known that metal behaves like Strongly Coupled Plasma ("SC-plasma") under the One-Component Plasma model ("OCP"). This concept plays a very important role in grasping the existence of "solid-state plasma fusion."

In order to initiate a deuterium nuclear reaction in a localized zone within a host solid, it is indispensable that the deuterium plasma in the host solid be caused and transformed coherently for at least a few picoseconds into SC-plasma, that is deuterium "coherent Plasma" within solid-state. To describe the reaction which occurs the authors use the term "solid-state plasma fusion" ("Cold Fusion"), and it is a "coherent solid-state plasma fusion" in substance.

It seems clear from all available data that "Latticequakes" of natural or artificial origin take place within localized lattices of solid-state materials, similar to the earthquakes that occur in localized zones within the earth. Lattice defects known as "radiation damage" are thought to be damage caused by "Latticequakes," correlative with the "disaster zones" after intense earthquakes.

During the explosive shaking of a "Latticequake," strongly coupled deuterium plasma within solid-state is coherently created that is able to induce a "Cold Fusion" reaction. but the "post-quake wreckage" or lattice defects themselves, however, do not contribute directly to the fusion reaction.

The phenomenon that takes place in a localized zone during an intense latticequake cannot be described by solid theory based on the Shrodinger equation, which is generally applied to normal solids. An entirely new set of dynamics is necessary.

When deuterium nuclear fusion takes place continuously in a solid, the large amount of energy released will drastically heat the solid and the reaction product will be either spontaneously emitted and/or confined in a "frozen state" within the host solid. In other words, both energy and helium at least must be produced as the result of a fusion reaction. Both should proportionally increase with the increased number of fusion reactions over an extended period of time. As a result, a tremendous amount of reaction product (helium) should be expected to accumulate in a frozen

state within a host solid which discharges huge excess energy at normal ambient temperature.

In our study, a significantly large amount of helium was detected with mass spectroscopy when the palladium host solid was heated in a vacuum to a high temperature of over 1300 [K]. The existence of solid-state plasma fusion ("Cold Fusion") was thus verified in this study by detection of a huge amount of helium as well as a tremendous amount of excess energy.

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### NUCLEAR EFFECTS IN WATER

Courtesy of Dr. Peter Glück

Yu.N. Bazhutov, V.P. Koretski, A.B. Kusnetsov ("Erzion" Center, Moscow), Yu.S. Potapov (Scientific Firm "Vizor", Moldova) V.P. Nikitsky, V.P. Maarkov, N.Ya. Neveshin (Inst. Physical Chem., Moscow), E.J. Saunin, A.F. Titcnkov (Inst. of Nuclear Phys., Moscow State Univ.), "Recording of Tritium, Neutrons and Radio-carbon During the Functioning of the "Yusmar" Hydrogenerator," presented at the 3rd Russian Conference on Cold Fusion, 6 pages, 6 refs. [Abstract translated by Dr. Peter Glück.]

### AUTHORS' ABSTRACT

The authors have searched for nuclear effects during the working periods of the "Yusmar" thermo-generator (developed by Dr. Yu. S. Potapov from Hishinev, Moldova) in order to confirm the predictions of the Erzion model of cold fusion. Usually the "Yusmar" machine is working with tap water; by adding 0.7% D<sub>2</sub>O to the working liquid, a 20% increase of tritium activity compared to the background level was measured. In another experiment, in accordance to the Erzion model, D<sub>2</sub>O, LiBr and NiSO<sub>4</sub> were added and a significant increase of neutron radiation was measured; in some cases a "life after death" effect was recorded up to 100 minutes. However, the effect is sporadic and has a reproducibility of only 20-30%. By adding an antifreeze compound (diethylene glycol) the beta-activity characteristic for radiocarbon C<sub>14</sub> was increased by 3.0 ± 0.3 Be/ml after a short time. The authors expect that the follow-up of this work will allow a significant improvement of the energetics and in the operating parameters of the "Yusmar" generators.

**MICROSCOPIC ACCELERATION MECHANISM**

Courtesy of Dr. Peter Glück

Dan Chicea (Phys. Dept., T.T.P.A., Univ. "Lucian Blaga", Sibiu, Romania), "Microscopic Acceleration Mechanism and the Cold Fusion in Deuterated Materials,"

**AUTHORS' ABSTRACT**

The Ampere forces occurring in a solid deuterated fibre which is the target of a high voltage capacitor discharge has been numerically estimated, in a way resembling the computations performed and published by P. Graneau and M. Rambaut. The energy increase of the ions trapped in the lattice caused by the Ampere force acceleration mechanism has been estimated. Considering the increase of a nucleus' Coulomb barrier penetration probability caused by the electron over-concentration, the possibility of nuclear cold fusion of nuclei is analyzed. Conclusion: The energy excess reported in the experiments traditionally named "Cold Fusion", cannot be explained only by means of a microscopic acceleration mechanism and a strong Coulomb barrier screening, but the low nuclear radiation level reported in some of the experiments can.

**SPECTROSCOPIC DETECTION**

S. Isagawa (Nat'l Lab. for High Energy Physics, Japan), "Mass Spectroscopic Means for Determining  $^4\text{He}$  in the Presence of Large Amounts of  $\text{D}_2$ ," *Pergamon*, vol 47, no 6-8 (1996), pg 497-499.

**AUTHOR'S ABSTRACT**

The low intensity of neutrons and the poor enrichment of tritium in so-called cold fusion experiments have prompted proposals of nuclear processes that yield only heat and helium as products. Determination of the presence or absence of  $^4\text{He}$  as a nuclear product, buried in a large amount of  $\text{D}_2$ , became highly necessary. A novel mass spectroscopy system was designed and prepared to meet this special demand. In this system, effluent gas during electrolysis as well as electrically charged solid palladium samples can be analyzed with sufficiently high sensitivity and resolving power.

**AUTHOR'S SUMMARY**

A novel mass analyzer system with high sensitivity and high resolution has been specially designed and prepared for detection of  $^3\text{He}$  and  $^4\text{He}$  buried in a large amount of  $\text{D}_2$ . The use of a CP-NEG combined filter removes the interfering  $\text{D}_2$ ,  $\text{N}_2$ ,  $\text{O}_2$  and  $\text{D}_2\text{O}$  from the effluent gas. The process allows unambiguous observation of helium, if any, by mass spectrometry. In a preliminary experiment an unexpected amount of  $^4\text{He}$  build-up seemed to have been found in a gas sample collected after a heat burst phenomenon. If it were true, it would be simultaneous evidence for excess power and helium production and strongly supported the claim that the heat excess originates from a new nuclear reaction mechanism in solids. No decisive conclusion, however, can be drawn yet, as there was possible  $^4\text{He}$  contamination from air in the gas collecting system at that preliminary stage. To make it clearer, improvements have been made in the effluent gas sampling system and a new series of electrolysis has been started. No direct correlation between boiling of electrolyte and  $^4\text{He}$  production has been found so far. We are now looking forward to observing another excess heat burst, as found before, with all the analyzing systems well prepared.

**Pd CATALYST ON C FIBERS**

Courtesy of Dr, Peter Glück

H. Jin, S.-E. Park, J.M. Lee (Korea Res. Inst.) & S.K. Ryu (Dept of Chem Eng, Chungnam Nat'l Univ., Taejon, Korea), "The shape-selectivity of activated carbon fibers as a palladium catalyst support," *Carbon*, vol 34, no 3 (1996), pp 429-431, 2 figs, 2 tables, 9 refs.

**AUTHORS' INTRODUCTION**

Activated carbon fiber (ACF) has been developed recently and supposed to be the substitute of conventional activated carbon due to its superior adsorption capacity. For the supporting of active metal, ACF was occasionally used as a catalyst support. For example, cobalt supported on ACF was demonstrated to have a high catalytic activity on the oxidation of CO in air and the iron supported on ACF was shown to be able to remove traces of  $\text{H}_2\text{O}_2$  from blood. As the pores of ACFs are mostly microporous and their pore size distribution narrow, it is

thought that they could show the molecular sieving effect and the shape-selectivity in catalysis. The aim of this note is to investigate whether ACF may be used as a shape-selective catalyst support. Palladium was deposited on pitch-based ACF and used as a hydrogenation catalyst in the liquid-phase heterogeneous hydrogenation of olefinic C<sub>6</sub> hydrocarbons.

### **SUPERCONDUCTOR COLD FUSION**

Courtesy of Dr. Peter Glück

A.G. Lipson, D.M. Sakov, B.F. Liahev, B.V. Deryagin (deceased), (Russia), "Generation of D-D Nuclear Fusion in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7- $\delta$</sub> D<sub>y</sub> High Temperature Superconductors at the Superconductivity Phase Transition," *Journal of Technical Physics*, vol 65, no 8, 1995, pp 166-178, 25 refs. [Abstract translated by Dr. Peter Glück.]

#### **AUTHORS' ABSTRACT**

Reproducible neutron and tritium generation was obtained for ceramic samples of High Temperature Super Conductor (HTSC) types 1-2-3 which have been saturated with deuterium by an electrochemical method. Neutron emission at an intensity of  $n = 0.42 \pm 0.05$  neutrons/s ( $\approx 30$  neutrons / transition) was obtained for samples with a deuterium concentration  $N_D \approx 2 \cdot 10^{20} \text{ cm}^{-3}$  at a temperature interval of 88-93 K, coincident with the superconductive phase transition. This level of neutron radiation is 2-3 times the natural background level. Outside this temperature interval, no increased neutron radiation was found. For the YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7- $\delta$</sub> D<sub>y</sub> samples, tritium was also obtained. The quantity of tritium was increasing proportionally to the number of heating-cooling cycles. The tritium generation rate peaks at  $\approx 4 \cdot 10^8$  atoms of T<sup>3</sup> per transition. The possible mechanism of initiation of the D-D nuclear fusion reactions are discussed: a) spontaneous polarization of the transition through the HTSC temperature; b) screening of the deuterons uniformly located in the HTSC network and formation of Cooper pairs; c) acceleration of deuterons, due to the polarization process and to the deformation of the network.

### **HETEROSTRUCTURE HEAT**

Courtesy of Dr. Peter Glück

A.G. Lipson, V.A. Kusnetsov, B.F. Lyakhov, T.S. Ivanova, B.V. Deryagin (deceased), (Russia), "The Energetic Yield of the Thermal Effect and the Intensity of the Nuclear Processes in Pd/PdO:H(D) Hetero-Structures," *Journal of Technical Phys.*, vol 65, no 7, July 1995, pp 68-80. [Abstract translated by Dr. Peter Glück.

#### **AUTHORS' ABSTRACT**

The authors' assumption is that discrete clusters of H(D) in condensed states are present in the Pd/PdO:H(D) hetero-structures; the energetic yield of the thermal effect and the intensity of nuclear emissions are calculated using the authors' assumptions.

### **TRANSMUTATION AND COLD FUSION**

Courtesy of Dr. Peter Glück

V.A. Filimonov (Chem. Dept., Belarus St. Univ., Minsk, Belarus), "Cold Fusion and Transmutation of Nuclei: Recent Achievements and Old Problems,"

#### **AUHTOR'S ABSTRACT**

Corroborative evidence on radiationless production of excess heat by "Cold Fusion" systems were reported during last two or three years. Thousandfold excess heat release as related to electrical power input was demonstrated under operating Patterson Power Cell (USA) using complex palladium cathodes for light water electrolysis, much more excess heat to input energy relation was reported by Arata (Japan) under electrolysis of heavy water using similar cathodes, etc.

Nevertheless, no satisfactory theoretical explanation for non-conventional rates of nuclear transformations "in the cold" is proposed. The problem of poor reproducibility, both quantitative and qualitative one, has not been solved until now.

Noted controversy is analyzed within Synergetic Activation model by the author. Both experimental data and useful analogies with extra-high chemical processes in solids are considered. Invalidity of

quantum approaches to provide general explanation for "cold" nuclear reactions is stated. Our conclusions are as follows: 1) no radical changes in nuclear physics paradigm for Coulomb barrier height or sections of nuclear interaction changing is needed to explain experimental data obtained; 2) consideration of cooperative self-organization processes in highly nonequilibrium conditions providing non-conventional probabilities of high-energy excitations in condensed media is significant for understanding Cold Fusion and Transmutation.

## ABOUT SONOLUMINESCENCE

Courtesy of Dr. Harold Aspden

Nigel Hawkes, "A puzzle solved?", *The Times*, Monday, May 6, 1996, page 12.

### EDITOR'S SUMMARY

Nigel Hawkes reports that Claudia Eberlein, a physicist at Cambridge University has rediscovered the energetic aether [my words, not Hawkes'. Ed.] Carefully couched in terms of quantum dynamics (a currently acceptable scientific dogma), Dr. Eberlein's explanation is that the light emission is a quantum vacuum effect -- energy given off by a vacuum. According to the article, "Quantum theory says that there is in reality no such thing as a vacuum, and that empty space teems with **virtual particles** including photons, which flit in and out of existence." [*Fusion Facts* reported to its readers in March, 1994, (also in *NEN*, Feb. 1994) the explanation by Nobel-prize winner Julian Schwinger that "this effect is most probably caused by the same forces of space energy (or zero-point energy) that causes two closely positioned plates to collapse and **stick** together," i.e. the Casimir effect.]

Dr. Eberlein adds another dimension to the discussion, according to Hawkes, that if the photons were caused by high temperatures **"the huge temperatures would break the surrounding water into its constituent atoms -- and it does not."** Eberlein adds the concept that it should be relatively easy to test her idea by analyzing the time distribution of the emitted photons. We commend Claudia Eberlein on her analytical capability and on her willingness to delve further into the non-existent (by some theories) aether. We invite Eberlein to

read the U.S. Patent 5,018,180 in which it is suggested that the high-density charge cluster phenomena (of producing energy from nothing) comes from the "zero-point radiation of the vacuum continuum" which uses  $10^8$  to  $10^{12}$  electrons in a charge cluster to produce as much as 100 times more electrons! That is a pretty high number of **virtual** particles. We also suggest the reading of the same patent information by Nigel Hawkes and his friend Dr. Peter Knight of Imperial College. Hawkes' article concludes with "If it turns out to be right, her explanation will be a major coup, **the first observable manifestation of quantum vacuum radiation. ... 'This would come as a bit of a relief.' Dr. Peter Knight of Imperial College told *New Scientist*.**" **Sorry, Nigel and Dr. Knight, but Kenneth Shoulders has been doing it for years (but perhaps under a different label than quantum vacuum radiation).** Furthermore, and closer to home, these gentlemen should contact Dr. Harold Aspden for a more enlightened insight into the reality of the energetic aether

## EFFECTS IN SONOLUMINESCENCE

Robert A. Hiller and Seth J. Putterman (Phys. Dept., Univ. of California, Los Angeles, CA), "Observation of Isotope Effects in Sonoluminescence," *Physical Review Letters*, vol 75, no 19, 6 Nov. 1995, pp 3549-3551, 17 refs, 3 figs. (Received 1 August 1995)

### AUTHORS' ABSTRACT

The spectrum of sonoluminescence emitted by single bubbles of  $H_2$ ,  $D_2$ ,  $He^3$ , and  $He^4$  trapped in  $H_2O$  and  $D_2O$  has been measured. We find that heavy water has a dramatic effect on the spectrum of hydrogenic gases, yielding a blackbody-type spectrum with a special peak at about 400nm. The explanation of why such a small change in the driving fluid leads to such a large spectral shift is unknown.

## WELDING BY COLD FUSION

Adrian A. Joseph (The Metaluse Corporation, Los Angeles, CA), "Metafusion: A Breakthrough in Metallurgy," NASA Conf. Publ., 3249 (Technology 2003, vol. 1), pg 60-3 (1994).

### AUTHOR'S ABSTRACT

The Metaluse Process is a patented development in the field of thin film coatings utilizing **cold fusion** which results in a true inter-dispersion of dissimilar materials along a gradual transition gradient through a boundary of several hundred atomic layers. The process is performed at ambient temperatures and pressures requiring relatively little energy and creating little or no heat. The process permits a remarkable range of material combinations and joining of materials which are normally incompatible. Initial applications include titanium carbide into and onto the copper resistance welding electrodes and tungsten carbide onto the cutting edges of tool steel blades. The process is achieved through application of an R.F. signal of low power and is based on the theory of vacancy fusion.

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## FUSION PROPULSION ROCKETS

Steve Lazarus and Chuck Bennett, "Fusion Powered Rocket Propulsion."

Nuclear rocket motors have been theorized and actually experimentally tested in the last two decades. Prior to the advent of cold fusion, these devices were based on uranium fission and have not succeeded in overcoming the inherent problems associated with the control of nuclear fission. Prior to 1989 futuristic space drives had been conceptually proposed utilizing the hot fusion approach.

Recent success in the control of fusion and transmutation energy by the cold fusion method has provided a means to harness fusion energy for rocket propulsion. Straight from the Star-Wars Defense Initiative and articulated in cinema special effects (*Independence Day*, 1996), particle beam weapons and fusion space drives are closer to reality than science fiction. Fusion fuel has the capacity to convert 20% of mass to raw energy that can be directed through a steerable nozzle exit cone.

Payload mass on a moderate-sized space craft would be more than enough to reach our nearest neighbors to discover new life forms.

The proposed energy ball in the core of the fusion drive burn center has an initial wavelength centered around  $\lambda_i = 534.6$  nanometers. The ball model is a bound replication of a subset spheroid form of the Tokamak and is postulated to exist in nature. The toroidal structure of the Tokamak in a miniaturized form can be achieved by using the hollow interior of Buckminster fullerenes loaded with selected metallic isotopes. This combination is expected to provide an experimental method by which significant energy can be produced. The result of this proposed method is expected to be an excellent particle accelerator on a nanometric scale.

An experiment to test this concept can be compared with a spinning donut or a hoop laden with hadrons (sub-nuclear particles) and geometrically scaled-up as a dynamo in the order and topology of the Penning Trap. Instrumentation will permit direct measurement of the output by using thermistors and photo emission coupled data acquisition parallel processing monitors with strip charts. A continuous operation will yield a large amount of statistical and reliable data that can be collected rapidly as a better way of generating energy from cold fusion and the zero-point energy field.

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## EXTREME CONDITIONS

Francoise Lepoint-Mullie, Damien De Pauw, and Thierry Lepoint, (Brussels, Belgium), Philippe Supiot (France), Rudy Avni (Beer-Sheva, Israel), "Nature of the **"Extreme Conditions"** in Single Sonoluminescing Bubbles," *J. Phys. Chem.*, vol 100, (1996), pp 12138-12141, 26 refs, 4 figs.

### AUTHORS' ABSTRACT

A plasma diagnostics analysis is reported which looks at the experimental spectrum of the sonoluminescence emitted by a single argon bubble oscillating nonlinearly in an acoustic field. Under the hypothesis that the bubble is mainly filled with Ar atoms able to participate in the plasma, an order-of-magnitude estimation of the electron density ( $N_e$ ) associated with the intracavity medium gives  $N_e \approx 10^{25} \text{ m}^{-3}$ , with an electronic temperature estimated



to be about 20,000 K, perhaps more. This analysis suggests that the conditions at the root of single-bubble sonoluminescence are highly energy charged and may be compatible with a spark-like process. The plasma developed inside the argon bubble is assumed to be in local thermodynamic equilibrium.

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## CF POSITIVE FEEDBACK

S. Pons, M. Fleischmann (Cent. Sci., IMRA Europe SA, Valbonne, France), "Calibration of the Pd-D<sub>2</sub>O System: Effects of Procedure and Positive Feedback," *J. Chim. Phys. Phys.-Chim. Biol.*, vol 93, no 4, (1996), pg 711-730.

### AUTHORS' ABSTRACT

The authors outline some of the considerations which have prompted their research on anomalously fast nuclear reactions of D<sup>+</sup> compressed electrochem. into Pd (and Pd alloy) host lattices. The most surprising result has been that the generation of high levels of excess enthalpy is not accompanied by the expected levels of tritium and neutron generation. Some of the major steps in the development of this particular aspect are outlined; it has been found that excess heat production is dependent on the protocol of the experiments mainly because of "positive feedback." A rationale for such "positive feedback" is presented which also explains oscillations in the system properties. The authors illustrate the progressive development of the investigation leading to the achievement of specific rates of excess enthalpy production of 4 kW cm<sup>-3</sup> at temperatures up to 100° (i.e. of low-grade heat).

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## BATTERY OF THE FUTURE

Courtesy of Dr. Peter Glück

Paul Ruetschi, Felix Meli, Johann Desilvestro (Leclanche S.A., Switzerland), "Nickel-Metal Hydride Batteries. The Preferred Batteries of the Future?" *J. of Power Sources*, vol 57, (1995), pg 85-91, 14 refs, 12 figs, 1 table.

### AUTHORS' ABSTRACT

Construction, performance, cost and environmental aspects of nickel-metal hydride batteries are briefly reviewed. Comparisons with other chargeable battery systems lead to the conclusion that nickel-metal hydride batteries will dominate the market for small, portable rechargeable batteries in the near future.

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## A HISTORY LESSON

Courtesy of Dr. Peter Glück

Bart Simon (Dept. of Sociology/Science Studies, UC - San Diego, CA), "The Specter of Post-Closure Cold Fusion: An Hauntology for the Technoscientific Afterlife," Talk given in the Science and Technology Studies Program, York Univ., Toronto, Canada, March 12, 1996.

### AUTHOR'S INTRODUCTION

In 1993, Martin Fleischmann and Stanley Pons reported a new phenomenon associated with their cold fusion experiments. They call the effect "heat after death" based on observations in experiments where the electrolytes of certain deuterium/palladium cells were driven to the boiling point and allowed to boil until no liquid remained. The mystery is that once the electrolyte boiled dry, the electrolysis stopped but the production of excess heat did not...if the excess heat was not coming from some artifact of the electrolytic process (wire heating or the recombination of gases for example) where could the excess heat be coming from? Fleischmann and Pons still think the heat comes from some new kind of aneutronic nuclear fusion, and there are many other cold fusion researchers who agree with them.

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## PATENT

JP 94-101697: "Cold Nuclear Fusion Apparatus," Toichi Chikuma (Japan), Jpn. Kokai Tokkyo Koho, 31 Oct 1995, 5 pp, (Japan), 18 Apr 1994.

### PATENT ABSTRACT

The title apparatus is equipped with a means around an absorbent (such as Pd or ceramic) which absorbed a material (such as D) which starts the nuclear fusion to prevent the absorbed material from escaping from the absorbent. The means is a magnetic coil. The means may comprise an

absorbent (which is a cathode), an electric conductive layer (which is used as an anode) is formed around the absorbent via an electric insulator, and voltage is applied. The efficiency of the nuclear fusion is improved.

## Solid-State Space-Energy Devices

### HODOWANEC COSMOLOGY AND THE MRA

*Just a few lines to say Hello again and to enclose some Notes for your interest.*

*Circuit FE-6A Note is self-explanatory. I will retain this unit (as is) for future reference as it has been confirmed in three professional labs!*

#### COSMOLOGY NOTE

Greg Hodowanec  
Received Aug. 27, 1996

Dear Colleague: This may be of interest to you.

#### I. Original Circuit FE-6A (as modified by McClain)

This is the circuit which was evaluated by the three Atlanta labs. The test data shown below was made here in January 1996 using the Fluke 87 meter.

#### A. Schematic

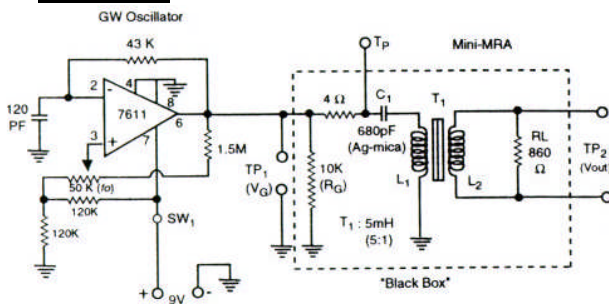


Fig.1

#### B. Tests

#### II. Conclusions

$$\begin{array}{l}
 \text{TP}_1 \quad \left. \begin{array}{l} V_G \cong 0.75 \text{ V (RMS)} \\ i_G \cong \frac{0.75}{10^4} \cong 0.075 \text{ mA (RMS)} \end{array} \right\} P_{in} = 0.056 \text{ mW (RMS)} \\
 \text{TP}_2 \quad \left. \begin{array}{l} V_{in} \cong 1.0 \text{ V (RMS)} \\ i_{out} \cong \frac{1}{860} \cong 1.2 \text{ mA (RMS)} \end{array} \right\} P_{out} = 1.2 \text{ mW (RMS)} \\
 \text{P.G.} \cong \frac{1.2}{0.056} \cong \underline{21X} \text{ (where } f_o \cong 100^+ \text{ KHz)}
 \end{array}$$

1. Oscillation was made essentially resistive to keep all waveforms sinusoidal.

2. Relative measurements were made with sinusoidal waveforms and resistive sources and load.

3. Operation was well above resonance where power out is low, but power gain is high! At resonance, P.G.  $\cong$  11X!

4. Tests were made under "black box" conditions and verified by all the evaluators!

#### III. Some Added Notes

1. Circuit FE-6 was originally made to "look" into a possible "stand alone" Mini-MRA unit. The output of the unit was "coupled" to external rectifying circuitry to obtain a DC output which could be fed-back to the power supply of the unit. However, in a number of tests it was not possible to develop sufficient voltages from the rectifier stages used to even "self-sustain" the unit.

2. Circuit FE-6 was then made into a possible "portable" demo unit by having the Mini-MRA output "fire" a high level LED device (10MW unit). The LED was placed directly across the output coil, L2. At resonance, it was lit very brilliantly (equivalent to about 10-12 nW DC level).

3. This unit was sent to McClain and Wootan (who verified my data) but then modified the unit as shown in Fig. 1 in order to have the performance verifies by the three Atlanta labs, but with limited operating range! Since the unit was capable of a wide range of operating characteristics (as originally built), this was a wise move on the part of McClain and Wootan.

4. I have not seen any of the data by the three Atlanta labs (except for the power gains being in the order of 11 to 18X), but this was the same order of power gains seen here! So I believe all these tests were quite valid! Circuit FE-8A adheres to indicate that basically a truly stand-alone MRA device is possible, at least in

principle. However, I still feel that the Swiss M-L device is basically MRA and is in fact a true stand alone device of high power! [will be published in Oct. NEN]

Wish all of you at NEN the best, both in health and in your publishing endeavors.

/s/ Greg Hodowanec

**SPARK GAP EXPERIMENTS**

23 July through 7 August 1996  
Nicholas Reiter

During this period, a wide variety of materials and structures were exploded by spark discharge, for the purpose of looking for and elevating interesting or anomalous effects. In part, this experimental series was intended to duplicate and expand upon certain unusual spark gap phenomena noted by my colleague, Dr. Samuel P. Faile.

For several years now, numerous amateur scientists and experimenters have claimed occasional unusual effects in systems incorporating energy storage and spark discharge. Examples include exploding wire experiments, water arc experiments, and sparking within strong magnetic fields. In cases where unusual results are reported, hints of excess energy release are cited as supporting evidence for concepts such as cold fusion and space energy extraction.

Our experiments have been mainly qualitative. We have looked for discharge or explosive phenomena which seem "out of character." These experimental results can be then focused upon later, with quantitative analytical techniques such as calorimetry, or pre- and post-explosion chemical analysis. We have tried a wide variety of tests to look for potentially worthwhile starting points for unusual or excess energy production.

For this series, we employ the following arrangement: A 15 kV, 60VA, DC power supply charges an energy storage capacitor through a Victoreen 250K ohm resistor. A spark gap consisting of 3/32" tungsten rod points, discharges the energy stored in a capacitor at intervals determined by RC and gap distance. For energy storage, we either use a 0.5 µF canned capacitor, or

a 0.15 µF non-inductive plastic and foil cap. For tests involving the detonation of a body, such as a resistor, one of the tungsten points was slid out of the way and replaced by the test

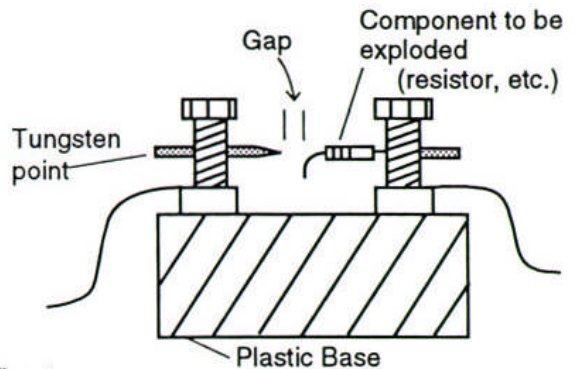


Fig. 1

piece. [see Fig. 1]

The following tables summarize our observations.

**A. Resistors**

Test Piece	Gap (mm)	Cap.	"Fireball" Comments
10 Ω ¼w carbon	2	0.5 µF	3-4 cm whitish <i>fragmented</i>
10 Ω ¼w carbon	3	0.5 µF	6-7 cm orange <i>disintegrated</i>
10 Ω ¼w carbon	5	0.5 µF	7-8 cm orange <i>disintegrated</i>
10 Ω ¼w carbon	5	0.15 µF	3-4 cm orange <i>fragmented</i>
10 Ω ½w carbon	5	0.5 µF	4-5 white orange <i>fragmented</i>
10 Ω 2w carbon	5	0.5 µF	<i>finally blew open after 30 arcs</i>
100 Ω ¼w carbon	5	0.5 µF	6-8 cm orange <i>disintegrated</i>
390 Ω ¼w carbon	5	0.5 µF	3-4 whitish <i>fragmented</i>
510 Ω ¼w carbon	5	0.5 µF	3 cm whitish <i>fragmented</i>
1000 Ω ¼w carbon	5	0.5 µF	2 cm whitish <i>fragmented</i>
10 Ω ¼w carbon film	5	0.5 µF	3-4 cm white <i>Outer coating and film blown away</i>
10 ohm ¼w carbon film	5	0.5 µF	3-4 cm white <i>Same as above</i>
10 ohm ¼w carbon film	5	0.5 µF	1-2 cm whitish <i>side blew out</i>

**B. Fuses**

An interesting excursion into exploding wires was accomplished by using readily available glass

envelope fuses. Fuses rated for different amperages at 250V were of a convenient size to fit into our existing spark gap geometry. Previously, Dr. Faile had noted that when very thin ( $\frac{1}{4}$ A) fuse elements were vaporized by series connection to a spark gap, the appearance of the flash was striking, a brilliant cerulean burst reminiscent of Cerenkov light. Slower (lower energy) fuse openings were of a more yellow tone. This was easily achieved by using higher amperage fuses. Could the cerulean high energy vaporizations yield elemental products not found in the original fuse geometry? EDS analysis is being scheduled to look at this possibility of spark induced transmutation. A table of our results:

Fuse	Gap (mm)	Cap	Comments
$\frac{1}{4}$ amp	3	0.5 $\mu$ F	brilliant blue-white flash
1 amp	3	0.5 $\mu$ F	dimmer whitish flash
2 amp	3	0.5 $\mu$ F	yellowish flash
10 amp	3	0.5 $\mu$ F	did not burn open
10 amp	10	0.5 $\mu$ F	did not burn open
150 mA	1	0.5 $\mu$ F	brilliant, rich cerulean flash
150 mA	3	0.5 $\mu$ F	same as above

### C. Neon Lamps

Another striking color effect was noted by Dr. Faile in NE2 neon lamps. When the lamps were placed in series with a spark gap discharge, a vivid violet or purple appearance was noted in the Ne plasma when the circuit would fire. New energy production, or excitation of residual gases in the lamp, not normally excited by lower voltages or current densities? We are examining this as a potential variation of possible anomalous effects previously noted by Chernetsky, et al. NE 2 lamps were fitted into our spark gap fixture, so as to be in series with the discharge:

Gap (mm)	Cap.	Flash Color
$\frac{1}{2}$	0.5 $\mu$ F	orange-pink, with blue overtones
2	0.5 $\mu$ F	pink-purple
3	0.5 $\mu$ F	strong purple or violet, with pink tone
5	0.5 $\mu$ F	same as above
10	0.5 $\mu$ F	lamp envelope shatters
10	0.5 $\mu$ F non-L	bright magenta-purple (bulb did not shatter)

### D. Other Tests

Both glass envelope and epoxy coated Si diodes were exploded by spark; however neither gave interesting visible effects. We also directed spark discharges from our standard circuit onto thin films of metal, deposited on soda lime glass substrates.

Chromium films of 200 Å thickness and aluminum films of about 2000 Å were tried. In either case, the spark fireballs blew about a 1 to 2 cm diameter area of the metal away, leaving bare glass. However, when the Al coated sample was examined, a region within about 2 cm around the blown away section was found to contain hundreds of tiny pinhole perforations in the Al film. Could this be a record of impacts by EV structures, recently speculated upon by Shoulders, et al.? [Most probable explanation! Ed]

Another striking effect was noted when one of the tungsten gap points was replaced with a "whisker" of Ni alloy wire. We used "Alumel" thermocouple wire of very small diameter, 0.001 inch. With spark gap distances of 3 mm or greater, the 1 mil wire vaporizes with the brilliant cerulean flash noted in the earlier fuse experiments. However, the most striking effect is noted at about 1.5 to 2 mm gap. At this setting, the vaporization of the whisker appears to be in transition. At the instant of discharge, most of the whisker is seen to burn away in a yellow flash with some spalling. At several locations along the whisker, however, small blue beads or bubbles may be seen. (see Fig. 2)

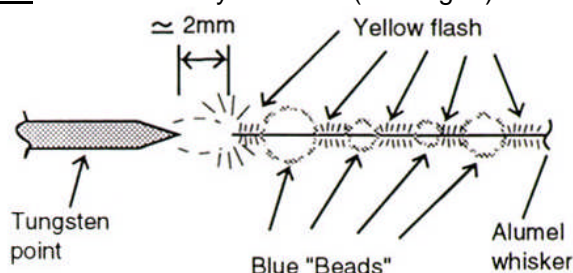


Fig. 2

The cerulean flash evaporation of the whiskers was found to be greatly enhanced, as judged from flash or fireball size, about 100%, by coating the whisker with soot from a small piece of burning rubber before discharge. We speculate that micron or submicron sized particles of carbon may be involved with enhancing spark gap discharge effects. This is likely part of the mechanism involved with the spectacular orange fireballs produced by the exploding 10 Ω  $\frac{1}{4}$  carbon resistors.

It is our hope that these excursions into spark gap effects may be of use to those scientists contemplating cold or warm fusion experiments, or even production of fractal, self-sustaining "ball

lightning" type entities. Both Dr. Faile and I will submit summaries of further findings in this area, as they are accomplished. We would also like to thank Hal Fox and his colleagues for allowing us the opportunity to present our work to INE members in *NEN*.

## Miscellaneous

### NUCLEAR POWER TOMORROW?

Courtesy of Dr. Peter Glück

T. Kanoh (Managing Director, Tokyo Electric Power Co.), "Is there a tomorrow for nuclear power generation?", *Nuclear Energy*, vol 35, no 3, June, 1996, pp 143-154, 13 refs, 14 figs, 4 tables.

#### AUTHOR'S ABSTRACT

Critical comments are publicly made about nuclear power generation and the nuclear fuel cycle. This criticism is directed at three areas of concern: accidents, radioactive waste disposal, and proliferation of nuclear weapons. In addition, there are other comments that ask 'Why are there countries pushing for nuclear power generation when other countries around the world are giving it up?' and 'Will further efforts to develop new energy sources and energy conservation not eliminate the need for nuclear power generation?' Such critical comments appear in some media more often than those expressing other opinions. Is there really no tomorrow for nuclear power? This question is studied below.

#### EDITOR'S COMMENTS

Kanoh lists three things that are likely to happen in the now to 2050 time period: 1. There will be a sharp population increase. 2. There will be an increased energy demand. 3. A warning will be given against the use of fossil fuels. In discussing these issues, Kanoh points out that sometime in the 21st century China's population will likely be consuming as much oil per capital as Japan now

uses, which means that China will be using more oil than the U.S. and the European countries combined.

Kanoh then cites the three scenarios of P. Beck:

1. The phase out of nuclear power. 2. The gradually small increase in nuclear power. 3. Considerable increase in nuclear power. **It is important to note that in an 11-page article about future power generation there is scarcely any mention of the development of new methods or sources of producing energy!**

Readers of this newsletter would be astonished if there were not dramatic scientific advances in new scientific and technological methods of producing energy within this decade of the 90s. We are surprised at the lack of knowledge concerning new-hydrogen energy, solid-state devices, and new super magnets making possible super motors. These three new sources of thermal, electrical, and mechanical energy are most likely to be commercialized during the remainder of this decade. T. Kanoh has made a very important point: **Don't sit back and wait for some scenario to happen. Try to make the most desirable scenario happen.**

### AN ALTERNATE DETERMINATION FOR THE VELOCITY OF LIGHT

By Gregory Hodowanec

The nature of light and its velocity has always been a somewhat controversial subject and remains so to some extent even today. The disputed points of view are well-known to most readers and thus they will not be extensively considered here. However, some of the more salient points will be briefly stated as a prelude to a discussion of an alternate method of determining the velocity of light in the vacuum.

Primarily, light is presently considered to be a *wave motion* in terms of electromagnetic theory, but it is also considered as an energy unit or *photon* in quantum theory. These aspects complement each other; for example, the wave theory is generally applied to interactions between light signals, while quantum theory is used for light energy interactions, such as the photoelectric effect. Presently, the velocity of light is considered as *absolute*, i.e., independent of the velocity of the source or the observer. Also, the physical motion of any *material* body can never exceed the velocity of light. The velocity of light also serves as a connection between

mass and energy as is noted in the well-known relation  $E=mc^2$ . The velocity of light appears in many physical relations, especially those relating to the various *fundamental constants* of nature. Thus, the determination of the *true value* of this velocity is of utmost importance in physics and in cosmology in general.

#### EXPERIMENTAL DETERMINATIONS OF LIGHT VELOCITY

The first crude measurement (of importance) of the velocity of light was made by Roemer in 1675 in an experiment where he noted a change of time for the observance of the eclipsing of the moon Io by the planet Jupiter. The velocity determined here was of the order of  $2.2 \times 10^{10}$  cm/sec using the best parameters available to him at that time. However, since that time many *more precise* experimental measurements were made, as summarized in the 1983 paper by Pipkins and Ritter [1]. Most of these determinations were in the order of  $3 \times 10^{10}$  cm/sec, with the average being around  $2.9979 \times 10^{10}$  cm/sec. The more recent measurements made around 1973 or so, gave a value of about  $2.9979245 \times 10^{10}$  cm/sec, and this was the accepted value at that time. This generally remains the present day value, as given in some dictionaries of science [2] and the book *Gravitation* by Misner, Thorne, and Wheeler [3].

It should be noted that most of the above experimental measurements of the velocity of light were made in the presence of gases, primarily air and possibly water vapor, and thus do not truly represent the velocity in vacuum. However, the error introduced is considered to be very minimal. Here, however, I will consider the accepted value to be  $2.99792 \times 10^{10}$  cm/sec, out to five decimal places only, so as to be of the same order of magnitude as for some of the other determined constants which will be used in the alternate calculations. Before doing so it is necessary to digress a bit to explain the nature of Planck's natural units, which are basic to these determinations.

#### PLANCK'S NATURAL UNITS (PNU)

Max Planck published in 1914 a curious aside in his book, The Theory of Heat Radiation. I first became aware of this aside in 1959, when Dover Publications released a reprint of this volume [4]. Planck suggested that experimentally-determined universal

constants could be used to "establish units of length, mass, time, and temperature, which are independent of special bodies or substances, which necessarily retain their significance for all times and for all environments, terrestrial and human or otherwise, and which may, therefore, be described as 'natural units.'" Planck chose the constants:  $h$ , his Planck constant;  $c$ , the velocity of light in vacuum; and  $G$ , the gravitational constant. Planck expressed the numerical values of these constants in the c.g.s. system of units, i.e., centimeters, grams, and seconds. By choosing the natural units so that each of the above constants assumes the value unity, he obtained the natural units:

$$\text{Length} = L^* = \sqrt{\frac{Gh}{c^3}} \approx 3.99 \times 10^{-33} \text{ cm.}$$

$$\text{Time} = T^* = \sqrt{\frac{Gh}{c^5}} \approx 1.33 \times 10^{-43} \text{ sec.}$$

$$\text{Mass} = M^* = \sqrt{\frac{ch}{G}} \approx 5.37 \times 10^{-5} \text{ gm.}$$

using the data available to him at that time.

A paper by McNish which appeared in May 1959 [5] seemed to relish the potentials stated by Planck but expressed concern about the uncertainty of arriving at a sufficiently accurate value for the gravitational constant. However, it occurred to me at that time that these natural units could perhaps be the *dimensions of the aether*, but pressures of earning a living and raising a family delayed my looking further into this topic at that time. However, in 1975 I was able to devote a few months to further studies in cosmology, primarily a fresh look at the nature and structure of space/time, the so-called aether. I was encouraged by reports on a "structure" for the vacuum as was given by Misner, Thorne, and Wheeler (MTW) in their book [3]. Especially interesting to me was their (?) revision of Planck's natural units (PNU), using the reduced Planck constant  $\hbar$ , rather than  $h$ , since this was in *agreement* with my own "structuring" of a *stationary aether*. This I had reported later in my monograph, *Rhysmonic Cosmology* which I released in 1985 [6]. As a result, the Planck natural units now became:

$$L^* \approx 1.6161 \times 10^{-33} \text{ cm.}$$

$$T^* \approx 5.3906 \times 10^{-44} \text{ sec.}$$

$$M^* \approx 2.1765 \times 10^{-5} \text{ gm.}$$

where the calculations were carried out to the most probable fourth decimal place, using:

$$c \approx 2.9979 \times 10^{10} \text{ cm/sec.}$$

$$G \approx 6.6732 \times 10^{-8} \text{ cm}^3/\text{gm sec}^2.$$

$$\hbar \approx 1.0546 \times 10^{-27} \text{ gm cm}^2/\text{sec.}$$

where these values were averaged from the references cited here. Since  $c$ ,  $G$ , and  $\hbar$  can eventually be experimentally determined to higher orders of accuracy, the Planck natural units will also be determined more accurately in the future.

#### APPLICATION OF PNU TO THE VELOCITY OF LIGHT

In *Rhysmonic Cosmology* (6) the velocity of light in vacuum was predicted to be due to a matrix-type structure for the vacuum. Here, electromagnetic effects were the result of a propagation factor,  $C^*$ . This propagation factor could be called the Planck velocity, and was equal to  $L^*/T^*$ . Substituting in the more recent determinations of the Planck natural units,

$$C^* = \frac{L^*}{T^*} = 2.99794 \times 10^{10} \text{ cm/sec.}$$

which is also the experimentally determined velocity of light. It is surprising that this connection has not been mentioned by the quantum theorists (as far as I know) and especially by MTW.[3] Therefore, it seems to me that the Planck natural units really do *describe the structure of the aether*. In the above relation it is seen that the velocity of light would be constant in an *undisturbed* aether. The only way the velocity could change is if  $L^*$  changes (which is possible in the presence of matter where the velocity would be reduced), or if  $T^*$  changes (which some experiments could ascertain).

#### THE PNU AND DIMENSIONAL ANALYSIS

Since Planck's natural units appear to describe the very structure of a stationary aether they may be *truly* fundamental units. As such, one can refine the experimentally determined fundamental constants with dimensional formula analysis. Two examples are now given. From experiment, we have:

$$\hbar \approx 1.0545 \times 10^{-27} \text{ gm cm}^2/\text{sec.}$$

The numerical value of  $\hbar$  can be determined from PNU thus,

$$\hbar^* = \text{gm cm}^2/\text{sec} = \frac{M^* L^{*2}}{T^*} \approx 1.05449$$

Therefore, from PNU:

$$\hbar \approx 1.05449 \times 10^{-27} \text{ gm cm}^2/\text{sec.}$$

Also, from experiment (1):

$$G \approx 6.673 \times 10^{-8} \text{ cm}^3/\text{gm sec}^2.$$

$$G^* = \text{cm}^3/\text{gm sec}^2 = \frac{L^{*3}}{M^* T^{*2}} \approx 6.6736$$

Therefore, (per PNU):

$$G \approx 6.6736 \times 10^{-8} \text{ cm}^3/\text{gm sec}^2.$$

This technique was verified for *many* known constants, but with *one notable exception*: the value of  $e$ , the quantum of charge. From experiment,

$$e \approx 4.803 \times 10^{-10} \sqrt{\text{gm cm}^3/\text{sec}^2}.$$

Dimensionally,

$$e^* = \sqrt{\text{gm cm}^3/\text{sec}^2} = \sqrt{\frac{M^* L^{*3}}{T^{*2}}} \approx 5.6226$$

Thus, (per PNU):

$$e \approx 5.6226 \times 10^{-9} \sqrt{\text{gm cm}^3/\text{sec}^2}.$$

**Note that the PNU-determined value of  $e$  is about 11.7 times larger than the classical experimentally determined value.** This also explains why the so-called reciprocal fine structure constant, where  $e^2$  is used, becomes the value 11.7<sup>2</sup> or approximately 137! Thus, this PNU determination of  $e$  questions the experimentally determined value of  $e$ , the quantum of charge.

## CONCLUSIONS

The methods of Rhysmonic Cosmology (6) were basically used in the determinations reported herein (with support from PNU and MTW).[3] This material appears to confirm that there *is* a stationary aether, having a definite structure and very high energy content, probably related to the Planck natural units and its many derivatives. The further study of this structure should interest readers and may possibly provide some clues to a more direct "extraction" of the latent energy in space/time. This energy source might have been "tapped" in some past and current experimental tests. To unambiguously do so may provide the total energy needs of mankind in the future without polluting the earth. The writer hopes that many readers will consider the possibilities alluded to herein.

[This article reprinted with permission from *Untapped Technology*, Summer 1995. They may be contacted at P.O. Box 5185, Mesa, AZ 85211.]

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- [6] G. Hodowanec, *Rhysmonic Cosmology*, self published, 1985. Now out of print, but copies of the original typewritten pages are available from: Rex Research Archives, P.O. Box 19250, Jean, NV 89019.

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## ANOTHER DETERMINATION OF THE VELOCITY OF LIGHT

by John R. Hayes

This article is in response to Gregory Hodowanec's "Alternate Determination for the Velocity of Light" [1], although the points here are not necessarily contradictions.

First, we might say that the Michelson-Morley experiment of 1887 failed to show that the velocity of light was changed by the motion of the earth through the stationary ether because it is my belief that the light from any source travels upon and is nearly synchronous with, the CBR (cosmic background radiation) waves, which are alternating gravitational waves which transmit gravitational impulses instantaneously, and also carry light waves upon them.

A source of light is necessarily gravitational in nature. Thus, the CBR, which represents gravitational radiation, emanates from any gravitational objects, and if an object is also emitting light, this light will be carried with the gravitational wave. These latter waves may be termed "stationary" or standing waves, and when a light wave of a different frequency travels with or upon these waves, a condition of inertia of the CBR wave exists, and this is what will cause light from a very distant star to be red-shifted (wavelength of the light shifted towards the red end of the spectrum, giving it a longer wavelength than it started with).

Now we know from much experimental data that the approximate wavelength and temperature of the CBR is about 1 millimeter and about 2.7 Kelvin (2). Gregory Hodowanec notes that Max Planck wanted to also include a basic temperature as one of the fundamental units. We will be able to do this, if we use the Planck blackbody radiation formula, since the CBR is believed to be blackbody radiation. From Reference [3], it is:

$$E_d = \frac{2\pi hc^2}{\lambda^5} \cdot \frac{1}{e^{hc/kT\lambda} - 1}$$

In this formula:  $h$  is Planck's constant,  $6.626 \times 10^{-34}$  joule-sec;  $c$  is the velocity of light,  $3 \times 10^8$  m/sec;  $\lambda$  is the wavelength of the radiation;  $k$  is the Stefan-Boltzmann constant,  $1.37 \times 10^{-23}$ ; and  $e$  is the base of the natural logarithm; so that  $2\pi hc^2 = 3.75 \times 10^{-16}$  J-m<sup>2</sup>, and  $hc/k = 1.44 \times 10^{-2}$ .

Now, in my theory, *A Gravitation Theory based upon the Electromagnetic Field* [4], I made the **assumption** that the total temperature of all the stars and everything in the universe should be  $c^4$  degrees, or  $8.1 \times 10^{33}$  K. This temperature is moderated out or distributed out into the CBR, so that the latter temperature should be given by  $T = hc^4/2$ . The reasons for this statement are



pointed out in the above mentioned theory. This temperature is 2.68 K.

If this temperature is used in the Planck formula given above, the optimum or maximum energy density comes out to be 0.00177 watts/m<sup>3</sup>. The wavelength is then 0.0011 meters, or a frequency of  $2.74 \times 10^{11}$  Hz.

From this information, we may find a way to derive the velocity of light, even though this may seem like a circular argument, since we used  $c$  in the Planck formula. We will find  $\mu_0$  and  $\epsilon_0$ , the permeability and permittivity of space, since these parameters determine the velocity of light by:

$$c = \sqrt{\frac{1}{\mu_0 \epsilon_0}}$$

First,  $\epsilon_0$  is given by:

$$\frac{\text{critical density}}{2} = \frac{0.00177}{2} = 8.854 \times 10^{-4} \text{ farads}$$

and we may find the mass density of the CBR by  $E = mc^2$ , or  $m = 0.00177/c^2$ , which gives  $1.966 \times 10^{-20}$  kg/m<sup>3</sup>. Now,  $\mu_0$  is given by:

$$\frac{\text{Mass density}}{\text{critical density}^2} = \frac{2(1.966 \times 10^{-20})}{3.13 \times 10^{-6}} = 4\pi \times 10^{-15} \text{ hen}$$

Then, if we plug these values into the equation for  $c$ , we obtain  $3 \times 10^8$  m/sec, to whatever accuracy you desire.

However, one may note that the exponents for  $\mu_0$  and  $\epsilon_0$  as given above are not quite what is usually given. The reason for the strange exponents of  $\mu_0$  and  $\epsilon_0$  is as follows.

The ampere is defined as that current which exists within two parallel conductors one meter apart if the force per unit length,  $F/\ell$ , between them is  $2 \times 10^{-7}$  N/m; or  $F/\ell = \mu_0 I^2 / 2\pi d$ , where  $d$  is the distance apart (one meter) and  $I$  is one ampere. This equation fixes  $\mu_0$  as  $4\pi \times 10^{-7}$  henry/meter, the exponent which is usually given. However, if this  $F/\ell$  were to be an energy per length of  $3 \times 10^8$  meters ( $c$ ), we would have:

$$\frac{3(2 \times 10^{-7})}{(3 \times 10^8)} = \frac{3(4\pi \times 10^{-7})}{(3 \times 10^8)2\pi}$$

so you see, we are really dealing with a square, each leg being  $3 \times 10^8$  meters. The 3 in the equation is because in blackbody radiation, the pressure on a face of a cube is equal to 1/3 of the energy density, or  $3P = E$ . Thus we arrive at  $4\pi \times 10^{-7}$  H/m, the usually given exponent. In defining  $\epsilon_0$  as  $8.854 \times 10^{-4}$  we write  $E = (8.854 \times 10^{-4})(3/3 \times 10^8 \text{ m}) = 8.854 \times 10^{-12}$  farad/meter, the usually given exponent.

[This article was reprinted with permission from *Untapped Technology*, Summer 1995 issue. Address below.]

## REFERENCES

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- [2] J.B. Peterson, P.L. Richards and T. Timusk, "Spectrum of the Cosmic Background Radiation at Millimeter Wavelengths," *Physical Review Letters*, vol. 55, no. 3., July 15, 1985.
- [3] M. Zemansky, *Temperatures Very Low and Very High*, Dover Publications, 1964, pp. 84-85.
- [4] J.R. Hayes, *A Gravitation Theory Based upon the Electromagnetic Field and Space Tension*, 1994. Available from: The UTR Press, P.O. Box 5185, Mesa, AZ 85211.

# Book Reviews

## ADVANCING ELECTROMAGNETISM

Review by Hal Fox

Terence W. Barrett & Dale M. Grimes, Editors, *Advanced Electromagnetism: Foundations, Theory and Applications*, c1995, World Scientific Publishing Co., Singapore, River Edge, NJ., 791 pages, 26 chapters.

Terence W. Barrett & Dale M. Grimes, in addition to editing a much needed addition to modernize the science of electromagnetics, have, themselves, written important chapters in this book. Terence W. Barrett presents, "Sagnac Effect: A consequence of conservation of action due to gauge field global conformal invariance in a multiply-joined topology of

coherent fields." In simpler terms, Barrett shows us that the three current theoretical explanation of the ring laser gyro (normally using two sets of optical fibers and measuring angular displacement of the gyro by noting the difference in the light that move clockwise and the light moving counterclockwise). The effect is called the Sagnac Effect and is difficult to conceptualize in our complex relativistic world. However, Barrett shows us that Maxwell's equation **with the addition of the Yang-Mills theory can explain observed reality**. Barrett ends his discussion with the following powerful logical conclusion:  
*Taken to its logical conclusion, the approach adopted here requires that under the special topological conditions described above, and only under those conditions, the photon associated with the  $\Phi^*$  field will acquire mass and propagate as a disturbance of the gravitational metric. Using field conversion, a  $\Phi^*$  field-based mechanism would efficiently propagate energy as well as communications, and penetrate media normally impenetrable to force field photons.*

Dale M. Grimes (co-editor) and Craig A. Grimes (Univ. of Kentucky) provide another interesting chapter: "Classical Field Theory Explanation of Photons." In this discussion it is stated: "It is the primary purpose of this work to show that the classical field equations and our proposed electron model predict low-Q atomic radiation with the kinematic and radiative properties of photons." The authors discuss the shortcomings of, for example, the design of small, efficient antennas. Ultimately they show that certain types of antennas can be efficient radiators contrary to previous equations. At the end of this paper they describe a radiation field that is emitted from a virtual, spherical surface and is photon-like. Their final two sentences are important: *If radiation is triggered by an external plane wave, the radiated wave has the same frequency, phase, polarization, and direction of travel as the trigger. In these terms, a photon is fully described by the classical field equations.*

Grimes and Grimes also end the book with "Transmission and Reception of Power by Antennas." In this chapter the authors state that this article includes complete analytical and partial numerical field solutions for the **transmission and reception of power**.

Peter Graneau, a long-time friend of this publications, contributes a chapter entitled, "The Newtonian Electrodynamics and its Experimental Foundation." Here again, is the battle against fervent acceptance of the *status quo* fought with intellectual prowess and experimental proof as Graneau summarizes highlights of his life's work.

For those who delight in Tom Bearden's engaging presentations of hard-to-understand concepts, the first chapter will be of interest. R. Aldrovania (Institute of Theoretical Physics of the University of Sao Paulo, Brazil) presents, "Gauge Theories, and Beyond." In his conclusions, Aldrovania states:

*The vacuum is trivial for most fields and for this reason quantum effects were looked for. However, one of the novel features of gauge fields is precisely the non-trivial properties of their vacua even at the classical level. It is only natural to try to bring the two approaches together. At the same time, the remaining problems both with gauge theories and General Relativity, suggest that their schemes should be somehow modified, preferably to approach each other.*

This short review cannot cover all of the important concepts housed in this one important volume. The following list of other chapter titles provides an idea of the scope of this book:

"Helicity and Electromagnetic Field Topology," by G.E. Marsh.  
 "Electromagnetic Gauge as Integration Condition: Einstein's Mass-Energy Equivalence Law and Action-Reaction Opposition," by O.C. Beauregard.  
 "The Symmetry Between Electricity and Magnetism and the Problem of the Existence of a Magnetic Monopole," by G. Lochak.  
 "Quantization as a Wave Effect," by P. Cornille.  
 "Twistors in Field Theory," by J. Frauendiener & S.-T. Tsou.  
 "Foundational Electrodynamics and Beltrami Vector Fields," by D. Reed.  
 "Gravitation as a Fourth Order Electromagnetic Effect," by A.K.T. Assis.  
 "Hertzian Invariant Forms of Electromagnetism," by T.E. Phipp Jr.  
 "Pancharatnam's Phase in Polarization Optics," by W. Dultz & S. Klein.  
 "Frequency-Dependent Dyadic Green Functions for Bianisotropic Media," by W.S. Weiglhofer.  
 "Covariances and Invariances of the Maxwell Postulates," by A. Lakhtakia.

"Solitons and Chaos in Periodic Nonlinear Optical Media and Lasers," by J.-H. Feng & F. K. Kneubühl.

"The Balance Equations of Energy and Momentum in Classical Electrodynamics," by J.L. Jimenez & I. Campos.

"Non-Abelian Stokes Theorem," by B. Broda.

"Extension of Ohm's Law to Electric and Magnetic Dipole Currents," by H.F. Harmuth.

"Relativistic Implications in Electromagnetic Field Theory," by M. Sachs.

"Symmetries, Conservation Laws, and Maxwell's Equations," by J. Pohjanpelto.

"Six Experiments with Magnetic Charge," by V.F. Mikhailov.

"Ampere Force: Experimental Tests," by R. Saumont.

"Localized Waves and Limited Diffraction Beams," by M.R. Palmer.

"Analytical and Numerical Methods for Evaluation Electromagnetic Field Integrals Associated with Current-Carrying Wire Antennas," by D. H. Werner.

To conclude this review, it is important to state that Barrett and Grimes have provided an excellent compendium of papers to support the paradigm shift that is occurring **and must occur in physical science if we are to accelerate our understanding of the physical world.** The price tag of \$124 may seem high, but if you are a professional involved in changing the world to a better one, we highly recommend this book. If you have problems with higher mathematics, then read between the equations. The topics and concepts presented are important and should be carefully reviewed by any who are attempting to more fully understand the nature of electromagnetism.

brilliant work and ties in with your thinking. [Dr. Carroll can be reached through Magnetic Power: 707-829-9391. Ed.] A couple of quotes:

*The concept of empty space is most unfortunate. If space exists, it must have a reality of existence.*

*Since earth is finite, so is its space. Since space is given the negative aspect, it must be tensional but equal in its energy to the solid earth.*

*The non-equivalence of mass and energy should be apparent by the fact that no consideration of the energy charge was given. In the case of the neutron, the measured mass cannot account for the total energy.*

*Since the human mind cannot accept reality, the popularity of any theory depends inversely on the amount of truth contained in it. This popularity may continue for a time until a simple soul who doesn't know better sees through the sham and looks at the naked truth. The fact that there was no deception makes the required correction more painful.*

*The real procedure of science is that of jumping to an erroneous conclusion and then trying to justify it for the rest of your life.*

In any case, Albert E. was preempted in antiquity. Remember the second theorem of Ezekiel?

*Ezekiel 2: emcee squared*

Best wishes, /s/ C. Warren Hunt

## LETTERS

### LETTER FROM C. WARREN HUNT

Through the reference in *NEN* I obtained a copy of Robert L. Carroll's paper "Star Flight Unlimited," from Magnetic Power Inc., (Mark Goldes). This is a

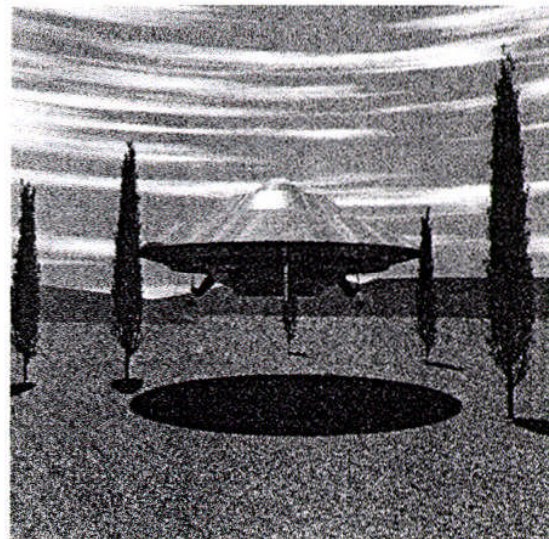
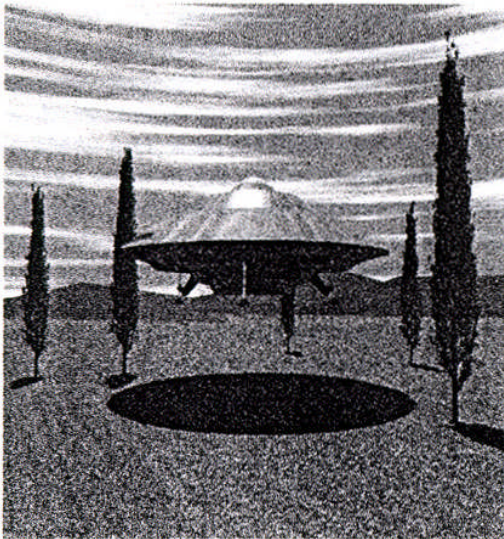
## ANTIGRAVITY

By Edwin Pangman

The most pervasive and taken-for-granted force in all nature is gravity. And someday very soon we will all see those bonds that bind us to earth be ever subject to our will without need of burning fuel. Current theories suggest that since matter is comprised mostly of space, it would be very easy to pass very fine sub-atomic signals or even quantum sized particle streams through matter with little electrodynamic interaction. Such thought has given resurrection to the common idea that space is permeated with a form of matter that seems to border on the realms of the spiritual. This very fine form of matter has particle sizes so small they make the electron look big! Also, this form of matter has in

the past been referred to as the "Aether." Theories of late also make mention that the Aether is dynamic or energetic, like a current of wind or water, only in this case the flow is in all directions or isotropic. Harnessing the flow of the Aether would be like electrically unfurling an energized sail to make a ship move or hover... antigravity!

If the vacuum of space were free of a "Dynamic Etheric Continuum," then it would make sense to observe wires conducting electrical current to be free of magnetic fields! Thus, the Universe, free of Zero Point Dynamic Etheric Space time, would also be free of matter!



Cross-eyed 3-D Image

## Meetings

The **SECOND CONFERENCE ON LOW-ENERGY NUCLEAR REACTIONS** will be held at College Station, Texas on September 13-14, 1996.

Papers addressing issues of Low-Energy Nuclear Reactions will be presented at the conference.

**Attendance:** Conference space is limited. The meeting is restricted first to participants on the basis of their contribution.

**Proceedings:** Conference papers will be printed immediately after the conference as vol 1, no 3, of the *Journal of New Energy*. This journal is abstracted by *Chemical Abstracts*.

**Conference Cost:** \$100 per person for conference attendees. For further information contact Dr. Lin at 409-845-3661.

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**THE GERMAN ASSOCIATION  
OF VACUUM FIELD ENERGY**

plans a conference in the Singapore Hyatt, Singapore, in early **October 1996**. Inquiries may be directed by Fax to Germany: (05 11) 31-84-17.

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**INTERNATIONAL SYMPOSIUM ON  
CONSCIOUSNESS,  
NEW MEDICINE AND NEW ENERGY**

Yomiuri Hall, Tokyo, Japan  
November 21-22, 1996

An International symposium to discuss and present research results in such areas as consciousness phenomena, holistic medicine, integration of Western and Eastern medicine, and new energy technology. The sponsor is the Japan Green Cross Society. 18 key-note speakers have been determined, among them 5 are overseas speakers, including Paramahansa Tewari. Conference chairman is Dr. Shiuji Inomata, and overseas advisory board consists of Dr. W. Harman (USA), Dr. David Lorimer (UK), and Dr. Beverly Rubik (USA). Participation fee is approximately US\$ 185 (¥20,000).

Contact: Mr. Tetsu Nagano, Japan Green Cross Society

10F Takanawa-chuo Bldg.  
2-20-23 Takanawa  
Minato-ku Tokyo 108 JAPAN  
Tel: +81(0)3-3442-7521  
Fax: +81(0)3-3442-7651

For academic information contact:

Dr. Shiuji Inomata  
2-2-2 Sekigawa-cho  
Arai-shi  
Niigata 944, JAPAN  
Tel/Fax: +81(0)255-72-0558

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**ICCF6**

**Sixth International Conference on Cold Fusion**

will be held 13-17 October 1996  
Hotel Apex Toya, Hokkaido, Japan  
Conference Secretariat:  
Tel +81-3-3508-8901  
Fax +81-3-3508-8902  
E-mail [mac@iae.or.jp](mailto:mac@iae.or.jp)

The conference will consist of both oral and poster sessions covering experimental work and theory on the following topics:

- Excess Energy Phenomena in D<sub>2</sub>/Metal Systems
- Correlation Between Excess Energy and Nuclear Products
- Nuclear Physics Approaches
- Material Science Studies
- Innovative Approaches (Miscellaneous Phenomena)

Registration fee of ¥40,000 (about \$400) includes a banquet and proceedings. A technical tour to the NHE lab is scheduled on Oct. 18, along with other professional and social events.

Hotel: Deadline for guaranteed accommodation is August 1. Contact:

Hotel Apex Toya Hokkaido  
Aza-Shimizu, Abuta-machi, Abuta-gun  
Hokkaido 049-56, Japan.

Tel: +81-142-73-1111 Fax +81-142-73-1157

Registration: Final Deadline August 1. Send for application package to Conference Secretariat  
c/o NHEI-Center, IAE

Shinbashi TS Building  
1-22-5 Nishi-Shinbashi, Minato-ku  
Tokyo 105, Japan  
(tel. info above)

## Commercial Column

The following companies (listed alphabetically) are commercializing cold fusion or other enhanced energy devices:

**COMPANY: PRODUCT**

**American Pure Fusion Engineering and Supply:**

Developing "Fullerene Fusion Fuel™." Salem, Oregon. The president, Warren Cooley, can be reached at 1-800-789-7109 or 503-585-6746. Email to: [Coolwar@aol.com](mailto:Coolwar@aol.com)

**CETI (Clean Energy Technologies, Inc.):** Developers of the Patterson Power Cell™. Dallas, Texas. Voice 214-982-8340, FAX 214-982-8349.

**Clustron Sciences Corp.:** New energy research consulting and information. Contact: Ron Brightsen, 703-476-8731.

**ENECO:** Portfolio of intellectual property including over thirty patents issued or pending in cold nuclear fusion and other enhanced energy devices. Salt Lake City, Utah. Contact Fred Jaeger, Voice 801-583-2000, Fax 801-583-6245.

**E-Quest Sciences:** Exploring The Micro-Fusion<sup>TM</sup> process. Seeking qualified research partners for their sonoluminescence program. Contact Russ George, FAX 415-851-8489.

**Fusion Information Center (FIC):** Development of new energy systems. The world's most complete resource depository for cold fusion research information, as well as other new energy research including zero-point energy; space energy research; electronic, electromagnetic, and mechanical over unity devices and more. We are the publishers for *Fusion Facts*, *New Energy News*, and *the Journal of New Energy*. Voice 801-583-6232, Fax 801-583-2963.

**Holotec AG,** Clean Energy Technology, contact André Waser, Gen. Mgr., Bireggstrasse 14, CH-6003, Luzern, Switzerland. Phone 011 41-41 360 4485, or Fax 011 41-41 360 4486.

**Hydro Dynamics, Inc.:** Hydrosonic Pump, heat-producing systems using electrical input with high thermal efficiencies. Rome, Georgia. Contact James Griggs, Voice 706-234-4111 Fax 706-234-0702.

**International Management Systems Co. (IMSC):** Technical project/program management assistance. Contact Mark Harris or Richard Youngs, Phone 801-583-6232, Fax 801-583-2963, or Phone/Fax 801-255-3000.

**JET Energy Technology, Inc.:** Design and manufacture of  $\pi$ -electrode systems, calorimeters, and associated equipment and systems. Consulting regarding radiation, materials, and other scientific and engineering issues. Weston, MA. Contact Dr. Mitchell Swartz, Voice 617-237-3625. Fax 617-237-3625.

**Labofex, Experimental and Applied Plasma Physics:** R&D of PAGD (Pulsed Abnormal Glow Discharge) plasma technology. Developments include portable power supplies, electric vehicles and autonomous housing. Licensing. Ontario, Canada. Contact Dr. Paulo N. Correa. Tel 905-660-1040. Fax 905-738-8427

**Magnetic Power Inc.:** The Joint Venture partner with Sciex (UK) for Takahashi supermagnets and supermotors in North America. Sebastopol, CA. Contact Mark Goldes, Voice 707-829-9391, Fax 707-829-1002.

**Nova Resources Group, Inc.:** Design and manufacture ETC (Electrolytic Thermal Cell); EG (commercial power cogeneration module); and IE (integrated electrolytic system). Denver, CO. Call Chip Ransford, Phone 303-433-5582.

**UV Enhanced Ultrasound:** Cold Fusion Principle being used for an ultrasonic water purifier. Hong Kong. FAX 852-2338-3057.

**Zenergy Corporation:** Founded in 1996 to facilitate the introduction of commercially viable energy alternatives. Contact Reed Huish: 602-814-7865, Fax 602-814-7665, e-mail: reedh@indirect.com

Note: The Fusion Information Center has been acting as an information source to many of these companies. We expect to augment our international service to provide contacts, information, and business opportunities to companies considering an entry into the enhanced energy market.

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## INFORMATION SOURCES

Academy for New Energy (ANE) is a subsidiary organization to the International Association for New Science, which has specific goals directed toward the field of alternative and "New" energy research. 1304 S. College Ave., Fort Collins, CO 80524. Tel. 970-482-3731

*ANE Newsletter*, quarterly publication of ANE, providing an open forum for discussion, and disseminating newsworthy and inspirational information on invention and new energy. Edited by Robert Emmerich.

*Advanced Energy Network Newsletter*, quarterly, a reprint of articles and papers from other energy publications, with book reviews and worldwide conference list. Advanced Energy Network, P.O. Box 691, Rondebosch 7700 Capetown, Rep. South Africa.

*Cold Fusion*, monthly newsletter, edited by Wayne Green, 70 Route 202N, Petersborough, NH 03458.

*Cold Fusion Times*, quarterly newsletter published by Dr. Mitchell Swartz, P.O. Box 81135, Wellesley Hills MA 02181. Home Page: <http://world.std.com/~mica/cft.html>

*Cycles*, a R&D newsletter, published by Dieter Soegemeier, Editor, GPO Box 269, Brisbane, QLD.4001, Australia. Phone/Fax: +61 (0)7 3809 3257.

*Electric Spacecraft Journal*, quarterly, edited by Charles A. Yost, 73 Sunlight Drive, Leicester, NC 28748.

*Electrifying Times*, 3 issues per year, published by Bruce Meland, 63600 Deschutes Road, Bend, OR 97701, Phone (503) 388-1908, FAX (503) 382-0384, E-MAIL 102331.2166@compuserve.com.

*Fusion Facts* monthly newsletter. Salt Lake City, UT. 801-583-6232, also publishes Cold Fusion Impact and Cold Fusion Source Book. Plans on-line database access.

*Fusion Technology*, Journal of the American Nuclear Society, edited by Dr. George Miley, publishes some papers on cold nuclear fusion. 555 N. Kensington Ave., La Grange Park, IL 60525.

*Infinite Energy*, new bi-monthly newsletter edited by Dr. Eugene Mallove (author of **Fire from Ice**), P.O. Box 2816, Concord, NH 03302-2816. Voice: 603-228-4516.

Fax: 603-224-5975 E-mail: 76570.2270@compuserve.com

**Institute for New Energy (INE), organization to promote and help find funding for new energy research.**

**Home Page: [www.padrak.com/ine/](http://www.padrak.com/ine/) contains many important scientific papers and current reports on all areas of research.**

**E-mail: [ine@padrak.com](mailto:ine@padrak.com) Salt Lake City, Utah.**

**Voice 801-583-6232, Fax 801-583-2963.**

***New Energy News* monthly newsletter for INE, highlighting the research and development in the worldwide new energy arena. Edited by Hal Fox.**

***Journal of New Energy*, quarterly, presenting papers representing the new areas of energy research, leading-edge ideas in the development of new energy technology, and the theories behind them. Published by the Fusion Information Center, Inc., for the Institute for New Energy. Editor: Hal Fox.**

KeelyNet BBS - Science and health oriented information exchange that specializes in nonstandard research, much of it on new energy. Jerry Decker, 214-324-3501.

Internet: [www.keelynet.com](http://www.keelynet.com) E-mail: [jdecker@keelynet.com](mailto:jdecker@keelynet.com)

***Planetary Association for Clean Energy Newsletter*, quarterly, edited by Dr. Andrew Michrowski. 100 Bronson Ave, # 1001, Ottawa, Ontario K1R 6G8, Canada.**

Now available: *Clean Energy Review*, a technical and scientific discussion on nuclear fuel wastes disposal. Discusses transmutation as one possible solution. \$5 U.S. and Canadian, \$7.50 other countries.

***Space Energy Journal*, quarterly, edited by Jim Kettner & Don Kelly, P.O. Box 1136, Clearwater, FL 34617-1136.**

***21st Century Science & Technology*, P.O. Box 16285, Washington, D.C., 20041. Includes cold fusion developments.**

The above list of commercial and information sources will be growing. New listings will be added as information is received. Send information to *NEN*, P.O. Box 58639, Salt Lake City, UT, 84158.

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## NOW AVAILABLE

### *Journal of New Energy*

Volume 1, Number 2, June 1996 issue has been received from the printer.

The *Journal of New Energy* is a new professional journal devoted to printing peer-reviewed professional papers devoted to new-energy experiments and theories. This journal is devoted to rapid review and publishing of important new-energy papers. The price for this quarterly journal is \$150 per year with each issue airmailed. The journal is abstracted by *Chemical Abstracts*.