New Energy News
Monthly Newsletter of the Institute for New Energy
VOLUME 5, NUMBER 4 ISSN 1075-0045 AUGUST 1997
Web Page: www.padrak.com/ine/ E-mail: halfox@slkc.uswest.net or ine@padrak.com

THE FIRST AETHER CONFERENCE

By Hal Fox, Editor

A two-day Conference on the Aether was held in Pleasant Hill, California, on July 19-20, 1997. Chaired, organized, and hosted by Norman Silliman, this conference was a first in the developing struggle to improve our understanding of nature. The 12 attendees were mainly from California, Washington, and Utah. Three of the attendees had partial explanations of the aether that will require carefully-defined experiments to prove or disprove.

Various concepts of the aether were discussed. Most of the attendees could agree that there definitely is an aether and it acts like a gaseous or fluid media but is composed of much finer particles than those that make up matter. It was generally accepted that the aether is a primary factor in magnetism, electrostatics, and gravity.

In an attempt to find experiments that prove the existence of an aether, one of the attendees, Donald Roth, created several experiments. One of these experiments consisted of a beam about 14" long supported at its center by a nylon line. Onto one end of the beam was fastened eight small magnets about one inch square. Four magnets were parallel to the beam and four at right angles to the beam so as to reduce any interaction with earth's magnetic field. The weight of the magnets was balanced by positioning and fastened a rock (non-magnetic, of course) to the other end of the beam.

The balance of the rock and magnets on the suspended beam should convince an observer that this arrangement did not constitute a means for measuring gravity. One end of the beam was fixed with a thin metal band which was positioned so that it would partially obstruct a light and photo diode. The result is a signal that can be amplified and plotted using a personal computer.

When this apparatus was monitored over many hours, it was determined that there was about a two percent diurnal change in the beam balance. The plot from the computer-stored data showed that the diurnal variation was about sinusoidal with a maximum at midnight and a minimum at about noon. That is, the forces on the magnet(or the rock?) appeared to cause the magnets to indicate less mass at noon and more mass at midnight. Therefore, it can be hypothesized that there is a daily variation, due to the sun's motion, that affects such a balanced beam. We leave it to our readers to relate this experimental observation to the aether.

It is important to recall that Hodonowec's experiments using capacitors shows essentially that same type of daily variation. In addition, Donald Roth also used a barium titanate crystal loaded with a weight and measured the changes in the signal output over 24 hours or more. In this later case, it can be assumed that the weight of the mass placed on top of the crystal is simply a gravity meter. One might expect that such a device would sense the motion of a large body and its gravity influence. Therefore, this experiment should be repeated with careful plotting of both the position of the sun **and of the moon** because the moon should show strong changes in a local gravity field. Such measurements could be compared closely with the magnitude of the tides. **Readers:** Does this experiment show us anything about the aether?

In another experiment, a magnetic torsion beam was suspended and balanced at its center. A

strong magnet is then placed on a table with one pole extended toward the suspended torsion beam. After many oscillations the beam would be attracted to the opposite magnetic pole of the magnet on the table. Donald Roth reports that after five days the magnet can be removed at considerable distance from the balanced torsion beam **but that the beam will still be attracted as though the magnet was still there.** This experiment should be duplicated by some of the *NEN* readers. If the experiment is repeatable, then this evidence could be used to claim that the aether can exhibit some type of memory or inertia for magnetic fields. The discovery of the Aspden Effect (see *NEN*, Feb. 1995, vol 2, no 10, p 1ff) or rotational magnetic inertia and this effect observed by Roth may have some common explanation. ***NEN* readers**: Do you have a good explanation? Is this evidence for an aether?

A Hall effect transistor, sensitive to changes in magnetic field strengths, also shows a diurnal variation. However, one must set up a very careful experiment to determine whether one is measuring a true effect of changes induced into a magnetic field by the nearness of the sun (at midday) or whether it is the earth's magnetic field that is undergoing daily variations.

VERTICAL AETHER FLOW?

Some of the attendees at this Aether Conference suggest that the aether flows into massive objects, such as the earth or the sun. It was suggested that this inward flowing of the aether toward a massive planet or star could be responsible for gravity (the shadow effect) and for the apparent bending of light waves (being distorted by this inward flow of aetheric particles). It was also suggested that the inward flowing of the aether could be a fundamental problem in measuring the speed of light using a horizontally arranged experiment (such as was done by Michelson and Morley). Therefore, it was a consensus of the attendees that the speed of light should be measured vertically and not horizontally. See Suggested Experiments.

SHADOW GRAVITY?

Considerable discussion was held about the shadow concept of gravity (where some particle is responsible for gravity push by the "drag" between the particles and the massive objects through which the aetheric particles pass. For additional discussion, readers may want to read the article by Al Zielinski, "A New Theory that Unifies the Forces of Nature", (International Symposium on New Energy, April 25-28, 1996, pages 453-458 of proceedings). W. C. Wright of Fairfield, California, has been a proponent of "Push Gravity" for many years. Wright uses magnets, with their strong fields (about 40 orders of magnitude larger than gravity) to model some of the observed concepts of gravity. Note: Wright's use of magnets, with their locally strong two poles, allows him to make use of the repulsion of like poles to model his gravity push hypothesis. Such models are educational, interesting, but not conclusive due to the dramatic difference between magnetic fields and gravity including both magnitude and polarity factors. Most attendees would agree with Kenneth Shoulders' statement about gravity: "The earth and moon do not throw fish hooks." Harold E. Puthoff in an article titled, "Gravity as a zero-point-fluctuation force", (*Phys Rev A*, March 1, 1989, pp 2333-2342) provides a mathematical description of gravity beginning with the assumption that there is an energetic zero-point field (call it an aether, if you desire).

TACHYON THEORY

For one of the attendees, the aether is explained by being a flow of tachyons. It is even proposed that tachyons looping in a stable vortex are the matter particles. Tachyon flow, according to this proponent, explains all of the observed effects of the aether. Considerable discussion involved how tachyon flow could be responsible for the transmission of light through space. The discussion was firm but not conclusive. Considerable experimental evidence and interpretation is required to substantiate any currently proposed aether theory.

ETHERON THEORY

Norm Silliman has the following aether theory. Briefly, electrons circulate around the nucleus. Etherons flow into the electrons and force the electrons in toward the proton. Each electron has a

hole (or submicroscopic pocket) in the side. Etheron flow spits out (like a rocket) and, thus, the electron is mobile. Therefore, the circulation of the electron around the nucleus is explained. Also electron repulsion can be explained by a perceived alignment of electrons and the Etheron flow in and out of the electron. A similar, somewhat mechanistic model is suggested for protons and neutrons. The topology of an array of protons and neutrons in the nucleus is what holds it together. This model may be too mechanistic for others, but it helps Silliman to visualize and explain certain observed phenomena.

SUGGESTED EXPERIMENTS.

The following three experiments have been reported in *New Energy News* and/or in the *Journal of New Energy* and are considered to be important as evidence that there is an energetic aether:

Aspden Effect: Dr. Harold Aspden discovered that when a permanent-magnet rotor was spun up to rated speed it required 3,000 Joules. If the rotor was stopped and then spun up again within a minute after stopping, it required only 300 Joules to spin up to rated speed. (*NEN*, Feb. '95)

Rowe Effect: Paul E. Rowe discovered that when an explosion takes place, excess hydrogen is always produced. (*J. New Energy*, vol 1, no 2, Summer 1996, pp 108-111).

Torsion Fields: Several groups of scientists in Russia have been studying **torsion fields** which appear to travel at superluminal speeds, can travel through hills and concrete, are very little diminished by distance, and may be related to the aether. (*J. New Energy*, vol 1, no 2, Summer 1996, p 27)

Other Experiments Possibly Related to an Aether:

Jerry Shifman said that Feynman had an experiment in which a steel bar, free to spin on its axis, was placed in a vacuum inside a spinning barrel. When the barrel would spin, the bar would begin to spin. Why?

A superconductor and a small aluminum mass is placed on a balance beam. The assembly is lowered into liquid nitrogen. The balance beam deflects because the superconductor is heavier than the aluminum. Then after five seconds, the balance beam takes another dip because the superconductor has changed its condition. The superconductor is deflected downward, therefore, it must be losing weight.

The following experiment was described. A lead ball is floated in a conducting wire loop in liquid nitrogen. Why does the ball float? The lead ball is heavier than the nitrogen. [We would like to see this experiment demonstrated. – Ed.]

Suggested Experiments (by attendees):

It is hypothesized that the aether flows into the sun and bends light, and the bending of light is not due to warped space as Einstein suggested. Henry Lindner, a medical doctor, suggests a method of differentiating between the two effects in an experiment. Using a valley with 2 km. distance between hills, aether flow should bend the light into the valley. The theory suggests that there should be about seven centimeters change over two kilometers. Use water in hose to establish point A and point B at the same geographic level. The water in the hose will rise to the same level. Of course, it will require a long hose. The curvature of earth in 2 km. is about 2 cm. and should be taken into account. [Seven centimeters seems to be a large value. Can anyone cite Lindner's calculations? Ed.]

Attendees suggested that the Michelson-Morley experiment be conducted in the vertical plane. Many of the attendees suggest that the aether flows into massive objects. An alternative to the Michelson-Morley experiment would be to use the method designed by Stefan Marinov. Marinov uses two precision machined disks with holes near the outer diameter. Light is directed through the holes in two disks mounted on opposite ends of a two meter shaft and spun at a high rotational speed. Light through one hole would be slightly occluded by the motion of the opposite disk during the time that the light travels two meters.

It was suggested that the Aspden Effect be replicated using rotating permanent magnet rotors. Use two rotors and determine if the effect is transferable from one rotor to a substitute rotor (Move the just-stopped rotor out of the space and replace with the other rotor to determine if this

rotational inertia effect is a property of the space or of the rotor.)

It is an experimental fact that it takes more energy to accelerate an object when the object is going faster. If light is a wave function in the aether, then the Mach effect found at sonic speeds in air may be replicated (at much higher velocities) in the aether. Therefore, an experiment for a "Mach effect" in aether should occur at about the speed of light. Use a magnetic field to keep a particle in orbit. Provide an energy pulse every time the particle completes an orbit (such as is done with a cyclotron.) Use a tangential escape window. A particle increases its mass with velocity. The time an escaping particle takes to go to a target from the tangential exit could be measured. Rado suggests that there will be a decrease in speed from the interaction of the high-speed particle with the aether.

For the above experiment, Donald Roth suggests that an electron cylinder be used to put in a modulated signal on the electron flow. Read the phase shift with a scope and measure the difference in vertical and horizontal to see if the vertical inflow of aether has an effect on the path of the high-speed electrons.

Miscellaneous Comments:

Donald Roth has done many experiments with magnets and finds that they have a left-over effect. (See above for the magnet-table experiment.) Roth suggests that the use of technetium, which does not naturally exist in nature. [Technetium has 43 protons in the nucleus; is a by-product of the natural decay of uranium; can be man-made by high-energy particle bombardment; and Tc-99 has a half-life of 213,000 years. Ed.] Roth suggests that Technetium may be devoid of an inertia effect. Because technetium is not a stable element, Roth suggests that whatever you do with technetium is new and, for example, would not require a loading time when used in a cold fusion cell. [However, technetium may not absorb hydrogen. The cost of technetium is about $100 per gram.] Donald suggests that the time for loading of palladium in a cold fusion cell may be due to the inertial effect.

Cameron Rebigsol has an interesting theory about hydrogen explosions that is the equivalent of the expanding universe (exploding from within rather than a big bang?). ["The Baptism of Fire for the Universe" paper by Cameron Y. Rebigsol.]

Norm Silliman stated that light (often defined as an electromagnetic wave) is not affected by electric fields nor by magnetic fields. The implication is that light should not be considered as an electromagnetic wave. [Readers: Can you suggest experiments with light that would support the existence of an aether? Ed.]

Steven Rado stated that a photon was invented only to explain the photoelectric effect. The concept is related to Planck's quanta concept. An aether particle need not be polarized but the fundamental building block is a toroid and has circulation, Rado suggests. However, two different circulations (such as clockwise and counter-clockwise) can be treated as **polarized**.

Note: There will be an ongoing battle among scientists about the existence of an energetic aether (or zero-point energy). We urge our readers to help with experiments that can more precisely define the nature of the aether and communicate your results with us. *NEN* welcomes your aetheric contributions. – Ed.

Conference

32nd IECEC
INTERNATIONAL ENERGY TECHNOLOGY CONFERENCE

The following are the abstracts of the papers presented at the 32nd IECEC "International Energy Technology" (27 July - 1 August 1997, Honolulu, HI). The full papers from the conference are available from the

American Inst. of Chemical Engineers
GPO Box 29496
New York, NY 10087-9496
1-800-242-4363

The Proceedings cost is $210.00.

Patrick G. Bailey (Inst. New Energy, Los Altos, CA), Hal Fox (Fusion Information Center, Salt Lake City, UT), **A Review of the Patterson Power Cell**," IECEC 1997 Proceedings, paper #97221.

AUTHORS' ABSTRACT

An independent summary review is presented of the Patterson Power Cell™, as developed by Clean Energy Technologies. Information is drawn from publicly available information, and requested information and data from CETI. It is found that this cell seems to operate as advertized by CETI and that there is a very large amount of supportive documentation available in the public domain to support its operation and capabilities. The ability of such cells to neutralize alpha radiation is fairly well understood. An ability to neutralize gamma or other forms of radiation remains to be seen.

Patrick G. Bailey (Inst. New Energy, Los Altos, CA), Toby Grotz (Wireless Engineering, Craig, CO), James J. Hurtak (Academy for Future Science, Los Gatos, CA), **"Survey and Critical Review of Recent Innovative Energy Conversion Technologies**," IECEC 1997 Proceedings, paper #97215.

AUTHORS' ABSTRACT

A summary review is presented of the experiments, motors, generators, devices, and demonstrations that have been reported in the past several years to produce near-unity or over-unity operation. The concepts of free-energy, zero-point energy, and over-unity devices are not new, and many examples of such devices have been built within the last 100 years. Several researchers are reviewed and a few are selected for immediate interest and support. Whether new forms of potential energy can be demonstrated and successfully utilized within the near future for the ultimate benefit of the human race remains to be seen.

Patrick G. Bailey (Inst. New Energy, Los Altos, CA), Nancy C. Worthington (AUM Foundation, Redwood City, CA), **"History and Applications of HAARP Technologies: The High Frequency Active Auroral Research Program,"** IECEC 1997 Proceedings, paper #97216.

AUTHORS' ABSTRACT

A serious review of HAARP is presented. On the surface, HAARP appears to be a nice military "scientific endeavor aimed at studying the properties and behavior of the ionosphere." Upon further investigation, HAARP appears to be filled with secrecy and fraught with possible severe dangers. Attempts to reopen an official assessment of this program and its old out-dated unclassified Environmental Impact Statement have thus far failed. HAARP appears to be in use by ARCO to sell natural gas to the military that would otherwise be trapped in Alaska. The HAARP patents imply that Billions of Watts could easily be used to power HAARP, with no or few equipment upgrades. The patents are now owned by a major military contractor. Many of the possible applications, as stated in the actual patents supporting HAARP, would be classified. An Independent Review Committee needs to be formed to access the possible dangers of the various real and possibly classified HAARP projects. This Committee needs to be independent from US Federal politics, Alaska state politics, the US military, and ARCO oil interests, and would probably need to report to both the Congress and the Senate. There is a great need to form this Review Committee, and the time to form it is NOW!

Patrick G. Bailey (Inst. New Energy, Los Altos, CA), Toby Grotz (Wireless Engineering, Craig, CO), James J. Hurtak (Academy for Future Science, Los Gatos, CA), "**Review and Status of Reported Innovative Energy Conversion Technologies, Contrasted Using a Consistent R&D Ranking Scale**," IECEC 1997 Proceedings, paper #97212.

AUTHORS' ABSTRACT

A summary review and status is presented of the experiments, motors, generators, devices, and demonstrations that have been reported in the past several years to produce near-unity or over unity operation. The concepts of free-energy, zero-point energy, and over-unity devices are not new, and many examples of such devices have been built within the last 100 years. Several devices are reviewed and ranked by a consistent research, development, and commercialization ranking scale. Those devices nearest to commercialization are

identified and summarized. Whether new forms of potential energy can be demonstrated and successfully utilized within the near future for the ultimate benefit of the human race remains to be seen.

Giacomo Bisio (Energy & Conditioning Dept. Univ. Genoa, Italy), "**Thermodynamics of Magnetic Systems and Some Applications**," IECEC 1997 Proceedings, paper #97001.

AUTHOR'S ABSTRACT

Until quite recently, the theory of continuous media dealt mainly with diamagnetic and paramagnetic fluid. The researchers did not consider magnetizable fluids, probably because such media had not yet been discovered in natural conditions and did not exist until recently as manufactured products. However, in the early 1960s magnetic fluids (MF) could be synthetically prepared, since then technological interest in MF has grown rapidly.

Besides, magnetic refrigeration has been used for over 60 years as a technology to achieve temperatures below 1 K, employing magneto caloric effect of some solid material. However, in the last twenty years, the technology has been developing for refrigeration application above 1 K up to and including heat pumps at above room temperature. The work has been multinational in scope and has focussed on the analysis of magnetic thermodynamic systems, investigation of magnetic material suitable for refrigerants, and development of prototype refrigerators.

After a synthetic review of the basic properties of MF, and of magnetic refrigerators and heat pumps, the aim of this paper is a thermodynamic examination of these systems in comparison with the relations usually applied to fluids. Three independent variables are generally considered, whereas usually only two variables have been considered till now for what is known to the author. Furthermore, some application of MF are taken into account; in particular, possibilities of converting thermal into mechanical energy are examined.

J. Dash, R. Kopecek, S. Miguet (Phys. Dept., Portland State Univ., OR), "**Excess Heat and Unexpected Elements from Aqueous Electrolysis with Titanium and Palladium Cathodes**," IECEC 1997 Proceedings, paper # 97368.

AUTHORS' ABSTRACT

Presented here are results of research performed at Portland State University during the period 1994 to 1996.

Excess heat was produced at the rate of about 1.2 watts during electrolysis of heavy water with a titanium cathode weighing 0.0625g. Analysis of the electrodes before and after electrolysis with a scanning electron microscopy (SEM) and an energy dispersive spectrometer (EDS) revealed that new surface topographical features with concentrations of unexpected elements (V, Cr, Fe, Ni, and Zn) formed during electrolysis.

The morphology and micro composition of palladium after electrolysis in heavy water were studied. Fibers which appeared on the surface were observed to change with time. Evidence which supports the possibility of transmutation is presented.

Hal Fox (Fusion Information Center, Inc., Salt Lake City, UT), Patrick G. Bailey (Inst. New Energy, Los Altos, CA), "**Possible New Applications of Low-Energy Nuclear Reactions**," IECEC 1997 Proceedings, paper #97231.

AUTHORS' ABSTRACT

Now that we understand the importance and nature of **cold fusion,** it is time to nominate B. Stanley Pons, Martin Fleischmann (Fellow of the Royal Society), and Kenneth R. Shoulders for a Nobel Prize. Pons and Fleischmann deserve the prize for their fundamental discovery of cold fusion. Kenneth R. Shoulders deserves a part of the prize for his excellent work in discovering and revealing how nuclear reactions take place in both the palladium-heavy-water system and in the sono-fusion system. A further degree of experimental information about nuclear reactions has been added by the Neal-Gleeson Process. A summary of these fundamental discoveries illustrates how important these discoveries have been and will be in the rapid advancement of the

treatment of radioactive wastes (especially radioactive slurries); the production of thermal energy without neutrons; and probably the development of factory-made scarce elements.

Hal Fox (Fusion Information Center, Inc., Salt Lake City, UT), Patrick G. Bailey (Inst. New Energy, Los Altos, CA), "**High-Density Charge Clusters and Energy Conversion Results**," IECEC 1997 Proceedings, paper #97230.

AUTHORS' ABSTRACT

Several recent developments of devices that produce low-energy nuclear reactions are explained by the deliberate or fortuitous production of high-density charge clusters. Some and perhaps most of the nuclear reactions in a variety of fluids and devices including the Pons-Fleischmann cold fusion discovery (palladium/heavy water systems), in nickel/light water systems, in Patterson Power Cells™, in low-pressure deuterium gas devices, in sparking-in-hydrogen devices, in exploding fire balls, and in the Neal-Gleeson Process are explained by the creation, launching, and impingement of high-density charge clusters on a target element or elements. This paper presents evidence of the application of the control and use of high-density charge clusters for **Plasma-Injected Low-Energy Nuclear Reactions** in the production of low-cost, non-polluting, abundant thermal energy.

Peter A. Gibas, Friedrich Greilinger, Jean-M. Lehner, Werner Rusterholz (RQF Inst., Switzerland), "**Free Energy by Space Quanta Manipulation (RQM)**," IECEC 1997 Proceedings, paper #97145.

AUTHORS' ABSTRACT

RQM - i.e. the Space (German: Raum) - Quanta - Manipulation stands for purposeful dilution resp. [sic] compression of the space quanta medium and thereby resulting interactions with the matter contained within the influenced space volume.

RQM aggregates – containing a system of electromagnets set in a specific geometric arrangement – are capable of converting mechanical pressure differences within the space quanta medium (gravitational waves) into electric energy. The RQM technology was made possible as result of new scientific discoveries in the fields of electromagnetism, electrostatics, gravitation and magnetic flux dynamics as well as implosion techniques.

The RQM-effect (i.e. the pulsed emission of charge carriers from RQM base unit) was achieved for the first time on June 2, 1995. At that time the perceived energy peaks similar to avalanche effects were reduced and brought under control. The experimental installation was then modified for battery operation and the proprietary, newly developed electronic control was also integrated.

From there on it was possible to always accurately control the RQM installation.

The RQM Experimental Installation – shown and demonstrated in the laboratory near Rapperswil Switzerland – at the end of September 1996, enabled a stable energy yield with a factor of approx. 6 to 7.5 at 225 Watts. The efficiency is calculated by means of recharging the batteries. It is important to know that, for those tests and measuring works, only the less efficient RQM sectors were activated because of security reasons.

We are now improving the efficiency and thus increase the useful energy by activating all RQM sectors. The problem of excessive resonances while adding the more powerful RQM sectors is continually reduced. We expect that the efficiency as well as the yield of energy will increase exponentially.

The RQM tests and experiments are continuously monitored by high sensitivity measuring instruments. At no time have any significant radiation fields and wave emissions been detected, therefore, environmental compatibility is assured.

The achieved effects and the theoretical predictions - based on Crane's theory (causal physics) - led to a good number of relations with the established physical fundamentals. This refers particularly to results in the field of quantum electrodynamics as well as other areas of modern particle physics and findings concerning the structure of matter.

Michael G. Gilman (Lowe, Price, LeBlanc and Becker, Alexandria, VI), "**Licensing Patents and Technology by the Developer of the Technology**," IECEC 1997 Proceedings, paper #97190.

AUTHOR'S ABSTRACT

A patent and technology license is a complicated document requiring careful consideration by everyone involved. It especially requires a substantial input from the technologist-licensor. While Intellectual Property attorneys should always be employed to draft proper license agreements, their work product is only as good as the input that they receive from the person they represent, the technologist-licensor or the buyer-licensee.

Several areas of a license agreement should have great input from the technologist-licensor, such as: the technological field or fields of the license; the scope of the license; the exclusivity of the license and reversionary interests, if any; whether the license is limited to patent(s) or if it also includes know-how (technology); grant backs of further developments by the licensee in the field of the license; up front payments, running royalties and other forms of remuneration; right of first refusal for later developed technology and/or patents of the licensor; indemnification by the licensor in the event that the licensee is charged with infringement of other patents by practicing within the field of the license; and the licensor's obligations, if any, to enforce the licensed patents against infringing competition.

While the perspectives of the licensee and the licensor are clearly different, the same problems are addressed by both and the final agreement that is hammered out is the result of a meeting of the minds on all of these basic issues.

James J. Hurtak (AFFS Corp., Los Gatos, CA), Patrick G. Bailey (Inst. New Energy, Los Altos, CA), "**Cold Fusion Research: Models and Potential Benefits**," IECEC 1997 Proceedings, paper #97163.

AUTHORS' ABSTRACT

Observations have been made of deuteron-deuteron fusion at room temperature during low-voltage electrolytic infusion of deuterons into metallic titanium or palladium electrodes. Neutrons with an energy of approximately 2.45 MeV have been clearly detected with a sensitive neutron spectrometer at a rate of 2×10^{-3} n/s which cannot be accounted for by ambient-neutron background variations. The reaction has been known to yield excess (or "latent") heat, where D + D yields ^{4}He and 23.8 MeV. This paper will examine the latest experimental results from several international researchers and summarize several new theories of nuclear model interactions that have been put forth to explain these intriguing results.

James J. Hurtak, Ph.D. (AFFS Corp., Los Gatos, CA), Patrick G. Bailey, Ph.D. (Inst. New Energy, Los Altos, CA), "**RQM Technologies: Summary and Status**," IECEC 1997 Proceedings, paper #97175.

AUTHORS' ABSTRACT

An overview and critique is given of a new energy generation technology of Raum-Quantum-Manipulator (RQM, here referred to as Space Quanta Manipulation) currently under development by the Swiss Corporation Raum Quantem Motoren AG (RQM AG). RQM AG is testing several prototypes of a clean, noiseless, $C0_2$-free motor-generator as the beginning stage towards confirming the existence of Space Quanta Manipulation (RQM). On September 25, 1996, the RQM Experimental Installation was shown to demonstrate in their laboratory at Neuhaus, Switzerland, for the first time a stable energy output factor greater than 100% at 225 Watts.

Ben Iverson (ITAM, Tigard, OR), "**Foundations of Science, (Quantum Arithmetic)**," IECEC 1997 Proceedings, paper #97096.

AUTHOR'S ABSTRACT

Fibonacci, back in the foundations of our contemporary mathematics, was wrong, superficial, and incomplete. Euclid's Geometry gave us the proper terms 1500 years before that. The number groups, taken as Euclid stated, can represent a single frequency of energy. Using musical frequencies, we are able to check the integrated operation of various frequency combinations. Historically this has always been known as "Sacred

Geometry", but there is nothing sacred about it. It is absolutely non-religious, but it is Divine. Presently it is known as the "Grand Unified Field". In my work it is called "Quantum Arithmetic". The search for new energy is useless and always will be non-productive, without the truth and Law of Sacred Geometry.

Melvin H. Miles, Kendall B. Johnson (Chem. & Materials Branch, R. & Technol. Group Naval Air Warfare Center, Weapons Div., China Lake, CA), M. Ashraf Imam (Physical Metallurgy Branch, Materials Sci. & Technol. Div., Naval Research Lab., Washington, DC), "**Anomalous Heat and Helium Production Using Palladium-Boron Alloys in Heavy Water**," IECEC 1997 Proceedings, paper #97538.

AUTHORS' ABSTRACT

Reproducibility continues to be the major problem in the controversial cold fusion area. The best reproducibility for excess power was obtained using palladium-boron (Pd-B) alloy materials supplied by the Naval Research Laboratory (NRL), Washington, DC. Seven out of eight Pd-B cathodes produced excess power using D_2O-LiOD solutions. The collection and analysis of the electrolysis gases from one PdB experiment places the helium-4 production rate at 1.0×10^{11} ^{4}He/s•W. This is the correct magnitude for typical deuteron fusion reactions that yield helium-4 as a product. Results of selected papers from the Sixth International Conference on Cold Fusion held October 13-18, 1996 in Hokkaido, Japan are summarized.

T. Mizuno, T. Akimoto, K. Kurokawa, M. Kitaichi, K. Inoda, K. Azumi, S. Simokawa (Dept. Nucl. Engr., Faculty of Engr., Hokkaido Univ., Sapporo, Japan), T. Ohmori (Catalysis Res. Center, Hokkaido Univ., Sapporo, Japan), M. Enyo (Hakodate Natl. Coll. Technol., Hakodate, Japan), "**Changes in Isotopic Distribution of the Elements on Palladium Cathode after Electrolyzed in D_2O Solution**," IECEC 1997 Proceedings, paper #97198.

AUTHORS' ABSTRACT

Many elements on Pd electrodes were confirmed by several analytic methods; reaction products with the mass number up to 208 are deposited on palladium cathodes which were subjected to electrolysis in a heavy water solution at high pressure, temperature, and current density for prolonged time. These masses were composed of many elements ranging from hydrogen to lead. Extraordinary observations were the changes of their isotopic distributions in the produced elements; these were radically different from the natural ones. For example, natural chromium is 4.3% Cr50, 84% Cr52, 9.5% Cr53 and 2.4% Cr54. But the chromium found on the Pd surface was 14% Cr50, 51% Cr52, 2.4% Cr 53 and 11% Cr54. Natural Isotopic distribution varies by less than 0.003% for Cr.

Essentially the same phenomenon was confirmed eight times with high reproducibility at high cathodic current density, above 0.2 A/cm^1. All the possibilities of contamination had been carefully eliminated by several pretreatments for the sample and electrolysis system. It means that a nuclear reaction had taken place during the electrochemical treatment. It is indicating the role of new interactions discovered in the framework of a generalization of the usual quantum mechanics. Evidently such new interactions, due to the mutual overlap of wavepackets, should explain the new phenomenologies that are experimentally observed in this study.

T. Ohmori (Catalysis Res. Center, Hokkaido Univ., Sapporo, Japan), T. Mizuno (Fac. Engr., Hokkaido Univ., Sapporo, Japan), M. Enyo (Hakodate Natl. Coll. Technol., Hakodate, Japan), "**Nuclear Transmutation Induced by Light Water Electrolysis with Gold Electrode**," IECEC 1997 Proceedings, paper #97373.

AUTHORS' ABSTRACT

Steady excess energy evolution ranging from 0.2 to 1 W, was observed during the electrolysis in neutral and alkaline solutions. At the same time, various unexpected elements, *eg.* Hg, Os, Kr, Ni, Fe, Si, Mg, etc, were found to be produced in the electrodes after the electrolysis. The amounts of Fe reached some 10 μg after the electrolysis for 20-30 days. The isotopic distributions of above elements were evidently deviated from their natural isotopic abundance. For example, in some cases, the

isotopic content of ^{57}Fe reached above 50 %, exceeding 20 times its natural isotopic abundance.

In addition, some 100 μg of free porous precipitates were obtained when electrolyzed at a current density of > 0.2 A/cm^2. The major component was Au, however, several percents of Hg, Os, Fe, Si and Mg were contained.

The appearance of the electrode surface after the electrolysis was very anomalous on which a lot of volcano-like micro craters were found. The structure of the outside wall of the craters was porous, very like the structure of the precipitates. In the inside wall, there lay layers of fine hexagonal crystallites suggesting Au(111). This shows the occurrence of the recrystallization of the Au substrate, suggesting an extraordinarily elevated heat evolution. These craters were distributed along the scraped edge of the electrode material artificially made on the rim of the micro holes and cracks, from which it is deduced that lattice defects concentrated on the edge or grain boundary of the electrode material would serve to induce the nuclear transmutation reaction.

David E. Reisner, T. Danny Xiao, Peter R. Strutt (US Nanocorp, Inc., North Haven, CT), Alvin J. Salkind (UMDNJ- Robert Wood Johnson Medical School, Bioengr. Div./Surgery Dept., Piscataway, NJ), "**Nanostructured Materials for Energy Storage and Energy Conversion Devices**," IECEC 1997 Proceedings, paper #97501.

AUTHORS' ABSTRACT

US Nanocorp, Inc. (USN) has developed an aqueous solution reaction (ASR) technique scalable for high volume production of nanostructured materials (*n*-materials) for a wide range of applications. By definition, nanophase materials have at least one physical dimension less than 10 nanometers (nm) in length, an attribute which imparts exceptional properties to them because the particle dimensions are close to atomic dimensions and there are a very high fraction of atoms residing at nanocrystalline grain boundaries. The high surface area of these materials has significant implications with respect to energy storage devices with electrochemical active sites (batteries, ultra capacitors) and energy conversion devices depending on catalytic sites or defect structure (*e.g.*, fuel cells and thermoelectric devices).

Potential application areas in both energy conversion and energy storage are discussed. Morphological studies of manganese dioxide have revealed the existence of both nanoporosity and mesoporosity within unusual superstructures comprised of nanorod building blocks. Nanophase nickel hydroxide has also been synthesized. Preliminary electrochemical studies are reported.

Mitchell R. Swartz (JET Energy Technology, Inc., Wellesley Hills, MA), "**Biphasic Behavior in Thermal Electrolytic Generators Using Nickel Cathodes**," IECEC 1997 Proceedings, paper #97009.

AUTHOR'S ABSTRACT

Thermal spectroscopy, with attention to background noise, enables accurate determination of sample activity and has revealed a biphasic behavior to the generated excess heat. Nickel cathodes (using ohmic thermal and other metallic cathodic controls) were examined versus either platinum or gold anodes in light water systems. The peak power amplification [$\prod_{OUT}/\prod_{IN} = \prod_{Ni}$] was in the range of ~2.27 (+/-1.02). Peak power outputs have been in excess of 2 watts, with power densities (nickel) of more than ~7 (+/-4.3) watts/cm^3. There may be several reasons for the biphasic effect. The origin of the site of the heat shifts at different locations within the π-notch.

Stanislaw J. Szpak, Pamela A. Mosier-Boss (NCCOSC RDT&E Div., San Diego, CA), "**Thermal and Nuclear Events Associated with Pd + D Codeposition**," IECEC 1997 Proceedings, paper #97120.

AUTHORS' ABSTRACT

An alternate method for the initiation of thermal and nuclear events by electrochemical means is to employ electrodes prepared by the codeposition process. This process assures the formation of non-equilibrium electrode structures that promote localized potential, concentration, *etc.* gradients. Evidence for excess enthalpy, arising from randomly distributed discrete heat sources, is presented. Their nuclear origin is supported by

X-ray emission and tritium production. Emphasis is on experimental designs. We should like to suggest that *theory guides - experiment decides* is a preferable approach in this area of research.

Floyd A. Wyczalek (FW Lilly Inc., Bloomfield Hills, MI), "**Einstein's Special Relativity - Kinematical Part 1, Einstein for Philistines**," IECEC 1997 Proceedings, paper #97544.

AUTHOR'S ABSTRACT

I was motivated to read Albert Einstein's Special Theory of Relativity after viewing the NOVA presentation "Einstein Revealed." This presentation included several concepts such as: the *dilation of time,* the *contraction of space,* as functions of velocity; and the mass of sunlight radiation striking the Earth surface. As examples, clocks run slower at the equator than clocks located at the Earth poles, an object traveling at 90% the speed of light contracts to 44% of its length as viewed by an observer at rest and at a right angle to the direction of motion of the object; and, about 4.5 pounds of sunlight per second impact Earth, energy mass equivalent *Einstein's* $E = mc^2$.

Prior to the NOVA presentation. I was only superficially aware of these concepts, but afterward resolved to obtain a copy of Einstein's 1905 paper published in the *Annafen der Physik 1905.* At my local public library, a synchronous event occurred in that the first book I selected from the many biographies on Einstein stored on the shelf was *Authur I. Miller's 1981 "Albert Einstein's Special Theory of Relativity"* and an appendix of Miller's translation German to English of Einstein's 1905 pamphlet of 24 pages.

Prior to reading Dr. Millers translation, I had assumed that Einstein's mathematics would be beyond my capability. Consequently, I was pleasantly surprised to realize that Einstein's paper presented the development of special relativity in very lucid and comprehensible terms.

The scope of the following summary of the bottom-line message, today's so-called *news sound-byte,* of *Einstein's Special Relativity* is limited to the *Kinematical part 1* which deals with the *dilatation of time* or slowing down of moving clocks and the *contraction of length* of objects moving-in-space, relative to an observer at a resting reference point.

Lastly, Einstein's relativity is applied to illustrate current energy conversion engineering applications.

Floyd A. Wyczalek (FW Lilly Inc., Bloomfield Hills, MI), "**Einstein's Special and General Relativity Energy Conversion Engineering Applications**," IECEC 1997 Proceedings, paper #97552.

AUTHOR'S ABSTRACT

The mathematical concepts defined in Einstein's special and general relativity in 1905 and the years which followed, are routinely applied to many energy conversion engineering applications which are common today. Because of routine familiarity we have lost sight of the origin of the mathematical concepts. The mission of this paper is to review several applications and relate the mathematical concepts directly to Einstein's original 1905 and later papers. However, the scope of the following summary has been limited to highlighting the bottom-line equations involved in specific engineering applications.

Fusion Briefings

SONOLUMINESCENCE GOES TABLE TOP

William C. Moss, Douglas B. Clarke, John W. White, David A. Young, "Sonoluminescence and the Prospects for Table-Top Micro-Thermo-nuclear Fusion," Phys. Let A, vol 211 (1996), pp 69-74, 18 refs, 3 figs.

AUTHORS' ABSTRACT

Hydrodynamic simulations of a collapsing bubble show that pure D_2 cannot exhibit picosecond sonoluminescence, because of its large sound speed. The addition of D_2O vapor lowers the sound speed and produces calculated results consistent with experiments. A pressure spike added to the periodic driving amplitude creates temperatures that

may be sufficient to generate a very small number of thermonuclear D-D fusion reactions in the bubble.

Electric Vehicles

ZINC-AIR BATTERIES IN LAS VEGAS

Ken McCall (columnist), "LV perfect vehicle for unveiling new electric battery," Las Vegas Sun, Friday, 18 July 1997, p 3A.

STAFF SUMMARY

Last year, General Motor's released its $40,000 EV1, but it looks like a poor pick in the race for a commercially viable electric vehicle. Its range is only about 60 miles on a charge. In Las Vegas, however, the potential to change the world is a pretty reasonable bet, now that Electric Fuel Corp. and its zinc-air battery are appearing on the scene.

Working with the Center for Sustainable Technology, Electric Fuel is introducing a battery with a range 3 to 4 times that of comparably sized lead-acid batteries – about 300 miles – which is also significantly higher than the nickel-metal hydride and lithium-ion batteries. And there's no recharging, just swapping the old battery for a fresh one. Then the old battery is recycled by a chemical treatment, and its ready for another run.
The battery is made up of zinc coated plastic strips, hung in a box. The movement of air across the zinc coating liberates electrons, making electricity. As the zinc becomes coated with zinc oxide crystals, it must be replaced. The replacement operation takes about 10 minutes for large vehicles. Almost all the materials used in the system can be reused, including the chemicals for treatment, according to Ken Partain, President of the Center for Sustainable Technology.

The cost analysis shows that total ownership costs of the zinc-air batteries are about 25 percent higher than the old lead-acid batteries – 12 cents a mile, as compared with 9 cents for lead-acid batteries. Unfortunately, personal vehicles will not be available for quite some time, because they will require a national network of battery swapping stations and recycling facilities.

A number of demonstration projects have been started in Europe by Electric Fuel. The German Postal Services is planning to convert 25,000 mail delivery vehicles to zinc-air batteries, in an agreement with Electric Fuel. The Las Vegas demonstration program will be the first in this country. The beginning program will be with fleet vehicles, such as delivery vans or buses, which are a major pollution factor. These programs should start conversions in October 1997. With 31 million people visiting Las Vegas from all over the world each year, where could be a better showcase for the new technology?

Miscellaneous

SMELLS LIKE A LITTLE TECHNOLOGY

Bill Sanders, "Follow Your Nose – or Trust the World's Tiniest Machine," Taipan, July 1997, p 13.

STAFF SUMMARY

Whether it is in Forensics, Contamination Analysis, or Viral Pathology, here is a new technology to make lots of people pay attention. Nanomachines have been the stuff of science-fiction for years. Now, the first one is here, a micro-machine based on a tiny switch, measuring 1.5 billionths of a meter – 0.0015 microns.

This first nanomachine is called a "biosensor," it searches through samples to single out one or more specified substances, whatever it has been programmed to find. Its designers report it can recognize drugs, hormones, viruses, bacteria, pesticides and pollutants. It can also identify gene sequences, they say, just the thing for an overworked Forensics lab.

Project leader Dr. Bruce Cornell of the Cooperative Research Center for Molecular Engineering &

Technology, in Australia, says it could detect the traces of a single sugar cube tossed into Sydney harbor. The tiny device works as an ion channel, a biological function harnessed to a machine. Because this new system mimics biological processes instead of relying only on human input via software, it is likely to blow the closest rival completely away, or so its designers believe. It is said to be faster than any traditional lab method, highly versatile, and works in either active or passive mode (hunting things down, or waiting for them to pass by it).

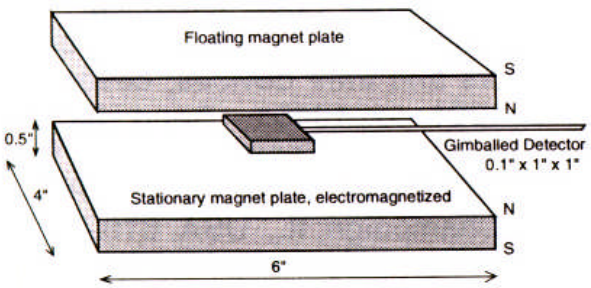
The prospects for commercial production expected by the Australian company is mid-1999, but they hope to have a big market for their little machines. For more information about this nanomachine and others, see the Web pages for The Foresight Institute at: http://www.foresight.org/ or **Nanothinc** at http://www.nanothinc.com.

Articles

IS THE VACUUM POLARIZED?
Wingate A. Lambertson, Ph.D.
June 18 1997

Hal Fox, in his editorial on "Polarizing the Vacuum," invited model ideas (*N.E.N.*, May 1997). An alternative view of the vacuum continuum is proposed below in response to his invitation.

The use of the term "virtual" by Fox is where I have a problem. Virtual means imaginary and is a mathematical term. I have to deal with real effects in my research. The collection of energy from the vacuum has to produce useful and measurable energy.



Polarization of a magnetic field in a ferromagnetic material by an electromagnetic force is an excellent basis for developing an understanding of what is real and what is imaginary. Notice that it is a material which is polarized. Belief that the vacuum is also polarized is an assumption which is unnecessary. The alignment of the magnetic domains and electron spins are a result of a directional force which is the magnetic field that passes through the vacuum.

Fig. 1 shows a magnetic field detector between two ferrite magnetic plates with their north poles facing each other. The top plate is floating in air and could float there for thousands of years. It takes a large force to push the two magnets together and they will spring apart when that force is released. The detector is horizontal and shows the field direction. It is the force of the zero-point energy photons on the probe which establishes its direction. These photons are real - they are not virtual and they are not imaginary. When I held the probe handle and tried to find the neutral position, I could feel the force and it was real.

We think of the vacuum continuum as a sea of energy. It is not necessary that it be polarized in order to make more energy available. We cannot know what is going on in the vacuum between the two ferrite magnets and we do not need to know. We have to deal with what is happening in the material world and not in the vacuum continuum. The Casimir force is measured between opposing material hemispheres and not in the vacuum. It is an effect which is measured - the effect of real photons on the two sides.

If it is helpful to use imaginary constructs to develop understanding, then we need to do so. I, personally, have always found the use of "virtual" in energy papers to be confusing and think of it as a way of avoiding reality. I would like to see Fox require the use of the word "imaginary" in all virtual papers.

[Hal Fox cited the accepted language used to explain vacuum polarization. Fox has just as much trouble with “virtual” as Dr. Lambertson.
– Ed.]

SPINNING RING MODEL OF FUNDAMENTAL SUBATOMIC PARTICLES

by Vincent Coon

It is usually conceded by physicists that modeling fundamental charged particles, such as protons and electrons, as points of charge, is at best a convention and at worst an outright prevarication. Nevertheless, much of classical electrodynamics and modern quantum physics relies on point charge approximations even though such models, if pushed to the extreme, yield unrealistic and contradictory results.

David Bergman [1] has shown that if the electron is modeled as a spinning ring of charge, that such a model can account for the otherwise anomalous magnetic moment of the electron. Orthodoxy would have us believe that the magnitude of the electron's magnetic moment cannot be explained classically, hence the abstract and utterly nonclassical quantity called "spin." Spin is not to be understood in terms of something actually revolving or circulating in space, though it has a great deal to do with real angular momentum. Bergman, on the other hand, has shown that classical electrodynamics accounts for the electron's magnetic moment, that is, if you assume that the electron can be modeled as pure charge, uniformly distributed over a toroidal surface. If the toroid or ring of charge is made to rotate with a speed approaching the speed of light, the electrical force tending to cause the charge ring to fly apart can be nearly matched by a magnetic pinch force which tends to hold the charged ring together.

This author knows of no other classical particle theory which attempts to explain how charge can be localized and maintained in a finite structure consistent with subatomic particles. Bergman has not only given an impressive explanation for the electron's magnetic moment, but Bergman and Lucas [2] have also succeeded in defining Planck's constant in terms of other fundamental constants, related to their classical charge ring model. They have extended their model, with seemingly great success into the subjects of discrete radiation and atomic and nuclear structure [2,3]. Bergman's and Lucas's departures from accepted scientific doctrine are attractive for the simple fact that they are so much easier to comprehend.

Perhaps one of their most heretical, albeit reasonable, proposals is that electrons do not orbit the nuclei of atoms but are maintained at more or less set distances from atomic nuclei by electric and magnetic forces in equilibrium. The spinning of the charge rings (electrons and protons) themselves will not cause radiation to occur because of the symmetry and uniformity of the charge distribution of each ring. Thus electrons do not radiate and spiral into nuclei for the simple fact that electrons do not orbit nuclei.

Another reasonable heresy that comes out of extending the charge ring model to the nucleus is the idea that electrons actually exist inside of, and play an important role in composing the nucleus. What we call neutrons are believed by Bergman [3] and Lucas to be special arrangements of electrons and protons. So-called nuclear forces are understood to be electromagnetic forces, the same as between the nuclei of atoms and the outer electrons; the difference being that the nucleus is a much more consolidated electromagnetic ring system. Bergman and Lucas's illustrations of atoms and nuclei are reminiscent of Ezekiel's vision of wheels within wheels. The simplicity and cogency of their unusual model causes one to wonder if it might not be a stroke of inspiration.

References :

[1] Bergman, D. L., and Wesley, J. P., "Spinning Charged Ring Model Of Electron Yielding Anomalous Magnetic Moment," *Galilean Electrodynamics*, vol 1, no 5, pp 63-67 (Sept/Oct 1990).

[2] Lucas, Joseph, "A Physical Model for Atoms and Nuclei," *Galilean Electrodynamics*, vol 7, no 1, p 9 (Jan/Feb 1996).

[3] Bergman, D. L., "Physical Models for Elementary Particles, Atoms and Nuclei," *Electric Spacecraft*, issue 21, p 20 (published 9 June 1997).

INE WEBSITE UPDATED - INE DATABASE ADDED

The Institute for New Energy Web Site has been updated: Thu, 24 Jul 1997
< http://www.padrak.com/ine/ >

Most New Data Files are at:
< http://www.padrak.com/ine/index.shtml #INE_RECENT >

All the revisions are in the file:
< http://www.padrak.com/ine/REVISIONS.html>

Additions, Expansions, or Revisions

July 23, 1997 NEW!
The INE Database of Devices, Inventors, and Data:
Listings of all of the Devices and Data in the Database.
4 New Pages with all of the devices in the database (as links) sorted by:
(1) Device Names,
(2) Inventor's Names,
(3) Interest Criteria, and
(4) Commercialization Criteria -

With a New Page for each Device (115) with all the data.
This is our first version. YOUR INPUT IS ENCOURAGED!

Added: Journal of New Energy, Tables of Contents for
JNE, Volume 1, Number 3, Fall 1996.
JNE, Volume 1, Number 4, Winter 1996.
JNE, Volume 2, Number 2, Spring 1997.
Updated:
Products Page; Authors, Subjects, and Websites Pages.
Site Counter = 128,932

Dr. Patrick G. Bailey
President, INE

Editorial

WHY EXPECT NEUTRONS?
By Hal Fox

The story of cold fusion includes the hypothesis of the **dead graduate student**. Graduate students are assigned to monitor tests. If cold fusion worked as expected, then there would be lots of neutrons released and those who closely monitored the tests (most probably a graduate student) would be severely harmed by neutron radiation. Following the classical gas plasma branching ratio for deuterium plus deuterium fusion, there is about a fifty percent probability that a d+d fusion will produce neutrons. However, in the over 600 papers reporting on successful replication of the Pons-Fleischmann cold fusion (or variations and improvements), very small amounts of neutrons were observed. These experimental results **coupled with the strong belief that metal lattice fusion must be like gas-plasma fusion has lead to considerable criticism of cold fusion experiments.**

Now we are finding that there is a similar criticism of low-energy nuclear reactions, such as for the latest invention by Stan Gleeson of the Cincinnati Group. The purpose of this article is to investigate the scientific reasoning behind the perceived need for there to be neutrons emitted. Because the current Gleeson demonstrations make use of naturally radioactive thorium, consider the **natural radioactive decay process for thorium:**

Thorium Nitrate, $Th(NO_3)_4$, is used because it is **very soluble** in water. Thorium, in nature, consists of about 100% $_{90}Th^{232}$ which is mildly radioactive with a half life of 1.4×10^{10} years. The entire chain of radioactive thorium decay is:

$$_{90}Th^{232} \rightarrow {}_{88}Ra^{228} \rightarrow {}_{89}Ac^{228} \rightarrow {}_{90}Th^{228} \rightarrow {}_{88}Ra^{224} \rightarrow {}_{86}Rn^{220} \rightarrow {}_{84}Po^{216} \rightarrow {}_{82}Pb^{212} \rightarrow {}_{83}Bi^{212} \rightarrow {}_{84}Po^{212}$$
$$\text{or } {}_{81}Tl^{208} \rightarrow {}_{82}Pb^{208}.$$

If the thorium nitrate were absolutely 100% pure and freshly constituted, one could assume that there would be no daughter products that had time

TABLE I. THORIUM DECAY DAUGHTER PRODUCTS

Element	Half-Life	α (MeV)	ß (MeV)	γ (KeV)
Thorium-232	1.4 x 10^{10}y	4.01, 3.95	--	59(w)
Radium-228	5.76 y	--	0.039, 0.015	14(w)
Actinium-228	6.15 h	--	1.2, 2.1	911, 969, 338
Thorium-228	1.91 y	5.42, 5.34	--	84, 216, 132, 166
Radium-224	3.66 d	5.69, 5.45	--	240
Radon-220	55.6 s	6.29	--	550
Polonium-216	0.145 s	6.78	--	805(w)
Lead-212	10.6 h	--	0.331, 0.569	239, 300
Bismuth-212	60.6 m	6.05	2.25	40, 727
Polonium-212	298 ns	8.78	--	--
Thallium-208	3.05 m	--	1.8, 1.28, 1.52	2615, 583, 511
Lead-208	stable			

SOURCES: Lapp et al., and Hunt.

to accumulate. However, the radioactive decay products are continuously produced by the **radioactive decay** of thorium. The amount of each daughter product in a prepared sample is a function of previous purity of the thorium and the shelf life of the product. Table 1. provides information on half-lives, decay modes, and energies of emitted particles.

Note that 5 of the 11 radioactive elements produce beta particles (high speed electrons), 7 of the 11 produce energetic alpha particles (helium nuclei), and all but one produce gamma emissions (however the Thorium-232 and the Radium-228 gamma emissions are weak, low energy levels). None of these radioactive daughter products produce neutrons. However, there are two neutrons and two protons in each alpha particle.

It is the current working hypothesis, subject to further experimental verification, that during the processing of the thorium, the Gleeson invention injects protons (one or more) into the thorium nuclei; the thorium nuclei becomes immediately unstable; spontaneous fission occurs; and the thorium plus proton combination breaks into two parts to produce stable elements.

Conservation of Baryon Number

One of the several conservation rules that must be obeyed (according to classical physics) is the conservation of baryon number. A baryon is an elementary particle of the nuclei and any nuclear reaction must conserve (same number before and after) the baryon number during any nuclear reaction. The major baryons are protons and neutrons. There are other relatively scarce baryons that occur when breaking up nuclei under high energy particle accelerators. For our discussion, we must have a nuclear reaction (a kind of an equation) in which the number of neutrons plus protons are the same on both sides of the nuclear reaction equation.

$_{90}Th^{232} + _{1}H^{1} \rightarrow {}_{x}A^{y} + {}_{u}B^{v} + Q$ (energy emitted or absorbed)

To preserve baryon numbers 90 + 1 must equal x + u, and 232 + 1 must equal y + v. The energy Q is computed from the conservation of energy and involves the balancing of mass and energy on both sides of the equation by use of $E = mc^2$ formula to equate loss (or gain) of mass with a gain (or loss) of energy. **To be precise, we should include the possibility of a neutron or an alpha particle being emitted on the right side of the above equation.** The point of this article is to determine if we must have neutrons to balance such an equation.

If we look at a table of Radio-Nuclides, a table of all of the possible stable and unstable isotopes of all of the elements, we would find that there are many thorium plus proton reactions **that are possible.** By possible, it is meant that the reactions obey all six of the conservation rules (baryon number, energy, spin, iso-spin, charge, and parity.) However, nature does not work just on **possible reactions**. Nature has a way of creating the most probable reactions. At the present time, we lack a detailed understanding of the nature of the **most**

probable reactions and will require substantial experimental evidence to determine if any of the nuclear models (such as the nucleon cluster model or the alpha-particle model, or the liquid drop model, etc.) are correct.

The latest experimental evidence (based on the new Gleeson process) indicates that most of the thorium is reduced to Cu-65 and Titanium. Begin with the left hand side of the nuclear reaction equation as given above and substitute copper and titanium for the right hand side and we have:

$$_{90}Th^{232} + {}_{1}H^{1} \rightarrow {}_{29}Cu^{65} + {}_{22}Ti^{v} + {}_{p}X^{q}$$

Note: due to experimental evidence that Cu-65 is predominant in the measured elements created, we have replaced y with 65 in the above reaction equation.

There are five stable isotopes of titanium so that v can be 46, 47, 48, 49, or 50. The equation does not balance with baryon numbers so an unknown, $_{p}X^{q}$, has been added. The next step is to determine the values for p and q to balance the equation: p must equal 90 + 1 -29 - 22 or 40. q must equal 232 + 1 - 65 - (46, 47, 48, 49, or 50) or q must range from 122 to 118. Looking at the table of radio-nuclides, Zr (p = 40) has stable elements of Zr-92, Zr-94, & Zr-96. However, q should be in the range of 118 to 122. Therefore, for this reaction to occur we would have to account for at least 118 - 96 or 22 neutrons. **This is an example of why many nuclear scientists would immediately ask about the neutrons from these reactions**, and about a possible dead graduate student.

If the experimental evidence indicates that there are few, if any neutrons, and if the evidence indicates that there is indeed Cu-65 produced, how can the lack of neutrons be explained? Here is one possibility: there is a nuclear reaction labeled as ß-, or beta decay. Under beta decay (ß-) the original nucleus loses an electron and creates a proton. Therefore, one missing neutron from the above reaction is accounted for. Looking at Cu-65, what is the possibility of a chain of ß- decays? A possible chain would be Ni-65 (half-life of 2.517 hours), Co-65 (half-life of 1.25 seconds), Fe-65 (extremely short half-life), Mn-65 (extremely short half-life). However, this chain of beta-decays would account for a missing neutron at each step.

Next, examine the table of nuclides for possible beta-decay processes for producing Titanium. Ti-49 could have a beta-decay chain of Sc-49 (57.3 mins), Ca-49 (8.72 min), K-49 (1.26 sec). Ti-50 could have a beta-decay chain of Sc-50 (1.71 min), Ca-50 (14 sec), and K-50 (472 msec). Each of these steps account for a missing neutron.

It is important to know that the table of nuclides has been experimentally established mainly with the use of high-energy particle bombardment of isotopes. It may be that we do not, as yet, fully understand all of the variations that can occur in this new type of nuclear reactions. However, it would be surprising if baryon number were not conserved. It is more likely that there are more extended chains of ß- processes that we have not, as yet, included in our table of nuclides. Alternatively (as suggested by Dr. S.X. Jin), there could be more complex chains of reactions which do not produce neutrons, specifically, proton bombardment can produce an alpha particle and another element.

LETTERS
to the Editor

LETTER FROM MARK KRAMER

Today I was reading the June 1997 issue of New Energy News, and on page 11 was an article called Cosmology Notes by Greg Hodowanec. While reading this article I noticed several errors.
The first error has to do with the computation of RMS voltage of sinusoidal waveforms. The RMS voltage is V_p/ sqrt(2) and V_p is ½ V_{pp} where V_p is the peak voltage and V_{pp} is the peak to peak voltage. So in your test #1, V_G = 5 v_{pp} = 2.5 v_p = 1.768 v_{rms}.

The second error has to do with measuring I_G for power computations. In your diagram, it is not clear whether R_G is a loading resistor or whether it is the Norton equivalent internal impedance in parallel with a Norton constant current source. Either way, your computation of I_G is not an accurate measurement of the current or power going into the 3-coil transformer.

One way to get a better measurement, would be to measure the voltage across the 10 ohm resistor at the same time that V_G is measured. Then $I_G = V_G/10$ ohms. Then the apparent power would be $S = V_G I_G$ real power would be $S = V_G I_G$ and real power would be $S = V_G I_G \cos \theta$ where θ is the phase angle between V_G and I_G.

However to measure this angle on a scope with precision is very difficult. A better approach would be to use a wattmeter with a high frequency bandwidth.

Your measurement of the output power across the 470 ohm R_L is okay with the exception that your RMS calculations be modified as I suggested for your input.

I hope you will repeat your experiment and report the new findings in NEN. Also, should the results be disappointing, I hope you will keep trying and not give up on finding new energy sources.

Sincerely,
/s/ Mark Kramer
Electrical Engineer

RESPONSE FROM GREG HODOWANEC

I received the copy of Mark Kramer's comments on the Cosmology Note published in the June 1997 issue of NEN. These notes, as you know, are primarily directed at some of my colleagues who are **well versed** in my Cosmology and viewpoints. Thus, they are not **all** completely self-explanatory, and thus may be "out of context" for the casual reader. What Mark may attribute as "errors" may not be so when all the previous "facts" are known. Attached is a simplified explanation of the differences in using balanced and unbalanced signal sources in these mini-MRA tests. Since they express my viewpoints on such operation, they are subject to comments and "correction" if the approach is not really valid. I welcome such comments and I was glad to receive Mark's comments.

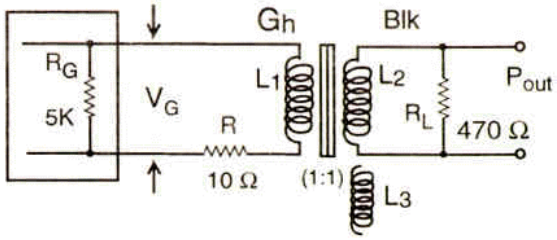


Fig. 1 Schematic from original article.

R_G is a load resistance for the Signal Generator and also a source resistance for the mini-MRA's. The input could also be **looked** at as a constant current source with a resistance of 5K ohms. This source provides a **very small current** needed to sustain the simplified mini-MRA shown in its reactive (X_L) mode of operation. The **real** input power is that dissipated in R_G and is the V_G I_G shown. The reactive power will be V_G I_{circ} cos θ, where I_{circ} is determined by the voltage drop across the sensing resistor of 10 ohms. Since there is a 90° phase difference between V_G and I_{circ}, cos 90° = 0, and thus there is **essentially** no power loss in that circulating loop. The power gain seen in this simplified MRA is believed due to a **greatly increased I_{circ}** as the inductor interacts with free space, i.e., the aether, in this mode of operation. The Rhysmonic viewpoint on this will be covered in the **proposed** "Energy Extraction Directly from the Aether" Cosmology Note.

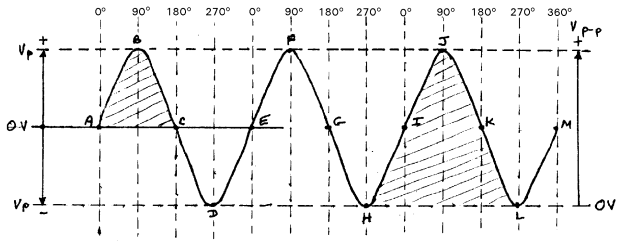


Fig. 2

I. Balanced AC Input Remarks:

A. The balanced AC input will swing +/- volts from a zero volt (or ground) level. This is shown by the curve marked ABCDE for example. The response is assumed to follow that of a sine wave as it "swings" to a **positive** voltage, V_p, and then to a negative voltage, $-V_p$, See responses at left of Fig. 2.

B. The RMS voltage will be given as 0.707 V_p for a **true** sine wave response. Since this response

repeats for **each** half cycle (180°), the RMS voltage (or current) will be determined by a **single** half-cycle as shown by the **shaded** section **ABC**.

II. Unbalanced AC Input Remarks:

A. The unbalanced AC input will generally "swing" between a zero volt (or ground) level and some positive voltage level. This is shown by the curve marked **DFHJL** in Fig. 2, for example. The response **will be assumed** to follow that of a sine wave, but while not exact, will be close enough for most experiments.

B. The RMS voltage will be given as 0.707 V_{p-p} in this case. Since the response repeats for each positive (360°), the RMS voltage (or current) will be determined by a single cycle as shown by the shaded section HJL as shown at the right of Fig. 2.

III. Conclusions:

A. Balanced AC inputs (and outputs) are normally used in most typical alternating circuits.

B. Unbalanced AC inputs (and outputs) are **not** generally used in many alternating current circuits. They have generally been used in the Mini-MRA circuits due to the use of tube-type signal generators and transistor oscillators as sources.

My Best Regards, Greg

LETTER FROM ROY STEWART

Dear Friends,

These are some thoughts on magnetic systems and possible aether vortex anti-gravity. Having studied many devices and theories over the last 15 years, I find these threads:

- the claim of being able to entrain an hypothetical vortex structure spinning in the aether.
- the claim of the importance of very high voltage spikes of very short duration being necessary to produce non-linear effects in said aether.
- the claims of over-unity (O/U) and anti-gravity (A/G) effects in non-linear, pulsed or torqued magnetic fields and/or electric fields.

The number of good, science-based investigators sharing similar interest is a long litany of the best people in the field, dozens of names at the least and too many for a list. The devices I'm most interested in share all or most of these effects:

- Searl Levity Disc: whether or not it is real, the importance is not necessarily in his special roller magnets, I think, but in his highly charged, spinning points.
- the rotating magnetic disc of Wilburt Smith, currently being repeated by my good friend Toby Grotz. A D.C. solenoid field in which spins a disc of discreet permanent magnets, creating a varying strength field modifying an even field.
- the Swedish superconducting ring is a solenoid field induced by external magnets and travelling over the fixed fields of the suspending magnets, causing a circulating torque to be applied to the main field.
- Pierre Sinclaire's work with David Hamel's device. Not rotating but complex fields interacting where the nutations might be causing torques and be a virtual rotation.
- Joe Newman: torquing and rotating fields again.
- Victor Schauberger, Marcel Vogel and Richard LeFours Clark: spinning water charged with what Clark calls diamagnetism – spin and axial travel. In Schauberger's sand vortex: highly charged dielectric particles in three vectors (presumed): around, inward and down.
- Keely and "Scientist X" (reported by Dan Davidson in his book A breakthrough to New Free Energy Sources, 1977, ISBN 0-88247-469-3) and possibly Stan Meyer: water splits at the Keely frequency of 42.8 Khz, acoustic.

My thoughts on these effects are: use vacuum tube equipment, not solid-state. Vacuum tubes are replete with little understood plasma effects leading to a possible spike, the first one of which is called "ringing" on a square wave which is so high in amplitiude and of such short duration that it does not appear on even the fastest scope! Bob Emmerich agrees that this is a real possibility.

- Townsend Brown: it was noted that the greatest effect (lift) occurred at or just before dielectric breakdown.

- Many more: Bedini, Adams, Aspden, Swiss M-L, etc.
- Paul Brown and John Moreland: nuclear batteries (Hubbard, Moray, Hendershot, Perrigo, Swiss M-L and, I think, maybe also Coler). Halting alpha particles creates abrupt field disturbances; and keep in mind that all devices are nucleonic because they are massive and charges have spin and magnetic moment.

This brings us to the reason for these notes: my thoughts on Hans Coler's device in which there is a renewing interest (justifiably so in my estimation):

- The special magnets are solenoids over permanent magnets in which the current is passed through the permanent magnet. Doing this creates, by the right hand rule, a field at right angles to the permanent magnet's field causing that momentary stress and torque that we seem to find everywhere.
- I think the hookup diagram of the hexagonal system might have been purposefully misdrawn, which is a good way to keep it secret. This would explain why Tom Valone could not get it to work. I believe that it should be tried with each unit feeding the next in a circulating field pattern based on the above analysis. I read somewhere that this device was possibly the anti-gravity unit that powered one of the German discs!
- Finally, a problem and hence possible key: why is there a paper insulator between the solenoid and the permanent magnet? The device is wound with, presumably, magnet wire which is varnished, obviating the need for further insulation. Could it be that this is also a nuclear battery type device? Could that paper be soaked with an alpha emitter?

Roy Stewart, design engineer

Meetings

American Nuclear Society

"Nuclear Power IS Serious Business"

Utility Working Conference, 17-20 August 1997

Amelia Island, Florida

Competing, continuing, improving in the Power generation industry. For information contact Dave Slaninka at the Meetings Dept., ANS, 708-579-8255. Pre-registration: members $445, non $495.

Russian Academy of Science, Russian Physical Society, Nuclear Society of Russia, Russian Chemical Society, Lomonosov Moscow State University, Peoples' Friendship University of Russia, and the Moscow State Technical University present:

5TH RUSSIAN CONFERENCE ON COLD FUSION AND NUCLEAR TRANSMUTATION (RCCFNT-5)

September 28 to October 5, 1997

To be held at Hotel Olimpiyskiy in Dagomys near Sochi on the Black Sea

Program of the Conference includes: Experimental Researches of Cold Fusion and Nuclear Transmutation; Cold Fusion and Nuclear Transmutation theoretical models; Cold Fusion applied technologies and devices.

The registration fee of $1200 covers: Registration fee, Conference proceedings, transportation to and from Airport in Moscow, Hotel stay in Moscow (2 days), transportation by train to and from Sochi, Hotel at Sochi, daily meals (3) from Sept 25 to Oct 8. If you want to take part in the Conference, please inform the Chairman Yu. Bazhutov, by E-mail or fax immediately for arrangement of your transportation from Moscow to Sochi, and hotel accommodations.

We will meet you at the Moscow Airport from Sept 25 to noon Sept 26, if you will give us your flight information. Projected date of return flight from Moscow is from afternoon of Oct 7 to Oct 8.

Contact: Yu. Bazhutov, Chairman of RCCFNT-5
P.O. Box 169, Erzion Center
105077 Moscow, Russia
Phone, (011) 95-464-78-81, (011) 95-939-18-28
Fax, (011) 95-939-29-91, (011) 95-954-02-28
E-mail: sukhanov@srdlan.npi.msu.su

The International Association for New Science
presents

The 8th International Forum on New Science

9-12 October 1997
The Doubletree (Red Lion) Hotel
Denver, Colorado

Lectures ✦ Kinetic Displays ✦ Exhibits
Workshops ✦ Bookstore ✦ Banquet
Sunday Focus on Health & Healing

Register Early and Save
For information on the Forum contact:
International Assoc. for New Science
216 Commerce Dr., #4
Fort Collins, CO 80524
970-482-3731 Fax: 970-482-3120
e-mail <science@ians.org> and
<www.ians.org>

Hotel information: 1-800-222-TREE
(mention IFNS)

ICCF-7

International Cold Fusion Forum
Vancouver, B.C., Canada
April 19-24, 1998

With the maturation of the field, ICCF-7 seeks to attract a more diverse audience including additional scientists, research institutes, students, national funding agencies, commercial interests, journalists, and spouses. It is the objective of ICCF-7 to provide a productive international forum for communication and education.

Calendar:
September 1997: Official call for full, one-page abstracts. Final peer review process begins.
December 1997: Final notification to all presenters regarding the format of their presentation.
January 1998: Deadline for final abstracts to be published in ICCF-7 Program Manual and Website.
April 1998: Conference. All presenters must hand in their final papers during the conference for timely inclusion in the publication ICCF-7 Proceedings.

A different topic is planned for each day at ICCF-7. An invited presentation with summary review or global implications for the entire field will begin each day's topic, followed by five oral presentations on the topic. Afternoons will be entirely devoted to enhanced poster sessions, which include a 3-5 minute oral preview and summary. A "Top Ten" poster presenters will be selected by the attendees, and each will conduct an expanded 15 minute presentation to the full audience on Thursday afternoon. Three evening workshops will also be held.

Topics include: Heat & Related Products, Nuclear Processes & Products, Materials & Innovative Approaches, and Theory & Nuclear Physics.

For more information or to get on mailing list, contact:
ICCF-7 c/o ENECO
391-B Chipeta Way, Salt Lake City, UT 84108 USA
Phone (801) 583-2000 Fax (801) 583-6245
jaeger@ENECO-USA.com

18th International

Symposium on Discharges & Electrical Insulation in Vacuum

August 17-21, 1998
Eindhoven, The Netherlands
Hosted by the Eindhoven University of Technology

Scientific Program, Papers will be presented on all aspects of: Fundamentals of Discharges and Breakdown in Vacuum; Vacuum Discharge Devices and Applications; and Vacuum Insulation Technology and Applications.

Mini-Courses held parallel with conference: Diagnostics for Vacuum Devices, and Production Technology for Vacuum Insulated Devices

A **technical exhibition** will be held featuring components and systems in the area of vacuum discharge devices and vacuum insulated devices (e.g. vacuum switchgear, vacuum deposition and coating, X-ray and microwave tubes and other beam-devices, high-power devices, and equipment for analysis, monitoring and test purposes).

Hotel accommodation in downtown Eindhoven, a short distance from the University Conference Centre, is available through the EUT Conference office at reduced rates.

Information for Authors
Authors should submit a 250 word abstract by November 1, 1997. Authors of accepted abstracts will be notified in Dec. 1997. Deadline for camera-ready manuscripts is April 1, 1998. Accepted papers will be

published in conference proceedings, available at the registration. A limited number of accepted papers will be selected for publication, in a modified and extended version, in Special Issues of *IEEE Transactions on Plasma Science* and *IEEE Transactions on Dielectrics and Electrical Insulation.* The working language of the symposium is English. All printed matter will appear in English.

Correspondence should be sent to:
Carla Schreurs
Congress Office ISDEIV'98, Aud.2.26
Eindhoven Univ. of Technology
P.O. Box 513
5600 MB Eindhoven, The Netherlands
phone: (011)-31-40-247-4849
fax: (011)-31-40-245-8195
E-mail: C.L.A.Schreurs@ieb.tun.nl
Website: http://www.ele.tue.nl/evt/isdeiv/

Commercial Column

The following companies (listed alphabetically) are commercializing cold fusion or other enhanced energy devices: [Listings with your additional copy, or boxed, for small annual service fee.]

COMPANY: PRODUCT

American Pure Fusion Engineering and Supply: Warren Cooley, 1-800-789-7109 or 503-585-6746. Email to: Coolwar@aol.com

CAI, Inc., CAI has acquired rights to develop and produce a new-type of thermal power based on the controlled production of clean nuclear reactions from micro-miniature tokamaks (provided by nature). Contact through FIC, Voice 801-583-6232, Fax 801-583-2963.

Clustron Sciences Corp.: Contact: Ron Brightsen, 703-476-8731.

ENECO: is in the business of commercializing the exciting new field of low energy induced nuclear reactions in solids via patent licensing, joint-ventures, and co-operative research. ENECO, University of Utah Research Park, 391-B Chipeta Way, Salt Lake City, Utah 84108 USA. Contact Fred Jaeger, Voice 801-583-2000, Fax 801-583-6245. Email: jaeger@ENECO-USA.com

E-Quest Sciences: Contact Russ George, FAX 415-851-8489.

Fusion Information Center (FIC): Research and 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 transmutation. We are the publishers for ***New Energy News***, and *the* ***Journal of New Energy***. Voice 801-583-6232, Fax 801-583-2963. Contact Hal Fox.

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.: Rome, Georgia. Contact James Griggs, Voice 706-234-4111 Fax 706-234-0702.

JET Energy Technology, Inc.: Weston, MA. Contact Dr. Mitchell Swartz, Voice 617-237-3625. Fax 617-237-3625.

Labofex, Experimental and Applied Plasma Physics: Ontario, Canada. Contact Dr. Paulo N. Correa. Tel 905-660-1040
Fax 905-738-8427

Magnetic Power Inc.: Sebastopol, CA. Contact Mark Goldes, voice 707-829-9391, Fax 707-829-1002.

Nova Resources Group, Inc.: Denver, CO. Call Chip Ransford, Phone 303-433-5582.

UV Enhanced Ultrasound: Hong Kong.
FAX 852-2338-3057.

"YUSMAR"- Scientific-Commercial Company: President: Dr. Yuri S. Potapov, 277012 Kishinev, Moldova. Phone and Fax 011-3732-233318.

Zenergy Corporation: 390 South Robins Way, Chandler, AZ 85225. Contact Reed Huish: 602-814-7865, Fax 602-821-0967,
E-mail: info@zenergy.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.

INFORMATION SOURCES

Academy for New Energy (ANE) 216 Commerce Drive, Ste. 4, Fort Collins, CO 80524. Tel. 970-482-3731

ANE Newsletter, quarterly publication of ANE, edited by Robert Emmerich.

Advanced Energy Network Newsletter, quarterly. 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/year magazine. 63600 Deschutes Market Rd, Bend, OR 97701
541-388-1908, Fax 541-388-2750,
E-mail <etimes@teleport.com>
www.teleport.com/~etimes/

Fusion Facts has become a section in the *Journal of New Energy*.

Fusion Technology, Journal of the American Nuclear Society, edited by Dr. George Miley, 555 N. Kensington Ave., La Grange Park, IL 60525.

Infinite Energy, bi-monthly magazine. P.O. Box 2816, Concord, NH 03302-2816. Voice: 603-228-4516. Fax: 603-224-5975
E-mail 76570.2270@compuserve.com

KeelyNet BBS - Jerry Decker, 214-324-3501
Internet: www.keelynet.com
E-mail: jdecker@keelynet.com

Institute for New Energy (INE), organization to promote and help find funding for new energy research.
Visit our **Home Page**: www.padrak.com/ine/ which contains many important scientific papers and current reports on all areas of research.
E-mail: halfox@slkc.uswest.net
or ine@padrak.com
Salt Lake City, Utah. Voice 801-583-6232,
Fax 801-583-2963.

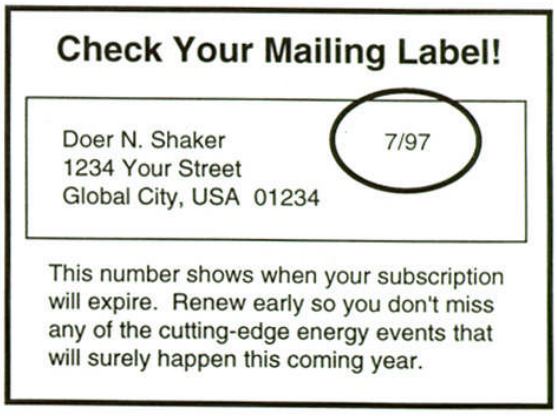
New Energy News monthly newsletter for INE, highlighting the research and development in the worldwide new energy arena. Edited by Hal Fox.

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. Editor: Hal Fox. Address & phone above.

Planetary Association for Clean Energy Newsletter, quarterly, edited by Dr. Andrew Michrowski. 100 Bronson Ave, # 1001, Ottawa, Ontario K1R 6G8, Canada.
Web page: http://energie.keng.de/~pace

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

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.



CONTENTS FOR AUGUST 1997