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REPORT ON ICCF8, ITALY

About 150 attendees were at the ICCF8 conference in Larici, Italy. During the four days, May 22-25, about 30 papers were presented. Another 90 paper were given three minutes for presentations and posted as poster papers.

As editor of NEN, this is my short summary impression of the ICCF8:

There is a lot of excellent scientific work being done to improve the various so-called cold fusion experiments. There is no question but that under proper conditions, excess thermal energy is developed in an ever increasing different types and configurations of low-energy nuclear reactions. The greatest importance of this effort is leading to a better understanding of the nature of hydrogen in metals; of the nature of electrons, protons, and molecules; in the development of theoretical understanding of the sources (more complex than just heavy hydrogen fusion) of excess heat; and the possible commercialization of some aspects of these discoveries. However, there is no PRESENTLY-PLANNED cold fusion device that is ready for commercialization. This editor's judgement is that the basic hydrogen-in-metals process is not sufficiently robust enough to become a major new-energy commercial success.

However, two technologies that have been developed in the past decade as cold fusion appear to have strong commercial potential. One of these is the Mills' invention: See www.blacklightpower.com for further information.

The second is the series of patents issued from 1992 and after on high-density charge clusters. This new-energy technology is the first (as far as this editor has found) in which the patents claim to be tapping space energy or zero-point energy. (Note: EEMF has acquired exclusive rights to all of the five patents that have issued on high-density charge clusters.)

This editor took copies of two papers and handed them out to attendees. The titles are "21st Century Physics and New-Energy Sources", and World New Energy Market.

Papers presented at ICCF8 first day, May 22, 2000

The first presentation was made by Dr. Martin Fleischmann as a tribute to the late Guilano Preparata, an early and effective cold fusion theorists who died in April, 2000. The discussion concerned the many-body problem that is theorized to cause some of the observed nuclear events.

Country Italy
Abstract: **The Fleischmann-Pons effect in a novel electrolytic configuration**.
Authors E. Del Giudice, A. De Ninno. A. Frattolillo, G. Preparata, F. Scaramuzzi, A. Bulfone, M. Cola, C. Giannetti

We have designated a new type of cell, with a peculiar Pd cathode, consisting of Pd deposited on a glass substrate in a "bustrophedic pattern", (width w=5 x l0E-3 cm., length 100 cm and depth d=0.5+2 10E-4 cm.). As a result the Pd- cathode turn to have a resistance of several K ohms. The electric configuration was shown (diagram shows a voltage that is applied to the deposited material as though it were a laid down resistance and a separate batter source connected to the anode and to the deposited Pd cathode). The setup has been designed in order tot est a new effect, the Cohn-Aharonov effect, that, for a coherent quantum system, such as the D plasma inside the Pd, turns the electric potential into an electrochemical one. A proof shall be given of this effect, as well as of the excess heat associated with it. Comments: In the presentation DeNinno showed that the calorimetric data was 100% replicatable. The temperature change was compared to a parallel blank. This type of experiment certainly advances the understanding of some of the basic effects found in this type of Low-Energy Nuclear Reactions (LENR).

Country USA. Abstract: **A Model for Past Ion Emission in Metal Deuterides**
Author: Peter L. Hagelstein

In the early 1990s there were reported a number of experiments involving metal deuterides in which the emission of fast (MeV) charged particles was claimed to have been observed. Our interest in these reports focusses on an observation reported by G. Chambers and colleagues at NRL of alpha emission from PdD extending up to 21 MeV, and on observations reported by F. E. Cecil and colleagues of the Colorado School of Mines of a variety of low mass ions from TiD with energies from 2 MeV to 12 MeV.

At ICCF7, we discussed the possibility that fast ion emission could be accounted for by second order reactions in which: (1) a fusion reaction couples off-resonance to the lattice phonons, and (2) the lattice phonons couple to ion ejection from heavy nuclei within the lattice. We have discussed previously the notion that the strong force between deuterons can be viewed as a very high order phonon nonlinearity, a proposition which leads immediately to an intimate coupling with phonon in the event that a fusion event occurs in the metal hydride. Second order off-resonant reactions are well known in many fields, although the application of such a second order model to this problem has not previously been reported. We have constructed a basic many-body model that describes this reaction process, including Hamiltonians for the deuterons and product He-4 nuclei in the lattice for the phonons and for the low mass ejecta. Interaction Hamiltonians are included based on strong force interactions associated with the fusion process, and on Coulombic interactions between atoms of the lattice and alphas, protons, etc. within heavy nuclei. The basic model appears at first to be completely incoherent, as it is not obvious that many two-level systems coupled through high order nonlinearities with the phonon field can ever support a coherent interaction.

We have succeeded in separating cleanly the coherent part of the nonlinear interaction from the remaining incoherent part. In the process of this separation, a collective phonon mode is identified which couples to the coherent part of the interaction. When this mode is highly

excited, the possibility is raised that a coherent and highly delocalized interaction can occur. Coupling of the fusion energy to the collective phonon mode can lead to net reactions if there exists dissipation mechanisms for the collective phonon mode far off of resonance. Many such off-resonant dissipation mechanisms are possible, the simplest of which is ion ejection from nearby heavy nuclei. This model predicts the possibility of alpha emission from PdD with alpha energies up to 21 MeV as reported by the NRL group. The model also predicts a variety of low mass ion emission consistent with the observations of reported by the Colorado group. We speculate that this basic model can be extended (through inclusion of other dissipation mechanisms) to systematically include many of the anomalies reportedly observed in metal deuterides in one unified picture.

Comments: Dr. Hagelstein (MIT) is one of the foremost competent mathematicians to work on cold fusion problems during the past ten years. His contributions for the mathematical understanding are not considered to be completed. There is still a long way to go to have a complete model of LENR in the Fleischmann-Pons- Hawkins type of electrochemical cell.

Country Italy

Abstract: **High Hydrogen Loading of Thin Palladium Wires Through Alkaline-earth Carbonate precipitation on the Cathodic Surface: Evidence for New Phases in the Pd-H System. Unexpected Problematics due to Bacteria Contamination in Heavy Water.**

Authors: F. Celani. A. Spallone, P. Marini, V. di Stefano, M. Nakamura, A. Mancini, S. Pace, P. Tripodi, D. Di Gioacchino, C. Catena, G. D'Agostaro, R. Petraroli, P. Quercia, E. Righi, G. Trenta

A new protocol for the electrolytic loading of Hydrogen (H) in thin Palladium (Pd) wires has been developed. In order to increase the cathodic overvoltage, which is known to be the main parameter enhancing electrolytic H loading of Pd, the catalytic action of the Pd surface versus H-H recombination has been strongly reduced by precipitation of a thin layer of alkaline-earth carbonates on the cathode. A set of electrolytes has been employed, containing small amounts of Hydrocloric or Sulfuric acid and Sr or Ca ions. The H loading has been indirectly and continuously evaluated through ac measurements of the Pd wire resistance. Uncommonly low resistivity values, leading to an estimate of exceptionally high H loading, have been observed. Evidence of the existence of a new phase in the very high H content region of the Pd-H system has been inferred on the basis of the determination of the temperature coefficient of the electrical resistivity. Proper thin Hg coating helped also to avoid deloading during measurements without electrolytic current. The results were fully reproduced in others 2 well equipped and experienced Laboratories (Italy, USA). The same procedure have been applied to heavy water. We have found several difficulties due to low purity of commercial heavy water available. The impurities up to now detected were: inorganic (K, Mn, Fe, Zn), organic and even of biological origin. There is evidence, by DNA sequencing techniques, of bacteria: RALSTONIA family. This family of bacteria, unlikely to our procedure, is able to even metabolize the Hg and to catalyze the H-H (or D-D) recombination reducing the value of H(D)/Pd ratio. Some new procedures are under test to overcome the bacteria problem.

Comment: This type of experiment, using thin wires, is shown to provide a faster method of loading the Pd with the deuterium. This is the first paper (seen by this editor) in which bacteria were shown to have some influence on the experiments being performed. Loading the Pd took only a day or so. The presenter mentioned that some materials in concentrations of 10 mgm in

1000 grams can cause problems in the Pd loading. That is one of the reasons that replication of this type of LENR experiments often fail.

Country Japan
Abstract: **Nuclear Products and their Time Dependence Induced by Continuous Diffusion of Deuterium through Multi-layer Palladium Containing Low Work Function Material**
Authors: Yasuhiro Iwamura, Takehiko Itoh, and Mitsuru Sakano

We investigate anomalous nuclear effects observed in Pd-D2 system. Our experimental results so far led us to assume that necessary conditions to induce nuclear reactions in solids are as follows (i) existence of a low work function material near the Pd surface, (ii) enough diffusion flux of deuterium, (iii) high D/Pd on the Pd surface. Two kinds of experimental methods have been developed to meet with the assumption. One is the method of using the diffusion of D2 gas, and the other utilizing electrolysis of D20. Common feature between these methods is to cause continuous diffusion of deuterium through a multi-layer Pd sheet that contains low work function material (CaO, TiC, Y203, etc..). The feature of D2 gas diffusion type of apparatus is that it can analyze the surface of a Pd sample by XPS (X-ray Photoelectron Spectroscopy) WITHOUT taking it out of the apparatus. Therefore, it is possible to avoid contamination, onto the Pd sample from outer environment. ... We confirmed that no change of C and no other elements on the Pd sample was observed in a blank experiment, and that qualitative reproducibility was obtained. As for electrolysis type of experiments, we observed excess heat, x-ray and nuclear products. Isotopic compositions of the obtained products were often different from natural abundances. For example, isotopic composition of Si powder detected in the apparatus after an experiment, which was analyzed by ICP-MS (Inductively Coupled Plasma Mass Spectrometry), was different from natural Si abundance. Anomalous large Fe-57/Fe-56 ratio was detected on a multi-layer Pd sample was confirmed by both SIMS and TOF-SIMS (Time of flight SIMS).

Comment: This is an excellent piece of experimental work leading to the better understanding of LENR is the Pd-heavy water phenomena. Pictures presented show holes that this editor would attribute to the formation and action of high-density charge clusters (HDCC).

Country: France
Abstract: **The hydrex concept - Effect on heavy nuclei.**
Authors: J.J. Dufour. D. Murat, X. Dufour, J. Foos

In the early 90's, a quantum electrodynamics calculation was performed on the proton/electron system pointing to the possibility of the existence of a resonance (life time of a few seconds, dimensions of a few fm and an endothermic energy of formation of a few eV). In order to explain the observed phenomenon, we assume the possibility of the existence of this resonance (which for simplicity of language we propose to call hydrex and we examine the possible consequences of its existence. This resonance has been proposed to explain some other hypothetical nuclear reactions. The hydrex, as we imagine it, is an electric dipole with almost nuclear dimensions. It can thus be attracted by heavy nuclei such as uranium. Perhaps, one nucleus and several hydrex could form a cluster, with lifetime in the order of seconds, which is considerably higher than typical nuclear time (10-22 seconds) . The presence of several

polarized hydrex in contact with a heavy nucleus can modify its Coulomb battier. Simple calculations, using a layer model, have shown that the initial barrier of an uranium nucleus (height 32 MeV, thickness some 50 fm) could be split into two barriers: a first one close to the uranium nucleus with same height, but much thinner (some 5 fm), followed, after a potential well, by a second one of smaller height (15 to 17 MeV) and thickness 35 fm (the level of the potential well depends on the number of hydrex in the cluster). Since the works of Gamow, Gurney and Condon in 1928, it is well known that the probability of alpha emission of a nucleus can vary considerably with small variations of the thickness of the Coulomb barrier. Thus, hydrex should catalyze alpha emission. We can not exclude that the spontaneous fission rate is also affected by the hydrex shield. ... The effect of hydrex should explain most of the results obtained in the so-called "cold fusion" field.

Comment: The "clusters" noted here are not to be confused with the HDCC. This work is theoretical but if demonstrated to be accurate by special experiments could add greatly to the understanding of LENR.

Country USA
Abstract: **Effect of Cold Work on the Amount of Excess Heat Produced during the Electrolysis of Heavy Water with Titanium Cathodes**
Authors: J. Wamer and J. Dash

Six identical cells with platinum anodes and titanium cathodes were connected in series with a control cell of the same type containing two platinum electrodes. The electrolyte in the cells with Ti cathodes contained heavy water and sulfuric acid, whereas the control cell electrolyte contained light water and sulfuric acid. All of the titanium cathodes were cold rolled prior to electrolysis. This treatment increases the internal stress by the formation of point defects and dislocations. During electrolysis at constant current, excess heat was obtained from five of the six cells. This experiment suggests that cold work improves the reproducibility of excess heat production. There appears to be an optimum amount of cold work, about 20% reduction in thickness of the titanium, to obtain reproducible excess heat of approximately 0.4 watt, which is about 20% of the input power. If the titanium is cold rolled to more than 50% reduction in thickness, no excess heat is obtained. Results of characterization of these electrodes before and after electrolysis by scanning electron microscopy, x-ray fluorescence and diffraction, and neutron activation analysis will be presented. A Seebeck envelope calorimeter is currently being used to measure excess heat during electrolysis of heavy water with cold rolled titanium cathodes. In a recent experiment about 0.2 watt excess heat was produced over a period of 194 hours. Results of characterization of these electrodes before and after electrolysis will also be presented.

Comments: Prof Dash (Portland State University) has been one of the most prolific developers of miniature cold fusion cells and has reported consistent positive results. He has been sponsoring a summer workshop for students in which they replicate the LENR using the Fleischmann-Pons-Hawkins type of cells. The temperature difference between the control cell and the active cells in this experiment was about 6 degrees (F?). However, due to the small size of the cells not much excess power is generated.

This ended the first day of the presentation of papers for ICCF8.

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Papers Presented at ICCF8, second day, May 23, 2000

Country USA
Abstract T**he Emergence of a Coherent Explanation for Anomalies Observed in D/Pd and H/Pd Systems.**
Authors: M. McKubre. F. Tanzella, P. Tripodi, P. Hagelstein

In eleven years of study, numerous observations have been made of apparent anomalies in carefully performed experimental studies of D/Pd and H/Pd systems. Such anomalies include: prompt emission of electrons and charged particles unexplained heat in excess of known input sources the residual presence of light elements (notably tritium, helium-3 and helium-4) the possible occurrence of isotope anomalies in higher mass elements (including the host metal) unusual conductance effects both stable and transient, and a strong response to electromigrational influences. The features which unify these apparently disparate observations are the common elements of the needed experimental stimuli, and the requirement for extended lattice coherent processes in any obvious explanation. An attempt will be made in this paper to compare and characterize the results of a range of experiments performed at SRI in terms of these two principals: the commonality of conditions and stimulus and the reasonable requirement for and expectation of coherent processes involving electrons and lattice-trapped hydrogen isotopic entities. By understanding the environmental constraints and the lattice response we may begin to approach an understanding of what appear to be new physical and nuclear effects in coherent crystalline materials.

Comments: McKubre and his group at Stanford Research Institute have provided some of the most careful and detailed work on the basic Fleischmann-Pons-Hawkins electrochemical cells. From just the results of their decade of effort there is no reasonable scientific question but than there are nuclear reactions and excess heat in this type of energy-producing device. However, none of the devices have, as yet, shown the potential for commercialization. McKubre summarized his work as follows: About one-third of cells no excess heat and no helium produced. About one-third - helium-4 produced. About one-third after a loading time of about five to fifteen days, then produced helium- 4 and heat.

Country Japan
Abstract: **Low Energy Nuclear Reactions in Solids**
Authors: J. Kasagi, H. Yuki, T. Baba and T. Noda

In these several years, we have performed a series of measurements of nuclear reactions in metal at very low bombarding energies, in order to investigate how the nuclear reaction is affected by the environment where the nuclear processes take place. In this paper, we summarize the nuclear reactions in solids at very low energies so far studied - the D(d,p)T reaction in various metals for 2 < Ed < 25 keV and the Li(d,a) reaction in Pd for 30 < Ed < 80keV. The most important finding of our work is that the DD fusion reaction can be enhanced extraordinarily when the reaction occurs in a particular host material such as Fe, Pd and PdO. The anomalously large screening potential of 600 eV deduced for PdO clearly indicates the existence of a new mechanism to enhance the reaction rate at very low energies. It is also

found that the Li+d reaction is very much enhanced when the reaction occurs in Pd. The deduced screening potential for the Li+d reaction in Pd is about 1.3 keV, This value is, again, anomalously large, and cannot be explained by bound electron screening alone. We discuss that the enhancement may relate to a fluidity of deuterons in metal for both enhanced reactions at very low energies. Moreover, for the DD fusion reaction, if the reaction rate can be extrapolated to thermal energies with the same screening potential, then, one can presume the DD fusion rate to be more than 10E7 fusions per sec per cm3 at room temperature.

Comments: Note that this work is performed "at low bombarding energies." However, this approach is deemed to be important to obtain a further understanding of nuclear reactions in metals or in crystal lattices.

Country USA
Abstract: **Excess Power using Thin Layers of Palladium on Inert Substrates**
Author: Edmund Storms

Excess power produced by thin layers of palladium deposited on various substrates was measured using a double calorimeter consisting of a flow-type and an isoperibolic-type combined. The effects of palladium thickness and impurity deposition were explored. The behavior was correlated with the open-circuit-voltage and the over-voltage of the cathode with respect to a reference electrode external to the D2O-based electrolytic cell. Several potential errors associated with such calorimetry will be described. The study is directed toward producing reproducible excess energy production using the Pons-Fleischmann effect.

Comments: Dr. Edmund Storms, formerly with Los Alamos National Labs, has been a consistent and successful experimenter with cold fusion. Since he retirement he has built a new house with a reasonably well-equipped laboratory and has been doing some excellent work on characterizing various palladium metals to help determine the conditions under which consistent replication can be expected. One of the problems that has led to negative reports on cold fusion is that various batches of palladium do not provide the same results. Those who happen to use palladium that "works" reported early successes. Those who used a batch of palladium that would not produce excess heat reported failures and became suspicious of successes.

Country China
Abstract: **Nuclear Physics for Nuclear Fusion**
Authors: Xing Z. Li. Ming Y. Mei, J. Tian, Shu X. Zheng, Chong X. Li

Plasma physics and nuclear fusion have been closely related for more than 40 years. As a result, plasma physics has been developed quickly along with controlled nuclear fusion research. Nuclear fusion literature are full of plasma physics for instabilities, transport, non-linearity, and turbulence.... However, this overwhelming predominance of plasma physics leads to an ignorance of nuclear physics. The fusion scientists took the large d+t fusion cross section resonance for granted without thinking of its physics background. Indeed, this resonant mechanism may provide not only a large cross section for fusion reaction, but also a fusion reaction with no strong neutron or Gamma radiation. A selective resonant tunneling model is proposed to show: (1) When the Coulomb barrier is thin and low, the resonant tunneling

mechanism will select the fusion reaction channel with strong neutron and Gamma radiation (2) When the Coulomb barrier is thick and high then, the selective resonant tunneling will select the fusion reaction channel with no strong neutron or Gamma radiation. This selective resonant tunneling model is an important step as it is applied not only to three major cold fusion experimental facts (excess heat without commensurate neutron and Gamma radiation, heat after death, and 3-deuteron fusion reactions), but also to the hot fusion data (d+t resonance at about 100 keV). A simple quantum mechanics calculation shows that the traditional d+t fusion data might be reproduced by this selective resonant tunneling model. The only assumption in this model is a square-well nuclear potential with an imaginary part to describe the absorption. It reproduces the d+t fusion cross section for the energy range from 400 eV to 1 MeV with good accuracy when the cross section varies from 10-26 barns to 5 barns. There are only two parameters in this model: the real and imaginary part of the nuclear potential well however, the hot fusion scientists need 5 empirical parameters to fit this fusion cross section with a similar accuracy (see Plasma Formulary - A handbook compiled by Navy Research Laboratory of US). The hot fusion and cold fusion now can be understood in terms of sub-barrier fusion and selective resonant model. There is really a possible approach toward fusion energy without strong nuclear radiation which is the common goal of our fusion community. A new experiment is proposed to test this model in combination with the Ni-H system. Based on the existing data for Ni-H cold fusion experiments, it seems feasible.

Comments: Xing Zhong Li (the selected chairman for ICCF9 to be held in China) and the co-authors from Tsinghua University have proposed a model and a means by which the model can be tested. The virtue of the model is that it helps to combine the understanding of both hot and cold fusion.

Country USA
Abstract: **Advances in Thin-Film electrode Experiments**
Author: George H. Miley, Univ of Illinois

Thin-film electrodes (layers of order of 1000's of Angstroms) offer several very important advantages for cold fusion research: good reproducibility has been demonstrated, an extremely high power density is obtained in the film, and reaction rates can be optimized by appropriate selection of materials and interfaces. The motivation for Thin-films stems from the "Swimming Electron Layer Theory" which predicts enhanced reaction rates can occur with careful selection of interface materials. Experimental measurements of the spatial distributions of reaction products are consistent with the occurrence of high reaction rate at interfaces.

Further, an increase in excess heat with a larger number of interfaces in observed, although uncertainties in the measurements have prevented a precise correlation to date. The reproducibility of thin-film electrode experiments is associated with the ability of these films to absorb hydrogen/deuterium without cracking (vs. microcracking that frequently occurs with highly loaded solid electrodes). Scanning electron microscope (SEM) observations of thin-film surfaces after experiments is strongly supportive of this concept. In addition, unlike solid electrodes which often exhibit local "reaction centers", thin-films appear to offer a reasonable uniformity of reaction sites. Examination of thin-film surfaces and reaction product distributions suggest that reactions occur over a reasonably broad area of the surface/interface region, with properly designed thin-film electrodes. Further, excess power densities in thin-films have been obtained that are an order of magnitude higher than that in solid electrodes or coated catalytic

particles, further supporting the hypothesis that a reasonably uniform distribution of reactions occurs over the films. Data supporting these various observations will be presented along with comments about key technological issues related to manufacture and use of thin-film type electrodes.

Comments: Note that Dr. Miley has shown that many of the Fleischmann-Pons-Hawkins cell Pd cathodes show the production of many elements - not just the expected d+d nuclear reaction. This editor has frequently quoted Ken Shoulders explanation of this type of cold fusion where the cracking of the Pd lattice is involved as being due to the unwitting production of high-density charge clusters and resulting nuclear reactions with the Pd and deuterons carried by the charge clusters. Where cracking does not occur (in the use of the thin-film technology) there are still nuclear reactions but not the isolated pockets that are often seen in the standard Pd cathodes. Dr. Miley work is considered to be an important contribution to the understanding of nuclear reactions in metals.

Country: Italy
Abstract: **An Energy Amplifier Device**
Author: Ubaldo Mastromatteo

After more than ten years from the beginning of the experiments, in laboratories of many countries, aimed to confirm the phenomenology claimed by Fleischmann and Pons (March 1989) by which in the lattice of hydrogen-loaded metals can take place nuclear reactions at temperatures not above few hundreds degrees centigrade the scientific certainty of this possibility has been achieved. Actually the work of cold fusion experimenters is mainly devoted to find the best technological approach to activate these phenomena in a reproducible, efficient, clean way. The more attractive approach uses a simple nickel layer at high temperature in hydrogen environment. Many experiments using this kind of approach demonstrated a very interesting correlation between excess heat coming from hydrogen-loaded nickel and electrical, thermodynamic conditions of the system. Using a peculiar system configuration devoted to the qualitative study of these phenomena, in recent experiments it was possible to evaluate approximately the average micro-system amplification, moreover in the spots were excess energy melted the material, the amplification was estimated larger than 10. Under way by the author is a change in the system to control, with a suitable feedback block, the local amplification values to extend them in a stable way to the main part of the active material.

Comments: The author cited the work of Don Borghi on a cold plasma generator which produced neutrons. The date was given as about 1957. If anyone can provide more information about Don Borghi, please send it to NEN or Hal Fox, editor. This paper was probably chosen for presentation due to the unusual nature of the author's approach.

Country: Italy
Abstract: **High Hydrogen/Deuterium Loading in Thin Palladium Wires and Preliminary Calorimetric Results Obtained in Electrolytic Cells**
Authors: D. Azzarone, F. Fontana, D. Garbelli

The main goal of the work was to investigate the loading processes of Hydrogen/Deuterium in

thin palladium wires, and to exploit an optimized protocol in calorimetric experiments. The loading ratio (x=H/Pd) was evaluated using an AC resistance measurement and the calibration Baranowski curve. When Hydrogen was used, full reproducibility was obtained for relative resistance down to values R/R,<1.43 (x>0.97), while even better results (R/R(,<1.3) were achieved in spite of a less complete reproducibility. When Deuterium was used the results had not been so challenging because of the presence of some phenomena limiting the intake of Deuterium in Palladium lattice, and probably due to the presence of organic carbon in heavy water, or of other pollutants introduced by the process of isotopic enrichment. The possibility to keep thin Pd wires loaded with low power during the electrolysis and even with zero power after the electrolysis, was tested and confirmed. This result made possible an off-line measurement of the resistance temperature coefficient of high loaded palladium, and opens the possibility of other measurement of physical characteristics of highly loaded Palladium. In the case of Deuterium, similar results were obtained.

We have also performed calorimetric measurement on both systems, from a preliminary series of tests no evidence for anomalous effects has been gained while deuterium cells have evidentiated some more odd behavior probably related to a modest amount of excess heat generation. In order to demonstrate the possible presence of a phase transition in the highly loaded hydride, measurement of the resistance temperature coefficient has been carried out. A sharp increase, of this physical property beyond x=0.7 has been demonstrated and quantified.

Comments: While not a great success in terms of the generation of excess heat, this type of research serves to increase the understanding of the role of hydrogen in metals.

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This is the end of the papers presented during the second day of the ICCF8 conference. A further report will be sent to NEN subscribers via email as soon as the editor has time to provide the information.

From June 4 to June 10, Hal Fox will be attending the annual NPA (Natural Philosophy Association) conference at the University of Cincinnati and presented a paper: "21st Century Physics and New Energy Sources." Copies of this paper can be obtained by sending $2 to cover postage and handling to Hal Fox, 3084 E. 3300 So., Salt Lake City, UT 84109.

Best regards to all INE members, Hal Fox, editor, NEN