

Tutorial School on Introduction to ***“The Science of Low Energy Nuclear Reactions”***

Saturday 5th February 2011, ICSR Auditorium, IIT

Organized by

**The Indian Physics Association (IPA)
The “Science Club” of Chennai and
Federation of Science Clubs of Tamilnadu (FSCT)**

Dear Professors, Faculty Members, Researchers and Inquisitive Scientists,

On behalf of the organizers of the above Tutorial School, we have great pleasure in inviting you to participate in this interesting event being held on Saturday 5th February 2011 at the ICSR Auditorium, Indian Institute of Technology (IITM), Chennai from 9.00 am onwards.

As you may know, the year 2011 marks the “***Centenary of the Discovery of the Atomic Nucleus***” by Ernst Rutherford who was awarded the Nobel Prize for it. As most of us are aware, ever since the discovery of the nucleus two main approaches have been deployed to cause nuclear reactions and thereby release nuclear energy : The first is the use of accelerated charged particles to overcome the repulsive Coulomb barrier between reacting nuclei. This is the basis of thermonuclear fusion. The second approach is the use of neutrons which being neutral has no barrier hurdle to be overcome in order to penetrate the nucleus and cause nuclear reactions. This is the principle exploited in the fission chain reaction.

A century after the discovery of the nucleus it now appears that science has stumbled upon a surprising new way to cause reactions in simple laboratory experiments, even between nuclei having very low energies. While experiments have confirmed the occurrence of these Low Energy Nuclear Reactions (LENR), in the environment of a solid deuterated (or hydrided) metallic lattice, theoreticians are still struggling to arrive at a clear and acceptable explanation for this ‘breakthrough’. This finding is not simply a scientific curiosity. In the history of science, every once in a while, there comes about a new discovery that the scientific community at first finds very difficult to explain and accept. The LENR phenomenon is another example of this.

Research is underway in many countries to create and sustain the favourable conditions needed for such Low Energy Nuclear Reactions to take place in order to be able to harness the energy released. Its success is expected to have immense implications for other branches of Science as well. There are in fact indications that such LENRs are taking place all the time in Nature also, though on a very small scale.

Eight leading researchers of this emerging field known as “Condensed Matter Nuclear Science” will be appraising the participants of the School by providing an

introduction to the fascinating phenomena that have been observed. We are confident that you will find participating in the school scientifically rewarding and intellectually stimulating.

Copies of the School programme and a compendium of the background of the speakers is attached. *There is no registration fee for this school but we would appreciate your informing us in advance of your interest in participation.*

This School is actually a Pre-conference event associated with the 16th International Conference on Condensed Matter Nuclear Science (ICCF 16) being held during Feb 6th to 11th 2011 at the GRT Grand Convention Centre in T.Nagar (See www.iscmns.org/iccf16), to be inaugurated by Dr.S.Banerjee, Chairman of the Atomic Energy Commission. Such an ICCF series conference is being held in India for the first time.

The following websites may be consulted for more information
www.lenr.org, www.newenergytimes.com, www.coldfusionnow.org

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PROGRAMME

09.00 – 09.15 : Welcome Remarks	: Dr.M.Srinivasan, Organising Committee Dr.S.Kailas, President, IPA Mr. M.R.Sridharan, Science Club
09.30 – 10.00 : Dr.David Nagel	: <i>“Overview of Low Energy Nuclear Reactions”</i>
10.00 - 10.30 : Dr.Michael McKubre	: <i>“Role of Degree of loading and other Experimental Parameters in obtaining Reproducible Excess Heat”</i>
10.30 – 11.00 : Coffee	
11.00 – 11.30 : Dr.Yashuhiro Iwamura	: <i>“Observation of Multi-body Nuclear Transmutation Reactions during D₂ Gas Permeation through Multilayer Complexes”</i>
11.30 – 12.00 : Prof.Vladimir Vysotskii	: <i>“Nuclear Transmutation Reactions Catalyzed by Microbial complexes”</i>
12.00 – 12.30 : Andrew Meulenberg	: <i>“Extensions to Physics : Low Energy Nuclear Reactions”</i>
12.30 – 13.00 : Edmund Storms	: <i>“Theoretical Considerations in the Nature of Understanding the Unique Nuclear Active Environment Responsible for LENRs in Deuterated Metals”</i>
13.00 – 14.15 : Lunch	

14.15 – 15.45	: Panel Discussion	: Moderator : Dr. Bikash Sinha Co-Moderator : Dr. Michael Melich Theme : <i>“Improving Reproducibility/Gaining wider support/Way Forward”</i>
15.45 – 16.00	: L.V.Krishnan : Daniel Chellappa	: Concluding Remarks : Vote of Thanks
16.10	Coffee	

Brief Background Notes on the Speakers

* **Dr.David Nagel** whose doctoral degree was in Materials Engineering, is presently a Research Professor at the Low Energy Nuclear Reactions Laboratory of George Washington University. He was earlier in the US Govt. Naval Research Laboratory in Washington DC.

* **Dr.Michael McKubre** a renowned Electrochemist is presently Director of Energy Research at SRI International in Menlo Park, California. He has been involved in LENR research right from the inception and has carried out pioneering investigations on the factors responsible for producing excess heat in Pd-D₂O Electrochemical cells.

* **Dr.Yashuhiro Iwamura** is an experimental Physicist at the Mitsubishi Heavy Industries Laboratories in Yokokama, Japan. He has been investigating the occurrence of nuclear reactions in D₂ gas Loaded Pd systems for two decades. Starting from simple Pd foils his pioneering research has led him to discover the occurrence of reproducible multi deuteron nuclear reactions involving Cs, Sr and Ba deposited on the surface of certain specially prepared multi layer Pd complexes, during the simple process of gas permeation at a pressure differential of just one atmosphere.

* **Prof. Vladimir Vysotskii** is Head of the Theoretical Radiophysics Department of the Kiev National Shevchenko University in Ukraine whose research interests span both Quantum Physics and Microbiology. During the last two decades he has conducted pioneering studies in the field of what is known as “Biological Nuclear Transmutations”. Prof. Vysotskii is conducting a one day Post ICCF 16 conference workshop on this topic at the Biotechnology Department of SRM University on 15th February 2011.

* **Dr.Andrew Meulenberg** who holds a doctoral degree in Nuclear Physics was involved primarily in Aerospace and Opto-Electronics research for many years. During the last 5 years he has been a visiting Professor initially at the Indian Institute of Science in Bangalore and more recently at the University of Science Malaysia in Penang. His present research interests include Theoretical modeling of LENR phenomena.

* **Dr.Edmund Storms** is a physical Chemist whose doctoral Thesis was in Radiochemistry. He was working at the Los Alamos National laboratory in 1989 when Cold Fusion burst upon the scene. He has carried out innumerable calorimetric and other diagnostic experiments involving both electrolytic cells and gas loaded devices. He is author of the book titled “The Science of Low Energy Nuclear Reaction” (World Scientific, 2007) which has been hailed as the first text book of the LENR field. Dr.Storms has been seeking to fathom the secret of the

Nuclear Active Environment (NAE), a term coined by him, that is responsible for catalyzing nuclear Reactions at selected spots within deuterated metallic lattices.