The 16th International Conference
on
Condensed Matter Nuclear Science (ICCF 16)
Chennai, Feb 6-11, 2011

Note for the Press

The Conference is being held in Chennai at the GRT Grand Convention Centre, T.Nagar during Feb 6-11, 2011. The Conference website is available at www.iscmns.org/iccf16. The National Steering Committee for the Conference includes a number of distinguished Indian Scientists.

This Conference is being organized by the International Society for Condensed Matter Nuclear Science (www.iscmns.org) in collaboration with the Indian Physics Association (IPA) and the Indian Nuclear Society (INS). The Indian Chemical Society (ICS), Indian Society for Radiation Physics (ISRP) and the Materials Research Society of India (MRSI) have extended patronage. Dr. S Banerjee, Chairman, AEC has agreed to inaugurate the Conference.

Partial financial support has been received from Dept of Science and Technology, Atomic Energy Regulatory Board, Board of Research in Nuclear Sciences of DAE, NPCIL and DRDO. *"The New Energy Foundation"* of USA that publishes the 'Infinite Energy' magazine (www.infinite-energy.com) has also provided some funding.

The history of this conference series goes back to 1989 when two Chemists, Martin Fleischmann and Stanley Pons of the University of Utah in USA made a dramatic announcement that they had found a new energy source. They had passed electric current through heavy water in a beaker with palladium as one of the terminals and found much more energy was produced than was supplied to the beaker. At the time, this excess energy was explained as coming from fusion of deuterium nuclei similar to what happens in high temperature nuclear fusion. This was supported by

the presence of fusion reaction products in the beaker and the palladium electrode.

Many groups all over the world, including several teams in India in BARC, attempted to repeat the experiment. Some groups reported success as did the BARC teams, while many did not. Some groups found certain types of reaction products while others found different types of products. This uncertainty combined with the inability to explain the observed phenomena on the basis of accepted knowledge about behaviour of atomic nuclei led to rejection by an Expert Panel appointed by the US Govt of the claim of 'cold fusion' as it was called.

This led to a drop in the number of groups conducting 'cold fusion' studies. But some of them, including a research group of the US Navy, have continued to carry out serious research to examine how to achieve reproducible results and have slowly unraveled many of the mysteries associated with the nuclear reactions observed. These groups have been organizing periodic conferences to present their results. The first of the series was held in 1990 and the 16^{th} is now being held in Chennai. This is also the first time the conference is being held in India.

It is now established that the occurrence of nuclear fusion reactions at room temperatures releasing energy is not limited to systems using deuterium as fuel, hydrogen being another choice. Likewise, they are not limited to use of palladium. Nickel also is found to work, but with hydrogen. Reliable and reproducible operation of nickel-hydrogen system, if established, would mean scientists have stumbled upon an inexpensive source of energy at low power levels.

Helium is not the only reaction product that has been observed. Tritium has also been seen. Interestingly, there are reports that the reactions have yielded isotopes of some elements not initially seen to be present in the system. There are very sensitive instruments available today that can detect the presence of these isotopes in extremely low concentrations, which was not possible before. The production of these isotopes is believed to

result from some kind of nuclear transmutation. There are indications that this may also be happening in nature but at low rates.

Most interestingly, there are no reports of significant levels of radioactivity associated with the observed nuclear reactions as in the case of present day nuclear fission and fusion systems.

Unfortunately, the possibility that research in this field could yield an environment friendly source of power at low cost has resulted in a competition for filing patents and a hesitation to make public results of successful experiments by some groups. A couple of weeks ago, one experimenter in Italy demonstrated generation of several kilowatts of power, but had his device covered and did not allow others to make any measurements of their own. He has now offered to conduct another larger demonstration in a more open fashion.

It is now believed that nuclear reactions occur when nuclei of hydrogen or deuterium are squeezed into spaces between atoms of nickel or palladium under certain conditions. Present investigations are directed towards gaining a clear understanding of the conditions to permit reproducibility.

Since many types of reactions are seen to occur, this field of study is no longer described as 'cold fusion' but as 'Low energy nuclear reactions'. And since the matrix in which they occur consists of atomic lattices of metals like palladium and hydrogen, the study of these reactions is classified as Condensed Matter Nuclear Science.

We have received 64 papers for presentation at the ICCF16 that will be presented by 34 scientists from various parts of the world with UK, USA, France, Italy, Japan, Russia, Ukraine, Malaysia and India among them. Several scientists from China have also submitted papers for the Conference and were keen to participate, but have not been able to undertake the trip.

The papers to be presented at the Conference cover a variety of topics that include:

Electrolysis systems of Fleischmann-Pons type
Effect of pumping hydrogen or deuterium gas into metal lattices
Measurement of nuclear particles arising from reactions
Transmutation reactions
Effect of materials on the reactions and
Theoretical explanations for the reactions

Three allied meetings are also planned along with the Main conference. The first of these is a one-day Special School on LENR being held at IIT(M) on Feb 5. This is intended to familiarize Faculty, Research Scholars and Post-Graduate Students in Colleges and Universities and other Institutions with Condensed Matter Nuclear Science, in particular with LENR so that they can plan undertake research in this emerging field.

The second is a meeting on Feb 11-12, 2011 to enable visiting scientists and scientists from IGCAR to discuss the behaviour of hydrogen and deuterium in metal lattices.

The third meeting is being organised at SRM University, Kattankulathur on biological transmutation through LENR.

Dr. M. Srinivasan
Chairman, Organising Committee,
ICCF16