

Report on ICCF16 Transmutation Workshop

Rani George and Richard Thilagaraj

After the main ICCF16 conference ended on February 11, a one-day workshop on “Biological Nuclear Transmutations: Historical Perspective and Applications” was held on February 15 at the Kattankulathur campus of SRM University (SRMU) in Chennai. The workshop was jointly organized by the Kalpakkam Chapter of the Indian Institute of Metals and the Biotechnology Department of SRMU. Co-conveners were Dr. Richard Thilagaraj and Dr. Rani George.

The workshop was opened by Dr. S. Vincent, a Member Secretary of the Tamil Nadu State Council for Science & Technology. SRMU Provost Dr. M. Ponnaivaiko presided over the inaugural function. More than 350 participants attended the workshop from various institutions, such as IGCAR, Kalpakkam, BARC Mumbai, SRMU, Satyabama University, Stella Mary’s and Madras Christian Colleges, Bharathidasan University. Some of the foreign participants from ICCF16 also participated in the workshop.

Dr. Jean-Paul Biberian gave the first talk, “Historical Perspectives of Biological Nuclear Transmutations.” He clearly showed the evolution of these studies from pre-Lavoisier time (1743-1794) to Louis Kervran (1901-1983), followed by his own studies and finishing with the latest studies by Prof. Vladimir Vysotskii. According to Biberian, though the earlier studies lacked the scientific sophistication of present day experiments, early researchers have to be appreciated for their systematic approach to experimentation and results. He also discussed the replication attempts during the early period and how negative results were often obtained. Biberian, however, noted that failed replications should not reduce our interest in this work, as a mere “recipe” does not guarantee an “absolute” final product.

Prof. Vladimir Vysotskii presented, “Experimental Confirmation of Isotopic Anomalies in Biological Nuclear Transmutations.” He discussed transmutations of non-

radioactive isotopes and stressed the importance of presenting the results as isotopic ratios; identifying the rare isotopes which are not abundant in the earth is an important criteria in these studies. As an example, he showed that the transmutation of Mn-55 to Fe-57 is very important due to the rarity of this isotope on earth (2.2%) compared to the presence of Fe-56 (91.7%).

Dr. Mahadeva Srinivasan gave a lucid presentation on LENR work in laboratories, which immensely helped the student community to understand the basics of this work and the complexity and controversy associated with it.

After lunch, the afternoon session began with Prof. Vysotskii speaking on radioactive isotope transmutation. He presented exciting results of the possibility of low-level waste remediation in nuclear power plants.

Dr. Rani P. George discussed her replication experiments on transmutation of isotopes in growing microbial associations. She explained her results with H₂O, which showed conversion of Mn-55 to Fe-56. Though, as discussed by Vysotskii, iron is an abundant isotope in nature, George’s ICP-MS analysis of control experiments without Mn and without biogranules did not show the peak for iron. She also explained that due to difficulty in growing biogranules in heavy water, it would be another week before she had complete results to present.

The last talk by Prof. Vladimir Vysotskii was on application of biological transmutation studies to waste management in the nuclear industry.

The workshop culminated with a discussion session chaired by Dr. P.C. Kesavan, former executive director of the M.S. Swaminathan Research Foundation. The presentations and discussion helped students better understand the difference between mutation and biological nuclear transmutation. Individuals from SRMU encouraged students to carry out this type of research.



Full auditorium at the transmutation workshop. (Photo courtesy of ICCF16.)



The workshop panel. (Photo courtesy of ICCF16.)