The Passing of Indian Cold Fusion Researcher Mahadeva Srinivasan

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Our friend and colleague Dr. Mahadeva Srinivasan passed away on August 31 at the age of 83. He was a consummate professional, a true gentleman and served as a real flag-bearer for the cold fusion field. He worked diligently over the years to get people to work together—researchers, countries, publishers with authors. Srinivasan was well-known as a proponent of cold fusion research in India, encompassing his own work as an experimental physicist.

Dr. Srinivasan held four degrees: two Bachelor of Science degrees from the University of Madras, India (physics 1955; technology 1957), a Master's degree in physics from the University of Bombay (1966) and a Doctoral degree in physics (University of Bombay, 1984). When he completed his degree in 1957, he went on to the Postgraduate Training School at the Bhabha Atomic Research Centre (BARC); after completing training, he was assigned to the Nuclear Physics Division as a scientific officer. In 1963, he became head of the Experimental Reactor Physics group at BARC. Twice in his early career he was a visiting scientist at laboratories in North America (1961, Argonne National Laboratory, Illinois, U.S.; 1968 Chalk River National Laboratories, Canada).

In 1974, Srinivasan was appointed head of the Neutron Physics Division at BARC, a position he held until his retirement in 1997. When the Pons-Fleischmann cold fusion announcement came in March 1989, Srinivasan and his team were already working on fusion projects. BARC Director P.K. Iyengar asked Srinivasan to coordinate cold fusion work. At any one time, he was overseeing up to 12 different groups/divisions doing work related to cold fusion. All of the various BARC groups confirmed observing sporadic emission of neutrons and tritium in PdD_2O experiments. (See Srinivasan's paper, "Neutron Emission in Bursts and Hot Spots: Signature of Micro-Nuclear Explosions?," reprinted in *Infinite Energy*.[1])

The December 1989 publication *BARC Studies in Cold Fusion*, compiled by Srinivasan, detailed the March to September 1989 BARC experiments.[2] Jed Rothwell, e-librarian for lenr-canr.org, compiled a special page about the publication,[3] on which he writes: "From 1989 through 1994, some of the best cold fusion research ever published was performed at BARC..." Srinivasan detailed the early days of BARC's cold fusion experiments in many publications, including a 1994 *Cold Fusion* magazine interview[4] and a 2011 *Infinite Energy* piece by Marianne Macy[5] about India's early role in the field.

Cold fusion work at BARC was stifled after 1991, when a new director took over who did not believe the claims. But, Srinivasan and his team continued work (as did a few other of the groups), continued to get results and were very present in the field until his retirement in 1997. (Many of his papers are online by searching the index of the lenr-canr.org website: https://lenr-canr.org/index/Papers/ .)

Srinivasan attempted to keep a low profile after his retirement. But, he attended all of the ICCF conferences and kept in touch with colleagues in the field. From our perspective, he remained very involved. Srinivasan had been a member of *Infinite Energy's* Scientific Advisory Board since 1995, and remained involved with our publication until his death. He was always available to lend technical advice. In 1999, for the special issue of *Infinite Energy* about the tenth anniversary of the cold fusion announcement, Srinivasan agreed to contribute to the "Looking Back and to the Future" piece. In true Srinivasan fashion, he wrote mostly about the future. He also commented on the hurdles faced by the field, "the human drama, the behind-the-scenes conspiracies, the scheming by vested interests, the mental block of the scientific establishment, the fear of ridicule by fellow scientists, the secrecy due to patent considerations and the lure of the pot of gold at the end of the commercialization rainbow."

After 2010, Srinivasan became more publicly active in cold fusion again, particularly in trying to get the Indian government and science institutions to reignite LENR research. In addition to his many outreach campaigns within India, he chaired the 2011 16th International Conference on Cold Fusion (ICCF16) in Chennai, India. He was successful in getting a high media profile for the conference, with stories in Indian newspapers and online journals.[6,7] In keeping with his championing of transmutation research, Srinivasan highlighted the work with a post-ICCF16 one-day workshop at SRM University in Chennai, "Biological Nuclear Transmutations: Historical Perspective and Applications."[8]

At ICCF16, Srinivasan told Marianne Macy[6] that he "undertook the responsibility to organize ICCF16 in Chennai mainly with a view to help revive the field in India. The satellite meetings were conceived with this objective. I am satisfied and happy that the main custodians of nuclear science and technology in India, namely the Department of Atomic Energy, have awakened to the fact that the field of CMNS/LENR is real. I have been assured by the Chairman of AEC and Directors of BARC and IGCAR that this subject will be looked into."

Srinivasan and Dr. Andrew Meulenberg edited the 2015 special cold fusion edition of *Current Science*,[9] an Indian science journal. At the time, he noted he was optimistic that the publication would "help create an environment which is very conducive for reigniting interest in this field in India."

Just before his death, Srinivasan was still actively involved in promoting cold fusion research. Dr. Raj Pala of the Indian

Institute of Technology at Kanpur noted: "Dr. Srinivasan visited our campus for a talk about eight months ago and his ebullient talk was full of critical results from the early days of cold fusion. Despite his age, the two days he spent on campus were filled with discussions on not only cold fusion but also many other interesting topics. He had a wide interest in energy technologies and was open to exploring them critically...At the beginning of lockdown in April, I had emailed him inquiring how he was doing and in response, he called that evening and talked for more than an hour, mostly about LENR...It is indeed remarkable that a person is so dedicated to inspiring other people on professional matters until the very end. He genuinely wanted to nurture the field of LENR and strengthen the community trying to unravel the nuances of the phenomenon."

Dr. Srinivasan's family provided a stunning tribute when they informed the cold fusion community of his death. His three daughters Aruna, Sumathi and Veena wrote, in part:

> He actively maintained a global network of family and friends. He was an intellectual and a scientist, excelling as one of India's top nuclear physicists and dedicating most of his professional career at Bhabha Atomic to the security of his country. In retirement, he was steadfastly engaged in formulating new energy paradigms in order to safeguard the environment. He challenged the scientific establishment and he strove to keep an open mind and encouraged all of us to continuously see the changing world through different perspectives.
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> His curiosity was addictive. He followed global and local developments in ways that never failed to illuminate the more subtle aspects of any issue. He harbored no prejudice, appreciated humor, was an engaging conversationalist, read voraciously, shared ideas and was sincere and respectful in his understanding of others viewpoints.
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> Uncomfortable with organized religion, he was a Theosophist—practicing the principles of universal brotherhood, exploring the unknown laws of nature and comparative study of religion in their true spirit.
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> He traveled the world and reached many of the globe's more exotic destinations and shared stories about unique incidents in each locale. He rarely revealed anything less than a true zest for life, which was contagious—even a fleeting conversation with him made it easy to forget the incidental annoyances of life.
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> [H]e was vivacious and inspiring. He was an exemplary father, grandfather and father-in-law. He raised three beautiful daughters, and of course, was a devoted husband to his beloved wife, Kamala, who predeceased him.

Dr. Mahadeva Srinivasan will be sorely missed in the cold fusion community. He was involved with many other areas of research and endeavor, but the impact he had on the cold fusion field is known and quantifiable to us. What follows are just some portions of the many tributes from his colleagues in the field (a Facebook page[10] has also been activated for tributes).

William Collis, Chief Executive Officer of the International Society for Condensed Matter Nuclear Science (ISCMNS), described Srinivasan perfectly: "Chino was a true pioneer, a rare breed of scientist able to take a step backwards and see the panorama of reality from outside the box. He always astonished me with his practical, original and open-minded thinking."

Dr. Edmund Storms, retired from Los Alamos National Laboratory, said of Srinivasan: "Only occasionally do we know a person who demonstrates how a life should be lived and how we should behave toward science and to each other. Chino was such a person. He set an example for us all. He was willing to explore new ideas without turning the process into personal conflict. He saw the big picture without missing the details. His example is greatly needed these days. We all will miss his wise council."

Dr. Francis Tanzella, retired from Stanford Research International (SRI), recalled, "I had the privilege of interacting with Chino countless times, beginning in the early days of the field. He spent some months at SRI and often spent his summers in the Bay Area visiting family. I will always remember our time together as pleasureful, informative and instructive. He always found new alt-alternative energy producing phenomenon from people's work within and outside of cold fusion. Chino was often the first person I would meet, and even seek out, when attending the conferences."

Dr. David Nagel of The George Washington University and LENRIA stated, "Chino's death is a great loss, looking back and ahead, both professionally and personally. He made many contributions to LENR for a long time, and was still very engaged in the science and sociology of LENR. Based on what he accomplished, it was natural to expect Chino to continue to do good things for the LENR community...His wonderful personality made the LENR community more civilized, as well as more pleasant and productive."

Dr. Mitchell Swartz of JET Energy noted, "Chino was a nuclear scientist who truly supported this field for decades, leading to improved education of the public. He shared the discovery of very low level emission of penetrating ionizing radiation from active LANR systems. Most importantly, he proved to be a true friend and ally to everyone in field."

Jacques Ruer, President of the French Society of Condensed Matter Nuclear Science, wrote: "Our community lost a giant. I always enjoyed talking to Chino when we met at the conferences. He was open to discuss any subject. I discussed with him at length the experiment made at BARC with deuterium loading of titanium chips. I still find the autoradiograph of the samples the most beautiful and simple image able to convince any skeptics that 'something unusual is taking place.' We have to follow his path and find out what is the full story behind this image."

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