

Supramaniam Srinivasan

by S. Sarangapani and B. Tilak

SUPRAMANIAM SRINIVASAN, affectionately called “Srini,” was born in Sri Lanka on August 12, 1932. He graduated with a degree in chemistry from the University of Ceylon. Inspired by Dr. M. A. V. Devanathan, a distinguished electrochemist from Sri Lanka, Srini pursued electrochemistry for his graduate work at the University of Pennsylvania, under the guidance of Prof. John Bockris. His thesis dissertation dealt with the use and determination of hydrogen and tritium separation factors, as a diagnostic tool, for elucidating the kinetics of the hydrogen evolution reaction. After completing his thesis, Srini continued with Prof. Bockris as a post-doctoral fellow, and worked on the kinetics of electrochemical reactions on porous electrodes—a start of his fuel cell career.

In late sixties, Srini joined the laboratory of Dr. Phil Sawyer, a cardiac surgeon at Downstate Medical Center, to investigate and establish the role of electrochemical phenomena in biological systems. Dr. Sawyer was interested in atherosclerosis and was conducting research on the relationship between the nature of the charges on blood constituents and the clotting behavior. Srini made quantitative assessments of the nature of the charge of red blood cells, white cells, and platelets and devised easy screening methods to predict the clotting behavior. That research led Dr. Sawyer to devise a unique method of treating bovine vessels to make them

fit for use as bypass ducts for cardiac patients. It was during this time at Downstate Medical Center, he wrote his first book on *Fuel Cell Electrochemistry* with Prof. Bockris.

After a brief stay at IBM, Srini joined Brookhaven National Laboratory (BNL) and established a Hydrogen Energy Technology Group with reputed electrochemists and an eager, younger generation of researchers. At BNL, he played a major role in initiating the Fuel Cells for Transportation Program, sponsored by the U.S. Department of Energy. In keeping with his philosophy of career development, “Get in, Get on, Get out” (Bockris in the “In Memorium” compilation, 2004, compiled by Mangai Srinivasan), Srini then moved to Los Alamos National Laboratory (LANL), where he established another large fuel cell group. His ground-breaking work at LANL led to the development of very low loading fuel cell electrodes, and formed the basis of LANL’s continued efforts to further reduce catalyst loadings and remove Pt cost as one of the impeding factors in the commercialization of the technology.

After spending a year in Toronto at the Institute for Hydrogen Systems at the University of Toronto, Srini became Deputy Director of the Center for Electrochemical Systems and Hydrogen Research (CESHR) at Texas A&M University in 1988. He established a large PEM fuel cell group and conducted

collaborative research in energy storage with various national laboratories. During his tenure at CESHR, Srini saw the need for a standardized test equipment for fuel cell research, to allow the researchers worldwide to compare their results and improve the state-of-the-art faster. He founded GlobeTech to produce and sell his fuel cell test station. Srini’s test station has been deployed all around the world, and made it possible to comparatively evaluate fuel cell data from various groups.

Srini’s research at Texas A&M continued for almost a decade, at the end of which he wanted to retire and settle in New Jersey. But, he found an abode at the Center for Energy and Environment Princeton University, where he introduced Prof. Bocarsly’s group in the chemistry department and two other engineering groups to fuel cell science. He established a fuel cell laboratory at Princeton, and mentored several graduate students and post-docs. He wrote a text book on fuel cells while battling a progressive heart disease and just about completed it prior to his passing away.

Srini was tireless in doing his science; his energy was so great that it was often hard for his young students to keep up with his activity. His work ethic, enthusiasm for science, and expectation that all would rise to the top of their performance levels, served as a model for the rest of his group at Princeton. He was passionate about science and devotedly optimistic about

the role of fuel cell technology to the future development of our society and the world (A. Bocarsly, “A Tribute,” *Fuel Cells*, Springer, 2006).

Although Srini was critical to the development of fuel cell research in my laboratory, far more important to me was his interest in the lives and development of young scientists. It was that goal, the development of next generation of scientists and engineers, which brought about the fuel cells book. Srini desired a text that would teach the next generation about electrochemistry and fuel cells, so that they could carry on the work that he and others started. Thus his work stands as a testament to Supramaniam Srinivasan’s life and accomplishments. Perhaps more than any specific scientific breakthrough that the readers of his text might accomplish, Srini would take great pride in knowing that he had helped train the next generation of researchers through the words of this text, for above all, he was a friend and mentor of his students.

This sentiment has been expressed by many of his students and post-docs. Dr. Velev, a colleague at Texas A&M said, “He was always ready and willing to help his students in any way possible by making sure that they participated in all ECS conferences, attending other important meetings, or sent to other labs for



(1932-2004)



SUPRAMANIAM SRINIVASAN with his fuel cell test station.

information and technology exchange. Throughout the years he had a very extensive network of colleagues and friends that he maintained constantly." Dr. Enayetullah observed, "Besides his own contribution, Srini trained and mentored dozens of young fuel cell scientists/technologists from all over the world; many of them are seen crowding national/international fuel cell seminars, symposia, and workshops."

For almost 25 years, Srini was very active in the affairs of ECS. He became a member in 1968. In 1977, along with Jerry Woodall, he was a co-founder of the Energy Technology Group (now the Energy Technology Division). He served as chair of the Group in 1978. He also served as a Group/Divisional Editor for the *Journal of The Electrochemical Society* from 1980 to 1991. He served as a member of the Society Meeting Committee (1998-2001) and the Publication Committee (1995-1998). Srini was an organizer of several very successful ECS symposia. This included the series on "Electrode Processes and Materials for Energy Conversion and Storage," held in 1977, 1987, 1994, and 1997. He also organized a very successful symposium on "Industrial Water Electrolysis" in 1978. He co-edited proceedings volumes for all of these symposia. Srini received the Energy Technology Division's Research Award in 1996 and was named an ECS Fellow in 2001.

By academic training and professional career, Srini was an outstanding electrochemist, always pushing the edge of fundamental science toward the corridor of applied technology. Srini is admired by everyone who came into contact with him as a good-hearted man with high ethical values, a restless scientist with utmost professional integrity, and a pioneer contributor to polymer electrolyte membrane fuel cell science and technology. As Prof. Bocarsly put it aptly, "to run into Srini while strolling through the lab guaranteed a bright smile, a good conversation, and a new idea to try out."

About the Authors

S. SARANGAPANI is with ICET, Inc., Norwood MA, and may be reached at s-sarangapani@verizon.net.

B. TILAK is with PTO, Inc., Grand Island, NY, and may be reached at Tilak@ptoinc.com.

Call for Donations Supramaniam Srinivasan Young Investigator Award

The ECS Energy Technology Division has established a new award for young investigators, the Supramaniam Srinivasan Young Investigator Award. The award honors Dr. Srinivasan's devotion to foster fuel cells, as well as his commitment to mentor and induct young researchers into electrochemical science and technology.

A worldwide energy crisis is imminent and will affect all of society either in direct or indirect ways. Fuel cells and hydrogen constitute important parts of the solution to this issue. It is thus fitting that one of the early fuel cell and water electrolysis research and development pioneers and advocates was chosen for the name of this award to continue his legacy.

The goal of this call for donations is \$20,000, sufficient to establish a fund for a yearly \$1,000 award. Any donation will be accepted. It is anticipated that the goal will be achieved before the ECS spring 2011 meeting (May 1-6, 2011) to ensure that an award can be made for 2011. Contributions should be made payable to The Electrochemical Society and sent to: 65 South Main Street, Pennington, NJ 08534, USA; tel: 1.609.737.1902. Include the name you wish to have recognized, and complete mailing address, telephone number, and e-mail. Be sure to indicate that the donation is for the Supramaniam Srinivasan Young Investigator Award.

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