

Faraday Technology Inc. Receives the Presidential Green Chemistry Challenge Award



The 2013 recipient of the Small Business category of the Presidential Green Chemistry Challenge Award was Faraday Technology, Inc. (Clayton, Ohio).

The award was for Functional Chrome Coatings Electrodeposited from a Trivalent Chromium Plating Electrolyte.

Chromium remains top choice material for surface coatings in many highly demanding applications for industrial applications for military and commercial markets. The usual plating baths rely on solutions of hexavalent chromium, although Cr(VI) is the most toxic form of chromium due to its carcinogenic properties. Replacement of chromium by other material is a possibility, but so far no satisfactory alternative exists. However, Faraday Technology, Inc. developed a process in which the Cr(VI) is replaced by less toxic and non-carcinogenic trivalent form of chromium. The process relies on programmed electroplating from Cr(III) bath, in which a reductive cathodic pulse is followed by an anodic pulse, and then a relaxation period. This approach allows for thicker coatings and the structure of properties of the coating can be adjusted as well. The patented FARADAYIC® TriChrome Plating Process could eliminate about 13 million pounds of hexavalent chromium waste in year in the United States alone and as much as 300 million pounds worldwide.

The Presidential Green Chemistry Challenge Awards promote environmental and economic benefits of developing and using novel green chemistry. The award was established by the Environmental Protection Agency in 1996 and the EPA Office of Chemical Safety and Pollution Prevention sponsors the Presidential Green Chemistry Challenge Awards in partnership with the American Chemical Society Green Chemistry Institute® and other members of the chemical community including industry, trade associations, academic institutions, and other government agencies. Through 2013, EPA presented awards to 93 winners in categories of Greener Synthetic Pathways, Greener Reaction Conditions, The Design of Greener Chemicals, and Business and Academia.

Faraday Technology was founded in 1991 to develop and commercialize novel electrochemical technology. The company core competency lies in the management of the innovation process from concept to pilot-scale. It provides its government and commercial clients with applied electrochemical engineering technology development from bench-scale through pilot or pre-production levels. In support of its electrical mediation approach, Faraday also markets “first production” rectification equipment and effluent decontamination reactor hardware.

Adam Weber Receives Outstanding Early Career Scientist Award



ADAM WEBER

ADAM WEBER, Chair of the ECS Energy Technology Division was bestowed a Presidential Early Career Award for Scientists and Engineers, the highest honor bestowed by the United States Government on science and engineering professionals in the early stages of their independent research careers. The awards, established by President Clinton in 1996, are coordinated by the Office of Science and Technology Policy within the Executive Office of the President.

Awardees are selected for their pursuit of innovative research at the frontiers of science and technology and their commitment to community service as demonstrated through scientific leadership, public education, or community outreach. To learn more about the award and this year’s recipients, please visit: <http://www.whitehouse.gov/the-press-office/2013/12/23/president-obama-honors-outstanding-early-career-scientists>.

Dr. Weber holds BS and MS degrees from Tufts University, and earned his PhD at University of California, Berkeley in chemical engineering under the guidance of John Newman. His dissertation work focused on the fundamental investigation and mathematical modeling of water management in polymer-electrolyte fuel cells. Dr. Weber continued his study of water and thermal management in polymer-electrolyte fuel cells at Lawrence Berkeley National Laboratory, where he is now a staff scientist. He has authored over 40 peer-reviewed articles on fuel cells, flow batteries, and related electrochemical devices, developed many widely used models for fuel cells and their components, and has been invited to present his work at various international and national meetings.

Dr. Weber has been the recipient of a number of prestigious awards including a Fulbright scholarship to Australia, the 2008 Oronzio and Niccolò De Nora Foundation Prize on Applied Electrochemistry of the International Society of Electrochemistry, and the 2012 Supramaniam Srinivasan Young Investigator Award of the ECS Energy Technology Division. His current research involves understanding and optimizing fuel-cell performance and lifetime; understanding flow batteries for grid-scale energy storage; and analysis of solar-fuel generators.



LUBOMYR T. ROMANKIW

Lubomyr T. Romankiw Elected a Foreign Associate to NAE

National Academy of Engineering (NAE) announced on February 6, 2014 election of new members and foreign associates. L. T. Romankiw, an IBM Fellow (IBM, Yorktown Height, NY) was elected as a Foreign Associate for “innovation of thin-film magnetic head structures and electrochemical process technologies for micro-electronics device fabrication.”

Members (U.S. citizens) or foreign associates (non-U.S. citizens) are elected to NAE membership by their peers. Election to membership is one of the highest professional honors accorded an engineer. Members have distinguished themselves in business and academic management, in technical positions, as university faculty, and as leaders in government and private engineering organizations. The current membership is 2,250 U.S. members and 214 foreign associates.

Enrico Fermi Award Bestowed on Long-Time ECS Member Allen Bard

February 3, 2014 was a festive day for science in Washington DC. Two prestigious scientists received The Enrico Fermi award. The two men honored were Allen J. Bard and Andrew Sessler. In the early afternoon the winners were introduced to President Obama in the Oval Office by the Director of the Office of Science and Technology Policy John Holdren. The formal ceremony took place later that day at the U.S. Department of Energy Headquarters in Washington, DC.

The Fermi Award honors the memory of the Nobel Laureate Enrico Fermi and it has been presented to outstanding scientists since 1956. It is one of the oldest honors in science and technology given by the U.S. Government and it is also very prestigious. The Fermi Award is administered on behalf of the White House by the Office of Science of the U.S. Department of Energy. Although in some years there were multiple recipients, some years the award was not even awarded. The purpose of the award is to encourage and recognize excellence in research, leadership, and service in energy science and technology. A Fermi Award winner receives a citation signed by the President of the United States and the Secretary of Energy, a medal bearing the likeness of Enrico Fermi, and an honorarium.

Dr. Bard's citation reads: "For international leadership in electrochemical science and technology, for advances in photoelectrochemistry and photocatalytic materials, processes, and devices, and for discovery and development of electrochemical methods including electrogenerated chemiluminescence and scanning electrochemical microscopy."

Dr. Bard joined the University of Texas at Austin in 1958, and although he was on several sabbaticals as a visiting professor or lecturer at various institutions, he remained at UT for his entire career. Allen Bard is known to many generations of students as a co-author (with Larry Faulkner) of the textbook *Electroanalytical Methods*. To those practicing electrochemistry, he is known on many levels, for his own publications, for editing the series *Electroanalytical Chemistry* (21 volumes) and the *Encyclopedia of the Elements* (16 volumes) and for the reference/monograph *Standards Potentials in Aqueous Solutions*. He was also the editor-in-chief of the *Journal of the American Chemical Society* from 1982 to 2001. The Electrochemical Society recognized his accomplishments by awarding him the Olin Palladium Medal in 1987. In 2013 he became an Honorary Member of ECS.



The Enrico Fermi Award recipients ALLEN J. BARD (left) and ANDREW SESSLER (right) meet in the Oval Office with PRESIDENT BARACK H. OBAMA on February 3, 2014. (Photo by P. Souza, reprinted with permission of The White House Photo Office.)

Allen Bard described to Petr Vanýsek for *Interface* his reflection on receiving the award:

"I'm very pleased that this Enrico Fermi award for energy research is an acknowledgment of the important contributions of electrochemistry of all types to the energy field. Thus I think it represents an award to the field of electrochemistry as much as it does to me personally. I am very thankful to members of my research group and many colleagues who have contributed so much to the research that this award recognizes. Indeed my biggest contribution has been in helping to train new generations of scientists who will make important contributions of their own."

The co-recipient of the Award this year was Andrew Sessler, who worked extensively in the field of energy efficiency at the Atomic Energy Commission and the Energy Department and later he served as the Director of the Lawrence Berkeley National Laboratory. Dr. Sessler's citation is "For advancing accelerators as powerful tools of scientific discovery, for visionary direction of the research enterprise focused on challenges in energy and the environment, and for championing outreach and freedom of scientific inquiry worldwide."

This is the second time a prominent ECS member received this Award. John Goodenough was the 2009 recipient of this award. ■