LOCAL SECTION NEWS

Canadian Section

The Section held a Spring Symposium, "Electrode Processes and Bioelectrochemical Applications," on April 17 at the William G. Davis Computer Research Centre at the University of Waterloo, Ontario. The symposium was organized by D. E. Irish of the Department of Chemistry at the University of Waterloo. The program included presentations, the annual general meeting and a student poster session, closing with a wine and cheese reception.

Nominations are invited for the 1999 W. Lash Miller Award of the Canadian Local Section. This award, created in 1967 to honor the memory of the late Dr. W. Lash Miller, a former Society President and head of the Department of Chemistry at the University of Toronto, is presented every two years to recognize outstanding technical contributions to the field of chemistry. The award, which consists of a certificate and a cash payment of $1,000, is open to any person who is a resident of Canada and is under 36 years of age. The deadline for receipt of nominations is December 31, 1998. More information about this award can be found on the ECS website on the Canadian Local Section pages. To receive a copy of the rules or to submit a nomination, contact: Dr. Gessie Brisard, Dept. of Chemistry, University of Sherbrooke, Sherbrooke, Quebec J1K 2R1, Canada Phone: (819) 821-7093, Fax: (819) 821-8017, E-mail: gessie.brisard@courrier.usherb.ca, or Dr. Wojtek Halliop, Fuel Cell Technologies Ltd., Kingston, Ontario, K7M 8S3, Canada, Phone: (613) 544-8222, Fax: (613) 544-5150, E-mail: wojtek@fuelcell.kosone.com.

Chicago

The Section met on March 11 at the Engineering Research Facility, University of Illinois at Chicago. Professor Jiri (Art) Janata, from the School of Chemistry and Biochemistry, Georgia Tech, (Atlanta, GA) gave a stimulating presentation, "Gibbs-Lippmann Equation Under STM Examination." He described STM measurements on a mercury drop which provided monolayer and submonolayer detection of absorbates. A lively discussion and debate among the fifteen meeting participants followed; the members then enjoyed dinner.

At the March 31 meeting, Dr. Dale Hall from the National Institute of Standards and Technology spoke at the Engineering Research Facility at the University of Illinois at Chicago. Dr. Hall discussed the current status and future direction of the Socity, including its increasingly international role. He also spoke about materials research activities at NIST by presenting selected examples of current or recent work on materials, materials processing, and standard reference materials development.

Cleveland

The Section met on March 26 at the Schmitt Lecture Hall, at Case Western University. Dr. Allen J. Bard, the Norman Hackerman-Welch Regent's Chair in Chemistry at the University of Texas at Austin spoke on "Probing Interfaces with the Scanning Electrochemical Microscope." The scanning electrochemical microscope (SECM) is being used to examine surface chemistry at interfaces in liquid environments with high sensitivity and spatial resolution. He described the basic principles of SECM and gave examples of its application to different systems and discussed SECM in single molecule detection.

Detroit

The Section met on February 26, at the Ukrainian Cultural Center in Warren, MI. Dr. Swathy Swathiriajan, of the Physics and Physical Chemistry Department, RCEL, General Motors R&D Center, Warren, Michigan, presented, "Proton Exchange Membrane (PEM) Fuel Cells for Transportation." He discussed the developments, since 1994, in GM's 30 kW automotive power plant using a PEM fuel cell stack and a methanol processor. A new 50 kW stack has since been designed and built. This meeting was one of the most well attended in the past three years.

On March 18, at the Ukrainian Cultural Center, Dr. Carl Osburn of North Carolina State University, Dept. of Electrical and Computer Engineering and ECS Fellow and Vice-President, spoke on "Electrochemical and Solid-State Science and Technology in ULSI Technology."

Dr. George Blomgren, Senior Technology Fellow of Energizer in Westlake, OH, addressed the April 29 meeting with "Lithium Ion Batteries, Perspectives and Prospects." He presented key developments in the evolution of carbon anode materials, leading up to recent applications of mesophase pitch based electrodes. Economic challenges facing newcomers to lithium ion battery production were laid out. A spirited discussion followed.

The May 21 meeting featured local member and past chairman, Professor Geoff Prentice of the University of Detroit Mercy Department of Chemical Engineering. The topic of his presentation was "The Many Applications of Current Distribution Simulations."

Metropolitan New York

The Section held its 1998 Presidential Lecture on March 18 at the Hasbrouck Heights, New Jersey Holiday Inn. Dr. Barry Miller, ECS President, and Frank Hovorka, Professor of Chemistry at Case Western Reserve University, presented, "Electrochemistry of Carbon: Diamonds and Fullerenes." The event began with a reception, followed by dinner, and Dr. Miller's address.

National Capitol

The Section held a dinner meeting at the College Park Holiday Inn to hear Dr. Paul Trulove of the United States Naval Academy, present "Electrodeposition of Metals from Room Temperature Molten Salts." He discussed research of the utility of ambient-temperature chloroaluminate molten salts as versatile solvents for a wide variety of chemical and electrochemical studies. The meeting was attended by seventeen members.

Dr. Andrew C. Hillier of the Department of Chmical Engineering at the University of Virginia, spoke at the section's April 14 meeting. Following dinner, Dr. Hillier presented, "Imaging Chemistry, Structure and Intermolecular Forces at the Electrode-Electrolyte Interface."

On May 12, the Section's Blum Award was presented to Dr. Guy D. Davis, a Principal Scientist at Dacco Sci, Inc. in Columbia, MD. Dr. Davis has published extensively in the areas of corrosion science, adhesion science, surface analysis, and electronic materials. He is also the author or co-author of nearly 125 published papers and 175 technical presentations.

New England

The Section held its fourth dinner meeting of the 1997-98 season on February 10 at the Best Western Hotel, Waltham, MA. Dr. Catherine Marsh, manager of the Lithium Ion systems at Yardney Technical Products in Stonington, CT.

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Dr. Marsh led the development of a lithium-thionyl chloride power system for the two Mars Microprobes for the Mars 1998 Surveyor Landing Mission. These primary cells employ a unique lithium tetrachlorogallate salt electrolyte to provide the required high rate preformance and to be operational on the Martian surface at -80°C.

A team of members represented the ECS at the Bristol Community College-Rennselaer Science Fair on March 28. The section offered a $100 savings bond for the first place project, “How Bright is Your Light,” by Chris Lampon from St. Mary’s Sacred Heart School in Falls River, MA. There were six other honorable mention awards. The section offered printed circuit board electronic timers, brought in by Jon Roberts of MPM, as awards.

The section’s April 14 meeting was held at the Best Western Hotel in Waltham. Dr. Steven L. Suib, Professor of Inorganic Chemistry at the University of Connecticut, presented “Electron Transfer in Mixed Microporous Manganese Oxides.” He discussed how the structural, thermal, compositional, optical, electronic, electrical, magnetic, surface, bulk, and functional group properties can be modified by changing the composition of these materials.

Philadelphia

The section held a dinner meeting on April 30 at Villanova University. Dr. Fred Pearlstein of Navmar Applied Science Corporation spoke on, “Inorganic Coatings for Corrosion Prevention of Metals: Progress on New Environmentally Friendly Alternatives.” He presented an overview of inorganic coatings used to protect metals against corrosion, and efforts to eliminate chemicals which present adverse environmental effects were also discussed.

San Francisco ES&T

The Section held a dinner meeting on March 3. Dr. Chris Chidsey of Stanford University presented “Electron Transfer Through Monolayers Covalently Bonded to Gold and Silicon.” Dr. Chidsey spoke about his work on electron transfer across organic monolayers that are molecularly bonded to gold and silicon electrodes. Fundamental mechanisms of electron transfer and possible applications as organic light-emitting diodes were discussed.

San Francisco SSS&T

The Section met on April 3 at the National Semiconductor University. Dr. K. V. Ravi, the Silicon Technology Manager in the Fab Materials Operations of Intel Corporation gave his presentation on “300 mm Silicon: Opportunities and Challenges.” An overview of what is involved in the transition from 200mm to 300 mm wafers was given.

Southern Wisconsin

The Section met on March 18 for a Social, Dinner and Technical Session. Professor Marty Kanarek of the Department of Preventative Medicine, Medical School, University of Wisconsin-Madison, spoke on “PCBs in Lake Michigan Fish and Reproduction in Green Bay Wisconsin.” Polychlorinated Biphenyls (PCBs) have been a source of human health concern for many years. Dr. Kanarek discussed studies being conducted around Lake Michigan which point to possible reproductive effects from eating fish that are contaminated with PCBs.

On April 8 the section heard Professor Pradeep Rohatgi, of the University of Wisonsin-Milwaukee, present “Metal Matrix Composites and Concerns about Their Electrochemical Behavior.” After an introduction to metal matrix composites, including fiber and particulate reinforced metal matrix composites, the issues related to processing of metal matrix composites and structure property relationships were covered. Applications such as brake rotors, brake calipers, cylinder liners and batteries raise concerns about metal matrix composites’ electrochemical behavior; the corrosion of metal matrix composites was also discussed.

Twin Cities

The Section met on March 30, at the University of Minnesota in Minneapolis. Dr. Mark Debe, a Senior Research Specialist in the 3M Corporate Research Laboratories at 3M Center spoke on “Proton Exchange Membrane Fuel Cells –A Coming Revolution in Power Generation?” Dr. Debe discussed how fuel cells could soon become a commercial reality, outlining the technical performance data of proton exchange membrane fuel cells (PEMFCs) based on 3M proprietary catalysts.

On April 23, the section met at the University of Minnesota to hear Professor Srini Raghavan of the Department of Materials Science and Engineering of the University of Arizona, Tucson, present “Electrochemical Aspects of the Chemical Mechanical Planarization (CMP) of Metal Films.” An overview of metal CMP was given, which discussed electrochemical investigations, proposed mechanisms and corrosion issues. ■