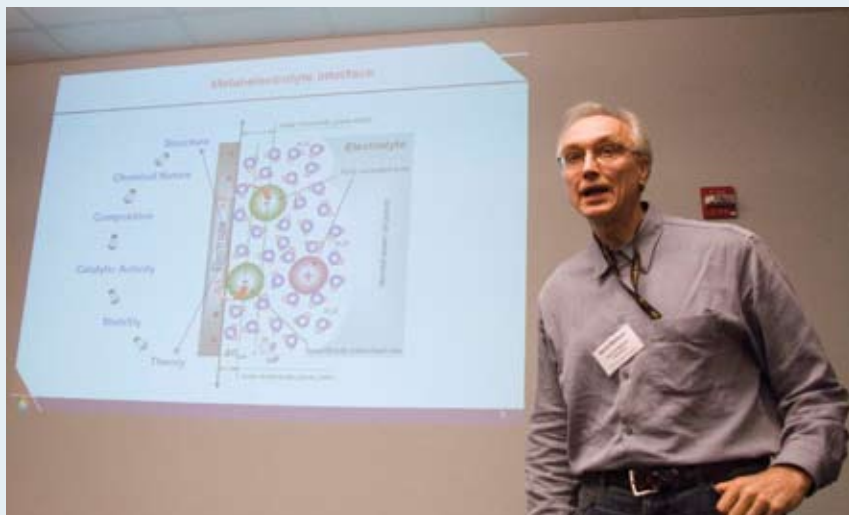


## Chicago



**ROBERT ROSNER**, Director of Argonne National Laboratory, addressed participants at a recent luncheon meeting of the ECS Chicago Section.

The ECS Chicago Section held a half-day Electrochemistry Symposium on April 18, 2008 in the recently dedicated Center for Nanoscale Materials at Argonne National Laboratory. The meeting had 65 registered participants drawn from a broad spectrum of colleges and universities, industry, and government. Opening remarks were made by Petr Vanýsek, ECS Secretary. Giselle Sandi, Argonne National Laboratory, the meeting Chair and event organizer, introduced the three featured speakers and provided a short biography for each. Chris M. Wolverton, Dept. of Materials Science and Engineering, Northwestern University (Evanston, IL) gave a presentation on "Discovery of Novel Hydrogen

Storage Materials: An Atomic-Scale Computational Approach." Following that, Di-Jai Liu, Chemical and Engineering Division, Argonne National Laboratory, gave his presentation on "Application of Nanomaterials in Fuel Cell Technology." The third and final speaker was Nenad Markovic, Materials Science Division, Argonne National Laboratory presenting "Electrocatalysis on Metal Surfaces." All of the talks were very interesting, well-received, and thought-provoking because they centered around two current and extremely dynamic research areas; nanotechnology and fuel cells. Upon completion of the presentation, a luncheon was served in the Argonne Guest House for all participants.

After lunch, a guided tour of the Center for Nanoscale Materials (CNM) was conducted with the main focus on state-of-the-art nanofabrication and characterization users' facilities and the connection of the CNM to the Advanced Photon Source (APS). The APS, administered by the U.S. Department of Energy at Argonne National Laboratory, provides brilliant X-ray beams for research in almost all scientific disciplines. The result is new knowledge of the structure and function of materials. Participants were so enthused with the symposium that calls were made to hold it as an annual event.

## China



The ECS-ISTC Executive and Advisory Committee members met during a recent China Section meeting. Pictured from left to right are: **Q. LIN** (IBM), **D. HUANG** (Praxair), **G. MATHAD** (S/C Tech Consulting), **H. WU** (SMIC), **H. IWAI** (Tokyo Institute of Technology), **M. YANG** (IC Spectrum), **C. CLAEYS** (IMEC), **W. SCHIAU** (IC Spectrum), and **Q. QU** (ASML).

The ECS China Section held the 7<sup>th</sup> ECS International Semiconductor Technology Conference in Shanghai, China, March 15-17, 2008. The 2008 conference started on Sunday, March 15 with a plenary talk by Fahrang Shadman of the University

of Arizona on "Environmental Challenges and Opportunities in Nanoelectronics Manufacturing." This was followed by several keynote presentations spread over the morning. The session was attended by around 400 attendees from China, Europe, Japan, and the U.S. Best student paper awards were also distributed at this plenary/keynote session.

A non-technical highlight of the conference was a private boat-party on the Huangpu River that was organized for Sunday evening. All the registered attendees of the conference participated in this fun-filled event with live music and Chinese culinary delicacies. The Section also held a brief executive committee meeting on the boat to discuss and plan ECS-ISTC 2009.

Overall the 2008 ECS-ISTC, the seventh in the series, was a success with excellent talks and presentations from several countries. There were a total of 276 registrations, 171 domestic and 105 foreign. A total of 138 presentations were made in five technical sessions; and 135 manuscripts were submitted for the ECS-ISTC 2008 proceedings volume, which was distributed to registered attendees at the conference. Twenty-two student papers were submitted and four were selected by the BSP committee for awards.

## Georgia

Speaker Barry MacDougall from the National Research Council of Canada, Ottawa, Ontario, presented a talk at the Section's meeting on Thursday, March 13, 2008. The talk entitled, "Electrocatalysis in the Direct Methanol Fuel Cell System: Synthesis and the Role of Nanocatalysts," was well received. The presentation discussed the science surrounding the DMFC system, which is widely viewed as appropriate for portable electronic applications. Interesting observations on anode electrocatalysis, and the effect of nanoparticles for lowering the loading requirements, were presented. The important issue of composition analysis and the role of particle diameter ( $< 5\text{nm}$ ) on the analysis by X-ray diffraction techniques was described and discussed. The question—What do we mean by an "alloy" at these very small particle sizes?—was discussed and illustrated with the application of surface and bulk properties in the development of a Pt-Ru alloy catalyst. An overview of ECS and its activities was also presented, along with benefits of Society membership.

## San Francisco

Since the last ECS meeting in October, the San Francisco Section has held several events. On November 9<sup>th</sup> the Section sponsored a short course at the Lawrence Berkeley National Lab on the "Basics of Polymer-Electrolyte and Solid-Oxide Fuel Cells." The instructors were Tom Zawodzinski (Case Western Reserve University) and Craig Jacobson (Lawrence Berkeley National Lab). The course was well received by the audience of over 30 researchers, which included many students.

The Section also held monthly meetings featuring invited speakers from academia and industry. For the November meeting, Heinz Pitsch (Stanford) gave a presentation on "Computational Chemistry Based Multi-Scale Simulations of Polymer Electrolyte Membrane Fuel Cells." Prof. Pitsch described his work developing a Dynamic Monte Carlo (DMC) model for polymer electrolyte fuel cell reactions and work integrating DMC models into larger multi-scale models for the entire fuel cell electrode. At the December meeting Naixion Jiang (Saint Jude Medical) delivered a talk on "Bioelectric Battery and Its Applications." Dr. Naixion described a bioelectric battery powered by the oxidation of Mg for use in low power devices such as pacemakers.

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## Pittsburgh



**JESSICA FREY** (right), a student from Upper St. Clair High School, received the ECS Pittsburgh Section Award from Section Chair **NATALIA PIMENOVA** (left).

The ECS Pittsburgh Section participated in the 69<sup>th</sup> Pittsburgh Regional Science and Engineering Fair on April 4, 2008. ECS members judged more 300 student projects in the fields of chemistry and awarded two prizes for the best science project in electrochemistry. The best poster awards were given to J. Frey, from Upper St. Clair High School, for her poster, "The Effects of Cathodic Inhibitors on Carbon Steel," and to M. Sessa, from St. Thomas More School, for his poster, "The Effect of Rust Corrosion on Metal."

This competition is open to all students in grades 6-12 from the 26 counties within Western Pennsylvania and West Virginia. The Science Fair has been a Pittsburgh tradition since 1940. It is also the third oldest science fair in the United States under the affiliation of Science Service, Inc., which facilitates the International Science and Engineering Fair.



The ECS San Francisco Section's Daniel Cubicciotti Student Award was presented to **SUSAN AMBROSE** (center). Two Honorable Mentions were also presented for the first time, to **GABE HARLEY** (left) and **CHARLES McCrory** (right).

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Section-sponsored meetings continued on into the new year with a presentation by Bill Brown (University of Arkansas and ECS Vice-President) on January 24. The topic was "Large Grain Polycrystalline and Epitaxial Silicon Films Formed at Low Temperatures for Solar Cells." Prof. Brown first presented a brief update on ECS activities followed by a description of his work on the annealing of amorphous silicon films to obtain large grain polycrystalline films. At the February meeting, Tal Margalith (Phillips LumiLED) presented his work on "High Brightness AlInGaN Light Emitting Diodes" and described the challenges involved in developing high power white light LEDs. For the March meeting, Quinn Horn (Exponent) gave a talk on "Studies of Failure Mechanisms in Li-Ion Batteries." In his talk, he described battery cross-sectioning techniques, which imparted microstructural information not available through other techniques. Both the February and March meetings were held at Exponent Inc. in Menlo Park, CA, and were very well attended.

The focus of the April meeting was the Daniel Cubicciotti Student Award. The award is sponsored by Structural Integrity Associates and is awarded annually by the San Francisco Section. The award consists of a plaque and \$2,000 toward educational expenses. This year the award went to Susan Ambrose of UC Berkeley for her work on "Electrochemical Remediation of Arsenic Contaminated Groundwater." This year, for the first time, two honorable mentions were also awarded, to Gabe Harley (UC Berkeley) for "Proton Transport in Lanthanum Phosphates," and to Charles McCrory (Stanford University) for "Four Electron Reduction of Dioxygen to Water by Surface-Immobilized Molecular Cu Electrocatalysts." More information on the award can be found at [http://www.electrochem.org/awards/section/section\\_awards.htm#k](http://www.electrochem.org/awards/section/section_awards.htm#k). The Section will finish off the year with a talk by Sachiko Ono (Kogakuin University) on nanotechnology.

## Twin Cities

The Twin Cities Section held its first "Solid State and Electrochemical Science and Technology in the Twin Cities Symposium" on April 28, 2008. This symposium spotlights the important contributions of Twin Cities researchers in a variety of solid state and electrochemical science and technology disciplines.

Sixty-four attendees listened to 5 speakers, from Twin Cities companies and academia, present their research work. Additionally, ECS Vice-President Bill Brown kicked off the symposium with a presentation entitled, "The Electrochemical Society: A Look at the Present with Our Vision of the Future." He provided the audience with an overview of ECS membership, Sections, meetings, publications, operating expenses, and the Society's goals for the future. He followed this with a talk describing his own research.

The talks ranged from materials for solar cells to corrosion issues in medical devices to electrodeposition to batteries and fuel cells. Speakers and talk titles for the 2008 symposium were: William Brown, University of Arkansas, "Low-Temperature Aluminum-Induced Crystallization (AIC) of Amorphous Silicon ( $\alpha$ -Si:H): From Sub-micron Crystallites to Epitaxy;" Darrel Unterker, Medtronic, Inc., "Electrochemistry and Surface Science: A Partnership for Problem Solving in the World of Implantable Medical Devices;" William Smyrl, University of Minnesota, "Electrochemical Engineering and Renewable Energy;" Larry Krause, 3M, "Lithium Batteries Application of Isothermal Microcalorimetry in the Determination of Passive Layer Stability;" Ibro Tabakovic, Seagate Technology, "Electrodeposition of Magnetic Alloys for Advanced Recording Heads and Media;" and Phil Miller, 3M, "3M Innovation and Fuel Cells." The symposium was successful enough to merit organizing another symposium in 2009.

## Looking for Section News

ECS takes an active interest in Section News, and is always interested in hearing about your activities.

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