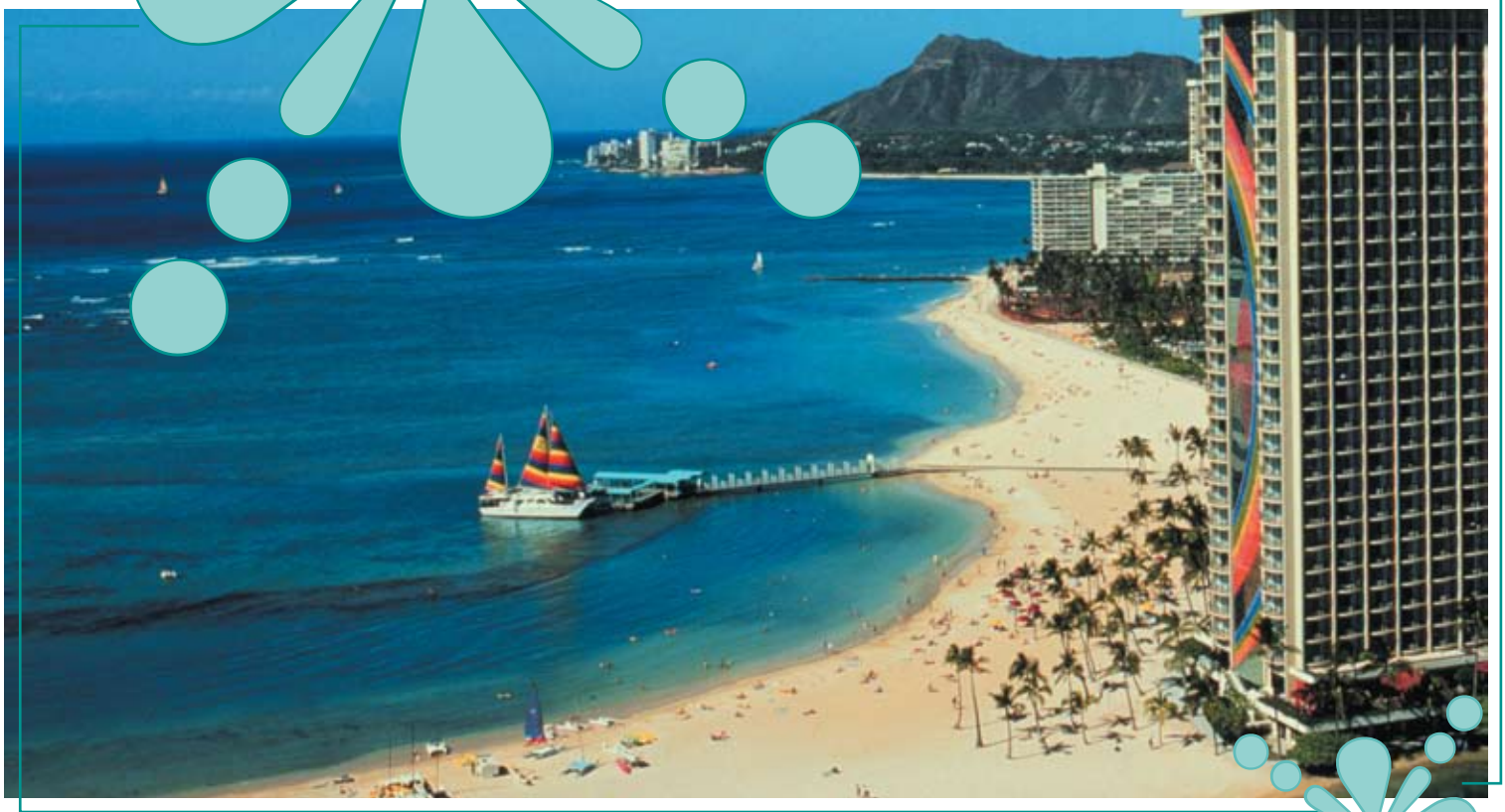
PRIME™ 2008

PACIFIC RIM MEETING
ON ELECTROCHEMICAL
AND SOLID-STATE SCIENCE



JOINT INTERNATIONAL MEETING

HONOLULU, HI ✻ OCTOBER 12-17, 2008

214th Meeting of The Electrochemical Society

Fall 2008 Meeting of The Electrochemical Society of Japan

and with the technical co-sponsorship of

- the Japan Society of Applied Physics
- the Korean Electrochemical Society
- the Electrochemistry Division of the Royal Australian Chemical Institute
- the Chinese Society of Electrochemistry

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HONOLULU, HI ✻ OCTOBER 12-17, 2008

Welcome to Honolulu—the state capital and Heart of Hawaii, as well as Oahu's center of art, history, and culture. We are pleased to venture into this city again for PRiME 2008 Joint International Meeting: the 214th ECS Meeting, and the 2008 Fall Meeting of ECSJ. This major international conference will be held at the Hilton Hawaiian Village (HHV) and the Hawaii Convention Center (HCC) and will include 53 topical symposia consisting of 3,237 technical presentations. You are invited to participate not only in the technical program, but also in the other social events planned for the meeting.

Featured Speakers and Special Events

MONDAY, OCTOBER 13
Plenary Session
0800h, Tapa Ballroom, Tapa Conference Center, HHV

Plenary Lecture:
New Developments in Electrochemical Nano-Technology
by Tetsuya Osaka

Electrochemical nanotechnology has produced a variety of materials with the nanometer scale. These nano-scale materials have made it possible to miniaturize electric devices, and they are fascinating because of their attractive characteristics, which are remarkably different from bulk materials. Prof. Osaka and his group have been conducting their research based on the philosophy of "creating new designs for the interface between solution and electrode at an atomic scale." They began to work with this new philosophy in 1981 to develop high performance magnetic recording media, which was followed by their recent development of a head material consisting of electrodeposited CoNiFe. Nowadays, the above philosophy has become common not only in electrochemical wet technologies but also in dry technologies.

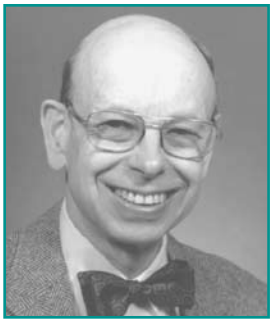
This philosophical idea is applied also to nano-biotechnology, and it plays an important role in the area of health care including biomedicine and bioanalysis. The interaction between electrochemical nanotechnology and biotechnology is now creating one of the most notable and fascinating new technologies.

Tetsuya Osaka is a professor in the Department of Applied Chemistry, Faculty of Science and Engineering, Waseda University, Tokyo, Japan, a position he has held since 1986. He received his BS degree in 1969, a master's degree in engineering in 1971, and his doctoral degree in engineering in 1974 from Waseda University.

His research fields are electrochemical technology and recent work focuses on "electrochemical nanotechnology," including electro- and electroless-deposition/surface finishing, electronic packaging materials, magnetic storage and energy storage devices, and chemical/bio-sensors.

Dr. Osaka is currently President of the Magnetics Society of Japan. He previously served as President of The Electrochemical Society of Japan, President of the Japan Institute of Electronic Packaging, and Vice-President of The Electrochemical Society of Japan.

His technical contributions have been recognized by many awards such as Prizes for Science and Technology in the Development Category of the Commendation for Science and Technology from the Minister of Education, Culture, Sports, Science, and Technology in 2008; Society Award of the Magnetics Society of Japan in 2006; Society Award of Chemical Society of Japan in 2004; Pergamon Electrochimica Acta Gold Medal of ISE in 1998; Society Award of The Electrochemical Society of Japan in 2001; Society Award of the Surface Finishing Society of Japan in 1999; Simon Wernic International Award of the International Union for Surface Finishing in 1996; and the Research Award of the ECS Electrodeposition Division in 1996.



Monday, October 13
Critical Factors in Localized Corrosion 6 Symposium

ECS 2008 Edward Goodrich Acheson Award Lecture

Passive Films: Their Growth and Properties
by Robert P. Frankenthal

This presentation will summarize work on the formation and breakdown of passive films on metals and alloys used primarily in the electronics industry. Rate laws, film thickness, and film composition as a function of temperature will be emphasized.

Robert Frankenthal was a Distinguished Member of Technical Staff at Bell Laboratories, now part of Lucent Technologies, before retiring in 1996. He earned his BS degree in chemistry from the University of Rochester in 1952 and his PhD degree in analytical chemistry from the University of Wisconsin in 1956, where he was a Procter and Gamble Fellow in 1954-1955.

Upon graduation Dr. Frankenthal joined the Applied Research Laboratory of U.S. Steel Corp. to work on the corrosion of tin and tin plate. In 1960 he transferred to U.S. Steel's E. C. Bain Laboratory for Fundamental Research, where he conducted research on the passivation and localized corrosion of iron and ferrous alloys and the application of new surface analytical and electrochemical techniques to corrosion research.

Dr. Frankenthal joined Bell Laboratories in 1972 to study the corrosion and passivation of metals and the protection and reliability of electronic materials and devices. In 1983 he received the Distinguished Technical Staff Award for Sustained Achievement from Bell Laboratories. His work has resulted in more than 100 publications and 8 patents. He is the co-editor of Passivity of Metals, a volume in The Electrochemical Society Corrosion Monograph Series, and numerous proceedings volumes.

Dr. Frankenthal has been a member of ECS since 1956 and has served it at all levels. He was Chair of the Pittsburgh Section (1963-1964), Chair of the Corrosion Division (1980-1982), ECS Treasurer (1986-1990), ECS Vice-President (1990-1993), and ECS President (1993-1994). He was a Divisional Editor for Corrosion of the *Journal of The Electrochemical Society* for 12 years and has chaired or been a member of most ECS committees. Most recently he chaired the *ad hoc* ECS Centennial Committee.

Dr. Frankenthal has been the recipient of numerous other honors. He was elected an ECS Fellow in 1995 and an ECS Honorary Member in 2003. He received the H. H. Uhlig Award of the ECS Corrosion Division in 1989 and was honored by the Division with a symposium and proceedings volume, "Corrosion Science: A Retrospective and Current Status in Honor of Robert P. Frankenthal" in 2002. He was also elected a Fellow of NACE International in 1994 and received that society's Willis R. Whitney Award in 1997.

Dr. Frankenthal has also been active in various elected and appointed positions in other societies, most recently as Editor-in-Chief of the Journal of Materials Research (1998-2001) for the Materials Research Society.

Tuesday, October 14
ECS 2008 Edward Goodrich Acheson Award Reception—
All meeting registrants are invited to attend the award reception honoring Robert Frankenthal, recipient of the ECS 2008 Edward Goodrich Acheson Award at 1800-1845h in the Tapa Cafe Area, Tapa.

Thursday, October 16
Luau on the Lagoon Green
Please plan to join us on Thursday evening for a traditional luau on the Lagoon Green at the Hilton Hawaiian Village. The evening's festivities will begin with a reception, followed by a luau complete with Lomi Lomi Salmon, Kalua Pig, Mahi Mahi, and other island delights, and will include a spectacular Polynesian show. Tickets are required and are $39 in advance, and $49 onsite. Space is limited, so please purchase your tickets in advance!

Short Courses, Tutorials, and Workshops

Six Short Courses will be offered in conjunction with PRiME 2008. These courses will be held on Sunday, October 12, 2008, from 0900h to 1700h. The registration fee is $425 for members of ECS, ECSJ, JSAP, KECS, RACI, or CSE, and $520 for nonmembers. **Students are offered a 50% discount.** The registration fee for the course covers the course, text materials, continental breakfast, luncheon, and refreshment breaks; it is not applicable to any other activities of the meeting. **The deadline for registration for a course is September 12, 2008.** Interested parties may register using the Advance Registration Form in this brochure. Written requests for refunds will be honored only if received at Society headquarters before October 5, 2008. **Pre-registration is required.** All courses are subject to cancellation pending an appropriate number of advance registrants. Visit the ECS website for full course descriptions and instructor biographies.

Short Course #1: Basic Impedance Spectroscopy, *M. Orazem, Instructor*

This course is intended for chemists, physicists, materials scientists, and engineers with an interest in applying electrochemical impedance techniques to study a broad variety of electrochemical processes. The course is best suited for an attendee who has some experience with making impedance measurements and wants to develop a deeper understanding of the technique. The attendee will develop a basic understanding of the technique, the sources of errors in impedance measurements, the manner in which experiments can be optimized to reduce these errors, and the use of regression to interpret measurements in terms of meaningful physical properties. **Mark E. Orazem** is a recognized expert on impedance spectroscopy. He has offered his short course at ECS meetings numerous times since 2000. Prof. Orazem is the faculty coordinator for a broad-ranging fuel cell research effort at the University of Florida. He is an ECS Fellow and an Associate Editor for the *Journal of The Electrochemical Society*.

Short Course #2: Electrodeposition of Magnetic Materials, *S. Brankovic and G. Zangari, Instructors*

This course will provide attendees with a theoretical and working knowledge of the electrodeposition of magnetic materials, including soft and hard materials, and the characterization of materials and processes in the context of various technological applications. **Stanko R. Brankovic** is an assistant professor in the Department of Electrical and Computer Engineering and Center for Nanomagnetic Systems, at the University of Houston. The multidisciplinary nature of his research involves the areas of sensors, magnetic materials, thin films, electrocatalysis, and electrochemical nanofabrication. **Giovanni Zangari** is the Heinz and Doris Wilsdorf Distinguished Research professor and an associate professor in the Dept. of Materials Science and Engineering at the University of Virginia. His current research interests

include the synthesis of thin films and nanostructures, mainly by electrochemical methods, with a particular interest in magnetic materials and their applications to magnetic recording and devices.

Short Course #3: Operation and Applications of Electrochemical Capacitors, *J. Miller, Instructor*

Electrochemical capacitors, sometimes called supercapacitors or ultracapacitors, are receiving increased attention in power sources for many applications because they offer extraordinarily high power density compared with batteries as well as high cycle-life with maintenance-free operation. This course is targeted at technologists interested in understanding, advancing, and/or exploiting electrochemical capacitor technology. **John R. Miller** is President of JME, Inc., a company he started in 1989 to serve the electrochemical capacitor industry providing materials evaluations, capacitor design services, capacitor testing, reliability assessment, and system engineering.

Short Course #4: Fundamentals of Electrochemistry, *J. Noël, Instructor*

This course is suited to people with a physical sciences background who have not been trained as electrochemists, but who want to add electrochemical methods to their repertoire of research approaches. There are many fields in which researchers originally approach their work from another discipline but then discover that it would be avantageous to understand and use some electrochemical methods to complement the other work that they are doing. **Jamie Noël** is a professor in the Department of Chemistry at the University of Western Ontario in Canada.

Short Course #5: Atomic Layer Deposition, *A. Londergan, Instructor*

Atomic Layer Deposition (ALD) can enable the precise deposition of ultra-thin, highly conformal coatings over complex 3D topography, with controlled composition and properties. Consequently, ALD has become a technology of choice for a large variety of applications for and beyond the semiconductor industry, as proven from the countless applications emerging. The first part of the course will introduce the fundamentals of ALD processing, from theoretical and empirical perspectives. ALD applications and opportunities will be covered in the second part of the course. **Ana Londergan** is a staff engineer/manager in the Technology R&D group at the QUALCOMM MEMS Technologies (QMT) Division. She works on the next generation of mobile information displays with new MEMS-based mirasol technology.

Short Course #6: PEM Fuel Cells, *E. Stuve and H. Gasteiger, Instructors*

This short-course develops the fundamental thermodynamics and electrocatalytic processes critical to polymer electrolyte membrane fuel cells (PEMFC), including relevant half-cell reactions, their thermodynamic driving forces, and their mathematical foundations in electrocatalysis theory. Also covered will be the different functional requirements of actual PEMFC components, basic in situ diagnostics, principles of fuel cell catalyst activity measurements, the impact of uncontrolled-operation events, and the various effects of long-term materials degradation. **Eric Stuve** is a professor of chemical engineering and adjunct professor of chemistry at the University of Washington. Stuve's research interests are in the area of electrochemical surface science, electrocatalysis, and fuel cells. **Hubert Gasteiger** was involved in the stack component design for GM/Opel's H2-powered fuel cell vehicles and served as Co-Editor-In-Chief for Wiley's *Handbook of Fuel Cells – Fundamentals, Technology, and Applications* (2003).

Tutorial — Intellectual Property: An Introduction for Research Scientists, Engineers and Technologists, *E. Jennings Taylor, Instructor*

This tutorial will provide an introduction to the various forms of intellectual property, trade secrets, trademarks, and copyrights with an emphasis on patents. The objective of the tutorial is to provide the electrochemist/engineer an appreciation of the patenting process and not to replace legal counsel. If you are an employee of an ECS Corporate Member organization, you are entitled to a complimentary registration to this tutorial. Please complete the registration form in this brochure and return it to ECS via fax or e-mail (do not register online).

Professional Development Workshops, *John R. Susko, Instructor*

ECS will sponsor the following three professional development workshops at no extra cost to meeting registrants. **John R. Susko** has been a corporate executive, entrepreneur, and chief technologist. As an entrepreneur, his work encompassed research, development, and product certification of state-of-the art energy management systems for building lighting and controls, as well as financial, sales, and personnel aspects of business. He was a senior engineer in IBM, where he held numerous engineering and management positions in the research and development of advanced materials and technologies critical to IBM.

Writing an Effective Cover Letter and Resume—The need for a cover letter, how to write it, the many "do's" and "don'ts" in preparing such a letter, and tips for drafting an effective resume. Sunday, 1500-1545h and Monday, 1200-1245h

Job Interviewing Tips—How to improve your chances of impressing the interviewer; key questions to ask; and other important pointers for the interviewing process. Sunday, 1600-1645h and Monday, 1300-1345h

Resume Round Table—Designed to provide feedback on resumes by publicly critiquing participants' resumes and offering suggestions on ways to make them more effective. To take full advantage of the workshop, please bring a copy of your current professional resume. Monday, 1400-1700h

Award Winners

NOTE: *For complete biographies of the award recipients, and the schedule of their presentations, please see the General Meeting Program on the ECS website: www.electrochem.org/meetings/biannual/214/214.htm.*

ECS 2008 Charles W. Tobias Young Investigator Award Winner

Yang Shao-Horn is an associate professor in the Department of Mechanical Engineering and Department of Materials Science and Engineering at MIT. She works with graduate students and postdocs on materials for electrochemical energy storage and conversion, which is centered on understanding and altering the crystal, surface, and electronic structures of thin films and nanomaterials, and applying fundamental understanding to design new materials for lithium storage and electrocatalysis of small molecules such as oxygen reduction, water splitting, and methanol oxidation. Her research on lithium storage materials has led to a fundamental understanding of the origin of structural and surface instability of materials during cycling, and strategies to alter structures and surfaces to increase lithium battery energy and to minimize energy loss

over battery lifetime. Recent work from her research team has identified the mechanism of activity loss and Pt nanoparticle instability in proton exchange membrane fuel cells, and has revealed atomically resolved compositions and surface atomic structures of Pt and Pt alloy nanoparticles that govern specific activity for CO oxidation, methanol oxidation, or oxygen reduction.

She obtained her PhD in metallurgical and materials engineering from Michigan Technological University in 1998. She then worked as a staff materials scientist at Eveready Battery Company in their Advanced Technology and Materials Group from 1998-2000. She joined MIT in August 2002 after a two-year postdoc study at the Institute of Condensed Matter Chemistry in Bordeaux, France. Her select honors include the Dupont Young Faculty Award (2006); MIT Presidential Energy Research Council (2005-2006); the Office of Naval Research Young Investigator Award (2003); Atlantic Richfield Career Development Professorship (2002-2005); NSF International Research Fellow Award (2000-2002); the ECS Norman Hackerman Young Author Award (1998); and the ECS Battery Division Student Research Award of the ECS (1997).

2008 Class of ECS Fellows

Doron Aurbach is a full professor in the Department of Chemistry and a Senate member at Bar Ilan University (BIU), Ramat Gan, Israel, since 1996. He obtained his BSc in both chemistry and chemical engineering and his PhD in physico-organic chemistry. He chaired the chemistry department at BIU during 2001-2005. He is an associate editor of two electrochemistry journals: *Electrochemical and Solid-State Letters* and the *Journal of Solid State Electrochemistry*. He founded the electrochemistry group of BIU at the end of 1985. The group includes 30 researchers (one of the biggest research groups in Israel) and works in the following fields: Li-ion batteries (new cathodes, anodes, electrolytes, electrodes-solution interactions, practical systems), rechargeable magnesium batteries, electronically conducting polymers, supercapacitors, engineering of new carbonaceous materials, sensors, and water desalination. The group currently collaborates with several prominent research groups in Europe and the U.S. and with several commercial companies.

Prof. Aurbach published more than 310 journals papers (electrochemistry, physical chemistry, materials and surface science), a book (*Nonaqueous Electrochemistry* by Marcel Dekker, New York, 1999), 12 chapters in books, 12 patents, and 250 extended abstracts related to more than 100 international meetings. After their graduate studies and research in his group, under his supervision, 22 scholars have received their PhDs and 24 scholars have received their MSc degrees. He chairs the ECS Israel Section. He received the 2005 ECS Battery Division 2005 Technology Award and the 2007 Research Award of the Israel Vacuum Society.

Albert J. Fry earned a BS from the University of Michigan in 1958 and a PhD in organic chemistry from the University of Wisconsin in 1963. After a postdoctoral year at Caltech with George S. Hammond, he joined the faculty of Wesleyan University, in Middletown, Connecticut, where he is now the Elisha B. Nye Professor of Chemistry.

Fry became fascinated by organic electrochemistry shortly after joining the Wesleyan faculty. Early research was on the mechanism of electrochemical reduction of alkyl halides, including geminal halides, α,α'- dibromoketones, 1,3-dihalides, benzyl and benzal dihalides, and dihalocyclopropanes. The discovery that reduction of dibromoketones could be induced by mercury metal under ultrasonic irradiation (the first reported organic chemical reaction effected by ultrasound) led to a series of papers comparing electrochemical reduction with the reaction with ultrasonically dispersed mercury. More recently, the Fry group has been studying the electrocatalytic oxidation of monosilanes and disilanes, alkenes, cyclooctatetraenes, and arylalkanes, and developing new high oxidation potential electrocatalysts to carry out such oxidations. Another area of research over the last six years has been computational electrochemistry, *i.e.*, the application of quantum chemical methods to understand problems in organic electrochemistry, including ion-pairing and solvation effects upon the electrochemical behavior of polycyclic aromatic hydrocarbons, the electrochemical oxidative and reductive behavior of cyclooctatetraene, and substituent effects on the electrochemical reduction and oxidation of aromatic substrates. The research has been described in 145 research papers and three books. Prof. Fry is Vice-Chair of the ECS Organic & Biological Electrochemistry Division and a (very) amateur musician.

Fernando Garzon is the Technical Team Leader for High Temperature Materials Chemistry in the Electronic and Electrochemical Materials Group (MST-11) of Los Alamos National Laboratory. He received his BSE in metallurgy and materials science from the University of Pennsylvania in 1982 and completed his PhD in materials science and engineering in 1988. After completing a Los Alamos postdoctoral fellowship under Ian Raistrick, he was promoted to the technical staff in 1990.

His research interests include fuel cell technology, the development of advanced gas sensors, electronic conducting transition metal oxides, thin film growth, ceramic membrane technology, and solid-state ionics. Fernando Garzon has co-authored over 100 peer reviewed scientific publications with more than 1,100 citations, served as a co-editor for the ECS proceedings series, *Solid State Ionic Devices*, and has given numerous invited conference presentations. Research highlights include: the first experimental determination of the thermodynamic metastability of high temperature superconductors published in the journal *Science*, the development of very low surface resistance superconductor thin films for microwave applications, and the development of non-porous ceramic hydrogen separation membranes. He is the inventor of a 1999 R&D 100 award-winning high temperature combustion control sensor, and a new class of solid-state gas sensors for hydrocarbons, carbon monoxide, and nitric oxides. He holds seven patents in electrochemical materials technology and has three more pending.

Fernando Garzon is a past Chair of the ECS High Temperature Materials Division and served on the ECS Board of Directors from 2001-2003. He is an avid bicyclist and enjoys playing obsolete archaic instruments in the Hieronymus Bosch Quartet.

Yury Gogotsi is a professor of materials science and engineering at Drexel University in Philadelphia, PA. Prior to joining Drexel University, he served on the faculty of the University of Illinois at Chicago from 1996 to 2000. He also holds a courtesy appointment in the Department of Mechanical Engineering and Mechanics and serves as Director of the A. J. Drexel Nanotechnology Institute. He acted as an Associate Dean of the College of Engineering from 2003 to 2007. Yury Gogotsi received his MS (1984) and PhD (1986) degrees from Kiev Polytechnic in Ukraine and a DSc degree from the Ukrainian Academy of Science in 1995. After

graduation from Kiev Polytechnic, he performed post-doctoral studies at the University of Karlsruhe, Germany (A. von Humboldt Fellowship), Tokyo Institute of Technology, Japan (JSPS Fellowship), and University of Oslo, Norway (NRC/NATO Fellowship).

Prof. Gogotsi is known for his pioneering work on high-temperature corrosion of engineering ceramics, phase transformations in ceramics and semiconductors induced by contact loading, hydrothermal synthesis of carbon and studies of liquids in carbon nanotubes. His current research interests include nanoporous carbide-derived carbons for electrochemical capacitors and other energy-related applications, synthesis and chemical modification of carbon nanotubes and nanodiamond, as well as *in situ* characterization of nanomaterials using Raman spectroscopy and electron microscopy techniques. He co-authored two books, edited twelve books, obtained more than 20 patents, and co-authored more than 280 research papers.

Prof. Gogotsi has received numerous awards for his research including S. Somiya Award from the International Union of Materials Research Societies, the Kuczynski Prize from the International Institute for the Science of Sintering, an R&D 100 Award from R&D Magazine, the I. N. Frantsevich Prize from the Ukrainian Academy of Science, and the Roland B. Snow Award from the American Ceramic Society (three times). He has been elected a Fellow of the American Ceramic Society, Academician of the World Academy of Ceramics, and Full Member of the International Institute for the Science of Sintering. He serves as an editor of the journal *Carbon* and is on the editorial board of several other journals.

Curtis F. Holmes received his BS in chemistry from Louisiana State University and his PhD in chemical physics from Indiana University. He has had experience in both theoretical and applied aspects of chemical research. Since 1976, he has been active in research and development of lithium batteries.

Dr. Holmes joined Greatbatch, Inc, a manufacturer of lithium batteries and other components for biomedical implantable devices, in 1976 and has held the positions of Vice-President of Technology and Senior Vice-President. His responsibilities included process and product quality, regulatory affairs, reliability, intellectual property, and research and development. He has participated in a variety of research and development projects for the development of advanced batteries for implantable biomedical devices. Among the projects he has participated in are the improvement of efficiency and reliability of lithium/iodine pacemaker batteries, the development of medium-rate batteries for implantable drug delivery systems and neurostimulators, and the development of high-rate lithium batteries for the implantable defibrillator. In 1999 Dr. Holmes relocated to Greatbatch-Hittman, Inc. in Columbia, MD, a subsidiary of Greatbatch, Inc., where he served as President. In 2001 he became Group Vice-President, Components, with responsibilities for divisions of the company in Clarence, NY, Carson City, NV, and Columbia, MD. In 2004 he returned to Western New York to become Greatbatch's Chief Technology Officer, a position he held until his retirement in December 2006. He is now a consultant for Greatbatch, Inc.

A frequent participant in scientific conferences, Dr. Holmes has organized or chaired technical sessions for ECS, the Annual Conference on Battery Applications and Advances, and several of the International Meetings on Lithium Batteries. In 1997 he was invited to present the Bourner Lecture at the International Power Sources Symposium in Brighton, UK.

He has served as Secretary, Vice-Chair, and Chair of the ECS Battery Division and is a member of the Technical Affairs Committee of that society. He has also served as chair of the Society's Publication Committee. He is a member of the AAMI Pacemaker Committee. He was elected a Fellow of the American Institute for Medical and Biological Engineering in 1996. Dr. Holmes has authored over 50 technical papers and six book chapters, and he holds three U.S. patents.

Prashant V. Kamat is currently a professor of chemistry and biochemistry, a Senior Scientist at the Radiation Laboratory, and a concurrent professor in the Department of Chemical and Biomolecular Engineering at University of Notre Dame. A native of Binaga, India, he earned the master's (1974) and doctoral degree (1979) in physical chemistry from the Bombay University, and carried out his postdoctoral research at Boston University (1979-1981) and the University of Texas at Austin (1981-1983). He joined the Notre Dame Radiation Laboratory in 1983 and initiated the photoelectrochemical investigation of semiconductor nanoparticles. His scholarly activities in the area of photoelectrochemistry and energy conversion have received worldwide recognition.

Dr. Kamat is a highly prolific and eminent member of the ECS community. He has served as a Chair of the ECS Fullerenes Group (2002-2004) and the ECS Fullerenes, Nanotubes, and Carbon Nanostructures Division (2004-2008), a member of the Finance Committee, New Technology Subcommittee, the Nanotechnology Subcommittee, and Fuel Cells Subcommittee. He is currently serving as a member of the Honors and Awards Committee. He is a member of the advisory board of the society journals, *Interface* and *Electrochemical and Solid-State Letters*. In addition to his ECS roles, he also serves as the Executive Editor of the *Journal of Physical Chemistry A/B/C*.

Dr. Kamat is one of the prominent researchers in the area of light energy conversion. He recognized the potential of semiconductor and metal nanostructures in the early '80s in developing next generation solar cells. He has successfully employed inorganic–organic hybrid nanoassemblies and quantum dots in photoelectrochemical solar cells. Dr. Kamat's research has made significant contributions to three areas: (1) photocatalysis with semiconductor and metal nanostructures; (2) designing inorganic–organic hybrid assemblies for next generation solar cells; and (3) environmental remediation using advanced oxidation processes and chemical sensors. He has directed DOE funded solar photochemistry research for the more than two decades. He has published more than 350 peer-reviewed journal papers, review articles, and book chapters, and has received over 13,000 citations for his published work (h-index 63). He was a Fellow of Japan Society for Promotion of Science during 1997 and 2003 and was presented with the 2006 Honda-Fujishima Lectureship Award by the Japan Photochemical Society.

Patrik Schmuki is a professor of materials science and holds the Chair for Surface Science and Corrosion at the University of Erlangen-Nuremberg, Germany. Dr. Schmuki studied physical chemistry at the University of Basel in Switzerland (MSc, 1988), and carried out his graduate studies on "Semiconductive Properties of Passive Films" at the Swiss Federal Institute of Technology, ETH-Zürich (PhD degree in 1992). After employment as a research associate at the ETH-Z (1992-1994) he worked at the Brookhaven National Laboratory, NY, USA, using synchrotron techniques for *in situ* X-ray absorption studies on thin film electrochemical reactivity (1994-95).

From 1995-1997 he was a guest scientist at the Institute for Microstructural Sciences of the National Research Council

of Canada in Ottawa, where his research focused on surface phenomena on Si and III-V semiconductors. In 1997 he was appointed an Associate Professor (MER) for Microstructuring of Materials at the Department of Materials Science of EPFL Lausanne. In the fall of 2000, he joined the Department of Materials Science (Faculty of Engineering) at the Friedrich-Alexander University Erlangen-Nuremberg as a full professor and head of the institute.

Dr. Schmuki has published more than 200 research papers and has given more than 50 invited lectures at international meetings. He received several international awards in materials science and electrochemistry. His key expertise is in using electrochemistry within the materials science field, particularly, addressing micro-/nanostructures, surfaces/interfaces, thin film characterization, photochemistry, semiconductor chemistry, and materials durability. Of particular interest are highly functional materials surfaces including interfaces between inorganic and organic matter and nanoscale phenomena such as manipulation and self-organization on a mesoscopic size scale.

Prof. Schmuki is active in various professional societies such as ECS, the International Society of Electrochemistry, the Society for Porous Semiconductor Science and Technology, and the International Corrosion Council. Within ECS, he most recently served as Chair of the Corrosion Division as well as Chair of the European Section. He organized and initiated various symposia among them the successful series on "Pits and Pores and Their Significance for Advanced Materials."

Gery R. Stafford is a research scientist at the National Institute of Standards and Technology in Gaithersburg, MD. He earned his BS in chemical engineering from the University of Notre Dame and his PhD in materials science from the University of Virginia. From 1980 to 1986 he was a senior research engineer with Celanese Research Co., Summit, NJ, where he worked on electrogenerative processes and the development of polymeric separator materials for batteries and fuel cells. He joined NIST in 1986 and served as the Leader of the Electrochemical Processing Group from 1994 to 2005.

Dr. Stafford's research interests focus on the application of electrochemical and analytical methods to understand electrodeposition processes. Much of his research has been devoted to the study of aluminum alloy electrodeposition from chloroaluminate ionic liquids. He established the key processing–structure–property relationships that led to the deposition of a wide variety of aluminum-transition metal alloy structures ranging from intermetallic compounds to quasicrystals and metallic glasses, some of which show exceptional corrosion resistance. In 1988 he received the U.S. Department of Commerce Bronze Medal for his work in this area. In 2001 he was co-recipient of the U.S. Department of Commerce Gold Medal for the group's work on superconformal film growth used in semiconductor metallization. More recently he has developed an *in situ* wafer curvature method for studying surface and growth stress with resolution sufficient to study the adsorption of molecular monolayers onto the electrode surface. These measurements are particularly well-suited for studying underpotential metal deposition, self-assembled monolayers, and competitive adsorption processes.

Dr. Stafford has been an active member of ECS for 30 years. He has co-organized several symposia in the areas of molten salt chemistry and electrochemical processing for microelectronics, and is the co-editor of seven ECS proceedings volumes. He is an author or coauthor of over 75 technical papers, a book chapter on the electrodeposition of aluminum alloys from chloroaluminate ionic liquids, and holds two U.S. patents. He is also a member of the Materials Research Society and the American Chemical Society. He has served on the editorial board of *Metallurgical and Materials Transactions*, and in 1998 he chaired the Gordon Research Conference on Electrodeposition. He currently serves as Chair of the ECS Electrodeposition Division.

Joseph R. Stetter has been Laboratory Director of the Microsystems Innovation Center at SRI International in Menlo Park, CA since 2004. He runs the MEMS fab and leads a MEMS R&D team with programs in vacuum microelectronics, bio-MEMS, and sensors. Dr. Stetter is also a research pofessor at Illinois Institute of Technology where he collaborates with the International Center for Sensor Science and Engineering, which he founded while at IIT. He has held positions as VP Engineering for Nanomix Inc.; section head and group leader at ANL; director of R&D at ES Division of Becton Dickenson and Co.; and is currently acting President of KWJ Engineering Inc., his second start-up company specializing in chemical and biochemical sensors with applications in the protection of human health and the environment. Sensor products designed by Stetter are still in use throughout the world.

Dr. Stetter has won several prestigious awards for his work in sensor research, instrument development, and technology transfer including the "2002 Entrepreneur of the Year" award given by TMAC (Technology Management Association of Chicago). He is the author of more than 100 refereed journal articles and books, holds more than 30 patents, has edited journals, chaired international conferences, been a plenary speaker at conferences, and is active in professional societies being past chair of the ECS Sensor Division. Stetter earned his PhD in physical chemistry from the State University of New York at Buffalo in 1975 and serves on the board of several startups.

John Stickney received his BS in chemistry from Humboldt State University in 1981, and a PhD in chemistry from the University of California, Santa Barbara, in 1984. He worked under the direction of Arthur Hubbard, and his dissertation was titled "Metal Deposition on Well-Defined Platinum Electrodes." That work involved the first studies of the surface structures formed by underpotential deposition (UPD). He then joined the faculty of the University of Georgia in 1985 as an assistant professor with an appointment in chemistry.

Prof. Stickney's work with Hubbard at UCSB taught him to respect the electrode surface, and how important it was to reactivity. He took those ideas with him to UGA where he began a program to study Cu single crystal surfaces in aqueous electrolytes, with the idea that to understand electrodeposition you must first understand the substrate structure, and Cu was a substrate of great importance in electrodeposition. During that time he learned of the existence of atomic layer epitaxy (ALE) from Mike Norton, and was encouraged to find out if UPD could be applied. This resulted in a redirection of his research efforts, and a patent in 1994. ALE is a subset of atomic layer deposition (ALD), and the development of electrochemical ALD has since been the focus of his research. ALD is the use of surface limited reactions to form deposits an atomic layer at a time. Control over the surface chemistry is critical to development of ALD. Initial studies concerned compounds of importance in photovoltaics, such as CdTe: the cycle being UPD of Cd on Te, and then UPD of Te on Cd.

(Award Winners continued on page 18)

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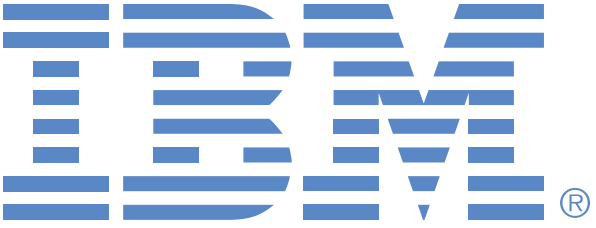

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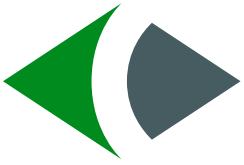

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More recently, with the development of surface limited galvanic displacement by Adzic, Brankovic, *et al.*, it has proven possible to form elemental nanofilms as well as compounds, greatly expanding the applicability of ALD. Recently, Prof. Stickney started a small company (Electrochemical ALD L.C.) to produce ALD equipment and is exploring the range of materials that can be formed by ALD. His work focuses on chemistry at the interfaces of metals, semiconductors, etc.

Thomas Thundat is an ORNL Corporate Fellow and group leader for the Nanoscale Science and Devices group at the Oak Ridge National Laboratory. He is also a research professor of physics at the University of Tennessee, Knoxville, and a visiting professor at the University of Burgundy, France. He received his master's degree in physics from the Indian Institute of Technology, Madras, India, in 1980. He did his graduate work at the State University of New York at Albany, obtaining a PhD in surface physics in 1987, under the direction of Walter Gibson. He then moved to Arizona State University as a postdoctoral fellow with Stuart Lindsay. He joined the Health Safety division (now Biosciences division) of the Oak Ridge National Laboratory as a researcher in 1991. He was promoted to Senior Scientist in 1997, group leader in 1998, and Distinguished Scientist in 2002. He was elected as an ORNL corporate fellow in 2005.

His research interests include nanomechanics, solid–liquid interface, nanomechanical sensors for physical, chemical, and biological detection, scanning probe microscopy, quantum-confined atoms, and mid infrared spectroscopy of surface adsorbates. His research currently focuses on developing chemical and biological sensors with extreme high sensitivity using micro and nanocantilever arrays. Dr. Thundat has published over 230 publications in peer-refereed journals and 45 book chapters, and his work has received over 5,000 citations. He has given over 150 invited talks at international conferences and institutions. He has been awarded 28 U.S. patents.

Dr. Thundat is the recipient of many awards that include the U.S. Department of Energy's Young Scientist Award, two R&D 100 Awards, ASME Pioneer Award, *Discover* Magazine Award, three National Federal Laboratory Consortium Awards for Technology Transfer, Scientific American 50 Award, Jesse Beams Award, Indian Institute of Technology Madras Distinguished Alumnus Award, Nano 50 Award, Battelle Distinguished Inventor Award, and many ORNL Awards for invention, publication, and research and development. He is an elected Fellow of the American Physical Society (APS) and the American Association for the Advancement of Science (AAAS), and he is currently on the editorial boards of the *Review of Scientific Instruments*, *Research Letters in Nanotechnology*, and *Nanoscale Microscale Thermophysical Engineering*.

ECS Battery Division Technology Award

Hiroshi Inoue was born and educated in Japan. He received his BEd in 1985 from Yokohama National University, majoring in physics. After graduating, he found a position with an electrical equipment manufacturer, where he researched materials related to optics. From 1992 to 1999, he was employed by a chemical company where he started his career researching and developing lithium ion batteries. In 1999, he came to work at Sony Corporation, where he studied new materials for negative electrodes. Currently he is employed by the Research and Development Division of the Energy Business Group of Sony Corporation in Koriyama City, Fukusima.

ECS Battery Division Technology Award

Satoshi Mizutani received his bachelor's degree and masters' degrees in applied physical chemistry at Waseda University in 1999 and 2001, respectively. After graduation, he joined Sony Corporation and worked in the battery business group. At Koriyama in Fukusima, Japan, he worked on the research and development of materials for lithium ion batteries. He is now employed by Sony Energy Devices Corporation and works on the development of new materials.

ECS Battery Division Research Award

Peter G. Bruce, FRS FRSE FRSC, is the Wardlaw Professor of Chemistry at the University of St. Andrews, Scotland. His research interests embrace the synthesis and characterization of new materials (extended arrays and polymers) with new properties or combinations of properties, especially energy materials for new generations of energy conversion and storage devices. Recent efforts have focused on the synthesis and understanding of nanoelectrodes for lithium-ion batteries, including nanowire anodes and mesoporous cathodes, novel approaches to high capacity cathodes, and the influence of order on the conductivity of polymer electrolytes. His research has been recognized by a number of awards and fellowships, including from the Royal Society and the Royal Society of Chemistry.

ECS Corrosion Division H. H. Uhlig Award

Martin Stratmann studied chemistry at the Ruhr Universität Bochum and received his diploma in 1980. In 1982, at the Max-Planck-Institut für Eisenforschung in Düsseldorf (under director H. J. Engell), he finished his PhD on electrochemical studies of phase transformations in rust layers; he spent his postdoctoral education with Ernest Yeager at the Case Western Reserve University. The habilitation in physical chemistry followed in 1992 at the University of Düsseldorf with electrochemical studies on metal surfaces covered with ultrathin electrolyte layers. 1994 he took over the Chair in Corrosion Science and Surface Engineering at the University of Erlangen. Since 2000 he has been a scientific member of the Max-Planck-Gesellschaft and Director of the Max-Planck-Institut für Eisenforschung in Düsseldorf, leading a department of interface chemistry and surface engineering. He is also a faculty member of the Materials Science Department and of the Chemistry Department at the Ruhr-Universität Bochum. His research interests lie in the area of corrosion related electrochemistry with emphasis on microscopic aspects and *in situ* spectroscopy, electrochemistry at buried metal/polymer interfaces (an area where he pioneered novel electrochemical techniques), atmospheric corrosion, adhesion, and surface chemistry of reactive metal substrates. His research was awarded several times; among others the Otto-Hahn medal of the Max Planck Society, the T. P. Hoar Award (twice), the Masing Award of the German Society of Materials Science, and the DECHEMA Award of the Max-Buchner Forschungsstifung, the U. R. Evans Award of the Institute of Corrosion and the W. R. Whitney Award of the International Association of Corrosion Engineers. Prof Stratmann is an ECS Fellow and a member of the North Rhine-Westphalia Academy of Science and of the Austrian Academy of Science.

ECS Electrodeposition Division Research Award

Olaf M. Magnussen is a full professor of solid state physics at the Institute of Experimental and Applied Physics of the Christian-Albrechts-Universität (CAU) in Kiel, Germany. He performed his graduate research in the group of Jürgen Behm and received his PhD at Ulm University in 1993. After a postdoc in the Physics Department of Brookhaven National Laboratory from 1993 to 1995, he returned to Ulm where he worked at the Institute of Surface Chemistry and Catalysis until joining the CAU in 2001.

His research interests include the study of the structure and dynamics of electrochemical interfaces by *in situ* methods, in particular scanning tunneling microscopy and surface x-ray diffraction using synchrotron radiation. Since his experiments on copper underpotential deposition in the early nineties (one of the first atomic-resolution *in situ* STM investigations) detailed mechanistic studies of electrodeposition processes aiming at clarifying the interplay of atomic-scale structure growth behavior, and nanoscale morphology, have been a major focus of his research. This work also included significant experimental advancements, such as the development of *in situ* video-STM for real-time dynamics studies. In addition, he has employed these techniques to study surface phase transitions, anionic and organic adsorbate layers and adsorbate dynamics, corrosion and corrosion inhibition, as well as electrocatalytic model systems.

Among the awards Prof. Magnussen has received for his scientific work are fellowships by the Deutsche Forschungsgemeinschaft and the German Chemical Industry, an Award of the Ulmer Universitätsgesellschaft for the best PhD thesis 1994, the Molecular Imaging Young Electrochemistry Scanning Probe Microscopist Award 1997, and the Merckle Research Award 2001.

ECS High Temperature Materials Division Outstanding Achievement Award

David J. Young obtained a PhD in physical chemistry from Melbourne University, and then migrated to Canada. Over the next 8 years he worked at University of Toronto (post doc in chemistry), McMaster University (research associate in metallurgy and materials science), and the National Research Council of Canada (research officer in applied chemistry). Returning to Australia, he worked in the research labs of BHP Steel, then moved to the University of New South Wales. After a period in chemical engineering, he became Head of the School of Materials Science & Engineering, a position he held for 15 years. After retiring from that position, he is now focused on research. His research has been mainly on high temperature alloy oxidation and corrosion, and is particularly concerned with reactions involving mixed gases. This has led him into the complexities of corrosion reactions producing multiple reaction products, either as complex scales, or as distributed zones of internal precipitation. While the focus has always been on gaining a fundamental understanding of reaction mechanisms, the work has obvious practical utility, an important factor in ensuring research funding! Recent research has concerned water vapor effects on oxidation, and metal dusting reactions. Water vapor can volatilize Cr_2O_3, preferentially adsorb on oxide surfaces, change scale microstructures and transport properties, and inject hydrogen into both scale and oxide. Metal dusting involves reaction of carbon-supersaturated gases with metals, producing a variety of metastable states with the one common feature of leading to rapid metal destruction. Distinguishing between the multiple mechanistic effects in a quantitative way, and arriving at useful predictions, is the challenge confronting his present work.

ECS Physical and Analytical Division Max Bredig Award

Bernard Gilbert studied chemistry at the University of Liège where he completed his PhD in 1972 with a dissertation on Raman spectroscopy applied to weak complexes in solution. From 1972 to 1974 he did a postdoctoral research with G. Mamantov at the University of Tennessee and Oak Ridge National Laboratories and another postdoctoral stay in 1976-1977 with R. A. Osteryoung at Colorado State University. He has been an invited professor at the Norwegian Institute of Technology (1981, topics: spectroscopy of molten salts and structure) and at the University of Tennessee (1987, topics: analytical chemistry in non-aqueous solvents). He has been the Belgian national representative for the Commission on Electroanalytical chemistry of the IUPAC (1981-1989), and a member, then president of the Physical Chemistry Commission of the FNRS (National Funds of Scientific Research) (1995-2005). He is also president of the Analytical Division of the Royal Chemical Society of Belgium (since 1996). He joined the faculty of the University of Liège in 1979 where he is now professor of analytical chemistry.

Professor Gilbert has long been devoted to research in structure and chemistry of molten salts of industrial interest. In particular, he has developed experimental methods allowing investigating by Raman spectroscopy the structure of highly corrosive and high temperature melting solvents, such as cryolite. He also contributed to the discovery and development of room temperature ionic liquids and to their first applications to industrial processes. His present research interests are about the acid-base and solvation properties of ionic liquids.

ECS Sensor Division Outstanding Achievement Award

Chung-Chiun Liu is the Wallace R. Persons Professor of Sensor Technology and Control and a professor of chemical engineering at Case Western Reserve University (CWRU) in Cleveland, Ohio, USA. He is also the Director of the Electronics Design Center, a research center focusing on the application of microfabrication and micromachining processing technologies to the manufacturing of chemical and biomedical microsystems. This includes the application of these microfabrication processing technologies to the advancement of chemical and biomedical sensors as well as micro-size electrochemical energy systems, such as the printable primary zinc-alkaline and zinc-air batteries, solid oxide fuel cells, and ultra capacitors. In recent years, Professor Liu has incorporated the nano-metallic catalysts into the fabrication of the micro-sensors and micro-electrochemical energy systems, further enhancing the performance of these micro-electrochemical systems using cost effective microfabrication manufacturing processes.

Professor Liu has been engaged in teaching and research in electrochemical sciences and engineering in the academic environment for forty years. He has taught and trained students and researchers directly related to the research interests of ECS. He is a Fellow of both ECS and the American Institute of the Medical and Biological Engineering.

Event Highlights

NOTE: *For a list of Committee Meetings, please visit the PRiME meeting page: www.electrochem.org/meetings/biannual/214/214.htm.*

Sunday, October 12

0900h.....Short Courses begin
1500h.....Writing an Effective Cover Letter and Resume Workshop
1600h.....Job Interviewing Tips Workshop
1730h.....PRiME 2008 Student Mixer
1930h.....Sunday Evening Get-Together

Monday, October 13

0800h.....PRiME 2008 Lecture: "New Developments in Electrochemical Nano-Technology," by Tetsuya Osaka
0930h.....Coffee Break
1200h.....Writing an Effective Cover Letter and Resume Workshop
1300h.....Job Interviewing Tips Workshop
1400h.....Resume Roundtable Workshop
1800h.....Monday Evening Mixer, Student Poster Session, and Technical Exhibit Opening

Tuesday, October 14

0900h.....Technical Exhibit
0930h.....Coffee Break
1200h.....Student Poster Award Presentation
1800h.....ECS Edward Goodrich Acheson Award Reception
1800h.....General Poster Session and Technical Exhibit

Wednesday, October 15

0900h.....Technical Exhibit
0930h.....Coffee Break
1800h.....General Poster Session and Technical Exhibit

Thursday, October 16

0930h.....Coffee Break
1830h.....Luau on the Lagoon Green

Hotel & Travel Information

Hotel Reservation Information—PRiME 2008 will be held at the Hilton Hawaiian Village Hotel (2005 Kalia Road, Honolulu, Hawaii 96815, USA), with some technical sessions at the Hawaii Convention Center (1801 Kalakaua Avenue, Honolulu, Hawaii 96815, USA). The Hilton Hawaiian Village is the meeting headquarters hotel. Guest room reservations for the Hilton can be made online from the ECS website. The discounted meeting rates are as follows.

Single, from $179 **Double, from $199**

The deadline for reservations is September 12, 2008. Reservations attempted after September 12 will be accepted on a space and rate availability basis. A deposit equal to your first night's stay is required to guarantee your reservation. Cancellation must be received at least 72 hours before expected arrival for a full refund of your deposit.

Ground Transportation— SpeediShuttle ground transportation service is available from Honolulu International Airport to the Hilton Hawaiian Village Hotel at a special discounted rate for PRiME 2008 attendees. Simply make your reservation from the ECS Website using Group Code: ECS11960.

Companion Registrant Program— Guests of Technical Registrants are invited to register for PRiME 2008 as a "Companion Registrant." The companion registration fee of $25 (Advance) or $30 (Onsite) includes admission to non-ticketed social events, an exclusive lounge with beverage service, Monday through Thursday, 0800-1000h, and a special "Welcome to Oahu" orientation presented by the Oahu Visitors Bureau on Monday, October 13 at 0900h in the Companion Registrants Lounge.

Technical Program

Technical Session Co-Chair Orientation—We encourage all Symposium Organizers and Technical Session Co-Chairs to attend this important informational session. The Co-Chair Orientation will take place during the first 10 minutes of the meeting.

Oral Presentations and Audio-Visual—Oral presentations must be in English. Only LCD projectors will be available for oral presentations. Authors will be required to bring their own laptop computers for presentation. Presenting authors should verify laptop/projector compatibility in the speaker ready room at the meeting. Speakers requiring special equipment must make written request to ECS headquarters (meetings@electrochem.org) no later than three weeks before the meeting, and appropriate arrangements will be made at the expense of the author. Visit the ECS website for other details about author presentations.

Poster Presentations and Sessions—Poster presentations must be in English, on a board approximately 4 feet high by 6.5 feet wide, corresponding to the abstract number and day of presentation in the final program. Visit the ECS website for other details on Poster Session requirements. Please arrive approximately two to four hours before the start of your session to begin setting up your poster displays. Please do not begin setting up your poster until all the poster boards have been numbered. The **General Society Student Poster Session** will be held as a part of the Monday Evening Mixer and Technical Exhibit, which features instruments, materials, systems, publications, and software of interest to meeting attendees. All meeting registrants are invited to attend. Formal presentations will begin at 1800h. Students may start setting up their presentations in the exhibit hall at 1400h; judging of the posters will begin at 1700h.

Speaker-Ready Room—Two Speaker-Ready Rooms will be available Sunday through Friday, in Offices 1 & 2, Mid-Pacific Conference Center. These rooms are available to allow speakers the opportunity to preview and prepare for their presentations. We highly recommend that speakers verify their laptop's compatibility with the sample LCD projectors that will be located in these rooms, prior to their presentation. Additionally, there will be audiovisual technicians available in the technical session areas for your assistance.

Speaker Indemnification—The ideas and opinions expressed in the technical sessions, conferences, and any handout materials provided are those of the presenter. They are not those of The Electrochemical Society, nor can any endorsement by ECS be claimed.

No Recording Allowed—**Photographing and/or recording of presentations IS NOT PERMITTED unless specifically allowed by the speaker.** Anyone making unauthorized photographs or recordings will be asked to leave the session.

Registration & General Meeting Information

Meeting Registration—The meeting registration area will be located in the Palace Lounge, Tapa Conference Center, HHV. For your convenience, **extended registration hours will begin on Saturday** at 1600h, and the technical sessions will be conducted Sunday through Friday.

Advance Registration—Advance registration is encouraged. Register online at www.electrochem.org; or print out the Advance Registration form, and send to: The Electrochemical Society, 65 South Main Street, Pennington, NJ 08534, USA, Fax: 1.609.737.2743. Attendees prepaying by credit card are encouraged to use our online system, or send the form by fax.

If you send a registration by fax, please do not send another copy by mail, as this may result in duplicate charges. **The deadline for advance registration is September 12, 2008.** Refunds are subject to a 10% processing fee and will only be honored if written requests are received by October 5, 2008. All participants of PRiME 2008 are required to pay the appropriate registration fees. Advance and onsite payments must be made in U.S. Dollars via Visa, MasterCard, American Express, check or money order payable to ECS.

Key Locations

Meeting Registration .....Palace Lounge, Tapa
Information/Message Center .....Palace Lounge, Tapa
ECS Headquarters Office .....Iolani 2, Tapa
ECSJ Headquarters Office .....Iolani 1, Tapa
ECS Book Store.....Coral Lounge, Mid-Pacific
Speaker Ready Rooms .....Offices 1 & 2, Mid-Pacific
Employment Interview Room .....South Pacific Boardroom, Mid-Pacific

Registration Hours

Saturday, October 11 ..... 1600-1900h
Sunday, October 12 ..... 0800-1830h
Monday, October 13 ..... 0700-1730h
Tuesday, October 14..... 0700-1600h
Wednesday, October 15..... 0730-1500h
Thursday, October 16 ..... 0730-1500h
Friday, October 17..... 0730-1300h

***Registration Fees*—ALL PARTICIPANTS AND ATTENDEES ARE REQUIRED TO PAY THE APPROPRIATE REGISTRATION FEE LISTED BELOW.** Payment can be made by cash, check or travelers' checks in U.S. funds drawn on a U.S. bank. Visa, MasterCard or American Express are also accepted.

	Advance	Onsite
Member*	$420	$520
Nonmember	$615	$715
Student Member*	$150	$250
Student Nonmember	$190	$290
One-Day Member*	$275	$375
One-Day Nonmember	$365	$465
ECS Emeritus	$0	$0
ECS or ECSJ Honorary Member	$0	$0
Companion Registrant	$25	$30

*You must be a member of ECS, ECSJ, JSAP, KECS, RACI, or CSE to qualify for the member registration rate.

All students must send verification of student eligibility along with their registration. All technical registrations include a copy of Meeting Abstracts (on CD-ROM only). Attendees who wish to have paper copies of abstracts in advance of the meeting should download copies from the ECS website, free of charge.

***Financial Assistance*—**Financial assistance is limited ad generally governed by the symposium organizers. Individuals may inquire directly to the symposium organizers of the symposium in which they are presenting their paper to see if funding is available. Individuals requiring an official letter of invitation should write to the ECS headquarters office; such letters will not imply any financial responsibility of ECS.

***Employment Services*—**Companies desiring to recruit employees may place their announcements on a designated bulletin board in the registration area. Please note that these announcements should be no larger than 8 ½" by 11". The South Pacific Boardroom in the Mid-Pacific Conference Center will be available as an Employment Interview Room from 0800-1700h, Monday through Friday, for representatives from those companies or institutions that would like to interview applicants during the meeting.

***ADA Accessibility*—**Special accommodations for disabled attendees will be handled on an individual basis provided that adequate notice is given to the ECS headquarters office.

Technical Exhibit

The Technical Session coffee break is scheduled for 0930h in Coral 3 of the Mid Pacific Conference Center on Tuesday and Wednesday to allow meeting attendees additional time to browse through the exhibits. The exhibit will feature instruments, materials, systems, publications, and software of interest to attendees.

Exhibit Hours

Monday, October 13 ..... 1800-2030h
includes the Monday Evening Poster Session

Tuesday, October 14..... 0900-1400h
and re-opening..... 1800-2030h
includes the Tuesday Evening Poster Session

Wednesday, October 15 ..... 0900-1400h
and re-opening..... 1800-2030h
includes the Wednesday Evening Poster Session

Exhibitors as of Press-Time

ECS

Booths 100 & 102
ecs@electrochem.org
www.electrochem.org

The Electrochemical Society of Japan (ECSJ)

Booth 107
Satoshi Ishiwata
s_ishi@electrochem.jp
http://www.electrochem.jp/

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SUSS Microtec
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Carol Menard
Carol.menard@suss.com
www.suss.com

Laboratory, Ltd. (TMIL)
Booth 311
Hioko Kaneko
kanekoh@tmil.co.jp
www.tmil.co.jp

Wasatch Molecular
Booth 211
Jim Smith
jsmith@wasatchmolecular.com
www.wasatchmolecular.com

Webcom Communications
Literature Display
Jessica Thebo
jessicat@infowebcom.com
www.infowebcom.com

(Special Section continues on page 24)

ecstransactions

Volume 13—Phoenix, Arizona

from the ECS Phoenix meeting, May 18-May 22, 2008

The following issues of ECS Transactions are from symposia held during the Phoenix meeting. All issues are available in electronic (PDF) editions, which may be purchased by visiting http://ecsdl.org/ECST/. Some issues are also available in hard-cover editions. Please visit the ECS website for all issue pricing and ordering information. (All prices are in U.S. dollars; M = ECS member price; NM = nonmember price.)

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Phoenix A1 Student Posters (General)

Phoenix A2 IDEAS: Intriguing Disclosures on Electrochemical Advances Symposium

Phoenix A3 Nanotechnology (General)

Phoenix A4 Tutorials in Nanotechnology: Focus on Energy and Technology

Phoenix B1 Batteries (General)

Phoenix B2 Alkaline Electrochemical Power Sources

Phoenix B3 Biological Fuel Cells 3

Phoenix B4 Characterization of Porous Materials

Phoenix B5 Fundamentals of Energy Storage and Conversion

Phoenix B6 Ionic and Mixed Conducting Ceramics 6

Phoenix B8 Proton Transfer and Transport in Fuel Cells

Phoenix C1 Electrochemistry in Biological Analysis

Phoenix C3 Manuel M. Baizer Award Symposium on Organic Electrochemistry

Phoenix C4 Organic and Biological Electrochemistry Symposium in Honor of Yoshihiro Matsumura

Phoenix D1 Corrosion (General)

Phoenix E4 Plasma Processing 17

Phoenix E6 Thermal and Plasma CVD of Nanostructures

Phoenix F1 Electrodeposition for Energy Applications

Phoenix G1 Industrial Electrochemistry and Electrochemical Engineering (General)

Phoenix G2 Multiscale Simulations of Electrochemistry Systems - Computational Aspects

Phoenix G3 Tutorials in Electrochemical Technology: Impedance Spectroscopy

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A—General & Tutorials

A1 — General Student Poster Session (M) — *V. Desai, G. Botte, P. Kulesza, H. Martin, V. R. Subramanian, M. Watanabe, and X. Zhang*

A2 — Nanotechnology General Session (M-Th) — *E. Traversa, C. Bock, J. Li, Z. Liu, G. Sandi, T. Tatsuma, and W. Van Schalkwijk*

A3 — Tutorials in Nanotechnology: Focus on Sensors (M) — *P. J. Hesketh, C. Bock, F. Kitamura, M. Saito, G. Sandi, M. Tabib-Azar, and P. Vanýsek*

B—Batteries, Fuel Cells, and Energy Conversion

B1 — Battery and Energy Technology Joint General Session (T-F) — *C. Walk, N. Imanishi, S. R. Narayanan, and Y. Takeda*

B2 — Electrochemical Capacitors and Hybrid Power Sources (Tu-Th) — *R. J. Brodd, K. M. Abraham, K. Kim, M. Morita, K. Naoi, S. Park, P. Simon, V. Srinivasan, W. Sugimoto, and K. Zaghib* HC e

B3 — High Power Batteries for Hybrid EV and Portable Power (Th-F) — *Y. Chiang, Z. Ogumi, and K. Tatsumi*

B4 — Intercalation Compounds for Energy Conversion and Storage Devices (M-Th) — *K. Zaghib, C. M. Julien, R. Mantz, T. Ohzuku, S. Whittingham, and Y. Xia*

B5 — Large Scale Energy Storage for Renewable Energy and Other Applications (W) — *C. Wei, W. Cai, A. Negishi, and K. Ota*

B6 — Micro Power Sources (W-F) — *N. J. Dudney, G. Amatucci, and R. Kanno*

B7 — Non-Aqueous Electrolytes for Lithium Batteries (M-W) — *T. Jow, W. Henderson, B. Lucht, and M. Ue*

B8 — PEM Fuel Cells 8 (S-F) — *T. F. Fuller, S. Cleghorn, H. A. Gasteiger, M. Inaba, C. Lamy, S. Mitsushima, H. Nakagawa, V. Ramani, K. Shinohara, P. Shirvanian, P. Strasser, H. Uchida, and T. Zawodzinski* HC e

B9 — Rechargeable Lithium and Lithium Ion Batteries (M-F) — *A. Manthiram, T. Abe, K. M. Abraham, J. Xu, and J. Yamaki*

B10 — Solid State Ionic Devices 6: Nano Ionics (M-F) — *E. D. Wachsman, K. M. Abraham, E. Traversa, S. Yamaguchi, K. Zaghib, and T. Zawodzinski*

C—Biomedical Applications and Organic Electrochemistry

C1 — Biological Nanostructures, Materials, and Applications (M-Tu) — *M. Demirel, H. De Long, K. Kano, H. Ohno, and I. Taniguchi*

C2 — Challenges to Single-Cell Engineering and Imaging Technology (W-Th) — *H. Matsuoka, D. Pang, J. Rusling, and E. Tamiya*

C3 — New Frontiers of Synthetic and Mechanistic Organic Electrochemistry (S-Tu) — *T. Fuchigami, A. J. Fry, K. D. Moeller, and H. Tanaka*

D—Corrosion, Passivation, and Anodic Films

D1 — Corrosion General Poster Session (Tu) — *A. J. Davenport and E. Akiyama*

D2 — Corrosion and Electrochemical Properties of Bulk Metallic Glasses and Nano-Crystalline Materials (Th) — *J. R. Scully and M. Yamasaki*

D3 — Corrosion in Marine and Saltwater Environments 3 (Tu-Th) — *D. Shifler, S. Fujimoto, H. Kihira, and F. Martin*

D4 — Critical Factors in Localized Corrosion 6, in Honor of Professor Shibata (M-W) — *S. Fujimoto, G. S. Frankel, and T. Haruna*

D5 — High Temperature Corrosion and Materials Chemistry 7 (M-Th) — *E. Wuchina, J. Fergus, T. Maruyama, T. Narita, E. Opila, and D. Shifler*

D6 — Porous Semiconductors: A Symposium Held in Memory of Vitali Parhutik and Volker Lehmann (M-W) — *P. Schmuki, H. Foell, U. Goesele, J. J. Kelly, D. J. Lockwood, and Y. H. Ogata* HC e

E—Dielectric and Semiconductor Materials, Devices, and Processing

E1 — Solid State Divisions General Session (M-Tu) — *K. B. Sundaram, H. Iwai, O. Leonte, R. Todi, and X. Wang*

E2 — Atomic Layer Deposition Applications 4 (M-W) — *A. Londergan, S. F. Bent, S. De Gendt, J. W. Elam, S. B. Kang, and O. Van der Straten* HC e

E3 — High k Dielectric Constant Materials and Gate Stacks (M-W) — *S. Kar, M. Houssa, H. Iwai, D. Landheer, D. Misra, and S. Van Elshocht* HC e

E4 — High Purity Silicon 10 (M-W) — *C. Claeys, R. Falster, P. Stallhofer, and M. Watanabe* HC e

E5 — Integrated Optoelectronics 4 (M-Th) — *M. Deen, Q. Fang, C. Jagadish, and K. Ohashi*

E6 — Low k Inter-Level Metal Dielectrics and New Contact and Barrier Metallurgies/Structures (Tu) — *G. S. Mathad, J. C. Flake, H. Iwai, and H. S. Rathore*

E7 — Nitrides and Wide-Bandgap Semiconductors for Sensors, Photonics, and Electronics 9 (W) — *K. Shiojima, D. Bohr, M. Goorsky, T. Hashizume, T. Kikkawa, Y. Sano, and E. B. Stokes* HC e

E8 — Nonvolatile Memory and Its Evolution (Tu-W) — *H. Ohno, Y. Suda, Y. Sugiyama, and N. Takaura*

E9 — One-Dimensional Nanoscale Electronic and Photonic Devices 2 (M-Tu) — *L. Chou, C. Chang, and Z. L. Wang*

E10 — Science and Technology of Dielectrics for Active and Passive Devices (M-W) — *K. Worhoff, H. Iwai, P. Mascher, D. Misra, and K. Shiraishi*

E11 — Semiconductor Wafer Bonding 10: Science, Technology, and Applications (Tu-Th) — *T. Suga, J. Bagdahn, H. Baumgart, C. Colinge, K. D. Hobart, and H. Moriceau* HC e

E12 — State-of-the-Art Program on Compound Semiconductors 49 (SOTAPOCS 49) (M-Tu) — *J. Wang, J. Kim, H. C. Kuo, and M. Overberg* HC e

E13 — Thin Film Transistors 9 (TFT 9) (M-Th) — *Y. Kuo, D. Ast, O. Bonnaud, S. Fonash, M. Han, M. Hatano, J. Jang, M. Matsumura, A. Nathan, M. S. Shur, S. Uchikoga, and Y. Uraoka* HC e

E14 — ZnO Based Thin Films, Nano-Wires, and Nano-Belts for Photonic and Electronic Devices and Sensors (M-Tu) — *F. Ren, L. Chen, G. M. Kale, S. P. Lau, A. Waag, and Z. L. Wang* HC e

E15-23 — SiGe, Ge, and Related Compounds: Materials, Processing, and Devices 3 (M-F) — *D. Harame, J. Boquet, M. Caymax, J. Cressler, S. Koester, G. Masini, S. Miyazaki, A. Reznicek, K. Rim, S. Takagi, and B. Tillack* HC e

F—Electrochemical/Chemical Deposition and Etching

F2 — Electronics Packaging 3 (Tu) — *K. Kondo, D. Barkey, M. Hayase, T. Ritzdorf, and B. Wu*

F3 — Green Electrodeposition (W-F) — *S. Roy, S. Yoshihara, and G. Zangari*

F4 — Magnetic Materials, Processes, and Devices 10 (M-Th) — *C. Bonhote, S. R. Brankovic, H. H. Gatzen, Y. Kitamoto, T. Osaka, W. Schwarzacher, and G. Zangari*

F5 — Molecular Structure of the Solid-Liquid Interface and Its Relationship to Electrodeposition 6 (Tu-W) — *R. C. Alkire, Y. Fukunaka, T. Homma, and D. M. Kolb*

G—Electrochemical Synthesis and Engineering

G1 — Electrodes for Industrial Electrochemistry (W-Th) — *D. T. Mah and Y. Takasu*

G2 — Tutorial Symposium on Electrochemical Engineering in Honor of Professor John Newman's 70th Birthday (Tu) — *T. W. Chapman, J. A. Trainham, and R. E. White* e

H—Fullerenes, Nanotubes, and Carbon Nanostructures

H1 — Nanostructure and Function of Fullerenes, Carbon Nanotubes, and Related Materials (M-Tu) — *N. Nakashima, T. Akasaka, F. D'Souza, S. Fukuzumi, D. M. Guldi, H. Imahori, S. Maruyama, Y. Murata, and J. Nishimura*

I—Physical and Analytical Electrochemistry

I1 — Physical, Analytical, and Spectro-Electrochemistry General Session (Tu-Th) — *P. C. Trulove, K. Shimazu, S. Sun, and E. Wang*

I2 — Bioelectroanalysis (W-Th) — *S. Minteer, P. Atanassov, J. Burgess, S. Calabrese Barton, I. Hsing, and I. Taniguchi*

I3 — Electrocatalysis (W-F) — *G. Brisard, M. Osawa, J. Prakash, and A. Wieckowski*

I4 — Environmental Electrochemistry (W-Th) — *D. D. Russell and D. T. Mah*

I5 — Molten Salts and Ionic Liquids 16 (M-F) — *H. De Long, S. Dai, D. M. Fox, R. Hagiwara, R. Mantz, P. C. Trulove, and K. Zaghib*

J—Sensors and Displays: Principles, Materials, and Processing

J1 — Chemical Sensors 8: Chemical (Gas, Ion, Bio) Sensors and Analytical Systems (Tu-Th) — *R. Mukundan, Z. Aguilar, C. Bruckner-Lea, M. Carter, G. Hunter, N. Miura, F. Mizutani, and Y. Shimizu* HC e

J2 — Microfabricated and Nanofabricated Systems for MEMS/NEMS 8 (M-Tu) — *P. J. Hesketh, J. L. Davidson, J. Li, S. Shoji, and K. B. Sundaram* e

J3 — Phosphors for New-Generation Lighting (Tu, Th) — *S. Okamoto and A. A. Setlur*

J4 — Physics and Chemistry of Luminescent Materials, including the 4th Symposium on Persistent Phosphors (M-Tu) — *S. Okamoto, J. Collins, B. DiBartolo, U. Happek, K. C. Mishra, X. Wang, and H. Yamamoto*