Volume 11—Washington, DC

from the ECS Washington, DC meeting, October 7—October 12, 2007

The following issues of ECS Transactions are from symposia held during the Washington, DC meeting. All issues are available in online 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.

Available Issues—Hard Cover & Online

Vol. 11: State-of-the-Art Program on Compound Semiconductors 47 (SOTAPOCS 47)
No. 5: Wide-Bandgap Semiconductor Materials and Devices
Editors: Wang, Stulm, Kim, Klat, Brandt, Hunter, Brown
Hard-cover: $118.00, NM $148.00
Online: $76.60, NM $95.75

Vol. 11: Atomic Layer Deposition Applications 3
No. 7: Editors: Londergan, van der Straten, De Gendt, Esm. Bert, Kng
Hard-cover: $118.00, NM $148.00
Online: $59.60, NM $74.50

Available Issues—Online Only

Vol. 11: Nanoscale One-Dimensional Electronic and Photonic Devices (NODEPD)
No. 8: Editor: Chou
Online: $29.40, NM $36.75

Forthcoming Issues

If you would like to receive information on any of these issues when they become available, please e-mail ecs@electrochem.org. Please include your name, full mailing address, e-mail address, and all issues in which you are interested.

Washington, DC A1: Student Posters (General)
Washington, DC A3: Nanotechnology (General)
Washington, DC B1: Battery/Energy Technology (General)
Washington, DC B2: Battery Safety and Abuses
Washington, DC B4: Electrochemical Scanning Probe Microscopy: From Theory to Real-World Applications
Washington, DC B6: Modeling of Electrochemical Power Sources
Washington, DC B7: Nanomaterials for Energy Conversion and Storage
Washington, DC B8: Most Generation Photonics and Photovoltaics
Washington, DC B11: Rechargeable Lithium and Lithium-Ion Batteries
Washington, DC B12: Solid-State Ionic Devices
Washington, DC C1: Surface Treatments for Biomedical Applications
Washington, DC D1: Corrosion (General)
Washington, DC D2: High Resolution Characterization of Corrosion Processes
Washington, DC D3: Light Alloys 3
Washington, DC D4: Modeling and Simulation of Dissolution and Corrosion Processes
Washington, DC D5: Nanocrystal-Embedded Diagnostics for Electronic and Photonic Devices
Washington, DC D7: Organic Semiconductor Materials and Devices
Washington, DC F1: Current Trends in Electrodeposition
Washington, DC F2: Electrodeposition of Nanoengineered Materials and Devices
Washington, DC F3: Stress Related Phenomena in Electrochemical Systems
Washington, DC F1: Leadership and Entrepreneurship in Electrochemical Engineering: A Tutorial
Washington, DC H: Physical and Analytical Electrochemistry (General)
Washington, DC G: Electrochemical Scanning Probe Microscopy: From Theory to Real-World Applications
Washington, DC J: Physics and Chemistry of Luminescent Materials 16
Washington, DC J: Sensors, Actuators, and Microsystems (General)
Washington, DC JA: Sensor Arrays and Multi-Dimensional Sensor Systems

Ordering Information
To order any of these recently-published titles, please send your request to:
The Electrochemical Society
65 South Main Street
Pennington, NJ 08634-4839 USA
Tel: 609.737.1902 Fax: 609.737.2743
E-mail: orders@electrochem.org
In 2003 he assumed operational responsibility as the Institute’s director and founder of the Institute for Science and the Environment (ISE), in 1845h, in Cabinet on the Concourse Level.

In 1990, Chair of the Publication Committee in 1999-2001, the term 1987-90. He was President of ISE for the term 1989-92, Chair of the Publication Committee in 1999-2001, and one of the Editors of Electrochimica Acta, the official journal of ISE (2002) of which he has been managing Editor since January 2003.

Dr. Trasatti’s awards and recognitions include the “Miolati” Prize of the Italian Association of Physical Chemistry (1975); Honorary Member of the Polish Chemical Society (1992); and Corresponding Member of the National Academy of Sciences of Argentina (1997); Chair of the Italian Accademia di Scienze e Lettere (1997), 75th Anniversary Medal of the Polish Chemical Society (1997); Honorary Medal of the Institute of Physical Chemistry of the Polish Academy of Sciences (2000); ECS Fellow (2000); Frumkin Medal of the Institute of the Russian Chemical Society (2003); and recipient of the Gold Seal of the Italian Chemical Society (2007).

2007 Olinn Palladium Award Reception—All meeting registrants are invited to attend this special meeting reception honoring Sergio Trasatti, recipient of the 2007 Olinn Palladium Medal, on Tuesday, October 9, at 1800-1845h, in Cabinet on the Concours Level.

Dr. Meyerson was called the “Inventor of the Year” by the New York State Legislature in 1988, and he was recognized as “United States Distinguished Inventor of the Year” by the U.S. IP Law Association and the Patent and Trademark office in 1999. He was also elected to the National Academy of Engineering in 2002.

Prof. Peter has published around 230 scientific papers as well as several book chapters. He was awarded the Electrochemistry Medal of the Royal Society of Chemistry in 1992 and the European Medal of the International Society of Electrochemistry in 1997. He has been a Life Fellow of ECS, and a Vice-President of the International Society of Electrochemistry. Until recently, he was a long-serving Editor of the Journal of Electroanalytical Chemistry.

Monday, October 8
10am-10:40am, International Ballroom Center

The ECS The Origins of and Imperative for Green IT by Bernard S. Meyerson

In this talk, Dr. Meyerson will cover the latest trend in technology: how the energy crisis has created a demand for dramatic strategy shifts and technical innovations going forward; and how collaborative innovation is becoming the gold standard for joint efforts.

When the silicon technology train came off the rails after forty years of linear progress, the impact of that departure was staggering. It was marked by the end of the regular scaling of chip density, well known as Moore’s law, and the associated improvements in technology performance. As material crucial to chip performance (e.g., aluminum and silicon dioxide) reached the end of their useful lives, one knew from the more optimistic expectations from ever more aggressive device dimensions. Those caught unaware encountered unimagined hurdles in chip and associated system power requirements. Combining this “progress” in chip technology with high density packaging had led to a crisis in data centers worldwide, where the energy costs of operating such data centers approached those of providing them. This talk will address some of the challenges we now face, and actions underway in technology and systems to proactively address this now critical issue impacting the future of all IT.

BERNARD S. MEYERSON is Vice-President for Strategic Alliances and Chief Technology Officer (CTO) of IBM’s Systems and Technology Group (STG). In 1980, Dr. Meyerson joined IBM Research as a staff member, leading the development of silicon germanium and other high performance multigate semiconductor devices. In 1986, Dr. Meyerson was appointed an IBM Fellow, IBM’s highest technical honor. In 1992, Dr. Meyerson assumed operational responsibility as the Institute’s director and founder of the Institute for Science and the Environment (ISE), in 1845h, in Cabinet on the Concourse Level.

In 2003 he assumed operational responsibility as the head of the Institute for Science and the Environment (ISRC), and led the world’s largest semiconductor development consortium, with members IBM, Sony, Toshiba, AMD, Samsung, Chartered Semiconductor, and Infineon.

Dr. Meyerson has received numerous awards for his work, which include the Materials Research Society (MRS) Outstanding Young Investigator Award, the IEEE Ernst Weber Award for the body of work culminating in the commercialization of SiGe-based communications technology, and the IEEE Electron Devices Society J. E. Bowers Award.

Dr. Meyerson was cited as “Inventor of the Year” by the New York State Legislature in 1988, and he was recognized as “United States Distinguished Inventor of the Year” by the U.S. IP Law Association and the Patent and Trademark office in 1999. He was also elected to the National Academy of Engineering in 2002.
Welcome to Washington, DC—a dynamic and thriving cultural center that is home to some of the world’s most famous museums, historic sites, award-winning theatres, innovative restaurants, majestic neoclassical architecture, and sweeping memorials. We are pleased to venture into this city again for the 212th ECS Meeting. This major international conference will be held at the Hilton Washington Hotel and will include 35 topical symposia comprised of 1,576 technical presentations!

Featured Speakers

Sunday, October 7 For the Rest of Us...
1630h, Lincoln East/West
Concourse Level
Understanding Non-Conventional Photovoltaic Cells by Laurie Peter

Prof. Peter's talk will show how non-conventional cells work and will explain how they are described within a simple unified theoretical framework that is accessible to physicists and chemists alike, and which allows definition of strategies for device optimization.

Recent years have seen the development of several unconventional types of solar cells that at first sight, appear to differ substantially from normal solid state cells. Two examples of these non-conventional PV cells are dye-sensitized nanocrystalline solar cells (DSC or Grätzel cells) and bulk heterojunction organic solar cells (polymer/fullerene cells). The common feature of these cells is that they are extended three-dimensional nanostructured interfaces, the properties of which are determined by interplay of photophysics and semiconductor electrochemistry. The latter is thought to sustain the four key steps of operation: the charge separation by the open circuit, the charge transport through the cell, the generation and extraction of the photoelectricity at the contacts. The talk will present the various concepts that have been developed in Dr. Trasatti's group, and the tools that were developed to create a database that allows the estimation of the electronic properties of a huge range of electrode interfaces.

Monday, October 8
Plenary Session
0900h, International Ballroom Center, Main Level
The ECS The Origins of and Imperative for Green IT by Bernard S. Meyerson

In this talk, Dr. Meyerson will cover the latest trend in technology: how the world went over a power cliff many did not see coming, driving the need for dramatic strategic shifts and technological innovations going forward; and how collaborative innovation is becoming the gold standard for joint efforts.

When the silicon technology train came off the rails after forty years of linear progress, the impact of that departure was staggering. It was marked by the end of the Moore’s Law, which holds that the scaling of chip density, well known as Moore’s law, and the associated increase in performance, is crucial to chip performance (e.g., aluminum and silicon dioxide) reached the end of their useful lives, one no longer obtained performance from ever more aggressive device dimensions. Those caught unaware encountered unacceptable spikes in chip and associated system power requirements. Combining this “progress problem” with high density packaging had led to a crisis in data centers worldwide, where the energy costs of operating such data centers approached that of providing them. In this talk, Dr. Meyerson will cover in detail the importance of adding associated with information technology (IT), though still modest, forewarns of action required to prevent out-of-control growth. This talk will address the origins of the challenges we now face, and actions underway in technology and systems to proactively address this now critical issue impacting the future of all IT.

Bernard S. Meyerson is Vice President for Strategic Alliances and Chief Technology Officer (CTO) of IBM's Systems and Technology Group (STG). In 1980, Dr. Meyerson joined IBM Research as a staff member, leading the development of silicon germanium and other high performance electronics technologies. In 1992, Dr. Meyerson was appointed an IBM Fellow, IBM's highest technical honor. In 1999 he became the first and only IBM Fellow to be promoted to Vice President.

In 2003 he assumed operational responsibility as the head of the IBM Research-Almaden Research Center (SRDC), and led the world's largest semiconductor development consortium, with members IBM, Sony, Toshiba, AMD, Samsung, Infineon, and Freescale. Dr. Meyerson received a PhD in physics from the University of Maryland in 1976 and is a Research Professor at the University of Washington.

Dr. Meyerson was cited as "Inventor of the Year" by the New York State Legislature in 1988, and he was recognized as "United States Distinguished Inventor of the Year" by the U.S. IP Law Association and the Patent and Trademark office in 1999. He was also elected to the National Academy of Engineering in 2002.

Olin Palladium Medal Award Lecture
An Excursion to the Heart of Electrochemistry by Sergio Trasatti

"An Excursion into the Heart of Electrochemistry" is intended to touch upon fundamental concepts that have been developed in Dr. Trasatti's research, starting from the point of considering the electronic energy of metals as the primary factor establishing a number of observed regularities in the properties of electrode interfaces. The survey will include the physical meaning of electrode potentials, pzc-work function relationships, metal/vacuum vs. metal/solution interfaces, surface vs. bulk properties, and factors associated with field effects, and factors associated with electrocatalysis.

Dr. Trasatti has received his "Laureato" in industrial chemistry at the University of Milan in 1961, became assistant professor in the same university in 1967, and was elected as professor of In 1980, Dr. Trasatti was chair of the Commission 1986-88, and elected member of the IUPAC Physical Chemistry Division Committee for the term 1987-90. He was President of ISE for the term 1999-2002, Chair of the Publication Committee in 1999-2001, and one of the Editors of Electrochimica Acta, the official journal of ISE (2002) (of which he has been a substantive member of the editorial boards of major electrochemistry journals and book series.

Dr. Trasatti is a Titular member of the IUPAC Commission on Electrochemistry since 1976, Dr. Trasatti was chair of the Commission 1988-90, and corresponding member of the National Academy of Sciences of Argentina (1994); Corresponding member of the National Academy of Sciences of Argentina (1985); Corresponding member of the Istituto Italiano di Chimi.

Dr. Trasatti's awards and recognitions include the “Miolo” Prize of the Italian Association of Physical Chemistry (1975); Honorary Member of the Polish Chemical Society (1997); Corresponding Member of the Academy of Sciences of Argentina (1994); Corresponding Member of the National Academy of Sciences (1993); Honorary Member of the Accademia di Scienze e Lettere (1997); 75th Anniversary Medal of the Polish Chemical Society (1997); Honorary Medal of the Institute of Physical Chemistry of the National Academy of Sciences (2000); ECS Fellow (2000); European Patent Office Silver Medal of ISE (2004); and recipient of the Gold Seal of the Italian Chemical Society 2007 Olin Palladium Award Reception—All meeting registrants are invited to attend the award reception honoring Sergio Trasatti, recipient of the 2007 Olin Palladium Medal, on Tuesday, October 9, at 1800-1845h, in Cabinet on the Concourse Level.

The Electrochemical Society Interface • Fall 2007

The Electrochemical Society Interface • Fall 2007
Short Courses, Tutorials, and Workshops

**Short Course #1:**
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.

**Short Course #2:**
PEM Fuel Cells  
E. Stuev and H. Gasteiger, Instructors

This short-course develops the fundamental thermodynamics, kinetics, and modeling of directly electrochemical membrane fuel cells (PEMFC), including relevant half-cell reactions, their thermodynamic driving forces, and their mathematical foundations in electrochemical theory. Also covered will be the different functional requirements of actual PEMFC components, basic in situ diagnostics, principles of fuel cell catalyst activity, measurement impacts, the impact of uncontrolled-operation events, and the various effects of long-term material degradation.

**Short Course #3:**
Basics of Impedance Spectroscopy  
Mark E. Ouzoun, 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. Ideally, the attendee should have some experience with electrochemical measurements. The attendee will develop a basic understanding of the techniques, the sources of error, the impedance analysis of the measured data, and how experimental errors can be reduced. The attendee will learn to interpret measurements in terms of meaningful physical properties.

**Short Course #4:**
Lithium Ion Battery Materials  
M. Winter and Y. S. Meng, Instructors

This course will cover the following: a general introduction is followed by a discussion of fundamental electrode materials considerations; electrolytes; cathode, interface considerations, computational approach; and anode vs. anode interactions, active components, and conclusions and feedback.

**Short Course #5:**
Basic Electrochemical Measurements  
Bill Eggers, Instructor

The course is targeted at scientists and engineers who are tasked with using electrochemical methods or instruments that have been applied in industry. This course is for the scientist who is not familiar with electrochemistry, the instruments and cells used in performing the experiments, the techniques available, and a proper interpretation of results.

**Short Course #6:**
Basics of Cleaning Processing of Integrated Circuit Manufacturing  
K. A. Reinhardt, J. W. Batterbaugh, and R. J. Small, Instructors

This course provides a working knowledge of surface conditioning and cleaning techniques used in the manufacture of integrated circuits. Fundamentals of the techniques used for cleaning the wafer surface will be discussed. Practical applications and methods for cleaning will be covered. Upon completing this course, participants will have a good understanding of all types of cleaning processes used in IC manufacturing, surface conditioning for pre-diffusion, cleaning before South gate oxide, clean, post-etch and post-implant photore sist removal, particle removal, and post-CMP clean.

**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. Advance registration required.

**PROFESSIONAL DEVELOPMENT WORKSHOPS:**
John R. Sisco, Instructor

ECS will sponsor the following three professional development workshops at no extra cost to meeting registrants. All workshops will be held in Kailorana, Terrace Level.

**Writing an Effective Cover Letter and Resume**—The need for a cover letter, how to write it, the many “dos” 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 an interview 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 symposia and tutorials, please see the General Meeting Program on the ECS website: www.electrochem.org/meetings/biannual/212/212.html.

**Carl Wagner Memorial Award**

**Philip N. Barlett** received a BS in chemistry from the University of Oxford in 1978. He was awarded a British Petroleum Scholarship to study for a PhD in photoelectrochemistry under the supervision of Professor W. John Albery FRS at Imperial College in London and received his PhD in 1981. Following his PhD, Professor Barlett returned to Oxford for a short post-doctoral fellowship from the Royal Society for the Exhibition of 1851 to work on modified electrodes at Imperial College. In 1984 he was appointed to a lectureship in physical chemistry at the University of Oxford, and subsequently became a professor of physical chemistry at the University of Bath. Since 1993 he has been at the University of Southampton where he is Professor of electrochemistry and currently the Deputy Head of School responsible for research. Prof. Barlett’s research interests are in the areas of bioelectrochemistry, electrochemical sensors and electrodeposition and applications of nanomaterials. Current research in his group includes work on the design of electrocatalysts for fuel cells, applications for biosensors and biomedical electrochemistry, and the application of high throughput methods to the identification of new electro active materials for use in fuel cells.

**Honorary Membership**

**E. Stuve and H. Gasteiger,** Instructors

Visit the ECS website for full course descriptions and instructor biographies.
**Award Winners**

**Carl Wagner Memorial Award**

**Philip N. Barlett** received a BS in chemistry from the University of Oxford in 1978. He was awarded a British Petroleum Scholarship to study for a PhD in photoelectrochemistry under the supervision of Professor W. John Albery FRS at Imperial College in London and received his PhD in 1981. Following his PhD, Professor Barlett taught at the Royal Holloway College, University of London, from 1981 until 1992, when he took up a position with the University of Bath. Since 1983 he has been at the University of Southampton where he is Professor of electrochemistry and currently the Deputy Head of School responsible for research. Prof. Barlett’s research interests are in the areas of bioelectrocatalysis, electrochemical sensors and electrodeposition and applications of nanomaterials. Current research in his group includes work on the design of electrode-surface functionalized self-assembled monolayers for applications in biosensors and bioelectrosynthesis and the application of high-throughput methods to the design of modified electrodes for NADH oxidation.

**Honorary Membership**

**John Newman** earned his BS in chemical engineering in 1960 from Stanford University. While at Northwestern University, he was an engineering co-op student at Oak Ridge National Laboratory, where he worked on diffusion in ion exchangers and adsorption extraction. Newman earned his PhD at the University of California, Berkeley for research on aqueous metal solubility with his professor’s degree in 1962, on current distribution in porous electrodes, under the guidance of Professor Charles Tobias. In 1963, he joined IBM, where he worked with a circular cylinder at high Reynolds numbers. While a Ph.D. student, he contributed to the preparation of major portions of the English Leibniz of book, Physical Chemical Hydrodynamics, published in 1962. Shortly after receiving his doctorate, he joined AT&T Bell Laboratories and became a full professor in 1970, where he is still an active member. Newman is a Scientific and Principal Investigator in the Environmental Energy Technologies Division at Lawrence Berkeley National Laboratory, where he is in charge of the Batteries for Advanced Transportation Technologies program. Lithium/polymer electrolyte cells and batteries have been highlighted in recent work. In 1999, he was elected to the National Academy of Engineering.

**VioLa BirSs** obtained her PhD as a Commonwealth Scholar at the University of Oxford in 1976. She then joined the R&D department of the anaerobic film formation at silver electrodes with Dr. G. Wright, working on the use of microbial fuel cells. She then took on a position with Dr. R. E. Conway at the University of Ottawa to carry out pioneering research on the supercapacitive properties of hydroxide/metal oxides, particularly of lithium oxide, which has spawned much of the current interest in this area.

She was employed as a research scientist with Alcan International Ltd. in Kingston, Ontario, where she worked on pitting and stress corrosion cracking problems and developments of new Al alloys. After one year at Alcan, Dr. Birss joined the Chemistry Department at the University of Calgary, and was appointed an assistant professor in 1983, where she was promoted to associate professor in 1987 and to full professor in 1991. Since joining the University, her principal area of research has been on the growth mechanism, nanostructure, and properties of wide range of surface films. More recent work has had a strong...
focus on solid oxide fuel cells, where Dr. Birss' key research achievement was the development of key electrochemical reaction kinetics and mechanisms of fuel oxidation and oxygen reduction reactions and the development of novel reaction mechanisms, and on overcoming sulfur poisoning and Cr contamination. Dr. Birss is a founding member of the Florida Solar Energy Center's (FSEC) Fuel Cell Initiative (FCl), involving over 15 research groups at 8 institutions. She is also the co-founder of Solid Oxide Fuel Cells Canada, currently involving over 90 individuals from industry, government, and academia.

Marc Cahay received his BS in physics from the University of Liege, Belgium, in 1978. He received his PhD degree in physics and a PhD in electrical engineering in 1986 from Purdue University in 1986 and 1987, respectively. He joined the Department of Electrical and Computer Engineering at the University of Cincinnati in 1989. He has over twenty years experience in the field of semiconductor devices and materials. His current research interests include nanotechnology, vacuum microelectronics, and spintronics. He is co-author of a book, *Introduction to Spintronics*, for CRC Book Press to appear in 2007. Dr. Cahay's research highlights include the first self-consistent calculation of the current-voltage characteristics of resonant tunneling diodes taking into account space-charge effects. He has also addressed ion-implanted gold films deposited on silicon, the importance of magnitude rather than the lowest values recorded in commercial semiconductors.

James M. Fenton has been Director of the Florida Solar Energy Center since January, 2005. The center, a research and development laboratory of the State University of Florida, is the country's largest and most active state alternative energy laboratory. Dr. Fenton serves as a professor in UCF's Mechanical, Materials, and Aerospace Engineering Department. Prior to joining FSEC, he was a professor and director of the engineering professor at the University of Connecticut. Dr. Fenton's research activities in fuel cells, pollution prevention, and renewable energy are helping FSEC expand their nationally acclaimed research and development activities. He is a member of the Florida Solar Energy Center's (FSEC) Fuel Cell Initiative (FCI), involving over 15 research groups at 8 institutions. He is also the co-founder of Solid Oxide Fuel Cells Canada, currently involving over 90 individuals from industry, government, and academia.

In 1989. Dennis G. Peters began his academic career as an instructor at Indiana University in 1982, and he has been the Herman T. Stoll Chair in Electrical Engineering at that institution since 1975. He received his BS degree in electrical engineering from the Institute of Technology in 1958 and his PhD degree in electrical engineering from the University of Illinois in 1962. During the last 35 years, his research has focused on mechanistic and synthetic aspects of the chemistry of halogenated organic compounds in nonaqueous media, using computer simulations, explorations of the direct cathodic reduction of alkyl halides, olefinic and acetylenic halides, and acyl halides at mercury and platinum electrodes. In locally devised Hydrogen Electrolysis of a bifunctional electrolyzed nucleated (n) and cobalt (c) complexes as catalysts for the indirect reduction of the chemical production needs in ceramics, he has studied both direct and indirect electrocatalytic reactions and, quite recently, ring-expansion reactions induced catalytically by electrolyzed nucleated (n) and cobalt (c) salts. Recently, he has received the Distinguished Service Award from Indiana University (2005) and the George Andreas Award for Outstanding Service to Indiana University (2006).

Daniel Scherson received his license in chemistry from the Faculty of Basic Sciences, University of Chile, Santiago, Chile in 1974, and his PhD in chemistry from the University of Cincinnati in 1979. Following a string of post-doctoral research appointments at UC Berkeley with Prof. Newman, at the National Institute of Health, at the National Laboratory with Dr. Phil Ross, at Carnegie Mellon University with Prof. Hall, and at the Weizmann Institute with Prof. Yeager, and lastly with Prof. Dierk Kosl at the Fritz Haber Institute in Berlin, he has been an assistant professor, an associate professor, and a professor in the Department of Chemistry in 1983. Prof. Scherson is currently the Charles E. Feinberg professor of Chemistry, a position he has held since 2003, and also Director of the Center for Basic Sciences. He has published over 200 hundred papers and 5 U.S. and international patents. Prof. Scherson has served as an Associate Editor of the Journal of Electrochemistry, a member of the ACS Governing Board, a member of the Electrochemical Society, a member of the American Chemical Society, a member of the Japan Society for the Promotion of Science (1991-94), the David C. Grumme Award of the Electrochemical Division of ECS (2000), an Alexander von Humboldt Senior Fellow Award (1999-2001), and a Medal of the Electrochemical Society. His major research interests are in the areas of experimental and theoretical aspects of electrochemistry, surface science, and in situ characterization of interphas. Prof. Scherson is the recipient of the 1998 Faraday Award of the Electrochemical Society and the Dreyfus Teacher-Scholar Award (1998), an NSF Power Award (2000). He was a visiting Professor at the Université Louis Pasteur, Strasbourg (2000), and is currently a visiting Professor at Université Louis Pasteur, Strasbourg. His research continues to involve the use of solid state NMR and diffraction methods to investigate solid state NMR for energy storage and conversion and environmental chemistry. Dr. Scherson has been actively participating in different positions at Saft Technology Award of the State University of New York (1995), and lastly with Prof. Dieter Kolb at Case Western Reserve University with Prof. Newman, at the Lawrence Berkeley Laboratory of Prof. Yonathan A. Pines of the National Science Foundation, and the American Chemical Society.

Eric D. Wachsman began his academic career as an instructor at Indiana University in 1982, and he has been the Herman T. Stoll Chair in Electrical Engineering at that institution since 1975. He received his BS degree in electrical engineering from the Institute of Technology in 1958 and his PhD degree in electrical engineering from the University of Illinois in 1962. During the last 35 years, his research has focused on mechanistic and synthetic aspects of the chemistry of halogenated organic compounds in nonaqueous media, using computer simulations, explorations of the direct cathodic reduction of alkyl halides, olefinic and acetylenic halides, and acyl halides at mercury and platinum electrodes. In locally devised Hydrogen Electrolysis of a bifunctional electrolyzed nucleated (n) and cobalt (c) complexes as catalysts for the indirect reduction of the chemical production needs in ceramics, he has studied both direct and indirect electrocatalytic reactions and, quite recently, ring-expansion reactions induced catalytically by electrolyzed nucleated (n) and cobalt (c) salts. Recently, he has received the Distinguished Service Award from Indiana University (2005) and the George Andreas Award for Outstanding Service to Indiana University (2006).

Paul Gabano, the well known pioneer in the field of semiconductor devices and materials. His current research interests include nanotechnology, vacuum microelectronics, and spintronics. He is co-author of a book, *Introduction to Spintronics*, for CRC Book Press to appear in 2007. Dr. Cahay's research highlights include the first self-consistent calculation of the current-voltage characteristics of resonant tunneling diodes taking into account space-charge effects. He has also addressed ion-implanted gold films deposited on silicon, the importance of magnitude rather than the lowest values recorded in commercial semiconductors.

2007 Class of Fellows (continued)
focus on solid oxide fuel cells, where Dr. Bires' key research achievements have contributed significantly to understanding the kinetics and mechanisms of fuel oxidation and oxygen reduction reactions at the cathode and anode, developing new cathode and anode materials, and on overcoming sulfur poisoning and Cr contamination. Dr. Bires is a founding member of the Florida Solar Energy Center Cell Initiative (FSCCI), involving over 30 research groups at 8 institutions. He is also the co-founder of Solid Oxide Fuel Cells Canada, currently involving over 90 individuals from industry, government, and academia.

**Marc Cahay** received his BS in physics from the University of Liege, Belgium, in 1979, and his PhD in physics and a PhD in electrical engineering from Purdue University in 1986 and 1987, respectively. He joined the Department of Electrical and Computer Engineering at the University of Cincinnati in 1989. He has over twenty years experience in the field of semiconductor devices and materials. Current research interests include nanotechnology, vacuum microelectronics, and spintronics. He is co-author of a book, Introduction to Spintronics, for CRC Book Press to appear in 2007. Dr. Cahay's research highlights include the first self-consistent calculation of the current-voltage characteristics of resonant tunneling diodes taking into account space-charge effects. He has also studied oxide thin films and the effects of aluminium oxide on the carrier transport in semiconductor devices. His research also focuses on the development of novel devices for high performance integrated circuits.

**James M. Fenton** has been Director of the Florida Solar Energy Center since January, 2005. The center, a research and development laboratory of the University of Central Florida, is the country’s largest and most active state alternative energy research center. He received his degree in chemical engineering from the Massachusetts Institute of Technology in 1958 and his PhD in materials science and engineering from Stanford University, and his BS degree in physical chemistry from Lehigh University, and an MS in Applied Mathematics from Johns Hopkins University. He has been a Visiting Scientist, Department of Chemistry and the Center for Materials Research, California Institute of Technology (1996-1997), and a Robert A. Welch Postdoctoral Fellow at the University of Houston (1968-1970). He was an Invited Lecturer, NATO Advanced Study Institute on Solid State Materials for Devices and Systems, University of Pisa, Italy (1986), and an invited participant at the U.S.-Japan Seminar on Corrosion, Nikko, Japan (1985).

**Denis G. Peters** began his academic career as an instructor at Indiana University in 1962, and he has been the Howard T. Odum Professor of Science at that institution since 1975. He received his PhD in chemistry from the Institute of Technology in 1958 and his BS in chemistry from Western Reserve University in 1956. During the last 35 years, his research has focused on mechanistic and synthetic aspects of the chemistry of halogenated organic compounds, in no small degree due to the chemical need for more powerful tools and methods for exploring the direct catalytic reduction of alky halides, olefinic and acyclic acyclic acylic acids, and alky halides at mercury and silver electrodes. In local Advices for Hydrogen electrolytically generated nickel(l) and cobalt(l) complexes as catalysts for the indirect reduction of solid-state NMR. He is currently the Charles F. Mabery Professorship of Research in Sustainable Energy, Director of the Florida Institute for Sustainable Energy, and a member of the scientific committee of the International Meeting on Lithium Batteries and the Post-combustion Reduction of NOx. Dr. Broussely joined Saft in Poitiers, France in August 1975 as a research engineer in the research laboratory of Saft/Department动力电池. His first research work and first patent focused on the development of a new type of graphite for primary solid-state gas sensors, the electrocatalytic conversion of transport in solids, and the heterogeneous electrocatalysis focused his career on developing advanced, efficient, energy conversion devices and technologies. His research is on energetically, and materials science and engineering at the University of California at Berkeley. Dr. Wachsman has been a frequent invited participant of the Florida Solar Energy Center, the American Ceramic Society, Dr. Wachsman is a frequent invited participant of the Florida Solar Energy Center, the American Ceramic Society, and the National Academies "Global Dialogues on Emerging Science and Technologies.

**Michael Brossowy** graduated Dr. des Sciences Physiques (Poliuers University, France) in 1975. While a student at the university, he had his first experience with lithium batteries during a one year training period (1971) at the research laboratory of Salt/Department动力电池. It was under the direction of Jean F. Fenton that Michael Brossowy was introduced to lithium batteries, and recipient of the Battery Division Research Award in 1992. Dr. Brossowy spent 20 years as a chemical engineer at Saft Canada, currently involving over 90 individuals from industry, government, and academia. He has over twenty years experience in the field of semiconductor devices and materials. Current research interests include nanotechnology, vacuum microelectronics, and spintronics. He is co-author of a book, Introduction to Spintronics, for CRC Book Press to appear in 2007. Dr. Cahay's research highlights include the first self-consistent calculation of the current-voltage characteristics of resonant tunneling diodes taking into account space-charge effects. He has also studied oxide thin films and the effects of aluminium oxide on the carrier transport in semiconductor devices. His research also focuses on the development of novel devices for high performance integrated circuits.

**Daniel Scherson** received his License in chemistry from the Faculty of Basic Sciences, University of Chile, Santiago, Chile in 1974, and his PhD in chemistry from University of Chicago in 1979. Following a string of post-doctoral research appointments at UC Berkeley with Prof. M. Hoffmann, the National Institutes of Health with Prof. M. O. Eaton, the National Laboratory with Dr. Phil Ross, at Carnegie Mellon University with Dr. P. Yeager, and lastly with Prof. Dieter Kolb at the Fritz Haber Institute in Berlin, he joined the Faculty of Chemistry at Indiana University in 1981. He has over 200 published papers and 5 U.S. and international patents. Prof. Scherson has served as an Associate Editor of the Journal of Electroanalytical Chemistry and Electrochemistry. He has been a member of the Electroanalytical Chemistry, a position he has held since 2003, and also Director of the Center for Electroanalytical Chemistry Research at Indiana University. He has been a member of the Electrochemical Society postdoctoral fellow (1991), and the Electrochemical Division of ECS (2000), an Alexander von Humboldt Senior Research Award in 1987. Dr. Broussely joined Saft in Poitiers, France in August 1975 as a research engineer in the research laboratory of Saft/Department动力电池. His first research work and first patent focused on the development of a new type of graphite for primary solid-state gas sensors, the electrocatalytic conversion of transport in solids, and the heterogeneous electrocatalysis focused his career on developing advanced, efficient, energy conversion devices and technologies. His research is on energetically, and materials science and engineering at the University of California at Berkeley. Dr. Wachsman has been a frequent invited participant of the Florida Solar Energy Center, the American Ceramic Society, Dr. Wachsman is a frequent invited participant of the Florida Solar Energy Center, the American Ceramic Society, and the National Academies "Global Dialogues on Emerging Science and Technologies.

**Jerry M. Yeager** is a professor at Stony Brook University and the Director of the State University of New York systemwide Materials Science & Engineering Program. His research group has developed high-temperature (> 95°C), low-relative humidity membrane-electrode assemblies (MEA) for proton-exchange membrane fuel cell (PEMFC) applications, and analytical and diagnostic techniques for the study of solid-liquid interfaces. His research group has developed high-temperature (> 95°C), low-relative humidity polymer membrane research.

**Eric D. Wachsmann** is the Director of the Florida Institute for Sustainable Energy, Director of the U.S. Department of Energy’s High Temperature Electrochemistry Center at the University of Florida, a member of the UF Research Foundation Professor in the Department of Materials Science & Engineering at the University of Florida, and Professor in materials science and engineering from the University of California at Berkeley. Dr. Wachsman has been a frequent invited participant of the Florida Solar Energy Center, the American Ceramic Society, Dr. Wachsman is a frequent invited participant of the Florida Solar Energy Center, the American Ceramic Society, and the National Academies "Global Dialogues on Emerging Science and Technologies.
and was employed as a visiting professor of chemistry at the University of Minnesota before he joined Seagate. The research of Dr. Tabakovic has been centered so far on the following fields: electrodeposition, electrochemistry of oligomers, dendrimers, and polymers, mechanistic organic electrochemistry; and synthetic organic electrochemistry. Some of his major contributions to industry are in the development of materials and processes for application in recording heads and media. Two of the most important are electrodeposited 1.8 CoNiFe and 2.4 CoFe alloys that are used in recording heads for newer soft magnetic media. His most recent work has focused on the development of magnetic materials with high perpendicular anisotropy for future Bit Patterned Media. He developed a process for electrodeposition of CoFe alloys with high perpendicular anisotropy obtained at finite martensite as a result of strong epitaxial [0002] crystallographic growth direction.

High Temperature Materials Barbara Bruce Wigner, Jr, Award

Xiao-Dong Zou joined the Energy Science and Technology Directorate (ESTD), Pacific Northwest, National Laboratory (PNNL) in August 2005 after a two-year experience as an assistant research professor at University of Missouri-Rolla (UMR). Prior to that, he was a postdoctoral fellow (2003—2004) at UMR. As an associate faculty member, he led research programs and trained graduate students. At PNNL, Dr. Zou is leading research on thermoelastic oxides and materials for solid oxide fuel cells, he has been a principal investigator or co-principal investigator of 9 programs on materials development related to energy science and technology, and through 2005 his career has been highlighted by 38 peer-reviewed articles that span the areas of structural, transport and magnetic properties of condensed matters, nonmonotonic chemistry, advanced processing and device physics. In addition, he has published 3 inventor book chapters, 3 invited journal articles, and 16 proceedings papers; contributed to over 75 presentations; and received 2 U.S. patents. Materials for various energy conversion systems including fuel cells and thermoelectrics, and energy storage systems; high temperature materials for extreme environment; development and demonstration of cellulosic; nanowires for lithium-ion battery components; opto-electronic materials; electronic ceramics, and cytotoxicity of nano-materials.

Technical Exhibit

The Technical Session coffee break is scheduled for 0930h in the Southwest Exhibit Hall on Tuesday and Wednesday to allow meeting attendees and exhibitors to browse through the exhibits. The exhibit will feature instruments, materials, systems, publications, and software of interest to attendees.

Exhibit Hours

Monday, October 8 — Thursday, October 11: 0800-2000h

Exhibit Hours

Tuesday, October 9 — Thursday, October 11: 0900-1400h and re-opening 1800-2000h

Wednesday, October 10 — Thursday, October 11: 0900-1400h
The Electrochemical Society Interface • Fall 2007

Technical Exhibit
The Technical Session coffee break is scheduled for 09:30h in the Southwest Exhibit Hall on Tuesday and Wednesday to allow meeting attendees access to the exhibits. The exhibits will feature instruments, materials, systems, publications, and software of interest to attendees.

Exhibit Hours
Monday, October 8 ............................. 1800-2000h
Tuesday, October 9 ............................ 0900-1400h and 1400-1600h
Wednesday, October 10 .................... 0900-1400h

THEME: D2 — High Resolution Characterization of Corrosion
D1 — Corrosion General Session (Tu, Th) — J. Stockel, V. Srinivasan, J. Traversa, R. Savinell, and J. Van Zee

Symposium Topics and Organizers
Sessions are marked to indicate if they run on Sunday (S), Monday (M), Tuesday (Tu), Wednesday (W), Thursday (Th), and/or Friday (F).

D — Dielectric and Semiconductor Materials, Devices, and Processing
E1 — Atomic Layer Deposition Applications 3 (M-Tu) — A. Lendergan, S. Bent, S. DeGendt, J. Elam, S. Kang, and O. Sorensen
E3 — Analytical and Diagnostic Techniques for Semiconductor Materials Research and Development Processes (Tu-Th) — D. photoengineering, L. Fabry, R. Hackett, and H. Shantou
E4 — High Dielectric Constant Materials and Gate Stack Stabilization (M-W) — J. Göpel, M. Muha, H. Iwai, D. Landheer, and D. Mitsa
E5 — Nanocrystal Embedded Dielectrics for Electronic and Photonic Devices (M-Tu) — P. Macher and P. Fisker
E6 — Nanoscale One-Dimensional Electronic and Photonic Devices (M-Tu) — L. Chou, Y. Bando, F. Ren, S. Roth, and Z. Wang
E7 — Organic Semiconductor Materials and Devices (M-W) — J. Deng, E. Claar, J. Klink, and S. Malta
E8 — State-of-the-Art Program on Compound Semiconductors (SOTAPOCS 47) (M-Tu) — J. Wang, J. Kim, H. Kuo, and H. Ma
E9 — ULSI Process Integration 5 (M-Tu) — C. Claeys, H. Iwai, J. Mamta, and M. Tao

F — Electrochemical/Chemical Deposition and Etching
F1 — Current Trends in Electrodeposition (An Invitational Symposium) (W) — J. Davison
F3 — Surface Reactions in Electrochemical Systems (Tu-Th) — G. Stoffel and J. Scalzo

G — Electrochemical Synthesis and Engineering
G1 — Leadership and Entrepreneurship in Electrochemical Engineering: A Tutorial Symposium (W-Th) — G. Pillay, R. Savinell, and J. Van Zee
G2 — Physical and Analytical Electrochemistry
II — Physical and Analytical Electrochemistry General Session (Tu-Th) — D. Schroeder, A. Londergan, S. Bent, S. De Gendt, J. Elam, S. Kang, and O. Sorensen
G3 — Electrochemical Scanning Probe Microscopy: From Theory to Real-World Applications (Tu-Th) — W. Schumann and C. Kruse

J — Sensors and Displays: Principles, Materials, and Technology
J1 — Sensors, Actuators, and Microsystems General Session (Tu-Th) — D. Schroeder, A. Londergan, S. Bent, S. De Gendt, J. Elam, S. Kang, and O. Sorensen
J2 — Physics and Chemistry of Luminescent Materials 16 (Tu) — A. Srivastava, U. Happek, and K. C. Mishra
J3 — Sensor, Actuators, and Microsystems General Session (Tu-Th) — D. Schroeder, A. Londergan, S. Bent, S. De Gendt, J. Elam, S. Kang, and O. Sorensen
J4 — Sensor Arrays and Multi-Dimensional Sensor Systems (Tu-Th) — J. Stetter, A. Aguilar, P. Heikert, Y. Loewith, M. Ozanm, and P. Vurjik

ECS Transactions Volume 9, Number 10 (Fall 2007)
Special Meeting Section
Hotel & Travel Information

Hotel Reservation Information—The Hilton Washington on Connecticut Avenue, DC, 20009, is the headquarters hotel for the meeting and all meeting functions will take place there. We encourage you to stay at the Hilton Washington, where your stay will be most enjoyable and convenient. Guestroom reservations for the Hilton Washington can be made directly by going to the ECS website. The discounted meeting rates are as follows.

<table>
<thead>
<tr>
<th>Rate Code</th>
<th>Room Type</th>
<th>Description</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>9JBVS</td>
<td>Queen</td>
<td>Regular</td>
<td>$185</td>
</tr>
<tr>
<td>44BJS</td>
<td>Queen</td>
<td>Deluxe</td>
<td>$254</td>
</tr>
<tr>
<td>44BJS</td>
<td>King</td>
<td>Deluxe</td>
<td>$285</td>
</tr>
</tbody>
</table>

Single $198.00 - Double $218.00

A block of rooms has been reserved for October 7-12, 2007. The special room rate will be available until September 5th, or until the group block is sold out, whichever comes first. Guests wishing to arrive early may do so starting October 4th and depart as late as October 15th, based on availability. Reservations attempted after September 5th 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 72 hours before expected arrival for a full refund of your deposit.

Ground Transportation—SuperShuttle ground transportation service is available from Reagan National, Dulles and BWI airports to the Hilton Washington. Simply print and download the special discount coupon from the ECS website and present it at the SuperShuttle counter at the airport. Prepaid reservations can be made online from the ECS website or www.supershuttle.com, using the discount code #9JBVS.

Transportation from Reagan National, Dulles, and BWI airports is available by limousine. For reservations, please call 202-266-2000. The ECS does not have the ability to send limousines. Limousine companies are required to follow all government rules and regulations regarding the transportation of luggage.

Hotel Reservation Information—Contact the ECS Headquarters Office for hotel or transportation reservations: ECS Headquarters Office, 4601 Valley Forge Road, Suite 200, King of Prussia, PA 19406-1330, USA, Phone: 610-265-2700, Fax: 610-265-2743. Hotels that are not approved by the ECS will not be included in any ECS publications. ECS is not responsible for the presentation of materials, systems, publications, and software of interest that are available at the approved ECS hotels.

Meeting Registration—The meeting registration area will be located in the Concourse on the Concourse Level. Please note that online registration is not available for the Technical Sessions. For your convenience, you can print and fax the form available on the ECS website.

Registration & General Meeting Information

Symposium Organizer and Co-Chairs—We encourage all Symposium Organizers and Technical Session Co-Chairs to attend this important informational session on Hemispheres in the Concourse from 1:00pm-1:30pm. The Co-Chair Orientation will take place during the first week of the meeting.

Poster Presentations and Sessions—Poster presentations must be in English, on a board approximately 4 feet high by 8 feet wide (1.22 m by 2.40 m), corresponding to the abstract number. Authors will be responsible for placing their poster in the technical registration area at the start of their session to begin setting up their poster displays. Displays should be set up prior to the start of all poster boards. The General Session Student Poster Session will be held as a part of the Monday Evening Exhibit, which features instruments, materials, systems, publications, and software of interest to ECS students. 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 1700h, and judging of the posters will begin at 1700h.

Speaker-Ready Room—A Speaker-Ready Room will be available Sunday through Friday, in Convention Office #3 on the Concourse Level. This room is 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 LC3 projector that will be located in this room, prior to their presentation.

Additionally, there will be audiovisual contractors available on each level of the Hotel for your assistance.

Financial Assistance—Financial assistance is limited and generally governed by the symposium organizers. Individuals may inquire directly to the symposium organizers of the symposium or session for which they will be attending to see if aid is available. Individuals wishing to attend the Symposium are encouraged to contact the ECS headquarters office for details about author presentations.

ADA Accessibility—Special accommodations for disabled attendees will be funded on an individual basis provided that adequate notice is given to the ECS headquarters office.
Hotel — The meeting registration area will be open from 0730-1730h.

Oral Presentations and Audio-Visual — Speaker 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. Sessions will have LCD projectors and audio-visual equipment must be made with written request to ECS headquarters (meetings@electrochem.org) no later than two weeks before the meeting. All presentation equipment is the responsibility of the speaker and 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 8 feet wide (1.2 m by 2.4 m), corresponding to the abstract number assigned to the presentation as the final program. Visit the ECS website for other details on Poster Session requirements. Please arrange to set up your poster at least 1 hour after the start of your session to begin setting up your poster display.

Advance registration is September 5, 2007. Refunds are subject to a 10% processing fee and will only be honored if written requests are received by September 12, 2007. All participants of the 221th ECS Meeting are required to pay the appropriate registration fee. Advance and on-site payments must be made in U.S. Dollars via Visa, MasterCard, American Express, or check and money order payable to ECS, ground transportation, and meals. The discounted meeting rates are as follows.

Monday, October 8

12:00—1:00: Japanese-American Chamber Breakfast, International Terrace, Terrace Level
10:00—11:00: Frayser Seminar, International Ballroom Center, Conference Level—ECS Lecture: ‘The Origins of and Impedance by Green IT,’ Bernard S. Meyerson, and the Ohio Pollution Medal Award Lecture: ‘An Excursion to the Heart of Electrochemistry,’ Sergio Toscano
10:00—11:00: Coffee Break, International, Terrace Level
11:15—12:15: Battery Division Luncheon & Business Meeting, International Ballroom West, Conference Level, tickets are $24 in advance, $26, non-refundable
12:15—1:15: High Temperature Materials Division Lunch/Terminology & Business Meeting, 1919 Grill, Lobby Level, tickets are $24 in advance, $28, non-refundable
18:00—19:00: Monday Evening Mixer, Student Poster Session, and Technical Exhibit Opening, Lobby Hall, Conference Level

Tuesday, October 9

09:00—10:00: Technical Exhibit, Exhibition Hall, Conference Level
10:00—11:00: Coffee Break, Exhibition Hall, Conference Level
10:00—11:00: Student Poster Award Presentation, Exhibition Hall, Conference Level
11:15—12:15: Corrosion Division Lunch/Luncheon & Business Meeting, Conference Level, tickets are $24 in advance, $26, non-refundable
12:15—1:15: Sensor Division Lunch/Luncheon & Business Meeting, 1919 Grill, Lobby Level, tickets are $24 in advance, $26, non-refundable
14:00—15:00: Ohio Pollution Medal Award Reception, Cabaret, Conference Level
19:00—20:00: Technical Exhibit and General Poster Session, Exhibition Hall, Conference Level

Wednesday, October 10

09:00—10:00: Technical Exhibit, Exhibition Hall, Conference Level
10:00—11:00: Coffee Break, Exhibition Hall, Conference Level
10:00—11:00: Electronics and Photonics Division Lunch Meeting, Conference Level, Terrace Level, tickets are $24 in advance, $26, non-refundable
11:15—12:15: Long Range & Display Materials Division Luncheon & Business Meeting, 1919 Grill, Lobby Level, tickets are $24 in advance, $26, non-refundable
12:15—1:15: Division Award Reception, Cabaret, Conference Level
19:00—20:00: Technical Exhibit, Conference Level, tickets are $10 in advance, $12, non-refundable
19:00—20:00: Battery Division Award Reception, Conference Level, tickets are $10 in advance, $12, non-refundable

Thursday, October 11

09:00—10:00: Interdisciplinary Group, Conference-Level and International Technical Exhibit, Terrace Level
10:00—11:00: Coffee Break, Conference Level

Friday, October 12

09:00—10:00: Interdisciplinary Group, Conference-Level and International Technical Exhibit, Terrace Level
10:00—11:00: Coffee Break, Exhibit Hall, Conference Level

Special Meeting Sessions
7th NSF-MEXT US-Japan Workshop on Nanotechnology: Fuel Cell and Related Technologies
The U.S. National Science Foundation (NSF) and the Ministry of Education, Culture, Sports, and Technology (MEXT) of Japan are conducting the 7th NSF-MEXT U.S.-Japan Workshop on Nanotechnology: Fuel Cell and Related Technologies from October 4-7, 2007 at the Hilton Washington. The focus will be on the progress and the future challenges of materials and materials issues confronting fuel cell and hydrogen storage and commercialization. Since nanoscale processes and material characteristics of these materials are important in fuel cell performance, understanding at this length scale will be a particular focus of this workshop. For additional information, please contact Robert Savinell at rfs2@cwru.edu.

ECS Website
ECS Website and present it at the SuperShuttle counter at the airport. Prepaid reservations can be made online from the ECS website and at www.super shuttle.com, using the discount code #9JBVS.

Companion Registrants (Formerly “Nontechnical Registrants”) — All family members and other guests of technical registrants are invited to register as Companion Registrants. The registration fee of $25 (Advance) or $30 (Onsite) includes admission to Society social events (not including technical sessions), and an exclusive lounge with beverage service, Monday through Thursday, 08:00-10:00h. Companion Registrants may make their own meal and activity arrangements using the hotel concierge located in the Hilton Washington lobby. Please note that online registration is not available for Companion Registrants. For your convenience, you can download, print and fax the form available on the ECS website.

Financial Assistance — Financial assistance is limited and generally governed by the symposium organizers. Individuals may inquire directly to the symposium organizers of the symposium(s) in which they are interested to see if financial assistance 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.