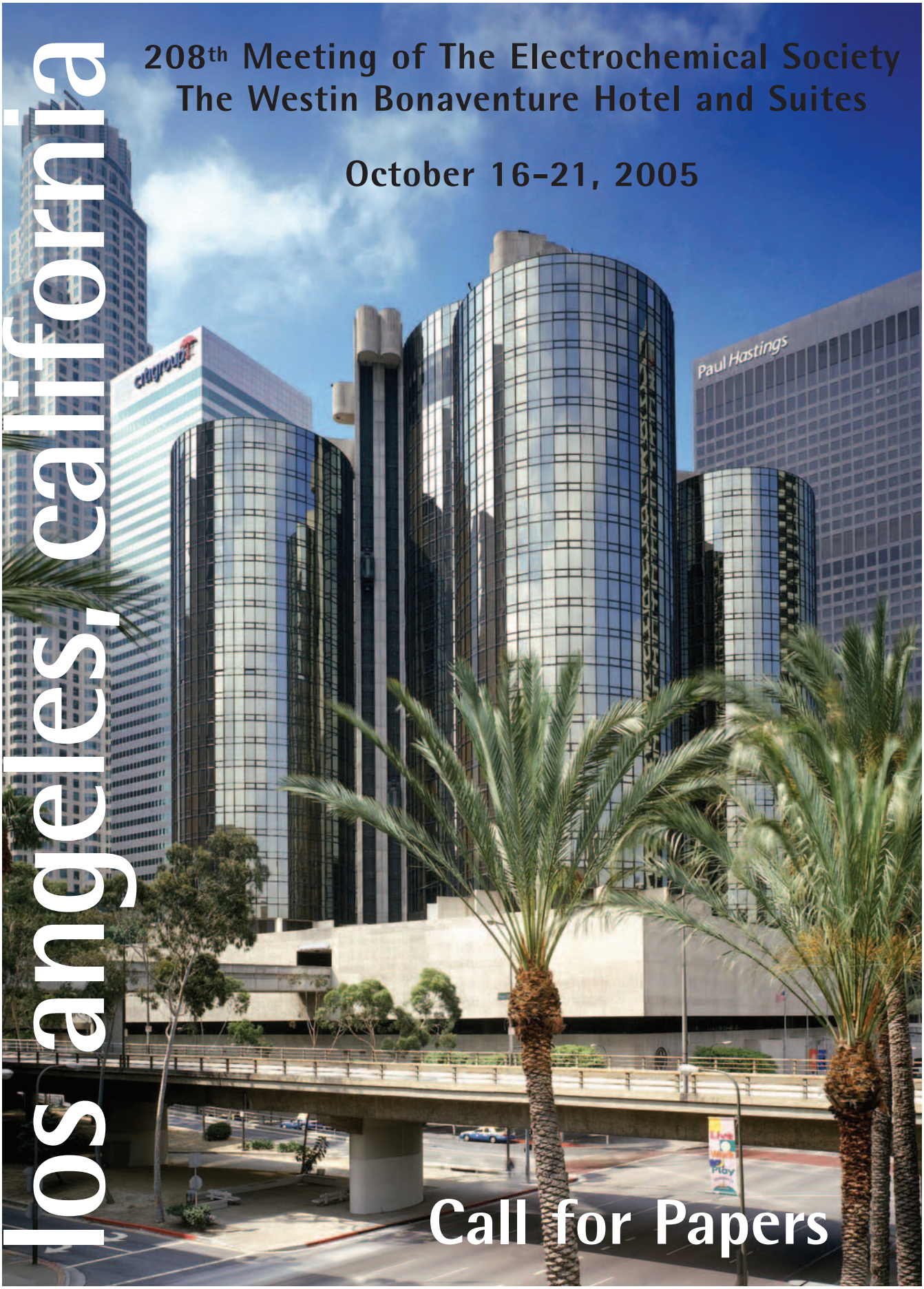

208th Meeting of The Electrochemical Society
The Westin Bonaventure Hotel and Suites
October 16-21, 2005
Los Angeles, California
Call for Papers
citigroup
Paul Hastings

Abstract Submission and Deadlines

- Abstracts are due **NO LATER** than June 1, 2005. Some abstracts are due **earlier**. Please carefully check each symposium listing for any **alternate abstract submission deadlines.**

Submit one original, meeting abstract electronically via www.electrochem.org to the ECS headquarters office, with a copy to the appropriate symposium organizer(s). Faxed abstracts, late abstracts, and abstracts more than one page in length will not be accepted. In July 2005, all presenting authors will receive a letter from the ECS headquarters office notifying them of the date and time of their presentation.

Note: Before submitting, please visit the ECS website for complete details on abstract submission and symposia topics at: www.electrochem.org/meetings/future/208/support/cfp.pdf.

Meeting abstracts should explicitly state objectives, new results, and conclusions or significance of the work. Abstracts must be properly formatted and no more than one page in length. Please use the preformatted template located at: http://www.electrochem.org/ abstracts/templates.htm. Programming for this meeting will occur in July of 2005, with some papers scheduled for poster presentation. All presenting authors will receive a letter from the ECS office notifying them of the date and time of their presentation. Check the ECS website for further program details.

Paper Presentation—All authors selected for either oral or poster presentations will be notified in **July of 2005**. Oral presentations must be in English. LCD projectors will be available for PowerPoint presentations. **Presenting authors will be required to bring their own laptops to the meeting for presentation.** We strongly suggest that presenting authors verify laptop/projector compatibility in the speaker ready room prior to their presentation at the meeting. Only overhead projectors will be available in addition to the LCD projectors. Speakers requiring additional equipment must make written request to the ECS headquarters prior to the meeting and appropriate arrangements will be worked out at the expense of the author. Poster presentations will be displayed in English, on a board approximately 4 feet high X 8 feet wide (1.22 meters high by 2.45 meters wide), corresponding to their abstract number and day of presentation in the final program.

Manuscript Publication—All meeting abstracts will be published both on the ECS website and on the Meeting Abstracts CD-ROM copyrighted by ECS, and become the property of ECS upon presentation. If the symposium you are participating in is publishing a proceedings volume, you will be required to submit a full manuscript. Please check the descriptions for each symposium in this document to find out if your symposium is publishing a proceedings volume, and for manuscript deadlines. Papers presented at the meeting may also be submitted to the Society's technical journals: *Journal of The Electrochemical Society* or *Electrochemical and Solid-State Letters*. Full manuscripts must be submitted within six months of the symposium date. If publication is desired elsewhere after presentation, written permission from ECS is required.

Financial Assistance—Financial assistance is very limited and 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 office; such letters will not imply any financial responsibility of ECS. Students seeking financial assistance should consider awarded travel grants (see page 79 of this issue of *Interface*).

Second Meeting Announcement—The second meeting announcement will include complete details on the technical sessions; a meeting registration form; travel, hotel reservation information; and additional meeting information. An announcement will be e-mailed to all ECS members, authors of papers, and technical session co-chairs in July of 2005.

Hotel Reservations—The 208th Meeting will be held at the Westin Bonaventure Hotel and Suites, located in downtown Los Angeles, CA (404 South Figueroa Street, Los Angeles, CA 90071-1710, USA, tel: 213.624.1000).

Special rates have been reserved at the Westin Bonaventure Hotel and Suites for participants attending this meeting. The special conference rates are **$159 Single / $179 Double.** The Westin Bonaventure Hotel and Suites reservations telephone number is 213.624.1000, or toll free at 1.800.937.8461. The reservation deadline is **September 15, 2005.**

Meeting Registration—The deadline for advance registration is **September 15, 2005.** Refunds are subject to a 10% processing fee and will only be honored if written requests are received by September 22, 2005. All participants, including authors and invited speakers of the 208th ECS Meeting are required to pay the appropriate registration fees. Individuals choosing to register in advance or on-site must use U.S. dollars; American Express, Visa, and MasterCard are also accepted. The registration fees are as follows:

Category	Advance	Onsite
Member	$385	$485
Student Member	$145	$245
One Day Member	$270	$370
Emeritus & Honorary	$0	$0
Nonmember	$595	$695
Student Nonmember	$185	$285
One Day Nonmember	$355	$455
Nontechnical Registrant	$95	$195

Short Courses—Several short courses will be held on Sunday, October 16, 2005 from 9:00 AM – 4:30 PM. Short Course fees are currently $425 for members, $520 for nonmembers, and are subject to change. A 50% discount will be given to students with student verification. Short Courses require advance registration and may be cancelled if enrollments are too low. Please check our website for any last-minute details (www.electrochem.org/sc/sc.htm). The topics are planned: Solid-State Lighting; Electrical Characterization and Characteristics of MOS Devices with Ultrathin (0.5-1.5 nm) High-k Gate Dielectrics; Atomic Force Microscopy; Electroplating for ULSI and Microelectronic Circuitry; Nanomaterials for Nanotechnology; and Basics of Impedance Spectroscopy.

Technical Exhibit—The 208th ECS Meeting will also include a Technical Exhibit, featuring presentations and displays by over 30 manufacturers of instruments, materials, systems, publications, and software of interest to meeting attendees. Full exhibit booths manned by company representatives cost $1,700 and include one free meeting registration. Literature display tables (unmanned by company representatives, no meeting registration included) will also be available for $750. Parties interested in exhibiting should contact Karen Chmielewski at ECS. Coffee breaks are scheduled each day in the exhibit hall along with evening poster sessions.

Sponsorship Opportunities—ECS biannual meetings are wonderful chances to market your company through sponsorship. Sponsors will be recognized by level in Interface, the Meeting Program, the Exhibit Guide, on registrant bags, and on the ECS website.

The Levels are: Platinum: $5,000+, **Gold**: $2,500+, **Silver**: $1,000, and **Bronze**: less than $1,000.

In addition, sponsorships are available for the plenary talks and other special events. Special event sponsorships will be assigned by the Society on a first-come, first served basis. For more information, contact Troy Miller at ECS headquarters.

Contact Information—The Electrochemical Society, 65 South Main Street, Pennington, New Jersey, 08534-2839, USA, tel: 609.737.1902, fax: 609.737.2743, e-mail: ecs@electrochem.org; Web: www.electrochem.org.

Los Angeles, California ECS Symposium Topics

Student Travel Grants

Several of the Society's Divisions offer travel assistance to students presenting papers at Society meetings. These travel grants are intended to aid students in attending the meeting. For additional information and an online application form refer to the ECS website at: www.electrochem.org/student/travelgrants.htm. To be eligible for a grant, applicants must be scheduled to present a paper in a symposium or session sponsored or cosponsored by the Division to which the application is made. For a complete list of symposia and how to submit a paper, please visit www.electrochem.org/meetings/207/cfp.pdf. To apply for a travel grant use the application form below.

Application Requirements—All applications for the 207th meeting in Québec City, Canada, May 15-20, must be received no later than **January 3, 2005**. To apply for travel support, please complete the Student Travel Grant form below, return it with a letter of recommendation from a faculty advisor, and a copy of the meeting abstract. Travel grants range from $250-$750 depending on the student's estimated expenses and the funds available from Divisions. ■

Travel Grant Application ECS Los Angeles, California

The Society's **Corrosion, Electrodeposition, Electronics, Energy Technology, High Temperature Materials (HTM), Organic and Biological Electrochemistry (O&BE), Physical Electrochemistry, and Sensor Divisions** offer travel grants to students presenting papers at the Society's next meeting, in Los Angeles, California, October 16-21, 2005. To apply, complete this application and send it along with a copy of your transcript and a letter from an involved faculty member attesting both to the quality of the student's work and financial needs, and a copy of the student's meeting abstract. For additional information please contact the Division contact below, as requirements might differ between Divisions.

Meeting Site: _____

Name: _____

School Address: _____

_____

E-mail: _____ Phone #: _____

Undergraduate Year (U) or Graduate Year (G) - circle one: U3 U4 G1 G2 G3 G4 G5

Major Subject: _____ Grade point average _____ out of possible _____

(Please provide letter of recommendation from your faculty advisor and a copy of your transcript)

Symposium Title (#): _____

_____

Title of paper to be presented at meeting: _____

_____

Are you an ECS Student Member of the Society? ❑ yes ❑ no

(If not, please additionally submit the Awarded Student Membership application.)

Estimate meeting expenditures: $ _____

Signature: _____ Date: _____

Check Division under which award is being applied for: *(Applications made to multiple Divisions will be rejected)*

❑ **Corrosion**—*Send to:* N. Missert, Sandia National Labs, MS 1415, P.0. Box 5800, Albuquerque, NM 87185-0100 USA. E-mail: namisse@sandia.gov

❑ **Electrodeposition**—*Send to:* C. Bonhote, Advanced Head of Development and Nanostructures, Hitachi Global Storage Technologies, San Jose Research Center, 650 Harry Rd., C1-430, San Jose, CA 95120-6001 USA. E-mail: Christian.Bonhote@hgst.com

❑ **Electronics**—*Send to:* F. Ren, Univ. of Florida, Dept. of Chem. Engr., Gainesville, FL 32611 USA. E-mail: ren@che.ufl.edu

❑ **Energy Technology**—*Send to:* S. Calabrese Barton, Dept. of Chem. Engr., Columbia University, 500 W. 120th Street, Room 812, New York, NY 10027-6623, USA. E-mail: scb2001@columbia.edu

❑ **HTM**—*Send to:* E. Traversa, Univ. di Roma "Tor Vergata," Via della Ricerca Scientifica, I-00133 Roma, Italy. E-mail: traversa@uniroma2.it

❑ **O&BE**—*Send to:* J. F. Rusling, Univ. of Connecticut, Dept. of Chemistry, U-60, Storrs, CT 06268, USA, E-mail: James.Rusling@uconn.edu

❑ **Physical Electrochemistry**—*Send to:* V. Birss, Univ. of Calgory, Dept. of Chemistry, 2500 University Drive, N.W., Calgory, AB T2N-1N4, Canada. E-mail: birss@ucalgary.ca

❑ **Sensor**—*Send to:* Y-L. Chang, Agilent Technologies, 3500 Deer Creek Rd # 26L-1, Palo Alto, CA 4304-1317, USA, E-mail: ying-lan_chang@agilent.com

Applications for Travel Grants for the Los Angeles, California meeting must be received no later than June 1, 2005.

A1 - GENERAL STUDENT POSTER SESSION

(All Divisions)

This Poster Session provides a forum for graduate and undergraduate students to present research results of general interest to the Society. The purpose of this session is to foster and promote work in both electrochemical and solid-state science and technology, and to stimulate active student interest and participation in the Society. A competition for the two best posters will be part of the session. A cash prize of $250 and a scroll will be awarded to the winning student authors. In the case of co-authors, a maximum award of $750 per winning poster will be divided equally between student co-authors. The awards will be made without regard to gender, citizenship, race, or financial need.

Abstracts, suggestions, and inquiries should be sent to the ECS headquarters office and to the session organizers: **V. Desai,** University of Central Florida, 2868 University Acres Dr., Orlando, FL 32817-3012, USA, Tel: 407.882.1455, Fax: 407.882.1462, E-mail: vdesai@mail.ucf.edu; **V. R. Subramanian,** Dept. of Chemical Engineering, Tennessee Tech University, Cookeville, TN 38501, USA, Tel: 931.372.3494, Fax: 931.372.6352, E-mail: vsubramanian@tntech.edu.

B1 - BATTERY SAFETY AND ABUSE TOLERANCE

(Battery)

Response of battery systems to abusive conditions is an important aspect for all battery systems and a constant concern of all battery manufacturers and researchers. This symposium solicits papers concerning all aspects of battery safety for all battery types. Results of conventional or mandated safety tests on commercial and experimental cells and batteries are of interest. We welcome discussion of abuse test results which stress batteries to their failure points as well as studies of failure modes which lead to safety concerns. New methods of studying battery response to abuse conditions which reveal the underlying causes of failure, including the sudden release of gas and heat, are solicited. We are also soliciting reports of modeling efforts that will improve our understanding of safety incidents. Experiments designed to better understand the reasons for battery failure and safety concerns are invited as well. Methods and materials which can lead to improved abuse tolerance are also of interest for the symposium.

Abstracts, suggestions, and inquiries should be sent to the ECS Headquarters office and the symposium organizers, **D. H. Doughty,** Sandia National Laboratories, P. O. Box 5800, MS 0613, Albuquerque, NM, USA, Tel: 505.845.8105, Fax: 505.844.6972, E-mail: dhdough@sandia.gov; **J-I. Yamaki,** Institute for Materials Chemistry and Engineering, Kyushu Univ., 6-1 Kasuga Koen, Kasuga, 816-8580, Japan, Tel/Fax: 81.92.583.7790, E-mail: yamaki@cm.kyushu-u.ac.jp; **B. Barnett**, TIAX LLC, 15 Acorn Park, Cambridge, MA , 02140, USA, Tel: 617.498.5307, Fax: 617.498.7012, E-mail: barnett.b@tiaxllc.com.

C1 - HYDROGEN ABSORPTION: THEORY AND MATERIALS

(Battery / Corrosion / Energy Technology / Physical Electrochemistry)

Hydrogen must be stored in some way for fuel cells and batteries with hydrogen negative electrodes. Absorption of hydrogen is a key property for those systems whose designs include storage by condensation of the hydrogen within other materials. Metal and non-metal hydrides of many types have been proposed as media for hydrogen storage. This symposium is designed to explore the different materials that are suitable for hydrogen storage, their thermodynamic and kinetic properties with regard to hydrogen absorption under various conditions of temperature and pressure, and the theory governing those properties. We also solicit papers which discuss cell designs for batteries and fuel cells which include absorbed hydrogen as a feature of the design.

Abstracts, suggestions, and inquiries should be sent to the ECS Headquarters office and the symposium organizers, **G. Sandi**, Argonne National Lab., CMH/200, 9700 S. Cass Ave., Argonne, IL 60439-4803, USA, Tel: 630.252.1903, Fax: 630.252.9288, E-mail: gsandi@anl.gov; **T. Sakai**, AIST Natl. Inst. of Adv. Indus. Sci. & Tech., 1-8-31 Midorigaoki-Kansai Ctr. Ikeda, Osaka, Japan, Tel: 81.7275.1961, Fax: 81.7275 1962, E-mail: sakai-tetsuo@aist.sgo.jp; **J. Prakash,** Illinois Institute of Technology, Dept. of Chem & Env. Engineering, 10 W. 33rd St., Chicago, IL 60616-3730, USA, Tel: 312.567.3639, Fax: 312.567.8874, E-mail: prakash@iit.edu; **J. R. Scully,** University of Virginia, Department of Materials Science & Engineering, Thornton Hall, Charlottesville, VA, 22904-0001, USA, Tel: 434.982.5286, Fax: 434.982.5799, E-mail: jrs8d@virginia.edu; **D. Guay,** INRS-Energie, Materiaux et Telecommunications, 1650 Blvd. Lionel Boulet, C. P. 1020, Varennes,Quebec J3X-1S2, Canada, E-mail: guay@inrs-ener.uquebec.ca; **L. Roue,** INRS-Énergie, Materiaux et Telecommunications, 1650Blvd. Lionel Boulet, Varennes, Quebec J3X 1S2, Canada, E-mail: roue@inrs-emt.uquebec.ca.

D1 - PRIMARY AND SECONDARY AQUEOUS BATTERIES

(Battery / Energy Technology)

Studies of all types of primary and secondary (rechargeable) batteries with aqueous based electrolytes will be included in this symposium. Both commercial batteries such as lead-acid, nickel metal hydride, zinc manganese dioxide, and metal-air as well as experimental battery types are of interest as well as components such as separators, electrode materials, electrolytes, and cell parts. Cell designs and modeling of cells that contain aqueous electrolytes are also solicited for the symposium.

Abstracts, suggestions, and inquiries should be sent to the ECS Headquarters office and the symposium organizers, **Y. Ein-Eli**, Technion, Israel Institute of Technology, Faculty of Materials Engineering, Haifa 32000, Israel, Tel: 972.4.8.294588, Fax: 972.4.0321978, E-mail: eineli@technion.ac.il; **R. Bugga,** Jet Propulsion Lab., Electrochemical Technology Group, 4800 Oak Grove Dr., M/S 271-207, Pasadena, CA 91109, USA, Tel: 818.393.6951, Fax: 818.393.6951, E-mail: Ratnakumar.V.Bugga-103068@jpl.nasa.gov; and **J. J. Xu,** Department of Ceramic and Materials Engineering, School of Engineering, Rutgers, The State University of New Jersey, 607 Taylor Rd., Piscataway, NJ, 08854-8065, USA, Tel: 732.445.5606, Fax: 732.445.3258, E-mail: johnxu@rci.rutgers.edu.

D2 - RECHARGEABLE LITHIUM AND LITHIUM-ION BATTERIES

(Battery / Energy Technology)

Papers are solicited on both fundamental and applied aspects of lithium metal and lithium-ion batteries. Specific areas to be covered include but are not limited to (1) anode and cathode active materials design, characterization, and performance; (2) electrode-processing/cell-design; (3) interfacial studies; (4) materials and cell modeling; (5) failure mode/mechanisms; and (6) performance and safety characteristics of cells and batteries.

Abstracts, suggestions, and inquiries should be sent to the ECS Headquarters office and the symposium organizers, **M. Thackeray**, Argonne National Laboratory, Chemical Technology Div., 9700 S. Cass Ave., Argonne, IL 60439-4803, USA, Tel: 630.252.9184 Fax: 630.252.4176, E-mail: thackeray@cmt.anl.gov; **K. Edstrom**, Uppsala University, Department of Inorganic Chemistry, Box 538, SE-751 21 Uppsala, Sweden, Tel: 46.84.713713, Fax: 46.85.13548, E-mail: kristina.edstrom@mkem.uu.se; **R. Kostecki**, Lawrence Berkeley National Laboratory, 1 Cyclotron Rd., #62-203, Berkeley, CA 94720-8028, USA, Tel: 510.486.6002, Fax: 510.486.4995, E-mail: r_kostecki@lbl.gov; **M. Wakihara**, Graduate School of Applied Chemistry, Tokyo Institute of Technology, Ookayama, Meguro-ku, Tokyo 152-8552, Japan, Tel: 81.3.5734.2145, Fax: 81.3.5734.2146, E-mail: mwakihar@o.cc.titech.ac.jp; and **W. van Schalkwijk**, EnergyPlex Corp., 1400-112th Ave. SE, Suite 210, Bellevue, WA 98004-6900, USA, Tel: 425.445.2181, Fax: 425.671.0206, E-mail: walter@energyplex.com.

E1 - CORROSION GENERAL POSTER SESSION

(Corrosion)

Posters concerning all aspects of corrosion and associated phenomena in liquid and gaseous phases not covered by topic areas of other specialized Corrosion Division symposia at this meeting are welcome. Theoretical analyses, experimental investigations, descriptions of new techniques for the study of corrosion, and analyses of corrosion products and films are of interest. Contributed posters will be programmed in some related order, depending on the titles and contents of the abstracts.

Abstracts, suggestions, and inquiries should be sent to the ECS headquarters office and to the session organizer: **P. Schmuki**, University of Erlangen-Nuremberg, Dept. of Materials Science, WWIV-LKO, Martensstr. 7, D-91058 Erlangen, Germany, Tel: 49.9131.852.75.75; Fax: 49.9131.852.75.82, E-mail: schmuki@ww.uni-erlangen.de.

E2 - BIOLOGICAL AND MICROBIAL EFFECTS ON MATERIALS

(Corrosion)

The fields of corrosion science and biology/microbiology are becoming increasingly intertwined, and this symposium provides a forum for all topics related to the interaction of these two fields. Topics of particular interest are microbially influenced corrosion (MIC) and microbial film development, macrofouling organisms and their effect on localized corrosion, corrosion inhibition by bacteria, corrosion behavior of biomedical implants, bioweathering of historically significant structures, as well as techniques that have been developed, or are in the process of development, for the monitoring of such topics as listed above. Papers on coatings development for the prevention of MIC and fouling by micro- and macroorganisms are also encouraged.

Questions or suggestions should be directed to the organizers: **D. C. Hansen**, University of Dayton Research Institute, 300 College Park, Dayton OH 45469-0130, USA, Tel. 937.299.2517, Fax: 937.229.2503, E-mail: Douglas.Hansen@udri.udayton.edu; **J. Earthman**, University of California, Irvine, Dept. of Chemical Engineering and Materials Science, ET916, Irvine, CA 92612-2575, USA, Tel. 949.824.5018, Fax: 949.824.2541, E-mail: earthman@uci.edu; and **T. Hanawa**, Institute of Biomaterials and Bioengineering, Tokyo Medical and Dental University, 2-3-10, Kanda-Surugadai, Chiyoda-ku, Tokyo 101-0062, Japan, Tel: 81.3.5280.8006, Fax: 81.3.5280.8011, E-mail: hanawa.met@tmd.ac.jp.

E3 - COATINGS AND INHIBITORS

(Corrosion)

The symposium on coatings and inhibitors provides a forum for all aspects of corrosion inhibition and protection by coatings (organic and inorganic) and inhibitors for ferrous and non-ferrous materials in atmospheric, cooling water, process, microelectronics, and marine environments. Particular interest will be directed to inhibitor chemistry and mechanism(s) of action. The organizers also extend the call to those who wish to report advances in the use of nanostructures, molecular machines, MEMs (microelectromechanical machines), biomimemetic materials, or biomaterials for potential use in "smart" protective coating, and paint technology that enables corrosion inhibition on demand as dictated by prevailing environmental and metallurgical conditions. The organizers encourage papers dealing with replacements for hazardous corrosion inhibitors and coatings such as chromates, chromate conversion coatings, and chromate impregnated primers with environmentally benign substitutes. Corrosion inhibition mechanisms and condition-based monitoring of corrosion inhibition and coatings also represent viable topics for discussion. Protective coatings, surface modifications, and inhibitors applied by methods including, but not limited to, thermal spray, liquid spray, vacuum-deposition, electrodeposition, and microbiological growth are encouraged.

Publication of a proceedings volume is planned to be available after the meeting. Acceptance for presentation at this meeting obligates the authors to providing a typed camera-ready hard copy, or electronic copy suitable for preparing a camera-ready paper, and a list of key words at the time of the meeting. Instructions for preparing the paper can be found at (http://www.electrochem.org/guidelines/publications/pv/pvauthors.pdf).

Questions or suggestions should be directed to the organizers: **M. Kendig**, Rockwell Scientific Co LLC, 1049 Camino dos Rios, Thousand Oaks, CA 91360, USA, Tel: 805.373.4241, Fax: 805.373.4383, E-mail: mkendig@rwsc.com; **R. Granata**, Florida Atlantic University, 101 North Beach Road, Dania Beach, FL 33004, USA, Tel: 954.924.7237, Fax: 954.924.7270, E-mail: rgranata@seatech.fau.edu; **G. O. Ilevbare**, Lawrence Livermore National Laboratory, L-631,7000 East Avenue, Livermore CA 94550, USA, Tel: 925.423.9970, Fax: 925.422.2105, E-mail: ilevbare1@llnl.gov; and **S. Kuroda**, National Institute for Materials Science, Materials Engineering Laboratory, Thermal Spray Group, 1-2-1, Sengen, Tsukuba-shi, Ibaraki-ken 305-0047, Japan, Tel: 81.29.859.2444, Fax 81.29.859.2401, E-mail: kuroda.seiji@nims.go.jp.

E4 - CORROSION AND ELECTROCHEMISTRY OF ADVANCED MATERIALS, IN HONOR OF KOJI HASHIMOTO

(Corrosion)

This symposium will be held in honor of Professor Koji Hashimoto for his outstanding achievements in the areas of corrosion science and electrochemistry. Koji Hashimoto has made major contributions in the areas of corrosion and electrochemistry of metals and alloys, through his extensive pioneering work on development, characterization, and application of amorphous and nanocrystalline alloys with excellent chemical properties. Papers are solicited in these and other related fields of corrosion and electrochemistry, such as, passivity, localized corrosion, and various electrochemical functions of advanced materials, including amorphous, rapidly solidified, and nanocrystalline materials. Authors are also welcome to contribute papers describing the development and characterization of other advanced materials.

Publication of a proceedings volume is planned to be available after the meeting. All authors accepted for presentation (oral or poster) are obligated to submit a camera-ready proceedings vol-

ume manuscript at the meeting. Instructions for preparing the manuscript will be sent out by the symposium organizers after the notification of the acceptance of the papers.

Abstracts, suggestions, and inquiries should be sent to the ECS Headquarters Office and the symposium organizers: **S. Fujimoto,** Department of Materials science and Processing, Graduate School of Engineering, Osaka University, 2-1 Yamada-oka, Suita, Osaka 565-0871, Japan, Tel: 81.6.6879.7469, Fax: 81.6.6879.7471, E-mail: fujimoto@mat.eng.osaka-u.ac.jp; **H. Habazaki,** Division of Materials Science and Engineering, Graduate School of Engineering, Hokkaido University, Kita-13, Nishi-8, Kita-ku, Sapporo 060-8628, Japan, Tel& Fax: 81.11.706.6575, E-mail: habazaki@eng.hokudai.ac.jp; **E. Akiyama,** Steel Research Center, National Institute for Materials Science, 1-2-1 Sengen, Tsukuba, 305-0047 Japan, Tel: 81.29.859.2122, Fax: 81.29.859.2101, E-mail: akiyama.eiji@nims.go.jp; **C. R. Clayton,** Department of Materials Science and Engineering, State University of New York at Stony Brook, Stony Brook, NY 11794-2200, USA, Tel: 631.632.9272, Fax:631.632.1346, E-mail: cclayton@notes.cc.sunysb.edu; and **B. MacDougall,** National Research Council Canada, Institute for Chemical Process and Environmental Technology, Ottawa, Ontario K1A0R6 Canada, Tel: 613.991.0914, Fax: 613.941.2529, E-mail: barry.macdougall@nrc-cnrc.gc.ca.

F1 - DIELECTRICS AND THE DIELECTRIC-ELECTROLYTE INTERFACE IN BIOLOGICAL AND BIOMEDICAL APPLICATIONS

(Dielectric Science and Technology)

The Symposium on Dielectrics and the Dielectric-Electrolyte Interface in Biological and Biomedical Applications, sponsored by the Dielectric Science and Technology Division of The Electrochemical Society, is scheduled for the fall 2005 meeting in Los Angeles, California.

Dielectric materials are critical to many of the new developments in the burgeoning field of biotechnology and they form the basis of many new biomedical applications. The past decade has seen the continuing convergence of physics, chemistry, and biology. Because many important biological molecules are insulators, the similarities in the approaches of scientists studying, for example, porous dielectric nanostructures and cells in solution, are also converging. In addition the most sophisticated high-resolution analysis and nanofabrication techniques are being employed in all our disciplines.

This symposium is intended to bring scientists and technologists together to present their latest work on key aspects of this trend, focusing on dielectric materials and their interfaces with electrolytes and biological materials. It is intended to bring together investigators with expertise in the areas of dielectric science, electrochemistry, and the biological sciences. At the same time it will provide invaluable links between those investigating the basic phenomena and those developing the latest biomedical applications.

Areas of interest include: (1) Dielectric-electrolyte interactions: site binding equilibria, specific absorption, charge transfer reactions, double layer properties, dispersion and electrostatic forces, surface-particle forces, interparticle and intercellular forces, wetting, adhesion on dielectrics, functionalized inorganic surfaces (gold, silica, glass, diamond, etc.), dielectric surfaces in nanocapillaries, dielectrophoresis, and insulating particle manipulation. (2) Dielectric processing: chemical and physical vapor deposition, deposition from the liquid phase, surface reactions, self-assembled monolayers, electrochemical formation of micro- and nanoporous insulators, formation of insulating beads, nanoparticles, nanotubes, nanorods, nanocomposites, insulating templates and membranes, formation of synthetic biomaterials, patterning, fabrication of microfluidic channels and structures, dielectrics for bio-MEMS and bio-nanotechnology. (3) Dielectrics in biomedical sensors and applications: sensors for DNA fragments and oligonucleotides, sensors for proteins and viruses, amperometric sensors, field-effect sensors (ISFETs and CHEMFETs), pH and ion sensors, sensors for oxygen and other bioactive gases, surfaces for bioelectronic sniffers, biochips (DNA, protein sensor arrays), genomic and proteomic analysis, functionalization of waveguides and surfaces in optical sensors. (4) Analysis of dielectric materials: microscopy (optical, electron, electrochemical, STM and AFM techniques), X-ray diffraction, electrical characterization, chemical and physical characterization, particle separation, particle size distributions.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS headquarters office and to the symposium organizers: **D. Landheer,** National Research Council of Canada, Building M50, Room 190J, 1200 Montreal Rd., Ottawa, ON, Canada K1A 0R6, Tel: 613.993.0560, Fax: 613.990.0202, E-mail: dolf.landheer@nrc.ca; **R. Bashir,** School of Electrical and Computer Engineering, Purdue University, Electrical Engineering Building, 465 Northwestern Ave., West Lafayette, Indiana 47907-2035, USA, Tel: 765 49-66229, E-mail: bashir@ecn.purdue.edu; **S. Seal,** U. of Central Florida, 3267 Progress Drive, Orlando, Fl 32826, USA, Tel: 407.882.1119, Fax: 407.882.1156, E-mail: sseal@mail.ucf.edu; **J. Deen,** Electrical and Computer Engineering Department, CRL 226, McMaster University, 1280 Main Street, West Hamilton, ON L8S 4K1, Canada, Tel: 905 525 9140 ext. 27137, Fax: 905 521 2922, E-mail: jamal@mcmaster.ca; **O. Leonte,** Berkeley Polymer Technologies, Inc., 2730 Markham Ct., Hayward, CA 94542-2437, USA, Tel: 510.572.3239, Fax: 510.572.6778, E-mail: omleonte@comcast.net; and **C. C. Liu,** Electronics Design Center, Bingham Hall, Case Western Reserve University, 10900 Euclid Avenue, Cleveland, OH 44106-7200, USA, Tel: 216 368 2935, Fax: 216 368 8738, E-mail: cxl9@po.cwru.edu.

F2 - THERMAL AND PLASMA CVD OF NANOSTRUCTURES

(Dielectric Science and Technology)

The Symposium on Thermal and Plasma CVD of Nanostructures, sponsored by the Dielectric Science and Technology Division of The Electrochemical Society, is scheduled for the Fall 2005 Meeting in Los Angeles, California. Areas of interest include: CVD, plasma-enhanced CVD, and various related deposition techniques, which have enjoyed success in the microelectronics industry. Based on their success and experience, these techniques have recently found their way into preparation of nanostructured materials. Some examples include growth of inorganic nanowires such as silicon, germanium, various oxides (zinc, indium, and tin oxides), nitrides (GaN). Vapor-liquid-solid (VLS) and related techniques, template assisted techniques (CVD, electrodeposition), and planar deposition are some popular approaches in nanowire/nanotube growth for applications in electronics, sensors, and thermoelectrics. Carbon nanotube preparation is now widely done using CVD and PECVD for patterned growth for applications in nanoelectronics, nanodevices, sensors, and field emission. Other nanostructured materials such as nanopowders and nanocrystals are also prepared by these versatile techniques. The topics for this symposium include, but not limited to the above mentioned materials and applications. Papers focusing on growth mechanisms, modeling, process diagnostics, materials characterization, and advances in applications are strongly encouraged.

Organizers: **M. Sunkara,** Chemical Engineering, University of Louisville, Louisville, KY 40292 (use 40208 for Fedex), USA; Tel: 502.852.1558, Fax: 502.852.6355, Cell: 502.457.4178; **S. Seal,** University of Central Florida, 3267 Progress Drive, Orlando, Fl 32826, USA, Tel: 407.882.1119, Fax: 407.882.1156, E-mail: sseal@mail.ucf.edu; and **L. Delzeit,** NASA Ames Research Center, MS 239-4, Moffett Field, CA 94035, USA, Tel: 650.604.0236, E-mail: Lance.D.Delzeit@nasa.gov.

G1 - SOLID-STATE JOINT GENERAL POSTER SESSION

(Dielectric Science and Technology / Electronics)

Original papers are solicited on all aspects of electronic materials, devices, and processing technologies not covered by specialized topical symposia at this meeting.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS Headquarters Office and to the symposium organizers: **C. L. Claeys,** IMEC, Kapeldreef 75, B-3001 Leuven, Belgium, Tel: 32.16.281328, Fax: 32.16.281844, E-mail: cor.claeys@imec.be; **M. J. Deen,** Department of Electrical and Computer Engineering, CRL Room 220, McMaster University, 1280 Main Street West, Hamilton, Ontario, Canada L8S 4K1, Tel: 905.525.9140, Ext. 27137, Fax: 905.523.4407, E-mail: jamal@ece.eng.mcmaster.ca; **M. Kubota,** National Institute for Materials Science, Agency of Ind. Sci. and Tech., Ministry of Int'l. Trade & Ind., Tsukuba, Ibaraki 3058565 Japan, E-mail: kubota.masafumi@jp.panasonic.com, and **K. Sundaram**, University of Central Florida, School of EE&CS, 4000 Central Blvd, Engr-1, Room 408, Orlando, FL 32816-2450, USA, Tel: 407.823.5326, Fax: 407.823.5835, E-mail: sundaram@mail.ucf.edu.

G2 - ATOMIC LAYER DEPOSITION APPLICATIONS: CHALLENGES AND OPPORTUNITIES

(Dielectric Science and Technology / Electronics)

This symposium will focus on the current and future applications for Atomic Layer Deposition (ALD). The first ALD processes were run more than 30 years ago and the first high volume production application of ALD was in the manufacturing of thin film electroluminescent displays by Planar Systems in the mid-1980s. More recently, the continuous scaling of semiconductor devices has brought considerable attention to ALD. ALD can enable the precise deposition of ultrathin, ~100% conformal coatings with controlled composition and low sensitivity to substrate size. To date ALD has been introduced in manufacturing of disk drive recording heads as the read gap dielectric, in dynamic random access memory (DRAM) capacitor dielectrics and in integrated circuit (IC) interconnects for W seed layer. The wider adoption of ALD as well as the extendibility of current applications faces challenges, such as integration into the process flow, productivity enhancement, development of ALD precursors and associated delivery systems, and overall COO. In some applications, such as gate oxide and metal gates, the industry may need to change both the material and deposition technology simultaneously, which involves exhaustive integration efforts and high risk.

This symposium seeks to become a forum for sharing of cutting edge research in the various areas where ALD can be used, enabling the identification of issues, challenges, and areas where further research is needed. Emerging and non-mainstream ALD applications are also of special interest to this symposium.

Contributions are solicited in the following areas: 1. Gate stack: integration of ALD high-k oxides and metal gates, work function, and mobility engineering; 2. Advanced capacitors: integration of ALD high-k oxides and metal electrodes, extendibility, MIM, MIS, rf capacitors; 3. Interconnects and contacts: integration of ALD films with Cu and low-k materials; 4. Productivity enhancement of ALD equipment and processes; 5. Precursor and delivery systems development for ALD; 6. Advanced and novel integration schemes of ALD films; and 7. Applications for ALD in other areas, such as Flash, disk drives, MEMS, nanotechnology, deposition on polymers, and new structures.Publication of a proceedings volume is planned to be available AT the meeting. The deadline for abstract submission is May 15, 2005. Acceptance of a paper for an oral or poster presentation obligates the author/s to submit a camera-ready softcopy of the manuscript on or before June 1, 2005. Abstracts should be sent to the ECS headquarters office electronically.

Symposium organizers: **A. R. Londergan**, Genus Inc., 1139 Karlstad Drive, Sunnyvale, CA 94089, USA, Tel: 408. 747.7140, Fax: 408.747.7197, E-mail: alondergan@genus.com; **G. S. Mathad**, S/C Technology Consulting, 5 Spurway, Poughkeepsie, NY 12603-5522, USA, Tel/Fax: 845.462.6312, E-mail: swami_mathad@hotmail.com; **H. G. Zolla,** Hitachi Global Storage Technologies, Office 014-203A, 5600 Cottle Road, San Jose, CA 95193, USA, Tel: 408.717.8933, Fax: 408.717.9130, E-mail: howard.zolla@hitachigst.com; and **T. P. Chiang,** Novellus Systems, 4000 North First Street, San Jose, CA 95134, USA, Tel: 408.570.6218, Fax: 408.432.5399, E-mail: tony.chiang@novellus.com.

G3 - THIRD INTERNATIONAL SYMPOSIUM ON HIGH DIELECTRIC CONSTANT GATE STACKS

(Dielectric Science and Technology / Electronics)

Papers are solicited in all areas related to advanced gate stacks for complementary metal-oxide-semiconductor (CMOS) and memory applications in sub-65 nm feature size integrated circuits, including: (1) Substrates: Higher mobility semiconductors such as strained Si, Si(110) and (111), SiGe, Ge and III-V compounds, GeOI, GaAs-on-insulator, and SOI. (2) High k Gate Dielectric Materials and Processing: Trends in high k gate dielectric technologies for 65 nm and beyond, novel high k materials, advanced oxynitrides for 65 nm and beyond, high k gate dielectric growth techniques, high k gate dielectric deposition methods, advanced precursors for CVD. (3) Gate Electrode Materials and Processing: Trends in gate electrode technologies for 65 nm and beyond; poly-Si, silicided, and metal gate electrodes, band-edge and midgap work-function materials, gate electrode deposition methods. (4) High K Gate Dielectric Interfaces: Silicon/High-K and High-K/Gate-Electrode Interfaces Oxygen Diffusion and Mechanisms of Interface Layer Formation Interface Preparation, Passivation, Engineering, and Control. (5) Advanced Gate Stack Reliability: Identification of Main Reliability Problems in Low Voltage Application and New Reliability Models Bias Temperature Instability Metallic Cross-Contamination Across Layers Mechanisms of Electron Mobility Degradation Thermal Stability of New Materials. (6) High K Gate Dielectric Characterization and Methodologies: Advanced Physical, Chemical, and Electrical Characterization of Gate Stacks Accurate Determination of Dielectric Capacitance Trap Parameter Extraction Non-Contact Electrical Characterization Work-function Extraction Methodologies Determination of Tunneling Electron/Hole Mass. (7) DRAM and Non-Volatile Memory Materials: Trends in High K DRAM Capacitor Technologies Electrode/Dielectric Chemical Interactions Thermal Stability of Structures Non-Volatile and Novel Memory Applications.

Publication of a proceedings volume is planned to be available after the meeting. Acceptance of a paper in this symposium obligates the authors to submit a typed camera-ready copy of the full proceedings volume manuscript on the first day of the meeting.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS Headquarters Office and the symposium organizers: **S. Kar,** Department of Electrical Engineering, Indian Institute of Technology, Kanpur-208016, India, Tel: 91.512.2597876, Fax: 91.512.2590063, E-mail: skar@iitk.ac.in; **D. Misra,** Department of Electrical and Computer Engineering, New Jersey Institute of Technology, University Heights, Newark, NJ 07172, USA, Tel: 973.596.5739, Fax: 973.596.5680, E-mail: dmisra@njit.edu; **H. Iwai,** Frontier Collaborative Research Center, Interdisciplinary Graduate School of Science and Engineering, Tokyo Institute of Technology, 4259 Nagatsuta, Midori-ku, Yokohama, 226-8502, Japan, Tel: 81.45.924.5471, Fax: 81.45.924.5584, E-mail: iwai@ae.titech.ac.jp; **M. Houssa,** High-K and Metal Gates, IMEC vzw, Kapeldreef 75, B-3001 Leuven, Belgium, Tel: 32.16.288.732, Fax: 32.16.281.315, E-mail: houssa@imec.be; **D. Landheer,** Surfaces and Interfaces Group, Institute for Microstructural Sciences, National Research Council, Building M-50, Montreal Road, Ottawa,

Ontario, Canada K1A 0R6, Tel: 613.993.0560, Fax: 613.990.0202. E-mail: dolf.landheer@nrc.ca; **W. Tsai,** Intel Corporation, SC1-05, 2200 Mission College Boulevard, Santa Clara, CA 95054-1549, USA, Tel: 408.765.2261, Fax: 408.765.2554, E-mail: wilman.tsai@intel.com; **S. De Gendt**, High-K and Metal Gates, IMEC vzw, Kapeldreef 75, B-3001 Leuven, Belgium, Tel: 32.16.281.386, Fax: 32.16.281.315, E-mail: degendt@imec.be; and **A. Chin,** Department of Electronics Engineering, National Chiao Tung University, Hsinchu, Taiwan, Tel: 886.3.5731841, Fax: 886.3.5724361, E-mail: achin@cc.nctu.edu.tw.

H1 - COPPER INTERCONNECTIONS, LOW-K INTERLEVEL DIELECTRICS, AND NEW CONTACT AND BARRIER METALLURGIES/STRUCTURES

(Dielectric Science and Technology / Electronics / Electrodeposition)

This symposium is aimed at bringing together the technical community working and interested in Development and practice of multilevel metal (MLM) interconnections using copper low-k dielectric films and advanced interconnect systems. Copper metallization and low-k dielectrics are now commonplace in advanced high performance interconnects. The integration of such materials in high performance interconnects brings out process and reliability issues including interface integrity, stress-migration, electromigration, leakage, time dependent dielectric breakdown, as well as thermal and mechanical fatigue. This symposium will explore challenges with depositing, characterizing, and integrating novel and existing barriers, metals, and ultralow-k.

Topics of interest that will be included in this session: 1. Materials issues associated with processing, integration, and deposition of low-k dielectrics and interconnect metallizations; 2. Advanced and novel integration schemes; 3. Challenges with chemical mechanical polishing, barrier metallurgy, and planarity; and 4. Reliability issues for barriers, dielectrics, and Cu interconnects, including stress-migration, electromigration, leakage, and fatigue.

Publication of a proceedings volume is planned to be available after the meeting. Acceptance of a paper for an oral or poster presentation obligates the author/s to submit a camera-ready softcopy of the manuscript on or before **June 1, 2005.** Symposium organizers: **G. S. Mathad**, S/C Technology Consulting, 5 Spurway, Poughkeepsie, NY 12603-5522, USA,Tel/Fax: 845.462.6312, E-mail: swami_mathad@hotmail.com; **M. Engelhardt**, Infineon Technologies, AG, Otto-Hahn Ring, Munich, Germany, Tel: 49.89.234.53321, E-mail: manfred.engelhardt@infineon.com; **K. Kondo,** Osaka Prefecture University, Materials Process Lab, Dept. of Chemical Engineering, 1-1, Gakuen-cho, Sakai, Osaka, Japan, Tel/Fax: 81.72.254.9304, E-mail: kkondo@chemeng.osakafu-u.ac.jp; and **H. S. Rathore**, IBM Microelectronics, 1580 Route 52, Zip: AE1, Hopewell Jct., NY 12533, USA, Tel: 914.892.2905, Fax:914.892.3039, E-mail: rathore@us.ibm.com.

I1 - FIRST INTERNATIONAL SYMPOSIUM ON ELECTRODEPOSITION OF NANOENGINEERED MATERIALS

(Electrodeposition)

A variety of nanoarchitectures, ranging from nanoparticles to nanowires, exhibit many novel quantum phenomena. These phenomena may have potential technological applications from electronic and optical devices to chemical and biological sensors. In recent times, one of the most powerful and extensively used methods for synthesizing such structures relies on electrodeposition. Electrodeposition is a facile method to synthesize various nanoengineered materials including metals, alloys, metal oxides, semiconductors, and conducting polymers. In addition to nanoarchitecutres, various nanocrystalline materials with superior properties including high mechanical strength and high electrical conductivity can also be electrodeposited. Compared to vacuum methods, electrodeposition is cost-effective and highly manufacturable with minimum maintenance.

In this symposium, we seek to bring together recent work in which such nanoengineered materials have been created in an attempt to understand how nanostructure growth can be controlled, how size and shape can be specified for nanostructures prepared by electrodeposition can be manipulated to create useful nanodevices.

Publication of a proceedings volume is planned to be available after the meeting. Acceptance of a paper in this symposium (oral or poster) obligates the authors to submit a camera-ready copy of the full proceedings volume manuscript at the meeting. Instruction for preparing the manuscript will be sent out by the symposium organizers after the notification of acceptance is distributed by the ECS headquarters office.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS headquarters office and the symposium organizers: **N. V. Myung**, Bourns Hall B353, Department of Chemical and Environmental Engineering, University of California-Riverside, Riverside, CA 92521, USA, Tel: 951.787.5696, Fax: 951.787.5696, E-mail: myung@engr.ucr.edu; **R. M. Penner**, 366 Rowland Hall, Department of Chemistry, University of California-Irvine, Irvine, CA 92697-2025, USA, Tel: 949.824.8572, Fax: 949.824.8571; E-mail: rmpenner@uci.edu; **N. Tao**, Department of Electrical Engineering, Arizona State University, Tempe, AZ 85287-6206, USA, Tel: 949.824.8572, E-mail: nongjian.tao@asu.edu; and **D.-Y. Park**, Department of Applied Materials Engineering, Hanbat National University, San 16-1, Dukmyung-dong, Yuseong-gu, Daejon 305-719, South Korea, Tel: 82.042.821.1278, Fax: 82.042.821.1592, E-mail: dypark@hanbat.ac.kr.

I2 - GREEN ELECTRODEPOSITION

(Electrodeposition)

Chemical and electrochemical methods to deposit metals, alloys, oxides, composites, etc. have been developed over centuries. Until recently, most methods have not taken into account the environmental impact of the process or product. However, the environmental viability and sustainability of products and processes are slowly becoming more important. Eventually, the viability of any process will be strongly dependent on its environmental impact. We recognize that dry and wet deposition methods can offer alternatives to non-sustainable materials, processes and devices, and current processes should be improved to lower their environmental impact.

We are inviting contributions that address a wide variety of problems to reduce the environmental impact of dry and wet deposition processes and the resulting products. Workers involved in, but not limited to the following areas of research, should consider submitting a paper at our symposium: 1. New electrolyte formulations and processes, 2. Alternatives to additives, 3. Reduction of chemicals, energy, and materials used in a process, 4. New concepts which reduce energy and material requirement in a deposition process, 5. Novel materials and products with low environmental impact, 6. Process monitoring, as well as analysis and control methods which reduce overall environmental impact, 7. Measurement methods to monitor environmental impact of electrodeposition and electrodeposited products, 8. Methods for recycling of materials, products, process waste, and chemicals, and 9. Development of zero emission deposition processes.

Publication of a proceedings volume is planned to be available after the meeting. Acceptance of a paper in this symposium obligates the authors to submit a typed camera-ready copy of the full proceedings volume manuscript at the meeting.

Symposium organizers: **S. Roy**, Reader in Electrochemical Materials Processing, School of Chemical Engineering and Advanced Materials, Newcastle University, NE1 7RU, U.K., Tel: 44.0.191.222.7274, Fax: 44.0.191.222.5292, E-mail: S.Roy@ncl.

ac.uk; and **G. Zangari,** Heinz and Doris Wilsdorf Distinguished Research Professor, Associate Professor, Materials Science and Engineering and Center for Electrochemical Science and Engineering, University of Virginia, 116 Engineer's Way, P.O. Box 400745, Charlottesville VA 22904-4745, USA, Tel: 434.243.5474, Fax: 434.982.5799, E-mail: gz3e@virginia.edu.

I3 - SCIENCE, TECHNOLOGY, AND TOOLS FOR ELECTRODEPOSITION, FROM LAB TO FACTORY

(Electrodeposition)

Electrochemical deposition continues to grow in its range of applicability and industrial importance. Mainstream uses in electronics fabrication have increased, the most prominent example being Damascene copper chip metallization, with electroless capping of copper wires poised to achieve widespread use as well. Many advances are being made in electrodeposition for MEMS, magnetic recording, electronic packaging, wafer bumping, lead-free solders, displays, and numerous other areas. The scope of this symposium is the large territory of technical endeavor associated with generating innovations in electrochemical deposition and carrying them to manufacturing: research, invention, characterization, process engineering, equipment engineering, control, and integration. Speakers are invited to present specific accounts of new discoveries, reduction to practice, process development, simulation, device fabrication, equipment design, and performance improvements. At one end of the spectrum, we encourage papers that advance the fundamental understanding of electrodeposition or point the way to new processes and applications. At the other, we welcome works that establish clear links between electrochemical process technology and key manufacturing metrics in mainstream applications such as chip interconnections, recording heads, and packaging. Examples include (but are not limited to) the impact of electrodeposition chemistry, process conditions, cell design, substrate properties, pre- and postdeposition treatments, process metrology, and process control on deposit properties, uniformity, defectivity, device performance, yield, throughput, cost, and other measures of success at the industrial scale.

Abstracts should be sent to the ECS headquarters office and the symposium organizers, **J. Dukovic,** Applied Materials, Mailstop 10850, 3050 Bowers Ave., P.O. Box 58039, Santa Clara, CA 95054, USA, Tel: 408.235.6092, E-mail: John_Dukovic@amat.com; **H. Hafezi**, Applied Materials, Mailstop 10851, 3050 Bowers Ave., P.O. Box 58039, Santa Clara, CA 95054, USA, Tel: 408.986.3600, E-mail: Hooman_Hafezi@amat.com.; and **A. C. West,** Columbia University, Dept. of Chemical Engineering, 812 Mudd Building, New York, NY 10027, USA, Tel: 212.854.4452, Fax: 212.854.3054, E-mail: acw17@columbia.edu.

J1 - STATE-OF-THE-ART PROGRAM ON COMPOUND SEMICONDUCTORS XLIII (SOTAPOCS XLIII)

(Electronics)

The SOTAPOCS XLIII symposium will address the most recent developments in compound semiconductors encompassing advanced devices, materials growth, characterization, processing, device fabrication, reliability, and other related topics. Papers on both practical issues and fundamental studies are solicited. The following areas are of particular interest: (1) Advances in bulk and epitaxial growth technologies of compound semiconductors (CS); (2) Advances in CS processing; (3) Novel electronic and optoelectronic CS devices; (4) Schottky and ohmic contact technology for CS; (5) Dielectric and passivation for CS; (6) Bonding and packaging; (7) *In situ* and *ex situ* process monitoring; (8) Material characterization and wafer level testing and mapping; (9) Process induced defects; (10) Reliability and device degradation mechanisms; and (11) Advances in organic semiconductors.

Publication of a joint proceedings volume with the symposium on Nitride and Wide Bandgap Semiconductors for Sensors, Photonics, and Electronics VI (L1) is planned to be available AT the meeting. A typed camera-ready copy of the full proceedings volume manuscript and a list of key words are required by June 30, 2005. Instructions for preparing the manuscript will be sent out by symposium organizers after acceptance of the abstracts. Acceptance of a paper for presentation obligates the author to submit a full manuscript in camera-ready form for inclusion in the proceedings volume. The symposium will consist of both invited and contributed papers. Abstracts are due to the Electrochemical Society on or before **June 1, 2005.**

Abstracts, suggestions, and inquiries should be sent to the symposium organizers or the ECS headquarters office. Symposium organizers: **J. Wang,** Northrop Grumman Space Technologies, One Space Park, D1/1039, Redondo Beach, CA 90278, USA, Tel: 310.813.3854, Fax: 310.812.9501, E-mail: jennifer.wang@ngc.com; **F. Ren,** University of Florida, Department of Chemical Engineering, 227 Chemical Engineering Blvd., Room 317, Gainesville, FL 32611, USA, Tel: 352.392.4727, Fax: 352.392.9513, E-mail: fren@che.ufl.edu; **A. G. Baca,** Sandia National Laboratories, MS 0603, P.O. Box 5800, Albuquerque, NM 87185-0603, USA, Tel: 505.844.7127, Fax: 505.844.8985, E-mail: agbaca@sandia.gov; **Y. Irokawa,** Toyota Central Research and Development Laboratories Inc., Nagakute, Aichi 480-1192, Japan, Tel: 81.561.63.4721, Fax: 81.561.63.6042, E-mail: y-irokawa@mosk.tytlabs.co.jp; and **D. N. Buckley,** Department of Physics, Materials, and Surface Science Institute, University of Limerick, Limerick, Ireland, Tel: 353.61.202902, Fax: 353.61.202423, E-mail: noel.buckley@ul.ie.

K1 - FIFTH INTERNATIONAL SYMPOSIUM ON THE PHYSICS AND CHEMISTRY OF SiO_2 AND THE Si-SiO_2 INTERFACE

(Electronics / Dielectric Science and Technology)

Papers are solicited in all research areas related to the physics and chemistry of silicon dioxide and the silicon/silicon-dioxide interface, their processing technology, physical and electrical characterization, and reliability. Of special interest are the topics of dielectric stacks, oxynitrides, the role of nitrogen and hydrogen, tunneling and breakdown studies, alternative and high-k gate dielectric materials, manufacturability issues, modeling and simulation of material and electrical properties, dielectric reliability, and fundamental limits.

Publication of a peer-reviewed proceedings volume is planned to be available AT the meeting. Authors must submit an electronic copy of a one-page 500-word abstract to the symposium chair and co-chairs by **March 1, 2005,** indicating the purpose of the work, the approach, the manner and degree to which the work advances the art, specific results, and their significance. On April 1, 2005, authors will be notified of acceptance and given instructions for manuscript preparation. Acceptance of an abstract for an oral presentation at the symposium obligates the author(s) to submit a camera-ready electronic copy of the manuscript on or before **May 1, 2005,** to allow time for both full manuscript review and the publication of the proceedings volume. The final revision of the manuscript is due on **June 1, 2005.**

Symposium organizers: **H. Z. Massoud,** Department of Electrical and Computer Engineering, Duke University, Durham, NC 27708-0291, USA, Tel: 919.660.5257, E-mail: massoud@ee.duke.edu; **D. Misra**, Department of Electrical and Computer Engineering, New Jersey Institute of Technology, Newark, NJ 07102, USA, Tel: 973.596.5739, E-mail: dmisra@njit.edu; **J. H. Stathis**, IBM T. J. Watson Research Laboratory, Yorktown Heights, NY 10598, USA, Tel: 914.945.2559, E-mail: stathis@watson.ibm.com; **T. Hattori,** Research Center for Silicon Nano-Science, Musashi Institute of Technology, Electrical and Electronics Engineering, 1-28-1 Tamazutsumi, setagay, Tokyo 158, Japan, hattori@ipc.musashi-tech.ac.jp; and **Israel Baumvol**, Institute of Physics, Federal University of Rio Grande do Sul, 91540-000 Porto Alegre, Brazil, E-mail: israel@if.ufrgs.br.

K2 - NINTH INTERNATIONAL SYMPOSIUM ON CLEANING TECHNOLOGY IN SEMICONDUCTOR DEVICE MANUFACTURING

(Electronics / Dielectric Science and Technology)

This symposium will cover a wide range of topics related to the removal of contaminants from and conditioning of Si, SiC, Ge, and SiGe surfaces, cleaning media including nonaqueous, cleaning methods and tools, front- and back-end cleaning operations, integrated cleaning, cleaning of MEMS, photomasks, porous low-k dielectrics, post-CMP cleaning, characterization and monitoring of cleaning, correlation with device performance, cleaning of equipment and storage/handling hardware, as well as other issues within the broadly understood scope of this symposium.

Publication of a proceedings volume is planned to be available AT the meeting. To make this possible, abstracts must be submitted electronically to ECS and to all three organizers listed below by **March 4, 2005.** Please check www.electrochem.org for abstract format and submission procedures. Following positive evaluation, authors will be requested to submit a full-length camera-ready manuscript (hard copy) by **May 6, 2005.** Details regarding submission will be communicated directly to prospective authors. Only papers included in the proceedings volume will be scheduled for presentation during the symposium.

J. Ruzyllo, Penn State University, 214 Electrical Eng. West, State College, PA 16802, USA, Tel: 814.865.5193, Fax: 814.865.7065, E-mail: jruzyllo@psu.edu; **T. Hattori,** ULSI R&D Laboratories, Sony Semiconductor Co., 4-14-1, Asahi-cho, Atsugi, 243-0014 Japan, Tel: 4.6230.5461, Fax: 4.6230.5572, E-mail: takeshi.hattori@jp.sony.com; and **R. E. Novak,** Akrion LLC., 2000 Fountain Lane, Plymouth, MN 55447, USA, Tel. 612.476.0083, Fax: 612.449.0053, E-mail: richnovak@aol.com.

L1 - NITRIDE AND WIDE BANDGAP SEMICONDUCTORS FOR SENSORS, PHOTONICS, AND ELECTRONICS VI

(Electronics / Sensor)

Numerous applications are appearing for wide bandgap semiconductors, including blue/UV light emitters, high temperature/high power electronics, passivation layers for other semiconductors, and various types of sensors. The purpose of this symposium is to bring together the crystal growth, device processing, device simulation, circuit design, and applications communities to discuss basic science and technology issues related to utilization of III-nitride based semiconductors. Papers are solicited in the following areas: (1) Substrates and bulk growth; (2) Epitaxial growth; (3) High growth-rate methods; (4) Wet and dry etching techniques; (5) Contact technology; (6) Fundamental optical, physical, and electrical properties; (7) Materials and device characterization; (8) Harsh environment sensors, chemical and gas sensors, and other novel applications for wide gap materials; (9) Reliability issues, and (10) Device simulation and modeling. The program will consist of both invited and contributed papers.

Publication of a joint proceedings volume with the symposium on State-of-the-Art Program on Compound Semiconductors XLIII (J1) is planned to be available AT the meeting. Abstracts are due to the ECS headquarters office with a copy to one of the symposium organizers on or before **June 1, 2005.** A typed camera-ready copy of the full proceedings volume manuscript and a list of key words are required by **June 30, 2005.** Instructions for preparing the manuscript will be sent out by the symposium organizers after acceptance of abstracts. Additionally, suggestions and inquiries should be sent to the symposium organizers: **R. C. Fitch,** Air Force Research Lab, 2241 Avionics Circle, Wright-Patterson AFB, OH 45433, USA, Tel: 937.255.1874 ext. 3453, Fax: 937.255.8656, E-mail: robert.fitch@wpafb.af.mil; **D. W. Merfeld,** GE Global Research, KWC1325 One Research Circle, Niskayuna, NY 12309, USA, Tel: 518.387.4252, Fax: 518.387.5997, E-mail: merfeldw@research.ge.com; **E. Stokes,** Dept. of Electrical and Computer Engineering, University of North Carolina at Charlotte, 9201 University City Blvd, Charlotte, NC 28223, USA, Tel: 704.687.4142, Fax: 704.687.2352: E-mail: ebstokes@uncc.edu; **P. H. Shen,** AMSRL-SE-EM, 2800 Powder Mill Rd., Adelphi, MD 20783-1197, USA, Tel: 301.394.1531, E-mail: pshen@arl.army.mil; **K. Shiojima,** NTT Photonics Laboratories, 3-1, Morinosato Wakamiya, Atsugi-shi, Kanagawa 243-0198, Japan, Tel: 81.46.240.2787, Fax: 81.46.240.4773, E-mail: shiojima@aecl.ntt.co.jp; **P. Asbeck,** Department of Electrical and Computer Engineering, MS0407, University of California, San Diego, 9500 Gilman Drive, La Jolla, CA 92093-0407, USA, Tel: 858.534.6713, Fax: 858.534.0556, E-mail: asbeck@ece.ucsd.edu; and **J. Han**, Dept. of Electrical Engr., Yale University, 15 Prospect Street, PO Box 208284, New Haven, CT 06520, USA, Tel: 203.432.7567, Fax: 203.432.7769, E-mail: jung.han@yale.edu.

M1 - JOINT GENERAL SESSION

(Energy Technology / Battery)

Papers are solicited on the fundamental and applied aspects of energy conversion and storage, particular interest are new materials and processes for batteries, fuel cells, and photovoltaics. All types of batteries, fuel cells, and solar electric technologies are of interest including aqueous (e.g., nickel-cadmium, zinc-air, lead-acid, and nickel-metal hydride) and nonaqueous electrolyte batteries; near-term and long-term fuel cell concepts; as well as solar cell technologies ranging from near-term crystalline silicon; mid-term thin-film technologies and long-term technologies such as dye-sensitized, molecular, quantum structures in polymer, or other innovative solar electric concepts. Papers on combined technologies, such as hybrid battery/supercapacitor, battery/fuel cell, battery/other, fuel-cell/other systems as well as solar electric hydrogen production, carbon nanotube hydrogen storage, and hydrogen fuel cell systems are also welcome.

Abstracts, suggestions, and inquiries should be sent to the ECS headquarters office and to the symposium organizers: **K. Zaghib,** Institut de Recherche d'Hydro Quebec, 1800 Blvd. Lionel Boulet, Varennes, Quebec, Canada J3X 1S1, Tel: 450.652.8019, Fax: 450.652.8424, E-mail: karimz@ireq.ca; and **B. Barnett,** TIAX LLC, 67 Cutters Ridge Rd., Carlisle, MA 01741-1144, USA, Tel: 617.498.5307, Fax: 617.498.7012, E-mail: barnett.b@tiax.biz.

M2 - ENERGY FOR CLEANER TRANSPORTATION

(Energy Technology / Battery)

This symposium on energy for a cleaner environment and power sources for transportation applications will cover a wide range of topics. Papers are solicited on the system requirements for transportation applications such as electric and hybrid electric cars, vans, trucks, buses, and trains. Papers covering new developments in energy storage and conversion are welcome. Papers are solicited on all aspects of the research, development, and applications of batteries, fuel cells, capacitors, controls, and sensors for electric and hybrid transportation applications. In particular, we solicit papers concerning topics in (1) testing, diagnostic evaluation of life and performance, abuse tolerance evaluation, safety, overall system development, and thermal management of batteries and fuel cells; (2) impact on environmental issues, such as safety, materials compatibility, etc., that are associated with power devices; (3) modeling and auxiliaries required for electrochemical engines; (4) manufacturing, processing and assembling issues; (5) new developments of batteries, fuel cells, and capacitors having high power and energy densities, high efficiency, and long life; and (6) materials and component developments of fuel cell, capacitors, batteries, and papers that include their chemistry, status, operating characteristics, production, cost, commercialization, and update of California law for

zero emission electric vehicle are welcome.

Publication of a proceedings volume is planned to be available after the meeting. Acceptance of a paper in this symposium (oral or poster) obligates the author/s to submit a typed camera-ready copy of the full manuscript and a list of key words before the meeting. Manuscripts are to be sent by **October 15, 2005** to **K. Zaghib** at the address below. Instructions for preparing the manuscripts may be found on the ECS website.

Abstracts, suggestions, and inquiries should be sent to ECS headquarters office and to the following symposium organizers: **K. Zaghib,** Institut de Recherche d'Hydro Quebec, 1800 Blvd. Lionel Boulet, Varennes,Quebec, Canada J3X 1S1, Tel: 450.652.8019, Fax: 450.652.8424, E-mail: karimz@ireq.ca; **J. Prakash,** Illinois Inst. of Technol., Chem. and Environ. Eng., 10 W. 33rd St., Chicago, IL 60616-3730, USA, Tel: 312.567.3639, Fax: 312.567.8874, E-mail: prakash@iit.edu; **R. D. McConnell,** National Renewable Energy Laboratory, 1617 Cole Boulevard, Golden, CO 80401, USA, Tel: 303.384.6419, Fax: 303.384.6481, E-mail: robert_mcconnell@nrel.gov; and **F. R. McLarnon,** Lawrence Berkeley National Laboratory, Bldg. 70R0108B, Berkeley, CA 94720-8168, USA, Tel: 510.486.4636, Fax: 510.486.4260, E-mail: frmclarnon@lbl.gov.

N1 - PHOTOVOLTAICS FOR THE 21ST CENTURY III

(Energy Technology / Electronics)

Recent scientific and technical developments made in photovoltaic (PV) technology have helped lower the cost of PV modules and overall price of PV systems. Consequently, PV technology is making entry into various commercial markets and is likely to make significant contributions, globally, to the power generation industry in the 21st century. To achieve this goal, PV technology still must demonstrate substantial cost reductions that may require adaptation of revolutionary concepts rather than slow evolutionary development of the current technologies. Various interdisciplinary scientific and technical developments can help achieve this status. This symposium will focus on using advanced concepts that are not being used in the PV industry today, but are likely to be used commonly in the 21st century. Contributed publications of both fundamental and applied nature leading to maximum utilization of the solar spectrum for electric power generation are solicited. Some suggested general areas of interest are (1) Excitonic solar cells based on organic molecules, polymers, dyes, and chromophores; (2) Concentrator cell technologies including multijunction cells, wafer bonding, and low cost substrates for III-V solar cells; (3) Ultrahigh efficiency "Third Generation" concepts such as intermediate band solar cells, multiple charge carrier per photon concepts, up-converters, thermophotonic and hot carrier cells; () New crystalline silicon technologies including thin-film silicon, mitigation of bad regions, innovative passivation concepts, new processing technologies, and novel cell designs; (5) Novel PV compounds; (6) Optical designs including reflective, refractive, holographic, luminescent, and fluorescent concepts; (7) Quantum concepts including nanotechnologies, quantum dots, quantum wires, and quantum well solar cells; (8) New PV processes such as rectifying antenna devices; (9) New technologies for photon management and charge carrier control.

Publication of a proceedings volume is planned to be available after the meeting. Acceptance of a paper for presentation will obligate the author(s) to submit a camera-ready manuscript at the meeting.

Abstracts, suggestions, and inquiries should be sent to the ECS headquarters office and symposium organizers: **R. D. McConnell,** National Renewable Energy Laboratory, 1617 Cole Boulevard, Golden, CO 80401, USA, Tel: 303.384.6419, Fax: 303.384.6481, E-mail: robert_mcconnell@nrel.gov; **A. Rohatgi,** Georgia Institute of Technology, School of Electrical and Computer Engineering, 777 Atlantic Drive, NW, Atlanta, GA 30332-0250, USA, Tel: 404.894.7692, Fax: 404.894.5934, E-mail: ajeet.rohatgi@ece.gatech.edu; **V. K. Kapur,** International Solar Electric Technology, 8635 Aviation Boulevard, Inglewood, CA 90301, USA, Tel: 310.216.4427, Fax: 310.216.2908, E-mail: vkkapur@earthlink.net; **G. Rumbles,** NREL, 1617 Cole Blvd., Golden, CO 80401, USA, E-mail: garry_rumbles@nrel.gov; and **T. Lian,** Emory University, Department of Chemistry, 1515 Dickey Drive, Atlanta, GA 30332, USA, Tel: 404.727.6649, Fax: 404.727.6586, E-mail: tlian@emory.edu.

O1 - ELECTROCHROMICS FOR ENERGY EFFICIENCY: FROM THE MATERIAL TO THE SYSTEM

(Energy Technology / Fullerenes, Nanotubes, and Carbon Nanostructures)

This symposium provides a forum for discussion and presentation of fundamental and applied aspects of electrochromic materials and their device applications in particular for energy efficiency. The power sources for electrochromic display such as rechargeable batteries and fuel cells will be covered. The major focus of the symposium will be on synthesis, characterization, and performance of inorganic, organic, and polymeric electrochromic materials. This symposium will also cover all device applications of electrochromic materials, including windows, eyewear, mirrors, displays, renewable paper, and variable emissivity surfaces.

Publication of a proceedings volume is planned to be available after the meeting. Acceptance of a paper in this symposium (oral or poster) obligates the authors to submit a typed camera-ready copy of the full proceedings volume manuscript and a list of key words to the symposium organizers at the meeting. Instructions for preparing the manuscript may be obtained from symposium organizers.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS headquarters office and to the symposium organizers: **K. Zaghib,** Institut de Recherche d'Hydro Quebec, 1800 Blvd. Lionel Boulet, Varennes, Quebec, Canada J3X 1S1, Tel: 450.652.8019, Fax: 450.652.8424, E-mail: karimz@ireq.ca; **J. J. Xu,** Materials Science and Engineering, Rutgers, The State University of New Jersey, 607 Taylor Road, Piscataway, NJ 08854, USA, Tel: 732.445.5606, Fax: 732.445.3258, E-mail: johnxu@rci.rutgers.edu; **C. M. Julien,** L. M. D. H. Universite Pierre et Marie Curie, 4 place Jussieu, case 86, 75252 Paris cedex 05, France, Tel: 33.144.274.561, Fax: 33.144.273.882, E-mail: cjul@ccr.jussieu.fr; and **F. D'Souza,** Wichita State University, Dept. of Chemistry, 1845 Fairmount St., Wichita, KS 67260-0001, USA, Tel: 316.978.7380, Fax: 316.978.3431, E-mail: Francis.Dsouza@Wichita.edu.

P1 - FIFTH INTERNATIONAL SYMPOSIUM ON PROTON EXCHANGE MEMBRANE FUEL CELLS, IN HONOR OF SUPRAMANIAM SRINIVASAN

(Energy Technology / Physical Electrochemistry / Battery / Industrial Electrolysis and Electrochemical Engineering / New Technology Subcommittee)

This international symposium is being held in honor of Dr. S. Srinivasan, who passed away in April 2004. Dr. Srinivasan played a leading role in most aspects of fuel cell research, engineering, and development for over 40 years, working in university, government, and industrial laboratories. He was a visionary who made seminal contributions to the fuel cell field from the early 1960s, and became one of the most important and respected leaders in that community worldwide. This symposium will be devoted to the wide spectrum of research, development, and engineering aspects of PEM fuel cells and stacks in recognition of the many contributions of Dr. Srinivasan in these fields. The intention is to bring together the international community working on the subject and enable effective interactions between research and engineering subcommunities. Research issues include electrocatalysis of fuel cell reactions, particularly at the catalyst/ionomer interface and methods to increase anode and cathode performance; and ionomeric

membrane thermodynamics and transport characteristics and new ionomeric membrane development, especially for high temperature operation as well as improved resistance to methanol crossover. New cell and stack structures, including new types of bipolar plates, flow fields, and electrode backings will all be subjects of interest. Engineering aspects of complete stacks, including issues of mass and heat transfer and transport, will be included in the symposium. Contributions on issues of complete power systems are also welcome in the context of transportation and stationary power generation applications as well as for micro fuel cell systems. Oral and poster presentations are invited.

Publication of a proceeding volume is planned to be available after the meeting. Acceptance of a paper for presentation will obligate the author(s) to submit a camera-ready manuscript at the meeting.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS headquarters office and to the symposium organizers: **S. R. Narayanan,** Jet Propulsion Laboratory, 4800 Oak Grove Dr. # 277-212, Pasadena, CA 91109-8001, USA, Tel: 818.354.0013, Fax: 818.393.6951, E-mail: s.r.narayanan@jpl.nasa.gov; **C. Bock,** National Research Council of Canada, M-12 Montreal Rd., Ottawa ON K1A-0R6, Canada, Tel: 613.990.2252, Fax: 613.941.2529, E-mail: christina.bock@nrc.ca; **T. Fuller,** Georgia Institute of Technology, GTRI/ATAS, 7220 Richardson Rd., Smyrna, GA 30080-0000, USA, Tel: 770.528.7075, Fax: 770.528.7028, E-mail: tom.fuller@gtri.gatech.edu; **S. Mukerjee,** Northeastern University, Department of Chemistry, 360 Huntington Ave, Boston, MA 02115-5000, USA, Tel: 617.373.2382, Fax: 617.373.8795, E-mail: s.mukerjee@neu.edu; **E. Stuve**, University of Washington, Chemical Engineering, PO Box 351750, Seattle, WA 98195-1750, USA, Tel: 206.543.2250, Fax: 206. 543.3778, E-mail: stuve@u.washington.edu; **C. Lamy,** Universite de Poitiers, CNRS, Electrocatalysis,40 Ave. de Recteur Pineau, 86022, Poitiers, France, Tel: 33.54.945.3628, Fax: 33.54.945.3580, E-mail: claude.lamy@univ-poitiers.fr; and **J. Weidner,** University of South Carolina, Dept. of Chemical Engineering, Swearingen Engineering Center, Columbia, SC 29208-0001, USA, Tel: 803.777.3207, Fax: 803.777.8265, E-mail: weidner@engr.sc.edu.

Q1 - SOLID STATE IONIC DEVICES IV

(High Temperature Materials / Sensor / Battery / Physical Electrochemistry)

Solid-state electrochemical devices, such as batteries, fuel cells, membranes, and sensors, are critical components of technologically advanced societies in the 21st Century and beyond. The development of these devices involves common research themes such as ion transport, interfacial phenomena, and device design and performance, regardless of the class of materials or whether the solid state is amorphous or crystalline. The intent of this international symposia series is to provide a forum for recent advances in solid-state ion conducting materials and the design, fabrication, and performance of devices that utilize them.

For this, the fourth in the series of international symposia, emphasis will be given to electrocatalytic phenomena and effect on electrode performance. Papers on interfacial and electrocatalytic phenomena, mechanistic studies of activity and selectivity that incorporate heterogeneous catalysis techniques, spectroscopic characterization of adsorbed species, and the effect of electrode microstructure are particularly encouraged.

In addition, papers are solicited on such topics as modeling and characterization of defect equilibria, ionic and electronic transport; novel synthesis and processing of thin films, membranes, and nanostructured materials or devices; the effect of nanostructures on ionic transport and catalytic activity; permeation studies; materials characterization, and crystallographic investigations; extreme engineering applications (e.g., aerospace), and the design, and performance of solid-state ionic devices: fuel cells, thermal energy conversion, solid-state batteries and microbatteries, chemical sensors, supercapacitors, membranes, and electrochromic devices.

Publication of a proceedings volume is planned to be available after the meeting. Acceptance of a paper in this symposium obligates the authors to submit a typed camera-ready copy of the full manuscript, and a pdf file of same, by the first day of the meeting.

Abstracts, suggestions, and inquiries should be sent to the ECS headquarters office and to the symposium organizers: **E. D. Wachsman**, Department of Materials Science and Engineering, University of Florida, Gainesville, FL 32611-6400, USA, Tel: 352.846.2991, Fax: 352.392-7219, E-mail: ewach@mse.ufl.edu; **F. H. Garzon,** Los Alamos National Laboratory, MS D429, Los Alamos, NM 87545, USA, Tel: 505.667.6643, Fax: 505.665.4292, E-mail: garzon@lanl.gov; **E. Traversa**, Department of Chemical Science and Technology, University of Rome "Tor Vergata," 00133 Rome, Italy, Tel: 39.06.7259.4492, Fax: 39.06.7259 4328, E-mail: traversa@uniroma2.it; **R. Mukundan**, Los Alamos National Laboratory, MS D429, SM-40, TA-3, Elect. & Electrochem. Matls. & Dev. Grp, Los Alamos, NM, USA, Tel: 505.665.8523, Fax: 505.665.4292, E-mail: mukundan@lanl.gov; and **V. Birss**, Dept. of Chemistry, University of Calgary, 2500 University Drive, N. W., Calgary, Alberta T2N 1N4, Canada, Tel: 403.220.6432, Fax: 403.289.9488, E-mail: birss@ucalgary.ca.

R1 - MULTISCALE SIMULATIONS OF ELECTROCHEMICAL SYSTEMS - COMPUTATIONAL ASPECTS

(Industrial Electrolysis and Electrochemical Engineering / Energy Technology / Electrodeposition / Corrosion)

New electrochemical applications are being discovered where the control of events from molecular to macroscopic length scales is critical to product quality and process control. In addition, improvements in many existing technological systems are today based on understanding how to control electrochemical events occurring at near-molecular length scales. The common feature of such systems is that their behavior is largely determined as a result of concerted interactions based on electrochemical phenomena that extend over many length scales. Numerical simulation of electrochemical systems thus requires solving equations simultaneously as well as efficiently in different length and time scales.

Both analytical and numerical methods have been used by researchers to simulate electrochemical behavior under various operating conditions. Though analytical solutions are restricted to very few linear models, they provide very good insight and are ideal for case studies. With the advent of high-speed computer and user-friendly software analytical or approximate techniques may be used to obtain symbolic or closed form solutions even for nonlinear models under certain operating conditions.

Different numerical methods have been used by various researchers, for, *e.g.,* finite difference, finite element, finite-volume, collocation. Although all the numerical methods work for most models, certain numerical methods may be computationally efficient for a particular electrochemical system.

The trend toward increasingly sophisticated models that integrate diverse phenomena which span multiple scales for simulating entire, realistic systems creates significant demand for new simulation algorithms with improved computational efficiency, and with realistic quantification of uncertainty.

Papers of interest include but are not restricted to the following: nano-macro scale coupled simulation, micro-macro scale coupled simulation, stability issues during coupling of different scales, approximation methods, parallel computing, parameter estimation, efficient numerical solvers, novel numerical techniques, multiple steady states, comparison of numerical methods, moving boundary problems. Applications include, but not limited to electro/electroless deposition, solid electrolyte interface, secondary batteries, fuel cells, electrochemical capacitors, hybrid power sources, and modeling of stacks.

Publication of a proceedings volume is planned to be available after the meeting. Authors accepted for presentation are

obligated to submit a camera-ready manuscript at the meeting. Instructions for preparing the manuscript will be sent out by the symposium organizers after the official notification of acceptance is distributed by the ECS headquarter office.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS headquarters office and to the symposium organizers: **V. R. Subramanian**, Dept. of Chemical Engineering, Tennessee Tech University, TN 38505, USA, Tel: 931.372.3494, Fax: 931.372.6352, E-mail: vsubramanian@tntech.edu; **G. G. Botte**, Dept. of Chemical Engineering, Ohio University, Athens, OH 45701, USA, Tel: 740.593.9670, Fax: 740.593.0873, E-mail: botte@ohio.edu; **R. C. Alkire**, Dept. of Chemical and Biomolecular Engineering, University of Illinois, Urbana, IL 61801, USA, Tel: 217.333.0063, Fax: 217.333.5052, E-mail: r-alkire@uiuc.edu; **J. St. Pierre**, Ballard Power Systems, 4343 North Fraser Way, Burnaby, BC V5J 5J9, Canada, Tel: 604.412.3186, Fax: 604.453.3782, E-mail: jean.st-pierre@ballard.com, **J. Meyers**, UTC Fuel Cells, 195 Governor's Highway, South Windsor, CT 06074-2419, USA, Tel: 860.727.2730, Fax: 860.727.2319, E-mail: jeremy.meyers@utcfuelcells.com.; and **K. R. Hebert**, Iowa State University, Dept. of Chemical Engineering, 2114 Sweeney Hall, Ames, IA 50011-0001, USA, Tel: 515.294.6763, Fax: 515.294.2689, E-mail: krhebert@iastate.edu.

S1 - ENVIRONMENTAL ELECTROCHEMISTRY

(Industrial Electrolysis and Electrochemical Engineering / Physical Electrochemistry / Organic and Biological Electrochemistry / Sensor)

The purpose of this symposium is to bring together leading experts with various experimental and theoretical skills working in areas of environmental electrochemistry. To this end, electrochemistry is used both to detect and quantify the pollutants, and to directly remediate polluted environments. In these areas electrochemistry offers the advantages of automation, detectability, selectivity, inherent cleanliness, and, in many cases, cost effectiveness.

The topic will include, but are not limited to electroanalytical techniques, both laboratory and for automation, electrochemical approaches to pollution abatement, photoelectrochemical methods for treating polluted air and water, processes based on ion exchange, direct and indirect oxidation, electrokinetic treatment of soils, electrochemical recycling, and water disinfection and harness removal.

Although not the main scope of this symposium, innovative electrochemical processes that replace existing polluting processes mayalso be considered.

Abstracts should be submitted electronically to the ECS meetings website. Suggestions and inquiries, but not the abstracts, should be sent to the symposium organizers: **G. Pillay**, South Dakota School of Mines and Technology, 501 East St. Joseph Street, Rapid City, SD 57701, USA, Tel: 605.394.1206, E-mail: gautampillay@yahoo.com; **P. Vanýsek**, Department of Chemistry and Biochemistry, Northern Illinois University, DeKalb, IL 60115, USA, Tel: 815.753.6876, Fax: 815.753.4802; E-mail: pvanysek@niu.edu; **M. Tokuda**, Hokkaido University, The Career Center, Sapporo, Japan 060-0808, Tel: 81.11.706.3270, Fax: 81.11.706.4889, E-mail: tokuda@org-mc.eng.hokudai.ac.jp; and **D. Makel**, Makel Engineering Inc., 1585 Marauder St., Chico, CA 95973-9064, USA, Tel: 530.895.2771, Fax: 530.895.2777, E-mail: dmakel@makelengineering.com.

T1 - 14TH INTERNATIONAL SYMPOSIUM ON THE PHYSICS AND CHEMISTRY OF LUMINESCENT MATERIALS

(Luminescence and Display Materials)

This symposium will focus on various aspects of luminescence, in both organic and inorganic solids and will address current and emerging technical and scientific issues in luminescence. Presentations at this meeting will cover photoluminescent materials for lamp and laser applications, cathodoluminescent materials, electroluminescent materials, persistent phosphors, and phosphors for plasma display panels (vacuum ultraviolet excited phosphors) and other optical devices. Presentations on chemical aspects of luminescence will include the design and synthesis of conventional and novel luminescent materials, including nanophases and optimization of luminescence properties, such as brightness, color, response time, and excitation spectra, via modification of particulate and surface characteristics; and exploring new materials by combinatorial chemistry. Presentations involving physics of luminescence will cover measurements and modeling of luminescent properties; identification of luminescent and loss centers; nonradiative processes; energy transfer; and concentration effects; complex luminescence processes such as core valence luminescence, cooperative phenomena, nonlinear optical processes; and ultrafast transitions. Papers on multiphoton transitions, luminescence from confined systems, luminescence from novel materials such as ceramics, glass, and nanoparticles are encouraged.

Abstracts should be sent electronically to the ECS headquarters office. Suggestions, and inquiries should be sent to the symposium organizers: **A. M. Srivastava**, GE GRC, KWB 316, 1 Research Circle, Niskayuna, NY 12309, USA, Tel: 518.387.7535, Fax: 518.387.5529, E-mail: srivastava@crd.ge.com; **C. R. Ronda**, Philips Research Laboratories, Weisshausstrasse 2, D-52066 Aachen, Germany, Tel: 49.0.241.6003.387, Fax: 49.0.241.6003-483, E-mail: ronda@pfa.philips.com; and **A. Meijerink**, Debye Institute, Condensed Matter and Interfaces, Utrecht University, P.O. Box 80 000, 3508 TA, Utrecht, The Netherlands, Tel: 31.30.2532202, Fax: 31.30.2532403, E-mail: a.meijerink@phys.uu.nl.

U1 - BIOLOGICAL AND MEDICAL APPLICATIONS OF LUMINESCENT MATERIALS

(Luminescence and Display Materials / Organic and Biological Electrochemistry / Sensor)

Phosphors have found widespread use in the medical field, enabling dramatic improvements in medical diagnostics and imaging. High-density luminescent materials (scintillators) convert X-rays into visible light, and are used in radiography, computed tomography (CT), and positron emission tomography (PET). More recently, phosphors are being investigated for biological applications such as fluorescence labeling, or tagging, of biomolecules. Semiconductor nanocrystals (quantum dots) are being pursued for tagging due to their greater photostability and narrower emission bands than traditional laser dyes. Quantum dots (QDs) with complex, multilayer surface coatings are now available commercially for biomedical and biodetection research, such as protein and gene identification. QDs may also be obtained in surface-functionalized magnetite-loaded polystyrene beads, which have a range of potential applications, including detection of biotoxins. We invite papers on the investigation of luminescent materials for medical and biological applications.

Abstracts should be sent electronically to the ECS headquarters office. Suggestions, and inquiries should be sent to the symposium organizers: **L. Shea Rohwer**, Sandia National Laboratories, P.O. Box 5800, MS-0892, Albuquerque, NM 87185-0892, USA, Tel: 505.844.6627, Fax: 505.845.8161, E-mail: leshea@sandia.gov; **U. Happek**, University of Georgia, Department of Physics and Astronomy, Athens, GA 30602-2451, USA, Tel: 706.542.2859, Fax: 706.542.2492, E-mail: uhappek@hal.physast.uga.edu; **J. Burgess**, Case Western Reserve University, 10900 Euclid Ave., Cleveland, OH 44106-1712, USA, Tel: 216.368.4490, Fax: 216.368.3006, E-mail: jdb22@po.cwru.edu; and **C. Bruckner-Lea**, Pacific Northwest National Laboratory, PO Box 199, Mailstop K4-12, Richland, WA 99352, USA, Tel: 509.375.4460, Fax: 509.372.4460, E-mail: cindy.bruckner-lea@pnl.gov.

V1 - ELECTROCHEMICAL AND PHOTOCHEMICAL SCIENCE IN BIOMEDICAL APPLICATIONS

(Nanotechnology Subcommittee / Fullerenes, Nanotubes, and Carbon Nanostructures)

Papers are solicited on the recent advances and developments in electrochemically enhanced drug delivery, namely, electrotransport in therapeutic and diagnostic applications, photodynamic therapy in medical science and fullerene/carbon nanotube based materials in biomedical applications.

Electrotransport refers to the application of using an electric current to transport substances across biological membranes. It is an electrically enhanced method of transporting substances to and from the body non-invasively, by applying an electrical potential to an electrochemical system containing the drug. Electrotransport is a convenient way to administer drugs in a controlled manner by the application of a current that increases the mobility of the drug molecules. The methodology can also be used in diagnostics by monitoring the counterflow of ions from the body.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS headquarters office and to the session organizers: **A. Subramony,** Alza Corporation., 1900 Charleston Rd., Mountain View, CA 94043-1218, USA, Tel: 650.564.2418, Fax: 650.564.2484, E-mail: anand.subramony@alza.com; and **L. Wilson,** Rice University, PO Box 1892, Dept. of Chemistry, MS 60, Houston, TX 77251-1892, USA, Tel: 713.348.3268, Fax: 713.348.5155, E-mail: Durango@rice.edu.

W1 - ORGANIC AND BIOLOGICAL ELECTROCHEMISTRY GENERAL POSTER SESSION

(Organic and Biological Electrochemistry)

Posters concerning any aspect of organic and biological electrochemistry not covered by topic areas of other specialized symposia at this meeting are welcome. Contributed posters will be programmed in some related order depending on the titles and contents of the meeting abstracts.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS headquarters office and to the symposium organizer: **A. J. Fry,** Dept. of Chemistry, Wesleyan University, Middletown, CT, 06459, Tel: 860.685.2622, Fax: 860.685.2211, E-mail: afry@wesleyan.edu.

X1 - PHYSICAL ELECTROCHEMISTRY GENERAL SESSION

(Physical Electrochemistry)

Papers concerning any aspect of physical electrochemistry not covered by topic areas of other specialized symposia at this meeting are welcome. Contributed papers will be programmed in some related order, depending on the titles and contents of the submitted abstracts.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS headquarters office and to the session organizer: **G. Brisard,** Department of Chemistry, University of Sherbrooke, 2500 Blvd. Universite, Sherbrooke, QC, Canada J1K 2R1 Tel: 819.821.7093, Fax: 819.821.8017, E-mail: Gessie.Brisard@USherbrooke.ca.

X2 - DURABILITY AND RELIABILITY OF LOW-TEMPERATURE FUEL CELLS AND FUEL CELL SYSTEMS

(Physical Electrochemistry)

This symposium will discuss: (1) fundamental degradation mechanisms of fuel cell materials (*e.g.*, materials corrosion, decomposition, and contamination),(2) the durability of complex fuel cell components (*e.g.*, voltage degradation mechanisms in electrolyte/electrode-assemblies), and (3) the reliability of fuel cell systems for power generation (*e.g.*, maintenance, and reliability of ancillary components). polymer electrolyte membrane fuel cells (PEMFCs) and direct methanol fuel cells (DMFCs) will be the major focus of the symposium, but durability/reliability related contributions from the fields of phosphoric acid fuel cells (PAFCs) and alkaline fuel cells (AFCs) are also encouraged.

Publication of a proceedings volume is planned to be available after the meeting. Acceptance for presentation at this meeting obligates the authors to providing a typed camera-ready hard copy, or electronic copy suitable for preparing a camera-ready paper, and a list of key words at the time of the meeting.

Abstracts should be submitted on the ECS webpage and copies should be e-mailed to the organizers: **S. Gottesfeld,** Mechanical Technology Inc., Albany, NY, USA, Tel: 518.533.2204, Fax: 518.533.2223, E-mail: sgottesfeld@mechtech.com; **H. A. Gasteiger** (General Motors Corp., Fuel Cell Activities, Honeoye Falls, NY 14472, USA, Tel: 585.624.6725, Fax: 585.624.6680, E-mail: hubert.gasteiger@gm.com; **T. D. Jarvi,** Manager, Fuel Cell Technology, UTC Fuel Cells, 195 Governors Highway, MS 601-11, South Windsor, CT 06074, USA, Tel: 860.727.7265, Fax: 860.998.9656, E-mail: tom.jarvi@utcfuelcells.com; **S. Cleghorn,** W.L. Gore & Associates, Inc., Elkton, MD 21922-1488, USA, Tel: 410.506.7634, Fax: 410.506.7633, E-mail: scleghorn@wlgore.com; and **J. Meyers,** UTC Fuel Cells, 195 Governor's Highway, South Windsor, CT 06074-2419, USA, Tel: 860.727.2730, Fax: 860.727.2319, E-mail: jeremy.meyers@utcfuelcells.com.

Y1 - THREE-DIMENSIONAL MICRO- AND NANOSCALE BATTERY ARCHITECTURES

(Physical Electrochemistry / Battery / Industrial Electrolysis and Electrochemical Engineering)

The design, synthesis, and science of advanced 3-D battery architectures will be the focus of this symposium. Improved battery performance can be achieved by reconfiguring the electrode materials currently employed in 2-D batteries into 3-D architectures. A defining characteristic of 3-D batteries is that transport between electrodes remains one dimensional (or nearly so) at the microscopic level, while the electrodes are configured in complex geometries (*i.e.*, non-planar) to increase the energy density of the cell within the footprint area. A 3-D matrix of electrodes (in a periodic array or an aperiodic ensemble) is thus required to meet both requirements of short transport lengths and large energy capacity. Improvements in energy per unit area and high-rate discharge capabilities are two of the benefits that may be realized for these 3-D cells.

Contributed and invited papers will describe the enabling science and technology required to achieve 3-D energy storage. Papers describing the design, materials science, fabrication methodology, and engineering theory of 3-D electrode and cell architectures that are employed in other areas of electrochemistry are also welcomed.

Abstracts, suggestions, and inquiries should be sent to the ECS headquarters office and to the symposium organizers: **B. Dunn,**

Department of Materials Science and Engineering, University of California, Los Angeles, 6532 Boelter Hall, Los Angeles, CA 90095-1595, USA, Tel: 310.825.1519, Fax: 310.206.7353, E-mail: bdunn@ucla.edu; **J. W. Long,** Code 6171, Surface Chemistry Branch, Naval Research Laboratory, Washington, DC 20375, USA, Tel: 202.404.8697; Fax: 202.767.3321, E-mail: jwlong@ccs.nrl.navy.mil; **D. R. Rolison,** Code 6170, Surface Chemistry Branch, Naval Research Laboratory, Washington, DC 20375, USA, Tel: 202.767.3617; Fax: 202,767.3321, E-mail: rolison@nrl.navy.mil; **H. S. White,** Department of Chemistry, University of Utah, Salt Lake City, UT 84112, USA, Tel: 801.585.6256, Fax: 801.581.5720, E-mail: white@chem.utah.edu; and **V. Srinivasan,** Environmental Energy Technologies Division, Lawrence Berkeley National Laboratory, 1 Cyclotron Rd., MS 70R-0108B, Berkeley, CA 94720, USA, Tel: 510.495.2679, Fax: 510.486.4260, E-mail: vsrinivasan@lbl.gov.

Z1 - MOLECULAR STRUCTURE EFFECTS IN HETEROGENEOUS ELECTRON TRANSFER KINETICS

(Physical Electrochemistry / Organic and Biological Electrochemistry)

This symposium is concerned with the details of reactant and interfacial structure, and how they affect the kinetic parameters for electron transfer reactions. Subjects of interest related to the reactant and product include the effects of charge distribution within polyatomic reactants, and the position and orientation of the reactant at the interface (at metal or biological interfaces). As far as interfacial structure is concerned, topics of interest include the distribution of charge in the double layer, the effects of specifically adsorbed ions and molecules, and self- assembled monolayers. Papers concerning any of those aspects are welcome. Contributed papers will be programmed in some related order, depending on the titles and contents of the submitted abstracts.

Publication of a proceedings volume is planned to be available after the meeting. Acceptance for presentation at this meeting obligates the authors to providing a typed camera-ready hard copy, or electronic copy suitable for preparing a camera-ready paper, and a list of key words at the time of the meeting or prior to the meeting if possible.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS headquarters office and to the session organizers: **R. W. Fawcett,** University of California at Davis, Davis, CA 95616, USA, E-mail: fawcett@indigo.ucdavis.edu, **G. M. Brisard**, Department of Chemistry, University of Sherbrooke, 2500 Blvd. Universite, Sherbrooke, QC, Canada J1K 2R1, E-mail: Gessie.Brisard@USherbrooke.ca; and **D. H. Evans,** Department of Chemistry, University of Arizona, Tucson, AZ 85721-0041, USA, Tel: 520.626.0318, Fax: 520.621.8407, E-mail: dhevans@email.arizona.edu.

AA1 - ACOUSTIC WAVE-BASED SENSORS AND SENSOR SYSTEMS

(Sensor)

This symposium covers all aspects of sensors and microanalytical systems that utilize acoustic waves to monitor physical, chemical, and biological parameters, processes, and species. Primary emphasis will be placed upon fundamentals of the device materials, models, and design, the chemistry and physics underling sensor response, and design and operation of microanalytical systems that utilize acoustic wave-based sensors. Applications of these sensors and systems are also welcome, such as the utilization of novel sensing materials and unpowered devices. Sensors based on surface acoustic waves (SAWs), acoustic plate modes (APMs) Lamb waves, flexural plate modes, thickness shear modes (TSMs), quartz crystal microbalances (QCMs), and other acoustic waves are of interest. Contributions to both theoretical understanding and experimental measurements using these acoustic wave sensors are being sought. Topics of interest range from preliminary studies of new sensor concepts and instrument development, to measurements of physicochemical interactions between sensors and contact media, and practical implementation of full sensor systems incorporating these devices. Established themes include interfacial (bio)chemical and electrochemical effects, thin-film materials characterization, viscoelastic phenomena, fluid monitoring, rheological measurements, device modeling, gas and vapor sensing systems, and physical measurands, such as temperature, pressure, mechanical strain, and electric and magnetic fields. In addition, contributions are being sought in emerging areas, including, but not restricted to, the following: new transducer materials, new device concepts and their design, microsystem fabrication and implementation, dissipation in their design, microsystem fabrication and implementation, dissipation in biomolecular films, nanomaterial sensing layers, and coupling with other measurement or imaging techniques.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS headquarters office and the symposium organizers: **V. R. Bhethanabotla**, Department of Chemical Engineering, University of South Florida, Tampa, Florida 33620, USA, Tel: 813-974-2116, Fax: 813.974.3651, E-mail: venkat@eng.usf.edu; **A. R. Hillman**, Department of Chemistry, University of Leicester, Leicester LE1 7RH U.K., Tel: 44.116.252.2144, Fax: 44.116.252.5227, E-mail: arh7@leicester.ac.uk; **R. W. Cernosek**, Micro-Analytical Systems Department, Sandia National Laboratories, Albuquerque, New Mexico 87185, USA, Tel: 505.845.8818, Fax: 505.845.8161, E-mail: rwcerno@sandia.gov; **J. W. Grate,** Pacific Northwest National Laboratories, Richland, Washington 99352, USA, Tel: 509.376.4242, Fax: 509.376.5106, E-mail: jwgrate@pnl.gov; and **D. C. Malocha**, Department of Electrical and Computer Engineering, University of Central Florida, Orlando, Florida 32816, USA, Tel: 407.823.2414, Fax: 407.823.5835, E-mail: dcm@ece.engr.ucf.edu.

AA2 - MICROCANTILEVER SENSORS

(Sensor)

Cantilevers are one of the most sensitive means of transduction that have been developed for sensing. Recently, there has been a tremendous growth in the range of applications to which these devices have been applied. In addition to the wide range of materials used to fabricate cantilevers and their specific surface coatings for specific sensing purposes, the use of arrays with a high density offers new promise of further expanding chemical and biosensing capabilities. This symposium will address all aspects of cantilever fabrication and surface modification and their use in chemical and biosensors, including advances in instrumentation to monitor multiple cantilevers in arrays. Novel aspects of signal processing from such cantilever arrays is also a topic of interest. A partial list of areas of interest include (1) fabrication of cantilever sensors; (2) high-specificity chemistry and coatings, (3) instrumentation for sensor arrays, (4) chemical sensing applications, (5) biosensing with high-affinity ligands, aptomers, and antibodies, (6) modeling of cantilever behavior, (7) sensing manipulations at the nanometer scale, and (8) fluidics and preconcentration for cantilever sensor arrays.

Abstracts, suggestions, and inquiries should be sent to the ECS headquarters office and to the symposium organizers: **T. Thundat**, Distinguished Scientist and Group Leader, Nanoscale Science and Devices Group, Oak Ridge National Laboratory, Mail stop-6123, Rm. H-150, 4500S, Oak Ridge, TN 37831-6123, USA, Tel: 865.574.6201, Fax: 865.574.6210, E-mail: ugt@ornl.gov; **P. J.**

Hesketh, Georgia Institute of Technology, George W. Woodruff School of Mechanical Engineering, Atlanta, GA 30332-0405, USA, Tel: 404.385.1358, Fax: 404.894.8496, E-mail: peter.hesketh@me.gatech.edu; and **Z. Hu,** Oak Ridge National Laboratories, Nanoscale Science and Device Group, Life Sciences Division, Oak Ridge National Laboratory, 4500S, G-148, MS-6123, 1 Bethel Valley Road, Oak Ridge, Tennessee 37831-6123, USA, Tel: 865.574.8461, Fax: 865.574.6210, E-mail: huzn@ornl.gov.

AA3 - SENSORS, ACTUATORS, AND MICROSYSTEMS - GENERAL SESSION

(Sensor)

This symposium will address all aspects of sensor, actuator, and microsystems research and development. The inclusion of sensors and actuators into a range of application environments has been significantly increasing to provide improved system capabilities such as increased performance, decreased environmental impact, or higher efficiency. Sensors and actuators are often integrated into "smart" microsystems: microfabricated sensors and/or actuators combined with electronics which enable, for example, signal conditioning and data processing. The need for multifunctional, smart technologies which depend on sensors, actuators, and electronics is expected to increase in the coming years as further demands and expectations are placed on systems and devices. This general session welcomes papers on all aspects of sensors, actuators, and microsystems not covered in other sessions.

This symposium intends to bring together a range of interdisciplinary topics and covers all materials aspects of sensors, actuators, and microsystems. Primary emphasis will be placed upon applied aspects of the materials, synthesis, evaluation, and development strategies of novel materials/device configurations for sensing and actuating functions as well as integrated microsystems. High temperature as well as low temperature applications will be discussed. Papers are solicited in, but not limited to, the following areas: (1) physics and chemistry of sensor and actuator materials, fabrication and characterization of novel compositions; novel routes for the synthesis of materials with grain (pore) size control and distributions; (2) novel sensor and actuator concepts, design, modeling, and verification; (3) sensing systems that include sampling systems and actuators like sensor arrays, electronic noses and tongues; (4) physical, chemical, and biological sensors and actuators, such as gas, humidity, ion, or molecular sensors, their system integration and actuating functions; (6) optical, rf, and wireless sensors and actuators, such as fiber optic sensors, microwave sensors, optical and wireless integrations; (7) emerging technologies and applications; and (8) novel techniques to expand and insure sensor stability and reliability.

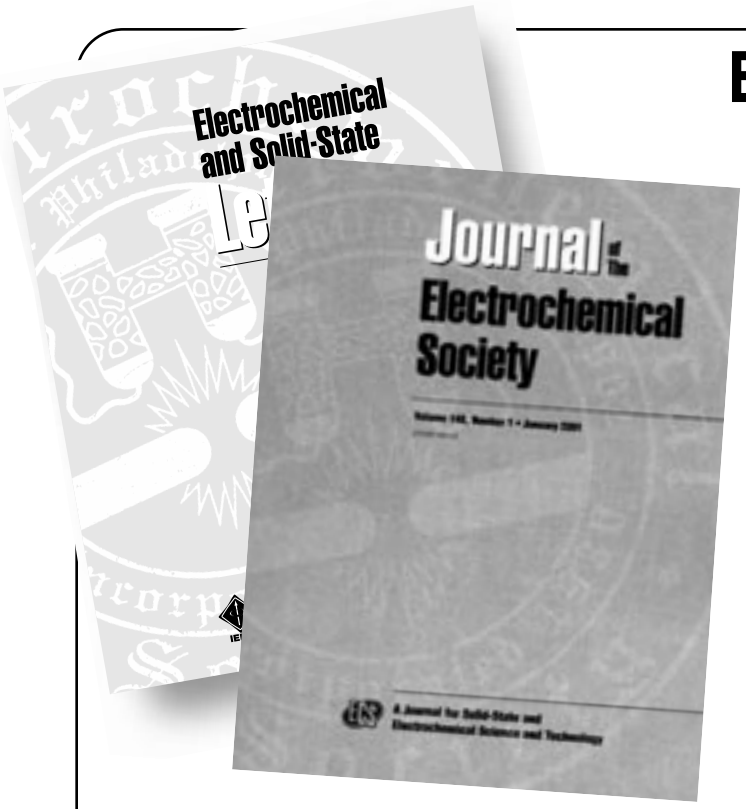
Abstracts, suggestions, and inquiries should be sent to the ECS headquarters office and to the symposium organizers: **G. Hunter**, NASA Glenn Research Center, 21000 Brookpark Rd., Mailstop 77-1, Cleveland, OH 44235, USA, Tel: 216.433.6459, Fax: 216.433.8643; E-mail: ghunter@grc.nasa.gov; **R. Mukundan,** Los Alamos National Lab, Mailstop D429, Los Alamos, NM 87545, USA, Tel: 505.665.8523,Fax: 505.665.4292, E-mail: mukundan@lanl.gov; and **J. R. Stetter,** Illinois Institute of Technology, BCPS Department, 3101 S. Dearborn Avenue, Chicago, IL 60616, USA, Tel:312.567.3443; Fax: 312.567.3494; E-mail: stetter@iit.edu.

AB1 - SENSORS BASED ON NANOTECHNOLOGY II

(Sensor / Physical Electrochemistry)

The use of sensor materials and devices prepared on the nanometer scale is expanding rapidly. The reduction in particle size to the nanometer level can lead to unique materials properties that can be utilized for chemical and physical sensing, and the control of the structure of sensing surfaces on the nanometer scale can be utilized to enhance sensor properties. Nanoscale sensor components may also lead to physically smaller sensor devices. Phenomena at the nanoscale may improve chemical interactions and transport, as well as physical transduction of sensor signals. Multifunctional nanostructures also offer new opportunities in sensing. This symposium will focus on the research and development of chemical and biological sensors including all aspects of nanotechnology. Areas of special interest include the development and evaluation of new nanostructured materials and/or devices for use in sensing or sensor systems. Some examples include (1) use of nanotubes and nanowires in sensor systems, (2) use of nanoparticles and quantum dots for sensing, (3) organic/inorganic nanocomposites for sensing, (4) nanostructured surfaces and interfaces for sensing, (5) nanometer-scale sensor arrays, and (6) nanosensors for highly localized chemical measurements.

Abstracts should be submitted to directly to ECS. Inquiries and suggestions should be sent to the symposium organizers: **C. Bruckner-Lea,** Pacific Northwest National Laboratory, P.O. Box 999, Mailstop K4-12, Richland, WA 99352, USA, Tel: 509.375.4460, Fax: 509.372.6544, E-mail: cindy.bruckner-lea@pnl.gov; **J. R. Stetter,** Illinois Institute of Technology, BCPS Department, 3101 Dearborn Avenue, Chicago, IL 60616, USA, Tel: 312.567.3443; Fax: 312.567.3494; E-mail: stetter@iit.edu; **J. Li,** NASA Ames Research Center, MS 229-1, Moffett Field, CA 94035, USA, Tel: 650.604.4352 ; Fax: 650.604.5244; E-mail: jingli@mail.arc.nasa.gov; **M. Josowicz,** Georgia Institute of Technology, School of Chemistry and Biochemistry, 770 State St., Atlanta, GA 30332-0400, USA, Tel: 404.894.4032; Fax: 404-894-7452, E-mail: mira.josowicz@chemistry.gatech.edu; **Z. Aguilar,** Vegrandis, LLC., Chem 101, Dept. of Chem, University of Arkansas, Fayetteville, AR 72701, USA, Tel: 479.575.2685; E-mail: zaguilar@virtual-incubation.com; and **C. Kranz,** Georgia Institute of Technology, School of Chemistry and Biochemistry, Office L2120, 311 Ferst Drive, Atlanta, GA 030332-0400, USA, Tel: 404.385.1794, Fax: 404.894.7452, E-mail: Christine.kranz@chemistry.gatech.edu.



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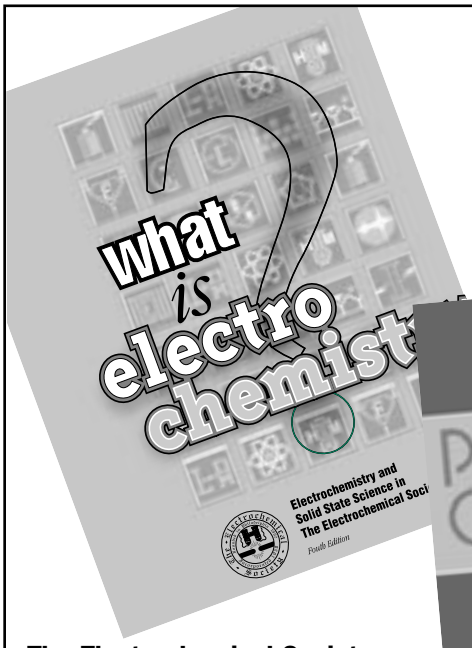

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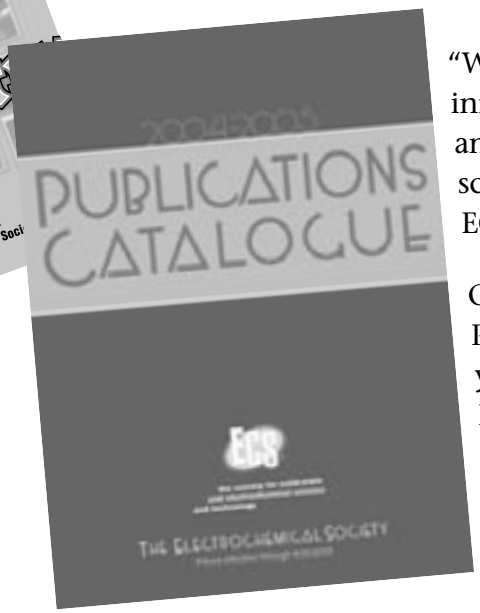

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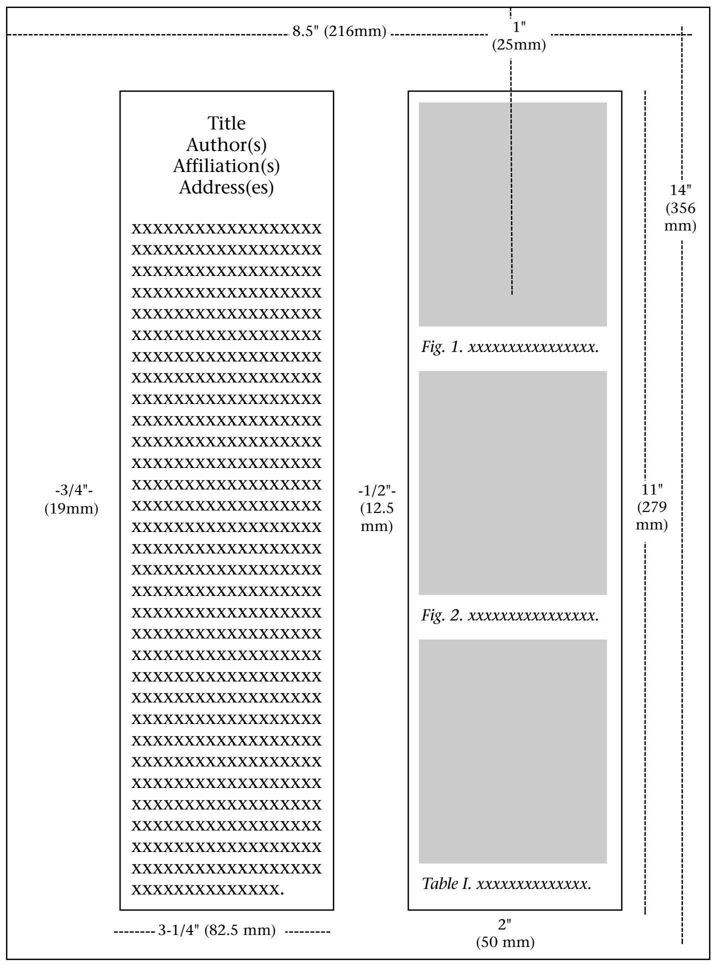

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Ernesto R. Gonzalez	Spring 2006
Craig C. Schuckert	Spring 2007
David J. Lockwood	Spring 2007
Erika Kalman	Spring 2007
Heidi B. Martin	Spring 2007
Petr Vanýsek	Secretary, Spring 2008
Paul A Kohl, ex officio-nonvoting	Editor of *Journal* to 12/31/09
Krishnan Rajeshwar, ex officio-nonvoting	Editor of *Interface* to 5/31/08
Dennis W. Hess, ex officio-nonvoting	Editor of *Letters* to 12/31/08

Society Meeting Committee

Petr Vanýsek, Chair	Secretary, Spring 2008
Frederick D. Wall	Spring 2005
Tetsuya Osaka	Spring 2006
Kathryn A. Striebel	Spring 2007
Peter S. Fedkiw	Treasurer, Spring 2006
Roque J. Calvo, ex officio	Term as Executive Director

Technical Affairs Committee

Mark D. Allendorf, Chair	Second Vice-President, Spring 2005
Jean Lessard	Spring 2005
Andrzej Wieckowski	Spring 2005
Joseph R. Stetter	Spring 2006
Esther S. Takeuchi	Spring 2006
Peter J. Hesketh	Spring 2007
Marca M. Doeff	Spring 2007
Vikram J. Kapoor	Spring 2008
John Weidner	Spring 2008
Barry R. MacDougall	Third Vice-President, Spring 2005
Gautam Pillay	Chair New Technology Subcommittee, Spring 2005

Tellers of Election

Walter O. Freitag, Chair	Spring 2005
George L. Schnable	Spring 2005
James A. Amick	Spring 2005
Sigurd Wagner, Alternate	Spring 2005
Norman Goldsmith, Alternate	Spring 2005
Glenn W. Cullen, Alternate	Spring 2005

Ways and Means Committee

William H. Smyrl, Chair	Senior Vice-President, Spring 2005
Robert G. Kelly	Spring 2005
Rudolph G. Buchheit	Spring 2005
Christina Bock	Spring 2006
Hazara S. Rathore	Spring 2006
Mark D. Allendorf	Second Vice-President, Spring 2005
Barry R. MacDougall	Third Vice-President, Spring 2005

Society Historian

Forrest A. Trumbore	Spring 2007

REPRESENTATIVES TO OTHER SOCIETIES

American Association for Advancement of Science

Roque J. Calvo	Term as Executive Director

Chemical Heritage Foundation

Kathryn R. Bullock, Heritage Councilor	Spring 2007

Federation of Materials Societies

Robert G. Kelly, Trustee	Spring 2005
Paul M. Natishan, Alternate	Spring 2005
Roque J. Calvo, Advisory Board	Term as Executive Director

National Inventors Hall of Fame

Charles L. Hussey, Selection Committee	Spring 2005