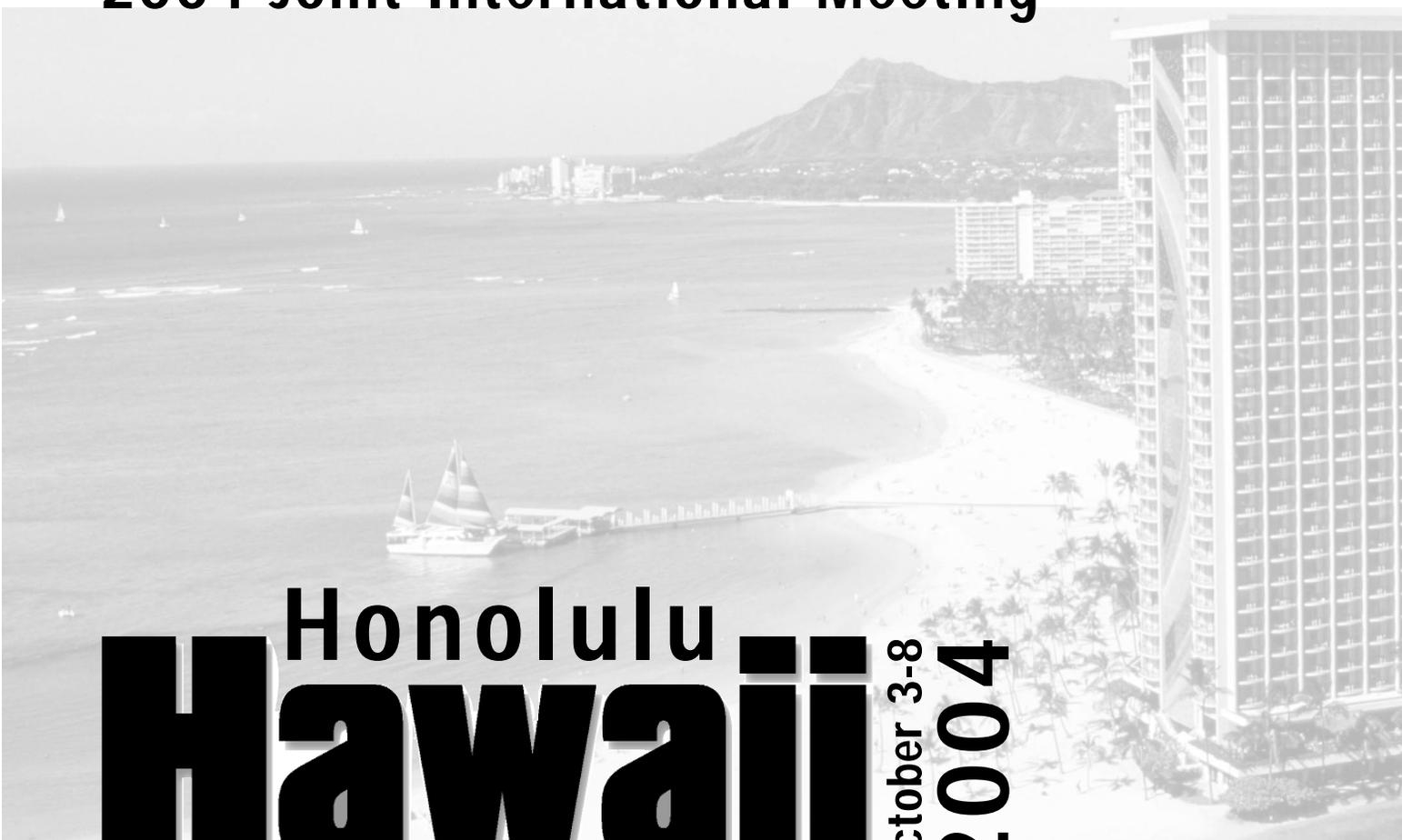


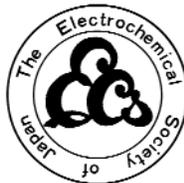
# 2004 Joint International Meeting



# Honolulu Hawaii

October 3-8  
2004

## Call for Papers



THE KOREAN  
ELECTROCHEMICAL  
SOCIETY



206<sup>th</sup> Meeting of The Electrochemical Society (ECS)  
2004 Fall Meeting of The Electrochemical Society of Japan (ECSJ)

*technically cosponsored by the*  
Korean Electrochemical Society (KECS)  
Japan Society of Applied Physics (JSAP)  
Electrochemistry Division of the Royal Australian Chemical Institute (RACI)

## Hilton Hawaiian Village

The 2004 Joint International Meeting will be held October 3-8, 2004 and it combines the 206<sup>th</sup> Meeting of The Electrochemical Society (ECS) and the 2004 Fall Meeting of The Electrochemical Society of Japan (ECSJ). It is technically cosponsored by the Korean Electrochemical Society (KECS), the Japan Society of Applied Physics (JSAP), and the Electrochemistry Division of the Royal Australian Chemical Institute (RACI). This major international conference offers a unique blend of electrochemical and solid-state science and technology. The 2004 Joint International Meeting continues the tradition of the 1999, 1987, and 1993 Hawaii meetings and serves as a major conference for the discussion of interdisciplinary research from around the world through a variety of formats, such as oral presentations, poster sessions, exhibits, panel discussions, and tutorial sessions.

### ABSTRACTS ARE DUE MAY 21, 2004

Submit one original, properly formatted, meeting abstract either electronically or on paper by **May 21, 2004** to The Electrochemical Society headquarters office, with a copy to the appropriate symposium organizer(s). Meeting abstracts should explicitly state objectives, new results, and conclusions or significance of the work. Hard copy abstracts are also accepted, if you prefer, send a paper copy to the headquarters office (65 South Main Street, Pennington, NJ 08534, USA). Faxed abstracts, late abstracts, and abstracts more than one page in length will not be accepted.

Note: Before submitting, please visit the ECS website for complete details on abstract submission and symposium topics at [www.electrochem.org/meetings/future/206/support/cfp.pdf](http://www.electrochem.org/meetings/future/206/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**. (For details, see form at the end of this Call for Papers.) Programming for this meeting will occur in June of 2004, with some papers scheduled for poster presentation. In July 2004, all presenting authors will receive a letter from The Electrochemical Society headquarters office notifying them of the date and time of their presentation. Check the ECS website (<http://www.electrochem.org>) for further program details.

### PAPER PRESENTATION

All authors selected for either oral or poster presentations will be notified in July of 2004. 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 by 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 in the Meeting Abstracts CD-ROM copyrighted by The Electrochemical Society, Inc. and become the property of ECS upon presentation. Papers presented at the meeting may be submitted to the Society's technical journals: the Journal of The Electrochemical Society or Electrochemical and Solid-State Letters. Full manuscripts must be submitted within six months of the symposium date. "Instructions to Authors" are available from the ECS headquarters office, the journals, or the ECS website. If publication is elsewhere desired 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 headquarters office; such letters will not imply any financial responsibility of any of the sponsoring societies: ECS, ECSJ, JSAP, KECS, or RACI. Students seeking financial assistance should consider awarded travel grants. (See the winter 2003 issue of ECS's *Interface*.)

### SECOND MEETING ANNOUNCEMENT

The second meeting announcement will include complete details on the technical sessions, a meeting registration form, travel, hotel, and tour reservation information, and additional meeting information. This announcement will be e-mailed to all ECS, ECSJ, JSAP, KECS, and RACI members, to all authors of papers, and to all technical session co-chairs in the summer of 2004.

### HOTEL & MEETING REGISTRATION

The 2004 Joint International Meeting will be held at the Hilton Hawaiian Village (2005 Kalia Road, Honolulu, HI 96815-1999 USA). The Hilton Hawaiian Village is located on Waikiki's widest stretch of beach, the Hilton Hawaiian Village Beach Resort & Spa features lush tropical gardens, waterfalls, exotic wildlife, and priceless artwork. The site of the 1999, 1987, and 1993 Hawaii meetings, this hotel is an ideal headquarters hotel for the 2004 Joint International Meeting.

The Hilton Hawaiian Village is the headquarters hotel, and we have special guest room rates for our attendees. Please note that October is a very busy month in Hawaii and space is limited, so we encourage you to make your reservations early. To obtain these special convention rates, you must mention that you are planning to attend the 2004 Joint International/Electrochemical Society Meeting. The deadline for reservations is September 2, 2004. In addition, a limited number of government rate rooms are available. (Please contact the ECS Headquarters Office for details.)

**Garden/Mountain View - \$179 for Single**  
**Run of Ocean - \$199 for Single**  
**Deluxe Ocean View - \$225 for Single**  
**Suites - \$475 and above**

The Hilton Hawaiian Village reservations telephone number is 808.949.4321, toll free 800.hiltons, or fax 808.947.7898.

### MEETING REGISTRATION INFORMATION

The deadline for advance registration is **September 2, 2004**. Refunds are subject to a 10% processing fee and will only be honored if written requests are received by **September 9, 2004**. Registration will open on Sunday and the technical sessions will be conducted Monday through Friday. All participants of the 2004 Joint International 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 Electrochemical Society will handle the meeting operations and registration. The registration fees are as follows.

Category	Advance	On-Site
Member (ECS, ECSJ, KECS, JSAP, & RACI) .....	\$360	\$460
Student Member (ECS, ECSJ, KECS, JSAP, & RACI) ....	\$135	\$235
One Day Member (ECS, ECSJ, KECS, JSAP, & RACI) ..	\$255	\$355
Emeritus & Honorary (ECS and ECSJ only) .....	\$0	\$0
Nonmember .....	\$560	\$660
Student Nonmember .....	\$175	\$275
One Day Nonmember .....	\$335	\$435
Nontechnical Registrant .....	\$75	\$175

## SHORT COURSES

The 2004 Joint International Meeting will also include several short courses on Sunday, October 3, 2004. The following short course topics are currently planned.

### Battery Design and Simulation,

R. Spotnitz (Battery Design Company)

### Fundamentals and Applications of Electrochemical Capacitors,

B. Conway (University of Ottawa) and J. Miller (JME)

### Impedance Spectroscopy: Theory and Applications,

M. E. Orazem (University of Florida)

### Principles of PEM Fuel Cell Engineering—I: Water

Management and Flow Field Plate Design,

E. Stuve (University of Washington)

### Spintronics and Quantum Information Processing,

J. P. Leburton, et al. (Beckman Institute)

### Microfabrication for Chemical Sensors,

P. Hesketh (Georgia Institute of Technology) and G. Hunter (NASA)

More topics are planned to be included, so please check our website for the most up to date short course topic information.

Short Course fees will be \$385 for members, \$470 for nonmembers. 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](http://www.electrochem.org/sc/sc.htm)).

## TECHNICAL EXHIBIT

The 2004 Joint International Meeting will also include a Technical Exhibit, featuring presentations and displays by over 50 manufac-

turers of instruments, materials, systems, publications, and software of interest to meeting attendees. Parties interested in exhibiting should contact The Electrochemical Society headquarters office for more information. Coffee breaks are scheduled each day in the exhibition 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, 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. These opportunities include the recognition stated above along with additional personalized packages. Special event sponsorships will be assigned by the Society on a first-come, first served basis. For more information, contact TROY MILLER at the ECS headquarters office.

## CONTACT INFORMATION

If you have any questions or require additional information, contact 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](mailto:ecs@electrochem.org); web: [www.electrochem.org](http://www.electrochem.org).

# 2004 International Meeting Call for Papers • Honolulu, Hawaii • October 3-8, 2004

## 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: **S. Seal**, University of Florida, Department of Mechanical, Materials and Aerospace Engineering, 4000 Central Florida Blvd, Engineering 381, Orlando, FL 32816-0001, USA, Tel: 407.823.5277, Fax: 407.882.1156, E-mail: [sseal@pegasus.cc.ucf.edu](mailto:sseal@pegasus.cc.ucf.edu); **K. Gulati**, W. L. Gore & Associates, PO Box 1488, Elkton, MD 21922-1488, USA, Tel: 410.506.7593, Fax: 410.506.7633, E-mail: [kgulati@wlgore.com](mailto:kgulati@wlgore.com); and **H. Nishihara**, University of Tokyo, Department of Chemistry, 7-3-1 Hongo, Bunkyo-Ku, Tokyo, 113-0033, Japan, Tel: 81.3.5841.4346, Fax: 81.3.5841.8063, E-mail: [nishihara@chem.s.u-tokyo.ac.jp](mailto:nishihara@chem.s.u-tokyo.ac.jp).

## A2 - NANOTECHNOLOGY



(All Divisions)

The number of applications for materials that are prepared on a nanometer scale is expanding rapidly. The preparation and characterization of materials and composites on a nanometer scale are of prime importance for the advancement of these applications. Examples include catalysts for fuel cell applications and semiconductors for photovoltaic and photoelectrochemical solar energy conversion, and chemical and biological sensors. This symposium

will focus on critical issues and the latest advances in the science and technology of nanostructured materials. Papers are solicited in all areas related to materials including metals, semiconductors, molecular electronics, and organic compounds/polymers.

Areas of interest include: 1. semiconductor and metal nanoparticles and metal/semiconductor nanocomposites; 2. size quantization effects in semiconductor nanoparticles; 3. surface modification and characterization including tunneling and force microscopies; 4. photoinduced charge separation and interfacial charge transfer; 5. dye-sensitization of semiconductors; 6. photoelectrochemistry of nanostructured films; 7. photocatalysis and environmental applications; 8. nanostructured catalysts for fuel cells; 9. metal/polymer nanocomposites and membranes; 10. nanostructured sensor surfaces, and biological applications of nanomaterials; and 11. sensors.

Abstracts, suggestions, and inquiries should be sent to the ECS headquarters office and to the symposium organizers: **W. A. van Schalkwijk**, SelfCHARGE, Inc., 6742 NE 185th Ave., Suite 230, Redmond, WA 98052, USA, Tel: 425.881.9199, Ext. 116, Fax: 425.883.1447, E-mail: [waltvans@u.washington.edu](mailto:waltvans@u.washington.edu); **P. Kamat**, Radiation Lab, University of Notre Dame, Notre Dame, IN 46556, USA, Tel: 219.631.5411, Fax: 219.631.5411, E-mail: [pkamat@nd.edu](mailto:pkamat@nd.edu); **M. Watanabe**, Yamanashi University, Clean Energy Research Center, Division of Fuel Cell Research, Kofu 400-8510, Japan, Tel: 81.55.220.8620, Fax: 81.55.254.0371, email: [mwatanab@ab11.yamanashi.ac.jp](mailto:mwatanab@ab11.yamanashi.ac.jp); and **W. Schindler**, University of Karlsruhe, Kaiserstrasse 12, DE-7631 Karlsruhe, Germany, Tel: 49.721608.7170, Fax: 49.721608.2786, E-mail: [werner.schindler@etec.uni-karlsruhe.de](mailto:werner.schindler@etec.uni-karlsruhe.de).

## B1 - RECHARGEABLE LITHIUM AND LITHIUM ION BATTERIES



(Battery)

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 electronically to the ECS headquarters office and the symposium organizers: **Z. Ogumi**, Department of Energy and Hydrocarbon Chemistry, Graduate School of Engineering, Kyoto University, Nishikyō-ku, Kyoto, 615-8510, Japan, Tel: 81.75.383.2487, Fax: 81.75.383.2488, E-mail: ogumi@sc.kyoto-u.ac.jp; **K. Striebel**, Lawrence Berkeley National Laboratory, 1 Cyclotron Rd. Bldg. 70R0108B, Berkeley, CA 94720, USA, Tel: 501.486.4385, Fax: 510.486.7303, E-mail: kstriebel@lbl.gov; **K. Zaghbi**, IREQ, 1800 Boul. Lionel Boulet, Varennes, QC, Canada J3X 1S1, Tel: 450.652.8019, Fax: 450.652.8424, E-mail: zaghib.karimz@ireq.ca; and **J. Yamaki**, Institute for Materials Chemistry and Engineering, Kyushu University, Kasuga 816-8580 Japan, Tel: 81.92.583.7790, Fax: 81.92.583.7790, E-mail: yamaki@cm.kyushu-u.ac.jp.

## C1 - BATTERY AND ENERGY TECHNOLOGY JOINT GENERAL SESSION



*(Battery / Energy Technology)*

Papers are solicited on the fundamental and applied aspects of energy conversion, storage, and transmission not covered by other symposia in this meeting. Of 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 non-aqueous 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 based on cadmium-telluride and copper-indium-diselenide; 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/battery, 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: **D. Scherson**, Case Western Reserve University, Department of Chemistry, 10900 Euclid Ave, Cleveland, OH 44106-7078, USA, Tel: 216.368.5186, Fax: 216.368.3006, E-mail: dxs16@po.cwru.edu; **J. Prakash**, Illinois Institute of Technology, Chem & Env Eng, 10 W 33rd St, Chicago, IL 60616-3730, USA, Tel: 312.567.3639, Fax: 312.567.8874, E-mail: prakash@iit.edu; and **Z. Ogumi**, Department of Energy and Hydrocarbon Chemistry, Graduate School of Engineering, Kyoto University, Nishikyō-ku, Kyoto 615-8510, Japan, Tel: 81.75.383.2487, Fax: 81.75.383.2488, E-mail: ogumi@sc.kyoto-u.ac.jp.

## C2 - HYDROGEN STORAGE AND PRODUCTION, NICKEL-METAL HYDRIDE BATTERIES



*(Battery / Energy Technology)*

Papers are solicited on the fundamental and applied aspects of hydrogen storage and production as well as nickel-metal hydride batteries. Of particular interest are new materials and processes for hydrogen storage and production related to fuel cell systems. All types of hydrogen storage materials and technologies are of interest including high-pressure hydrogen, liquid hydrogen, metal hydrides, complex hydrides, chemical hydrides and carbonaceous materials. Papers on water electrolysis, photolytic hydrogen production, and fuel processing are also welcome. Topics in new battery materials and technologies related to nickel-metal hydride batteries will be covered in this symposium.

Abstracts, suggestions, and inquiries should be sent to the ECS headquarters office and to the symposium organizers: **C. Iwakura**, Department of Applied Chemistry, Graduate School of Engineering, Osaka Prefecture University, 1-1 Gakuen-cho, Sakai, Osaka 599-8531, Japan, Tel: 81.72.254.9283, Fax: 81.72.254.9283, E-mail: iwakura@chem.osakafu-u.ac.jp; **C. A. Linkous**, Florida Solar

Energy Center, 1679 Clearlake Road, Cocoa, FL32922-5703, USA, Tel: 321.638.1447, Fax: 321.638.1010, E-mail: calink@fsec.ucf.edu; and **N. Kuriyama**, Hydrogen Energy System Research Group, Special Division for Green Life Technology, National Institute of Advanced Industrial Science and Technology, 1-8-31 Midorigaoka, Ikeda, Osaka 563-8577, Japan, Tel: 81.727.51.9651, Fax: 81.727.51.9629, E-mail: kuriyama-n@aist.go.jp.

## D1 - INTERCALATION COMPOUNDS FOR BATTERY MATERIALS



*(Battery / Energy Technology / Physical Electrochemistry)*

This symposium will provide an international forum to discuss recent progress that has been made in the development of intercalation compounds for battery applications. The symposium will focus on both basic and applied research findings that have led to improved materials and to the understanding of the fundamental processes that determine and control electrochemical performance. A major (but not exclusive) theme of the symposium will be intercalation anodes and cathodes for batteries based on lithium or hydrogen transport. Specific topics of interest include: 1. synthesis and characterization; 2. materials processing and engineering; 3. structure and reaction mechanisms; 4. electrochemical properties and cell performance; 5. structural stability as a function of state-of-charge and cycling; 6. fundamental aspects of redox processes and charge transfer; 7. physical characterization of intercalation compounds, including NMR, electronic, magnetic, spectroscopic, and other methods; and 8. theoretical modeling of intercalation compounds and electrochemical processes.

Papers will be presented in both oral and poster sessions. No proceedings volume is planned. Abstracts, suggestions, and inquiries should be sent to the ECS headquarters office and to the symposium organizers: **M. S. Whittingham**, Chemistry and Materials, SUNY at Binghamton, Binghamton, NY, 13902-6000, USA, E-mail: stanwhit@binghamton.edu; **R. Kanno**, Department of Electronic Chemistry, Tokyo Institute of Technology, 4259 Nagatsuta, Midori-ku, Yokohama 226-8502, Japan, E-mail: kanno@echem.titech.ac.jp; **G. Sandi**, Argonne National Laboratory, Chemistry Division, 9700 South Cass Avenue, Argonne, IL 60439, USA, Tel: 630.252.1903, Fax: 630.252.9288, E-mail: gsandi@anl.gov; and **J. Prakash**, Illinois Institute of Technology, Chemical & Environmental Engineering, 10 W 33rd Street, Chicago, IL 60616-3730, USA, Tel: 312.567.3639, Fax: 312.567.8874, E-mail: prakash@iit.edu.

## E1 - ELECTROCHEMICAL CAPACITOR AND HYBRID POWER SOURCES



*(Battery / Energy Technology / Physical Electrochemistry / Capacitor Technology Committee of the Electrochemical Society of Japan / and Capacitor Division of the Korean Electrochemical Society)*

Electrochemical capacitors based in part or in whole on the electrical double layer at electrode interfaces have found application in a variety of energy storage applications. Papers for the symposium are solicited that cover all fundamental and practical aspects of ultracapacitors, supercapacitors and similar electrochemical energy conversion devices, including: 1. double layer and/or pseudo-capacitance of carbons, conducting polymers, and advanced inorganic materials; 2. syntheses and characterization of high surface area materials for electrochemical capacitors; 3. electrolytic capacitors using dielectric oxides or ceramics; 4. development and optimization of practical ultra- and super-capacitor components, including current collectors, electrodes, electrolytes, separators and packaging; 5. performance of new device designs and constructions using symmetric and asymmetric electrode constructions; 6. mathematical models for performance characterization; 7. comparison of energy, power and lifetime characteristics of hybrid fuel cell and battery power sources utilizing electrochemical capacitors. Keynote speakers will present tutorials covering recent advances and future directions for electrochemical capacitor technology.

The publication of a proceedings volume is planned to be available after the meeting. Authors accepted for presentation are obligated to supply a camera-ready manuscript at the meeting. Instructions for preparing the manuscript will be sent out by the symposium organizers after the notification of acceptance of the papers.

Abstracts, suggestions, and inquiries should be sent to the ECS headquarters office and the symposium organizers: **R. J. Brodd**, Broddarp of Nevada, Inc. 6121 Fountain Springs Dr., Henderson NV 89014, USA, Tel: 702.897.3027, Fax: 702.897.5812, E-mail: dbrodd@broddarp.com; **D. H. Doughty**, Sandia National Labs., MS-0613, Battery R&D Dept., P.O. Box 5800, Albuquerque, NM 87185-0613, USA, Tel: 505.845.8105, Fax: 505.844.6972, E-mail: dhough@sandia.gov; **K. Naoi**, Department of Applied Chemistry, Tokyo University of Agriculture and Technology, 2-24-16 Naka-cho, Kognanei, Tokyo 184-8588, Japan, Tel: 81.0423.88.7174, Fax: 81.0423.87.8448, E-mail: naoi\_lab@cc.tuat.ac.jp; **M. Morita**, Department of Applied Chemistry and Chemical Engineering, Yamaguchi University, 2-16-1 Tokiwadi, Ube 755-8611, Japan, Tel: 81.836.85.9211, Fax: 81.836.85.9201, E-mail: morita@yamaguchi-u.ac.jp; **C. Nanjundiah**, Maxwell Energy Systems, 9244 Balboa Ave., San Diego, CA 92123, USA, Tel: 858.503.3363, Fax: 858.503.3333, E-mail: nanju@maxwell.com; **J. H. Kim**, Energy Conversion and Storage Research Center, Korean Institute of Energy Research, Daeduck Science Town, 71-2 Jang-Dong Yousung-Gu, Taejon 305-343, Korea, Tel: 82.42.860.3117, Fax: 82.42.864.1801, E-mail: kjhy@kier.re.kr; **G. Nagasubramanian**, Lithium Battery R&D Dept., Sandia National Lab. MS-0613, P.O. Box 5800, Albuquerque, NM 87111-0613, Tel: 505.845.1684, Fax: 505.844.6972, E-mail: gnagasu@sandia.gov; and **S. G. Park**, Chungbuk National University, 48 Gaeshin-dong Heungduk-gu, Cheongju Chungbuk 361-763, Korea, Tel: 82.43.261.2492, Fax: 82.43.273.822, E-mail: sgpark@chungbuk.ac.kr.

## F1 - 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: **R. G. Kelly**, Dept. of Materials Science & Engineering, University of Virginia, 116 Engineer's Way, P. O. Box 400745, Charlottesville, VA 22904-4745, USA, Tel: 434.982.5783, Fax: 434.982.5799, E-mail: rgkelly@virginia.edu.

## F2 - CORROSION IN MARINE AND SALTWATER ENVIRONMENTS II



(Corrosion)

The goal of the symposium is to address a wide spectrum of corrosion research in marine and other saltwater environments and to provide a forum to examine the most recent ideas and advances in the understanding of corrosion processes, mechanisms, and means of corrosion prevention or control, from both a basic and applied research approach. Topic areas may include but are not limited to: 1. general corrosion mechanisms of steels and other materials in seawater and other saltwater media; 2. marine atmospheric corrosion of metals and alloys; 3. microbiological influenced corrosion; 4. environmentally induced cracking of materials in marine environments; 5. corrosion of steels in concrete structures, 6. design, processing variables, surface preparation, and pretreatments affect-

ing corrosion and corrosion control; 7. environmentally compliant inhibitors, biocides, and coatings; 8. cathodic protection; 9. composites and other advanced materials; 10. use of electrochemical, surface analytical, and nondestructive detection methods; and 11. predictive and mechanistic corrosion modeling.

**Publication of a proceedings volume is planned to be available after the meeting.** Acceptance of a paper to this symposium obligates the authors to submit, to the organizers listed below, at the symposium, a typed camera-ready manuscript and a list of key words. 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 ECS headquarters and to the following symposium organizers: **D. A. Shifler**, Carderock Division, Code 613, Naval Surface Warfare Center, 9500 MacArthur Boulevard, West Bethesda, MD 20817-5700, USA, Tel: 301.227.5128, Fax: 301.227.5548, E-mail: shiflerDA@nswccd.navy.mil; **P. M. Natishan**, Naval Research Laboratory, Code 6314, 4555 Overlook Avenue SW, Washington, DC 20375-5343, USA, Tel: 202.767.9255, Fax: 202.767.4642, E-mail: natishan@nrl.navy.mil; **T. Tsuru**, Tokyo Institute of Technology, 2-12-1 O-okayama, Meguro-ku, Tokyo 152-8552, Japan, Tel: 81.3.5734.3143, Fax: 81.3.5734.2835, E-mail: tsuru@mtl.titech.ac.jp; and **S. Ito**, Steel Research Laboratory, Nippon Steel Corporation, 20-1 Shintomi, Futaba, Chiba 293-8511, Japan, Tel: 81.439.80.2250, Fax: 81.439.80.2745, E-mail: s-ito@re.nsc.co.jp.

## G1 - THIRD INTERNATIONAL SYMPOSIUM ON PITS AND PORES: FORMATION, PROPERTIES, AND SIGNIFICANCE FOR ADVANCED MATERIALS



(Corrosion / Luminescence and Display Materials)

The symposium is aimed at a more detailed understanding of growth mechanisms and the physical and chemical properties of all types of porous structures. The symposium is a continuing attempt to integrate the diverse research in different fields such as localized metal corrosion, semiconductor electrochemistry, deposition into pores, matrix materials and optical spectroscopy, in order to develop a highly transdisciplinary approach to the topic. Emphasis will be on pit formation, porous structure/surface property relations, and on work relevant to the formation of advanced materials such as, for example, porous silicon, matrix composites and nanoclusters. Of special interest in this symposium is experimental as well as theoretical work dealing with: 1. causes for the localized nature of attack (dissolution); 2. kinetics (growth laws), stability and morphology of pit and pore growth, and chemistry within pits, pores, and etch tunnels; 3. critical factors (conditions, chemical environment) for maintaining pit and pore growth; 4. selective dissolution (dealloying); 5. porous templates and material deposition into pores; 6. transport processes within pores; 7. analogies and differences between localized corrosion of metals and semiconductors; 8. pore morphology and interface chemistry effects on optical properties; 9. passivation of porous surfaces; 10. optical and electron microscopy characterization of porous materials, nanoparticles, and composites; and 11. porous cages, matrices, and composites.

**Publication of a proceedings volume is planned to be available after the meeting.** All presenting authors must provide a camera-ready manuscript for inclusion in the volume. The deadline for this submission of the camera-ready manuscripts is the start of the symposium.

Abstracts, suggestions, and inquires should be sent to one of the symposium organizers: **P. Schmuki**, University of Erlangen-Nuremberg, Dept. of Materials Sci., 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; **D. J. Lockwood**, Institute for Microstructural Sciences, National Research Council of Canada, Montreal Road, Bldg. M-36, Ottawa, Ontario, Canada K1A 0R6, Tel: 613.993.9614; Fax: 613-993-6486, E-mail: david.lockwood@nrc.ca; **Y. H. Ogata**, Institute of Advanced

Energy, Kyoto University, Uji, Kyoto 611-0011, Japan, Tel: 81.774.38.3500; Fax: 81.774.38.3499, E-mail: y-ogata@iae.kyoto-u.ac.jp; **M. Seo**, Interfacial Electrochem. Lab., Graduate School of Eng., Hokkaido University, Kita-13 Jo, Nishi-8 Chome, Kita-ku, Sapporo 060-8628, Japan, Tel: 81.11.706.6735; Fax: 81.11.706.6735, E-mail: seo@elechem1-mc.eng.hokudai.ac.jp; and **H. Isaacs**, Brookhaven National Laboratory, Materials Science Division, Upton NY 11973, USA, Tel: 631.344.4516, Fax: 631.344.4071, E-mail: isaacs@bnl.gov.

### H1 - 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; and **M. Kubota**, ULSI Process Technology Development Center, Semiconductor Company, Matsushita Electric Industrial Co. Ltd., Kyoto, 601-8413, Japan, Tel.81.75.662.8994, Fax:81.75.662.8995, E-mail:kubota.masafumi@jp.panasonic.com

### I1 - FIRST INTERNATIONAL SYMPOSIUM ON DIELECTRICS FOR NANOSYSTEMS: MATERIALS SCIENCE, PROCESSING, RELIABILITY AND MANUFACTURING



*(Dielectric Science and Technology / Electronics / IEEE Electron Devices Society)*

Currently, the 90 nm feature size silicon integrated circuit based products are being tested and soon will reach mass scale production. These advanced semiconductor products are true representative of nanoelectronics. Depending on the application, the nanosystem may consist of one or more of the following types of functional components: electronic, optical, magnetic, mechanical, biological, chemical, energy sources, and various types of sensing devices. As long as one or more of these functional devices is in 1-100 nm dimension, the resultant system can be defined as nanosystem.

Papers are solicited in all areas of dielectric issues in nanosystems. In addition to traditional areas of semiconductor processing and packaging of nanoelectronics, emphasis will be placed on areas where multi-functional device integration (through innovation in design, materials, and processing at the device and system levels) will lead to new applications of nanosystems.

**Publication of a peer-reviewed proceedings volume is planned to be available at the meeting.** Acceptance of a paper in this symposium (oral or poster) obligates the author to submit three copies of a typed camera-ready copy of the full proceedings volume manuscript and list of key words by May 1, 2004 to allow time for both full manuscript review and the publication of the proceedings volume.

Authors must submit 4 copies of a one page abstract (500 word maximum) by February 1, 2004 to one of the symposium organizers. Accompanied by a cover letter, this 500 word abstract should clearly indicate the purpose of the work, the approach, the manner and the degree to which the work advances the field, and specific results and their significance. On March 1, 2004, authors will be notified of acceptance and given instructions for manuscript preparations. A complete meeting abstract must be submitted via the ECS website by May 21, 2004.

The program committee consists of the following persons: Tayo Akinwande (Massachusetts Institute of Technology), William D. Brown (University of Arkansas), Jamal Deen (McMaster University), Dennis Hess (Georgia Institute of Technology), Vik J. Kapoor (University of Delaware), Lalita Manchanda (Semiconductor Research Corporation), Krishna Saraswat (Stanford University), Randhir Thakur (Applied Materials), and Sunit Tyagi (Intel).

Abstracts, suggestions, and enquiries should be sent to the ECS headquarters office and the symposium organizers: **R. Singh**, Center for Silicon Electronics, Holcombe Department of Electrical and Computer Engineering, Clemson, SC 29634-0915, USA, Tel: 864.656.0919, Fax: 864.656.5910, E-mail: srajend@clemson.edu; **H. Iwai**, Department of Advanced Applied Electronics, 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; **R. R. Tummala**, NSF-ERC in SOP Technology, Georgia Institute of Technology, 813 Ferst Drive, NW, Atlanta, GA 30332-0560, USA, Tel.: 404.894.9097, Fax: 404.894.3842. E-mail: rao.tummala@ee.gatech.edu; and **S. C. Sun**, Technology Development, Chartered Semiconductor MFG Ltd, 60 Woodlands, Industrial Park D, Street 2, Singapore 738406, Tel: 65.6360.1818, Fax: 65.6360.4917, E-mail: sunsc@charteredsemi.com.

### J1 - THIN FILM MATERIALS, PROCESSES, AND RELIABILITY



*(Dielectric Science and Technology / Electronics / Electrodeposition)*

This symposium is aimed at bringing together the technical community working and interested in: 1. plasma etching of thin films for the fabrication of devices at the 100 nm node and 2. development & practice of multi-level-metal (MLM) interconnections using copper & low-k dielectric films and advanced inter-connect systems.

**Publication of a proceedings volume is planned to be available at the meeting.** Acceptance of a paper for an oral or poster presentation obligates the author/s to submit a camera-ready soft copy manuscript on or before June 1, 2004.

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; **T. S. Cale**, Rensselaer Polytechnic Institute, CII 6015, 110 8th Street, Troy, NY 12180-3590, USA, Tel: 518.276.8676, Fax: 518.276.8761, E-mail: calet@rpi.edu; **M. Engelhardt**, Infineon Technologies, AG, 6 Otto-Hahn Ring, Munich, Germany, Tel: 49.89.234.53321, E-mail: manfred.engelhardt@infineon.com; **K. Kondo**, Okayama University, 3-1-1 Tsushima-naka, Okayama 700-0082, Japan, Tel/Fax: 81.86.251.8085, E-mail: kkondo@cc.okayama-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.

### J2 - TFTT VII SYMPOSIUM



*(Dielectric Science and Technology / Electronics)*

The TFTT VII symposium is organized with the intention of providing a forum for the presentation and discussion of the latest developments in Thin Film Transistors (TFTs) and related fields. The symposium is aimed at providing a forum for synergistic interactions among those working in TFTs, those working in other high-tech fields, and those applying TFTs to products or research areas. Papers that deal with all aspects of fabrication processes, materials, device physics, characterization, structures, and applications of TFTs are solicited. Topics to be addressed in this symposium are: 1. new TFT structures, 2. novel or new processing techniques, 3. thin film materials, 4. device physics, characterization, and reliability, 5.

applications in LCDs, imagers, detectors, chemical sensing, biochips, MEMS, etc., and 6. integration of TFTs to large area displays, VLSIC, and other complicated systems.

**Publication of a proceedings volume is planned to be available after the meeting.** All authors accepted for presentation are obligated to submit camera-ready manuscripts for the proceedings volume at the meeting.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS headquarters office and to the symposium organizers: **Y. Kuo**, Texas A&M University, Chem Eng MS 3122, 335-0 Zachry Engineering Center, College Station, TX 77843-3122, USA, Tel: 979.845.9807, Fax: 979.458.8836, E-mail: yuekuo@tamu.edu; **M. Matsumuara**, Advanced LCD Development Center Co., Ltd., Yokohama 244-0817, Japan, Tel: 81.45.866.6404, Fax: 81.45.866.6405, E-mail: matsumura.masakiyo@nifty.com; **M. Hatano**, Hitachi, Central Research Lab, Kokubunji 185-8601, Japan, Tel: 81.42.323.1111 (Ex 3144), Fax: 81.42.327.7780, E-mail: m-hatano@crl.hitachi.co.jp; **P. Migliorato**, University of Cambridge, C1 Great Court, Trinity College, Cambridge CB21TQ UK, Tel: 1223332663, Fax: 1223332662, E-mail: pm@eng.cam.ac.uk; **M. Shur**, Rensselaer Polytechnic Institute, 110 8th St Rm 9017, Troy, NY 12180-3522, USA, Tel: 518.276.2201, Fax: 518.276.2990, E-mail: shurm@rpi.edu; **J. Jang**, Kyung Hee University, Physics and TFT-LCD Natl Lab, Dongdaemoon-ku, 130701, South Korea, Tel: 29610270, Fax: 29686924, E-mail: jjang@khu.ac.kr; **O. Bonnaud**, Universite de Rennes, IETR UMR 6164, Campus de Beaulieu, Rennes Cedex, 35042, France, Tel: 2.23.23.60.71, Fax: 2.23.23.56.57, E-mail: olivier.bonnaud@univ-rennes1.fr; and **D. Ast**, Cornell University, Ithaca, NY, Tel/Fax: 607.255.4140, E-mail: dcast@msc.cornell.edu.

#### K1 - HIGH PURITY SILICON VIII



(Electronics)

This symposium provides a forum for discussion of the latest developments in the growth, characterization, device processing, and applications of high purity silicon in either bulk or epitaxial form. High Purity VII took place in Salt Lake City in 2002. The emphasis is on the control and prevention of impurity incorporation, characterization and detection of defects and impurity states in high purity and high resistivity silicon for superior device performances. Device and circuit aspects related to the application of devices fabricated on high resistivity silicon wafers will also be addressed.

Contributed papers are solicited in the following areas: 1. high purity bulk growth techniques: Czochralski (Cz), float zone, magnetic Cz and other novel growth techniques; progress in polysilicon manufacturing, influence of poly quality on the purity of monocrystals; impact of auxiliaries like e.g. quartz, graphite, furnace parts and gas media purity on crystal properties; 2. impurity related and intrinsic bulk defects: point defect mechanisms, influence of doping concentrations, carrier lifetime behavior, denuded zone (DZ) formation and influence of bulk quality (e.g. D-defects) on defect kinetics behavior; metallic contamination, defect engineering and control, impact on device performance; 3. diagnostic techniques: lifetime and impurity level studies, spectroscopic techniques, spreading resistance probing, Hall-effect; contamination control in handling and packaging high purity silicon; characterization techniques relevant to the assessment of impurities and defects; 4. epitaxial wafers: epitaxial fabrication techniques; epi layer processing, interaction with substrate properties; bulk and interface defect control and characterization; 5. device and circuit applications: radiation and high energy particle detectors, avalanche photodiodes, strip- and pixel detectors, infrared components, power devices; device physics, radiation sensitivity, noise performance, low temperature operation, reliability aspects; integrated detectors and processing electronics, 2- and 3D SOI based integration, circuit considerations.

**Publication of a proceedings volume is planned to be available at the meeting.** Acceptance of a paper for presentation oblig-

ates the author to provide a complete camera-ready manuscript for inclusion in the volume. Meeting abstracts must be submitted to one of the symposium organizers, not later than April 5, 2004. Notification of the acceptance and instructions for the preparation of the manuscripts will be given by April 26, 2004. The full manuscripts will be required by June 1, 2004. The ECS headquarters needs the final version of the accepted abstracts by May 21, 2004.

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, Fax: 32.16.281844, E-mail: claeys@imec.be; **R. Falster**, MEMC, Viale Gherzi 31, 28100 Novara, Italy, Fax: 39.0321.4421, E-mail: rfalster@memc.com; **P. Stallhofer**, Wacker Siltronic AG, P.O. Box 1140, D-84479 Burghausen, Germany, Fax: 49.8677.62171, E-mail: peter.stallhofer@wacker.de; and **M. Watanabe**, ADE Ltd, Tolimec Blvd, 2-16-1 Minami-Kamata-Ohta-ku, Tokyo 144-0036, Japan, E-mail: WatanabeADE@AOL.com.

#### L1 - ELECTRONICS PACKAGING



(Electrodeposition)

This symposium will cover the scientific and technological advances in electrochemical technology as applied to electronics packaging. Recent progress in high speed ULSI packaging and ULSI research topics are invited as abstracts. Because electrochemical processes are the ultimate solution to create smaller size and lower cost devices, both practical and fundamental aspects of electrochemical processes are highly demanded in this area. Special interests are shape evolution and additive chemistry of high-aspect ratio, mathematical modeling of deposition and etching, through-mask plating, nanofabrication, and MEMS. Suggested topics include, but are not restricted to: 1. advanced substrates and packaging; three-dimensional chip stacking system in packaging (SIP), high speed and optical packaging, wireless, and micro CSP; 2. chip interconnect metallization; damascene plating, copper, copper-alloys, silver etc., seed/barrier layers, sputter seeding, metal migration, and planarization; 3. chip-package interconnection; flip-chip (C4) technology, Pb-free C4s, wire bonding, TAB compliant chip-package interconnection, and room temperature joint; 4. surface treatment; conductor, dielectric pad and Au/other plating; 5. MEMS of micromechanics, transducers, biosensors, and biomaterials.

**K. Kondo**, Okayama University, Department of Applied Chemistry, Okayama University, 3-1-1 Tshima-Naka, Okayama 700-0082, Japan, Tel: 81.86.251.8085, Fax: 81.86.251.8080, E-mail: kkondo@cc.okayama-u.ac.jp; **M. Datta**, 5036 NW Millstone Way, Portland, OR 97229, USA, Tel: 503.531.8205, E-mail: madhavdatta@netscape.net; **H. Honma**, Kanto Gakuin University, Department of Industrial Chemistry, Faculty of Engineering, 1-50-1, Mutsuurahigashi, Kanazawa-ku, Yokohama-shi, Kanagawa 236-8501 Japan, Tel: 81.45.786.7156, Fax: 81.45.784.8153, E-mail: honma@kanto-gakuin.ac.jp; **P. A. Kohl**, Georgia Institute of Technology, School of Chemical Engineering, 311 Ferst Drive, NW Atlanta, GA 30332-0100, USA, Tel: 404.894.2893, Fax: 404.894.2866, E-mail: paul.kohl@che.gatech.edu; and **Y. Tsukada**, IBM Japan Ltd., Yasu Technology Application Laboratory, 800, Ichimiya, Yasu-cho, Yasu-gun, Shiga-ken 520-2392, Japan, Tel: 81.77.587.8601, Fax: 81.77.587.8609, E-mail: yutsukada@aol.com.

#### L2 - EIGHTH INTERNATIONAL SYMPOSIUM ON MAGNETIC MATERIALS, PROCESSES, AND DEVICES



(Electrodeposition)

Magnetic thin films play important roles in data recording systems, sensors, microelectromechanical systems (MEMS), and other devices. New knowledge continues to be acquired in magnetic film processing including: film nucleation and growth, structure of

deposits, stress and micromagnetics of films, thermal and magnetic annealing, electrochemical and electroless plating systems, etching, process chemistry, tool design, process control, etc. Our understanding of the correlations between deposition parameters, film composition, structure, properties, and device performance also continues to improve.

The purpose of the symposium is to bring together electrochemists, physicists, engineers, and device designers who are working in the area of magnetic thin-film technology to review the present state of the field and to point out fruitful new areas for research. Materials of interest include Fe, Ni, Co, and their alloys, as well as laterally patterned, laminated, or compositionally modulated structures, including nanowires and self-organized films. The symposium will further cover subjects specific to the fabrication of thin-film heads, microelectromechanical systems, micromotors, and other magnetic devices. The symposium will include invited review or tutorial papers and contributed papers.

**Publication of a proceedings volume is planned to be available after the meeting.** Acceptance of a paper in this symposium (oral or poster) obliges the authors to submit a camera-ready copy of the full proceedings volume manuscript at the meeting. Instructions 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 ECS headquarters and the symposium organizers: **C. Bonhôte**, Hitachi Global Storage Technologies, San Jose Research Center, 650 Harry Road, San Jose, CA 95120, USA, Tel: 408.323.7214, Fax: 408.927.3010, E-mail: christian.bonhote@hgst.com; **S. R. Brankovic**, Seagate Research, 1251 Waterfront Place, Pittsburgh, PA 15222, USA, Tel: 412.918.7259, Fax: 412.918.7010, E-mail: stanko.r.brankovic@seagate.com; **W. Schwarzscher**, University of Bristol, H H Wills Physics Laboratory, Tyndall Avenue, Bristol BS8 1TL, UK, Tel: 44 117.928.8709, Fax: 44 117.925.5624, E-mail: w.schwarzscher@bristol.ac.uk; **G. Zangari**, University of Virginia, Materials Science Engineering, PO Box 400745, 116 Engineers Way, Charlottesville, VA 22904, USA, Tel: 434.243.5474, Fax: 434.982.5799, E-mail: gz3e@virginia.edu; **T. Osaka**, Waseda University, Department of Applied Chemistry, Okubo, Shinjuku, Tokyo 169-8555, Japan, Tel: 81.3.5286.3202, Fax: 81.3.3205.2074, E-mail: osakatet@waseda.jp; and **Y. Kitamoto**, Tokyo Institute of Technology, Department of Innovative and Engineered Materials, Tel: 81.45.924.5424, Fax: 81.45.924.5433, E-mail: kitamoto@iem.titech.ac.jp.

### L3 - MOLECULAR STRUCTURE OF THE SOLID-LIQUID INTERFACE AND ITS RELATIONSHIP TO ELECTRODEPOSITION IV



(Electrodeposition)

New techniques for characterizing the solid-liquid interface at the molecular scale have the potential for guiding fundamental advances related to electrodeposition. Events at the molecular scale play a significant role in determining product quality in many technological processes. The goal of this symposium is to draw together the collective interests of scientists and engineers skilled in new experimental and computational methods involving electrodeposition applications.

The symposium will provide a forum for advances in understanding of key fundamental phenomena such as the role of defects, additives, solvent effects, nanoscale phenomena, surface films, mechanisms of lattice formation, and hydrodynamic phenomena. Papers are solicited on *in situ* and *ex situ* experimental methods, time- and frequency-domain modulation, surface microscopies, linear and nonlinear surface spectroscopies. Numerical simulations and mathematical methods of interest include both continuum and non-continuum scales, methods for predicting force fields associated with the interface including self-assembly and lattice formation, and numerical techniques for simulating system-wide behavior over multiple time- and distance-scales.

In addition, the symposium will provide non-electrodeposition scientists with a platform for presenting novel and non-traditional

approaches to research on electrodeposition. Publication of a symposium volume is not planned.

Abstracts and inquiries should be sent electronically to the symposium organizers: **R. C. Alkire**, University of Illinois, 600 South Mathews Avenue, Urbana, IL 61801, USA, Tel: 217. 333.0063, Fax: 217.333.5052, E-mail: r-alkire@uiuc.edu; **T. Homma**, Waseda University, Okubo, Shinjuku, Tokyo169-8555, Japan, Tel: 81.3.5286.3209, Fax: 81.3.3205.2074, E-mail: homma@mse.waseda.ac.jp; **Y. Ito**, Kyoto University, Sakyo-ku, Kyoto 606-8501, Japan, Tel: 81.75.753.5827, Fax: 81.75.753.5906, E-mail: y-ito@energy.kyoto-u.ac.jp; and **D. M. Kolb**, University of Ulm, D-89069, Ulm, Germany, Tel: 49.731.502.5400, Fax: 49.731.502.5409, E-mail: dieter.kolb@chemie.uni-ulm.de.

### M1 - NITRIDE AND WIDE BANDGAP SEMICONDUCTORS FOR SENSORS, PHOTONICS, AND ELECTRONICS V



(Electronics)

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, 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. photonic and electronic devices and characterization; 8. harsh environment sensors, chemical and gas sensors, and other novel applications for wide gap materials; and 9. reliability issues. 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 XLI 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 is required by June 30, 2004. Instructions for preparing the manuscript will be sent out by the symposium organizers after acceptance of 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 May 21, 2004.

Abstracts, suggestions, and inquiries should be sent to the symposium organizers: **H. M. Ng**, Bell Labs, Lucent Technologies, Murray Hill, NJ 07974, USA, Tel: 908.582.2072, Fax: 908.582.2043, E-mail: hmng@lucent.com; **T. D. Moustakas**, Electrical and Computer Engineering Department, Boston University, Boston, MA 02215, USA, Tel: 617.353.5431, Fax: 617.353.9844, E-mail: tdm@bu.edu; **R. C. Fitch**, AFRL/SNDD, Bldg. 620, 2241 Avionics Circle, Wright-Patterson AFB, OH 45433, USA, Tel: 937.255.1874, Ext. 3453, Fax: 937.255.2306, E-mail: Robert.Fitch@wpafb.af.mil; **H. S. Shen**, Army Research Labs., 2800 Powder Mill Rd., Adelphi, MD 20873, USA, Tel: 301.394.1531, E-mail: pshen@arl.army.mil; **S. J. Pearton**, Department of Material Science and Engineering, University of Florida, Gainesville, FL 32611, USA, Tel: 352.846.1086, Fax: 352.846.1182, E-mail: spear@mail.mse.ufl.edu; **K. Kishino**, Dept. of Electrical and Electronics Engineering, Sophia University, 7-1, Kio-cho, Chiyoda-ku, Tokyo 102-8854, Japan, Tel: 81.3.3238.3325, Fax: 81.3.3238.3321, E-mail: kishino@katsumi.ee.sophia.ac.jp; **Y. Nanishi**, Dept. of Photonics, Faculty of Science and Engineering, Ritsumeikan University, Noji Higashi, 1 chome 1-1, Kusatsu, Shiga 525-8577, Japan, Tel: 81.77.561.2678, Fax: 81.77.561.3994, E-mail: nanishi@se.ritsumei.ac.jp; and **Y. Kawakami**, Dept. of Electronic Science and Engineering, Graduate School of Engineering, Kyoto University, Yoshidahonmachi, Sakyo-ku, Kyoto 606-8501 Japan, Tel: 81.75.753.5357, Fax: 81.75.753.5898, E-mail: kawakami@kuee.kyoto-u.ac.jp.

## M2 - SIGE: MATERIALS, PROCESSING, AND DEVICES



(Electronics)

1. growth and characterization of the Si-Ge-C system: novel growth techniques, 300 mm tooling, selective growth of Si<sub>1-x</sub>Ge<sub>x</sub> layers of Ge, quantum wire/dot formation, defect control in Si<sub>1-x</sub>Ge<sub>x</sub>, wafer fabrication, superlattice growth, manufacturing control, measurement of defects and strain, oxidation of Si<sub>1-x</sub>Ge<sub>x</sub> layers, and incorporation of novel elements during growth e.g. erbium;

2. SiGe process technology: impurity diffusion and diffusion suppression, Si and Ge intermixing during processing, oxidation and nitridation, cleaning and treatment of SiGeC surfaces, novel wet and dry etching of Si<sub>1-x</sub>Ge<sub>x</sub> films, selective etching of Si<sub>1-x</sub>Ge<sub>x</sub> films, passivation of Si<sub>1-x</sub>Ge<sub>x</sub> films, contact formation, thermal stability, defect engineering, characterization of polycrystalline Si<sub>1-x</sub>Ge<sub>x</sub> e.g. dopant activation and work function, raised Si<sub>1-x</sub>Ge<sub>x</sub> source/drain, channel engineering, and modulation doping;

3. SiGe device technology: HBT, SSCMOS, SiGe FET structures, SiGe HEMTs, SiGe MODETs, BiCMOS, SiGe FET structures on SOI-RTD, low voltage – low power devices; 4. SiGe optoelectronics: detectors, receivers, waveguides, quantum cascade structures, photoemission, photoluminescence, electroluminescence, and photovoltaic cells;

5. SiGe nanoelectronics: small structure formation, self-assembled island nucleation, quantum wires and dots, and calculation of electronic properties including band structures;

6. simulation and modeling of SiFe materials, structures, processes, or devices.

Authors should send an e-file version (.pdf or .doc) of a one page summary consisting of text and figures using the ECS extended abstract format to the symposium manager Jan Jopke, ccs@mn.rr.com, no later than March 1, 2004. Author instructions and a template for the summary are available at [www.ecs2004sige.org](http://www.ecs2004sige.org). Please visit the Symposium website for a complete description of the ECS 2004 SiGe symposium. Please address all symposium questions to the main organizing committee listed below.

**Publication of a proceedings volume is planned to be available at the meeting.** All authors accepted for presentation are obligated to submit a camera-ready proceedings volume manuscript, which will be produced prior to the meeting. As such the proceedings manuscript is due to the organizers by April 23, 2004. Please see the symposium website at [www.ecs2004.sige.org](http://www.ecs2004.sige.org) for more information.

Organizing committee: **D. Harame**, E-mail: dharame@us.ibm.com; **J. Murota**, Tohoku University, RIEC - Research Inst of Electrical Comm, 2-1-1 Katahira, Aoba-ku, Sendai, Miyagi 980-8577, Japan, Tel: 81.2.2217.5548, Fax: 81.2.2217.5548, E-mail: murota@riec.tohoku.ac.jp; **J. Murota**, RIEC-Research Institute of Electrical Comm., 2-1-1 Katahira, Aoba-ku, Sendai, Japan, Tel: 222175548, Fax: 222175548, E-mail: murota@tohoku.ac.jp; **H. Iwai**, Tokyo Institute of Technology, Science and Engineering, 4259, Nagatsuta, Midori-ku, Yokohama, Kanagawa 2268502 Japan, Tel: 81.4.5924.5471, Fax: 81.4.5924.5487, E-mail: h.iwai@ieee.org; **G. M. Oleszek**, University of Colorado, Dept of E & C E, PO Box 7150, Colorado Springs, CO 80933-7150, USA, Tel: 719.593.3490, Fax: 719.548.9404, E-mail: goleszek@eas.uccs.edu; **M. R. Caymax**, E-mail: caymax@imec.be; and **D. Houghton**, Aixtron, 1670 Barclay Blvd, Buffalo Grove, IL 60089, USA, E-mail: sige@rogers.com.

## M3 - STATE-OF-THE-ART PROGRAM ON COMPOUND SEMICONDUCTORS XLI



(Electronics)

The SOTAPOCS XLI 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 V 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 is required by June 30, 2004. Instructions for preparing the manuscript will be sent out by the symposium organizers after acceptance of 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 May 14, 2004.

Abstracts, suggestions, and inquiries should be sent to the symposium organizers or the ECS headquarters office. Symposium organizers: **A. G. Baca**, Sandia National Labs., 1516 Eubank SE, Albuquerque, NM 87123, USA, Tel: 505.844.7127, Fax: 505.844.8985, E-mail: agbaca@sandia.gov; **W. K. Chan**, Sarnoff Corporation, 201 Washington Road, Princeton, NJ 08543-5300, USA, Tel: 609.734.2622, Fax: 609.734.2039, E-mail: wchan@sarnoff.com; **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@aetl.ntt.co.jp; **R. F. Kopf**, Lucent Technologies, Bell Laboratories, Room 1C441A, 700 Mountain Ave., Murray Hill, NJ 07974, USA, Tel: 908.582.5280, Fax: 908.582.6322, E-mail: rek@lucent.com.

## N1 - SECOND INTERNATIONAL SYMPOSIUM ON INTEGRATED OPTOELECTRONICS



(Electronics / Dielectric Science and Technology)

This second international symposium will address issues on integrated optoelectronics. Original contributions are solicited on all topics related to integrated optoelectronics — technology and fabrication, components and systems manufacturing, testing, performance, reliability and other related topics. Contributions that span fundamental as well as applied aspects of integrated optoelectronics are welcome.

Examples of topics in integrated optoelectronics of interest are: current, emerging, and novel materials and devices; advanced detectors and transmitters; optoelectronic components based on nanocrystalline materials; integration of silicon circuitry and compound semiconductor components — fabrication issues, reliability and performance; micro-opto-electro-mechanical systems (MOEMS); integration issues related to improving the performance of high speed systems; integrated lasers/modulators or multi-wavelength laser arrays; optoelectronic integrated circuit (OEIC) receivers; transceivers systems and integration issues; integration technologies based on quantum well materials, advanced epitaxial growth and device processing technologies; planar lightwave integrated devices and circuits; and integrated optoelectronic passive components. The symposium will consist of invited as well as contributed papers.

**Publication of a proceedings volume is planned to be available at the meeting.** Acceptance of a paper for an oral or poster presentation obligates the author/s to submit a camera-ready manuscript on or before June 1, 2004. Acceptance of a paper in this symposium obligates the author(s) to submit a typed camera-ready copy of the full proceedings volume manuscript and a list of key words. The detailed instructions for its preparation will be sent out by the symposium organizers after the official notification of acceptance is distributed by the ECS headquarters office.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS headquarters office (e-mail: [ecs@electrochem.org](mailto:ecs@electrochem.org)) and to the symposium organizers: **M. J. Deen**, Department of Electrical and Computer Engineering, CRL Room 226, McMaster University, 1280 Main Street West, Hamilton, Ontario, Canada L8S 4K1, Tel: 905.525.9140, Ext. 27137; Fax: 905.523.4407; E-mail: [jamal@mcmaster.ca](mailto:jamal@mcmaster.ca); **C. Jagadish**, Department of Electronic Materials Engineering, Research School of Physical Sciences and

Engineering, The Australian National University, Canberra, ACT 0200, Australia, Tel: 61.2.6125.0363, Fax: 61.2.6125.0511, E-mail: c.jagadish@ieee.org; and T. Mizumoto, Department of Electrical and Electronic Engineering, Tokyo Institute of Technology, 2-12-1 Ookayama, Meguro-ku, Tokyo 152-8552, Japan, Tel: 81.3.5734.2578, E-mail: tmizumot@pe.titech.ac.jp.

## Q1 - ELECTROCHEMISTRY OF NEW FORMS OF CARBON



*(Energy Technology)*

This symposium is directed at the electrochemical community involved in the investigation and application of new forms of carbons. Papers describing techniques to produce new forms of carbons and their characterization are solicited. Various types of carbons such as carbon blacks, graphites, diamond-like carbons, and fullerenes are currently used in electrochemical studies. Modification of these and other carbons that yield improved electrochemical performance is of interest for this symposium. Suggested topics for this symposium include: synthesis of new forms of carbon, characterization of physiochemical properties, electrochemical studies, and application to electrochemical systems.

**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 soft copy of the full manuscript to the symposium organizers at the meeting.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS headquarters office and to the symposium organizers: K. Zaghbi, IREQ Hydroquebec, 1800, Lionel Boulet, Varennes, Quebec J3X 1S1, Canada, Tel: 450.652.8019, Fax: 450.652.8424, E-mail: karimz@ireq.ca; Z. Ogumi, Department of Energy and Hydrocarbon Chemistry, Graduate School of Engineering, Kyoto University, Nishikyo-ku, Kyoto, 615-8510, Japan, Tel: 81.75.383.2487, Fax: 81.75.383.2488, E-mail: ogumi@scl.kyoto-u.ac.jp, and J. Prakash, Illinois Institute of Technology, Department of Chemical Engineering, Chicago, IL 60616, USA, Tel: 312.561.3639, Fax: 312.567.8874, E-mail: prakash@iit.edu.

## P1 - ADVANCES IN ENERGY CONVERSION AND STORAGE



*(Energy Technology / Battery / Physical Electrochemistry)*

This symposium plans to foster interdisciplinary discussions among scientists and engineers on a variety of aspects of power conversion and storage, with emphasis on 1. fundamental electrochemistry of power conversion and storage processes, 2. novel process and materials for energy conversion and storage, and 3. modeling and simulation of electrochemical phenomena and processes. Abstracts, suggestions, and inquiries should be sent to the symposium organizers: M. A. Ryan, Jet Propulsion Lab, 4800 Oak Grove Dr # 198-235, Pasadena, CA 91109-8001, USA, Tel: 818.354.8028, Fax: 818.393.4272, E-mail: mryan@jpl.nasa.gov; E. S. Takeuchi, Wilson Greatbatch, Ltd, 10000 Wehrle Dr, Clarence, NY 14031-2086, USA, Tel: 716.759.5358, Fax: 716.759.5480, E-mail: etakeuchi@greatbatch.com; and D. Scherson, Case Western Reserve University, 10900 Euclid Ave, Cleveland, OH 44106-7078, USA, Tel: 216.368.5186, Fax: 216.368.3006, E-mail: dxs16@po.cwru.edu.

## Q1 - APPLICATIONS OF NANOMATERIALS IN HIGH PERFORMANCE BATTERIES AND FUEL CELLS



*(Energy Technology / Fullerenes, Nanotubes, and Carbon Nanostructures / Physical Electrochemistry)*

Nanoparticle manipulation to produce desired enhancements in the performance of batteries and fuel cells, is an area of active research. This symposium will focus on nanomaterials in the area of electrochemical energy storage and conversion. Nanophase materials offer an exciting opportunity to improve the performance of fuel cells. These materials offer enriched surface and properties that differ from bulk materials. Properties that are of interest include electrode performance, catalysis, bulk and intergranular diffusion, ionic and electronic conductivity, and mechanical properties. Topics of interest in the general area of fuel cells include designing novel electrode materials, portable fuel cells, catalysts for electro-oxidation of hydrogen, reformate, and organic fuels, catalysts for oxygen reduction, supported and unsupported materials, catalysts for fuel processing, porous electrode structures, carbon nanostructures and nanotubes, polymer electrolytes for PEM and solid oxide fuel cells. Because we anticipate a rather large number of contributions, we expect to have one or more poster sessions for the symposium. Please indicate your preference for poster/oral presentation. The organizers will do their best to accommodate the preference.

Abstracts, suggestions, and inquiries should be sent to the ECS headquarters office and to the symposium organizers: T. Abe, Department of Energy and Hydrocarbon Chemistry, Graduate School of Engineering, Kyoto University, Nishikyo-ku, Kyoto, 615-8510, Japan, Tel: 81.75.383.2483, Fax: 81.75.383.2488, E-mail: abe@elech.kuic.kyoto-u.ac.jp; and J. Prakash, Illinois Institute of Technology, Chem & Env Eng, 10 W 33rd St, Chicago, IL 60616-3730, USA, Tel: 312.567.3639, Fax: 312.567.8874, E-mail: prakash@iit.edu.

## Q2 - FUNDAMENTAL SCIENCE AND TECHNOLOGY OF PHOTOFUNCTIONAL INTERFACES



*(Energy Technology / Fullerenes, Nanotubes, and Carbon Nanostructures / Physical Electrochemistry)*

The applications of photofunctional interfaces have recently been rapidly expanding. Examples include solar water splitting, dye-sensitized solar cells, photocatalysis for maintaining clean environments and decomposing waste materials, and various optoelectronic and photonic devices as well as advances in conventional silver halide photography. The preparation and characterization of photofunctional interfaces are of prime importance for the advancement of these applications. This symposium will focus on critical issues and the latest advancements in the science and technology of photofunctional interfaces. Papers are solicited in all areas related to electrochemistry, photochemistry, supramolecule/polymer chemistry, photophysics, surface, and interface sciences. Specific areas of interest include: 1. solar water splitting; 2. photovoltaic and photoelectrochemical solar cells, including dye-sensitized solar cells; 3. photocatalysis – materials, mechanisms, and environmental applications; 4. artificial photosynthesis; 5. photofunctional molecular assemblies and supramolecules, including fullerenes and nanotubes; 6. surface modification for photofunctional interfaces; 7. design and preparation of nanostructures of photofunctional materials, including nanocomposites and membranes, 8. photoinduced charge separation and interfacial charge transfer; 9. mechanisms and dynamics of interfacial photoreactions; 10. characterization of nanostructured materials; 11. advanced experimental techniques for studying photofunctional

materials, including surface probe microscopy and ultrafast and non-linear laser spectroscopies; and 12. devices employing photo-functional interfaces.

Abstracts, suggestions, and inquiries should be sent to the ECS headquarters office and to the symposium organizers: **Y. Nakato**, Department of Chemistry, Graduate School of Engineering Science, Osaka University, Toyonaka, Osaka 560-8531, Japan, Tel: 81.6.6850-6235, Fax: 81.6.6850.6236, E-mail: nakato@chem.es.osaka-u.ac.jp; **H. Inoue**, Department of Applied Chemistry, Graduate Course of Engineering, Tokyo Metropolitan University, Hachiohji, Tokyo 192-0397, Japan; Tel: 81.426.77.2840, Fax: 81.426.77.2838, E-mail: inoue-haruo@c.metro-u.ac.jp; **B. A. Parkinson**, Department of Chemistry, Colorado State University, Fort Collins, Colorado 80523, USA, Tel: 970.491.0504, Fax: 970.491.1801, E-mail: Bruce.Parkinson@Colostate.edu; **M. T. Spittler**, ChemMotif, Inc., 60 Thoreau St., #211, Concord, MA 01742-2456, USA, Tel: 781.376.9911, Fax: 781.376.1487, E-mail: spittlem@tiac.net; **J. Prakash**, Illinois Institute of Technology, Chem & Env Eng, 10 W 33rd St, Chicago, IL 60616-3730, USA, Tel: 312.567.3639, Fax: 312.567.8874, E-mail: prakash@iit.edu. **P. V. Kamat**, Radiation Laboratory, University of Notre Dame, Notre Dame, IN 46530-0579, USA, Tel: 574.631.5411, Fax: 574.631.8068, E-mail: pkamat@nd.edu; and **G. Rumbles**, Center for Basic Science, National Renewable Energy Laboratory, Golden, CO 80401-3393, USA, Tel: 303.384.6502, Fax: 303.384.6655, E-mail: garry\_rumbles@nrel.gov.

### R1 - NANOSTRUCTURE AND FUNCTION OF FULLERENES, CARBON NANOTUBES, AND RELATED MATERIALS



*(Fullerenes, Nanotubes, and Carbon Nanostructures)*

This symposium will focus on the nanostructure and function of fullerenes, carbon nanotubes, and related materials. Papers are invited in the following areas of fullerenes and nanotubes: 1. nanostructure, (photo-)electron transfer, spectroelectrochemistry and solid-state physics of fullerenes and metallofullerenes; and 2. nanostructure and function of solid nanotubes, fullerene peapods, and soluble nanotubes.

Organizers: **F. D'Souza**, Department of Chemistry, Wichita State University, 1845 Fairmount, Wichita, KS 67260-0051, USA, Tel: 316.978.7380 Fax: 316.978.3431, E-mail: Francis.DSouza@wichita.edu; **N. Nakashima**, Department of Materials Science, Graduate School of Science and Technology, Nagasaki University, Bunkyo, Nagasaki, 852-8521 Japan, Phone&FAX: 81-95-819-2675, E-mail: nakasima@net.nagasaki-u.ac.jp; **T. Akasaka**, Center for Tsukuba Advanced Research Alliance, University of Tsukuba, Japan, Phone: 81.298.53.6409, FAX: 81.298.53.6409, E-mail: akasaka@tara.tsukuba.ac.jp; **S. Fukuzumi**, Department of Material and Life Science, Graduate School of Engineering, Osaka University, 2-1 Yamadaoka, Suita, Osaka, 565-0871, Japan, Phone: 81.6.6879.7368, Fax: 81.6.6879.7370, E-mail: fukuzumi@chem.eng.osaka-u.ac.jp; **D. Guldi**, Radiation Laboratory, University of Notre Dame, Notre Dame, IN 46556, USA, Phone: 574.631.7441, Fax: 574.631.8068, E-mail: guldi@hertz.rad.nd.edu; **O. Ito**, Institute of Multidisciplinary Research for Advanced Materials, Building of Chemical Reaction Science, Tohoku University, Katahira, Sendai, 980-8577 Japan, Phone: 81.22.217.5608, Fax: 81.22.217.5608, E-mail: ito@tagen.tohoku.ac.jp; **J. F. Nierengarten**, IPCMS - GMO - CNRS, 23 rue du Loess, 67037 Strasbourg, France, E-mail: niereng@ipcms.u-strasbg.fr; **K. Komatsu**, Institute for Chemical Research, Kyoto University, Uji, Kyoto 611-0011, Japan, Phone: 81.774.38.3172, Fax: 81.774.38.3178, E-mail: komatsu@scl.kyoto-u.ac.jp; and **Y. Rubin**, Department of Chemistry and Biochemistry, University of California, Los Angeles, 405 Hilgard Ave., Los Angeles, CA 90095-1569, USA, Phone: 310.206.2338, Fax: 310.206.7649 E-mail: rubin@chem.ucla.edu.

### S1 - FIFTH INTERNATIONAL SYMPOSIUM ON IONIC AND MIXED CONDUCTING CERAMICS



*(High Temperature Materials)*

Ceramic materials that exhibit exclusive high ionic conduction or significant levels of both ionic and electronic conduction continue to be a major focus of interest among researchers worldwide. This symposium will provide a forum to share and discuss forefront activities in this exciting field. Both fundamental and applied aspects of ionic conduction and mixed conduction will be included. Some of the topics that will be covered in this symposium are: ionic transport in solid electrolytes, advances in proton conductors, fuel cells and batteries, mechanisms of mixed conduction in ceramics, role of microstructure in conduction, ceramic membranes for separation and chemicals production, electrocatalytic phenomena, ceramic sensors, electrochemistry of nanoceramics, and transport in corrosion-resistant ceramic films.

**Publication of a proceedings volume is planned to be available after the meeting.** All authors accepted for presentation are obligated to submit camera-ready manuscripts for the proceedings volume at the meeting. To aid in planning the symposium, potential participants are requested to send a title of their presentation and contact information to the symposium organizers as soon as possible. Instructions for preparing abstracts and camera-ready manuscripts are available at the Electrochemical Society website: [www.electrochem.org](http://www.electrochem.org).

The symposium organizers are: **M. Mogensen**, Risoe National Laboratory, DK 4000 Roskilde, Denmark, Tel: 45.46.77.57.26, Fax: 45.46.77.57.58, E-mail: mogens.mogensen@risoe.dk; **T. Ramanarayanan**, Dept. of Chemical and Biomolecular Engineering, University of Pennsylvania, Philadelphia, PA 19014-6393, USA, Tel: 215.573.0294, Fax: 215.573.2093 E-mail: trikur@seas.upenn.edu; and **H. Yokokawa**, Energy Electronics Institute, National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki 305-8565, Japan, Tel: 81.298.61.4542, Fax: 81.298.61.4540, E-mail: h-yokokawa@aist.go.jp.

### T1 - HIGH TEMPERATURE CORROSION AND MATERIALS CHEMISTRY V



*(High Temperature Materials / Corrosion)*

This symposium will focus on the fundamental thermodynamic and kinetic aspects of high temperature oxidation and corrosion, as well as other chemical reactions involving inorganic materials at high temperatures. Both theoretical and experimental papers are encouraged. Specifically, contributions on the following topics in the area of oxidation/corrosion are solicited: 1. fundamental mechanisms of high temperature oxidation, 2. controlled oxidation of metal and semiconductor surfaces, 3. reactions in complex environments and/or ultra high temperatures (>1500°C), and 4. response of protective coatings in high temperature environments. In the area of high temperature chemistry, papers on the following topics are solicited: 5. thermodynamic property determination, 6. phase equilibria, 7. solid-state diffusion, and 8. volatilization reactions.

**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 at the meeting. Instructions for preparing manuscripts will be sent out by the symposium organizers after the official notification of acceptance is distributed by the ECS headquarters office.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS headquarters office and to the symposium organizers: **E. Opila**, NASA Glenn Research Center, MS 106-1, 21000 Brookpark

Rd., Cleveland, OH 44135, USA, Tel: 216.433.8904, Fax: 216.433.5544, E-mail: opila@grc.nasa.gov; **J. Fergus**, Auburn University, Mechanical Engineering, 201 Ross Hall, Auburn, AL, 36849, USA, Tel: 334.844.3405, Fax: 334.844.3405, E-mail: jwfergus@eng.auburn.edu; **P. Hou**, Lawrence Berkeley National Laboratory, One Cyclotron Rd, MS 62-203, Berkeley, CA 94720, USA, Tel: 510.486.5560, Fax: 510.486.4881, E-mail: pyhou@lbl.gov; **T. Maruyama**, Department of Metallurgy and Ceramics Science, Tokyo Institute of Technology, 2-12-1 Okayama, Meguro-ku, Tokyo 152-8552, Japan, Tel: 81.3.5734.3136, Fax: 81.3.5734.3136, E-mail: maruyama@mtl.titech.ac.jp; **J. Mizusaki**, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, 2-1-1 Katahira, Aoba-Ku, Sendai, 980-8577, Japan, Tel: 81.22.217.5340, Fax: 81.22.217.5343, E-mail: mizusaki@tagen.tohoku.ac.jp; **T. Narita**, Research Group of Interface Control Engineering, Graduate School of Engineering, Hokkaido University, Kita-13 Nishi-8 Kita-Ku, Sapporo 060-8628, Japan, Tel: 81.11.706.6355, Fax: 81.11.706.7814, E-mail: narita@eng.hokudai.ac.jp; **E. Wuchina**, Naval Surface Warfare Center, Carderock Division, Code 645, 9500 MacArthur Boulevard, West Bethesda, MD 20817-5700, USA, Tel: 301.227.3949, Fax: 301.227.4732, E-mail: wuchinaej@nswccd.navy.mil; and **D. Shifler**, Naval Surface Warfare Center, Carderock Division, Code 613, 9500 MacArthur Boulevard, West Bethesda, MD 20817-5700, USA, Tel: 301.227.5128, Fax: 301.227.5548, E-mail: shiflerda@nswccd.navy.mil.

#### U1 - NINTH INTERNATIONAL SYMPOSIUM ON DIAMOND MATERIALS



*Physical Electrochemistry / (High Temperature Materials / Dielectric Science and Technology / Electrodeposition / Industrial Electrolysis and Electrochemical Engineering)*

The objective of this symposium is to provide an international forum for the presentation and discussion of recent developments in the science, technology, and application of diamond and related materials.

Areas of interest include, but are not limited to, the following topics: high temperature materials and processing; advanced carbon-based dielectrics and passivation layers; nucleation and growth of homoepitaxial or heteroepitaxial films; active and passive electronic components; electronic properties; nanocrystalline diamond; properties and applications of t-aC, hydrogenated amorphous carbon, DLC, and carbon-nitrogen films; micropatterned growth, advanced materials for field emission; advanced materials for microelectromechanical systems; biocompatibility; optical properties; and chemical modification of diamond surfaces.

Papers are also sought in the emerging field of diamond electrodes for electrochemical technologies. Interest areas include: electrosynthesis; water disinfection and decontamination using diamond anodes and cathodes; diamond electrodes for chemical sensing and electroanalytical measurements; and fundamental electrochemical characterization of diamond electrodes.

Oral and poster presentations, both fundamental and applied in scope, are desired.

**Publication of a proceedings volume is planned and will be available after the meeting.** Acceptance of a paper in this symposium (both oral or poster) obligates the author(s) to submit a typed, camera-ready copy of the full manuscript and a list of key words to the symposium organizers at the time of the meeting. Instructions for manuscript preparation can be found at the Society website, and will be provided to the author(s) by the symposium organizers after the official notification of acceptance is distributed by the ECS headquarters office.

Abstracts should be submitted electronically to ECS and to the symposium organizers: **G. M. Swain**, Department of Chemistry, Michigan State University, East Lansing, MI 48823-1322, USA, Tel: 517.355.9715, Ext.229, Fax: 517.353.1993, E-mail: swain@cem.msu.edu; **T. Ando**, NIMS, 1-1 Namiki Tsukuba, Ibaraki 305-0044, Japan, Tel: 81.29.851.3354, Ext. 2530, Fax: 81.29.851.4005, E-mail: c-diamond@md.newweb.ne.jp; **W. D. Brown**, Bell Engineering

Center, University of Arkansas, Fayetteville, AR 72701, USA, Tel: 501.575.6045, Fax: 501.575.7967, E-mail: wdb@enr.uark.edu; **W. P. Kang**, Department of Electrical Engineering and Computer Science, Vanderbilt University, Box 1611 Station B, Nashville, TN 37235, USA, Tel: 615.322.0952, Fax: 615.343.6614, E-mail: wkang@vuse.vanderbilt.edu; **J. S. Foord**, Physical and Theoretical Chemistry Laboratory, University of Oxford, Oxford OX1 3QZ, UK, E-mail: john.foord@chem.ox.ac.uk; and **H. B. Martin**, Department of Chemical Engineering, Case Western Reserve University, Cleveland, OH 44106, USA, Tel: 216.368.4133, Fax: 216.368.3016, E-mail: hbm@po.cwru.edu.

#### VI - CHLOR-ALKALI CHEMICAL SYNTHESIS



*(Industrial Electrolysis and Electrochemical Engineering)*

Papers are requested on any aspect of chlor-alkali or related electrochemistry. Topics of interest include membrane or diaphragm development and optimization; anode and cathode coatings; electrolyzer design and performance, modeling of electrolyzer performance; and emerging topics such as the application of fuel cell type electrodes to chlor-alkali electrolysis, HCl electrolysis, and the electrohydrolysis of salts.

**Publication of a proceedings volume is planned to be available after the meeting.** All authors are obliged to submit a camera-ready proceedings volume manuscript in hard copy or electronic form to one of the coordinators at the meeting. Abstracts (deadline June 1, 2004), suggestions, and inquiries should be sent to ECS headquarters or to the symposium organizers: **P. C. Foller**, PPG Industries, Inc., Chemicals Technical Center, 440 College Park Drive, Monroeville, PA 15146, USA, Tel: 724.325.5181, Fax: 724.325.5105, E-mail: foller@ppg.com; and **N. Furuya**, Dept. of Applied Chem., Yamanashi Univ., Takeda 4-3-11, Kofu 400-8511, Japan, Tel: 81.552.20.8559, Fax: 81.552.20.8560, E-mail: furuya@ab11.yamanashi.ac.jp.

#### W1 - FOURTH INTERNATIONAL SYMPOSIUM ON PROTON CONDUCTING MEMBRANE FUEL CELLS



*(Industrial Electrolysis and Electrochemical Engineering / Energy Technology / Battery)*

This symposium series is devoted to the wide spectrum of research, development, and engineering aspects of PEM fuel cells and stacks. The intention of the symposium organizers is to bring together the increasing international community working on the subject and enable effective interaction between research engineering subcommunities. Research issues include electrocatalysis of fuel cell reactions at the catalyst/ionomer interface, including methods to increase contaminant tolerance at both anode and cathode, ionomeric membrane thermodynamic and transport characteristics and new ionomeric membrane development especially for high temperature operation as well as improved resistance to methanol cross-over. Durability testing results are of interest including effects of long-term operation on catalysis and membrane characteristics. Papers discussing mechanisms associated with durability of PEM fuel cell systems for stationary, portable, consumer electronics, and automotive applications are welcome. New cell and stack structures, including new types of bipolar plates, flowfields, and electrode backings will all be subjects of interest. Engineering aspects of complete stacks, including issues of mass and heat transfer and transport and control will be included in the symposium. Studies concerning manufacturing techniques and approaches for cost reduction are solicited. Finally, contributions on issues of complete power systems are also welcome, in the context of either transportation or stationary power generation applications.

**Publication of a proceedings volume is planned to be available after the meeting.** All authors accepted for presentation are obliged to submit camera-ready manuscripts for the proceed-

ings volume on or before August 20, 2004. Suggested editorial changes to the authors will be returned by September 17, 2004. Revised manuscripts should be submitted to the organizers at the symposium.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS headquarters office and to the symposium organizers: **J. W. Van Zee**, University of South Carolina, Department of Chemical Engineering, Columbia, SC 29208, USA, Tel: 803.777.8028, Fax: 803.777.8142, E-mail: vanzee@enr.sc.edu; **M. Murthy**, W. L. Gore & Associates, 5 Falkirk Court, Newark, DE 19702-2060, USA, Tel: 410.506.7638, Fax: 410.506.7633, E-mail: mmurthy@wlgore.com; **S. R. Narayan**, Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena, CA 91109, USA, Tel: 818.354.0013, Fax: 818.393.6951, E-mail: s.r.narayanan@jpl.nasa.gov; **E. S. Takeuchi**, Wilson Greatbatch Ltd, Battery Division, 10000 Wehrle Drive, Clarence, NY 14031-2090, USA, Tel: 716.759.5358, Fax: 716.759.5480, E-mail: etakeuchi@greatbatch.com; **T. F. Fuller**, 300 Chestnut Hill Rd., Glastonbury, CT 06033, Tel: 860.727.2400, E-mail: mailto:tom.fuller@utcfuelcells.com; and **K. Ota**, Yokohama National University, Department of Energy and Safety Engineering, 79-5 Tokiwadai, Hodogaya-ku, Yokohama 240-8501, Japan, Tel: 81.45.339.4021, Fax: 81.45.339.4024, E-mail: ken-ota@ynu.ac.jp.

### X1 - COMPUTATIONAL CHEMISTRY AND ELECTROCHEMISTRY



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

This symposium will focus on the development and applications of first-principles computational chemistry and physics methods (ab initio, quantum, and classical molecular dynamics, quantum and classical Monte Carlo, dynamic Monte Carlo) to the understanding and design of electrochemical power sources. We welcome papers including, but not limited to, the following topics: catalysis, electrocatalysis, ionic and electronic transport, electrode and electrolyte materials, dissolution, nucleation, electrodeposition, and corrosion.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS headquarters and to the symposium organizers: **P. B. Balbuena**, Department of Chemical Engineering, University of South Carolina, Columbia, SC 29208, USA, Tel: 803.777.8022; Fax: 803.777.8265; E-mail: balbuena@enr.sc.edu; **J. M. Seminario**, Department of Electrical Engineering, University of South Carolina, Columbia, SC 29208, USA, Tel: 803.777.9567; Fax: 803.777.8045, E-mail: jsemina@enr.sc.edu; and **T. Osaka**, Department of Applied Chemistry, School of Science and Divisional Member Engineering, Waseda University, 3-4-1 Okubo, Shinjuku-ku, Tokyo 169-8555, Japan, Tel: 81.3.5286.3202, Fax: 81.3.3205.2074, E-mail: osakatet@mn.waseda.ac.jp.

### X2 - MEMBRANES AND SEPARATORS FOR FUEL CELLS & BATTERIES



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

Advances in fuel cells and batteries continue to be enabled by advances in the performance and reduction in the cost of critical materials. Membranes and separators play a very important role in fuel cells and batteries. Future development in proton exchange membranes is essential for the commercialization of PEM type fuel cells. Continued advancement in separator technology has helped in achieving higher capacity lithium-ion cells which needs to be continued in future.

The purpose of the symposium is to provide a forum for the presentation and discussion of recent progress in the development of membranes and separators for fuel cells and batteries. The symposium will focus on both basic and applied research findings that

have led to improved materials and findings that guide materials development. Membranes and separators for all types of batteries and fuel cells are of interest including aqueous (nickel-cadmium, nickel-zinc, zinc-air, lead-acid, and nickel-metal hydride), non-aqueous electrolyte batteries (e.g. lithium, lithium-ion, and lithium polymer batteries), and fuel cells (e.g. PEM, DMFC, alkaline, PAFC, SOFC, and MCFC). Electrolytes/separators for electrochemical capacitors and modeling papers for prediction of material properties and guiding materials development are also of interest. The symposium will include both invited and contributed papers.

**Publication of a proceedings volume is planned to be available after the meeting.** Acceptance of a paper in this symposium (oral or poster) obligate(s) the author(s) 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. Manuscript preparation instructions may be obtained from ECS website. All authors must strictly meet the ECS deadlines. Contributions will be reviewed by the organizers to the extent possible.

Abstracts, suggestions, and inquiries should be sent to the ECS headquarters office and to the symposium organizers: **P. Arora**, Celgard Inc., 13800 South Lakes Dr., Charlotte, NC 28273, USA, Tel: 704.587.8478, E-mail: pankajarora@celgard.com; **S. Creager**, Department of Chemistry, Clemson University, Clemson, SC 29634, USA, Tel: 864.656.4995, E-mail: screage@clemson.edu; and **N. Kamiya**, Yokohama National University, Department of Energy and Safety Engineering, Yokohama, 240-8501, Japan, Tel: 81.45.339.4020, E-mail: nkamiya@ynu.ac.jp.

### Y1 - THIRTEENTH 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, X-ray phosphors, scintillators, electroluminescent materials, persistent phosphors and phosphors for plasma panel displays (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, excitation spectra, etc. 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; non-radiative processes; energy transfer; and concentration effects; complex luminescence processes such as core valence luminescence, cooperative phenomena, nonlinear optical processes; and ultra-fast transitions. Papers on multiphoton transitions, luminescence from confined systems, etc.; luminescence from novel materials such as ceramics, glass, and nano-particles are encouraged.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS headquarters office and 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, Weissshausstrasse 2, D-52066 Aachen, Germany; Tel: 49.0.241.6003.387; Fax: 49.0.241.6003.483; E-mail: ronda@pfa.philips.com; **D. J. Lockwood**, National Research Council, Ottawa K1A OR6, Canada, Tel: 613.993.9614; Fax: 613.993.6486; E-mail: David.Lockwood@nrc-cnrc.gc.ca; and **H. Yamamoto**, Tokyo University of Technology, 1404-1, Katakura, Hachioji, Tokyo 192-0982, Japan; Tel and Fax: 81.426.37.2547; E-mail: yamamoto@bs.teu.ac.jp.

### J3 - INTERNATIONAL SYMPOSIUM ON NANOSCALE DEVICES AND MATERIALS



*(Dielectric Science and Technology / Luminescence and Display Materials / Electronics)*

This symposium will address recent developments in the area of nanoscale semiconductor, metallic, and organic structures. Emphasis will be placed on quantum effects and single electron storage in small scale silicon and III-V compound structures and devices. It will also cover fundamental issues in luminescence physics and chemistry of new classes of phosphor and porous materials including both atomic and molecular structures. Papers are solicited that cover fundamental aspects of science and engineering of spatial confinement in nanostructures, as well as related technology and applications.

Areas of particular interest include: 1. semiconductor nanoprocessing and self-assembled structures, 2. physics of nanostructures: nanowires, nanocrystals and quantum dots, 3. modeling and simulation of quantum effects in nanostructures, 4. optical nonlinearities of confined systems, 5. nanodevices for molecular electronics, 6. single particle events in nanostructures-single electron and single-spin effects, 7. nanoelectronics and nano-architectures, 8. electrical and optical properties of organic nanoscale semiconductors and porous materials, 9. electrical and optical properties of organic-inorganic nanoscale semiconductor interfaces, and 10. nano-optic and nano-photonic devices; generation, detection and manipulation of single photons.

**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 to submit a copy of a typed camera-ready copy of the full proceedings volume manuscript and a list of key words to the symposium organizers at the meeting.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS headquarters office and to the symposium organizers: **S. Bandyopadhyay**, Department of Electrical Engineering, Virginia Commonwealth University, Richmond, VA 23284, USA, Tel: 804.827.6275; Fax: 804.828.4269; E-mail: sbandy@vcu.edu; **M. Cahay**, Dept. of Electrical and Computer Engineering and Computer Science, 832 Rhodes Hall University of Cincinnati, Cincinnati, Ohio 45221, USA, Tel: 513.556.4754, Fax: 513.556.7326, E-mail: marc.cahay@uc.edu; **H. Hasegawa**, Director, Research Center for Integrated Quantum Electronics, Hokkaido University, N13, W8, Sapporo 060-8628, Japan, Tel: 81.11.757.1163, Fax: 81.11.757.1165, E-mail: hasegawa@ricq.hokudai.ac.jp; **N. Koshida**, Tokyo Univ. of A&T, Koganei, Tokyo 184, Japan, Tel: 81.0.42.388.7128, Fax: 81.0.42.385.5395, E-mail:koshida@cc.tuat.ac.jp; **J. Leburton**, Beckman Institute, 405 N. Mathews Avenue, University of Illinois, Urbana, Illinois, IL 61801, USA, Tel: 217.333.6813, Fax: 219.244.4333, E-mail: jleburto@uiuc.edu; **D. J. Lockwood**, National Research Council, Ottawa K1A 0R6, Canada, Tel: 613.993.9614, Fax: 613.993.6486, E-mail: david.lockwood@nrc.ca; and **A. Stella**, Dipartimento di Fisica A. Volta, Università di Pavia, Via Bassi 6, I-27100 Pavia, Italy, Tel: 39.0382.507477, Fax: 39.0382.507563, E-mail: stella@fisicavolta.unipv.it.

### AA1 - THIRD INTERNATIONAL SYMPOSIUM ON INORGANIC AND ORGANIC LUMINESCENT MATERIALS FOR OPTOELECTRONIC AND DISPLAY DEVICES



*(Luminescence and Display Materials / Electronics / Dielectric Science and Technology)*

Luminescent materials provide the basis for numerous emissive display devices and white light sources. Recent advances in UV and blue-emitting LEDs, and multicolored OLEDs create the possibility of generating white light from highly efficient solid-state light sources. New emissive flat-panel displays have recently attracted

great interest for their high performance. Papers are solicited on luminescent materials for LEDs/OLEDs, field emission and EL displays, PDPs, emissive LCDs, etc. Emphasis should be on the chemical and physical properties of the materials, and how they influence device performance and their behavior under device operating conditions. Fabrication process and integration technologies, and new approaches for light generation are also welcomed.

Abstracts should be sent electronically to the ECS headquarters office. With acceptance of a paper in this symposium (oral or poster) the organizers strongly suggest the authors submit a typed camera-ready copy of the full manuscript and a list of key words to the symposium organizers at the meeting. Electronic submission format is preferred. Manuscript preparation instructions can be found at <http://www.electrochem.org/guidelines/PVAInst.html> and will be sent out by the symposium organizers after official notification of acceptance is distributed by the ECS headquarters office.

Abstracts, suggestions, and inquiries should be sent to one of the symposium organizers: **L. Shea Rohwer**, Sandia National Laboratories, PO Box 5800, MS-0892, Albuquerque, NM 87185-0892, USA, Tel: 505.844.6627, Fax: 505.845.8161, E-mail: leshea@sandia.gov; **T. Juestel**, Philips Research Laboratories, Weissshausstrasse 2, D-52066 Aachen, Germany; Tel: 49.241.6003.375, Fax: 49.241.6003.483, E-mail: thomas.juestel@philips.com; and **C. Adachi**, Chitose Institute of Science & Technology (CIST), Department of Photonics Materials Science, 758-65 Bibi, Chitose 066-8655 Japan, Tel/Fax: 81.123.27.6045, E-mail: c-adachi@photon.chitose.ac.jp.

### AB1 - NEW DEVELOPMENTS IN SYNTHETIC AND MECHANISTIC ORGANIC ELECTROCHEMISTRY



*(Organic and Biological Electrochemistry)*

Papers are solicited on all aspects of organic electrochemistry, including electrosynthesis, organometallic electrochemistry, the role of metals in organic electrode reactions, mechanistic investigations, modified electrodes, unusual media, asymmetric electrosynthesis, indirect electrode processes, and related areas.

**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. Instructions for preparing the manuscript will be sent out by the symposium organizers after the official notification of acceptance is distributed by the ECS headquarters office.

Abstracts should be submitted electronically to the ECS headquarters office with copies to the organizers: **A. Fry**, Department of Chemistry, Wesleyan University, Wesleyan University, Middletown, CT 06459, USA, Tel: 860.685.2622, Fax: 860.685.2211, E-mail: afry@wesleyan.edu; **T. Fuchigami**, Department of Electronic Chemistry, Tokyo Institute of Technology, Nagatsuta, Midori-ku, Yokohama 226.8502, Japan, Tel: 81.45.924.5406, Fax: 81.45.924.5489, E-mail: fuchi@echem.titech.ac.jp; **K. Moeller**, Department of Chemistry, Washington University in St. Louis, One Brookings Drive, Box 1134, St. Louis, MO 63130-4899, USA, Tel: 314.935.420, Fax: 314.935.4481, E-mail: moeller@wuchem.wustl.edu; and **Y. Matsumura**, Nagasaki University, Graduate School of Biomedical Sciences, 1-14 Bunkyo-machi, Nagasaki, 852-8521, Japan, Tel/Fax: 81.95.819.2429, E-mail: matamura@net.nagasaki-u.ac.jp.

### AC1 - BIOELECTROCHEMISTRY, BIOSENSOR, AND BIODEVICE TECHNOLOGY



*(Organic and Biological Electrochemistry / Sensor)*

This symposium will be devoted to recent developments in science and technological challenges concerning electrochemical,

electric, dielectric, electromagnetic, photoelectric, and electronic reactions of biomolecules, bifunctional molecules, bio-cells, and other biodevices. Topics of interest include: 1. interfacial electrochemistry, e.g. interfacial electron transfer, electrode-biomolecule electron transfer, membrane bioelectrochemistry, surface modification with bifunctional molecules; 2. biosensors and bioinformatics, e.g. novel biosensor systems, protein engineering for biosensors, DNA chips, protein chips, biomagnetic particles for biosensors, biocomputing, functional dyes for biosensors, optical devices for biosensors; 3. bio-cell devices, e.g. device for the electric and electrochemical control of bio-cell function, development of electro-responsive bio-cells, gene expression control device with electromagnetic signals, fabrication of bio-cell chips and bio-cell sensors, electrochemical sterilization, dielectric cell separation, electrochemical bio-cell imaging; 4. nanobiotechnology, e.g. nanodevices for bioanalysis, nanodevices for gene injection, single-biomolecule detection with AFM, electron transfer in nanoscale biomaterial; and 5. other electric and electrochemical phenomena in biological systems.

Scientists, engineers, and entrepreneurs being interested in this symposium are cordially invited to present their works and join discussions. Keynote lectures will be presented by invited speakers. Depending upon the number of papers received, a poster session may be planned. Student participation is highly encouraged.

Abstracts should be sent electronically to the ECS headquarters office and to the symposium organizers: **H. Matsuo**, Department of Biotechnology and Life Science, Tokyo University of Agriculture and Technology, Koganei, Tokyo 184-8588, Japan, Tel: 81.42.388.7029, Fax: 81.42.387.1503, E-mail: bio-func@cc.tuat.ac.jp; **T. Matsue**, Tohoku University, Sendai 980-8579, Tel/Fax: 81.22.217.7209, E-mail: matsue@bioinfo.che.tohoku.ac.jp; **I. Taniguchi**, Department of Applied Chemistry and Biochemistry, Kumamoto University, Kumamoto 860-8555, Japan, Tel: 81.96.342.3655, Fax: 81.96.342.3655, E-mail: taniguch@gpo.kumamoto-u.ac.jp; **J. F. Rusling**, Department of Chemistry, University of Connecticut, Storrs, CT 06269-3060, USA, Tel: 840.486.4909, Fax: 203.486.2981, E-mail: JRusling@Nucleus.chem.uconn.edu; **F. M. Hawkridge**, Department of Chemistry, Virginia Commonwealth University, PO Box 2006, Richmond, VA 23284-0000, USA, Tel: 804.828.7505, Fax: 804.828.8599, E-mail: fmhawkri@vcu.edu; and **C. Bruckner Lea**, Pacific Northwest Labs, PO Box 999, Ms K8-93, Richland, WA 99352-0999, USA, Tel: 509.376.2175, Fax: 509.376.1044, E-mail: cindy.bruckner-lea@pnl.gov.

#### AD1 - PHYSICAL ELECTROCHEMISTRY GENERAL SESSION



*(Physical Electrochemistry)*

This symposium will address all aspects of physical electrochemistry. Papers related to any topics not covered by other specialized symposia listed at this meeting are welcome. Contributing papers will be programmed according to the titles and contents of the submitted abstracts.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS headquarters office and to the symposium organizers: **G. Brisard**, Université de Sherbrooke, Department of Chemistry, 2500 Blvd Université Sherbrooke, PQ Canada, Tel: 819.821.7093, Fax: 819.821.8017, E-mail: gessie.brisard@usherbrooke.ca; and **M. Osawa**, Hokkaido University, Catalysis Research Center, Sapporo 060-0811 Japan, Tel: 81.11.706.2909, Fax: 81.11.706.2909, E-mail: osawam@cat.hokudai.ac.jp.

#### AD2 - LIQUID-LIQUID INTERFACES AND PHASE TRANSFER CATALYSIS



*(Physical Electrochemistry)*

Papers are solicited from researchers working in the areas of electrochemistry, analytical chemistry, separation science, chemical physics, phase transfer catalysis and biomembrane separations.

Specific topics include: 1. calculations (including both analytic theories and molecular dynamics simulations) of molecular structure and reactivity at L/L interfaces; 2. spectroscopic characterization of molecular structure and reactivity at L/L interfaces; 3. electrochemical measurements of phase partitioning, ion transfer, redox electron transfer processes and double layer potential profiles at L/L interfaces; 4. electrochemically driven two phase reactions; reactions catalyzed by phase transfer and coupling of charge transfer reactions on the interface; 5. electrochemical interfaces involving room-temperature ionic liquids or molten salts; 6. transport processes and membrane potentials across lipid bilayers and biological structures; 7. separation techniques involving ion or electron transport across L/L interfaces; and 8. novel techniques and methodologies for the characterization and application of L/L interfaces, for example nonlinear spectroscopy, x-ray, neutron diffraction, etc.

Abstracts, suggestions, and inquiries should be sent to the ECS headquarters office. Direct your inquiries to the symposium organizers; however do not send them the abstracts if you have already submitted them electronically. Organizers: **M. R. Philpott**, National University of Singapore, Department of Materials Science, S1A Level 02 -10, 10 Kent Ridge Crescent, 11920 Singapore. Tel: 65.874.5192, Fax: 65.776.3604, E-mail: chmmp@nus.edu.sg; **P. Vanysek**, Northern Illinois University, Department of Chemistry and Biochemistry, DeKalb, IL, 60115, USA, Tel: 815.753.6876, Fax: 815.753.4802, E-mail: pvanysek@niu.edu; **T. Kakiuchi**, Department of Energy and Hydrocarbon Chemistry, Graduate School of Engineering, Kyoto University, Kyoto 615-8510, Japan, Tel: 81.75.383.2489, Fax: 81.75.383.2490, E-mail: kakiuchi@scl.kyoto-u.ac.jp; and **I. Benjamin**, Department of Chemistry, University of California, 1156 High Street, Santa Cruz, CA 95064, USA, Tel: 831.459.3152, Fax: 831.459.2935, E-mail: benjamin@chemistry.ucsc.edu.

#### AD3 - SEVENTH INTERNATIONAL SYMPOSIUM ON ELECTRODE PROCESSES



*(Physical Electrochemistry)*

This symposium will cover the fundamental and applied aspects of electrode processes, including such topics as novel electrode processes, mechanisms of multistep reactions, reactive intermediates, monolayer and multilayer surface film growth and characterization, electrode processes in ionic liquids, electrode processes at physically perturbed electrodes or modified electrode, well-ordered systems, various properties of electrodeposits, adsorbates, deposits on single crystal surfaces, nanometer-scale structures, theory, modeling, dynamics and thermodynamics, electrocatalysis and heterogeneous reactions.

The symposium will include both invited and contributed papers on all facets of the chemistry, physics, physical chemistry and electrochemistry of electrode processes. Due to the number of papers expected, some may be selected for a poster session.

**Publication of a proceedings volume in planned to be available after the meeting.** Acceptance of an abstract in the symposium obligates the authors to submit their camera-ready papers at the time of the symposium to the organizers.

Abstracts, suggestions, and inquiries should be sent to the ECS headquarters office and the symposium organizers: **V. I. Birss**, Dept. of Chemistry, Univ. of Calgary, Calgary, Alberta Canada, T2N 1N4, Tel: 403.220.6432; Fax: 403.289.9488, E-mail: birss@ucalgary.ca; **M. Josowicz**, Georgia Institute of Technology, School of Chemistry and Biochemistry, 770 State St., Atlanta, Georgia 30332-0400, USA, Tel: 404.894.4032 or .0589; Fax: 404.894.8146, E-mail: mira.josowicz@chemistry.gatech.edu; **D. Evans**, Department of Chemistry and Biochemistry, University of Delaware, Newark, DE 19706, USA, Tel: 302.831.6770, Fax: 302.831.3742, E-mail: dhevans@udel.edu; and **M. Osawa**, Hokkaido University, Catalysis Research Center, Sapporo 0600811, Japan, Tel: 81.11.706.2909, Fax: 81.11.709.4748, E-mail: osawam@cat.hokudai.ac.jp.

## AE1 - FOURTEENTH INTERNATIONAL SYMPOSIUM ON MOLTEN SALTS



(Physical Electrochemistry / High Temperature Materials / Electrodeposition)

This symposium will provide an international and interdisciplinary forum centered on innovative basic and applied research performed in molten salts and ionic liquids. Contributed papers are solicited in all areas of biology, chemistry, electrochemistry, electrochemical engineering, and physics related to molten salt research. Topics of interest include: 1. electrochemical power, *e.g.*, batteries, fuel cells, capacitors, and photovoltaics; 2. homogeneous and heterogeneous reactions, *e.g.*, catalysis, inorganic and organic syntheses, oligomerizations, and polymerizations; 3. electrodeposition, *e.g.*, metal electroplating, the deposition of alloys, semiconductors, intermetallics and layered structures, the structural characterization of electrodeposits, metallizing and surface modification, and characterization of electroactive species; 4. separations, *e.g.*, selective extractions, immobilized molten salt gas membranes, and electrochemical gas separations; 5. molten salt promoted corrosion phenomena; 6. solute and solvent structural investigations; 7. new innovative molten salts and molten salt mixtures, *e.g.*, hydrophobic molten salt systems and molten salt mixtures, liquid clathrates, low vapor pressure (vacuum resistant) molten salts, air-insensitive molten salts; 8. applications of molten salts to "green" chemical reactions and processes; and 9. applications of molten salts to biological reactions and biocatalysis.

Keynote lectures will be presented by invited speakers. Depending upon the number of papers received, a poster session may be planned. Student participation is highly encouraged, and it is anticipated that some funds will be available for student support.

**Publication of a proceedings volume is planned to be available after the meeting.** Authors are required to provide a camera-ready copy of their papers in the correct format and a list of keywords at or before the meeting. All papers will be reviewed for content.

Abstracts, suggestions, and inquiries should be sent to the ECS headquarters office and the symposium organizers: **D. Costa**, Nuclear Materials Technology Division, (NMT-15) Mail Stop E-530, Los Alamos National Laboratory, Los Alamos, New Mexico 87545, USA, Tel: 505.665.8958, Fax: 505.665.4459, E-mail: dcosta@lanl.gov; **H. C. De Long**, AFOSR/NL, 4015 Wilson Blvd, Rm. 713, Arlington, VA, 22203-1954, USA, Tel: 703.696.7722, Fax: 703.696.8449, E-mail: hugh.delong@afosr.af.mil; **R. Hagiwara**, Department of Fundamental Energy Science, Graduate School of Energy Science, Kyoto University, Sakyo-ku, Kyoto 606-8501 Japan, Tel: 81.75.753.5822, Fax: 81.75.753.5906, E-mail: hagiwara@energy.kyoto-u.ac.jp; **R. A. Mantz**, AFRL/MLBT, Bldg. 654, 2941 P Street, Wright-Patterson AFB, OH, 45433-7750, USA, Tel: 937.255.2199, Fax: 937.255.3893, E-mail: robert.mantz@wpafb.af.mil; **G. R. Stafford**, National Institute of Standards and Technology, Metallurgy Division, Building 224/B166, Gaithersburg, MD 20899-3956, USA, Tel: 301.975.6412, Fax: 301.926.7679, E-mail: stafford@tiber.nist.gov; and **P. C. Trulove**, AFOSR/NL, 4015 Wilson Blvd, Rm. 713, Arlington, VA, 22203-1954, USA, Tel: 703.696.7787, Fax: 703.696.8449 E-mail: paul.trulove@afosr.af.mil.

## AE2 - ELECTROPHORESIS AND MICROFLUIDICS



(Physical Electrochemistry / Sensor)

Papers are solicited from researchers working in the areas of microfluidics, electrophoretic separation and field driven macro-

scopic transport in electrolytes both experimental and theoretical.

Specific topics include: 1. electroosmotic flow in microchannels, 2. sample injection and manipulation accomplished using microfluidics, 3. electrophoretic mobility, 4. isotachopheresis, 5. electrophoresis based high-throughput screening, 6. electrokinetic devices for chemical and biochemical analysis, including gene and protein assays, 7. micromachined microfluidic devices for electrophoretic separation, 8. on-chip magnetohydrodynamics, electrohydrodynamics and dielectrophoresis, 9. electrochemical and other detection schemes in microfluidics, and 10. fluidic flow coupling electrochemistry or electric fields with other types of fields.

Abstracts, suggestions, and inquiries should be sent to the ECS headquarters office. Direct your inquiries to the listed symposium organizers; however do not send them the abstracts if you have already submitted them electronically. Organizers: **P. Vanysek**, Northern Illinois University, Department of Chemistry and Biochemistry, DeKalb, IL, 60115, USA, Tel: 815.753.6876, Fax: 815.753.4802, E-mail: pvanysek@niu.edu; **I. Fritsch**, Department of Chemistry and Biochemistry, University of Arkansas, Fayetteville, AR 72701, USA, Tel: 479.575.6499, Fax: 479.575.4049, E-mail: ifritsch@uark.edu; **A. J. Ricco**, Consultant, BioMEMS, Microfluidics, Bio/Chemical Sensors, E-mail: ajricco@attbi.com; **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; **Y. Baba**, The University of Tokushima, Dept. of Medicinal Chemistry, Faculty of Pharmaceutical Sciences, Shomachi, Tokushima 770-8505, Japan, Tel: 81.88.633.7285, Fax: 81.88.633.9507, E-mail: ymttbaba@ph.tokushima-u.ac.jp; and **T. Kitamori**, The University of Tokyo, Dept. of Applied Chemistry, School of Engineering, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8656, Japan, Tel: 81.5841.7231, Fax: 81.3.5841.6039, E-mail: hisho@icl.t.u-tokyo.ac.jp.

## AF1 - CHEMICAL SENSORS VI: CHEMICAL AND BIOLOGICAL SENSORS AND ANALYTICAL SYSTEMS



(Sensor)

This symposium will provide a forum for the discussion of the latest developments in chemical and biological sensor research and development, including molecular recognition surfaces, transduction methods, and integrated sensor systems.

Topics of interest include: 1. development of new selective molecular recognition surfaces and materials, 2. molecular recognition materials and approaches to minimize non-specific binding, 3. semi-selective molecular recognition materials and sensor arrays, 4. novel methods for signal amplification and detection, 5. sensor systems for the detection of multiple analytes in complex samples (including sample preparation/processing), 6. the development and analysis of sensor arrays for the simultaneous detection of multiple analytes.

All transduction methods are of interest for this symposium (*e.g.*, electrochemical, optical, gravimetric, and thermal). The symposium and proceedings volume will be divided into topic areas based upon the topics of the accepted papers.

**Publication of a proceedings volume is planned to be available at the meeting.** Submission of a paper in this symposium (oral or poster) obligates the author(s) to submit a typed camera-ready manuscript to be published in the proceedings volume. A template for preparing the proceedings volume manuscript is available at <http://www.chembio.niu.edu/electrochem/formatti.htm>, and instructions are on the ECS website at <http://www.electrochem.org/publications/pv/provolumes.htm>. Proceedings volume manuscripts should be sent to C. Bruckner-Lea by June 1, 2004.

Abstracts should be preferably submitted electronically via the ECS web page to the ECS headquarters office. Copies of the electronically submitted abstracts do not need to be mailed to the organizers. Copies of abstracts submitted on paper, suggestions and inquiries should be sent to the ECS headquarters office and to the symposium organizers: **C. Bruckner-Lea**, Pacific Northwest National Lab, P.O. Box 999, Mailstop K8-93, Richland, WA 99352, USA, Tel: 509.376.2175, Fax: 509.376.1044, E-mail: cindy.bruckner-lea@pnl.gov; **P. Vanysek**, Northern Illinois University, Department of Chemistry and Biochemistry, DeKalb, IL 60115, USA, Tel: 815.753.6876, Fax: 815.753.4802, E-mail: pvanysek@niu.edu; **G. Hunter**, NASA Glenn Research Center, 21000 Brookpark Rd. MS 77-1, Cleveland, OH 44135, USA, Tel: 216.433.6459, Fax: 216.433.8643, E-mail: Gary.W.Hunter@nasa.gov; **M. Egashira**, Department of Materials Science and Engineering, Faculty of Engineering, Nagasaki University, 1-14 Bunkyo-machi, Nagasaki 852-8521, Japan, Tel: 81.95.819.2642, Fax: 81.95.819.2643, E-mail: egashira@net.nagasaki-u.ac.jp; **N. Miura**, Art, Science and Technology Center for Cooperative Research, Kyushu University, 6-1 Kasuga Koen, Kasuga-shi, Fukuoka 816-8580, Japan, Tel: 81.92.583.8852, Fax: 81.92.583.8976, E-mail: miura@astec.kyushu-u.ac.jp; and **F. Mizutani**, Institute for Biological Resources and Functions, AIST, 1-1 Higashi, Tsukuba-shi, Ibaraki 305-8566, Japan, Tel: 81.29.861.6167, Fax: 81.29.861.6177, E-mail: mizutani.fumio@aist.go.jp.

#### AG1 - MICROFABRICATED SYSTEMS AND MEMS VII



*(Sensor / Dielectric Science and Technology / Electronics)*

This symposium continues the series of symposia that focus on all aspects of MEMS technology including micromachining, fabrication processes, packaging, and the application of these structures and processes to the miniaturization of chemical sensors, physical sensors, biosensors, miniature chemical analysis systems and others. Particular emphasis should be placed on processes and potential application of these devices.

The following is a partial list of topics to be solicited: 1. fabrication and processing for two- and three-dimensional structures; 2. new materials and methods of processing at the microscale dimensions; 3. sensors based on micromachining methods; 4. use of microstructures applicable to environmental and biological studies; 5. multilevel thin-film structures and microstructural characterization; 6. chemical, electrical and physical testing and reliability of micromechanical structures; 7. integrated microfabricated sensors and 8. MEMS actuators.

**Publication of a proceedings volume is planned to be available at the meeting.** All authors accepted for presentation (oral or poster) are obligated to submit a camera-ready proceedings volume manuscript. Instructions for preparing the manuscript will be sent out by the symposium organizers after the notification of acceptance of the paper. The deadline for submission of the camera-ready manuscript for proceeding volume is also June 1, 2004 to have adequate time for review.

Abstracts, suggestions, and inquiries should be sent electronically to the ECS headquarters office and to the symposium organizers: **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: phesketh@sununo.me.gatech.edu; **J. L. Davidson**, Vanderbilt University, 5617 Stevenson Science Center, Nashville, TN 37232, USA, Tel: 615.343.7886, Fax: 615.343.6614, E-mail: jld@vuse.vanderbilt.edu; **H. G. Hughes**, Motorola, 2100 E. Elliot Rd., Tempe, AZ, 85284, USA, Tel: 480.413.4089, Fax: 480.413.4511, E-mail: henry.g.hughes@motorola.com; **D. Misra**, Department of Electrical and Computer Engineering, New Jersey Institute of Technology, University Heights, Newark, NJ 07102, USA, Tel: 973.596.5739, Fax: 973.596.5680, E-mail: dmisra@njit.edu; and **S. Shoji**, Waseda University, Dept. of Electrical Engineering and Bioscience, 3-4-1 Ohkubo, Shinjuku, 169-8555 Tokyo, Japan, Tel: 81.3.5286.3384, Fax: 81.3.3204.5765, E-mail: shojis@waseda.jp.

#### AH1 - BIOLOGICAL NANOSTRUCTURES, MATERIALS, AND APPLICATIONS



*(New Technology Subcommittee)*

The frontiers of nanotechnology are intrinsically evident in biological systems. This symposium will cover biological and physiological nanostructures, materials for transplant and implant applications of nanotechnology in e.g., sensors, artificial olfactory systems, and ocular systems, implanted medical devices or other novel applications appropriate for this symposium. This symposium shall consist of contributed and invited papers. Our goal is to bring together a multidisciplinary representation of research in this broad area to further establish the state-of-the-art that exists, and the challenges that remain for practical implementation of these technologies.

**Publication of a proceedings volume is planned to be available after the meeting.** All authors accepted for presentation (oral and poster) are obligated to submit a camera-ready proceedings volume manuscript to the symposium organizers at the meeting. Instructions for preparing the manuscript will be sent out by the symposium organizers after notification of acceptance of the paper.

Abstracts, suggestions, and inquiries should be sent to the ECS headquarters office and the symposium organizers: **M. Urquidí-Macdonald**, 1010 Greenbriar Dr., State College, PA 16801-6935, USA, E-mail: mumesm@enr.psu.edu; **S. Seal**, Univ. of Central Florida, Dept. of Engineering, 4000 University Blvd., Orlando, FL, 32816-0001, USA, Tel: 407.823.5277, Fax: 407.823.0208, E-mail: sseal@pegasus.cc.ucf.edu; **P. Guo**, Cancer Center, HANSEN B-036, Purdue University, West Lafayette, IN 47907, USA, Tel: 765.494.7561, Fax: 765.494.0505, E-mail: guop@purdue.edu; and **I. Taniguchi**, Department of Applied Chemistry and Biochemistry, Kumamoto University, Kumamoto 860-8555, Japan, Tel: 81.96.342.3655, Fax: 81.96.342.3655, E-mail: taniguch@gpo.kumamoto-u.ac.jp.

**Honolulu, Hawaii**  
**October 3-8, 2004**

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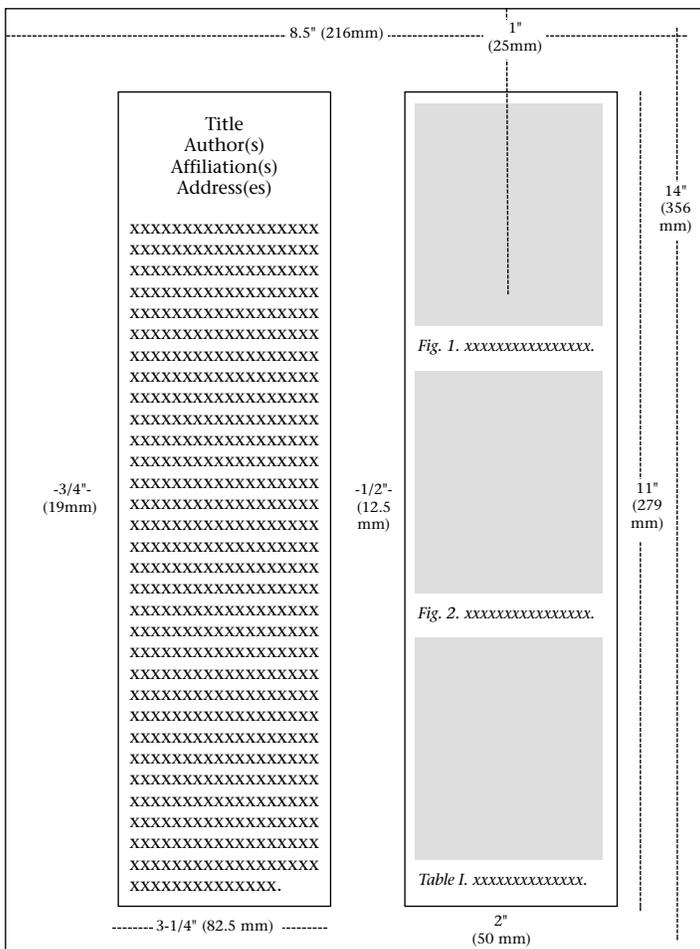
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