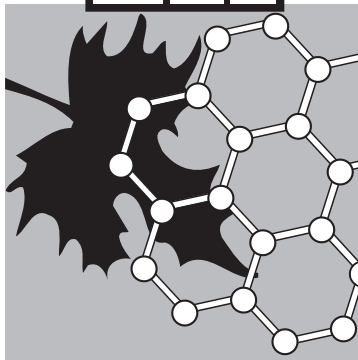


2003

MRS



FALL MEETING

December 1-5 • Boston, MA

This document
was published on
March 7, 2003.
For updated information,
see the individual
2003 Fall Meeting
HTML documents.

2003 MRS FALL MEETING

CALL FOR PAPERS

HYNES CONVENTION CENTER and SHERATON BOSTON HOTEL

For updated meeting information, access the MRS Web site:

www.mrs.org/meetings/fall2003/

TECHNICAL SYMPOSIA

EXHIBIT

SYMPOSIUM TUTORIALS

ABSTRACT DEADLINES

June 5 for abstracts sent via fax or mail

June 19 for abstracts sent via the MRS Web site

MRS

Materials Research Society

506 Keystone Drive, Warrendale PA 15086-7573 USA
Tel: 724-779-3003 • Fax: 724-779-8313 • E-mail: info@mrs.org

Table of Contents

Abstract Deadlines	3
2003 Fall Symposium Tutorial Program	4
Symposium Proceedings.....	4
Exhibit	4
Graduate Student Awards	4
Symposium Assistant Opportunities	4
Career Center	4
Electronic Personal Scheduler	44
Travel Discounts.....	44
Hotel Reservation Form	45
Future MRS Meetings	46
Abstract Submission Guidelines	47

Symposia

INTEGRATED DEVICE TECHNOLOGY

A: Micro- and Nanosystems	5
B: Materials, Integration, and Packaging Issues for High-Frequency Devices	6
C: Ferroelectric Thin Films XII	7
D: Materials and Devices for Smart Systems	8
E: Fundamentals of Novel Oxide/Semiconductor Interfaces	9

ORGANIC, SOFT, AND BIOLOGICAL MATERIALS

F: Biomaterials for Tissue Engineering	10
G: Molecularly Imprinted Materials	11
H: Biological and Bio-Inspired Materials Assembly.....	12
I: Biomaterials for Drug Delivery	13
J: Interfaces in Organic and Molecular Electronics	14
K: Functional Organic Materials and Devices	15

NANO- TO MICROSTRUCTURED MATERIALS

L: Continuous Nanophase and Nanostructured Materials	16
M: Nontraditional Approaches to Patterning	17
N: Quantum Dots, Nanoparticles, and Nanowires.....	18
O: Nanostructured Organic Materials	19
P: Dynamics in Small Confining Systems VII	20
Q: Mechanical Properties of Nanostructured Materials and Nanocomposites.....	21

INORGANIC MATERIALS AND FILMS

R: Radiation Effects and Ion Beam Processing of Materials.....	22
S: Thermoelectric Materials 2003—Research and Applications	23
T: Self-Organized Processes in Semiconductor Heteroepitaxy	24
U: Thin Films—Stresses and Mechanical Properties X	25

PHOTONICS

V: Critical Interfacial Issues in Thin Film Optoelectronic and Energy Conversion Devices.....	26
W: Engineered Porosity for Microphotonics and Plasmonics	27
Y: GaN and Related Alloys	29
Z: Progress in Compound Semiconductor Materials III—Electronic and Optoelectronic Applications.....	30

ENERGY STORAGE, GENERATION, AND TRANSPORT

AA: Synthesis, Characterization, and Properties of Energetic/Reactive Nanomaterials.....	31
BB: Materials and Technologies for a Hydrogen Economy	32
CC: Microbattery and Micropower Systems	33
DD: Actinides—Basic Science, Applications, and Technology	34
EE: Frontiers in Superconducting Materials—New Materials and Applications	35

INFORMATION STORAGE MATERIALS

FF: Advanced Magnetic Nanostructures	36
GG: Advanced Characterization Techniques for Data Storage Materials	37
HH: Phase Change and Nonmagnetic Materials for Data Storage.....	38

DESIGN OF MATERIALS BY MAN AND NATURE

X: Frontiers of Materials Research	28
II: The Science of Gem Materials	39
JJ: Combinatorial and Artificial Intelligence Methods in Materials Science II	40
KK: Atomic Scale Materials Design—Modeling and Simulation.....	41
LL: Quasicrystals	42
MM: Amorphous and Nanocrystalline Metals.....	43

General Information

Lodging and Travel

The 2003 MRS Fall Meeting will be held at the **Hynes Convention Center** and **Sheraton Boston Hotel** in Boston, Massachusetts. For your convenience, special room rates have been arranged at the hotels listed below. Rooms are limited at these rates, so make your reservation early.

HOTEL RESERVATION DEADLINE: NOVEMBER 10, 2003

Boston Marriott/Copley Place

110 Huntington Avenue
Boston, MA 02116
Tel 617-236-5800
Fax 617-937-5685

Room Rate:
\$147 Single* • \$162 Double*

Westin Hotel/Copley Place

10 Huntington Avenue
Boston, MA 02116
Tel 617-262-9600
Fax 617-424-7502

Room Rate:
\$149 Single* • \$167 Double*

Boston Park Plaza Hotel

64 Arlington Street
Boston, MA 02116
Tel 617-426-2000
Fax 617-423-1708

Room Rate: \$139 Single/Double*

Sheraton Boston Hotel and Towers

39 Dalton Street
Boston, MA 02199
Tel 617-236-2000
Fax 617-236-1702

Room Rate:
\$152 Single* • \$162 Double*

Back Bay Hilton

10 Huntington Avenue
Boston, MA 02115
Tel 617-236-1100
Fax 617-867-6139

Room Rate:
\$137 Single* • \$153 Double*

*plus Massachusetts tax, currently 12.45%

Airfare and Car Rental Discounts

MRS has negotiated discounted airfares with American Airlines and USAirways as well as discounted car rental rates with AVIS for the 2003 MRS Fall Meeting. Refer to page 44 for details.

Meeting Registration

Preregistration

Register via the MRS Web site, e-mail, fax, phone, or mail by **November 14, 2003**, to take advantage of preregistration rates. A meeting registration form will be posted on the MRS Web site late September. Also, registration by phone will be available beginning late September.

At the Meeting

On-site registration will begin on Sunday, November 30, at the Hynes Convention Center. Check the Program on the Web site in September for registration hours.

Cancellation

To cancel your meeting registration, you must notify MRS in writing of your request for a refund. Refunds will be made, less a \$25 service charge, upon receipt of your written notice. If you apply a portion of this refund to member dues or any MRS publications, the service charge will be waived. MRS will not honor requests made more than one calendar month after the close of the meeting.

In case of cancellation, the fee for tutorial notes will not be refundable; notes will be forwarded after the meeting.

Preliminary Announcement

Welcome — you are invited to peruse the broad range of symposia that will be offered in the program for the 2003 MRS Fall Meeting. This meeting will capture areas of growth in the materials community, as well as a few new and emerging fields in materials science and engineering. Among these are the quickly growing areas of biomaterials for tissue engineering or drug delivery, nanoscale order and structure in materials systems, and microbattery and micro-power systems. Traditional areas such as oxide and semiconductor materials systems will also be well represented at the meeting. The 38 technical symposium topics included in the meeting are grouped into 8 clusters that represent specific themes or categories in materials science.

The Integrated Device Technology cluster will include integrated microsystems and nanosystems (MEMS and NEMS), ferroelectrics, materials for smart systems, and a symposium focused on the fundamentals of novel oxide/semiconductor interfaces. In the Organic, Soft and Biological Materials cluster, biomaterials for drug delivery, tissue engineering, and bio-inspired materials assembly for a range of applications will be examined, as well as molecular imprinting and a long-standing symposium on organic electronic and photonic materials. Nano- to Microstructured Materials includes both inorganic and organic continuous nanophase materials and nanoscale objects such as quantum dots and nanowires, novel patterning techniques, and dynamics in confined systems. The Inorganic Materials and Films cluster encompasses stresses and mechanical behavior, radiation effects and ion beam processing, thermoelectrics, and self-organized processes in semiconductor epitaxial layers. The Photonics cluster examines the electro-optical properties of a range of materials from silicon to GaN and alloys, and compound semiconductor materials, with symposia that address the basic properties and applications as well as effects of engineered porosity and critical interfaces in thin films. Issues of energy and power are addressed in the Energy Storage, Generation, and Transport cluster, which includes symposia on microbattery and micropower systems, hydrogen-based fuels, energetic and reactive nanomaterials, and the investigation of actinides and superconducting materials. Information Storage Materials has symposia on advanced magnetic nanomaterials, phase change and nonmagnetic data storage, and investigations of new characterization techniques for these systems. Finally, the concept of materials design on many levels is addressed in Design of Materials by Man and Nature, including the use of combinatorial methods or artificial intelligence in materials discovery, the design and modeling of materials via atomic scale materials design, and the examination of a number of novel materials systems including amorphous and nanocrystalline metals, quasicrystals, and naturally occurring gem materials.

Symposium X will highlight the concepts of novel electronics and photonics in daily life and health care, including talks addressing the new area of flexible electronics, MEMs applications that may greatly impact society, and nanostructure materials that may assist in the areas of national security or personal protection. As always, the meeting will feature *tutorials* in select areas that provide introduction or review of important topics. An international *exhibit* will feature products and services relevant to the materials community, and publications will result from many of the symposia offered. Please examine the range of materials areas offered — we hope to see you in December 2003.

*Paula Hammond, Rommel Noufi,
Fred Roozeboom, and Susan Trolier-McKinstry*

Abstract Deadlines

ABSTRACT DEADLINES — No Late Abstracts Accepted

June 5, 2003 for abstracts sent via fax or mail
June 19, 2003 for abstracts sent via the MRS Web site

Note: Web-site submissions will be accepted beginning May 19.

Web-Site Submittal: www.mrs.org/meetings/fall2003/

MRS provides several months' advance notice of its abstract deadlines so that authors can easily prepare to submit their abstracts on time. Late submissions can obstruct the review process and delay preparation of the final technical program. Accepting late papers would also be unfair to those who submit by the deadline. Therefore, in order to provide efficient service to all meeting participants, the deadlines will be strictly enforced.

All abstracts are to be submitted to MRS Headquarters. Abstracts submitted by fax or mail must be received at MRS Headquarters by June 5. Due to the ease and efficiency of Web submissions, the deadline for abstracts sent via the Web will be extended until June 19. Web submission is the choice of over 99% of submitting authors.

Refer to "*Guidelines for Submitting an Abstract*" on page 47.

2003 MRS Fall Meeting Chairs

For specific technical program information, contact any of the 2003 Fall Meeting Chairs:

Paula T. Hammond

Massachusetts Institute of Technology
Tel 617-258-7577, Fax 617-258-5766, hammond@mit.edu
On Sabbatical through June 15, 2003, at:

California Institute of Technology
Tel 626-395-6201, Fax 626-568-8743, hammond@mit.edu

Rommel Noufi

National Renewable Energy Laboratory
Tel 303-384-6510, Fax 303-384-6430, rommel_noufi@nrel.gov

Fred Roozeboom

Philips Research, The Netherlands
Tel 31-40-274-2767, Fax 31-40-274-3352, fred.roozeboom@philips.com

Susan Trolier-McKinstry

The Pennsylvania State University
Tel 814-863-8348, Fax 814-865-2326, stmckinstry@psu.edu

Symposium Tutorial Program

Several symposia will be sponsoring MRS tutorial sessions. There will be no fee for these sessions, only a modest charge for optional tutorial notes which can be ordered on the preregistration form. Only a limited supply of notes will be available for on-site purchase.

A listing of the MRS tutorials and the cost of the tutorial notes will be posted on the MRS Web site in mid-September.

Symposium Proceedings

Many symposia from this meeting will be published electronically on the MRS Web site, and a number of these will also be chosen to publish in print format as part of the MRS Symposium Proceedings series. Manuscript submission is encouraged. Please note:

- Manuscripts must be submitted (and will be refereed) in electronic format only. No paper manuscripts will be accepted. Further information will be provided after the abstract deadline.
- Proceedings papers will be published online immediately after acceptance.
- All electronic proceedings will be available to current MRS members FREE of charge on the MRS Web site and to nonmembers and institutions for a fee.
- A listing of all proceedings published in print form will be announced in future meeting materials.

Check your e-mail and the MRS Web site for details.

For further information about the MRS proceedings series, see www.mrs.org/publications/books/publish.html

Exhibit

Over 200 international exhibitors will display a full spectrum of equipment, instrumentation, products, software, publications and services—everything you need to get your job done successfully.

To be held **December 2–4** in the **Hynes Convention Center**, the exhibit will be convenient to the technical session rooms and scheduled to coincide with the technical program. For exhibitors, it will mean an excellent opportunity to meet just the right customers and disseminate information effectively. For meeting attendees, it will offer the convenience of visiting with multiple vendors all under one roof. So, pick up some literature, enjoy a hands-on product demonstration, or meet face-to-face with company representatives. The 2003 Fall Exhibit will be the perfect complement to the MRS technical program.

Companies interested in exhibiting should contact Mary E. Kaufold, Manager, Advertising and Exhibits, Materials Research Society, 506 Keystone Drive, Warrendale, PA 15086-7573; Tel 724-779-8312, Fax 724-779-4397, E-mail: kaufold@mrs.org.

Graduate Student Awards

The Materials Research Society announces the availability of Gold and Silver Awards for graduate students conducting research on a topic to be addressed in the 2003 Fall Meeting symposia. All finalists will receive a Gold or Silver Award, complimentary meeting registration, and a one-year MRS student membership commencing January 1, 2004. The awards will be presented during the week of the meeting at the Award Ceremony. The award prizes will consist of \$400 and a presentation plaque for the Gold Awards and \$200 and a certificate for the Silver Awards.

Criteria for selection are:

- (1) Graduate standing in a recognized academic program in materials science, metallurgy, ceramics, or polymers; physics or chemistry; geology or mineral science; electrical, civil, mechanical, mining, or nuclear engineering; or other materials-related field
- (2) Participation in the 2003 MRS Fall Meeting as an attendee and author or co-author of a symposium paper
- (3) Outstanding performance in the conduct of this project and promise for future substantial achievement in materials research as judged by the faculty advisor
- (4) Significant and timely research results

Application materials required are:

- (1) Application form (available by June 1 via the MRS Web site)
- (2) Abstract(s), and description of work, for paper(s) which you authored or co-authored for the 2003 MRS Fall Meeting
- (3) Letter of Evaluation from your research supervisor

Deadline for completed application: August 29, 2003

Finalists will be notified mid-October. Award winners will be announced at the 2003 MRS Fall Meeting.

Obtain application after June 1 from the MRS Web site or from John B. Ballance, Executive Director, Materials Research Society, Attn: GSA Application Request, 506 Keystone Drive, Warrendale, PA 15086-7573 USA; Fax 724-779-8313; E-mail: info@mrs.org.

Symposium Assistant Opportunities

Graduate students who are interested in assisting in the symposium rooms during the 2003 MRS Fall Meeting are encouraged to apply for a Symposium Assistant position. Symposium assistants deliver essential meeting materials to the technical sessions, operate audio-visual equipment and room lighting, track and record attendance, and perform other tasks requested by the session chairs. By assisting in a minimum of four half-day sessions, students will receive a complimentary student registration, a one-year MRS student membership commencing January 1, 2004, and a stipend to help defray expenses. Symposium assistant positions will be assigned on a first-come, first-served basis, as needed. Application forms will be available by July 1 on the MRS Web site or can be obtained via e-mail request to: info@mrs.org.

Career Center

A Career Center will be offered to MRS members and meeting attendees during the 2003 MRS Fall Meeting. Individuals using the interviewing facilities must register for the meeting as well as with the Career Center. Members need not attend, however, to have a resumé included on file.

For further information, access the MRS Web site in October or contact Lorri A. Smiley, Materials Research Society, 506 Keystone Drive, Warrendale, PA 15086-7573; Phone 724-779-3004 x-543; Fax 724-779-8313; E-mail: smiley@mrs.org.

MRS Symposium A: Micro- and Nanosystems

Micro- and nanosystems contain elements and structures with dimensions in the micro- and nanoscales. Microsystems include micro-electromechanical systems (MEMS) devices and micro-optical-electromechanical systems (MOEMS) and their integration with electronics. Nanosystems, also referred to as nano-electromechanical systems (NEMS) and molecular machines, respectively, can include devices that incorporate nanotubes, nanocantilevers, and molecular or atomic manipulators. A wide range of sensor application areas may be addressed, such as inertial, magnetic, environmental, chemical, and biological detection, among others. Similarly, actuators may be used to address multiple application areas, including RF, optical, and fluidic devices. The increasing complexity of such systems is presenting challenges with materials, contacting (electrically and physically) surfaces, and other critical surfaces and interfaces. More advanced forms of electronic integration and packaging are increasingly being employed. The combination of a better understanding of the properties of the materials and surfaces involved at even smaller scales and the advent of new tools with enhanced processing resolution and capabilities has extended the reach of this technology to incorporate moving elements and structures on the nano- and molecular scale. Advanced metrology on suitably designed micro- and nanostructures provides the opportunity to gain unprecedented resolution and, hence, insight into the local properties of materials and surfaces.

Although originally based in silicon microelectronic materials technologies, microsystems and nanosystems have diversified into compound semiconductor materials technologies and thin-film smart (or active) materials, such as magnetostrictive materials, electrostrictive materials, piezoelectric materials, ferroelectric materials, and shape memory alloys. New materials, such as polymers, diamond and diamond-like films, silicon carbide, glass, porous materials, structural metals and magnetic alloys, and antistiction coatings, as well as new micro- and nanofabrication techniques, such as self organization and high-aspect-ratio processing, have also been adopted for many applications. The potential of microsystems and nanosystems to develop in many markets exists with rapid growth predictions; however, new product introduction and market acceptance is often limited by reliability, integration, and packaging issues, such as operation in multiple energy domains, harsh environments, and biocompatibility. Many materials challenges also arise in microsystems and nanosystems because of their scale and will have a direct effect on long-term performance such as those relating to large surface-to-volume ratios and increased influence of local microstructure variations.

Papers are solicited in the following and related areas pertaining to microsystems and nanosystems (MEMS, NEMS, and molecular machines):

- RF, optical, and biomedical applications
- Alternate materials and fabrication methodologies for micro- and nanosystems
- Metrology, materials characterization, and mechanical behavior at the micro- and nanoscale
- Surfaces and interfaces at the micro- and nanoscale
- Novel surface treatments and coatings, including self-assembled monolayers
- Reliability and packaging issues
- Tribology (adhesion, friction, wear, and lubrication)
- Thin-film smart materials for micro- and nanosystems
- Integration of systems
- Materials issues at the micro-, nano- and molecular scale
- Materials, fabrication methodologies, and issues in forming bioconjugates
- Process-related materials aspects and process-structure-property relationships

Joint sessions are anticipated with Symposia D: *Materials and Devices for Smart Systems*, and U: *Thin Films—Stresses and Mechanical Properties X*.

A tutorial complementing this symposium is tentatively planned. Further information will be included in the program that will be available in September.

Invited speakers (partial list) include: **Bernard Aspar** (CEA-LETI, France), **George Bachand** (Sandia National Labs), **Klaus Bade** (Forschungszentrum Karlsruhe, IMT, Germany), **Niels de Jonge** (Philips Research Laboratories, The Netherlands), **Mike Dugger** (Sandia National Labs), **Kenneth Goodson** (Stanford Univ.), **Bernd Michel** (IZM, Germany), **Tim Swager** (Massachusetts Inst. of Technology), and **Ann Witrouw** (IMEC, Belgium).

Symposium Organizers

Arturo Ayon

Sony Semiconductor, 1 Sony Pl., San Antonio, TX 78245
Tel 210-647-6272, Fax 210-647-6915, arturo_ayon@ssa-sa.sel.sony.com

David LaVan

Massachusetts Institute of Technology, Dept. of Health Science and Technology,
Rm. E25-342, 77 Massachusetts Ave., Cambridge MA 02139
Tel 617-258-9489, Fax 617-258-8827, lavan@mit.edu

Marc Madou

University of California-Irvine, Dept. of Mechanical and Aerospace Engineering,
Rm. S3231, 4200 Engineering Gateway Bldg., Irvine, CA 92697-3975
Tel 949-824-6585, Fax 949-824-8585, mmadou@uci.edu

Mark McNie

QinetiQ Ltd, Malvern Technology Centre, St. Andrews Rd., Malvern,
Worcestershire WR14 3PS, United Kingdom
Tel 44-1684-894586, Fax 44-1684-895113, mmcnie@qinetiq.com

Somuri Prasad

Sandia National Laboratories, Materials and Process Sciences Center,
Albuquerque, NM 87185-0889
Tel 505-844-6966, Fax 505-844-4816, svprasa@sandia.gov

MRS Symposium B: Materials, Integration, and Packaging Issues for High-Frequency Devices

The fields of high-frequency materials, integration, and electronic packaging have been rapidly emerging in the last decade due to their significance particularly in the area of information technology and wireless communication. Progress in microelectronics technology is driven by the ability to dimensionally scale electrical systems; and, though the scaling of integrated circuits receives critical attention, most device real estates and potential size reduction will occur through passive component and package miniaturization, and eventually through on-chip integration in order to reduce the number of components. For example, the multifunctionality of modern electronic devices results from the integration of numerous elements in a miniaturized substrate package. A critical subset of these elements constitutes passive components having a variety of capacitive, inductive, and resistive functions. Some of the most significant progress involves low-temperature co-fired ceramics (LTCC), embedded passive components, tunable RF and microwave thin-film devices, and microwave resonator ceramics with the development of their associated packaging and interconnect technologies. In order to reflect the rapid market progress in this field, this symposium will provide an international interdisciplinary forum to address most recent progress in the research of novel electronic materials, integration, and packaging for high-frequency applications, particularly operating in the RF and microwave frequency range. Reports of investigations uncovering relationships among physical structures, electrical performance, and processing methods are most desired.

The topics of the symposium include, but are not limited to:

- Ceramic materials and technology for RF and microwave frequency devices
- Microwave packaging and ceramic interconnect issues
- Novel packaging techniques, including CSP; flexible, on-chip integration; thermal management; and MEMS
- New thin- and thick-film materials and integration, e.g., capacitors, resistors, inductors, BAW, SAW, and further electromechanical devices
- Portable wireless, Bluetooth, broadband, and mm wave applications
- Low-temperature co-fired ceramics (LTCC) for components, substrates, and modules
- Embedded passive components and integration issues
- Tunable electronics for RF and microwave operation
- Microwave dielectric resonators: new materials, crystal structure, and properties
- Microwave magnetic ceramics based on ferrites and garnets
- Processing control and issues
- Chemical powder synthesis and nanopowder technology
- Interfacial phenomena and microstructure-property relationships
- High-frequency loss mechanism and structural ordering
- Modeling, simulation, and measurement issues

A joint session is anticipated with Symposium C: *Ferroelectric Thin Films XII*.

Invited speakers (partial list) include: **Daniel Amey** (DuPont), **William Borland** (DuPont), **Peter K. Davies** (Univ. of Pennsylvania), **Paul Franzon** (North Carolina State Univ.), **Bob Heistand** (AVX Corp.), **Mike Lanagan** (Pennsylvania State Univ.), **J.D. Larson** (Agilent), **Peter Loebl** (Philips GmbH Forschungslab. Aachen, Germany), **Gary Messing** (Pennsylvania State Univ.), **Christopher R. Needes** (DuPont), **Herbert Reichl** (Technische Univ. Berlin, Germany), **Nava Setter** (Swiss Federal Inst. of Technology, Switzerland), **Harrie Tilmans** (IMEC, Belgium), **Rao Tummala** (Georgia Inst. of Technology), **Joost van Beek** (Philips Research Labs Eindhoven, The Netherlands), and **Ki Hyun Yoon** (Yonsei Univ., Korea).

Symposium Organizers

Yong S. Cho

DuPont Electronic Technologies, Microcircuit Materials,
14 TW Alexander Dr., Research Triangle Park, NC 27502
Tel 919-248-5160, Fax 919-248-5132, yong.cho@usa.dupont.com

Christian Hoffmann

EPCOS OHG, Microwave Ceramics/Modules,
Siemenstrasse 43, A-8530 Deutschlandsberg, Austria
Tel 43-3462-800-2585, Fax 43-3462-800-385, christian.hoffmann@epcos.com

J-P. Maria

North Carolina State University, Dept. of Materials Science and Engineering,
1001 Capability Dr., Research Bldg. One, Raleigh, NC 27695
Tel 919-513-2843, Fax 919-515-3027, jpmaria@unity.ncsu.edu

Paul Muralt

Swiss Federal Institute of Technology EPFL, Ceramics Laboratory,
Engineering Faculty, CH-1015 Lausanne, Switzerland
Tel 41-21-693-4957, Fax 41-21-693-5810, paul.muralt@epfl.ch

Clive A. Randall

The Pennsylvania State University, 144 Materials Research Lab,
University Park, PA 16802
Tel 814-863-1328, Fax 814-865-2326, car4@psu.edu

Mareike Klee

Philips GmbH, Forschungslaboratorium Aachen, Weissshausstr. 2,
D-52066 Aachen, Germany
Tel 49-241-6003-324, Fax 49-241-6003-465, mareike.klee@philips.com

MRS Symposium C: Ferroelectric Thin Films XII

This symposium will cover the scientific and technological exploration of polycrystalline, epitaxial, and nanocrystalline ferroelectric thin films. A broad range of topics will be covered, including fundamental material properties, device and materials integration, and developments in the design and synthesis of new materials. Focus areas include ferroelectric switching for nonvolatile memory devices, high-dielectric constant materials for integrated capacitors, tunable materials for RF circuits, high-response pyroelectric materials, piezoelectric properties for micromachines, low-loss electro-optical thin films, and basic research on all compounds possessing such properties. Several other rapidly developing research areas will also be represented.

Contributions are solicited in, but not limited to, the following areas:

- Advances in microstructure-processing-property relationships for thin-film ferroelectrics
- New materials and devices
- FeRAM materials and devices
- Integrated capacitor technologies, including DRAM and decoupling capacitor materials and devices
- Advances in ferroelectric and electrode deposition
- Ferroelectric size and electrode effects
- Issues for integration into semiconductor processes, such as H₂-induced degradation, and ferroelectric and electrode deposition and etch processes
- Measurements and theory of domain switching in thin-film ferroelectrics
- Reliability in thin-film ferroelectrics
- Pyroelectric materials and devices
- Electro-optic materials and devices
- Ferroelectric and high-permittivity transistor gate dielectrics
- Piezoelectric materials for micromachines and microsensors
- RF materials and devices

Joint sessions are anticipated with Symposia B: *Materials, Integration, and Packaging Issues for High-Frequency Devices*, and E: *Fundamentals of Novel Oxide/Semiconductor Interfaces*.

A tutorial complementing this symposium is tentatively planned. Further information will be included in the program that will be available in September.

Invited speakers include: **Jeffrey S. Cross** (Fujitsu Labs, Japan), **Lukas Eng** (Univ. of Technology Dresden, Germany), **Yoshihiro Ishibashi** (Aichi Shukutoku Univ., Japan), **Paul McIntyre** (Stanford Univ.), **Paul Muralt** (EPFL, Switzerland), **Yuuji Noguchi** (Univ. of Tokyo, Japan), **Herbert Schroeder** (Forschungszentrum Jülich, Germany), **Koukou Suu** (Ulvac Ltd., Japan), and **Bob York** (Univ. of California-Santa Barbara).

Symposium Organizers

Angus Kingon

North Carolina State University, Dept. of Materials Science & Engineering,
Campus Box 7919, 218 Research Bldg., 1001 Capability Dr.,
Raleigh, NC 27695-7919
Tel 919-515-8636, Fax 919-515-3419, angus_kingon@ncsu.edu

Susanne Hoffmann-Eifert

IFF/EKM, Forschungszentrum Jülich, 52425 Jülich, Germany
Tel 49-2461-61-6505, Fax 49-2461-61-2550, su.hoffmann@fz-juelich.de

Hiroshi Funakubo

Tokyo Institute of Technology, Dept. of Innovative and Engineered Materials,
G1-405, 4259 Nagatsuta-cho, Midori-ku, Yokohama 226-8502, Japan
Tel/Fax 81-45-924-5446, funakubo@iem.titech.ac.jp

Vikram Joshi

Symetrix Corporation, 5055 Mark Dabling Blvd., Colorado Springs, CO 80918
Tel 719-594-6145, Fax 719-598-3437, vikram@symetrixcorp.com

Ivo P. Koutsaroff

Gennum Corporation, 970 Fraser Dr., Burlington, Ontario L7L 5P5, Canada
Tel 905-632-2999 x-2158, Fax 905-632-2055, ikoutsar@gennum.com

MRS Symposium D: Materials and Devices for Smart Systems

Smart/intelligent material systems utilize active materials as sensors/actuators to sense and respond to their environmental condition changes for more advanced next-generation machines and structures. Therefore, the development of smart material systems and structures need more high performance, new functional sensors/actuators technology, and a fully integrated composite system design. This requires the combination of active and passive material systems, often including the coupling of relevant mechanical, electrical, magnetic, thermal or other physical/chemical properties. Based on one decade of progress of smart/intelligent materials and systems and the experiences of the so far three MRS symposium sessions for this emerging R&D area, the discussions and information exchanges will now focus on areas such as:

- R&D information about the development of higher performance and new active materials and their fabrication processes
- Further characterization of new and existing active materials
- Developing models of material behavior and material failure prediction

Besides, more smart material system will progress into small packaging devices with integrated sensor/actuator by nanoMEMS technology. This topic will be discussed in a joint session anticipated with Symposium A: *Micro- and Nanosystems*.

The symposium will focus on topics related to characterization, processing, manufacturing, analysis, design, and applications of smart materials, smart composites, smart devices, and smart structural systems.

Papers are solicited in the following categories:

- Development of active/smart materials
 - single crystal and polycrystalline sensor/actuator materials: piezo-ferroelectrics, SMAs, FMSMAs, magnetostrictives, etc.
 - electroactive polymer gels, chemomechanical polymeric actuator/sensors
 - electro-, magnetorheological fluids
 - novel material processes to produce multifunctional and active/smart materials including nanomesostructure design
- Smart/active composites
 - piezo-ferroelectric composites(including unimorph, bimorph, and patch), SMA composite, and magnetostrictive composite
 - hybrid active material systems, smart polymer composites, hybrid active material systems, stack actuators, and their performances
 - design and modeling of physical/mechanical behavior
 - fabrication processes for these smart/active composites
- New devices and systems utilizing smart materials both in engineering and medical fields
 - devices and their performances for engineering applications, especially medical and telecommunication, health-monitoring, etc.
 - smart material devices by nanoMEMS technology
 - smart adaptive materials and systems for structure control

A tutorial complementing this symposium is tentatively planned. Further information will be included in the Program that will be available in September.

Invited speakers include: **K. Bhattacharya** (California Inst. of Technology), **Fu-Kuo Chang** (Stanford Univ.), **E. Cross** (Pennsylvania State Univ.), **G. Eggeler** (Ruhruniv. Bochum, Germany), **P. Gobin** (INSA, Lyon, France), **K.J. Kim** (Univ. of Nevada), **T. Kishi** (NIMS, Japan), **R.D. Kornbluh** (SRI International), **G.C. Lee** (RIST, Korea), **M. Loehndorf** (Caesar, Germany), **H. Masumoto** (Tohoku Univ., Japan), **R. O'Handley** (Massachusetts Inst. of Technology), **N. Setter** (EPFL, Switzerland), **J. Su** (NASA Langley Research Ctr.), **I. Takeuchi** (Univ. of Maryland), **M. Taya** (Univ. of Washington), **V.K. Varadan** (Pennsylvania State Univ.), and **M. Wuttig** (Univ. of Maryland).

Symposium Organizers

Yasubumi Furuya

Hirosaki University, Dept. of Intelligent Machines and System Engineering,
3 Bunkyo-cho, Hirosaki Aomori 036-8561, Japan
Tel 81-172-39-3677, Fax 81-172-39-3513, furuya@cc.hirosaki-u.ac.jp

Eckhard Quandt

Center of Advanced European Studies and Research (CAESAR),
Smart Materials Group, P.O. Box 7025, D-53070 Bonn, Germany
Tel 49-228-9656-215, Fax 49-228-9656-111, quandt@caesar.de

Qiming Zhang

The Pennsylvania State University, Dept. of Electrical Engineering,
187 Materials Research Laboratory, University Park, PA 16802-4801
Tel 814-863-8994, Fax 814-863-7846, qxz1@psu.edu

Kanryu Inoue

University of Washington, Dept. of Materials Science and Engineering,
P.O. Box 352120, Seattle, WA 98195-2120
Tel 206-685-7870, Fax 206-685-7870, inoue@u.washington.edu

Mohsen Shahinpoor

University of New Mexico, Artificial Muscle Research Institute (AMRI),
Albuquerque, NM 87131
Tel 505-277-3966, Fax 505-277-1571, shah@unm.edu

MRS Symposium E: Fundamentals of Novel Oxide/Semiconductor Interfaces

The interfaces between oxides and semiconductors are important to a number of emerging technologies and are becoming all the more critical as devices scale into the nanometer regime. Concurrent with advances in incorporating new gate dielectrics in traditional Si technology, a considerable number of other applications for novel oxide/semiconductor interfaces are currently being considered. These include ferroelectric/semiconductor interfaces for novel sensors and oxide/compound semiconductor interfaces for field-effect transistors. Numerous research efforts are focused on understanding and exploiting the properties of novel oxide/semiconductor interfaces that fulfill the stringent requirements for these and other applications. The goal of this symposium is to bring together researchers involved with novel oxide/semiconductor interfaces, including, but not limited to, traditional Si-based devices. Of particular interest for this symposium are contributions on fundamental growth studies, atomic scale structural characterization, simulation and modeling of interfaces, and novel physical characterization methods of defects.

Papers are anticipated in the following areas:

- Epitaxial growth of oxides on semiconductors (including SiGe, SiC, Ge, Si, GaAs, GaN) and semiconductors on oxides
- Growth and physical characterization of alternative gate dielectrics for Si-based devices
- Fundamental growth studies of amorphous and polycrystalline metal oxides
- Atomic and electronic structure calculations of semiconductor/oxide interfaces
- Experimental and theoretical studies of interfaces and defects
- New developments in physical characterization methods for ultrathin oxides and interfaces
- Novel heterostructures
- Novel devices incorporating semiconductor/oxide interfaces
- Chemical stability of oxide/semiconductor interfaces
- Piezoelectric/semiconductor integration including MEMS
- Ferroelectric/semiconductor integration including FRAMs
- Modeling of growth and interfaces
- Oxynitrides in combination with alternative high-*k* oxides

Joint sessions are anticipated with Symposia C: *Ferroelectric Thin Films XII*, Y: *GaN and Related Alloys*, Z: *Progress in Compound Semiconductor Materials III—Electronic and Optoelectronic Applications*, and KK: *Atomic Scale Materials Design—Modeling and Simulation*.

Invited speakers (partial list) include: **Israel Baumvol** (UFRGS, Brazil), **Matt Copel** (IBM), **Brent Gila** (Univ. of Florida), **Supratik Guha** (IBM), **Yong Liang** (Motorola), **T.P. Ma** (Yale Univ.), **Gerd Norga** (IBM Zürich, Switzerland), **Jasprit Singh** (Univ. of Michigan), and **Akira Toriumi** (Univ. of Tokyo, Japan).

Symposium Organizers

Susanne Stemmer

University of California, Materials Dept., Santa Barbara, CA 93106-5050
Tel 805-893-6128, Fax 805-893-8502, stemmer@mrl.ucsb.edu

Cammy R. Abernathy

University of Florida, Dept. of Materials Science and Engineering,
100 Rhines Hall, Gainesville, FL 32611
Tel 352-846-1087, Fax 352-846-1182, caber@ufl.edu

Evgeni Gusev

IBM T.J. Watson Research Center, P.O. Box 218, Yorktown Heights, NY 10598
Tel 914-945-1168, Fax 914-945-2141, gusev@us.ibm.com

Darrell G. Schlom

The Pennsylvania State University, Dept. of Materials Science & Engineering,
108 Materials Research Institute Bldg., University Park, PA 16803-6602
Tel 814-863-8579, Fax 814-863-0618, schlom@ems.psu.edu

MRS Symposium F: Biomaterials for Tissue Engineering

Biomaterials serve a central role in the engineering of functional tissue replacements, both as supports for cell adhesion, vehicles for cell transplantation, and systems for controlled drug delivery. Multiple barriers often exist that can limit engineering of functional tissue replacements. The design and development of materials with the ability to specifically influence cellular processes may overcome these limitations. Topics of interest include, but are not limited to, the synthesis of novel scaffolds, the cellular interactions with functionalized materials, cell and matrix mechanics, the localized delivery of proteins and DNA to induce tissue formation, and the clinical utility of these materials. Additionally, techniques to characterize material performance and the development of sensors, imaging techniques, and novel data collection and analysis approaches are welcome. This symposium will provide a multidisciplinary environment that links biology, engineering, and medicine to discuss material design and development that can regulate cellular processes either *in vitro* or *in vivo*.

Topics include, but are not limited to:

- Delivery strategies for gene and cell therapy
- Engineering of various tissues
- Guided tissue regeneration
- Protein adsorption and cell adhesion
- *In vivo* imaging and biosensing
- Host-implant interactions
- Biomolecular and nanoengineering
- Cell and matrix mechanics

Invited speakers include: **James M. Anderson** (Case Western Reserve Univ.), **Anthony J. Atala** (Harvard Medical School—Children's Hospital), **Steven F. Badylak** (Purdue Univ.), **Barbara D. Boyan** (Georgia Inst. of Technology), **David W. Grainger** (Colorado State Univ.), **Robert S. Langer** (Massachusetts Inst. of Technology), **Douglas A. Lauffenburger** (Massachusetts Inst. of Technology), **Gail K. Naughton** (San Diego State Univ.), **Buddy D. Ratner** (Univ. of Washington), **Ross Tubo** (Genzyme), **Joseph P. Vacanti** (Massachusetts General Hospital), and **Ioannis V. Yannas** (Massachusetts Inst. of Technology).

Symposium Organizers

Joyce Y. Wong

Boston University, Dept. of Biomedical Engineering,
44 Cummington St., Boston, MA 02215
Tel 617-353-2374, Fax 617-353-6766, jywong@bu.edu

Christine E. Schmidt

University of Texas-Austin, Dept. of Biomedical Engineering,
CPE 4.418, MC C0400, Austin, TX 78712
Tel 512-471-1690, Fax 512-471-7060, schmidt@che.utexas.edu

Arthur J. Coury

Genzyme Corporation, One Kendall Sq., Cambridge, MA 02139-1562
Tel 617-768-8002, Fax 617-374-7225, art.coury@genzyme.com

Lonnie Shea

Northwestern University, Dept. of Chemical Engineering,
2145 Sheridan Rd., Evanston, IL 60208-3120
Tel 847-491-7398, Fax 847-491-3728, l-shea@northwestern.edu

Anne L. Plant

National Institute of Standards and Technology,
Biomolecular Materials Group/Biotechnology Division,
MS 8313, 100 Bureau Dr., Gaithersburg, MD 20899-8313
Tel 301-975-3124, Fax 301-330-3447, anne.plant@nist.gov

Christopher S. Chen

Johns Hopkins University, School of Medicine,
Dept. of Biomedical Engineering, Traylor Rm. 718,
720 Rutland Ave., Baltimore, MD 21205
Tel 410-614-8624, Fax 410-955-0549, cchen@bme.jhu.edu

MRS Symposium G: Molecularly Imprinted Materials

The availability of materials that can bind selectively to a target molecule is the key to unlocking a host of new technologies. Molecular imprinting is an established technology, which allows the synthesis of materials containing highly specific receptor sites having an affinity for a target compound. For example, molecularly imprinted materials can mimic some of the functions of enzymes through the creation of three-dimensional cavities of specific size and shape for biorecognition of bioactive compounds. Promising applications for molecularly imprinted technologies, which have attracted much attention over the past decade, include tailor-made separation materials; molecular recognition materials for biosensors, catalysts, and antibody mimics for quantitative assay; and molecular recognition.

This symposium will solicit topics in the following and related areas:

- Development of novel synthetic molecular imprinting techniques
- Manipulation of structure and function using molecular imprinting techniques
- The mechanism of creation and regeneration of recognition sites during the molecular imprinting process
- Biomimetic sensors using molecularly imprinted materials as the recognition elements
- Processing of molecularly imprinted materials
- Functional devices based on molecularly imprinted materials
- Isomeric separations using molecularly imprinted materials
- Characterization of three-dimensional structure of molecularly imprinted cavities
- Molecularly imprinted nanoparticles
- Catalysis using molecularly imprinted materials

Invited speakers include: **F. Dickert** (Vienna Univ., Austria), **K. Mosbach** (Lund Univ., Sweden), **G. Murray** (Johns Hopkins Univ.), **N. Peppas** (Univ. of Texas-Austin), **K. Shea** (Univ. of California-Irvine), **T. Takeuchi** (Hiroshima City Univ., Japan), and **G. Wulff** (Heinrich Heine-Univ. Düsseldorf, Germany). Additional invited speakers will be solicited from submitted abstracts.

Symposium Organizers

Peter Kofinas

University of Maryland, Chemical Engineering Dept.,
Rm. 1109, Bldg. 090, College Park, MD 20742 -2111
Tel 301-405-7335, Fax 301-405-0523, kofinas@eng.umd.edu

M. Joseph Roberts

NAVAIR, NAWC WD, Polymer Science and Engineering Branch,
Code 4T4220D, 1 Administration Circle, China Lake, CA 93555
Tel 760-939-1394, Fax 760-939-1617, joe.roberts@navy.mil

Börje Sellergren

University of Dortmund, INFU, Otto Hahn Strasse 6,
44221 Dortmund, Germany
Tel 49-231-755-4082, Fax 49-231-755-4084, borje@infu.uni-dortmund.de

MRS Symposium H: Biological and Bio-Inspired Materials Assembly

The creative design and synthesis of self-assembling organic and inorganic systems, as well as hybrid organic-inorganic systems, is an important frontier in materials research. For example, there is particular interest in the exploitation of oligomer and polymer systems that assemble into supramolecular structures in a directed, biomimetic fashion. Recent work in this area offers strategies for the tailoring of novel materials for myriad technical applications, both biological and nonbiological. Some of the biorelated applications might include drug or gene delivery, creation of robust, responsive biocompatible surfaces, and design of replacements and/or growth templates for human tissues. Nonbiological applications are more diverse. This session is intended to showcase both fundamental and applied aspects of the design, synthesis, characterization and testing of materials that emulate or complement natural systems *via* self-assembly, or by a designed interaction with other molecules or surfaces. Also of interest are novel organic or inorganic systems that mimic or utilize particular structural or recognition functions of natural biomolecules for the creation of new materials that offer novel, controlled structures, functions, and/or properties.

Invited speakers include: **Angela Belcher** (Massachusetts Inst. of Technology), **William DeGrado** (Univ. of Pennsylvania), **David Lynn** (Emory University), **Martin Möller** (RWTH Aachen, Germany), **Christof Niemeyer** (Univ. of Dortmund, Germany), **Nadrian Seeman** (New York Univ.), **Samuel I. Stupp** (Northwestern Univ.), **Gregory Tew** (Univ. of Massachusetts), **Matthew Tirrell** (Univ. of California-Santa Barbara), **Ulrich Wiesner** (Cornell Univ.), and **Shuguang Zhang** (Massachusetts Inst. of Technology).

Symposium Organizers

Annelise E. Barron

Northwestern University, Dept. of Chemical Engineering,
Rm. E136, 2145 Sheridan Rd., Evanston, IL 60208
Tel 847-491-2778, Fax 847-491-3728, a-barron@northwestern.edu

Harm-Anton Klok

Max-Planck-Institute for Polymer Research, Ackermannweg 10,
D-55128 Mainz, Germany
Tel 49-6131-379-306, Fax 49-6131-379-100, hak@mpip-mainz.mpg.de

Timothy J. Deming

University of California-Santa Barbara, Materials Research Laboratory,
Departments of Materials and Chemistry, Rm. 2005,
Santa Barbara, CA 93106-5050
Tel 805-893-8474, Fax 805-893-7221, tdeming@mrl.ucsb.edu

MRS Symposium I: Biomaterials for Drug Delivery

This symposium will focus on the use of materials for improving the administration or effectiveness of drugs. The symposium will cover topics ranging from synthesis of new materials to applications in tissue engineering and DNA delivery. An emphasis will be placed on 1) understanding the role of the material properties and materials chemistry on the performance of the drug delivery system, and 2) using materials to improve the safety and effectiveness of modern drugs. Specific areas of interest include new materials for drug delivery (including polymers, proteins, lipids, carbohydrates, metals, ceramics, and others), biocompatibility of materials for drug delivery, responsive or “smart” materials for drug delivery, design of new targeted delivery methods, and coordination of drug delivery function into other implanted biomaterials. The aim of this symposium is to provide a forum for materials scientists, chemists, biologists, engineers, and clinicians to exchange information in a multidisciplinary environment.

Topics include, but are not limited to:

- Synthesis and characterization of novel materials for drug delivery
- Controlled release materials for drug delivery
- Responsive materials for drug delivery
- Drug transport in materials and tissues
- DNA delivery systems based on synthetic materials
- Applications of drug delivery systems in tissue engineering
- Mathematical modeling of drug delivery systems
- Soluble macromolecular carriers for drug and gene delivery
- Nano- and microparticles for drug encapsulation and delivery (lipid and polymer vesicles and micelles, and metal nanoparticles)

Invited speakers include: **Ruth Duncan** (Univ. of London, United Kingdom), **Achim Goepperich** (Univ. of Regensburg, Germany), **Allan Hoffman** (Univ. of Washington), **Leaf Huang** (Univ. of Pittsburgh), **Kazunori Kataoka** (Univ. of Tokyo, Japan), **Henry Kopecek** (Univ. of Utah), **Robert Langer** (Massachusetts Inst. of Technology), **Kam Leong** (Johns Hopkins Univ.), **Paul Morrison** (NIH), **David Needham** (Duke Univ.), **Nicholas Peppas** (Univ. of Texas), and **Kevin Whaley** (EPIcyte).

Symposium Organizers

W. Mark Saltzman

Yale University, Biomedical Engineering Dept.,
P.O. Box 208284, New Haven, CT 06520
Tel 203-432-4264 or 785-3202, Fax 203-432-0030,
mark.saltzman@yale.edu

Ashutosh Chilkoti

Duke University, Dept. of Biomedical Engineering, Durham, NC 27708
Tel 919-660-5373, Fax 919-660-5362, chilkoti@duke.edu

Dan Luo

Cornell University, Dept. of Biological & Environmental Engineering,
220 Riley-Robb, Ithaca, NY 14853-5701
Tel 607-255-8193, Fax 607-255-4080, dl79@cornell.edu

Kathryn Uhrich

Rutgers University, Dept. of Chemistry & Chemical Biology,
610 Taylor Rd., Piscataway, NJ 08854-8087
Tel 732-445-0361, Fax 732-445-7036, uhrich@rutchem.rutgers.edu

MRS Symposium J: Interfaces in Organic and Molecular Electronics

The issue of how to make reproducible electrical contacts to organic materials and individual molecules is critical to the continuing development of organic and molecule-based devices, such as OFETs, OLEDs, and molecular switches. This symposium will focus on understanding the fundamental electronic and structural properties of interfaces important to organic and molecular electronics.

Systems of interest include:

- Metal/organic semiconductor interfaces
- Metal/molecule or semiconductor/molecule interfaces
- Organic/dielectric interfaces relevant to organic field effect transistors (OFETs)

Both experimental and theoretical contributions on physical and chemical aspects of the electronic nature of these interfaces are welcomed.

These contributions can include, but are not limited to:

- Electrical measurements (including SPM-based methods and other contacting schemes)
- Relevant types of spectroscopies
- Quantum chemical, solid-state physics, and physical electronic (EE) models, calculations, and simulations

The symposium will also be concerned with the issue of differences between wet electrochemical and dry device systems.

Joint sessions are anticipated with Symposia K: *Functional Organic Materials and Devices*, and V: *Critical Interfacial Issues in Thin Film Optoelectronic and Energy Conversion Devices*.

Invited speakers include: **D.L. Allara** (Pennsylvania State Univ.), **Masakazu Aono** (NUIIMS, Tsukuba, Japan), **D. Beratan** (Duke Univ.), **S. Datta** (Purdue Univ.), **J. Hsu** (Bell Labs, Lucent Technologies), **A. Kahn** (Princeton Univ.), **J. Kushmerick** (Naval Research Lab), **Y.-L. Loo** (Univ. of Texas-Austin), **M. Majda** (Univ. of California-Berkeley), **G. Malliaras** (Cornell Univ.), **R. Naaman** (Weizmann Inst., Israel), **A. Nitzan** (Tel Aviv Univ., Israel), **M.A. Rampi** (Univ. Ferrara, Italy), **M. Ratner** (Northwestern Univ.), **Mark Reed** (Yale Univ.), **Otto Sankey** (Arizona State Univ.), **K. Seki** (Nagoya Univ., Japan), **J.M. Seminario** (Univ. of South Carolina), **R. Tung** (City Univ. of New York-Brooklyn), **D. Waldeck** (Univ. of Pittsburgh), **P. Weiss** (Pennsylvania State Univ.), **S. Williams** (Hewlett-Packard Labs), and **X.-Y. Zhu** (Univ. of Minnesota).

Symposium Organizers

C. Daniel Frisbie

University of Minnesota, Dept. of Chemical Engineering & Materials Science,
421 Washington Ave. SE, Minneapolis, MN 55455
Tel 612-625-0779, Fax 612-626-7246, frisbie@cems.umn.edu

Neal R. Armstrong

University of Arizona, Chemistry Dept., 1306 E. University Blvd.,
Tucson, AZ 85721-0041
Tel/Fax 520-621-8242, nra@u.arizona.edu

Masamichi Fujihira

Tokyo Institute of Technology, Biomolecular Engineering Dept.,
4259 Nagatsuta, Midori-ku, Yokohama 226-8501, Japan
Tel 81-45-924-5784, Fax 81-45-924-5817, mfujihir@bio.titech.ac.jp

Stuart Lindsay

Arizona State University, Dept. of Physics and Astronomy,
Tempe, AZ 85287-1504
Tel 480-965-4691, Fax 480-965-7954, stuart.lindsay@asu.edu

David Cahen

Weizmann Institute, Dept. of Materials and Interfaces,
Rehovoth, Israel 76100
Tel 972-8934-2246, Fax 972-8934-4138, david.cahen@weizmann.ac.il

MRS Symposium K: Functional Organic Materials and Devices

The last few years have seen a rapid progress in electronic and optical molecular and polymeric materials and device development. These materials have the potential to be key enablers for novel photonic, electronic, and optoelectronic device applications. These applications are broad and include: smart cards, flat-panel displays, light-emitting diodes, transistors, photovoltaics, photorefractivity, sensors, data storage, and optical coatings. The objective of this conference is to bring together researchers from the applied, as well as the fundamental, areas of materials and device fabrication.

Papers regarding electronic/optical/optoelectronic molecular and polymeric materials are solicited in, but not limited to, the following areas:

- Device applications: light-emitting structures, transistors, photocells, and modulators
- Materials development and characterization
- Self assembly and nanostructures
- Hybrid devices
- Combinatorial techniques in materials and device optimization
- Data storage
- Molecular electronics
- Photonic bandgap applications
- Device physics and engineering
- Photochromics and electrochromics
- New phenomena
- Processing and printing techniques
- Optical fibers
- Sensors and actuators
- Reliability and degradation
- Superconductivity and magnetism

Invited speakers (tentative) include: **A. Atzali** (IBM T.J. Watson Research Ctr.), **M. Baldo** (Massachusetts Inst. of Technology), **P.W.M. Blom** (Univ. of Gröningen, The Netherlands), **D. Bradley** (Imperial College, United Kingdom), **J. Brown** (Universal Display Corp.), **L. Burn** (Univ. of Oxford, United Kingdom), **P. Calvert** (Univ. of Arizona), **Ananth Dodabalpur** (Univ. of Texas-Austin), **A.R. Duggal** (GE Corporate R&D), **V. Dyakonov** (Oldenburg, Germany), **A. Epstein** (Ohio State Univ.), **R. Friend** (Univ. of Cambridge, United Kingdom), **D. Ginley** (National Renewable Energy Lab), **J. Heath** (Univ. of California-Los Angeles), **A.J. Heeger** (Univ. of California-Santa Barbara), **R.A.J. Janssen** (Eindhoven Univ. of Technology, The Netherlands), **R. Laine** (Univ. of Michigan-Ann Arbor), **A.G. MacDiarmid** (Univ. of Pennsylvania), **M. Mayor** (Forschungszentrum Karlsruhe GmbH Inst. für Nanotechnologie, Germany), **J. Rogers** (Univ. of Illinois, Urbana-Champaign), **N.S. Sariciftci** (Johannes Kepler Univ. of Linz, Austria), **T. Swager** (Massachusetts Inst. of Technology), **J. Veres** (Avecia, United Kingdom), and **Y. Yang** (Univ. of California-Los Angeles).

Symposium Organizers

Ghassan E. Jabbour

The University of Arizona, Optical Sciences Center, Tucson, AZ 85721
Tel 520-626-8324, Fax 520-621-4442, gej@optics.arizona.edu

Cherie R. Kagan

IBM T. J. Watson Research Center, P.O. Box 218,
Yorktown Heights, NY 10598
Tel 914-945-3003, Fax 914-945-2141, cheriek@us.ibm.com

Vladimir Bulovic

Massachusetts Institute of Technology,
Dept. of Electrical Engineering & Computer Science,
Cambridge, MA 02139
Tel 617-253-7012, Fax 617-258-6640, bulovic@mit.edu

Mary E. Galvin

University of Delaware, Dept. of Materials Science & Engineering,
301 Spencer Laboratory, Newark, DE 19716-3106
Tel 302-831-0873, Fax 302-831-4545, megalvin@udel.edu

MRS Symposium L: Continuous Nanophase and Nanostructured Materials

This symposium will focus on recent advances in nanostructured and nanophase materials and their applications. Nanostructured materials consist of domains of less than 100 nm and include atom clusters and cluster assemblies, one- and two-dimensionally-modulated layers and three-dimensional structures. The term “nanophase” refers to structures comprised of domains or particles of a single material that are typically less than 100 nm, whereas the term “nanocomposite” refers to a composite of more than one nanophase. Nanoscale materials can be engineered as homogeneous or porous ceramics, metals, metal oxides, semiconductors, organic polymers, or as composite materials containing these components. Rapid progress has been made over the last two decades or so; and industrial applications for these structures as bulk materials, devices, components, sensors, and coatings in a broad spectrum of areas are in sight. This symposium will bring together scientists from many disciplines to present and discuss recent advances in the synthesis, processing, characterization, and properties of nanostructured and nanophase materials and their application.

The following research areas will be covered in oral and poster presentations:

- Physical and chemical synthesis and processing
- Preparation of nanostructured materials via self assembly
- Nanostructured surfaces and interfaces
- Metallic and oxide superlattices and mesostructures
- Polymer nanophase materials and nanocomposites
- Biological systems at the nanoscale
- Characterization of nanostructured materials
- Novel phenomena in nanoscale materials
- Modeling and simulation at the nanoscale
- Electrical, optical, magnetic, mechanical, thermal, and catalytic properties of nanostructures
- Phenomena in confined systems
- Nanostructured materials in sensors and devices
- Novel applications of nanoscale materials
- Nanotechnology

Invited speakers include: **C.J. Brinker** (Sandia National Labs), **H. Hahn** (Darmstadt Univ., Germany), **C.-W. Park** (ANP, Korea), **M.P. Pileni** (Univ. of Paris, France), **D. Pine** (Univ. of California-Santa Barbara), **R. Roy** (Pennsylvania State Univ.), **E.L. Thomas** (Massachusetts Inst. of Technology), **Yuri D. Tretyakov** (Moscow State Univ., Russia), and **D. Wilson** (Nanotechnologies).

Symposium Organizers

Sridhar Komarneni

The Pennsylvania State University, 205 Materials Research Laboratory,
University Park, PA 16802
Tel 814-865-1542, Fax 814-865-2326, komarneni@psu.edu

John C. Parker

Cabot Microelectronics Corporation, 870 N. Commons Dr., Aurora, IL 60504
Tel 630-375-5534, Fax 630-375-2082, john_parker@cabotcmp.com

James Watkins

University of Massachusetts-Amherst, Dept. of Chemical Engineering,
159 Goessmann Lab, Amherst, MA 01003
Tel 413-545-2569, Fax 413-545-1647, watkins@ecs.umass.edu

MRS Symposium M: Nontraditional Approaches to Patterning

The ability to pattern materials into well-defined structures plays an important role in many areas that include physics, chemistry, biology, and engineering. For example, structures with critical dimensions on the nanoscale have been shown to exhibit interesting, and potentially useful, new phenomena that include quantized excitation or emission, Coulomb blockade, single electron tunneling, metal-insulator transition, and superparamagnetism. Microscale structures, on the other hand, have been widely explored for use in fabricating electronic devices, photonic components, display units, sensors, MEMS, and lab-on-chip systems. In all these applications, patterning represents the first and one of the most significant challenges to their realization.

Although nanostructures on the scale of tens of nm can be conveniently generated using several advanced nanolithographic techniques (e.g., deep UV photolithography and e-beam writing), the development of these methods into practical routes to large numbers of nanostructures rapidly and at low cost still requires great ingenuity. Nontraditional approaches (e.g., the so-called bottom-up method and soft lithography) seem to provide a more promising strategy for the formation of patterned structures in terms of cost, throughput, and potential for large-scale production. This symposium will focus on nontraditional methods for patterning on both nano- and microscales.

Specific topics of this symposium will include, but not be limited to,

- Unconventional approaches to patterning (e.g., soft lithography, embossing, dip-pen lithography, scanning probe lithography, and template-directed patterning)
- Self assembly of building blocks with critical dimensions in the range from nm- to μ m-scale (e.g., surfactants, polymers, colloidal particles, nanorods, and nanowires)
- Three-dimensional lithography using two-photon absorption and interference
- New concepts for micro- and nanoscale electronic, photonic, magnetic, and biofunctional structures, devices, or systems

Invited speakers include: **J. Aizenberg** (Lucent Technologies), **I. Aksay** (Princeton Univ.), **P. Alivisatos** (Univ. of California-Berkeley), **P. Braun** (Univ. of Illinois, Urbana-Champaign), **T.J. Bunning** (Air Force Research Lab), **F. Chi** (Univ. of Munster, Germany), **E. Delamar** (IBM, Zurich, Switzerland), **W. Huck** (Cambridge Univ.), **P. Hammond** (Massachusetts Inst. of Technology), **J. Jacobson** (Massachusetts Inst. of Technology), **C. Lieber** (Harvard Univ.), **C. Mirkin** (Northwestern Univ.), **M. Mrksich** (Univ. of Chicago), **C. Murphy** (Univ. of South Carolina), **P. Nealey** (Univ. of Wisconsin-Madison), **R.G. Nuzzo** (Univ. of Illinois, Urbana-Champaign), **C. Ober** (Cornell Univ.), **G. Ozin** (Univ. of Toronto, Canada), **R. Penner** (Univ. of California-Irvine), **J. Perry** (Univ. of Arizona), **P. Prasad** (SUNY-Buffalo), **J.A. Rogers** (Lucent Technologies), **A. Stein** (Univ. of Minnesota), **E.L. Thomas** (Massachusetts Inst. of Technology), **O. Velev** (North Carolina State Univ.), **G.M. Whitesides** (Harvard Univ.), and **P. Yang** (Univ. of California-Berkeley).

Symposium Organizers

Younan Xia

University of Washington, Dept. of Chemistry,
Seattle, WA 98195
Tel 206-543-1767, Fax 206-685-8665, xia@chem.washington.edu

Charles D.E. Lakeman

TPL Inc, 3921 Academy Pkwy. North NE, Albuquerque, NM 87123
Tel 505-342-4427, Fax 505-343-1797, clakeman@tplinc.com

Jie Liu

Duke University, Dept. of Chemistry, Durham, NC 27708
Tel 919-660-1549, Fax 919-660-1605, jliu@chem.duke.edu

Shu Yang

Bell Laboratories, Lucent Technologies, 600 Mountain Ave.,
Murray Hill, NJ 07974
Tel 908-582-2806, Fax 908-582-4868, syang6@lucent.com

MRS Symposium N: Quantum Dots, Nanoparticles, and Nanowires

Nanoscale structures made of semiconductors and metals, such as semiconductor nanocrystals (Quantum Dots: QDs), metallic nanoparticles, and nanowires show unique properties that arise when the bulk materials are reduced in two or all three dimensions to a size range of ~ 1 to 100 nm. QDs, for example, show unique size-dependent properties when their dimensions become comparable to or smaller than the Bohr exciton radius due to quantum confinement of the charge carriers. Gold or silver nanoshells and nanorods exhibit size- and shape-dependent plasmon resonant properties. The above nanostructures offer the perspective of manipulating the materials properties with a flexibility that matches that of molecular chemical synthesis, but with the control that bulk materials afford. This has motivated much research aimed at designing and characterizing new materials, understanding the physics of these systems, deriving novel properties and designing novel devices, which has led to a number of recent advances in the fabrication, processing, and application of these systems. Some of the recent developments included preparation of colloidal anisotropic nanostructures, quantum dots and plasmon resonant nanoparticles coupled to optical microcavities. There has also been a growing interest in the conjugation of colloidal QDs and metallic nanoparticles with biological molecules. QD-bioconjugates have been used in a variety of assays and in biological imaging applications. The potential applications of these systems in chemistry, physics, and biotechnology are significant.

The objective of this symposium is to bring together a group of scientists active in the emerging field of nanotechnology with a focus on semiconductor and metallic (inorganic) nanoparticles, nanowires, and other “nanoscale objects” to discuss the most recent development in the synthesis of novel materials, characterization of their optical and electrical properties, and physical understanding of these systems, and to explore novel applications.

The topics of the symposium will include:

- Synthesis and characterization of nanoparticles and nanowires using wet chemistry and molecular beam approaches
- Synthesis, characterization, and novel properties of semiconductor quantum dots and metallic nanostructures
- Electroluminescence and photovoltaic properties from heterostructures employing nanoparticles and nanorods
- Optical properties of neutral and charged excitons and exciton complexes in self-assembled QDs
- Nanoscale devices and sensors based on nanostructures and their properties
- Design and characterization of bioconjugates using semiconductor and metallic nanostructures
- Biological assays using nanoparticle-based bioconjugates: fluorescence or plasmon-based immuno-assays, Förster energy transfer (FRET) assays, and electrochemical assays
- Inorganic-organic nanoparticle-based self assemblies for device fabrication and biocompatibility

One or two joint sessions are anticipated with Symposium Z: *Progress in Compound Semiconductor Materials III—Electronic and Optoelectronic Applications*.

A tutorial complementing this symposium is tentatively planned. Further information will be included in the program that will be available in September.

Invited speakers include: **M.G. Bawendi** (Massachusetts Inst. of Technology), **L.E. Brus** (Columbia University), **C. Delerue** (CNRS-Lille, France), **S. Gaponenko** (Academy of Sciences of Belarus), **M. Graetzel** (Lausanne, Switzerland), **F. Henneberger** (Humboldt Univ. Berlin, Germany), **B.A. Korgel** (Univ. of Texas-Austin), **C.J. Murphy** (Univ. of South Carolina), **L. Samuelson** (Lund Univ., Sweden), **S.M. Simon** (Rockefeller Univ.), **D. Vanmaekelbergh** (Univ. Utrecht, The Netherlands), **H. Weller** (Univ. Hamburg, Germany), and **Y. Xia** (Univ. of Washington). Additional invited speakers will be selected from the contributed abstracts.

Symposium Organizers

Philippe Guyot-Sionnest

University of Chicago, James Franck Institute, Dept. of Chemistry,
5640 Ellis Ave., Chicago, IL 60637
Tel 773-702-7461, Fax 773-702-5863, pgs@midway.uchicago.edu

Naomi J. Halas

Rice University, Depts. of Electrical & Computer Engineering and Chemistry,
MS-366, P.O. Box 1892, Houston, TX 77251-1892
Tel 713-348-5611, Fax 713-348-5686, halas@rice.edu

Hedi Mattoussi

Naval Research Laboratory, Optical Sciences Division,
4555 Overlook Ave. SW, Washington, DC 20375
Tel 202-767-9473, Fax 202-404-8114, hedimat@ccs.nrl.navy.mil

Zhong Lin Wang

Georgia Institute of Technology, School of Materials Science & Engineering,
E.J. Love Bldg., 771 Ferst Dr., Atlanta, GA 30332-0245
Tel 404-894-8008, Fax 404-894-9140, zhong.wang@mse.gatech.edu

Ulrike Woggon

Universität Dortmund, Experimentelle Physik II, Otto-Hahn-Str. 4,
44227 Dortmund, Germany
Tel 49-231-755-3767, Fax 49-231-755-3674,
woggon@fred.physik.uni-dortmund.de

MRS Symposium O: Nanostructured Organic Materials

The preparation of nanostructured organic materials is an increasingly popular scientific area which brings together researchers from many fields including chemistry, chemical engineering, and materials science. The challenge is to construct materials with dimensions from one nanometer to thousands of nanometers while retaining atomic or near-atomic precision in the placement of chemical functionality. If successful, the payoff will include a new generation of nanoscaled sensors, electronic elements, smart biomaterials, and drug delivery devices. Two approaches to this problem have become popular. In one, researchers are turning to weak intermolecular interactions such as hydrogen bonding, π - π stacking, electrostatic interactions, and van der Waals forces which have been tailored to achieve the desired structure or conformation through self assembly. In another, researchers rely on the attractive and wide-ranging properties of sp^2 carbon structures synthesized at higher temperature, such as fullerenes and carbon nanotubes. The approaches are complementary to one another, and increasingly combinations of supramolecular and fullerene-based materials are being pursued. This symposium will highlight recent advances in self assembly, fullerene-based materials and applications, and approaches which combine supramolecular design with fullerene architectures.

This symposium will cover, but not be limited to, the following topics:

- Self assembly of zero-, one-, and two-dimensional materials
- Synthesis and derivitization of carbon nanotubes and other fullerene-based materials
- Applications of fullerene-based materials
- Covalent capture of supramolecular assemblies
- Functional dendrimers

Joint sessions are anticipated with Symposium H: *Biological and Bio-Inspired Materials Assembly*.

Invited speakers include: **Jerry L. Atwood** (Univ. of Missouri-Columbia), **Hongjie Dai** (Stanford Univ.), **Hicham Fenniri** (Purdue Univ.), **Reza Ghadiri** (Scripps Research Inst.), **Michael J. Krische** (Univ. of Texas), **Dominic V. McGrath** (Univ. of Arizona), **Tyler McQuade** (Cornell Univ.), **Virgil Percec** (Univ. of Pennsylvania), **Apparao Rao** (Clemson Univ.), **Vincent Rotello** (Univ. of Massachusetts-Amherst), **Susan Sinnott** (Univ. of Florida), **Richard Smalley** (Rice Univ.), **Fraser Stoddart** (Univ. of California-Los Angeles), **Samuel I. Stupp** (Northwestern Univ.), **Timothy Swager** (Massachusetts Inst. of Tech.), **Mathew Tirrell** (Univ. of California-Santa Barbara), **James Tour** (Rice Univ.), **Vladimir Tsukruk** (Iowa State Univ.), **Ulrich Wiesner** (Cornell Univ.), and **Steven Zimmerman** (Univ. of Illinois).

Symposium Organizers

Jason Hafner

Rice University, Dept. of Physics & Astronomy,
MS 61, 6100 Main St., Houston, TX 77005
Tel 713-348-3205, Fax 713-348-4150, hafner@rice.edu

Eugene R. Zubarev

Iowa State University, Dept. of Materials Science & Engineering,
3161 Gilman Hall, Ames, IA 50011
Tel 515-294-9465, Fax 515-294-5444, zubarev@iastate.edu

Jeffrey D. Hartgerink

Rice University, Dept. of Chemistry, MS 65,
6100 Main St., Houston, TX 77005
Tel 713-348-4142, Fax 713-348-6355, jdh@rice.edu

MRS Symposium P: Dynamics in Small Confining Systems VII

Interfacial science has rapidly expanded beyond the original realm of chemistry to include physics, mechanical and chemical engineering, biology, materials science, and other specialized subfields. This seventh international symposium in a series sponsored by the MRS will emphasize a wide range of topics covering static and dynamic properties of small confining systems. Participants from various disciplines will share different points of view on the questions of how ultrasmlal geometries can force a system to behave in ways significantly different than its behavior in the bulk, how this difference affects molecular properties, and how it is probed. We encourage researchers from all scientific disciplines to present theoretical, experimental, and computational evidence of the effects of confinement on gaseous, liquid, and solid systems.

Both oral and poster presentations will be accepted relating to the following topical areas:

- Confined and **anomalous dynamics** in porous, supramolecular, and biological systems
- New methods to probe **dynamics in confinement** (scattering, NMR, optical probes, and direct imaging techniques)
- **Diffusion** and **reactions** in confinement
- **Adsorption** and phase transitions of simple and complex fluids at interfaces
- **Liquids** at interfaces
- **Microfluidics** and hydrodynamics near solid surfaces
- **Friction** and structural properties of **fluids under shear**
- **Dynamic** force spectroscopy
- Numerical modeling and **computational techniques** of confined systems
- **Synthesis** and **design** of new confined geometries and **supramolecular** systems

Invited speakers (tentative) include: **A. Ajdari** (ESPCI-Paris, France), **Y. Braiman** (Oak Ridge National Lab), **F. Bright** (SUNY-Buffalo), **E. Evans** (Univ. of British Columbia and Boston Univ.), **F. Family** (Emory Univ.), **K Gubbins** (N. Carolina State Univ.-Raleigh), **J. Israelachvili** (Univ. of California-Santa Barbara), **R. Kimmich** (Univ. Ulm, Germany), **J. Klafter** (Tel Aviv Univ., Israel), **J. Klein** (Oxford Univ., United Kingdom, and Weizmann Inst., Israel), **J.P. Korb** (CNRS-Palaiseau, France), **L. Leger** (College de France), **N.E. Levinger** (Colorado Univ.), **J. Livage** (College de France), **A. Meller** (Rowland Inst., Harvard Univ.), **R. Metzler** (Nordita, Denmark), **E. Meyer** (Univ. Basel, Switzerland), **U. Mohanty** (Boston College), **M.H. Muser** (Univ. Western Ontario, Canada), **A.V. Neimark** (TRI-Princeton), **G. Oshanin** (Univ. Paris, France), **R. Overney** (Washington Univ.), **J. Prost** (ESPCI-Paris, France), **R. Richert** (Arizona State Univ.), **M.O. Robbins** (Johns Hopkins Univ.), **C. Alba Simionescu** (Univ. Paris-Sud, France), **G. Scherer** (Princeton Univ.), **Ch. Schmuttenmaer** (Yale Univ.), **K. Tominaga** (Kobe Univ.), **S. Xie** (Harvard Univ.), and **J.M. Zanotti** (Argonne National Lab).

Symposium Organizers

John T. Fourkas

Boston College, Eugene F. Merkert Chemistry Center,
2609 Beacon St., Chestnut Hill, MA 02467
Tel 617-552-3611, Fax 617-552-2705, fourkas@bc.edu

Pierre Levitz

PMC-CNRS, Ecole Polytechnique, 91128 Palaiseau, France
Tel 33-1-6933-4702, Fax 33-1-6933-3004, levitz@pmc.polytechnique.fr

Michael Urbakh

Tel Aviv University, School of Chemistry, Tel Aviv 69978, Israel
Tel 972-3-640-8254, Fax 972-3-640-9293, urbakh@post.tau.ac.il

Kathryn J. Wahl

Naval Research Laboratory, Code 6176, Bldg. 207,
Washington, DC 20375-5342
Tel 202-767-5419, Fax 202-767-3321, wahl@stm2.nrl.navy.mil

MRS Symposium Q: Mechanical Properties of Nanostructured Materials and Nanocomposites

Nanostructured materials and nanocomposites exhibiting unique functional and structural properties have the potential to have a revolutionary impact on technological progress in the 21st century. Of exciting interest, from both fundamental and applied viewpoints, is the outstanding deformation behavior of nanostructured materials and nanocomposites. In the past decade, tremendous investments in time, energy, and resources have been made to learn, control, and design materials at the nanoscale level for highly desired mechanical properties in metals, alloys, polymers, ceramics, and their composite systems, using advanced technologies of their synthesis, processing, and characterization. The main aim of this symposium is to provide a critical, up-to-date review and discussion on science and technology of nanomaterials and nanocomposites, with focuses placed on a fundamental understanding of the relationships between their fabrication, structure, strength, and ductility. We aim to create a forum for researchers involved in nanoscience and nanoengineering of bulk and composite materials, thick coatings, and thin films for structural applications, to share views and develop new ideas and concepts. Particular emphasis is placed on developing close interactions among scientists and engineers and fostering future transdisciplinary and multi-institutional cooperation in this new and rapidly growing area.

Specific topics of interest include, but are not limited to:

- Fabrication and processing of nanostructured materials and nanocomposites
- Theory and modeling of nanostructures
- Nanostructured and nanocomposite materials characterization
- Stress analysis of nanostructured coatings
- Plastic deformation of nanostructured materials
- Fracture of nanostructured materials
- Fatigue properties of nanostructured materials and nanocomposites
- Deformation-induced phase transformations in nanostructures
- Structure and mechanical properties of nanocomposites: polymer with dispersed ceramic or metal nanoparticles, ceramic/ceramic or metal/ceramic systems
- Structural materials from immiscible polymer blends
- Innovative structural applications of nanomaterials and nanocomposites
- Design of nanomaterials and nanocomposites for structural applications

The symposium will consist of both invited and contributed talks and poster sessions.

Invited speakers include: **L. Ajdelsztajn** (Univ. of California-Davis), **C. Bampton** (Boeing), **J.Th. M. De Hosson** (Univ. of Gröningen, The Netherlands), **R. Dowding** (Army Research Lab), **P. Green** (Univ. of Texas-Austin), **P. Hazzledine** (UES Inc.), **C.C. Koch** (North Carolina State Univ.), **A.K. Mukherjee** (Univ. of California-Davis), **S. Nutt** (Univ. of Southern California), **S. Seal** (Univ. of Central Florida), **S. Suresh** (Massachusetts Inst. of Technology), **T. Tsakalakos** (Rutgers Univ.), and **B. Yakobson** (Rice Univ., Houston).

Symposium Organizers

R. Krishnamoorti

University of Houston, Dept. of Chemical Engineering,
4800 Calhoun, Houston, TX 77204-4004
Tel 713-743-4312, Fax 713-743-4323, ramanan@uh.edu

E. Lavernia

University of California-Davis, College of Engineering, Davis, CA 95616
Tel 530-752-0554, Fax 530-752-8058, lavernia@ucdavis.edu

I. Ovid'ko

Institute of Problems of Mechanical Engineering, RAS,
Bolshoj 61, Vas. Ostrov, St. Petersburg 199178, Russia
Tel 7-812-321-4764, Fax 7-812-321-4771, ovidko@def.ipme.ru

C.S. Pande

Naval Research Laboratory, Code 6325, Washington, DC 20375
Tel 202-767-2744, Fax 202-767-2623, pande@anvil.nrl.navy.mil

G. Skandan

Nanopowder Enterprises, Inc., 201 Circle Dr., Ste. 102/103,
Piscataway, NJ 08854
Tel 732-868-1906, Fax 732-868-1908, skandan@aol.com

MRS Symposium R: Radiation Effects and Ion Beam Processing of Materials

Radiation with energetic beams or ion implantation can produce dramatic improvements or degradation in the properties of materials. An understanding of the microstructural changes occurring during irradiation is critical for the development of predictive models. The scope of this symposium will cover both microstructural and property changes occurring in solids during energetic ion, electron, neutron, or gamma-ray irradiation. This symposium, which is the seventh in a series of MRS symposia held every two years in the past until 2000, is intended to bring together researchers working on radiation effects in different material systems. Materials of interest include metals, intermetallics, semiconductors, insulators, and superconductors. Both experimental and theoretical studies are solicited, with a particular emphasis on linking state-of-the-art modeling with most recent experimental observations.

Specific topics where contributions are encouraged include:

- Advanced techniques for defect characterization
- Ion-beam-assisted deposition
- Ion-beam modification of physical properties
- Ion-beam processing of semiconductors
- Molecular dynamic and Monte Carlo simulations of radiation effects
- Radiation-induced amorphization and recrystallization
- Radiation and ion-implantation-induced nanostructures
- Radiation damage in nuclear fission and fusion reactor materials
- Radiation effects in nuclear waste materials

Invited speakers include: **R. Birtcher** (Argonne National Lab), **G. Dollinger** (Technische Univ. München, Germany), **R. Ewing** (Univ. of Michigan), **J. Fassbender** (Univ. Kaiserslautern, Germany), **J. Hirvonen** (Army Research Lab), **K. Jones** (Univ. of Florida), **N. Kishimoto** (National Inst. of Materials Science, Japan), **S. Matsumura** (Kyushu Univ., Japan), **A. Meldrum** (Univ. of Alberta, Canada), **W. Moeller** (Forschungszentrum Rossendorf, Germany), **K. Nordlund** (Univ. of Helsinki, Finland), **K. Sickafus** (Los Alamos National Lab), **W. Skorupa** (Forschungszentrum Rossendorf, Germany), **L. Thome** (CNRS-Orsay, France), **K. Trachenko** (Univ. of Cambridge, United Kingdom), **G. Was** (Univ. of Michigan), **S. Watanabe** (Hokkaido Univ., Japan), **W. Weber** (Pacific Northwest National Lab), and **S. Zinkle** (Oak Ridge National Lab).

Symposium Organizers

Lumin Wang

University of Michigan, Dept. of Nuclear Engineering & Radiological Sciences,
2355 Bonisteel Blvd., Ann Arbor, MI 48109-2104
Tel 734-647-8530, Fax 734-647-8531, lmwang@umich.edu

Rainer Fromknecht

Forschungszentrum Karlsruhe in der Helmholtz-Gemeinschaft,
Institut für Festkörperphysik, P.O. Box 3640,
D-76021 Karlsruhe, Germany
Tel 49-7247-82-3940, Fax 49-7247-82-4624, fromknecht@ifp.fzk.de

Daniel F. Downey

Varian Semiconductor Equipment, 35 Dory Rd., Gloucester, MA 01930-2297
Tel 978-282-2226, Fax 978-281-1897, dan.downey@vsea.com

Lance L. Snead

Oak Ridge National Laboratory, Metals and Ceramics Division,
Oak Ridge TN 37831-6138
Tel 865-574-9942, Fax 865-576-8595, sneadll@ornl.gov

Heishichiro Takahashi

Hokkaido University, Center for Advanced Research of Energy Technology,
Nishi-8, Kita-ku, Hokkaido, Sapporo 060-8628, Japan
Tel 81-11-706-6767, Fax 81-11-757-3537, takahash@ufml.caret.hokudai.ac.jp

MRS Symposium S: Thermoelectric Materials 2003—Research and Applications

The symposium examines the state of the art in thermoelectric materials research. It will focus primarily on the scientific capabilities currently employed and those which are needed to provide new classes of thermoelectric materials with significant enhancement in the figure of merit through improved material properties, for example, electrical, thermal, and mechanical properties, and, ultimately, device performance. This provides a challenge to the thermoelectrics community; and, thus, the focus of this symposium is on new and innovative directions that will lead to the next generation thermoelectric materials for small-scale refrigeration and power generation applications. Potential applications for thermoelectric technologies will also be discussed with emphasis on tying specific material properties/issues to the desired applications. Overviews of some of the current application needs from thermoelectric devices and, thus, the requirements for new materials in terms of device design will be highlighted and discussed. The symposium will be designed to emphasize the multidisciplinary nature (materials science, physics, and chemistry) of the research needed to advance the science and technology of this field. Theoretical studies in the electrical and thermal properties, band structure calculations, and crystal chemistry approaches that further the “design” of materials for the most desirable thermoelectric properties will be included. Experimental efforts will include new capabilities in solid-state synthesis, new bulk materials, thin films, superlattices, and nanostructure materials. In addition, new developments in property measurement will play a central role in this symposium.

Topics to be addressed include, but are not limited to, the following:

- Theoretical guidance towards advanced thermoelectric materials
- Synthetic strategies for preparing new thermoelectric materials
- Skutterudites and clathrate compounds
- Novel chalcogenide materials
- Thermoelectric thin film, quantum well, and superlattice structures
- New measurement techniques and approaches
- Thermionic emission and other aspects of thermoelectricity
- Nanostructured materials
- Property measurement and its role in thermoelectric materials development
- Thermoelectric devices and processing (new ideas in design)

Invited speakers (partial list) include: **M.S. Dresselhaus** (Massachusetts Inst. of Technology), **T. Harman** (Lincoln Labs), **J. Heremans** (Delphi Automotive, Inc.), **M.G. Kanatzidis** (Michigan State Univ.), **G. Mahan** (Pennsylvania State Univ.), and **R. Venkatasubramanian** (RTI). Additional invited speakers will be added and upgraded from contributed papers.

Partial graduate student support may be available. For information, contact Dr. George S. Nolas (preference: gnolas@chuma1.cas.usf.edu).

Symposium Organizers

George S. Nolas

University of South Florida, Dept. of Physics,
4202 E. Fowler Ave., Tampa, FL 33620
Tel 813-974-2233, Fax 813-974-5813, gnolas@chuma1.cas.usf.edu

Jihui Yang

General Motors R&D and Planning,
Materials and Processes Laboratory, Warren, MI 48090
Tel 810-986-9789, Fax 810-986-3091, jihui.yang@gm.com

Timothy P. Hogan

Michigan State University, Dept. of Electrical Engineering,
E. Lansing, MI 48824
Tel 517-432-3176, Fax 517-353-1980, hogant@msu.edu

David C. Johnson

University of Oregon, Dept. of Chemistry,
Eugene, OR 97403
Tel 541-346-4612, Fax 541-346-4643, davej@oregon.uoregon.edu

MRS Symposium T: Self-Organized Processes in Semiconductor Heteroepitaxy

Self-organized processes occurring during semiconductor heteroepitaxy have shown significant promise for a wide range of electronic and optoelectronic applications. For example, strain-induced self assembly of zero-dimensional quantum structures has led to the fabrication of record low threshold current density lasers. In addition, ordered arrangements of low-dimensional semiconductor structures have been achieved by alloy decomposition of films and multilayers, leading to the formation of polarization-sensitive quantum wires. On an atomic scale, spontaneous long-range ordering has led to bandstructure modifications which significantly impact device performance. Furthermore, short-range ordering and/or clustering often occur and may lead to higher efficiencies of nitride-based optoelectronic devices and higher temperature operation of spintronic devices.

The goal of this symposium is to address issues related to the understanding, control, and applications of several self-organized processes in semiconductor epitaxy, including strain-induced self assembly, clustering, alloy phase separation and composition modulation, and long- and short-range ordering.

Specific topics of interest include, but are not limited to:

- Fundamental aspects of growth mechanisms
- Controlled methods for forming self-organized nanostructure arrays
- Influence of surfactants on self-organized processes
- *In-situ* studies of the role of surface-controlled processes
- Structural studies, including quantitative measurements of self-organization
- Optical, electronic, and magnetic properties of self-organized structures
- Devices exploiting self-organization phenomena

Invited speakers include: **R.N. Bhatt** (Princeton Univ.), **P.K. Bhattacharya** (Univ. of Michigan-Ann Arbor), **D. Bimberg** (Technical Univ. of Berlin, Germany), **R. Desai** (Univ. of Toronto, Canada), **G. Dohler** (Univ. Erlangen, Germany), **M. Lagally** (Univ. of Wisconsin-Madison), **J. Li** (Univ. of Houston), **S. Mahajan** (Arizona State Univ.), **P. Petroff** (Univ. of California-Santa Barbara), **C. Priester** (ISEN, France), **G. Salamo** (Univ. of Arkansas), **B. Spencer** (State Univ. of New York-Buffalo), **G. Springholz** (Inst. für Halbleiterphysik, Johannes Kepler Univ. Austria), **C. Wang** (Massachusetts Inst. of Technology-Lincoln Labs), **Z.G. Wang** (Chinese Acad. of Sciences, Beijing, China), **L. Whitman** (Naval Research Lab), and **S. Zhang** and **Y. Zhang** (National Renewable Energy Lab).

Symposium Organizers

Rachel S. Goldman

University of Michigan, Dept. of Materials Science & Engineering,
2300 Hayward St., Ann Arbor, MI 48109-2136
Tel 734-647-6821, Fax 734-763-4788, rsgold@engin.umich.edu

Richard Noetzel

Eindhoven University of Technology, COBRA Inter-University Research
Institute, P.O. Box 513, 5600 MB Eindhoven, The Netherlands
Tel 31-40-247-2047, Fax 31-40-246-1339, r.noetzel@tue.nl

Andrew G. Norman

National Renewable Energy Laboratory, MS 3215,
1617 Cole Blvd., Golden, CO 80401
Tel 303-384-6483, Fax 303-384-6604, andrew_norman@nrel.gov

Gerald B. Stringfellow

The University of Utah, College of Engineering, Rm. 214,
1495 E. 100 South, Salt Lake City, UT 84112-1109
Tel 801-581-8387, Fax 801-581-8692, stringfellow@coe.utah.edu

Symposium U: Thin Films—Stresses and Mechanical Properties X

Understanding the mechanical behavior of thin films is crucial for a wide variety of technologies, including semiconductor devices and packaging (e.g., advanced interconnects, dielectrics, and silicides), information storage media, optical films, hard coatings, micro- and nanoelectromechanical systems (MEMS and NEMS), and biomedical devices. This behavior can critically influence the design, performance, and reliability of thin-film structures used in every area of thin-film technology. However, the performance of these devices is often limited by the mechanical properties of both the films and the structures to which they are attached. The concepts, models, and techniques developed for bulk materials often do not apply to small dimensions, and the mechanisms controlling behavior are not well defined. This symposium aims to bring together researchers involved in experimental and theoretical investigations in all aspects of the mechanical behavior of metal, polymer, and ceramic thin films and related structures to help provide this understanding. Of particular interest are those studies that cut across length scales such as atomistic-to-nanometer or nanometer-to-submicron scales. Any proposed synthesis of these findings into useful algorithms for more general industrial applications would also be welcome.

Topics of interest include:

- Processing-microstructure-mechanical property relationships
- Effects of intrinsic and extrinsic stress on properties and fracture
- Elastic and plastic properties of thin films, multilayers, and surface layers
- Viscoelastic and viscoplastic behavior in polymer or carbon-based thin films
- Mechanical properties of biomaterials
- *In-situ* studies of deformation and fracture and new testing methodology
- Reliability and failure processes in thin films and devices
- Interfacial modification effects
- Tribology and wear mechanisms
- Adhesion and substrate-film interactions
- Origin of stresses in thin-film systems
- Microstructure and morphology evolution
- Growth and strain relief in multilayers
- Modeling of processes and properties

Joint sessions are anticipated with Symposia A: *Micro- and Nanosystems*, and Q: *Mechanical Properties of Nanostructured Materials and Nanocomposites*.

Invited speakers (tentative) include: **David Bahr** (Washington State Univ.), **Eric Chason** (Brown Univ.), **Robert Cook** (University of Minnesota), **Oliver Kraft** (Max-Planck-Inst. for Metals Research, Germany), and **Timothy Weihs** (Johns Hopkins Univ.).

Symposium Organizers

Sean G. Corcoran

Virginia Tech, Dept. of Materials Science & Engineering,
460 Turner St., Ste. 302, Blacksburg, VA 24061-0286
Tel 540-230-2616, Fax 540-231-3554, sgc@vt.edu

Young-Chang Joo

Seoul National University, School of Materials Science & Engineering,
Seoul 151-742, Korea
Tel 82-2-880-8986, Fax 82-2-883-8197, ycjoo@plaza.snu.ac.kr

Neville R. Moody

Sandia National Laboratories, MS 9404, P.O. Box 969,
Livermore, CA 94551-0969
Tel 925-294-2622, Fax 925-294-3410, nrmoody@sandia.gov

Zhigang Suo

Princeton University, Mechanical & Aerospace Engineering Dept.
and Princeton Materials Institute, Ste. D404, Engineering Quadrangle,
Olden St., Princeton, NJ 08544
Tel 609-258-0250, Fax 609-258-5877, suo@princeton.edu

MRS Symposium V: Critical Interfacial Issues in Thin-Film Optoelectronic and Energy Conversion Devices

There is an increasing emergence of heterostructure devices employing very diverse materials to obtain improved performance or unique functionality for a variety of optoelectronic and energy conversion applications. Many of these optoelectronic systems have their properties dominated by interfaces involving semiconductors, polymers, dyes, and electronic oxides. The symposia will focus on the critical nature of these interfaces with respect to light absorption, charge carrier separation, lifetime and transport, and device sensitivity and stability. A thrust will be to identify common themes, which could lead to improved performance. Interfacial issues are paramount because of the diverse materials and length scales employed (bulk heterostructures to nanoscale composites). Some examples are thin-film photovoltaic devices, such as the Gratzel cell, polymer photovoltaics, and photoelectrochemical cells and related electro-optical devices such as thick-film transistors, OLEDs, fuel cells, and sensors. The symposia will focus exclusively on the nature of these critical interfaces and how they influence device performance.

Overall focus will be on the emerging classes of devices with diverse heterostructures and/or composite structures on the nanoscale including:

- TFTs, OLEDs, sensors, micro-fuel cells, solid-state microbatteries, Gratzel cells, polymer and small molecule photovoltaic cells, and photoelectrochemical cells

Materials of interest include:

- Oxides, polymers/dyes, semiconductors

Forms include:

- Thick films, thin films, and composites combined so as to form self-organized or nanostructured interfaces

Growth issues will be included where the focus is the control/modification of interfacial properties. Some issues include:

- Amorphous vs crystalline films, atomically smooth vs rough surfaces, the importance of electron affinity, surface states, zeta potential, growth in high-energy environments (IBAD/ECR, etc), and low-temperature growth by sol-gel and other atmospheric processing approaches

Modeling will be investigated as it describes the nature of the interface and theoretical predictions as to the nature of controlling properties defining the interface properties.

Other areas of interest will be novel device structures and unique interfacial structures.

Joint sessions are anticipated with Symposia E: *Fundamentals of Novel Oxide/Semiconductor Interfaces*, J: *Interfaces in Organic and Molecular Electronics*, and S: *Thermoelectric Materials 2003—Research and Applications*.

A tutorial complementing this symposium is tentatively planned as part of this four-day symposium. Further information will be included in the program that will be available in September.

Invited speakers (tentative) include: **Neal Armstrong** (Univ. of Arizona), **Harry Atwater** (California Inst. of Technology), **Steven Forrest** (Princeton Univ.), **Rachel Goldman** (Univ. of Michigan), **Brian Gregg** (National Renewable Energy Lab), **John Lindsey** (North Carolina State Univ.), **Tobin Marks** (Northwestern Univ.), **Gerald Meyers** (Johns Hopkins Univ.), **Charles Tu** (Univ. of California-San Diego), **John Turner** (National Renewable Energy Lab), and **Jeff Yang** (USSC).

Symposium Organizers

David S. Ginley

NREL SERF W102, 15313 Denver West Pkwy., Golden, CO 80401
Tel 303-384-6573, Fax 303-384-6430, david_ginley@nrel.gov

Sue A. Carter

University of California, Physics Dept., Santa Cruz, CA 95064
Tel 831-459-2329, Fax 831-459-3043, sacarter@cats.ucsc.edu

Robert W. Birkmire

Institute for Energy Conversion, 451 Wyoming Rd., Newark, DE 19716
Tel 302-831-6220, Fax 302-831-6226, rwb@udel.edu

Michael Grätzel

Swiss Federal Institute of Technology, Laboratory for Photonics and Interfaces
(Institute of Physical Chemistry II), CH-1015 Lausanne, Switzerland
Tel 41-21-693-3112, Fax 41-21-693-6100, michael.graetzel@epfl.ch

MRS Symposium W: Engineered Porosity for Microphotonics and Plasmonics

Nanostructures with dimensions in the range of the wavelength of light have gained enormous interest in the last 10 years. This has driven materials research and enabled the development of novel nanostructuring techniques. Applications include ultracompact devices based on total internal reflection (classical integrated optics) as well as on Bragg reflection (photonic crystals). Initially, only dielectric nanostructures had been considered, but more recently metallic nanostructures as well as metallodielectric structures have been predicted to have a great potential in subwavelength optics.

Nanostructured dielectric and metallic materials with engineered porosity will be in the center of this symposium. This includes fabrication methods and characterization of these materials. Topics related to this, like theory and devices, will also be covered.

Papers are solicited in the following areas:

- Fabrication of photonic crystals using various methods, including lithography, self assembly, electrochemistry, holography, etc.
- Investigation of photonic crystal properties, including optical nonlinearities, photonic bandgap effects, spontaneous emission, etc.
- Theory of photonic crystals and related micro- and nanophotonic materials
- Metallic and metallodielectric photonic structures
- Plasmonic materials and devices
- Metamaterials and left-handed metamaterials
- Photonic crystal fibers and “holey” fibers
- Subwavelength optics
- Micro- and nanophotonic devices, such as optical waveguides, switches, lasers, and other components of optical integrated circuits
- Light emission from nanostructured materials
- Optical microcavities and photonic “dots”
- Novel approaches to micro- and nanophotonics

Joint sessions are anticipated with Symposium K: *Functional Organic Materials and Devices*.

Invited speakers (tentative) include: **T. Baba** (Yokohama National Univ., Japan), **S. Bozhevolnyi** (Aalborg Univ., Denmark), **K. Busch** (Univ. Karlsruhe, Germany), **P.M. Fauchet** (Univ. of Rochester), **A. Forchel** (Univ. Würzburg, Japan), **S. Kawashini** (NTT, Japan), **H. Kikuta** (Prefecture Univ., Japan), **F. Koch** (LMU Munich, Germany), **L. Kuipers** (Univ. Twente, The Netherlands), **J.M. Lourtioz** (Inst. d'Electronique Fondamentale, Orsay, France), **H. Masuda** (Metropolitan Univ., Japan), **J. Pendry** (Imperial College London, United Kingdom), and **J. Schilling** (California Inst. of Technology).

Symposium Organizers

Ralf Wehrspohn

Max-Planck-Institute of Microstructure Physics, Weinberg 2,
D-06120 Halle (Saale), Germany
Tel 49-345-558-2726, Fax 49-345-551-1223, wehrspoh@mpi-halle.de

Francisco Garcial-Vidal

Universidad Autonoma de Madrid, Dept. de la Fisica Teorica de la
Materia Condensada, 28049 Madrid, Spain
Tel 34-91-397-8515, Fax 34-91-397-4950, fj.garcia@uam.es

Masaya Notomi

NTT Basic Research Laboratories, Morinosato-Wakamiya,
Atsugi 243-0198, Japan
Tel 81-46-240-3553, Fax 81-46-240-4305, notomi@will.brl.ntt.co.jp

Axel Scherer

California Institute of Technology, MS 200-36,
1200 E. California Blvd., Pasadena, CA 91125
Tel 626-395-4691, Fax 626-577-8442, etcher@caltech.edu

MRS Symposium X: Frontiers of Materials Research

Authoritative Reviews for Nonspecialists

NOTE: This symposium is comprised of invited papers only.

The symposium provides an opportunity to learn about topics outside your usual field of materials science. Leaders in specialties represented by the topical symposia give invited reviews designed for materials researchers who are not specialists in the field. Forty-minute reviews are presented during lunch time. Deli lunches are available at the door.

We invite MRS members to forward suggestions of outstanding speakers to the symposium organizers.

Symposium Organizers

Paula T. Hammond

Massachusetts Institute of Technology, Dept. of Chemical Engineering,
Rm. 66-550, 77 Massachusetts Ave., Cambridge, MA 02139-4307
Tel 617-258-7577, Fax 617-258-5766, hammond@mit.edu

On Sabbatical through June 15, 2003, at:

California Institute of Technology, Pasadena, CA
Tel 626-395-6201, Fax 626-568-8743, hammond@mit.edu

Rommel Noufi

National Renewable Energy Laboratory, SERF Bldg.,
1617 Cole Blvd., Golden, CO 80401
Tel 303-384-6510, Fax 303-384-6430, rommel_noufi@nrel.gov

Fred Roozeboom

Philips Research, Integrated Device Technologies Group/WA 14,
Prof. Holstlaan 4, 5656AA Eindhoven, The Netherlands
Tel 31-40-274-2767, Fax 31-40-274-3352, fred.roozeboom@philips.com

Susan Trolier-McKinstry

The Pennsylvania State University, 151 Materials Research Laboratory,
University Park, PA 16802
Tel 814-863-8348, Fax 814-865-2326, stmckinstry@psu.edu

MRS Symposium Y: GaN and Related Alloys

This symposium will focus on both the fundamental issues in materials science as well as the technology of photonic, electronic, and sensor applications utilizing GaN and related alloys. The current and emerging research areas include: epitaxial growth strategies for high In content InGa_N alloys, InGaAlN alloys, and dilute nitride alloys; increasing the p-type doping levels in GaN and AlGa_N alloys; developing large-area GaN and AlN substrates; controlling and understanding the influence of defects and polarization; device processing techniques; and developing new applications for III-nitrides. The goal of this symposium is to serve as a major forum for the exchange of new ideas among researchers from a variety of technical backgrounds in order to further advance the science and technology of III-nitrides.

Topics of interest include, but are not limited to:

- Advances in epitaxial growth
- Development of native substrates
- Advances in p-type doping
- Electrical and optical characterization
- Structural characterization (including reduction of defects)
- Understanding and control of polarization effects
- Device processing (contacts, etching, implantation, etc.)
- Advances in laser diodes, LEDs and UV detectors
- High-power, high-temperature, high-frequency electronic devices

Joint sessions are anticipated with Symposia E: *Fundamentals of Novel Oxide/Semiconductor Interfaces*, and Z: *Progress in Compound Semiconductor Materials III—Electronic and Optoelectronic Applications*.

Invited speakers (partial list) include: **I. Adesida** (Univ. of Illinois, Urbana-Champaign), **B. Daudin** (CEA, France), **M. Asif Khan** (Univ. of South Carolina), **A. Krost** (Magdeburg Univ., Germany), **Z. Liliental-Weber** (Lawrence Berkeley National Lab), **O. Nam** (Samsung Advanced Inst. of Technology, Korea), **Y. Nanishi** (Ritsumeikan Univ., Japan), **M. Tanaka** (NGK Insulators, Ltd., Japan), **J.B. Webb** (National Research Council, Canada), and **A.F. Wright** (Sandia National Labs).

Symposium Organizers

Hock Min Ng

Bell Laboratories, Lucent Technologies, Rm. 6H-426,
600 Mountain Ave., Murray Hill, NJ 07974
Tel 908-582-2072, Fax 908-582-2043, hmng@lucent.com

Kazumasa Hiramatsu

Mie University, Dept. of Electrical & Electronic Engineering,
1515 Kamihama, Tsu, Mie 514-8507, Japan
Tel/Fax 81-59-231-9694, hiramatu@elec.mie-u.ac.jp

Nicolas Grandjean

CNRS-CRHEA, Rue B. Grégory, Sophia Antipolis, 06560 Valbonne, France
Tel 33-4-9395-4200, Fax 33-4-9395-8361, nicolas.grandjean@crhea.cnrs.fr

Michael Wraback

U.S. Army Research Laboratory, Sensors and Electron Devices Directorate,
2800 Powder Mill Rd., Adelphi, MD 20783
Tel 301-394-1459, Fax 301-394-2273, mwraback@arl.army.mil

MRS Symposium Z: Progress in Compound Semiconductor Materials III— Electronic and Optoelectronic Applications

Recent developments in semiconductor materials and quantum structures are leading to significant advances in optoelectronic devices such as mid-infrared lasers and light-emitting diodes; long-wavelength detectors and solar cells; and modulators and optical switches. Brought to maturity, such devices would likely see widespread use in applications as diverse as infrared imaging, chemical and biological sensing, surveillance, short-links, space-based applications, solar cells, high-bandwidth communications, and many other applications. This symposium will bring together the progress in both naturally and artificially structured “wave-function-engineered” semiconductors, focusing on epitaxial compound-semiconductor compounds and alloys. The relationships among the electronic, optical, and transport properties will be emphasized, with a focus on the implications for device design and performance.

Topics of particular interest include, but are not limited to:

Materials/Structures

- Novel low-bandgap semiconductors
- Dilute-nitride III-V alloys
- Nanostructures, pattern structures, and quantum dots
- Dilute magnetic semiconductors, such as GaAs:Mn, GaP:Mn, etc.

Properties/Characterization

- Physics of recombination and transport mechanisms
- Characterization, including optical, transport, DLTS, etc.
- Growth and materials issues: epitaxy, phase separation, doping, defects, etc.

Applications/Devices

- Heterojunction devices: HEMTs, HBTs and HFETs, e.g., based on SiGe, AlGaAs, and InGaP
- Sub-1eV detectors and solar cells
- Developments in lasers and LEDs, esp. low bandgap

Joint sessions are anticipated with Symposia N: *Quantum Dots, Nanoparticles, and Nanowires*, T: *Self-Organized Processes in Semiconductor Heteroepitaxy*, and Y: *GaN and Related Alloys*.

Invited speakers (partial list) include: **R. Crandall** (National Renewable Energy Lab), *Consequences of Meyer-Neldel Rule in Semiconductors*; **Hadis Morkoç** (Virginia Commonwealth Univ.), *Progress on Nitride Nanostructures*; **Y. Oka** (Tohoku Univ.), *Spin-Dependent Processes in II-VI Diluted Magnetic Semiconductors*; **S.J. Pearton** (Univ. of Florida), *Room-Temperature Magnetism in Wide-Bandgap DMS*; **G. Salamo** (Univ. of Arkansas), *Progress on III-V Nanostructures*; **L. Samuelson** (Univ. of Lund, Sweden), *Novel Phenomena in Zero- and One-Dimensional Structures*; **C.G. Van de Walle** (Palo Alto Research Center), *Effects of Hydrogen on Electronic Properties of Low-Bandgap Semiconductors*; and **Jerry Woodall** (Yale Univ.), *Progress on Electronic Applications*.

Symposium Organizers

Daniel Friedman

National Renewable Energy Laboratory, 1617 Cole Blvd., Golden, CO 80401
Tel 303-384-6472, Fax 303-384-6430, daniel_friedman@nrel.gov

M. O. Manasreh

Univ. of New Mexico, Dept. of Electrical & Computer Engineering,
Albuquerque, NM 87131-1356
Tel 505-277-3688, Fax 505-277-1439, manasreh@eece.unm.edu

Irina Buyanova

Linköping University, Dept. of Physics & Measurement Technology,
S-581 83 Linköping, Sweden
Tel 46-13-281745, Fax 46-13-142337, irb@ifm.liu.se

F. Danie Auret

University of Pretoria, Physics Dept., Rm. 5-6, NW1 Bldg.,
Lynnwood Rd., Pretoria 0002, South Africa
Tel 27-12-420-4151, Fax 27-12-362-5288, fauret@postino.up.ac.za

Anneli Munkholm

Lumileds Lighting, 370 W. Trimble Rd., San Jose, CA 95131
Tel 408-435-6801, Fax 408-435-6335, anneli.munkholm@lumileds.com

MRS Symposium AA: Synthesis, Characterization, and Properties of Energetic/Reactive Nanomaterials

The advent of nanomaterials has introduced a new dimension in applications of energetic and reactive materials. A fundamental understanding of their synthesis mechanisms, atomic and molecular scale structural characteristics, and an evaluation of properties combined with modeling of the limits to those properties are required to realize the full potential of energetic and reactive nanomaterials. Many techniques have been recently developed that make it possible to exploit the benefits of the “nano” structure and design materials with desired energy release rates and energy densities, while they also improve their safety, reliability, and load-bearing capability. Advances in modeling and characterization have made it possible to determine mechanisms controlling the thermal, chemical, and mechanical behavior of nanomaterials. This symposium is aimed at bringing together fundamental studies on synthesis, characterization of structure, and evaluation of properties of energetic/reactive nanomaterials for applications relevant to pyrotechnics, propellants, and explosives.

Papers are solicited in the following areas:

- Methods of synthesis and fabrication of energetic nanomaterials using sol-gel, vapor phase, combustion synthesis, mechanical alloying, and critical phenomenon (extreme thermodynamics)
- Passivation coatings and reaction-enhancing treatments, including electric and microwave fields
- Molecular dynamics modeling of energetic nanostructured materials
- Nanostructure characterization using AFM, XRDT, XPS, HRTEM, POSAP, and other methods
- Chemical properties including intra/intermolecular bonding descriptions and surface energy considerations at nanometric dimensions; mass spectroscopy; and environmental issues
- Thermal properties including fixed volume and differential scanning calorimetry
- Mechanical properties and measurements; nanoindentation; and deformation mechanisms
- Impact/shock initiation of reactions; shear banding and (hot spot) heating; nanoshock studies
- Research-based applications such as NEMS, novel propulsion systems, advanced fuzes, and pyrotechnics

A half-day tutorial is tentatively planned on subjects associated with synthesis, toxicology, fast/shock reaction characteristics, and applications of energetic and reactive nanomaterials. Further information will be included in the program that will be available in September.

Invited speakers (tentative) include: **Richard Behrens** (Sandia National Labs, Livermore), **William Buhro** (Washington Univ.), **Mengdawn Cheng** (Oak Ridge National Lab), **Robert DeAngelis** (Univ. of Florida), **Dana Dlott** (Univ. of Illinois), **John Field** (Univ. of Cambridge, United Kingdom), **Alex Gash** (Lawrence Livermore National Lab), **Michael Herrmann** (ICT, Pfintzal), **P. Jena** (Virginia Commonwealth Univ.), **Kenneth Klabunde** (Kansas State Univ.), **Michael Kramer** (AFRL/MNME), **Ken Kuo** (Pennsylvania State Univ.), **Yvonne Lanzerotti** (Picatinny Arsenal), **John Moore** (CSM), **Jan Puszynski** (South Dakota School of Mines/NSWC IH), **Betsy Rice** (Army Research Lab), **Michael Sailor** (Univ. of California-San Diego), **M. Samirant** (ISL, France), **Jagdish Sharma** (NSWC CD), **Rajiv Singh** (Univ. of Florida), **Steve Son** (Los Alamos National Lab), **Rina Tannenbaum** (Georgia Inst. of Technology), **Fred Tepper** (Argonide Corp.), **Albert Van der Steen** (TNO PML), **Arvind Varma** (Univ. of Notre Dame), **Priya Vashishta** (Univ. of Southern California), **Mana Pai Vernecker** (CMC, Inc.), **Kevin Walter** (Technanogy, LLC), **Carter White** (Naval Research Lab), **Sidney Yip** (Massachusetts Inst. of Technology), and **Michael Zachariah** (Univ. of Minnesota).

Symposium Organizers

Naresh Thadhani

Georgia Institute of Technology,
School of Materials Science and Engineering,
771 Ferst Dr., Atlanta, GA 30332-0245
Tel 404-894-2651, Fax 404-894-9140, naresh.thadhani@mse.gatech.edu

Ronald Armstrong

AFRL/MNME, 2306 Perimeter Rd., Eglin AFB, FL 32542
Tel 850-882-4212 x-201, Fax 850-882-3540,
ronald.armstrong2@eglin.af.mil

William Wilson

AFRL/MNME, Munitions Directorate, 2306 Perimeter Rd.,
Eglin AFB, FL 32542
Tel 850-882-4212 x-246, Fax 850-882-3540, wilsonwh@eglin.af.mil

John Gilman

University of California-Los Angeles, 6532 Boelter Hall,
Los Angeles, CA 90085
Tel 310-825-9608, Fax 310-206-7353, gilman@seas.ucla.edu

Zuhair Munir

University of California-Davis, Dept. of Mechanical and
Aeronautical Engineering, Davis, CA 95616
Tel 530-752-4058, Fax 530-752-9554, zamunir@ucdavis.edu

MRS Symposium BB: Materials and Technologies for a Hydrogen Economy

This symposium is aimed to serve as a forum for discussion on fundamentals and applied aspects of hydrogen storage materials. Emphasis will be on synthesis and performance of new advanced materials including novel new compounds, complex chemical hydrides, alloys, carbonaceous materials and derivatives, zeolitic materials, porous and nanoscale materials, and novel hybrid materials. Theoretical treatment of hydrogen storage materials and application of hydrogen storage materials in fuel cells, batteries, sensors, and electrochromic displays also will be included in this symposium. The symposium will not include pressurized and liquid hydrogen tanks and nonreversible hydrolysis technology.

Papers are solicited for the following topical areas:

- New concepts in solid-state hydrogen storage materials
- Theoretical treatment of hydrogen storage materials
- Novel material synthesis, including, but not limited to, ceramic, microwave, sonochemistry, soft chemistry, hydrothermal, energetic milling, low-temperature processes, displacement reactions, etc.
- Novel new compounds for hydrogen storage
- Complex chemical hydrides and their modified derivatives
- Alloys, crystalline, amorphous, and modified metastable phases
- Carbonaceous materials, including activated systems, nanotubes, fullerene and its derivatives
- Hybrid inorganic-organic materials and composites
- Novel diagnostic techniques to study hydrogen storage materials
- Application of hydrogen storage materials in fuel cells, batteries, sensors, and electrochromic displays

Four days of oral presentations are tentatively planned and also evening poster sessions. A joint session is anticipated with Symposium CC: *Microbattery and Micropower Systems*.

A tutorial complementing this symposium is tentatively planned. Further information will be included in the program that will be available in September.

Invited speakers (tentative and partial list) include: **B. Bogdanovic** (Max-Planck-Inst., Germany), **M. Fetcenko** (Ovonic Battery Co.), **H. Fujii** (Hiroshima Univ. Japan), **K. Gross** (Sandia National Labs), **M. Hampton** (Univ. of Central Florida), **R. Huggins** (Univ. of Kiel, Germany), **C. Jensen** (Univ. of Hawaii), **J. Lin** (National Univ. of Singapore), **Ph. Mauron** (Univ. de Fribourg, Switzerland), **C. Montella** (CNRS Grenoble, France), **T. Nakagawa** (Tohoku Univ., Japan), **E. Newson** (Paul Scherrer Inst., Switzerland), **D. Northwood** (Univ. of Windsor, Canada), **M. Ouwerkerk** (Philips Research, The Netherlands), **N. Rodriguez** (Northeastern Univ.), **R. Schulz** (HERA, Canada), **V. Verbetsky** (Moscow State Univ., Russia), **Q. Wang** (Zhejiang Univ., China), and **G. Wolf** (Technische Univ., Freiberg, Germany).

Symposium Organizers

Gholam-Abbas Nazri

General Motors R&D and Planning Center, MC 480-102-RCEL,
30500 Mound Rd., Warren, MI 48090-9055
Tel 586-986-0737, Fax 586-986-2244, g.nazri@gm.com

Chen Ping

National University of Singapore, Dept. of Physics,
10 Kent Ridge Crescent, Singapore
Tel 65-874-2982, Fax 65-777-6126, phychenp@nus.edu.sg

Maryam Nazri

Massachusetts Institute of Technology, Dept. of Mechanical Engineering,
77 Massachusetts Ave., Cambridge, MA 02139
Tel 248-761-0096, nazri@mit.edu

Rosa Chiang Young

Chevron Texaco Ovonic, Hydrogen Systems,
2983 Waterview Dr., Rochester Hills, MI 48309
Tel 248-293-8772, Fax 248-299-4520, ryoung@ovonic.com

MRS Symposium CC: Microbattery and Micropower Systems

Miniature power sources have become a critical technology for mobile and remote electronic devices, such as portable computers, communication devices, MEMS, and sensors. They have also become a critical enabling technology for implantable devices (sensors and actuators) in humans. The applications range from palm-size to micrometer/nanometer-size electronic devices that can benefit from on-board power sources. Local power sources can provide higher mobility and longer life. Power supplies integrated directly into electronic devices can also provide low-parasitic-performance characteristics, and lowest size and weight.

This symposium will focus on the scientific and technological aspects of miniature power sources and their applications. There are five areas targeted in this symposium:

- Nano/micro/mini fuel cell materials and design, membranes or electrolytes, electrodes, fuels, integration issues, and implementation of nano/micro/mini fuel cells
- Thin-film and microbatteries (especially secondary batteries): materials and methods of deposition of battery electrodes, characterization of battery performance, cathode materials, anode materials, electrolytes, separators, integration issues, and lifetimes
- Micropower supplies: nontraditional miniature energy sources, means of energy conversion, materials, and performance
- Modeling of batteries, fuel cells, and other energy conversion devices, especially as it pertains to miniaturization
- Usage of miniature energy sources: materials requirements, lifetimes, and benefits, especially as it applies to portable electronics and implantable devices

Invited speakers include: **Jeanne Pavio** (Motorola Inc.), **Shimshon Gottesfeld** (Mechanical Technology Inc.), **Mashahiro Tatusumisago** (Osaka Prefecture Univ), **John B. Bates** (Oak Ridge Micro-Energy), **Sossina Haile** (California Inst. of Technology), **Robert Savinell** (Case Western Reserve Univ.), **Ryoji Kanno** (Tokyo Inst. of Technology), **Paul J.A. Kenis** (Univ. of Illinois), **Richard Masel** (Univ. of Illinois), **Karen Swider-Lyons** (Naval Research Lab), **Cristina H. Amon** (Carnegie Mellon Univ.), **Ratnakumar Bugga** (Jet Propulsion Lab), **Evan O. Jones** (Pacific Northwest National Lab), and **John Harb** (Brigham Young Univ.).

Symposium Organizers

Paul A. Kohl

Georgia Institute of Technology, School of Chemical Engineering,
Atlanta, GA 30332-0100
Tel 404-894-2893, Fax 404-894-2866, paul.kohl@che.gatech.edu

Jesse Wainright

Case Western Reserve University, 10900 Euclid Ave., Cleveland, OH 44106
Tel 216-368-4072, Fax 216-368-3016, jsw7@po.cwru.edu

B.V.R. Chowdari

National University of Singapore, Physics Dept.,
Singapore 119260
Tel 65-6874-2956 or -2604, Fax 65-6777-6126, phychowd@nus.edu.sg

MRS Symposium DD: Actinides—Basic Science, Applications, and Technology

Actinides are an important, if sometimes unwanted, part of highly technological societies. Actinide materials present extreme scientific challenges to the materials research community. Their complex electronic structures result in many abnormal properties that even today are not well understood, if at all. The focus will be fundamental actinide science and its role in resolving technical challenges posed by actinide materials. Both basic and applied experimental approaches, as well as theoretical modeling and computational simulations, are planned to be part of this symposium. The symposium is expected to extend over a four-day period.

Topics of particular interest include:

- Fundamental physical properties
- Theory, calculations and simulations
- Synchrotron-radiation-based investigations
- Waste form materials science
- Solution chemistry
- Separation science
- Electronic and magnetic properties and their relationship to physical structure
- Synthetic methods
- Optical properties
- Behavior under extreme conditions such as high pressures
- Heavy element research
- Environment/remediation

Invited speakers (partial list) include: **M. Antonio** (Argonne National Lab), **T. Fryberger** (DOE), **S. Hecker** (Los Alamos National Lab), **B. Johansson** (Uppsala Univ., Sweden), **G. Kotliar** (Rutgers Univ.), **G. Lander** (ITU, Germany), **B. Maple** (Univ. of California-San Diego), **J. Sarrao** (Los Alamos National Lab), and **W. Wolfer** (Lawrence Livermore National Lab).

Symposium Organizers

James G. Tobin

Lawrence Livermore National Laboratory, L-356,
7000 East Ave., P.O. Box 808, Livermore, CA 94550
Tel 925-422-7247, Fax 925-423-7040, tobin1@llnl.gov

John Joyce

Los Alamos National Laboratory, MS K764,
Los Alamos, NM 87545
Tel 505-667-6431, Fax 505-665-7652, jjoyce@lanl.gov

Malcolm F. Nicol

University of Nevada Las Vegas, High Pressure Science & Engineering Center,
Box 4002, Las Vegas, NV 89154-4002
Tel 702-895-1725, Fax 702-895-0804, nicol@physics.unlv.edu

David Shuh

Lawrence Berkeley National Laboratory, MS 70A-1150,
1 Cyclotron Rd., Berkeley, CA 94720
Tel 510-486-6937, Fax 510-486-5596, dkshuh@lbl.gov

Lynda Soderholm

Argonne National Laboratory, 9700 S. Cass Ave., Argonne, IL 60439
Tel 630-252-4364, Fax 630-252-9289, soderholm@anlchm.chm.anl.gov

MRS Symposium EE: Frontiers in Superconducting Materials—New Materials and Applications

This symposium will cover ongoing research on high-temperature superconductor (HTS) cuprates and magnesium diboride superconductors. Focus will be on research leading to applications of these materials in power as well as electronics, using technologies such as coated conductors and atomic-layer-controlled epitaxial film growth. In addition, a forum will be provided for new developments in nanoscale characterization of superconductors.

Contributions will be solicited in, but not limited to, the following areas:

- Crystal chemistry and superconductivity in HTS cuprates
- Boride superconductors: bulk and film materials
- Nanocharacterization methods for superconductors and superconductivity in nanosized structures
- Organic superconductors and field-induced superconductivity
- RF properties of new superconductors and their applications
- Understanding and improving flux pinning in novel superconductors
- Viable methods for production of HTS coated conductors
- Advances in HTS wires and their applications
- AC losses in HTS wire
- Routes for *in situ* growth of MgB₂ films and devices
- High-perfection HTS films
- Interfaces and grain boundaries in HTS

Invited speakers (partial list) include: **J.C. Seamus Davis** (Cornell Univ.), **Judith Driscoll** (Cambridge Univ., United Kingdom), **Jim Eckstein** (Univ. of Illinois), **Ron Feenstra** (Oak Ridge National Lab), **Robert Hammond** (Superconductor Technologies Inc.), **Yasuhiro Iijima** (Fujikura, Japan), **Masashi Kawasaki** (Tohoku Univ., Japan), **David Larbalestier** (Univ. of Wisconsin), **Oomen Marijn** (Siemens, Germany), **Werner Prusseit** (THEVA GmbH, Germany), **Joan Redwing** (Pennsylvania State Univ.), **John Rowell** (Arizona State Univ.), **Bennie ten Haken** (Univ. of Twente, The Netherlands), **Alexander Usoskin** (Zentrum für Funktionswerkstoffe GmbH, Germany), and **Jiro Yoshida** (Toshiba, Japan).

Symposium Organizers

Vladimir Matias

Los Alamos National Laboratory, Superconductivity Technology Center,
MS T004, Los Alamos, NM 87545
Tel 505-663-5564, Fax 505-663-5550, vlado@lanl.gov

Xiaoxing Xi

The Pennsylvania State University, Dept. of Physics,
104 Davey Lab, University Park, PA 16802
Tel 814-863-5350, Fax 814-865-3604, xxx4@psu.edu

John Talvacchio

Northrop Grumman Corporation, MS 3A13, P.O. Box 1521,
Baltimore, MD 21203
Tel 410-765-1583, Fax 410-981-2786,
talvac@stymie.md.essd.northgrum.com

Zhenghe Han

Tsinghua University, Applied Superconductivity Research Center,
Bldg. Li Zhai, Rm. 111, Beijing 100084, P.R. China
Tel 86-10-6277-1331, Fax 86-10-6278-5913, z.han@tsinghua.edu.cn

Heinz-Werner Neumueller

Siemens, Dept. of Power Components and Superconductivity, CT EN4,
Corporate Technology, Paul Gossen Str. 100, D-91050 Erlangen, Germany
Tel 49-91317-33083, Fax 49-91317-21339,
heinz-werner.neumueller@siemens.com

MRS Symposium FF: Advanced Magnetic Nanostructures

Traditional magnetic materials are quickly approaching their theoretical and practical limits for applications in spintronic and data storage devices. Novel magnetic nanostructures, either self assembled or lithographically defined, may have unique magnetic properties. When combined with other functional materials, such as semiconductors and ferroelectrics, these structures could be the basis of future electronic devices.

Topics of solicited papers include, but are not limited to:

- Nanopatterned magnetoelectronic devices
- Coulomb blockade and single electron effects in magnetic nanostructures
- Hybrid piezoelectric/semiconductor/magnetic devices
- Magnetic nanoparticles
- New fabrication and characterization techniques
- Patterned data storage media
- Spin transfer phenomena
- Theory of magnetic nanostructures

A joint session is anticipated with Symposium GG: *Advanced Characterization Techniques for Data Storage Materials*.

A tutorial complementing this symposium is tentatively planned. Further information will be included in the program that will be available in September.

Invited speakers (tentative) include: **Charles Ahn** (Yale Univ.), *Modulating Magnetic Thin Films Using Ferroelectrics*; **Dora Altbir** (Univ. de Santiago de Chile, Chile), *Phase Diagram of Magnetic Dots*; **Roy Chantrell** (Seagate Research), *Modeling of FePt Nanoparticles*; **Karine Chesnels** (Advanced Light Source, Lawrence Berkeley Lab), *Resonant X-Ray Reflectivity of Magnetic Dots*; **Albert Fert** (Univ. Paris Sud, France), *Current-Induced Switching in Magnetic Nanowires*; **Marcos Grimsditch** (Argonne National Laboratory), *Brillouin Scattering in Magnetic Nanodots*; **Kannan Krishnan** (Univ. of Washington), *Shape Effects in Nanoelements*; **Jérôme Moritz** (SPINTEC, Grenoble, France), *Patterned Media, Dynamical Switching*; **Ivan K. Schuller** (Univ. of California-San Diego), *Exchange-Biased Nanostructures*; **Thomas Thomson** (Hitachi San Jose Research Ctr.), *Neutron Scattering in Magnetic Nanoparticles*; and **Mark Tuominen** (Univ. of Massachusetts-Amherst), *Guided Self Assembly of Magnetic Nanostructures*.

Symposium Organizers

Bernard Dieny

CEA/Grenoble, DRFMC/SP2M/SPINTEC, 38054 Grenoble, Cedex 9, France
Tel 33-4-3878-3870, Fax 33-4-3878-2127, bdieny@cea.fr

Timothy Klemmer

Seagate Research, 1251 Waterfront Pl., Pittsburgh, PA 15222-4215
Tel 412-918-7043, Fax 412-918-7222, timothy.j.klemmer@seagate.com

Helen Laidler

The University of York, Magnetic Materials Research Group,
Dept. of Physics, Heslington, York YO10 5DD, United Kingdom
Tel 44-1904-432288, Fax 44-1904-432214, hl5@york.ac.uk

David Lederman

West Virginia University, Dept. of Physics, Morgantown, WV 26506-6315
Tel 304-293-3422 x-1494, Fax 304-293-5732,
david.lederman@mail.wvu.edu

Bruce Terris

Hitachi San Jose Research Center, 650 Harry Rd., San Jose, CA 95120
Tel 408-927-1517, Fax 408-927-2100, terris@almaden.ibm.com

MRS Symposium GG: Advanced Characterization Techniques for Data Storage Materials

The emphasis of this symposium will be on advanced characterization of surfaces and nanostructured materials with respect to chemical analysis, switching dynamics, and probe techniques. The symposium will highlight both fundamental physical and chemical phenomena related to these systems as well as advanced characterization in the development of new types of data storage devices.

While data storage approaches ultrahigh densities, the bit size and granular structures of recording media rapidly approach nanometer scales. With advances in thin-film preparation techniques, the structural, electronic, and magnetic properties become increasingly sensitive to surface contributions. Not only are novel preparation techniques required to achieve control over these affects, but also advanced characterization techniques of static and dynamic properties at interfaces and surfaces with very high temporal and lateral resolution.

Topics of solicited papers include, but are not limited to:

- Surface sciences, analytical methods, and concepts of functionalization
- Determination of low-impurity concentration (SAEM, TXRF, SIMS, and TOFSIMS)
- Lifetime measurements (time-resolved photoluminescence, etc.)
- Switching dynamics (time-resolved MOKE, etc.)
- Device structure imaging and critical dimensions (CD SEM, CD AFM, and TEM)
- Scanning probe techniques (MFM, spin polarized STM, STS, AFM, NSOM, etc.)

Invited speakers include: **Harald Brune** (Ecole Polytechnique Federale, Lausanne, France), *The Evolution of Magnetism from Adatoms to 2D Nanostructures*; **Robert M. Buhrman** (Cornell Univ.), *Ballistic Electron Magnetic Microscopy of Magnetic Nanostructures*; **Yukio Hasegawa** (Univ. of Tokyo, Japan), *X-Ray and Synchrotron Radiation Source Combined Scanning Tunneling Microscopy for Elemental Analysis*; **Hans Hug** (Univ. of Basel, Switzerland), *High-Resolution Quantitative Magnetic Force Microscopy*; **Jürgen Kirschner** (Max-Planck-Inst. Halle, Germany), *Coincidence Spectroscopy of Correlated Electron Pairs*; **Richard Palmer** (Univ. of Birmingham, United Kingdom), *Scanning Probe Energy Loss Spectroscopy (SPEL)*; **Hans C. Siegmann** (Stanford Univ.), *Nanoscale Magnetization Dynamics, PEEM Spectromicroscopy*; and **Roland Wiesendanger** (Univ. of Hamburg, Germany), *Spin-Polarized Scanning Tunneling Microscopy*.

Symposium Organizers

Joachim Ahner

Seagate Technology, 1251 Waterfront Pl., Pittsburgh, PA 15222
Tel 412-918-7230, Fax 412-918-7222, joachim.ahner@seagate.com

Jeremy Levy

University of Pittsburgh, Dept. of Physics & Astronomy,
409 Allen Hall, Pittsburgh, PA 15260
Tel 412-624-2736, Fax 412-624-2463, jlevy@pitt.edu

Jun Yoshinobu

The University of Tokyo, Institute for Solid State Physics,
5-1-5 Kashiwanoha, Kashiwa-city, Chiba 2778581, Japan
Tel/Fax 81-471-36-3320, yoshinobu@issp.u-tokyo.ac.jp

H.-J. Güntherodt

Universität Basel, Institut für Physik, Klingelbergstrasse 82,
CH-4056 Basel, Switzerland
Tel 41-61-267-3767, Fax 41-61-267-3795,
hans-joachim.guentherodt@unibas.ch

Maki Kawai

The Institute of Physical and Chemical Research,
Surface Chemistry Laboratory, 2-1 Hirosawa, Wako, Saitama 351-01, Japan
Tel 81-48-467-9405, Fax 81-48-462-4663, maki@postman.riken.go.jp

MRS Symposium HH: Phase Change and Nonmagnetic Materials for Data Storage

The purpose of this symposium is to discuss phase change and other nonmagnetic materials for use in emerging or next-generation nonvolatile storage systems. The materials may be used in leading-edge optical data storage systems or alternative, non-optical storage devices.

This session provides a forum for the technical community to exchange information on the status of data recording, devices, systems, and applications. Discussion will cover a broad range of topics from basic theory to manufacturing issues including the latest developments in media, components, system, and future technologies.

Topics to be addressed in this symposium include:

- New materials and developments
- Materials selection and synthesis
- Optical and electronic properties
- Structure and microstructure
- Phase transformation kinetics
- Optical and electronic storage applications

The following materials will be covered:

- Phase change materials
- Nonmagnetic materials
- Materials for write-once media
- Thermochromic materials
- Environmentally friendly storage media
- Materials for non-optical storage

A tutorial on the principles of optical recording is tentatively planned. Further information will be included in the program that will be available in September.

Invited speakers include: **Tow Chong Chong** (Data Storage Inst. of Singapore), **Dimitre Dimitrov** (ITRI, Taiwan), **Daniel Fischer** (NIST), **Michikazu Horie** (Mitsubishi Chemical, Japan), **Bérangère Hyot** (LETI, France), **Kazunori Ito** (Ricoh, Japan), **S. Youl Kim** (Ajou Univ., Korea), **Seong-Sue Kim** (Samsung, Korea), **Koichiro Kishima** (Sony, Japan), **Martijn Lankhorst** (Philips, The Netherlands), **Tyler Lowrey** (Ovonyx), **Masud Mansuripur** (Univ. of Arizona), **Michael Morelli** (Intel), **Tooru Murashita** (NTT, Japan), **Shuichi Ohkubo** (NEC, Japan), **Masahiro Okuda** (Okuda Tech. Ofc., Japan), **R. Stanford Ovshinsky** (Energy Conversion Devices), **D. Han-Ping Shieh** (NCT Univ., Taiwan), **Rob Somekh** (Plasmon, United Kingdom), **Motoyasu Terao** (Hitachi, Japan), **Junji Tominaga** (AIST, Japan), **C. David Wright** (Exeter Univ., United Kingdom), **Matthias Wuttig** (RWTH-Aachen, Germany), **Noboru Yamada** (Matsushita, Japan), and **Keiichiro Yusu** (Toshiba, Japan).

Symposium Organizers

Takeo Ohta

Energy Conversion Devices, Inc.,
2956 Waterview Dr., Rochester Hills, MI 48309
Tel 248-293-6220, Fax 248-844-2290, ohta@ovonic.com

Kristin A.M. Scott

Plasmon Inc., 4425 Arrows West Dr., Colorado Springs, CO 80907-3489
Tel 719-593-4462, Fax 719-593-4271, kristin.scott@plasmon.lms.com

Andrei Mijiritskii

Philips Research Laboratories, Storage Physics (WY31),
Prof. Holstlaan 4, 5656 AA Eindhoven, The Netherlands
Tel 31-40-274-4455 or -2949, Fax 31-40-274-4927,
andrei.mijiritskii@philips.com

Lambertus Hesselink

Stanford University, CIS-X Rm. 325, Stanford, CA 94305
Tel 415-269-7102, Fax 650-725-3459, bert@kaos.stanford.edu

MRS Symposium II: The Science of Gem Materials

No materials are endowed with a greater social significance than gems. From Biblical times to the present, precious stones and metals have served as the standard by which empires have measured their worth; and diamonds certify the oldest and most sacred of human contracts. However, gemstones also are increasingly appreciated for their scientific importance. They serve as our best repository of information concerning the structure of the earth's interior (diamond, garnet, peridot) and the geochemical changes produced by plate tectonics (jadeite). They are structural analogs for novel photonic materials (opal), superhard substances (diamond, corundum), and organoceramic composites (pearl, ivory). Much of what we know about the nature of light, electricity, and their interaction with the solid state derives from investigations of nearly defect-free gem materials (quartz, tourmaline). This symposium is intended to bring together scientists who have studied gemstones from geological, technological, and sociological perspectives.

Papers regarding gem materials are solicited in, but not limited to, the following areas:

- Geological origin and implications for Earth history
- Causes of coloration
- Optical phenomena: chatoyancy, asterism, and iridescence
- Electrical and magnetic properties
- Hardness and toughness
- Luminescence
- Characterization of solid, liquid, and gas inclusions in gems
- Trace impurities and microanalysis of gems
- Means of gem identification and authentication
- Methods of gem synthesis
- Developing and detecting gem enhancements
- Prospecting for gemstones
- Technological uses for gem materials
- Geomimetic design of gem-inspired materials
- Social and political ramifications of the gem trade

Invited speakers (partial list) include: **Alain Cheilletz** (Ecole Nationale Supérieure de Géologie, France), **Emmanuel Fritsch** (CNRS-IMN, France), **Mary Garland** (Univ. of Toronto, Canada), **Lee Groat** (Univ. of British Columbia), **Robert Hazen** (CIW-Geophysical Lab), **Tom Moses** (Gemological Inst. of America), **Robert Proctor** (Pennsylvania State Univ.), **John Rakovan** (Univ. of Miami-Ohio), **Alan Sellinger** (Opsys Displays), **Orlin Velev** (North Carolina State Univ.), **Bruce Watson** (Rensselaer Polytechnic Inst.), and **Michael Wise** (Smithsonian Inst.).

Symposium Organizers

Peter J. Heaney

The Pennsylvania State University, Dept. of Geosciences,
309 Deike Bldg., University Park, PA 16802
Tel 814-865-6821, Fax 814-863-8724, heaney@geosc.psu.edu

Jeffrey E. Post

Smithsonian Institution, Dept. of Mineral Sciences,
P.O. Box 37012, Washington, DC 20013-7012
Tel 202-351-4009, Fax 202-357-2476, post.jeffrey@nmnh.si.edu

Thomas Moses

Gemological Institute of America, Rm. 200,
580 Fifth Ave., New York, NY 10036
Tel 212-221-5858, tmoses@gia.edu

MRS Symposium JJ: Combinatorial and Artificial Intelligence Methods in Materials Science II

Combinatorial and artificial intelligence methods in materials science are becoming more commonly used to synthesize, test, characterize, and predict promising candidate materials. These methods open up the exploration of multidimensional chemical composition and process parameter space at a previously unavailable level of detail and can rapidly optimize molecular properties and process conditions that are difficult to predict using existing knowledge. The key aspect in the success of the combinatorial materials developments relies on the integration of a diverse range of scientific disciplines that address issues of material compositions, process conditions, experimental designs, array fabrication methods, characterization tools, data mining, and informatics.

The purpose of this symposium is to inspire discussions between scientists from multiple disciplines with the main inputs from materials sciences, chemistry, physics, measurement sciences, chemical and mechanical engineering, informatics, and systems engineering. These multidisciplinary discussions will 1) identify gaps in cross-discipline knowledge that hinder further research, 2) outline emerging development areas, and 3) stimulate nontraditional solutions for difficult multidisciplinary problems in high-throughput materials research. The symposium will provide a broad coverage across five major technical areas: combinatorial materials synthesis; high-throughput materials testing and characterization; artificial intelligence methods for knowledge discovery; experimental designs and library fabrication; and performance of combinatorially discovered materials in practical applications.

Papers are solicited in the following principal topical areas:

- Combinatorial materials synthesis
 - Electronic materials (including optical materials, magnetic materials, ferroelectric/dielectric materials)
 - Molecularly imprinted materials for separations and sensors
 - Polymer composites
 - Homogeneous and heterogeneous catalysts
 - Nanomaterials (including nanocomposites and nanoparticles)
 - Biomaterials
- High-throughput materials testing and characterization on a combinatorial scale
 - Noncontact and nondestructive characterization of materials libraries
 - Rapid characterization of composition and microstructure
 - Algorithms for high-throughput optimization of materials and process parameters
- Artificial intelligence methods for knowledge discovery
 - Pattern recognition, neural networks, and quantitative chemometrics
 - Qualitative and quantitative image analysis of materials arrays
 - Computational combinatorial chemistry
 - Data mining and informatics
- Library fabrication and experimental designs
 - Discrete arrays, composition-spread techniques, gradient libraries
 - 1-D, 2-D, and 3-D arrays
- Performance of combinatorially discovered materials in practical applications
 - Validation methods from process-to-combinatorial and back-to-process scales
 - Scale-up issues

Invited speakers include: **Kathryn Beers** (NIST), **Wilfrid Blokzijl** (Unilever, United Kingdom), **Mark Bradley** (Univ. of Southampton, United Kingdom), **Bret Chisholm** (GE Global Research), **Alfred Crosby** (Univ. of Massachusetts), **Marty Devenney** (Symyx), **Daniel Fischer** (NIST), **Jan Genzer** (North Carolina State Univ.), **David Ginley** (National Renewable Energy Lab), **Dan Hancu** (GE Global Research), **Kenji Itaka** (Tokyo Inst. of Technology, Japan), **Ghassan Jabbour** (Univ. of Arizona), **Oleg Kolosov** (Symyx), **Momoji Kubo** (Tohoku Univ., Japan), **Horoshi Kumigashira** (Univ. of Tokyo, Japan), **Olivier Lavastre** (Univ. de Rennes, France), **Mikk Lippmaa** (Univ. of Tokyo, Japan), **Wilhelm F. Maier** (Univ. of Saarlandes, Germany), **Carson Meredith** (Georgia Tech Inst.), **Vladimir Mirsky** (Univ. of Regensburg, Germany), **Miro Petro** (Symyx), **Ulrich S. Schubert** (Eindhoven Univ. of Technology, The Netherlands), **Steve Semancik** (NIST), **Ichiro Takeuchi** (Univ. of Maryland), **Frank Tsui** (Univ. of North Carolina), **Xiao-Dong Xiang** (Intematix), **Atsushi Yamamoto** (Advanced Inst. for Science and Technology, Japan), and **Andrei K. Yudin** (Univ. of Toronto, Canada).

Symposium Organizers

Radislav A. Potyrailo

G.E. Global Research Center, Combinatorial Chemistry Laboratory,
P.O. Box 8, Schenectady, NY 12301
Tel 518-387-7370 or -5257, Fax 518-387-5604, potyrailo@crd.ge.com

Qi Wang

National Renewable Energy Laboratory, MS 3212,
1617 Cole Blvd., Golden, CO 80401
Tel 303-384-6681, Fax 303-384-6430, qi_wang@nrel.gov

Toyohiro Chikyow

National Institute for Material Science (NIMS),
Nanomaterial Research Laboratories, 1-2-1 Sengen,
Tsukuba, Ibaraki 305-0047, Japan
Tel 81-298-59-2746, Fax 81-298-59-2701, chikyow.toyohiro@nims.go.jp

Alamgir Karim

National Institute for Standards and Technology,
Polymers Division, MS 8542, 100 Bureau Dr., Gaithersburg, MD 20899
Tel 301-975-6588, Fax 301-975-4924, alamgir.karim@nist.gov

MRS Symposium KK: Atomic Scale Materials Design—Modeling & Simulation

Computational materials science has evolved to the point that technological problems related to materials design, processing, and chemical synthesis are being investigated directly by atomic scale calculation. One goal of this symposium is to bring together scientists working with similar algorithms and techniques on diverse applications. Another is to foster interactions with experimentalists who can address the computational materials science community about opportunities for atomic scale modeling and simulation.

The symposium will focus on innovative applications and new methods of atomic-scale modeling for materials problems with technological or industrial applications. Topics of interest include, but are not limited to:

- Structural materials and mechanical properties
- Magnetic materials
- Plasmas, chemical vapor deposition, atomic layer deposition, and materials processing
- Semiconductor materials: Si, SiC, SiGe, SOI, GaN, GaInNAs, etc.
- Nanostructures
- Chemomechanical processes
- Major methodological advances

This symposium is tentatively planned to be held for two days.

Invited speakers (tentative) include: **Rod Bartlett** (Univ. of Florida), *Chemical Realism in Multiscale Simulation of Chemomechanical Processes*; **KJ. Cho** (Stanford Univ.), *DFT Study of High-k Dielectrics and Interfaces*; **S.C. Glotzer** (Univ. of Michigan), *What Do We Learn from the Geometry of Glass-Forming Liquids?*; N.M. Harrison (Daresbury Lab and Imperial College, United Kingdom), *First Principles Simulation of Surfaces and Interfaces*; **Kimmo Kaski** (Helsinki Univ. of Technology, Finland), *Carbon Nanotube Structures: Molecular Dynamics Simulations at Realistic Limit*; **S.T. Pantelides** (Vanderbilt Univ.) or **Zhenyu Zhang** (Oak Ridge National Lab), *Island Shape Selection in Pt(111) Submonolayer Homoepitaxy with or without CO as an Adsorbate*; **Otto Sankey** (Arizona State Univ.), **Mark Ratner** (Northwestern Univ.), *Molecular Electronics*; **Sidney Yip** (Massachusetts Inst. of Technology), *Mechanical Failure Simulations*; and **Alex Zunger** (National Renewable Energy Lab), *First Principles Theory of Alloy Precipitates*.

Symposium Organizers

Samuel B. Trickey

Univ. of Florida, Quantum Theory Project, Depts. of Physics and Chemistry,
Box 118435, 2324 New Physics Bldg., Gainesville, FL 32611-8435
Tel 352-392-1597, Fax 352-392-8722, trickey@qtp.ufl.edu

Noam Bernstein

Naval Research Laboratory, Center for Computational Materials Science,
Code 6390, 4555 Overlook Dr. SW, Washington, DC 20375
Tel 202-404-8628, Fax 202-404-7546, bernstei@dave.nrl.navy.mil

Jim Greer

University College, National Microelectronics Research Centre,
Lee Maltings, Prospect Row, Cork, Ireland
Tel 353-21-490-4345, Fax 353-21-427-0271, jim.greer@nmrc.ie

Anatoli Korkin

Motorola Inc., DigitalDNA Lab, Semiconductor Products Sector,
MD EL722, 2100 E. Elliot Rd., Tempe AZ, 85284
Tel 480-413-2693, Fax 480-413-4511, anatoli.korkin@motorola.com

MRS Symposium LL: Quasicrystals

The field of quasicrystals has continued to both expand into new areas of fundamental research and capture attention for technological applications. This symposium aims to focus on recent developments to update the field of quasicrystalline research for the materials research community. Papers are requested on the search for new quasicrystalline alloys and, in particular, complex intermetallic alloys having icosahedral structural order at length scales below unit cell dimensions; relationships between short-range order in stable and metastable quasicrystalline phases that form directly from liquid and amorphous phases; properties and growth characteristics of quasicrystalline surfaces; thin-film growth and characterization; structure determinations; bulk mechanics such as deformation and fracture in quasicrystalline and complex intermetallic phases; efforts to grow larger and higher-quality samples which facilitate the testing of physical properties; and processing and applications.

Papers are solicited in the following areas.

- New advances in growth and processing of quasicrystalline samples
- Physical behavior of structurally complex intermetallic phases
- Structure determination (e.g., by TEM, neutron, and x-ray scattering)
- Quasicrystal formation from liquids and glasses
- New alloys, new phases, and phase diagram delineation
- Interfaces and growth defects
- Surface properties and tribology
- Electronic and magnetic bulk properties
- Thin-film growth and characterization
- Applications in surface coatings, sensors, thermal barriers, infrared sensors, thermoelectrics, catalysts, and hydrogen storage

A one-day joint session focused on quasicrystal formation from amorphous metallic alloys is anticipated with Symposium MM: *Amorphous and Nanocrystalline Metals*.

A tutorial complementing this symposium is tentatively planned. Further information will be included in the program that will be available in September.

Invited speakers include: **G. Bonhomme** (St.-Gobain, USA), **Ratnamala Chatterjee** (Indian Inst. of Technology, India), **J. Corbett** (Ames Lab), **J. Dolinsek** (Univ. of Ljubljana, Slovenia), **J.-M. Dubois** (Ecoles des Mines, France), **Michel Duneau** (Ecole Polytechnique, France), **J. Eckert** (IFW Dresden, Germany), **M. Heggen** (Forschungszentrum Juelich GmbH, Germany), **D. Holland-Moritz** (DLR Cologne, Germany), **A. Inoue** (IMR, Tohoku Univ., Japan), **T. Ishimasa** (Hokkaido Univ., Japan), **M. Krajci** (Slovak Acad. of Sciences, Slovak Rep.), **G. Kreiner** (MPI-Dresden, Germany), **E. Macia** (Univ. Complutense, Spain), **R. Mandal** (Indian Inst. of Technology, India), **R. McGrath** (Univ. of Liverpool, United Kingdom), **H. Takakura** and **A.-P. Tsai** (NIMS, Japan).

Symposium Organizers

Esther Belin-Ferré

LCPMR, 11 Pierre et Marie Curie, 75231 Paris, Cedex 05, France
Tel 33-1-4427-6620, Fax 33-1-4427-6226, belin@ccr.jussieu.fr

Michael Feuerbacher

Institut fuer Mikrostrukturforschung, Forschungszentrum Juelich GmbH,
D-52425 Juelich, Germany
Tel 49-2461-612409, Fax 49-2461-616444, m.feuerbacher@fz-juelich.de

Yasushi Ishii

Chuo University, Kasuga, Bunkyo-ku, Tokyo 112-8551, Japan
Tel 81-3-3817-1780, Fax 81-3-3817-1792, ishii@phys.chuo-u.ac.jp

Dan Sordélet

Iowa State University, Ames Laboratory, Ames, IA 50011
Tel 515-294-4713, Fax 515-294-8727, sordélet@ameslab.gov

MRS Symposium MM: Amorphous and Nanocrystalline Metals

Amorphous and nanocrystalline metals are on the verge of introduction into a variety of structural and functional applications. Progress for these advanced materials depends crucially on the development of new fabrication and processing techniques, as well as a fundamental understanding of the relationship between the structure and properties. This symposium will provide an opportunity to explore similarities and differences between the structure, properties, and processing of amorphous and nanocrystalline metals and alloys. While the structures and microstructures of amorphous and crystalline alloys are fundamentally different, when the crystal size becomes very small, certain common features emerge. For instance, deformation by shear localization occurs in metallic glasses and many nanocrystalline alloys at ambient temperature. There are also similarities in processing, such as the use of ball milling to produce both amorphous and nanocrystalline materials, or the production of nanocrystalline phases by devitrification of a metallic glass. By focusing on materials in which the bonding is primarily metallic, this symposium seeks to highlight the effect of structure and processing on properties and behavior.

The following research areas will be covered in both oral and poster presentations:

- Structure (including theory and modeling of structure and structure-property relationships)
- Novel microstructures (composites and bimodal grain-size distributions)
- Mechanical properties and fundamental mechanisms of deformation
- Magnetic and electrical properties
- Thermophysical properties
- Phase transformations
- Synthesis and processing
- Applications

Invited speakers include: **M. Atzmon** (Univ. of Michigan), **L. Battezzati** (Univ. Torino, Italy), **A. Gebert** (IFW Dresden, Germany), **A.L. Greer** (Cambridge Univ., United Kingdom), **K. Hono** (NIMS, Japan), **R. Kirchheim** (Univ. Göttingen, Germany), **U. Köster** (Univ. Dortmund, Germany), **M. Kramer** (Ames Lab), **E. Ma** (Johns Hopkins Univ.), **A. Peker** (Liquidmetal Technologies), **J. Schroers** (California Inst. of Technology), **S. Suresh** (Massachusetts Inst. of Technology), and **W.H. Wang** (CAS, China).

Symposium Organizers

Ralf Busch

Oregon State University, Dept. of Mechanical Engineering,
204 Rogers Hall, Corvallis, OR 97331
Tel 541-737-2648, Fax 541-737-2600, ralf.busch@orst.edu

Todd Hufnagel

Johns Hopkins University, Dept. of Materials Science & Engineering,
102 Maryland Hall, 3400 N. Charles St., Baltimore, MD 21218-2681
Tel 410-516-6277, Fax 410-516-5293, hufnagel@jhu.edu

Jürgen Eckert

IFW Dresden, Inst. of Metallic Materials, Helmholtzstr 20, Dresden, Germany
Tel 49-351-465-9602, Fax 49-351-465-9541, j.eckert@ifw-dresden.de

Akihisa Inoue

Tohoku University, Inst. for Materials Research,
2-1-1 Katahira Aoba-ku, Sendai, Japan
Tel 81-22-215-2110, Fax 81-22-215-2111, ainoue@imr.tohoku.ac.jp

William Johnson

California Institute of Technology, 138-78 Keck Lab,
1201 E. California Blvd., Pasadena, CA 91125
Tel 626-395-4433, Fax 626-795-6132, wj@caltech.edu

A. R. Yavari

CNRS, Institut National Polytechnique de Grenoble,
LTPCM, BP 75, 1130 rue de la piscine, 38402 St-Martin-d'Herès, France
Tel 33-47682-6641, Fax 33-47682-6641, yavari@ltpcm.inpg.fr

Airfare Discounts

MRS has negotiated discounted airfares with American Airlines and USAirways for the 2003 MRS Fall Meeting. Please contact the airline directly to make your reservation as follows:

American Airlines

Phone Number: Toll-Free 800-433-1790
AN Number: A04N3AA
Group Name: MATERIALS RESEARCH SOCIETY
Destination: Boston, MA (BOS)
Valid Dates: November 26 - December 9, 2003
Discount Rates: 5%-10% off lowest published fare OR Zone fare, whichever is less

USAirways

Phone Number: Toll-Free 877-874-7687
Gold File Number: 46142446
Group Name: Materials Research Society 2003 Meeting
Destination: Boston, MA (BOS)
Valid Dates: November 27 - December 9, 2003
Discount Rates: 7%-12% off lowest published fare OR Zone fare, whichever is less

Car Rental Discounts

MRS has negotiated discounted car rental rates with AVIS for the 2003 MRS Fall Meeting. Please contact AVIS directly to make your car reservation as follows:

AVIS

Phone Number: Toll-Free 800-331-1600
AWD Number: D006133
Group Name: MRS Fall Meeting
Destination: Boston, MA
Valid Dates: November 23 - December 12, 2003
Discount Rates*: Daily - \$49.99 to \$71.99
Weekly - \$157.99 to \$301.99
Weekend - \$31.99 to \$71.99

*Based on car class and car group

Car rental reservations with AVIS can also be made through American Airlines if you are making your airline reservation through American Airlines. The same discounts apply.

2003



FALL MEETING

December 1-5 • Boston, MA

ELECTRONIC PERSONAL SCHEDULER

*Plan your days in Boston in advance...
through the convenience of online scheduling.*

MRS is pleased to announce the availability of an electronic Personal Scheduler with complete access to the Fall Meeting program and abstracts.

The Personal Scheduler enables you to:

- review the Fall Meeting program and conduct topical and speaker searches
- create and print out your own Meeting itinerary
- save your itinerary on the MRS Web site for ongoing modification during the Meeting

By using this free electronic service, you can create and update your Meeting itinerary prior to your arrival in Boston...plus minimize the amount of reference material you need to carry around.

This Personal Scheduler will be accessible through any Web browser several weeks before the Meeting. MRS will provide computers and printers for your use on site. For quicker and more leisurely access to the Personal Scheduler, however, we strongly encourage you to use it BEFORE coming to the Meeting.

Materials Research Society's 2003 Fall Meeting

December 1 – 5 • Boston, MA

DEADLINE FOR HOTEL RESERVATIONS: NOVEMBER 10, 2003

FAX, MAIL, OR PHONE YOUR RESERVATION DIRECTLY TO THE HOTEL OF YOUR CHOICE:

<p>Boston Marriott/Copley Place 110 Huntington Avenue Boston, MA 02116 Tel 617-236-5800 Fax 617-937-5685 Room Rate: \$147 Single* • \$162 Double*</p>	<p>Sheraton Boston Hotel and Towers 39 Dalton Street Boston, MA 02199 Tel 617-236-2000 Fax 617-236-1702 Room Rate: \$152 Single* • \$162 Double*</p>
<p>Westin Hotel/Copley Place 10 Huntington Avenue Boston, MA 02116 Tel 617-262-9600 Fax 617-424-7502 Room Rate: \$149 Single* • \$167 Double*</p>	<p>Back Bay Hilton 40 Dalton Street Boston, MA 02115 Tel 617-236-1100 Fax 617-867-6139 Room Rate: \$137 Single* • \$153 Double*</p>
<p>Boston Park Plaza Hotel 64 Arlington Street Boston, MA 02116 Tel 617-426-2000 Fax 617-423-1708 Room Rate: \$139 Single/Double*</p>	

**plus Massachusetts tax, currently 12.45%*

To assure staying at a conference hotel, **make your reservations early**. Reservation requests are accepted on a first-come, first-served basis. Rooms may still be available after the cut-off date, but not necessarily at the group rates. All reservations will be confirmed by the hotel.

If registering by telephone, refer to the Materials Research Society Meeting to receive the special rates.

Room type:

- One king bed
 Two double beds
 No preference
 Nonsmoking

Special requests/accommodations:

This form may be copied for sending directly to the hotel. (Please **DO NOT** send your hotel reservation form to the Materials Research Society.)

Name _____

Institution _____

Room/Dept/Mail Stop _____

Street Address/P.O. Box _____

City _____ State/Prov. _____

Postal Code _____ Country _____

Telephone _____ Fax _____

Arrival date _____ Time _____

Departure Date _____ Number of Adults _____

Check-In: 4:00 p.m.
Check-Out: 12:00 noon

Reservations must be guaranteed by one of the following credit cards or a one-night room rate deposit (please check the appropriate guarantee). If you must cancel your reservation, your deposit will be refunded only if cancellation notification is received at least 72 hours before your scheduled arrival date.

- Check or money order enclosed** (for first night's stay).
Do not send currency.

Make check or money order payable to, and mail to, the preferred hotel listed on this form.

- American Express
 Carte Blanche
 Diners Club
 Discover
 EnRoute
 JCB
 MasterCard
 VISA

Credit card number _____

Expiration date _____

Cardholder's signature _____

2003 Spring Meeting

April 21-25
Exhibit: April 22-24
San Francisco, CA

Meeting Chairs:

Terry J. Garino
Sandia National Laboratories
Tel 505-845-8762
Fax 505-844-9781
tjgarin@sandia.gov

Hans-Joachim L. Gossmann
Axcelis Technologies
Tel 978-787-9620
Fax 978-787-4050
hans.gossmann@axcelis.com

Lisa C. Klein
Rutgers University
Tel 732-445-2096
Fax 732-249-8890
licklein@rci.rutgers.edu

Albert Polman
FOM-Institute AMOLF
The Netherlands
Tel 31-20-6081234
Fax 31-20-6684106
polman@amolf.nl

2004 Spring Meeting

April 12-16
Exhibit: April 13-15
San Francisco, CA

Meeting Chairs:

Israel J. Baumvol
UFRGS
Instituto de Fisica
Brazil
Tel/Fax 55-51-33166526
israel@if.ufrgs.br

James J. De Yoreo
Lawrence Livermore
National Laboratory
Tel 925-423-4240
Fax 925-422-6892
deyoreo1@llnl.gov

Siegfried Mantl
Forschungszentrum Juelich
Germany
Tel 49-24-6161-3643
Fax 49-24-6161-4673
s.mantl@fz-juelich.de

Thomas X. Neenan
GelTex Pharmaceuticals
Tel 781-434-3485
Fax 781-434-3632
tneenan@geltex.com

2004 Fall Meeting

November 29-December 3
Exhibit: November 30-December 2
Boston, MA

Meeting Chairs:

Shefford P. Baker
Cornell University
Tel 607-255-6679
Fax 607-255-2365
shefford.baker@cornell.edu

Bethanie J. Hills Stadler
University of Minnesota
Tel 612-626-1628
Fax 612-625-4583
stadler@ece.umn.edu

Julia W. P. Hsu
Lucent Technologies
Tel 908-582-2074
Fax 908-582-3260
jhsu@lucent.com

Richard A. Vaia
Air Force Research Laboratory
Tel 937-255-9184
Fax 937-255-9157
richard.vaia@wpafb.af.mil

Guidelines for Submitting an Abstract

Materials Research Society's 2003 Fall Meeting • December 1-5, 2003 • Boston, MA
IN FAIRNESS TO ALL POTENTIAL AUTHORS, LATE ABSTRACTS WILL NOT BE ACCEPTED

WEB SITE SUBMITTAL — DEADLINE: JUNE 19, 2003

Note: Web-site submissions will be accepted beginning May 19 at www.mrs.org/meetings/fall2003/

More than 99% of authors now submit their abstracts by using the MRS Web site—evidence of the procedure's ease and convenience. Web submittal provides an **extended deadline** of June 19 and **immediate confirmation** (in the form of a document identification number) that your abstract has been received at MRS Headquarters. Follow the easy step-by-step instructions on the template making sure that complete mailing address information is included for the presenting and contact authors. After submitting your abstract, please use your document identification number in all communications with MRS regarding the abstract UNTIL a paper number (e.g., A3.8) is later assigned.

FAX/MAIL SUBMITTAL — DEADLINE: JUNE 5, 2003

IF YOU DO NOT HAVE ACCESS TO THE INTERNET, the Society will accept papers submitted by fax or mail using the following guidelines:

PREPARING YOUR ABSTRACT

- A** Include the phrase **2003 MRS Fall Meeting** and the letter and title of the symposium to which you are submitting. **Your abstract cannot be processed without this information.**
- B** If your submittal is an **invited paper**, please include the phrase "I was invited by (insert name of symposium organizer)."
- C** Type **paper title** in CAPITAL LETTERS followed by the authors and their affiliations (include department, city, state and/or country ONLY). Underline the Presenting Author's name.
- D** **Abstract body** should not exceed 300 words
- E** After the abstract body, please type complete information for the **presenting and contact author(s) ONLY**: first name, middle initial, last name, organization, dept/mail stop, street/p.o. box, postal code (for non-U.S.), city, state/province, zip code, country, telephone and fax (include country/city codes for non-U.S.), and **e-mail address**.
Note: There cannot be more than one presenting and one contact author per abstract, although the same person may serve as both.
- F** Indicate if you would prefer to present your paper as a **poster presentation** rather than an oral presentation.
- G** Indicate if you would like to receive:
 - information on a 2003 Fall Meeting **Graduate Student Award Application**
 - information on a 2003 Fall Meeting **application to serve as a Symposium Assistant** (available to graduate students)
 - a **letter of invitation** to the 2003 Fall Meeting (for visa approval purposes)
- H** If an **associate author** needs any items from **G** above, please specify the author's: full name and address; phone, fax and e-mail, and the item(s) being requested.

SUBMITTING YOUR ABSTRACT

Fax: Fax your completed abstract to: **724-779-3030** This number is ONLY for abstract submittals.

Mail: Send one abstract per paper title to: MRS Headquarters
Attention: Abstract Enclosed
506 Keystone Drive, Warrendale, PA 15086-7573

DO NOT SEND DUPLICATE COPIES. You will receive an e-mail message by late June acknowledging receipt of your abstract.

REVISIONS

Because major revisions may affect a symposium organizer's decision to accept your abstract, please review it carefully before submission. In the unusual circumstance of having to revise your original abstract, the change must be submitted to: MRS Headquarters
Attention: REVISED Abstract Enclosed

Please mark revisions CLEARLY, state where they are located (e.g., title, byline, body, etc.), and specify the exact new text. Also include your MRS document ID number (if you have already received it).