

Preview: 2001 MRS Spring Meeting

San Francisco Marriott and Argent Hotels • San Francisco, California

Technical Meeting: April 16–20 • Exhibit: April 16–18

Meeting Chairs:**Nicholas Cowern***Philips Research Laboratories***Tomas Diaz de la Rubia***Lawrence Livermore National Laboratory***Chad A. Mirkin***Northwestern University***Cynthia Volkert***Max-Planck-Institute—Stuttgart*

The 2001 Materials Research Society Spring Meeting will be held April 16–20, 2001, in San Francisco, California, at the San Francisco Marriott and Argent Hotels. The technical session will begin on Tuesday and will include 32 symposia, divided into six clusters, that highlight advances in the understanding, synthesis, and application of materials in fields ranging from advanced integrated circuits to biomaterials. Symposia proceedings will be published electronically on the MRS Web site, available free to MRS members. Symposium GG on materials science and engineering (MSE) education, which made its Spring Meeting debut last year, will be presented again this year with an emphasis on MSE's impact on society. The Symposium offers an afternoon of panel discussions on Wednesday. A one-day symposium on nuclear waste containment, held in previous MRS Fall Meetings, will be held for the first time at the Spring Meeting as Symposium CC. The symposium will conclude with an in-room poster session. In a cluster of symposia on data storage will be a new symposium on optical data storage (V). The Meeting will also feature a Plenary and Awards Ceremony on Wednesday evening, an Equipment Exhibit on April 16–18 (starting with a reception on Monday evening), and nine tutorials on Monday (see page 133).

While nanostructures and nanocompositions are addressed in various symposia, Symposia W and Y within the cluster on Nano- and Biomaterials specifically look at nanostructured carbon materials and unifying themes in nanostructured materials research such as synthesis, characterization, and applications. The application of nanoparticles for advanced drug delivery and other biomedical uses ties these symposia to Symposium Z on Patterning Soft Materials, rounding out the cluster. Researchers will present nonconventional methods for patterning soft materials and describe the use of these methods to pre-

pare novel and emerging devices.

In typical interdisciplinary fashion, Symposium U on Ferromagnetic Materials, within the cluster on data storage, will hold one joint session with Symposium Y on nanostructures and another with Symposium T on Materials for Magnetic Devices; the joint sessions will cover hard ferrites and colossal magneto-resistance materials and magnetic properties of nanomaterials. Symposium U will also cover general topics of advancements in the preparation, characterization, and theoretical understanding of the materials aspects of ferromagnets. The new Symposium on optical data storage offers one day of presentations emphasizing the relationship between material properties and the time required to write/erase information. The Symposium will highlight recent developments in phase change and holographic data storage, for example.

Within the cluster of symposia A–H on electronic materials, Symposium H, centering on photovoltaic materials, will offer two panels discussions. The first will be on substrates, following a morning session on thin films on alternative substrates (Wednesday at 3:30 p.m.). Among the expected panelists are V. Kapur (Intl. Solar Electric Technology) and F. Kessler (Zentrum für Sonnenenergie- und Wasserstoff-Forschung, Stuttgart). The second panel discussion will be on the nature of junction and internal surfaces following a session on surfaces and interfaces (Thursday at 3:30 p.m.). Among the expected panelists is U. Rao (University of Stuttgart).

The requirement for storage at higher densities than currently available and for rapid manipulation of massive amounts of data demands new technologies. The combined operation of biological and electronic components has been proposed as one possible solution. Symposium B on this topic opens Tuesday morning with invited talks, including an overview by W. Warren (DARPA) and a talk on the design and measurement of molecular electronic switches and memories by M. Reed (Yale University). R. Lytel (Sun Microsystems) will open the afternoon session that day with a presentation titled, "Physical and Architectural Limits for Molecular-Scale Devices in Computers."

Looking at the polymer end of electronic materials, recent Nobel laureate A.J. Heeger (University of California—Santa

Barbara) will open Symposium C Tuesday morning with a talk on the photo-physics of semiconducting polymers. A.B. Holmes (University of Cambridge) will follow Heeger with a presentation on a new family of light-emitting polymers based on polyfluorenes. Later in the week, Heeger will give the MRS Spring Meeting's Plenary address on conducting polymers (see page 133).

Symposium D on large-area electronics will cut across clusters as it holds a joint session with Symposium I from the microelectronics cluster (I–N). The Wednesday afternoon joint session will address silicon-on-insulator technology, including its commercialization. The other areas covered in Symposium I's two-day presentation on wafer bonding on thinning techniques for materials integration include implantation for layer transfer, properties of mismatched interfaces, and application and devices. J. Haisma (Philips Research) will address direct bonding in a historical context of materials and technology.

Symposium J on doping aspects of Si front-end processing opens with a series of invited talks by D.A. Antoniadis (Massachusetts Institute of Technology), T. Sugii (Fujitsu), and K. Suguro (Toshiba) in a session on the issues of future devices. Symposia L and N share a common interest in metal/polymer adhesion in chip passivation and packaging, which will be addressed in a joint session on Thursday morning. In the area of chemical-mechanical polishing, Symposium M offers a review and discussion of the future challenges that must be overcome as planarization of copper, barrier layers, and a new class of low-*k* materials take center stage.

Within the area of thin films and surface phenomena (Symposia O–S), Symposium Q opens on Tuesday morning with an invited talk by 1981 Nobel laureate in physics N. Bloembergen (University of Arizona) on "Femtosecond Science and Materials Interactions." Other talks address the use of femtosecond optical pulses to process and characterize materials. A joint session held by Symposia O and R on Tuesday afternoon addresses epitaxial growth.

The cluster on general topics in materials research includes presentations on computer simulation. Symposium AA on materials modeling will cap the three-day symposium with a roundtable discussion on

"Bridging Over Multiple Length and Time Scales" on Friday afternoon. Symposium EE will address applications of synchrotron radiation techniques, and Symposium FF will open with invited talks on the future of electron microscopy. The poster session of Symposium FF on Tuesday evening will present user facilities and programs sponsored by the U.S. Department of Energy. This cluster also includes Symposium X on Frontiers in Materials Science.

Special events and opportunities for this Meeting include the Outstanding Young Investigator presentation by 2001 recipient **Kristi S. Anseth** (University of Colorado) for her work on polymeric biomaterials (see next article). The Gold and Silver Graduate Student Award recipi-

ents will be announced at the Plenary and Awards Ceremony on Wednesday evening. Further opportunities are offered to graduate students through the Student Mixer and MRS University Chapter meeting, symposium assistant positions, and the employment center, which is open to all attendees. Poster sessions will be held Tuesday through Thursday, 8:00-11:00 p.m., in the Metropolitan Ballroom, Argent Hotel and Salons 1-7, Marriott Hotel. The Meeting Chairs will sponsor a Best Poster Award competition at which a prize of \$500 will be awarded to the presenting author(s) of the winning paper(s). Award recipients will be selected on the basis of the poster's technical content, appearance, graphic excellence, and presentation

quality. Seminars describing opportunities for U.S. government funding of materials research are also being scheduled. Access the MRS Web site for updated information on confirmed talks and panelists and details of special events (www.mrs.org).

See the following pages for a matrix of symposia sessions, a list of tutorials, profiles of exhibitors, and hotel and transportation arrangements. For additional information regarding any of the meeting activities, contact MRS Member Services, Materials Research Society, 506 Keystone Drive, Warrendale, PA 15086-7573, USA; e-mail info@mrs.org; tel. 724-779-3003; fax 724-779-8313. The deadline to preregister for the Meeting is March 30, 2001.

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Kristi S. Anseth Named Outstanding Young Investigator for Work in Polymeric Biomaterials

Kristi S. Anseth, Patten Associate Professor and Howard Hughes Medical Institute Assistant Investigator in the Department of Chemical Engineering at the University of Colorado, has been named the 2001 Materials Research Society Outstanding Young Investigator. Cited for "innovative work in polymeric biomaterials for drug delivery, bone and cartilage repair, and tissue engineering, and for outstanding leadership potential in this interdisciplinary field of materials research," Anseth continues rapid development in her field through interdisciplinary collaborative research, service to professional organizations, and mentoring of students. This award recognizes exceptional, interdisciplinary scientific work in materials research by a young scientist or engineer who also displays leadership in the materials area.

At the interface of materials science and biomedical engineering, Anseth's research advances developed quickly from her first few years of graduate research in Colorado on the formation and analysis of cross-linked polymers. During postdoctoral work at Purdue University and the Massachusetts Institute of Technology, Anseth developed a program in biomaterials composed of cross-linked polymers. Returning to Colorado as a faculty member, Anseth built her research program on advanced materials based on photopolymerizations. She directs her research toward practical applications such as three-dimensional prototyping, drug delivery, bone and cartilage repair, and

tissue engineering.

Rather than applying previously existing materials in the biomedical field, Anseth designs, synthesizes, and develops new materials. Not only has she developed new materials, but she has also developed new classes of biomedical materials. In particular, Anseth developed a new family of polyanhydrides that are photocrosslinkable and have very high mechanical strength. Her work on the new class of surface-eroding polyanhydrides for use in medical applications that require high-strength biomaterials, such as orthopedics, can be read in a recent issue of the *Journal of Biomedical Materials Research* (52 [2000] p. 352).

Anseth is currently working on new strategies for encapsulating cells or drugs in advanced-polymer scaffolds for con-

trolled release and cellular responses such as adhesion, proliferation, differentiation, and extracellular-matrix production. A few of her key publications include "A Statistical Kinetic Model for the Bulk-Degradation of PEG-*b*-PLA Hydrogel Networks" (*J. Phys. Chem. B* 104 [2000] p. 7043), co-authored with A.T. Metters and C.N. Bowman; and "The Effect of Hydrogel Thickness on Tissue Engineered Cartilage in Photocrosslinked Poly(ethylene oxide) Networks" (*Biomaterials*, in press), co-authored with S.J. Bryant.

With over 45 publications and seven patents, Anseth continues making strides early in her career. With a BS degree (1992) from Purdue and a PhD degree (1994) from Colorado, both in chemical engineering, Anseth is also the recipient of several awards. She is the first engineer to be named a Howard Hughes Medical Institute Assistant Investigator (2000). Her other recent honors include the Camille Dreyfus Teacher-Scholar Award, the Colorado University's Outstanding Graduate Advising Award, and the Boulder Faculty Assembly Teaching Excellence Award in 2000; the FIRST Award from the National Institutes of Health (1998-2003); the CAREER Award from the National Science Foundation (1998-2002); and the David and Lucile Packard Fellowship for Science and Engineering (1997-2002).

Anseth will present her talk, "New Directions in Photopolymerizable Biomaterials," at the 2001 MRS Spring Meeting in San Francisco. Access www.mrs.org for updated information.

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Kristi S. Anseth

Nobel Laureate Alan J. Heeger to Give Plenary Address on Conducting Polymers at 2001 MRS Spring Meeting


Nobel laureate Alan J. Heeger of the University of California—Santa Barbara (UCSB) will give the plenary address at the 2001 Materials Research Society Spring Meeting on Wednesday evening, April 18, at the Argent Hotel. The title of his talk is "Semiconducting and Metallic Polymers: The Fourth Generation of Polymeric Materials." According to Heeger, high-performance devices have been fabricated by casting thin-film structures using soluble conducting polymers. These devices include light-emitting diodes (LEDs), photodiodes, lasers, and thin-film transistors. Heeger will briefly review the materials and the fundamental physics that enable these applications.

Heeger and his colleagues at UCSB have accomplished pioneering research in the area of semiconducting and metallic polymers. This class of novel materials has the electrical and optical properties of

semiconductors and metals in combination with the processing advantages and mechanical properties of polymers. His current research interests lie in the area of transport in semiconducting polymers, light emission from semiconducting polymers (both photoluminescence and electroluminescence), and ultrafast measurements directed toward investigation of the nature of the primary photoexcitations in semiconducting polymers. His research group focuses on issues related to the fundamental electronic structure of this novel class of materials and carries out studies of LEDs, light-emitting electrochemical cells (LECs), and lasers, all fabricated from semiconducting (conjugated) polymers.

After obtaining his PhD degree at the University of California—Berkeley in 1961, Heeger became a member of the Physics Department at the University of

Pennsylvania from 1962 to 1982. He then accepted a professorship at UCSB, where he was a founding member of the Materials Department and currently holds a joint appointment (Physics and Materials). Heeger, along with F. Wudl, co-founded the Institute for Polymers and Organic Solids at the University, and directed the Institute from 1983 until 1999.

Currently chief scientist at UNIAX Corporation, Heeger founded the corporation in 1990 and served as chair until 1999. UNIAX was acquired by DuPont in early 2000. Heeger's honors include numerous honorary degrees, Fellow of the American Physical Society, Alfred P. Sloan Foundation Fellow, Guggenheim Foundation Fellow, the Buckley Prize in Solid State Physics (1983), the Balzan Prize for the Science of New Materials (1995), and the Nobel Prize in Chemistry (2000). 

Symposium Tutorials

(Descriptions available on the MRS Web site: www.mrs.org/meetings/spring2001/program)

MONDAY • APRIL 16

Symposium A

9:00 a.m. - 4:00 p.m.

ST A: Amorphous and Poly-Silicon Materials and Devices for Large-Area Electronics

Nob Hill AB, Marriott

Symposium F

1:30 - 5:00 p.m.

ST F: Advanced Deposition and Characterization Techniques

Salon 3 /4, Marriott

Symposium H

1:30 - 5:00 p.m.

ST H: Characterization of Photovoltaic Materials

Salon 5/ 6, Marriott

Symposium I

1:00 p.m. - 5:00 p.m.

ST I: Wafer Bonding and Thinning Techniques for Material Integration

Salon 1/2, Marriott

Symposia L/N/EE

1:30 - 5:00 p.m.

ST L/N/EE: Advanced Techniques for Materials Characterization and Reliability Testing

Salon 10/11, Marriott

Symposium Q

1:00 - 5:00 p.m.

ST Q: Femtosecond Techniques for Materials Scientists

Salon 14/15, Marriott

Symposium R

1:30 - 5:00 p.m.

ST R: Observation, Monitoring and Manipulation of Single Molecules on Surfaces and Interfaces

Salon 12/13, Marriott

Symposium T

1:00 - 5:00 p.m.

ST T: The Spintronics Revolution

Nob Hill CD, Marriott

Symposium AA

9:00 a.m. - 4:00 p.m.

ST AA: Fundamental Methods of Multiple Length Scale Modeling

Golden Gate B3/B2, Marriott



Electronic Personal Scheduler

Plan your days in San Francisco in advance... through the convenience of online scheduling.

See page 101 for details. <http://www.mrs.org/meetings/spring2001/program/scheduler.html>

Clemens, Floro, Kornfield, and Suzuki to Chair 2001 MRS Fall Meeting



Bruce M. Clemens



Jerrold A. Floro



Julia A. Kornfield



Yuri Suzuki

The Fall 2001 Materials Research Society Meeting in Boston, November 26–30, will be chaired by Bruce M. Clemens (Stanford University), Jerrold A. Floro (Sandia National Laboratories), Julia A. Kornfield (California Institute of Technology), and Yuri Suzuki (Cornell University). The meeting's 37 symposia are gathered into clusters: inorganic electronic materials and devices; photonic/optoelectronic materials and devices; thin films and surfaces; materials science, processing, and evaluation; nanoscale materials and processes; organic/biological materials and devices; and materials and society.

Bruce M. Clemens is professor and chair of the Department of Materials Science and Engineering at Stanford University. He received his BS degree in mineral engineering-physics with a minor in metallurgy from the Colorado School of Mines, and his PhD degree in applied physics from Caltech. Clemens worked in the Physics Department of General Motors Research Laboratories in Warren, Michigan, where he conducted research on structure and reactions in metal thin films and multilayers. He participated in a yearlong scientist exchange program with Hughes Research Laboratory in Malibu, California, where he worked on superconducting oxide thin films and semiconductor superlattices. During this time, he was also a visiting associate at Caltech. In 1989, Clemens joined the faculty at Stanford as an assistant professor in the MS&E Department. He also holds a courtesy appointment in the Department of Applied Physics. Clemens works on the synthesis and characterization of thin films and multilayers, including epitaxial structures of elements, alloys, compounds, and oxide materials. He used a variety of techniques, including *in situ* grazing inci-

dence x-ray diffraction, to study the structure and its relationship to the synthesis conditions, and its effect on thin-film properties, including magnetic properties, stress, mechanical properties, and transport and magnetotransport properties. He is the author or co-author of over 140 technical papers and two patents, and editor of four books. In 1995, Clemens received the ASM Silver Medal for Research.

Jerrold A. Floro is a research staff member at Sandia National Laboratories in the Surface and Interface Sciences Department. His research interests focus on the interactive evolution of stress, microstructure, and morphology during thin-film growth. Recently, this has included studies of coarsening and phase transitions in SiGe epitaxial quantum-dot arrays, brittle-ductile relaxation modes in tensile-strained III-nitrides, and the evolution of stress, texture, and grain structure in discontinuous and continuous polycrystalline metal films. Floro's research makes intensive use of novel *in situ* diagnostics during the film growth process.

Floro received his BS degree in physics from Colorado State University in 1983, worked as a thin-film engineer at IBM's T.J. Watson Research Center through 1986, and earned his PhD degree in materials science from the Massachusetts Institute of Technology in 1992. He joined Sandia as a postdoc and became a full staff member in 1994. He was part of a team receiving a 1994 award from the U.S. Department of Energy Office of Basic Energy Sciences for outstanding sustained research on ion-surface interactions. Floro has authored or co-authored 45 articles and organized two MRS symposia.

Julia A. Kornfield, associate professor of chemical engineering and director of the Center for the Science and Engineer-

ing of Materials at Caltech, explores the molecular and microstructural dynamics controlling polymer processing behavior and properties. Nuclear magnetic resonance, x-ray, optical, and mechanical methods are combined to study the dynamics of block copolymers, liquid crystalline polymers, polymer gels, and flow-induced crystallization in polymers. She received BS (chemistry, 1983) and MS (chemical engineering, 1984) degrees from Caltech and a PhD (chemical engineering, 1988) degree from Stanford University. Following a NATO postdoctoral fellowship at the Max Planck Institute for Polymer Research, she joined the Caltech faculty in 1990. She received the 1996 Dillon Medal of the American Physical Society and the NSF Presidential Young Investigator Award, 1990–1995.

Yuri Suzuki is an assistant professor in the Department of Materials Science and Engineering at Cornell University. She graduated from Harvard University with an AB degree in physics (1989) and from Stanford University with a PhD degree in applied physics (1995). In 1994, she joined AT&T Bell Laboratories (now Bell Laboratories, Lucent Technologies) as a postdoctoral Member of Technical Staff. She joined the Cornell University faculty in January 1997. Her research is focused on magnetism, in particular, magnetic oxide thin films and nanostructures. Her projects include studies of the structure-property relationships in novel magnetic oxide systems, magnetism at the nanometer length scale, and photonic materials. Recently, she received an ONR Young Investigator Award, an NSF CAREER award, the Robert Lansing Hardy Award from the Minerals, Metals & Materials Society (TMS), and a David and Lucile Packard Foundation Fellowship. MRS

Katz, Moll, and Nemanich Serve on the MRS Workshop Subcommittee for 2001



Howard E. Katz



Amy J. Moll



Robert J. Nemanich

The Materials Research Society Workshop series is a new initiative and member service. The workshops are designed to be stand-alone meetings that feature timely and compelling materials topics. They aim to reach small, targeted audiences and elicit major interaction between speakers and audience. Howard E. Katz (Bell Laboratories/Lucent Technologies), Amy J. Moll (Boise State University), and Robert J. Nemanich (North Carolina State University) have been appointed to serve on the MRS Workshop Subcommittee of the Program Committee for 2001. They will approve workshops based on what they assess will be in the interest of the membership.

Howard E. Katz is a Distinguished Member of Technical Staff at Bell Laboratories/Lucent Technologies. He prepared his PhD thesis under Donald Cram at the University of California—Los Angeles in the area of artificial enzymes. At Bell Laboratories, he initially explored “converse” host-guest chemistry, where anions were bound to multidentate Lewis acidic receptors. His subsequent scientific activities have been aimed at new organic materials synthesized with methods


developed specifically for electronics- and optics-related targets. Major advances in plastic-based circuits, holographic information storage, and photonic switching have resulted from these investigations. These accomplishments have been recognized through numerous invited appearances, articles, and appointments, including full membership on the Defense Sciences Research Council, the University of Illinois Lane Lectureship, and the Case Western Reserve Frontiers Lectureship. Katz was a 1998 MRS Fall Meeting chair, and is a newly elected member of the MRS Council.

Amy J. Moll is assistant professor of mechanical engineering at Boise State University. She received her PhD degree in materials science and engineering from the University of California—Berkeley in 1994. Before joining the faculty at Boise State, Moll worked in industry, first at Hewlett Packard, then with Agilent Technologies (formerly HP). Her research interests include microelectronic processing, materials characterization, and environmentally friendly manufacturing.

Moll has received numerous honors and awards, including the Robert N. Noyce

Memorial Fellowship from Intel Foundation (1992–1994) and the MRS Graduate Student Award (1993). She has recently served MRS as chair of Women in Materials Science and Engineering (1994–1997) and as a Councillor (1997–1999).

Robert J. Nemanich, of North Carolina State University, is a professor in the Department of Physics and an associate member of the Department of Materials Science and Engineering. He received his PhD degree from the University of Chicago in 1976 and joined the Xerox Palo Alto Research Center. In 1986 he moved to NC State. His research is primarily in the area of electronic materials. The research at NC State has involved graduate, undergraduate, and high-school students, diploma students from several institutions, international visitors, and postdoctoral research associates.

Nemanich has a long-standing involvement with MRS and served as President in 1998. He will serve as 2001/2002 Vice President of the International Union of Materials Research Societies (IUMRS). He is currently the editor-in-chief of the journal *Diamond and Related Materials*. 

MRS
Workshops

Seeking Ideas & Organizers...

Our goal is to respond to our members' needs on a timely basis by providing quality forums for the exchange of ideas. To assist in achieving this goal, we will continually solicit new ideas from members on Workshop topics. If you would like to suggest a topic or volunteer to organize a workshop, please contact:

2000-2001 Workshop Program Subcommittee:

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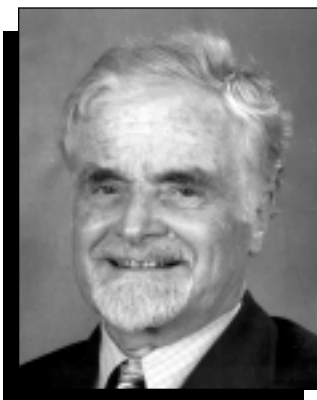
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For information on future workshops, visit:

www.mrs.org/meetings/workshops

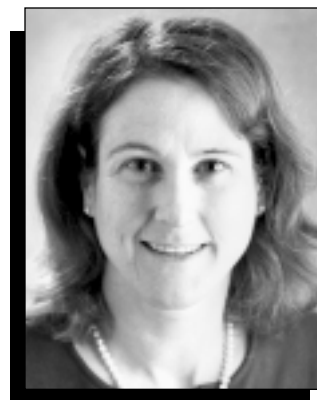
MRS Bulletin Volume Organizers Guide Technical Theme Topics for 2002



Robert W. Cahn



George K. Celler



Mary E. Galvin

The *MRS Bulletin* Volume Organizers for 2002 are Robert W. Cahn (Cambridge University), George K. Celler (Agere Systems), and Mary E. Galvin (University of Delaware). The themes they are considering include the science and technology of shape-memory alloys, mechanical behavior in small dimensions, nanocrystal research, ecomaterials, vertical-cavity surface-emitting lasers, spin-transport electronics, metrology, materials for photonic communication, high- κ dielectrics for electronic applications, and materials research in forensics. Instructions on proposal submission can be obtained by e-mail: bulletin@mrs.org.

Robert W. Cahn received his BSc degree in metallurgy from Cambridge University in 1945. Research for his PhD degree (1950) was done in the Cavendish Laboratory, and his ScD was awarded in 1963. He worked on twinning in metallic uranium at the Harwell Laboratory in England, and then moved into academia, culminating in 17 years at Sussex University (1965–1981), where he founded the first British degree course in materials science. His research has been in various aspects of physical metallurgy, and in 1965 he brought out the first edition of a major multiauthored text entitled *Physical Metallurgy*; the last, fourth edition appeared in 1996. After a brief, quixotic experiment (1981–1983) in running a French university department of metallurgy, he took refuge at his alma mater, Cambridge, where he is now a distinguished research fellow. There he has kept his research going and has also edited a major series of 25 multiauthor volumes that cover materials science and technology. Currently, Cahn is joint editor-in-chief of the forthcoming Pergamon *Encyclopedia of Materials*. Since 1967, he has been a materials science correspondent for

Nature, in which he has published ~100 articles on a variety of materials science themes, some of which appeared in book form in 1992. He founded a number of journals, including the *Journal of Nuclear Materials* and the *Journal of Materials Science*. He continues to edit *Intermetallics*, which he founded in 1993. Cahn is a Fellow of the Royal Society of London and of five other academies worldwide.

Cahn began his tenure with *MRS Bulletin* as a Visiting Scientist in 1997, at which time he initiated the Book Review Board. As well as serving as a Volume Organizer for *MRS Bulletin*, Cahn serves on the Book Review Board and the Editorial Board.

George K. Celler is a Distinguished Member of Technical Staff at Agere Systems, a new company that will be spun off from Lucent Technologies this year. He has worked for over 20 years at Bell Laboratories, Lucent Technologies, in Murray Hill, New Jersey. He received his MSc degree from the University of Warsaw, Poland, and a PhD degree in solid-state physics from Purdue University for a study of photon–phonon–electron interactions in GaAs. At Bell Labs, he has investigated interactions of intense light beams with materials, laser annealing and rapid thermal processing of semiconductors, formation of silicon-on-insulator structures, diffusion phenomena in Si and silicon dioxide, and formation of nanocrystallites by ion implantation. Between 1988 and 1996, he led a large team in an effort to develop x-ray lithography for deep-submicron applications. He has published over 160 articles, edited five books, and holds 15 patents. He is a member of the Materials Research Society and the Institute of Electrical and Electronics Engineers, and a Fellow of the American Physical Society and the Elec-

trochemical Society. He received the 1994 Electronics Division Award of The Electrochemical Society.

Celler has served MRS as a symposium organizer and co-editor of proceedings volumes 4 and 306. As well as serving as a Volume Organizer for *MRS Bulletin*, Celler co-authored an article for a theme on ion-assisted processing of electronic materials, published in the June 1992 issue of *MRS Bulletin*.

Mary E. Galvin is a professor of materials science in the Department of Materials Science and Engineering at the University of Delaware. She received her ScD degree in polymers/materials science from the Massachusetts Institute of Technology. Prior to joining the University of Delaware, she was a Distinguished Member of Technical Staff at Bell Laboratories, where she established a research program that utilizes synthetic polymer chemistry to create new materials, including polymeric resins for ultraviolet lithography and semiconductor and metallic nanoclusters within block copolymers. Her current research interests include the design and characterization of electroactive polymers and polymer/silicate nanocomposites.

Galvin is a Fellow of the American Physical Society and she currently serves on the editorial advisory panel of *Macromolecules* and *Macromolecular Science: Polymer Chemistry*. She has served as the technical program co-chair of the Polymeric Materials Science Division of the American Chemical Society, a symposium organizer for the Materials Research Society, and as chair of the Nominations Committee of the Polymer Physics Division of the American Physics Society. Galvin also chaired two Gordon Research Conferences.

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