

1983 ANNUAL MEETING IN BOSTON

The what and whom of the foremost materials scientists' meeting

The Materials Research Society's annual program of interdisciplinary, topical symposia will be held at Boston's Park Plaza Hotel Nov. 13-17. A Plenary Session featuring the most distinguished scientists and an expanded series of short courses are particularly noteworthy, but it is the scientific program that has made the meeting the foremost conclave of we who work with materials, and this year's program - organized by B.R. Appleton, B.H. Kear and G.E. Pike - is outstanding.

There are fourteen orthodox symposia scheduled, and one that isn't so orthodox. It is Symposium X, Frontiers of Materials Research, which in the words of its chairman, Rustum Roy of Penn State, is "a symposium crossing all symposia." Outstanding graduate students will be recognized, as will a most eminent scholar, chosen by his or her peers to receive the Society's most prestigious honor, the Von Hippel Award.

As always, the way to receive the most up-to-date information about any aspect of the meeting is to contact the Secretariat, Ernest M. Hawk, Executive Secretary, 110 Materials Research Laboratory, University Park, PA 16802, (814) 865-3424.

Energy-Solid Interactions

The conference Energy Beam-Solid Interactions and Transient Thermal Processing is the sixth in the MRS series devoted to these subjects. This year, in response to strong interest in beam crystallization of semiconductors on insulators (SOI), special emphasis will be placed on the emerging technologies of SOI and their applications.

Symposium co-chairmen are John C.C. Fan, Lincoln Laboratory, Massachusetts Institute of Technology, 244 Wood St., Lexington, MA 02173, (617) 863-5500, Ext. 7836, and Noble M. Johnson, Xerox Corp., Palo Alto

Research Center, 3333 Coyote Hill Road, Palo Alto, CA 94304, (415) 494-4160.

Defect Properties

Increased understanding of the relationships between defects and physical properties of non-metallic materials has already made possible many innovations in high-technology applications. This symposium, Defect Properties and Processing of High-Technology Non-Metallic Materials, focuses on fundamental knowledge of non-metallic materials and opportunities to apply knowledge of defect-sensitive properties to various high-technology applications and process methods.

Symposium co-chairmen are Y. Chen, Solid State Division, Oak Ridge National Laboratory, Oak Ridge, TN 37830, (615) 574-6284, FTS 624-6284; J.H. Crawford Jr., Department of Physics, University of North Carolina, Chapel Hill, NC 27514, (919) 962-3013, and W.A. Sibley, Department of Physics, Oklahoma State University, Stillwater, OK 74074, (405) 624-5627.

Thin Films

The Thin Films and Interfaces symposium offers a forum for discourse on fundamental insights, discoveries and techniques related to thin-film interactions and the properties and structures of thin films and interface layers. Invited and contributed papers will range over such topics as grain boundaries, adhesion, stress in thin films, superlattices and heteroepitaxy.

Co-chairmen are J.E.E. Baglin, IBM Research Laboratory, P.O. Box 218, Yorktown Heights, NY 10598, (914) 945-2280; D. Campbell, IBM East Fishkill Facility, Bldg. 300/48A, Hopewell Junction, NY 12533, (914) 897-3075, and W.K. Chu, Department of Physics and Astronomy, University of North Carolina, Chapel Hill, NC 27514, (919) 962-3014.

Radwaste Management

The MRS symposium, Scientific Basis for Nuclear Waste Management, has in recent years drawn not only scientists, engineers and technicians but also the press, as the subject of disposing of radioactive materials becomes a controversial social question. Despite this, the symposium is a technical meeting in which research results rather than policy are the focus. This year, the emphasis will be on geological media and specific research related to repository placement.

The symposium chairman is G.L. McVay, Materials Department, Battelle, Pacific Northwest Division, Richland, WA 99352, (509) 375-3762.

Ion Implantation

Scientists and engineers who use ion beams in materials research and processing will participate in the symposium entitled, Ion Implantation and Ion Beam Processing of Materials. Primary emphasis at this year's symposium will be on implantation damage and annealing, ion beam mixing, formation and microstructure of metastable materials, properties of ion-implanted materials, applications of ion beam surface modification, implantation into novel materials and novel ion beam processing techniques.

Co-chairmen are C.R. Clayton, Materials Science and Engineering, State University of New York, Stony Brook, NY 11794; O.W. Holland, Solid State Division, Oak Ridge National Laboratory, Oak Ridge, TN 37830; G.K. Hubler, Code 6671, Naval Research Laboratory, Washington, DC 20375 and C.W. White, Solid State Division, Oak Ridge National Laboratory, Oak Ridge, TN 37830.

Metastable Materials

Rapidly Solidified Metastable Materials are the subject of this symposium. They include refined

[Continued on Page 6]

[Continued from Page 2]

structures, extended solid solutions, microcrystalline structures, metastable crystalline phases and amorphous solids.

Co-chairmen are B.H. Kear, Corporate Research Laboratories, Exxon Research and Engineering Co., P.O. Box 45, Linden, NJ 07036, (201) 474-6393 and B.C. Giessen, Institute of Chemical Analysis, Northeastern University, 360 Huntington Ave., Boston, MA 02115, (617) 437-2827.

Solid-Waste Disposal

Materials research has significant impact on the utilization, immobilization and disposal of solid wastes from manufacturing and energy industries through its chemical and physical characterization. The Society has long recognized this and has sponsored very successful symposia in such areas as fly ash incorporation in cement and concrete (1981) and

nuclear waste management (1978 - present).

This year the Society will inaugurate what is expected to become a continuing symposium on the topic, Materials Characterization Applied to the Utilization, Immobilization and Disposal of Solid Wastes. It will range across such topics as applications of phase diagrams in predicting slag devitrification, fixation of Cr containing industrial wastes, phase characterization of cementitious composites for low-level radwaste disposal and microstructure-strength correlation in cement incorporating flyash or slag.

The co-chairmen are S.L. Blum, Northern Energy Corp., 470 Atlantic Ave., Boston, MA 02116, (617) 292-9250; G.J. McCarthy, Department of Chemistry, North Dakota State University, Fargo, ND 58105, (701) 237-7193, and B.E. Scheetz, Materials Research Laboratory, Pennsylvania State University, University Park, PA 16802, (814) 865-3539.

Synchrotron Radiation

Techniques based on the special properties of synchrotron radiation have a wide range of applications in materials Research. The symposium Materials Science Using Synchrotron Radiation seeks to provide an overview of the techniques and in particular the results of important research. Topics will include bulk and surface structural characterization on various materials phenomena such as structural transformations, catalysis and electrolysis, and on technological applications such as lithography and angiography.

Co-chairmen are Peter Eisenberger, Exxon Research and Engineering Co., P.O. Box 45, Linden, NJ 07036, (201) 474-3638, and David Moncton, Brookhaven National Laboratory, Upton, NY 11973, (516) 282-2741.

Laser Processing

This year the symposium Laser-Controlled Chemical Processing of Surfaces is an extension of one begun last year on photon-induced chemical

processing for semiconductor devices. It will focus on chemical reactions driven by lasers that lead to deposition, etching, doping and micromachining of surfaces. Areas of particular interest include bond-specific photochemistry on surfaces, laser-chemical doping of solids, optical diagnostics of chemical reactions in process technology and laser chemical vapor deposition and photo-chemical vapor deposition.

A.W. Johnson, Sandia National Laboratories, Division 1126, Albuquerque, NM 87185, (505) 844-8782, and D.J. Ehrlich, Lincoln Laboratory, Massachusetts Institute of Technology, Lexington, MA 02174, (617) 863-5500, Ext. 4723, are the co-chairmen.

Positron Annihilation

Recent advances in nuclear spectroscopy have made it possible for condensed-matter scientists to use positrons as probes of material properties. Fundamental experiments have shown that characteristics of positron annihilation in solids change as the state of the matter is altered, e.g., by temperature or deformation. The symposium Applications of Positron Annihilation to Materials Research will focus on such matters as near-surface and interfacial defects, ion implantation and laser annealing effects, studies of voids and gaseous impurities, investigations of surface magnetism and diffraction with low-energy positrons.

Co-chairmen are A.N. Goland, Department of Energy and Environment, Building 179A, Brookhaven National Laboratory, Upton, NY 11973, (516) 282-3819, and K.G. Lynn, Department of Physics, Building 510B, Brookhaven National Laboratory, Upton, NY 11973, (516) 282-3710.

Catalytic Reaction

The symposium entitled Catalytic Reaction Mechanisms: The Role of Surface Structure and Composition will bring together investigators from the

[Continued on Page 7]

Dates of Albuquerque meeting changed

The Society's spring meeting, to be held in Albuquerque, will be held Feb. 27-29. The dates originally announced were found to present serious scheduling problems for the organizers. The symposia topics, hotel, and other arrangements are unchanged. The symposia are:

- Better Ceramics through Chemistry
- Materials for Computer Displays and Printers
- Optical and Magnetic Data Storage Materials
- Comparison of Thin Film Transistor and SOI Technologies

The meeting will be held at the Albuquerque Marriott Hotel.

BOSTON

[Continued from Page 6]

two major areas of study in the field, surface science and supported catalysts. The presentations will focus on the roles played by surface structure and chemical composition in determining surface reaction intermediates and hence reaction selectivity. The variation in reaction pathways will be discussed for alloys as a function of surface composition and for pure metals and oxides modified by electronegative and electropositive elements.

The co-chairmen are G.B. Fisher, Physical Chemistry Department, General Motors Research Laboratories, Warren, MI 48090, (313) 575-7192, and P.C. Stair, Department of Chemistry, Northwestern University, Evanston, IL 60201, (312) 492-5266.

Plasma Processing

Materials processing by the use of plasmas is a rapidly growing field. The quest for materials with novel microstructures, synthesizing new materials, the manufacture of gradient materials and extracting/processing metals and ceramics all are being achieved through the use of plasma processing. The symposium Plasma Processing and Synthesis of Materials will bring together users of plasmas (low pressure and conventional) in materials metallurgy, materials synthesis, rapid solidification, coatings and many other applications.

The co-chairmen are D. Apelian, Department of Materials Engineering, Drexel University, Philadelphia, PA 19104, and J. Szekely, Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA 02139.

B Crystal Growth

The symposium Progress in Bulk Semiconductor Crystal Growth will focus on such advances as crystal growth techniques, doping profile controls, elimination of defects in crystals, characterization of crystal quality, process simulations by

computer and crystal growth by use of special configurations. The materials to be discussed include silicon and III-V compounds. Co-chairmen are J.H. Wernick, Device Materials Research Department, Bell Laboratories, 600 Mountain Ave., Murray Hill, NJ 07974, (201) 582-2463, and F.F.Y. Wang, Department of Materials Science and Engineering, University of New York, Stony Brook, NY 11794, (516) 246-5980.

Electron Microscopy

The conference Electron Microscopy of Materials is the third in a series of MRS symposia covering both instrumentation and materials applications. This year four topics have been chosen as the focus of discussion: current trends in electron microscope characterization techniques, semiconducting materials, surface and interfaces and ceramic materials.

Co-chairmen are L.W. Hobbs, Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA 02139, (617) 253-6835; William Krakow, IBM T.J. Watson Research Center, P.O. Box 218, Yorktown Heights, NY 10598, (914) 945-1759, and D.A. Smith, IBM T.J. Watson Research Center, P.O. Box 218, Yorktown Heights, NY 10598, (914) 945-2512.

Frontiers

One of last year's best-received innovations, Symposium X entitled Frontiers of Materials Research, will be reprised this year by its chairman and creator, Rusty Roy. It is a series of authoritative reviews for the non-specialist, two a day Monday through Wednesday, Nov. 14-17, over the luncheon period. Roy can be reached at the Materials Research Laboratory (of which he is the director), Pennsylvania State University, University Park, PA 16802, (814) 865-3421.

The Symposium X lectures will be published by the Journal of Materials Education, another of Rusty's innovations whereby core materials are

made available as educational modules unencumbered by copyright restrictions to the undergraduate and even graduate schools of science at colleges and universities around the world.

Proceedings

The proceedings of MRS symposia are published by Elsevier Science Publishing Company, a unit of North-Holland Publishing Company. MRS members are entitled to substantial discounts on volumes in the Proceedings series, including the limited number that remain from past symposia.

In general, the deadline for the submission of abstracts of contributed papers to the symposia has passed. The chairmen of most symposia will, however, consider a limited number of late submissions that are particularly timely or uniquely important.

MRS BULLETIN

VOLUME VIII NUMBER 3

The Materials Research Society Bulletin is published bi-monthly by the Materials Research Society for its members and others interested in materials science. Correspondence and submissions are invited. They should be brief and typewritten (double-spaced), and the author's affiliation must be indicated. Address all material to the Editor.

President
H.J. LEAMY
Bell Laboratories
First Vice President
C.W. WHITE
Oak Ridge National Laboratory
Second Vice President
E.N. KAUFMANN
Lawrence Livermore Laboratory
Secretary
R.L. SCHWOEBEL
Sandia National Laboratory
Treasurer
K.C. TAYLOR
GM Research Laboratories

Editor
T.G. MIDDLETON
P.O. Box K
Short Hills, NJ 07078
(201) 467-0504