

Eighth Oxford Conference on Microscopy of Semiconducting Materials Set for 1993

Abstracts Being Accepted

The eighth biennial conference on Microscopy of Semiconducting Materials, to be held on April 5-8, 1993 at Oxford University, will focus on advances in transmission and scanning electron microscopy of the structural and electrical properties of semiconductors. Developments in the use of other micro-characterization techniques such as x-ray topography, scanning tunneling microscopy, atom probe microanalysis and ion backscattering spectrometry will also be featured. The conference will cover a wide range of elemental and compound semiconductors.

Subject areas include the characterization of as-grown semiconductors in both bulk and thin film forms, the study of lattice defect and impurity behavior and the investigation of the effects of semiconductor processing treatments. Special conference sessions will concentrate on recent advances in high resolution electron mi-

croscopy work, the nature of epitaxial layers, quantum wells and superlattices, the properties of dislocations, the characteristics of metal-semiconductor contacts and silicides, the effects of device processing treatments and the exploitation of advanced scanning techniques (SEM-CL, SEM-EBIC, STM, AFM, etc.).

The provisional list of invited speakers includes J.L. Batstone (IBM, Yorktown Heights), "In-situ TEM Studies of the Crystallization of Amorphous Si: the Role of Silicides"; D. Bimberg (Technical University of Berlin), "Cathodoluminescence Imaging of Quantum Wells and Wires"; J. Brown (Sematech, Austin), "Microscopy of ULSI Structures"; F. Glas (CNET, Bagneux), "Composition Modulations and Clustering in III-V Alloys"; M.A.G. Halliwell (Philips, Almelo), "The Role of XRD in the Characterization of Semiconductor Heteroepitaxial Structures"; C.J. Humphreys (University of Cambridge), "Electron Microscope Investigations of Heteroepitaxial Materials"; A.G. Norman (Imperial College, London), "Nature and Origin of Atomic Ordering in III-V Alloys"; A. Ourmazd (AT&T Bell Labs, Holmdel) "Quantitative HRTEM of Semiconductors"; J.B. Pethica (University of Oxford), "STM of Semiconductor Surfaces"; J.M. Poate (AT&T Bell Labs, Murray Hill), "Defect Engineering in Semiconductors"; K. Sumino (Tohoku University, Sendai), "Dislocation Dynamics in Semiconductors."

The conference proceedings will be published and contributed papers are requested in all the areas outlined above. The abstract deadline is **December 1, 1992**. Further information about abstract submission and registration can be obtained from: The Administrator, Royal Microscopical Society, 37/38 St. Clements, Oxford OX4 1AJ, U.K. (44-865-248768; fax 44-865-791237).

The conference is organized under the auspices of the Royal Microscopical Society and the U.K. Institute of Physics, and is endorsed by the Materials Research Society. The conference co-chairs are A.G. Cullis, DRA Malvern, U.K. (44-684-894509; fax 44-684-894540) and A.E. Staton Bevan, Imperial College, London, U.K. (44-71-589-5111, ext. 5925; fax 44-71-584-3194).

Advertisers in this issue:

Bomem	9
Burleigh Instruments	8
Depths of the Earth	35
Drexel University	38
High Temperature Engineering	38
High Voltage Engineering	inside front cover
Huntington Laboratories	inside back cover
Kurt J. Lesker	17
Lake Shore	back cover
Micro-Optics	26
MKS Instruments	14
National Electrostatics	12
Park Scientific	6
Perkin Elmer	4
Pure Tech Inc.	13
Rigaku	3
Siemens	11
VCH Publishers	10
VCH Publishers	48
Virginia Semiconductors	44
Voltaix	26
Carl Zeiss	31

For free information about the products and services offered in this issue, fill out and mail the Reader Service Card, or FAX it to (312) 922-3165.

CLASSIFIED

Positions Available

**RESEARCH SCIENTIST
(ELECTRON MICROSCOPY)
University of Illinois
at Urbana-Champaign
Materials Research Laboratory**

The Center for Microanalysis of Materials in the Materials Research Laboratory of the University of Illinois at Urbana-Champaign is a major facility for the characterization of materials using electron microscopy, microchemistry and surface analysis. The Center is used by researchers in a wide range of scientific fields related to materials science. It operates and develops many instruments which are used by over 300 researchers each year. The Center has an open position for an electron microscopist, specializing in TEM.

The staff of the Center have a broad range of responsibilities. They work with users on their research, train users, maintain the instruments, and have the opportunity to develop new techniques and instrumentation.

We anticipate that the person's time will be divided more or less equally between maintenance and the training and research functions. Applicants should have an advanced degree or several years of experience in an electron microscopy laboratory. They should have a good background in transmission electron microscopy and microanalysis. To handle the maintenance responsibilities, applicants should have prior experience with vacuum systems and in digital and analog electronics.

This is a nonteaching, 100% time, regular appointment with standard university benefits. Salary will be commensurate with education and experience. The position is available in the Fall of 1992. In order to ensure full consideration, applications must be received by **October 31, 1992**. Please send letter of application, resume and three letters of reference to: Prof. H.K. Birnbaum, c/o Donna Jacobs, University of Illinois, Materials Research Laboratory, 104 South Goodwin Avenue, Urbana, Illinois 61801, phone (217) 244-2944.

The University of Illinois is an Affirmative Action/Equal Opportunity Employer.

Positions Available

Technical Opportunities at TI

We have career opportunities in our Advanced Optical Materials Laboratory within our Defense Systems and Electronics Group.

Member Technical Staff/Process Engineer Responsibilities involve: process development of large area bulk crystal growth of III-V compounds; engineering of optical and electrical properties of materials for specific applications; supporting transfer of technology to manufacturing; and supporting proposal efforts.

You must have a BS/MS in Materials Science or a related field as well as knowledge of: bulk growth of III-V compounds; physics of optical and electrical properties of solids, and semiconductor physics.

Member Technical Staff/Process Engineer Responsibilities include: development of III-IV compounds by chemical vapor deposition (CVD) for optical and electrical applications; development of film growth techniques; characterization of film physical properties and methods to control, predict and tailor physical properties of films.

You must have a BS/MS in Chemical Engineering, Physics, Materials Science or a related field as well as knowledge and experience in (CVD) of III-IV compounds, physical property characterization, semiconductor physics and crystal growth.

Texas Instruments is a diversified Fortune 100 company. As one of the world's largest producers of semiconductors, infrared detectors and infrared optical components, our Advanced Optical Materials Laboratory has the opportunity to define state-of-the-art technologies in semiconductor and other infrared materials development areas. This group, located at Texas Instruments Dallas, Texas, headquarters, is composed of scientists and engineers involved with research and development of advanced materials for electro-optical devices and optical components.

Contact Us Today! If interested in these opportunities, please send your resume to: Texas Instruments/P.O. Box 650311, MS 3993/Dept. MRS/Dallas, TX 75265, or FAX to 214/917-7116.

An Equal Opportunity Employer M/F/D/V



POSTDOCTORAL RESEARCH ASSOCIATE Brookhaven National Laboratory (BNL)

The Chemistry Department has a position available for a recent PhD with a background in crystallography or x-ray/neutron scattering to work in the "Structure and Reactivity in Catalysis and Advanced Materials" program. The successful candidate will participate in studies to analyze the structure of materials of interest to the group, such as metal hydrides and clathrate hydrates. This research will include experiments at BNL's High Flux Beam Reactor and National Synchrotron Light Source. X-ray and neutron reflectometry investigations of adsorbed layers on model catalytic surfaces are planned, in addition to crystal structure studies.

Candidates can apply by sending a curriculum vitae, publications list, and names of three references by **September 15, 1992** to: Dr. Thomas F. Koetzle, Chemistry Department, Building 555, Brookhaven National Laboratory, Associated Universities, Inc., Upton, L.I., NY 11973.

Equal Opportunity Employer M/F/D/V.

RESEARCH SCIENTIST Science and Technology Center for High Pressure Research

The Center for High Pressure Research (SUNY Stony Brook, Princeton University, Carnegie Institution of Washington) invites applications from a research scientist to develop a research program for the high pressure synthesis of silicates, oxides, sulfides, and related phases. PhD or equivalent work experience in earth science, solid-state chemistry, or materials science required. Materials synthesis experience preferred. Knowledge of high-pressure techniques desirable. Employment in the High Pressure Laboratory at Stony Brook will be 1-2 years duration commencing October 15, 1992. Applicants should submit CV, publications list, and arrange for three references to be sent to: Prof. Donald J. Weidner, Center for High Pressure Research, ESS Building, State University of New York, Stony Brook, NY 11794-2100. (FAX: 516-632-8140). Applications must be received by **September 30, 1992**.

The State University of New York at Stony Brook and the Research Foundation of the State University of New York at Stony Brook are equal opportunity/affirmative action educators and employers. Applications from women and minorities are encouraged.

ELECTRON MICROSCOPY University of California, Santa Barbara Department of Materials College of Engineering

The University of California at Santa Barbara invites applications for a research engineer position in the Department of Materials' Electron Microscopy Facility. Responsibilities include management of a major electron microscopy facility and scientific participation in several of the materials research programs at UCSB. The electron microscopy facility includes 3 TEMs, 3 SEMs, and an Auger Microprobe. This position requires a PhD in microscopy. Preference will be given to the applicant with the demonstrated experience in (1) hands-on operation and maintenance of a range of electron microscopes, (2) successful collaborative microscopy research, and (3) prior management experience.

Salary level depends upon experience and qualifications. The position is a one year appointment with possibility of reappointment.

Interested persons should apply to position #PD-09 (include resume, statement of interest, copies of publications, names and addresses of references) by **November 1, 1992** to:

Prof. James S. Speck
Engineering Materials Dept.
University of California
Santa Barbara, CA 93106

An Equal Opportunity/Affirmative Action Employer.

Positions Available

POSTDOCTORAL POSITION

is available in the atom probe laboratory of the Surface Science Section at Institute of Materials Research, Tohoku University, Japan, in early 1993. The candidates must have a PhD in either materials science or metallurgical engineering. Strong background in physical metallurgy or phase transformations is desired. Experience in atom probe is not required, but experience in TEM is desirable. Applicants must have the ability to conduct both collaborative and individual researches. The current projects include atom probe studies on nanostructured magnetic materials, amorphous alloys, intermetallics and phase transformation of aluminum alloys. The salary is competitive. Applicant should send resume, publication list, copies of selected publications and names of three references to:

Prof. Toshio Sakurai
Institute for Materials Research
Tohoku University
Sendai 980
Japan
Fax: + 81-22-215-2020

**FACULTY POSITION IN MATERIALS SCIENCE & ENGINEERING
University of Utah**

Department of Materials Science & Engineering at the University of Utah is accepting applications for a tenure-track faculty position at the assistant professor level. The candidate must have a PhD in a materials related field with primary interest in the area of electron microscopy applied to materials. Successful candidate will be expected to teach courses at both the undergraduate and graduate levels, and to develop an independent research program. The position is expected to be filled before January 1992. Send resume and at least three letters of references by **November 30, 1992** to:

Prof. Richard H. Boyd, Chair
Department of Materials Science & Engineering
304 EMRO
University of Utah
Salt Lake City, Utah 84112

The University of Utah is an Affirmative Action/Equal Opportunity Employer and encourages nominations and applications from women and minorities.

NOMINATIONS SOUGHT FOR THE DEAN

**School of Mines and Metallurgy
University of Missouri-Rolla**

The School of Mines and Metallurgy at the University of Missouri-Rolla is a 122-year-old, internationally-renowned institution, conducting research and instruction in the fields of ceramic, geological, metallurgical, mining, nuclear, and petroleum engineering, as well as in geology and geophysics, and in the Graduate Center for Materials Research, the Rock Mechanics and Explosives Research Center, and the Generic Mineral Technology Center for Pyrometallurgy.

The current dean, Don L. Warner, has announced his retirement. The Dean of the School of Mines and Metallurgy reports to the Chancellor and is responsible for the administration of the School through its departments and centers. Academic training, professional experience and achievements, and demonstrated success in administration will be considered in the selection process.

Applications and nominations for the position should be submitted to:

C. Dale Elifrits, Chairman
Search Committee for the Dean of the School of Mines and Metallurgy
Room 206 Parker Hall
University of Missouri-Rolla
Rolla, MO 65401

It is requested that dossiers be submitted to be received before **October 5, 1992**, when the selection process will begin.

The University of Missouri-Rolla is an Equal Opportunity Institution.

**FACULTY POSITION IN INFORMATION STORAGE MATERIALS AND DEVICES
Stanford University**



The Departments of Materials Science and Engineering and Electrical Engineering invite applications for a tenure-track faculty position in the area of magnetic or optical information storage. A PhD and a strong interest in graduate and undergraduate teaching are required. The research activities of this individual should focus on the science and technology of information storage materials and devices and might embrace magnetic thin films, magneto-optic materials, optical storage materials, or other relevant materials and techniques. The successful candidate will be embedded in an environment with substantial activities in surface and interface science, magnetism, solid state physics, advanced optics, information science and nanostructure science and technology and have an interest in the fundamentals and applications of both materials and devices. The opening is at the assistant professor level. The appointment will be made either in the MS&E Department or the EE Department or both. Please send a complete resume, a publication list, a statement of research and teaching interests, and the names of three references to: Prof. Robert L. White, Department of Materials Science and Engineering, MS 2205, Stanford University, Stanford, CA 94305, by **December 1, 1992**.

Stanford University is an equal opportunity/affirmative action employer and encourages applications from women and minority candidates.

Ad closing for the November MRS Bulletin is October 1, 1992.

To place your ad, call Mary E. Kaufold at (412) 367-3036 today!

POSTERMINARIES

T-T Coupling

While leafing through a recent issue of *Technology Review*, I came across a line in an article by Langdon Winner¹ that read: "What seems most difficult to admit in an age of rapid innovation is how strongly involved we become with some of the objects

we use." His point was that we become emotionally attached to yesterday's devices.² I had also been reading text submitted for *MRS Bulletin's* new Education Exchange column and was pondering approaches that might strengthen the coupling between technology and teaching (*T-T* coupling). For the young people we are try-

ing to educate, extrapolation of Winner's view predicts an intimate attachment with devices of today, not yesterday. Although *T-T* coupling is beginning to occur in the schools, known approaches seem to employ incremental gradualism as the only way to keep all process participants within their own comfort zones. We know, how-