



November 28 - December 2, 1994  
 Boston Marriott Hotel and  
 Westin Hotel/Copley Place  
 Sheraton Boston Hotel  
 Boston, Massachusetts

#### Meeting Chairs:

**Theodore M. Besmann,**

Oak Ridge National Laboratory

**Timothy D. Sands,**

University of California-Berkeley

**Gary S. Was,** University of Michigan.

The 1994 MRS Fall Meeting swells beyond previous MRS meetings in scope and magnitude. The meeting offers 34 symposia and over 4,000 oral and poster presentations—1,000 more than last year. To accommodate the size of the meeting, the Sheraton Hotel, which is connected to the Marriott through a shopping mall, will be used in addition to the Marriott and the Westin Hotels. Evening poster sessions will be in the Westin and Sheraton Hotels and integrated into oral sessions. Exhibits will be held in the Marriott and Westin Hotels.

The technical program expands on traditional materials research topics and explores areas that are new to the MRS community. Traditional areas include beam-solid interactions, high  $T_c$  superconductors, disordered materials, epitaxy, interfaces, thin films and layered structures, semiconductors, high-temperature intermetallics, ceramics, cement-based materials, optical materials, and ferroelectric materials. Symposia in areas of growing interest in the materials community include polymers, catalysis, fullerenes, biological materials, porous materials, nanocrystalline materials, computational approaches, and materials for smart systems.

The interconnections among the topics are emphasized by clustered symposia representing several themes: surface, film, and interface science; novel materials and material systems; synthesis and processing; novel metal-oxide applications; polymeric materials; characterization and multi-user facilities; and radiation in materials science.

Atomic-scale observations and *in situ* real-time monitoring of growth processes represent an expanding venue, as presented in Symposium D, Atomic-Level Control of Epitaxial Heterostructures. Atomic-scale crystal growth can be observed directly using field ion microscopy, CVD can be monitored in real-time, and STM and SEM can be used for luminescence spectroscopy on individual nanostructures and impurity atoms to determine electronic properties.

Sometimes the most interesting research happens in small places, as will be presented in Symposium N, which encompasses talks on x-ray scattering studies used to observe ordering at interfaces, use of "optical tweezers" to observe stretching and relaxation of a single polymer chain, and novel statistical behavior predicted for surface diffusion at bulk-liquid interfaces.

The symposium on High-Temperature Intermetallics will grapple with some of the issues of moving a high-technology development from the research lab to industry, such as moving TiAl into mass production for automotive engine valves.

Included in Symposia I1 and I2, Materials for Smart Systems and Ferroelectric Thin Films, are topics related to materials and fabrication of microelectromechanical systems, which have potential as sensors, actuators, or miniature medical devices. Also showing their smarts are electrostrictive actuators for recovering the optical performance of the hubble space telescope and shape-memory alloys used in eyeglass frames, so deformed frames can be returned to their original shape.

Tighter control on CVD and MBE processing will be described for materials such as diamond and cubic boron nitride in Symposium K, CVD of Refractory Metals and Ceramics. Understanding and improving materials processing through interpreting and manipulating predictive models are among concepts that will be discussed.

Researchers in Symposium Ob, Applications of Innovative Knowledge Bases in Materials Design, will show how new compounds can be predicted using empirical data by finding patterns in the data and matching these patterns to

known properties. This symposium is balanced by Symposium Oa, Computational Approaches and Applications to Predicting the Properties of Complex Materials.

The polymer cluster includes Symposium Q, Characterization and Properties of Defects in Polymer Materials, and Symposium R, Polymer Matrix Composites. Also, Symposium S on biomolecular and biomimetic materials shows a diverse array of topics, from ways of putting hard impermeable coatings on soft materials, to making new textile fibers from cellulose and blending inorganic and organic materials.

Optical materials will be addressed in a pair of symposia. Symposium Za examines such topics as metal-semiconductor-metal waveguide structures, Si-based integrated optics for data storage, micro-machined photonic bandgap materials, glass hosts for optical amplifiers, bio/chemical optic sensor technology for novel clinical, environmental, and process analytical applications. Symposium Zb covers optical limiting, for example, building devices for vision and sensor protection by using nonlinear interactions that render transparent materials opaque when exposed to high intensity light.

Radiation techniques and their effects will be touched on in several settings. Ion beams have found a variety of niches, and in Symposium A, Beam-Solid Interactions for Materials Synthesis and Characterization, papers will report on ion-beam-assisted etching, light from Si LEDs, and wear-resistant ion beam processed polymers, among other topics. Microstructure in Irradiated Materials, Symposium Y, further examines the effect of various types of radiation on a spectrum of material classes. Symposia AA and BB, address synchrotron radiation and neutron scattering, respectively, and Symposium BB includes a panel discussion on instrumentation at major U.S. neutron facilities.

#### Special Events

The plenary speaker Monday night will be Sig Hecker, director of Los Alamos National Laboratory.

Recipients of the Von Hippel Award, the MRS Medals, the Turnbull Lectureship, and the graduate student awards will be honored Wednesday evening, November 30 during the awards ceremony. Immediately following the ceremony, the Von Hippel Award recipient will give a presentation, and a reception will follow. Talks by the other award recipients will be integrated into the technical pro-

gram. Watch for a flier in the mail and next month's *MRS Bulletin* for more information.

A forum will be held to address materials manufacturing issues Tuesday at noon. Speakers include Robert A. Laudise, AT&T Bell Laboratories, talking about Industrial Ecology—A Materials Ethic for the 21st Century, and John H. Hopps Jr., director of materials research, National Science Foundation, on Results of an NSF Workshop on Materials for the "Clean Car."

Authoritative reviews for nonspecialists are scheduled for Symposium X on Monday, Wednesday, and Thursday from noon to 1:30 p.m. These lectures will cover pulsed laser deposition, fuel cells, isotopically engineered semiconductors, blue/green laser diodes, carbon nitride, and microelectromechanical systems.

A major exhibit displaying analytical and processing equipment and services will be held in the Boston Marriott and the Westin Hotels Tuesday through Thursday, accompanied by a reception Tuesday evening. Job placement services are offered Tuesday through Thursday. The meeting also incorporates short courses and tutorials (see below) and a student mixer (see p. 64 in this issue).

For further details about the meeting see the 1994 MRS Fall Meeting Program, which has been mailed to all MRS members. If you need a program or would like to register, call the MRS Meetings Department (412) 367-3004 ext. 310; fax (412) 367-4373.

*See page 18 in this issue for a list of the 1994 Fall Meeting symposium proceedings being published by the Materials Research Society.*

**MRS**

## Register for the 1994 MRS Fall Meeting

# N • O • W!

Use the registration form on  
p. 19 of the September  
**MRS Bulletin**,  
or call (412) 367-3004, ext. 310  
between 8 a.m. and 5 p.m.  
Eastern time.

## SHORT COURSE PROGRAM at the 1994 MRS FALL MEETING

Selected short courses and a tutorial covering the latest developments in materials science and technology will be offered in conjunction with the 1994 Fall Meeting of the Materials Research Society. These up-to-date presentations are at the forefront of science and technology and complement Fall Meeting symposium topics.

**SPECIALTY, REVIEW, AND SURVEY COURSES** and **TUTORIALS** are designed to meet the needs of scientists, engineers, professional staff, and managers who want to know the latest techniques in materials science and technology. For information about registration, student scholarships, and special meeting registration discounts, contact MRS Headquarters: Phone (412) 367-3004 ext. 320; FAX (412) 367-4373.

### Characterization of Materials

- C-08 Introduction to Ceramic Matrix Structured Composites \$595  
Instructors: Jack Mecholsky and Maurice F. Amateau  
Sunday, November 27, 8:30 a.m. - 4:30 p.m.  
Monday, November 28, 8:30 a.m. - 4:30 p.m.
- C-14 Scanning Tunneling Microscopy and Atomic Force Microscopy \$395  
Instructor: Dawn A. Bonnell  
Wednesday, November 30, 8:30 a.m. - 4:30 p.m.
- C-29 Practical Electron Diffraction \$595  
Instructor: Ronald M. Anderson  
Wednesday, November 30, 8:30 a.m. - 4:30 p.m.  
Thursday, December 1, 8:30 a.m. - 4:30 p.m.
- C-31 Super Resolution Imaging & Spectroscopy with Near-Field Scanning Optical Microscopy (NSOM) \$395  
Instructors: Hans Hallen & Michael Paesler  
Sunday, November 27, 8:30 a.m. - 4:30 p.m.

### Fabrication of Materials

- F-02 Plasma Etching for Microelectronic Fabrication \$395  
Instructor: G. Kenneth Herb  
Thursday, December 1, 8:30 a.m. - 4:30 p.m.
- F-10 Fundamentals and Applications of Ion Beam Assisted Deposition \$395  
Instructor: James K. Hirvonen  
Sunday, November 27, 8:30 a.m. - 4:30 p.m.

### Advanced Materials

- M-12 Introduction to Cementitious Materials \$395  
Instructors: J. Francis Young, Gregory J. McCarthy, & Della M. Roy  
Sunday, November 27, 8:30 a.m. - 4:30 p.m.

- M-14 Engineering Aspects of Shape Memory Alloys \$395  
Tom Deurig  
Thursday, December 1, 8:30 a.m. - 4:30 p.m.
- M-15 Biological Processes for Materials Synthesis \$450  
Mark Alper  
Monday, November 28, 8:30 a.m. - 4:30 p.m.  
Tuesday, November 29, 8:30 a.m. - 12:00 noon
- M-16 Ferroelectric Thin Films \$450  
Instructors: Angus I. Kingon and Seshu B. Desu  
Monday, November 28, 8:30 a.m. - 4:30 p.m.  
Tuesday, November 29, 8:30 a.m. - 12:00 noon
- M-19 Wide Bandgap II-VI Semiconductor Microstructures: Growth, Characterization and Optical Devices \$395  
Instructor: Leslie A. Kolodziejcki  
Tuesday, November 29, 8:30 a.m. - 4:30 p.m.
- ★M-20 Light Emitting Porous Silicon - Fabrication Properties, and Device Applications \$395  
Instructor: Phillipe M. Fauchet  
Monday, November 28, 8:30 a.m. - 4:30 p.m.

### Preparation of Materials

- P-02 Molecular Beam Epitaxy \$595  
Instructor: Gary W. Wicks  
Tuesday, November 29, 8:30 a.m. - 4:30 p.m.  
Wednesday, November 30, 8:30 a.m. - 4:30 p.m.
- P-14 Film Formation, Adhesion, Surface Preparation and Characterization of Thin-Film Structures \$595  
Instructor: Donald M. Mattox  
Thursday, December 1, 8:30 a.m. - 4:30 p.m.  
Friday, December 2, 8:30 a.m. - 4:30 p.m.

### Ancillary Topics \*\*NEW\*\*

- ★A-01 The Whole Internet - Usage and Futures \$395  
Instructor: Edward Krol  
Wednesday, November 30, 8:30 a.m. - 4:30 p.m.

### Tutorial Program

- TP-1 Transfer of Technology from R&D to Manufacturing \$125  
Instructors: Donald M. Mattox & Alton D. Romig, Jr.  
Tuesday, November 29, 8:30 a.m. - 4:30 p.m.
- TP-2 Fractals in Materials Science \$95  
Instructor: James E. Martin  
Sunday, November 27, 1:00 p.m. - 5:00 p.m.
- TP-6 Challenges in Design & Processing of Materials By Biomimetics \$95  
Instructors: Mehmet Sarikaya, Paul Calvert, Kevin P. McGrath & James H. Fendler  
Sunday, November 27, 1:00 p.m. - 5:00 p.m.
- ★TP-8 Thin Films: Stresses & Mechanical Properties \$95  
Instructors: Paul H. Townsend & Shefford P. Baker  
Sunday, November 27, 1:00 p.m. - 5:00 p.m.
- ★TP-9 Capillary Optics for X-Rays and Neutrons \$95  
Instructor: Walter M. Gibson  
Wednesday, November 30, 8:30 a.m. - 12:30 p.m.
- ★TP-10 Low Energy Electron Microscopy (LEEM) and Related Techniques in Materials Sciences \$95  
Instructor: Shirley Chiang  
Friday, December 2, 8:30 a.m. - 12:30 p.m.
- ★TP-11 Federal Materials Research Programs and Opportunities \$95  
Instructor: Louis Ianniello  
Sunday, November 27, 8:30 a.m. - 12:00 noon

★New Course



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 Sheraton Boston Hotel  
 Boston, Massachusetts

# MRS Exhibit

University Hall (U) • Atrium Lounge (A) • Westin Hotel (W) • 3rd & 4th Floors  
 Tuesday-Thursday, November 29-December 1, 1994

As part of the 1994 MRS Fall Meeting, a major exhibit will be held to display analytical and processing equipment closely paralleling the nature of the technical symposia. The exhibit will be in the Marriott/Westin Hotel, Copley Place. The technical program has been arranged to allow meeting participants ample opportunity to visit the exhibit.

## Exhibit Hours

### Marriott

Tuesday.....noon-7:00 p.m.  
 Complimentary Reception.....5:00 p.m.-7:00 p.m.  
 Wednesday .....9:00 a.m.-5:00 p.m.  
 Thursday.....9:00 a.m.-2:00 p.m.

### Westin

Tuesday.....9:00 a.m.-5:00 p.m.  
 Wednesday .....9:00 a.m.-5:00 p.m.  
 Thursday.....9:00 a.m.-1:00 p.m.

Coffee will be available during morning and afternoon breaks in the Exhibit area, Tuesday afternoon through Thursday morning.

## Indicates MRS Corporate Affiliate Member

### Academic Press, Inc. #U113

Harcourt Brace & Company  
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New and classic titles from Academic Press include *Fullerenes*, Volume 48 in *Solid State Physics* (Ehrenreich/Spaepen), *Fourier Transfer Raman Spectroscopy* (Chase/Raboult), *Introductory Raman Spectroscopy* (Ferraro/Nakamoto), *Materials Science of Thin Films* (Ohring), *Optical Characterization of Superconductors* (Perkovitz), *Intermolecular and Surfaces Forces*, 2nd ed. (Israelachvili), *Thin Film Processes I and II* (Vossen/Kern), and *Quantum Semiconductor Structures* (Weisbuch/Vinter).

### Advanced Control Systems Corporation #W26

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 AIP introduces its first electronic journal, *Applied Physics Letters Online*, and a new document delivery service, *Articles in Physics*. Free samples available of *Physics Today*, *Computers in Physics*, and *Chaos*. AIP PRESS books on display include: *Statistical Physics of Macromolecules*, *AIP Handbook of Modern Sensors*, and a NEW paperback edition of *Measurement Errors*.

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FAX: (708) 295-7929

## Burleigh Instruments, Inc. #U502

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Contact: Steve Hawe  
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FAX: (212) 564-1505  
E-mail: HAWE@CHAPHALL.COM

Chapman & Hall, publisher of the *Journal of Materials Science* and a range of high quality textbooks and reference works, will display new titles including Jiles' new textbook, *Introduction to Electronic Materials*; Matthews and Rawlings' *Composite Materials: Engineering and Science*; and the new edition of Loretto's *Electron Beam Analysis of Materials*.

## Clarkson University #W21

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- Particle Transport, Deposition and Removal
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## CoDAS #U111

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# 1994 MRS FALL MEETING EXHIBIT

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FAX: (813) 643-6058  
Manufacturer of III-V, II-VI, metal and oxide single crystals, IR prisms, polarizers, integrated optics, waveguides, silicon, semiconductor and superconductor substrates, GaP and rutile for acousto-optic devices, fluoride crystals. Custom crystal growth, custom optical fabrication and custom polishing. Materials R&D services. Manufacturer of custom grinding and polishing equipment and X-ray fixtures. MIL-1 shop.

## Commonwealth Scientific Corporation #U938

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Contact: David Day  
Telephone: (703) 548-0800  
FAX: (703) 548-7405  
Commonwealth Scientific Corporation (CSC) is the leader in ion beam technology, manufacturing a complete line of products for dry etching and thin film deposition processes. CSC's will be displaying their complete line of ion sources ranging from 3cm to 38cm in diameter. New products include the 1m gridless linear and the Carbon Cathodic Arc Source.

## Cooke Corporation #U509

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Contact: Steve Daicos  
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FAX: (716) 836-2927  
Two examples of non-contact electro-optical extensometers will be on exhibit. The models 200X (high resolution, high strain rate) and 200XF (computer controlled) extensometers are capable of direct strain and compression measurements of specimens over very long periods of time (creep testing) and over a wide range of testing temperatures (up to 3000°C).

## CRYO Industries of America, Inc. #U202

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Telephone: (603) 893-2060  
FAX: (603) 893-5278  
'Performance by Design' Dewars, Flow Cryostats, Superconducting Magnet Systems, Closed Cycle Refrigerators, Helium 3 Inserts and Accessories. Self-operating cryostats with CRYO auto control software for windows, liquid nitrogen and helium auto fill systems and computer controlled supervaritemp variable tempera-

ture platform with electronic flow control.

## Cryomech, Inc. #U602

1630 Erie Blvd. East  
Syracuse, NY 13210  
Contact: Peter Gifford  
Telephone: (315) 475-9692  
FAX: (315) 422-1202  
Cryomech Inc. will exhibit the following new products: A new Closed Cycle Cryostat that cools to 2.2 K, the portable LNP40 Liquid Nitrogen Plant (40 liters/day), and the soon to be introduced Liquid Helium Plant (30 liters/day). Cryomech will also exhibit standard cryostats and cryorefrigerators for temperatures down to 2.2 K.

## Cryostar Associates, Inc. #A18

518 N. Plumer Avenue  
Tucson, AZ 85719  
Contact: John Hess  
Telephone: (602) 322-5818  
FAX: (602) 322-0929  
E-mail: jhess@cryostar.com  
Cryostar Associates applies its proprietary Perpendicular Loading technology to all types of materials measurements where cryogenic systems are used. One basic interface covers the entire spectrum of physics type measurements encompassing High  $T_c$  hyperfine, optical, IR, NMR, EPR, neutron scattering, Hall Effect and others. A Perpendicular Loader will be displayed.

## DANFYSIK/GMW #A22

P.O. Box 2578  
Redwood City, CA 94064  
Contact: Ian J. Walker  
Telephone: (415) 368-4884  
FAX: (415) 368-0816  
Information and technical support will be available on the Danfysik 1080 Ion Accelerator and 1090 High Current Implanter for materials modification with pure ion beams. Powerful new options include: full color graphics computer control and monitoring, non-intercepting continuous current and dose measurement, end station for implantation or IBAD.

## DCA Instruments, Inc. #U942

400 West Cummings Park  
Suite 3900  
Woburn, MA 01801  
Contact: Jari Vanhatalo  
Telephone: (617) 937-6550  
FAX: (617) 935-2405  
E-mail: dcambe@village.com  
DCA Instruments specializes in the design and manufacture of UHV deposition systems, offering standard systems for the following techniques: III-V, II-VI, CMT-MBE, metal MBE, UHV Sputtering, UHV Laser Ablation,

Si/Ge epitaxy and UHV CVD. We also offer a wide range of components including effusion cells, a wobble-free substrate manipulator and a self-regulating Mercury source. On display will be the new Valved Cracking Source for Selenium.

## Denton Vacuum, Inc. #U404

1259 N. Church Street  
Moorestown, NJ 08057  
Contact: James L. Campbell  
Telephone: (609) 439-9100  
FAX: (609) 439-9111  
Denton Vacuum is a premier manufacturer of High Vacuum Thin Film Deposition Systems. For applications ranging from the preparation of samples for electron microscopy; semiconductor failure analysis and quality control; thin film research; and production size optical coating systems, Denton Vacuum offers an appropriate system to meet a wide range of technical requirements. In addition to its system offerings, DVI also has a wide variety of accessory equipment such as Electron Beam Evaporation Guns and Power supplies, Ion sources, Optical Monitors, Sputter Cathodes, Feedthroughs, and Thermal Evaporation Supplies.

## Digital Equipment Corporation #U912

50 Nagog Park  
Acton, MA 01720  
Contact: Angela Loh  
Telephone: (508) 264-7803  
FAX: (508) 264-7134  
E-mail: loh@akocoa.enet.dec.com  
Digital Equipment Corporation, Acton, MA: Check out our very affordable, high performance Alpha AXP workstations. Researchers find them excellent and reliable computing tools to advance their research. Modeling and simulation software will be demonstrated. You can get an update on applications available, product specs, pointers to the Alpha AXP systems on the Internet (available for testing your own codes), and other information.

## Digital Instruments #U701, U702

520 E. Montecito Street  
Santa Barbara, CA 93101  
Contact: Terry Mehr  
Telephone: (805) 899-3380  
FAX: (805) 899-3392  
E-mail: info@di.com  
The world leader in Scanning Probe Microscopy (SPM) will be exhibiting its complete line of NanoScope® SPMs, including the MultiMode™ Atomic Force Microscope (AFM), the world's best selling and highest resolution SPM. Featured at MRS this

year is the new Dimension™ 3000 SPM, offering the complete range of SPM techniques for small or large samples, including topography, magnetic force, lateral force, electrochemistry, force modulation and others.

## East/West Technology Partners, Ltd. #W16

4001 N. Fairfax Drive, Suite 765  
Arlington, VA 22203  
Contact: Gregory M. Finn  
Telephone: (703) 351-6925  
FAX: (703) 351-6909  
E-mail: gfinn@vas.bdm.com  
Exhibiting: Diamond films, metallurgical and magnetic materials. East/West Technology Partners, Ltd. is a three-way US/Russian joint enterprise. The company utilizes the strengths of the three partners to provide a credible, efficient, and complete technology transfer source for technology developed in the former Soviet Union.

## Edwards High Vacuum International #U924

301 Ballardvale Street  
Wilmington, MA 01887  
Telephone: (508) 658-5410  
FAX: (508) 658-7969  
Edwards High Vacuum International, a division of the BOC Group, is a world leading manufacturer of high vacuum components and systems. Some of Edwards' products include the EXP70-a compact turbomolecular pumping station, the AUTO306 vacuum coater, Active vacuum gauges, and the Barocel® Capacitance Manometers. These products will be on display at the 1994 MRS Show.

## Elsevier Science, Inc. #U208, U209, U210

655 Avenue of the Americas  
New York, NY 10010-5107  
Contact: Christine Orr  
Telephone: (212) 633-3765  
FAX: (212) 633-3764  
Elsevier Science (imprints: North Holland & Pergamon) will exhibit a wide range of materials science and related solid state physics publications. Titles on display include:  
• Journals such as Materials Letters, Computational Materials Science, Nanostructured Materials and Applied Superconductivity. Free Samples are available.  
• New editions of The Handbook of Semiconductors and the Handbook of Crystal Growth.  
• Newly published: The Encyclopedia of Advanced Materials, the first and only complete treatment of the synthesis, processing, theory and applications of all classes of advanced materials.

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- Electronic information services such as CONTENTS-Alert.
- See ad in this issue.

## **EMCORE Corporation #U902**

35 Elizabeth Avenue  
Somerset, NJ 08873  
Contact: Bill Kroll  
Telephone: (908) 271-9090  
FAX: (908) 271-9686

EMCORE Corporation is the manufacturer of TurboDisc Deposition systems producing highest quality thin film compound semiconductor wafers with uniformity of thickness, doping and composition, and interface abruptness required for modern electronic, microwave and optoelectronic devices. EMCORE's TurboDisc systems are further distinguished by throughput, capacity and process conditions and utilize major deposition technologies including MOCVD, ALE, and CVD depending on application requirements.

## **Evans East #U603**

666 Plainsboro Road  
Suite 1236  
Plainsboro, NJ 08536  
Contact: William L. Harrington  
Telephone: (609) 799-1904  
FAX: (609) 799-8691

Analytical services performed using SIMS, RBS, AES, XPS (ESCA), and SEM with additional access to the network of services through Charles Evans & Associates. Protocols include: bulk analysis, surface analysis, and depth profiling. Typical materials for analysis are semiconductors, metals, insulating films, ceramics, glasses, catalysts, biomaterials, and polymer surfaces.

## **Extrel, Division of Waters #U919**

575 Epsilon Drive  
Pittsburgh, PA 15239  
Telephone: (412) 963-7530  
FAX: (412) 963-6578

For 30 years Extrel has been the premier leader in the manufacturing of high-quality quadrupole mass spectrometers. Systems and parts include: Quadrupole Power Supplies with mass ranges up to 4000 amu; Quadrupole Mass Filters - 9.5 mm, 16 mm and 19 mm diameter quadrupole rods; Electron Impact Ionizers- axial, crossbeam and direct inlet; and the electronics of Quadrupole Mass Spectrometers. All are used in applications such as: Thermal Desorption, Surface Analysis, Molecular Beam and Cluster Chemistry.

## **FEI Company #U406**

7451 N.E. Evergreen Parkway  
Hillsboro, OR 97124  
Contact: Andree Kraker  
Telephone: (503) 640-7500  
FAX: (503) 640-7509

FEI Company features a new, compact 2-lens liquid metal ion (LMI) focusing column. Superior milling and imaging performance, reliable UHV construction and a modular design philosophy are combined in this new component ion focusing column. Also featured are single-lens ion and electron field emission columns, LaB<sub>6</sub>/CeB<sub>6</sub> electron sources, and FIB workstations.

## **E.A. Fischione Instruments, Inc. #U710**

9003 Corporate Circle  
Export, PA 15632  
Contact: Paul E. Fischione  
Telephone: (412) 325-5444  
FAX: (412) 325-5443

E.A. Fischione Instruments, Inc. features a full line of TEM Specimen Preparation devices. New product introductions include the Model 3000 ION MILL, a table-top, turbo-pumped, microprocessor-based device incorporating variable milling angles and high milling rates, and the Model 330 Ultrasonic Disk Cutter for the preparation of TEM specimen disks from ceramic and semi-conductor materials. Other devices on display are the Twin-Jet Electropolisher, for preparing metallic TEM specimens, and the Model 2000 Specimen Prep System (a state-of-the-art, microprocessor based, ultra-precision dimpling grinder). Also featured are SEM and TEM Specimen Holders, including the new Cryo-Prep Station/TEM Holder.

## **Fisons Instruments #U933**

55 Cherry Hill Drive  
Beverly, MA 01915  
Contact: Marie Mello  
Telephone: (508) 524-1000  
FAX: (508) 524-1100

Fisons Instruments, the world's largest supplier of surface analysis equipment, molecular beam epitaxy systems, and high precision UHV components, will have information available. Information will also be available on the Keve Sigma, a state-of-the-art Microanalyzer based on a PC workstation computer platform with an advanced graphical user interface.

## **Gatan, Inc. #U900**

6678 Owens Drive  
Pleasanton, CA 94588-3334  
Contact: Paul Miller  
Telephone: (510) 463-0200  
FAX: (510) 463-0204

Gatan is a technology leader in the manufacture of instrumenta-

tion for TEM, STEM and SEM. Products include a complete selection of side-entry TEM specimen holders, TEM specimen preparation equipment, TV-rate and slow-scan CCD cameras for TEM, multi-signal digital imaging system for SEM & STEM, parallel detection electron energy loss spectrometer, and energy filtered imaging system.

## **Goodfellow Corporation #A13**

800 Lancaster Avenue  
Berwyn, PA 19312-1780  
Contact: James Woods  
Telephone: (610) 640-1612  
Toll free: (800) 821-2870  
FAX: (800) 283-2020

Manufacturers of a unique range of metals and materials for research, development and small scale production. Goodfellow offer a wider selection than any other source. 69 metals, from Aluminum through Zirconium, - in both commercial and high purity - and 192 alloys including the common and the unusual. 21 different forms are available for immediate shipment including foil, wire, rod, tube, powder and all are available in a wide range of sizes. In addition, we have available single crystals, ceramics and polymers.

## **Gordon & Breach Publishers, Inc. #U105**

820 Town Center Drive  
Langhorne, PA 19047  
Contact: Andrew Margolis  
Telephone: (215) 750-2642 x131  
FAX: (215) 750-6343

Gordon & Breach publishes books and journals of interest to scientists and engineers in condensed matter physics and materials science, including nanotechnology, optics and lasers, surface physics, nonlinear dynamics, and superconductivity.

## **High Voltage Engineering Europa B.V. #U941**

P.O. Box 99  
3800 AB Amersfoort  
The Netherlands  
Contact: Henri van Oosterhout  
Telephone: (31) 33-619741  
FAX: (31) 33-615291

Ion accelerator systems for science and industry; Ion Implantation, Ion Beam Analysis by RBS, PIXE, NRA, ERD, MEIS and AMS.

—See ad in this issue.

## **Hitachi Scientific Instruments #U203, U204, U205**

755 Ravendale Drive  
Mountain View, CA 94043  
Contact: Hideo Naito  
Telephone: (415) 969-1100  
FAX: (415) 961-0368

Hitachi, a world leader in electron microscope advancements and proven technologies, represents our full line of exceptional scanning, transmission and field emission electron microscopes by giving demonstrations of our Model S-4500. The Model S-4500 FE-SEM (with in-lens SE detector) gives resolution of 45Å guaranteed at 1KV, and 15Å guaranteed at 15KV. This detection method yields ultimate surface detail not seen with a standard SE detector.

—See ad in this issue.

## **Hi-Tech Ceramics, Inc. #U303**

P.O. Box 788  
Alfred, NY 14802  
Contact: Dawn Burnett  
Telephone: (607) 587-9146  
FAX: (607) 587-8770

Hi-Tech Ceramics is a manufacturer of advanced reticulated ceramics for use in severe environments. A leader in the supply of molten metal filters for ferrous and non-ferrous alloys, HTC applies its materials expertise to generate creative solutions to problems in thermal insulation, low NO<sub>x</sub> combustion, incineration, hot gas filtration and other areas.

## **HK Equipment, Inc. #W32**

235 Andover Street  
Wilmington, MA 01887  
Contact: William Kovacs  
Telephone: (508) 988-9466  
FAX: (508) 988-9477

HK Equipment, Inc. maintains an inventory of 35,000 Ft<sup>2</sup> of high quality, low cost preowned equipment for advanced material processing. Typically HKE has 25 to 35 vacuum furnaces, 5-8 coaters, 100 vacuum pumps, vacuum components, leak detectors, 30 ovens, kilns, diffusion furnaces, glass polish equipment, advanced ceramic equipment (ball mills, etc.), powered metal, tungsten carbide, heat treating furnaces, laboratory equipment, shop and material handling equipment. HKE specializes in vacuum and offers systems rebuilt, modified or new. HKE also would like to buy your surplus equipment. Arrange to visit our warehouse while in Boston.

## **Huntington Mechanical Laboratories #U812**

1040 L'Avenida  
Mountain View, CA 94043  
Contact: Ken Bertken  
Telephone: (415) 964-3323  
FAX: (415) 964-6153

Huntington Laboratories is an integrated supplier of UHV component hardware including valves, roughing components, and viewports as well as position-

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ers, feedthroughs, and custom chambers. Huntington also offers prototype and high volume production support services for custom or standard UHV requirements including engineering design assistance.  
-See ad in this issue.

## IBM Analytical Services #A8

1580 Route 52  
Hopewell Junction, NY 12533  
Contact: David Fouts  
Telephone: (914) 892-2450  
FAX: (914) 892-2003  
E-mail: dpfouts@unet.ibm.com  
Offers a broad range of capabilities from failure analysis to chemical and electrical characterization, all performed by a highly experienced staff of experts in their specific fields. We offer high-quality work performed on state-of-the-art equipment in a timely and cost-competitive environment.

## Inel, Inc. #U915

P.O. Box 147  
Stratham, NH 03885  
Contact: Gregory Stollstorff  
Telephone: (603) 778-9161  
FAX: (603) 778-9171  
X-ray diffraction. Curved 90 and 120 degree and linear position sensitive x-ray detectors for simultaneous XRD measurements. Time resolved high temperature, thin film, powder, microsample analysis. Decrease data collection times by magnitudes of order. Upgrades for existing goniometers or new, complete systems available. Also 3.0kw generators, tubes, radiation safety enclosures, horizontal or vertical goniometers.

## Innovative Technology, Inc. #U901

2 New Pasture Road  
Newburyport, MA 01950  
Contact: Kenneth J. O'Brien  
Telephone: (508) 462-4415  
FAX: (508) 462-3338  
We will be exhibiting a PC controlled Position Sensitive Detector and Multichannel Analyzer System.

## Institute for Scientific Information (ISI) #U207

3501 Market Street  
Philadelphia, PA 19104  
Contact: Jacqueline H. Trolley  
Telephone: (215) 386-0100  
FAX: (215) 387-1125  
E-mail: JTROLLEY@ISINET.COM  
Have instant access to full bibliographic data, cited references, and abstracts...for every important journal article and proceedings paper published in your field. No materials science database is this current. Bimonthly updates on CD-ROM. See a demonstration and enter the

drawing for a free-one year subscription!

## Instron Corporation #U304

100 Royall Street  
Canton, MA 02021  
Contact: Kathy Hendry  
Telephone: (617) 828-2500  
FAX: (617) 575-5751  
Wilson Instruments Division of Instron Corp. will exhibit new UMIS-2000 micro indentation system. The UMIS-2000 is an ultra micro-indentation system for investigating the elastic, plastic, strain hardness, creep, fracture, and other mechanical properties of coatings and very near surface regions of materials. It has applications in characterizing a wide range of materials such as hard coatings of titanium nitride and diamond film as well as, for example, polymers and soft rubbers. Instron Corporation will be exhibiting the new Mini Tester system.

## Instruments S.A. #A10

3880 Park Avenue  
Edison, NJ 08820  
Contact: Jean Berthold  
Telephone: (908) 549-7144  
FAX: (908) 549-5125  
Instruments SA is committed to serving our customers with superior products and technical support for optical spectroscopy. ISA offers many versatile research and low cost Raman spectrometers as well as scanning and imaging spectrometer systems, fluorescence systems, ellipsometry systems, photo diode array (PDA) and charge coupled device (CCD) detectors.

## Ion Tech, Inc. #U501

2330 East Prospect  
Fort Collins, CO 80525  
Contact: Gerald Isaacson  
Telephone: (303) 221-1807  
FAX: (303) 493-1439  
Ion Tech, Inc. provides a complete range of ion beam equipment from linear, round DC and filamentless RF sources. This equipment can be used for etching, precleaning and the production of sophisticated thin films such as diamondlike carbon (DLC), complex alloys, and high precision optical films. Though known mainly for being the leader in ion beam components, Ion Tech, Inc. also offers a full line of processing systems.

## IOP Publishing #U206

Public Ledger Bldg., Suite 1035  
Philadelphia, PA 19106  
Contact: Tom Robertson  
Telephone: (215) 627-0880  
FAX: (215) 627-0879  
Institute of Physics Publishing is a primary international publisher of high quality books and jour-

nals in physics and related subjects such as condensed matter and materials science. Journals in these areas include *Journal of Hard Materials*, *Journal of Physics: Condensed Matter and Modelling* and *Simulation in Materials Science and Engineering*. Institute of Physics Publishing will also be exhibiting new and recent books including *Artifice and Artefacts* by Cahn and *Semiconductor Interfaces, Microstructures and Devices* edited by Feng.

## Janis Research Company, Inc. #U804

2 Jewel Drive  
Wilmington, MA 01887-0696  
Contact: Lori McLaughlin  
Telephone: (508) 657-8750  
FAX: (508) 658-0349  
Janis combines over 30 years of experience with extensive engineering capabilities to provide cryogenic systems for all research applications. Janis offers closed cycle refrigerators, continuous flow and variable temperature cryostats, superconducting magnet systems, detector cooling dewars, dilution refrigerators, Helium-3 cryostats, and custom designs to meet any specific requirement.

## JCPDS-ICDD #A15

12 Campus Boulevard  
Newtown Square, PA 19073  
Contact: M.M. Fornoff  
Telephone: (215) 325-9810  
FAX: (215) 325-9823  
The JCPDS-ICDD maintains and distributes the Powder Diffraction File (PDF) database for use in materials characterization through X-Ray diffraction analysis. Updated annually, the PDF presently contains approximately 59,800 diffraction patterns of crystalline phases of both inorganic and organic/organometallic materials. Available in print and on CD-ROM. Educational materials and programs are also offered.

## JEOL USA, Inc. #A7

11 Dearborn Road  
Peabody, MA 01960  
Contact: Mike Kersker(TEM) or Charlie Nielsen(SEM)  
Telephone: (508) 535-5900  
FAX: (508) 536-2205  
JEOL has always relied on sound technology, steady service and support, and quality manufacturing to meet the scientific demands of the Materials Science community. Today, JEOL remains committed to providing the same reliable, high performance SEMs and TEMs to challenge the needs of applied and basic materials research in the future.

## k-Space Associates, Inc. #U930

2231 Stone Drive  
Ann Arbor, MI 48105  
Contact: Darryl Barlett  
Telephone: (313) 763-8747  
FAX: (313) 763-8747  
k-Space Associates specializes in instrumentation and control software for monitoring and analysis of surface structure and thin-film growth. We will demonstrate our popular CCD-based KSA300 system for real-time RHEED/LEED imaging and analysis. New features include accurate growth control using phase-locked epitaxy and precision strained layer monitoring.

## Keithley Instruments #U935

28775 Aurora Road  
Solon, OH 44139  
Contact: Kristin Rice  
Telephone: (216) 248-0400  
FAX: (216) 248-6168  
E-mail: Rice\_Kristin@Keithley.com  
Keithley will display its line of sensitive test instrumentation for making very accurate low current and low voltage DC measurements. Keithley will demonstrate two new electrometers perfectly suited for materials research applications. Other products to be shown include picoammeters, source-measure units, and a new DMM.

## Kimball Physics, Inc. #U504

311 Kimball Hill Road  
Wilton, NH 03086-9742  
Contact: Faye M. Bigarel  
Telephone: (603) 878-1616  
FAX: (603) 878-3700  
UHV Electron Sources, Ion Sources, Systems: 5 eV to 100 keV. 10<sup>-15</sup> A to 1 A;  $\mu$ m to m Diameters. Applications: Surface Physics, RHEED, ESD, MBE, Heating, Space Physics, Semiconductor Processing, Microscopy, etc. UHV Components: Cathodes, Cathode Mounts, Wehnelts, and Cartridges; Faraday Cups, Multi-eV Fittings, Phosphor Screens, eV Parts, Insulators, Materials.

## Kluwer Academic Publishers #U106

101 Philip Drive  
Norwell, MA 02061  
Contact: Jane Strone  
Telephone: (617) 871-6600  
FAX: (617) 871-6528  
E-mail: JSKLUWER@WORLD.STD.COM  
Visit Kluwer Academic Publishers at the Fall MRS Meeting and receive a sample copy of one of the new materials research journals: Sol-Gel Science and Technology; Interface Science; The Journal of Porous Materials; Advanced Performance Materials; and Applied

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Composite Materials. Also on display, the latest research books.

## **Kratos Analytical #W22**

535 East Crescent Avenue  
Ramsey, NJ 07446  
Contact: David Surman  
Telephone: (201) 825-7500  
FAX: (201) 825-8659

Kratos Analytical is a leading supplier and manufacturer of high performance surface analysis instrumentation. The instruments produced include dedicated XPS/ESCA Systems; Auger instruments and multi-technique combination instruments. A range of secondary ion mass spectrometry equipment and vacuum components are also produced.

## **Lake Shore Cryotronics, Inc. #U703, U704**

64 East Walnut Street  
Westerville, OH 43081  
Telephone: (614) 891-2243  
FAX: (614) 891-1392

Cryogenic temperature sensors including diodes, resistors, capacitance, rhodium-iron, magnetic field Hall generators and Cernox™ sensors with low magnetic field dependence; analog and autotuning temperature controllers, helium level monitors, temperature transmitters and current sources; gaussmeters for benchtop and hand-held applications; AC Susceptometers/DC Magnetometers; Vibrating Sample Magnetometers; true, four-quadrant Magnet Power Supplies for electromagnets and superconducting magnets and electromagnets.

## **Lambda Physik, Inc. #U928**

289 Great Road  
Acton, MA 01720-4739  
Contact: Gerard J. Zaal  
Telephone: (508) 263-1100  
FAX: (508) 263-4296

## **Kurt J. Lesker Company #U939, U940**

1515 Worthington Avenue  
Clairton, PA 15025  
Contact: Mike McKeown  
or Bill Zinn  
Telephone: (412) 233-4200  
FAX: (412) 233-4275

As exclusive agents, we are displaying: Vacuum Generators high precision, UHV sample manipulators; VG Microtech's surface science instrumentation (XPS, AES, UPS, ARUPS, LEED & RHEED); and VG Quadrupoles residual gas analyzers. Other products include our Torus sputter sources and materials, electrical feedthroughs, flanges/hardware and our complete line of vacuum gauges.

-See ad in this issue.

## **Leybold Inficon, Inc. #U937**

2 Technology Place  
East Syracuse, NY 13057  
Contact: Betty Ann Kram  
Telephone: (315) 434-1126  
FAX: (315) 437-3803

Leybold Inficon's advanced instrumentation techniques combine unique sensing technology with specialized electronics. The company's expertise includes the new PC based and quadrupole mass spectrometers and partial pressure controllers for Residual Gas Analysis, Thin Film Deposition Controllers, high sensitivity Helium Leak Detectors and a complete family of digital and analog Vacuum Gauge Controllers.

## **Los Alamos National Laboratory #U409**

MST-DO MS G756  
Los Alamos, NM 87545  
Contact: Lynne M. Johnson  
Telephone: (505) 665-1499  
FAX: (505) 665-3748  
E-mail: L.johnson@lanl.gov  
LOS ALAMOS NATIONAL LABORATORY (Los Alamos, NM)—Los Alamos National Laboratory supports all aspects of materials processing and advanced materials development: from synthesis and fabrication to characterization and analysis to hazardous materials processing. We maintain a variety of science and technology programs as well as state-of-the-art facilities and unique capabilities.

## **LUXTRON Corporation #U104**

2775 Northwestern Parkway  
Santa Clara, CA 95051-0941  
Contact: William Kolbeck  
Telephone: (408) 727-1600  
FAX: (408) 727-1677  
Optical fiber temperature measurement and control instrumentation. Offers non-contact and contact temperature measurement from -200°C to 4000°C with resolution to 0.01°C.

## **Marcel Dekker, Inc. #U112**

270 Madison Avenue  
New York, NY 10016  
Contact: Gina Coppola  
Telephone: (212) 696-9000  
FAX: (212) 685-4540  
Marcel Dekker, Inc. displays professional books and journals of great interest to conference participants. Discount order forms can be picked up at the booth.

## **MDC Vacuum Products Corporation #U943**

23842 Cabot Boulevard  
Hayward, CA 94545  
Contact: Mike Weiss  
Telephone: (510) 887-6100  
FAX: (510) 887-0626

Complete line of UHV compo-

nents including: Flanges and fittings, valves, roughing components, instrumentation, electrical feedthroughs, XYZ manipulators, rotary and linear feedthroughs, fast entry load-lock systems, all-metal sealed right angle valves and M.E.S.A. compatible rectangular gate valves. Featured products will be a complete line of electron beam evaporation sources in single pocket and multi-pocket configuration with matching 6kW, 10kW and 15kW solid state switching power supplies.

-See ad in this issue.

## **Microcal Software, Inc. #U407**

One Roundhouse Plaza  
Northampton, MA 01060  
Contact: Nicole Baker  
Telephone: (413) 586-2013  
FAX: (413) 585-0126

Origin, a Microsoft Windows based software, is designed to meet the needs of modern laboratories. Origin provides an integrated solution for data acquisition, data analysis and publication graphics. Origin's powerful scripting language and friendly interface make it easy to automate routine laboratory tasks.

## **Microchemistry, Ltd. #U913**

P.O. Box 45  
FIN-02151 Espoo  
Finland  
Contact: Heli Vaara  
Telephone: (358) 0-450-5702  
FAX: (358) 0-450-5700

Microchemistry, Ltd. supplies machinery for Atomic Layer Epitaxy (ALE) process as well as research services in advanced surface chemistry and thin film processing technology. Microchemistry's ALE reactors make it possible to apply Atomic Layer Epitaxy onto substrates up to 1.5 ft<sup>2</sup>. Customized reactors can be supplied to specific materials and applications.

## **Micro Photonics, Inc. #U920**

4949 Liberty Lane, Suite 170  
P.O. Box 3129  
Allentown, PA 18106-0129  
Telephone: (215) 366-7103  
FAX: (215) 366-7105

Micro Photonics offers the NanoTest 550 and MicroTest 200 instruments for mechanical properties measurements on thin films, surface layers and bulk materials; the High Temperature Tribometer for pin-on-disc wear testing to 800°C; the Micro Scratch Tester for thin film adhesion testing; and the Universal Wear Machine for pin-on-disc, pin-on-plate and block-on-ring testing.

## **MKS Instruments, Inc. #U705, U706**

6 Shattuck Road  
Andover, MA 01810  
Telephone: (508) 975-2350  
FAX: (508) 975-0093

MKS will exhibit its full line of vacuum/pressure/flow instrumentation, including mass flow meters and controllers, vacuum gauges, pressure transducers, pressure control systems, HPS vacuum valves and hardware, and NGS mass spectrometers and primary and secondary calibration systems. New products this year include systems for Direct Liquid Chemical Injection.

## **MMR Technologies, Inc. #U508**

1400 N. Shoreline Blvd, Suite A-5  
Mountain View, CA 94043-1346  
Contact: Robert L. Paugh  
Telephone: (415) 962-9620  
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MMR Technologies will exhibit Temperature Controlled Systems — Cryogenic Cooling Systems and Wide Temperature Range Thermal Stages — which find application in Materials Research, Cooling and Characterization of Electronic Devices, Laser Diodes, and Thermal Imaging Devices as a function of Temperature, and Low Temperature Physics & Chemistry Applications. Seebeck Effect, Hall Effect, DLTS, and up to Seven Probe Measurement Systems are available.

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or Patricia Ferguson  
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Telephone: (708) 963-0282  
FAX: (708) 963-0317  
E-mail: nanophase@aol.com

Nanophase Technologies offers nanocrystalline ceramic and metal particulates. Powders are available in a range of sizes from 5-100 nm (0.005 micron-1 micron). Standard materials include Al<sub>2</sub>O<sub>3</sub>, TiO<sub>2</sub>, Fe<sub>2</sub>O<sub>3</sub>, CeO<sub>2</sub>, Cr<sub>2</sub>O<sub>3</sub>, Y<sub>2</sub>O<sub>3</sub>, Al, Co, Cu, Fe, Ni, Si, Au, Ag, Pd. Inquiries are encouraged for your specific application needs.

-See ad in this issue.

## National Electrostatics Corporation #U707

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## Naval Research Laboratory #W33

4555 Overlook Avenue S.W.  
Washington, DC 20375-5322  
Contact: Linda Greenway  
Telephone: (202) 767-2541  
FAX: (202) 767-6991

The Naval Research Laboratory (NRL) has major facilities on the banks of the Potomac River in Southwest Washington D.C.; at the Stennis Space Center, Mississippi; in Monterey, California; and in Orlando, Florida. NRL was dedicated on July 2, 1923 and is the Navy's only corporate laboratory, charged with the mission of conducting a broadly based, multi-disciplinary program of scientific research and advanced technological development. Research is directed toward maritime applications of new and improved materials; techniques; equipment; systems; ocean, atmospheric, and space sciences; and related technologies. The Navy has established NRL as its lead laboratory in space technology, fire research and artificial intelligence.

## Neocera, Inc. #U929

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Telephone: (301) 314-9212  
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Telephone: (408) 734-8988

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FAX: (916) 842-9130

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Telephone: (412) 831-2262  
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Manufacturers of scientific instruments for thin film research. The Reactive Atom Source facilitates: GaN growth; ZnSe p-doping; in-situ substrate cleaning; Oxidation; Other products include RHEED, magnetrons, mini e-beam evaporators, focused scanning ion and electron guns for cleaning, depth profiling, patterning and milling. Special and custom instrument design problems welcomed.

## Oxford Instruments, Inc. #U917

Microanalysis Group  
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Telephone: (508) 369-9933  
FAX: (508) 369-8287

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## Oxford Instruments, Inc. #U916

Scientific Research Division  
130a Baker Avenue Extension  
Concord, MA 01742  
Contact: John Stephens  
Telephone: (508) 369-9933  
FAX: (508) 369-6616

Oxford Instruments, the world's leading cryogenic and superconducting magnet systems supplier, will display the new UHV CryoSTM, a powerful Scanning Tunneling Microscopy (STM) system providing high resolution imaging from room temperature to 4K. The UHV CryoSTM consists of an STM head with an integral vibration isolation mounted on a continuous flow cryostat, complete with TOPS data and control computer system. Visit Oxford's product engineers at the MRS Fall Exhibit.

## Oxford University Press #U308

200 Madison Avenue  
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FAX: (212) 725-2972

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## **Peabody Scientific #U503**

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Ion beam equipment for materials modification and analysis. Products include heavy ion accelerators for surface modification and heavy ion backscattering, time of flight medium energy backscattering spectrometer, cesium ion source for SIMS and ion microprobes. Also, a complete line of ion beam components.

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FAX: (201) 529-5084

Philips Electronic Instruments Company is the leading manufacturer of X-Ray Diffraction and X-Ray Fluorescence equipment as well as a full line of Scanning and Transmission Electron Microscopes. Information is available on all product lines. Philips Electronic Instruments Company is ISO 9001 certified. We adhere to the most stringent of the three ISO classifications which requires an established, effective quality system be in place.

## **Physical Electronics #U809, U810**

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Telephone: (612) 828-6100  
FAX: (612) 828-6322

Physical Electronics (PHI) develops, manufactures and markets a complete line of surface analysis instrumentation, surface analysis subsystems, components and ultrahigh vacuum equipment. Surface analysis instruments from PHI utilize the Auger, ESCA/XPS and TOFSIMS techniques. Vacuum products include ion pumps, gauge controllers and ion pump power supplies.

## **Plasma Sciences, Inc. #A3**

7200A Telegraph Sq. Drive  
Lorton, VA 22079  
Contact: Steven L. Collins  
Telephone: (703) 550-7888  
FAX: (703) 339-9860

Plasma Sciences, Inc. specializes in the manufacture of high quality thin film deposition and etching systems for research and pilot production. Available are single and multi source DC/RF planar magnetron sputtering systems, broad beam ion beam R&D etching systems, and reactive ion etchers.

-See ad in this issue.

## **Plenum Publishing Corporation #U107**

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Contact: Eleonore Jentsch  
Telephone: (212) 620-8459  
FAX: (212) 647-1898

Exhibiting books and journals in all areas of materials science and related topics including Case Studies in Superconducting Magnets by Y. Iwasa; Introduction to Superconductivity by T. Sheahen; X-Ray Spectrometry and Electron Beam Instruments edited by D. Williams et al; Advances in Acoustic Microscopy edited by D. Briggs; the third edition of Structure Determination by X-Ray Crystallography by M.F.C. Ladd and R.A. Palmer; and Journal of Materials Synthesis and Processing, Journal of Superconductivity; Journal of Computer Assisted Microscopy; Journal of Environmental Polymer Degradation; Journal of Science Education and Technology and announcing a new quarterly dedicated to Plasmas and Polymers.

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Introduces PRISM™, the first digital EDS Spectrometer with Digital Pulse Processing. Noise-free digital circuitry has replaced the out-dated analog components of the X-ray pulse processing chain to provide extraordinary enhancement in the quality of X-ray detector performance. Coupled with the IMIX-XD, this breakthrough represents the most advanced EDS system available in the industry today.  
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Princeton, NJ 08542  
Contact: Charles A. Crider  
Telephone: (609) 924-0570

## **ProChem, Inc. #U914**

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FAX: (914) 878-4727

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## **Quantum Design #U608**

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FAX: (505) 842-0366

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## Rees Instruments #W31

P.O. Box 1031  
Leominster, MA 01453  
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Telephone: (508) 534-9491  
FAX: (508) 534-9491

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## Research & PVD Materials Corporation #U905

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Telephone: (201) 575-4245  
FAX: (201) 575-6460

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Contact: John M. Green  
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## RIGAKU/USA, Inc. #U601

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## Royal Society of Chemistry #U310

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United Kingdom  
Contact: F.L. Powers  
Telephone: (44) 223 420066  
FAX: (44) 223 423429

The RSC produces books, journals, and databases on all aspects of chemistry. Featured at this meeting will be our Journal of Materials Chemistry and our wide selection of books covering polymer and material science.

## Sandia National Laboratories #U410

P.O. Box 5800  
Albuquerque, NM 87185  
Contact: Kim Mahin  
Telephone: (505) 844-2222  
FAX: (505) 844-7910

The Sandia National Laboratories Materials Core Competency provides reliable, comprehensive, and integrated solutions to materials and process problems critical to the security, prosperity, and well-being of the nation. We perform research, development, and application engineering for our customers in Sandia, government, industry, and academia.

## Schumacher #U401

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Contact: Elisabeth Rippstein  
Telephone: (408) 737-7200  
FAX: (408) 737-9841

## Semiconductor Processing Company #W20

409 E. First Street  
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FAX: (617) 269-4659

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Telephone: (608) 276-3048  
FAX: (608) 276-3006

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## SKION/Structured Materials Industries #U922

612 River Street  
Hoboken, NJ 07030  
Contact: Seong Kim  
Telephone: (201) 216-5633  
FAX: (201) 798-5999

The SKION Corporation/Structured Materials Industries, Inc. (SMI) are a collaboration of two companies. SKION is developing several advanced ion sources and ion beam deposition equipment. SMI is developing advanced photonic and tribological materials as well as equipment modules in support of these advanced materials.

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FAX: (215) 643-7910

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## Staib Instrumente #W29

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Germany  
Contact: Philippe Staib  
Telephone: (49) 8161-7740  
FAX: (49) 8161-7709

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P.O. Box 656  
West Chester, PA 19381-0656  
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Telephone: (610) 436-5400  
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FAX: (610) 436-5755

Structure Probe, Inc.: Independent laboratory providing innovative electron microscopy and surface analysis services for solving materials science problems, including HTC materials, diamond coatings and complex polymer systems. SPI Supplies: Sample preparation instruments and consumable supply items for electron microscopy and surface analysis laboratories. Exclusive SPI-Module™ Sputter/Carbon Coating System, Plasma Prep II™ etcher/Asher, Plasma Prep X™ Parallel Plate all solid state Plasma Etcher for anisotropic etching. Be sure to pick up our current catalog.

## Superior Vacuum Technology #U408

7620 Executive Drive  
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Telephone: (612) 934-1993  
FAX: (612) 934-2021

Superior Vacuum Technology (SVT), a leading MBE and sputter UHV deposition manufacturer, has successfully pioneered the way for custom MBE systems and more recently complex sputter UHV deposition systems with complete integration of high quality components including surface analysis and computer controlled system automation resulting in improved performance.

## Sycon Instruments, Inc. #U909

6757 Kinne Street  
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Contact: Gwen Stell  
Telephone: (315) 463-5297  
FAX: (315) 463-5298

Sycon Instruments Inc. is a manufacturer of Thin Film Deposition Monitors and Controllers utilizing the quartz crystal sensing techniques. A complete line of HV and UHV sensors and shutters for these products are available. A multi-pocket E-Beam Source Indexer for the control of 4 and 6 pocket E-Beam Guns is now available from Sycon. A new deposition monitor based on the principle of Atomic Absorption has been added to the Sycon Product Line. This product is used for continuous monitoring of film deposition.

## Synergistic Technologies #W8

P.O. Box 14847  
Research Triangle Park, NC 27709  
Contact: Michelle Enke  
Telephone: (919) 544-4936  
FAX: (919) 544-5084

Synergistic Technologies, Inc. (STI) provides connections to research professionals in key technology areas through its research profile directories and databases. The profiles provide detailed information on research efforts, resources and technology developments, enabling industry, government and academia to quickly locate researchers who meet their specific high-tech needs.

## Taylor & Francis #U108

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Bristol, PA 19007-1598  
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Telephone: (215) 785-5800  
FAX: (215) 785-5515

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tronics and other related disciplines. Titles include *Philosophical Magazine*, *International Journal of Optoelectronics* and *Liquid Crystals*.

## Technotrade International, Inc. #U907

P.O. Box 543  
Londonderry, NH 03053-0543  
Contact: Albrecht Auwaerter  
Telephone: (603) 437-2991  
FAX: (603) 437-3091

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## Telemark #U402

51 Whitney Place  
Fremont, CA 94539  
Contact: Chris Johnson  
Telephone: (510) 770-8700  
FAX: (510) 770-8879

Telemark provides PVD components, including Electron Beam Guns, E-Beam Power Supplies, Sputter Cathodes, Sputter Power Supplies, Optical Monitors, Deposition Controllers, and related accessories. New products include inexpensive 3kW E-Guns and Power Supplies, as well as a 2kW Sputter Power Supply and small cathodes.

## Tencor Instruments #U808

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Contact: Roberta Emerson  
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Surface profiling systems for a variety of applications and budgets, providing comprehensive surface analysis on even very soft films. Guaranteed repeatability ensures highly accurate measurements. Large sample profiler for flat panel displays. Thin film stress measurement systems for analysis at temperatures from -65 to 900°C and automated film stress measurement systems with radial stress mapping.  
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## Thermionics Laboratory, Inc. #U805, U806

22815 Sutro Street  
P.O. Box 3711  
Hayward, CA 94540  
Contact: John Brooks  
Telephone: (510) 538-3304  
FAX: (510) 538-2889

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## Topsil Semiconductor A/S #W18

25 Burlington Mall Road, Suite 300  
Burlington, MA 01803  
Contact: John Regan  
Telephone: (617) 270-0622  
FAX: (617) 229-9358

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## TSL, Inc. #A20

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Salt Lake City, UT 84106  
Contact: John Bennion  
Telephone: (801) 467-8930  
FAX: (801) 344-8990  
E-mail: 73251.1424@compuserve.com

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## Varian Vacuum Products #U934

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Telephone: (800) 926-3000 x3118  
FAX: (603) 382-3451

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## 1994 MRS FALL MEETING EXHIBIT

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FAX: (617) 935-3940

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Telephone: (212) 683-8333  
FAX: (212) 481-0897

International publisher of research monographs, journals, and reference sets in the fields of materials science, physics, chemistry and chemical engineering, food science, and life sciences. New and featured titles include: *Advanced Materials; Nanoscale Characterization of Surfaces; The Chemistry of Metals CVD; Materials Science and Technology; Chaos & Complexity; A Random Walk through Fractal Dimensions 2nd Edition; An Introduction to Plastics; Scanning Tunneling Microscopy and Spectroscopy; Sensors; and Ternary Alloys.*

### Virginia Semiconductor, Inc. #U807

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Fredericksburg, VA 22401  
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### Voltaix, Inc. #U605

197 Meister Avenue  
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Telephone: (908) 231-9060  
FAX: (908) 231-9063

Voltaix Inc., a six year MRS Corporate Affiliate and Equipment Exhibitor, manufactures and supplies gases like germane, silane, diborane, disilane, methylsilane, trimethylboron and phosphine for the CVD of semiconducting materials such as a-Si, epi-silicon and InP for projects ranging from fundamental research to device manufacture. Call 1-800-VOLTAIX for product information and MSDS's.  
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### John Wiley & Sons #U109

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Telephone: (212) 850-6046  
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### J.A. Woollam Company, Inc. #U904

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### World Scientific Publishing Co., Inc. #U115

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Telephone: (201) 487-9655  
FAX: (201) 487-9656

E-mail: WSPC@SCRI.FSU.EDU  
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### Carl Zeiss, Inc. #U302

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FAX: (203) 347-8372

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- Network with colleagues during the complimentary reception in the Exhibit, Marriott Hotel Tuesday, November 29.....5:00 p.m. - 7:00 p.m.