

▪ New Materials Development

▪ New Characterization Methods

▪ New Process Technology



▪ Technical Program

- A: PHASE FORMATION AND MODIFICATION BY BEAM-SOLID INTERACTIONS
Gary S. Was, Lynn E. Rehn, and David M. Follstaedt
- B: PHOTONS AND LOW ENERGY PARTICLES IN SURFACE PROCESSING
Carol Ashby, James H. Brannon, and Stella Pang
- Ca: INTERFACE DYNAMICS AND GROWTH
Keng S. Liang, Michael P. Anderson, Robijn F. Bruinsma, and Giacinto Scoles
- Cb: STRUCTURE AND PROPERTIES OF INTERFACES IN MATERIALS
William A.T. Clark, Clyde L. Briant, and Ulrich Dahmen
- D: THIN FILMS: STRESSES AND MECHANICAL PROPERTIES III
William D. Nix, John C. Bravman, Eduard Arzt, and L. Ben Freund
- E: ADVANCED III-V COMPOUND SEMICONDUCTOR GROWTH, PROCESSING AND DEVICES
S.J. Pearson, D.K. Sadana, and J.M. Zavada
- F: LOW TEMPERATURE (LT) GaAs AND RELATED MATERIALS
Gerald L. Witt, Robert Calawa, Umesh Mishra, and Eicke Weber
- G: WIDE BAND-GAP SEMICONDUCTORS
Theodore D. Moustakas, Jacques I. Pankove, and Y. Hamakawa
- H: HIGH-TEMPERATURE SUPERCONDUCTORS: MATERIALS RESEARCH FOR EMERGING TECHNOLOGIES
Alfredo C. Anderson, Robert J. Cava, Siu Wai Chan, Randy W. Simon, and Kiyotaka Wasa
- I: FERROELECTRIC THIN FILMS II
Angus I. Kingon, Edward R. Myers, and Bruce Tuttle
- J: OPTICAL WAVEGUIDE MATERIALS
Matthijs M. Broer, H. Kawazoe, George H. Sigel, and R. Th. Kersten
- K: ADVANCED CEMENTITIOUS SYSTEMS: MECHANISMS AND PROPERTIES
F.P. Glasser, P.L. Pratt, T.O. Mason, J.F. Young, and G.J. McCarthy
- L: INNOVATIONS IN THE DEVELOPMENT AND CHARACTERIZATION OF MATERIALS FOR INFRASTRUCTURE
John M. Barsom, Jack Youtcheff, Randall P. Bright, and Paul Zia
- M: SHAPE MEMORY MATERIALS AND PHENOMENA—FUNDAMENTAL ASPECTS AND APPLICATIONS
C.T. Liu, Manfred Wuttig, K. Otsuka, and Henry Kunsmann
- N: ELECTRICAL, OPTICAL, AND MAGNETIC PROPERTIES OF ORGANIC SOLID STATE MATERIALS
Long Y. Chiang, Anthony F. Garito, and Daniel J. Sandman
- O: COMPLEX FLUIDS
David Weitz, Eric Sirota, Tom Witten, and Jacob Israelachvili
- P: DISORDERED MATERIALS: FRACTALS, SCALING AND DYNAMICS
Lawrence M. Schwartz, James V. Maher, and Thomas C. Halsey
- Q: SYNTHESIS AND PROCESSING OF CERAMICS: SCIENTIFIC ISSUES
Wendell E. Rhine, Thomas M. Shaw, R.J. Gottschall, and Y. Chen
- R: CHEMICAL VAPOR DEPOSITION OF REFRACTORY METALS AND CERAMICS
Theodore M. Besmann, Bernard M. Gallois, and James Warren
- S: GAS PRESSURE EFFECTS ON MATERIALS PROCESSING AND DESIGN
Kojo Ishizaki, John K. Tien, and Ed Hodge
- T: TISSUE-INDUCING BIOMATERIALS
Marcy Flahagan, Linda Cima, and Eyal Ron
- U: NEW STRATEGIES FOR THE SYNTHESIS AND CHARACTERIZATION OF CATALYSTS
S. Mark Davis, Abhaya Dattya, and Bruce J. Tatarchuk

- V: APPLICATION OF MULTIPLE SCATTERING THEORY TO MATERIALS SCIENCE
William H. Butler, Peter H. Dederichs, A. Gonis, and Richard Weaver
- W: WORKSHOP ON SPECIMEN PREPARATION FOR TRANSMISSION ELECTRON MICROSCOPY OF MATERIALS - III
Ron Anderson, John Bravman, and Bryan Tracy
- X: FRONTIERS OF MATERIALS RESEARCH
Julia M. Phillips, Michael M.J. Treacy, and Man H. Yoo
- Z: HIERARCHICALLY STRUCTURED MATERIALS
Ilhan A. Aksay, Eric Baer, Mehmet Sarikaya, and David A. Tirrell

▪ Meeting Chairs

Julia M. Phillips, AT&T Bell Laboratories
Michael M.J. Treacy, NEC Research Institute Inc.
Man H. Yoo, Oak Ridge National Laboratory

▪ Equipment Exhibit

A major exhibit of the latest analytical and processing equipment which closely parallels the nature of the technical symposia will be located in the Boston Marriott Hotel convenient to the technical session rooms. For show booth information, contact: Bob Finnegan, MRS Show Manager, American Institute of Physics, 335 East 45th Street, New York, NY 10017; Telephone (212) 661-9404; FAX (212) 661-2036.

▪ Short Course Program

Courses on advanced materials characterization, preparation, and processing/diagnostic techniques have been designed for scientists, engineers, managers, and technical staff who wish to update their knowledge and skills in the research, development and processing of materials. These up-to-date courses are at the forefront of science and technology and complement Fall Meeting symposia. Class sizes are limited. Early preregistration is encouraged. See course list on p. 55 and registration form on p. 56.

▪ Proceedings

Many of the MRS symposia will be publishing proceedings or extended abstracts. See complete list and pre-publication prices on p. 59.

▪ Preregistration

Preregister by telephone, or FAX with your VISA, MasterCard or Diners Club card. Use the Meeting Registration form on p. 56.

To request detailed 1991 Fall Program, Short Course, or Symposium Aide information, contact:



Materials Research Society
9800 McKnight Road, Pittsburgh, PA 15237
Telephone (412) 367-3003. FAX (412) 367-4373

The 1991 MRS Fall Meeting will serve as a key forum for discussion of interdisciplinary leading-edge materials research from around the world. Various meeting formats - oral, poster, roundtable, forum and workshop sessions - are offered to maximize participation.

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Circle No. 20 on Reader Service Card.

• General Meeting Information

Location/Lodging:

Boston Marriott/Copley Place
110 Huntington Avenue
Boston, MA 02116
(800) 228-9290
(617) 236-5800 (Direct)
FAX (617) 424-9378

Westin Hotel/Copley Place
10 Huntington Avenue
Boston, MA 02116
(800) 228-3000
(617) 262-9600 (Direct)
FAX (617) 424-7483

A block of rooms has been reserved for MRS meeting attendees at the Boston Marriott and Westin Hotel, Copley Place. To assure staying at a conference hotel, be sure to make your reservations prior to October 30, 1991. To request a roster of alternative hotels within walking distance of the Boston Marriott and Westin Hotels, FAX (412) 367-4373 or write to MRS Headquarters. When making your reservations, mention the Materials Research Society to receive the special rates.

Travel Arrangements: American Airlines is offering MRS meeting attendees the following special rates:

- 45% off full-day coach fare (U.S. only)
- 5% off all other fares with all tariff rules in effect

If a lower American Airlines promotional fare is available, the American Airlines Meeting Desk will confirm the lower fare, providing normal qualifications are met. 14-day advance reservation and ticketing notice is required. International travelers may ask for the International Congress Officer at any American Airlines center.

To take advantage of these discounts - available only through American's toll-free number:

1. Call American Airlines today, or have your travel agent call: (800) 433-1790
2. Refer to Star Number: S02Z1VO

MRS meeting attendees may take advantage of these special American Airlines discounted fares for traveling to and from the Boston meeting from Thursday, November 28, through Wednesday, December 11, 1991.

Local Transportation: Shuttle service to the Boston Marriott and Westin Hotels from Logan International Airport departs every half-hour from the designated shuttle stop in front of each terminal. The cost is approximately \$6-\$8 one way. Cab fares range between \$10-\$15 per ride (up to four persons can share one cab).

There is a free shuttle from airport terminals to the airport subway station (The "T"). Copley Station is within one block of the Marriott, Westin, and alternative hotels on the "Green Line."



Selected Short Courses covering the latest developments in materials science and technology will be offered in conjunction with the 1991 Fall Meeting of the Materials Research Society. These up-to-date courses are at the forefront of science and technology and complement Fall Meeting symposium topics. SPECIALTY, REVIEW, AND SURVEY courses are designed to meet the needs of professional scientists, engineers, technical staff, and managers who want to know the latest techniques in characterization and fabrication of materials. **CLASS SIZES ARE LIMITED: Early telephone preregistration is encouraged. For information regarding registration, short course student scholarships, and special meeting registration discounts: Telephone (412) 367-3003; FAX (412) 367-4373**

PREREGISTRATION TUITION

ADVANCED MATERIALS

- M-04: Optoelectronic Materials, Processes, and Devices
Instructor: Mool C. Gupta
Friday-Saturday, December 6-7 \$565
- M-05: Fabrication, Characterization, and Applications of High-Temperature Superconductors
Instructors: Terry P. Orlando and Robert E. Schwall
Sunday-Monday, December 1-2 \$565
- M-12: Introduction to Cementitious Materials
Instructors: Della M. Roy, J. Francis Young, and Gregory J. McCarthy
Sunday-Monday, December 1-2 \$425
- M-14: Engineering Aspects of Shape-Memory Alloys
Instructors: Tom Duerig and Alan R. Pelton
Monday, December 2 \$385

TECHNIQUES

- T-05: Plasma Technology for Thin Film Deposition
Instructor: Donald M. Mattox
Wednesday, December 4 \$385

CHARACTERIZATION OF MATERIALS

- C-01: Modern Materials Analysis Techniques
Instructors: James A. Borders, Kenneth H. Eckelmeyer, and Suzanne H. Weissman
Monday-Wednesday, December 2-4 \$795
- C-02: Practical Transmission and Analytical Electron Microscopy: Theory and Practice
Instructor: Alton D. Romig Jr.
Tuesday-Wednesday, December 3-4 \$565
- C-03: Surface and Thin Film Analysis
Instructors: Leonard C. Feldman and James W. Mayer
Friday-Saturday, December 6-7 \$565
- C-09: Fractals: Concepts & Applications to Materials Science & Technology
Instructors: James E. Martin and Alan J. Hurd
Sunday-Monday, December 1-2 \$565
- C-18: TEM Specimen Preparation in the Physical Sciences
Instructor: Ronald M. Anderson
Thursday-Friday, December 5-6 \$425
- C-20: Optical Characterization of III-V Semiconductor Epitaxial Layers
Instructor: Gary W. Wicks
Thursday, December 5 \$385

- C-22: Thin Film Epitaxy, Interdiffusion, & Phase Transformation
Instructors: King Ning Tu, Leonard C. Feldman, and James W. Mayer
Thursday-Friday, December 5-6 \$565
- C-23: Characterization of Compound Semiconductors by High Resolution X-Ray Diffraction
Instructors: Simon Bates, Mary Halliwell, and Thomas W. Ryan
Thursday-Friday, December 5-6 \$565

PREPARATION AND FABRICATION OF MATERIALS

- F-01: Film and Coating Deposition Techniques
Instructor: Donald M. Mattox
Friday-Saturday, December 6-7 \$565
- F-02: Plasma Etching for Microelectronic Fabrication
Instructor: G. Kenneth Herb
Tuesday, December 3 \$385
- F-04: Microelectronic Packaging: Materials, Processing, & Reliability
Instructor: Shankara K. Prasad
Wednesday-Friday, December 4-6 \$795
- F-10: Fundamentals and Applications of Ion Beam Assisted Deposition
Instructor: James K. Hirvonen
Thursday, December 5 \$385
- P-04: Film Formation, Adhesion, and Surface Preparation
Instructor: Donald M. Mattox
Sunday-Monday, December 1-2 \$565
- P-10: Metalorganic Chemical Vapor Deposition and Atomic Layer Epitaxy
Instructor: P. Dan Dopkus
Friday, December 6 \$385
- P-19: Compound Semiconductor Epitaxy and Processing
Instructors: Ami Appelbaum and L. Ralph Dawson
Sunday-Wednesday, December 1-4 \$795
- P-21: Silicides, Junctions, and Metallization for ULSI
Instructors: George E. Goergiou and S. Ali Eshraghi
Sunday-Monday, December 1-2 \$565

SPECIAL DISCOUNTS IN COURSE FEES:

There are special discounted tuition fees for specific course combinations: C-02 and C-18 \$795 Total Fee; P-19 and C-20 \$975 Total Fee.

Any combination of P-04, F-02, T-05, F-10 and F-01 that results in 2, 3, 4, and 5 course days: \$565, \$795, \$975, and \$1125, respectively.

Facilities registering three or more persons at the same time in one MRS Short Course receive a 20% discount for the third and all additional persons.

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PREREGISTRATION 1991

FALL MEETING

1. BY MAIL

Return this form with payment to:
Materials Research Society
Fall Meeting Registration
9800 McKnight Road
Pittsburgh, PA 15237

2. TELEPHONE

Call the MRS Fall Meeting Registration Desk
(412) 367-3003 between 8:00 a.m. and 5:00 p.m.
Eastern time. Telephone registration requires
credit card payment; have your credit card and
this form in front of you for easy reference.

3. FAX

Transmit this order form via Fax to the
MRS Fall Meeting Registration Desk
(412) 367-4373, 24 hours a day. Fax
registration requires credit card
payment.

NOTE: Please enter MRS preferred registration code _____ MRS
from mailing label. If this is not your own copy,
enter the code from the label and check here. _____

Name _____
Last First/Middle Initial

Title _____

Institution _____

Address _____

City _____

State/Province _____ Zip/Postal Code _____

Country _____

Telephone () _____ Fax () _____
Area Code Area Code

This address is: Business Home

A. MEETING PREREGISTRATION

Please check category and enter amount in payment section below.

- \$245 Regular \$65 Student
 \$ 85 Short Course attendee registered for at least two course days

Meeting registration includes complimentary 1992 MRS membership.

Symposium interest (please check all that apply):

- A Ca D F H J L N P R T V X
 B Cb E G I K M O Q S U W Z

TOTAL \$ _____

Enter total here and in box below right.

If you have already registered and paid and find that you are unable to attend, you must notify MRS in writing of your request for a refund. Refunds will be made upon receipt of this written notice, less a \$25 service charge. This service charge will be waived if you apply \$25 or more of this refund to any other MRS product or service. MRS will not honor requests made more than one calendar month after the close of the meeting.

Register by November 22, 1991, to take advantage of pre-meeting fees. Registrations received after November 22, 1991, will be charged at-meeting rates (\$50 higher for regular and \$10 higher for students).

B. JOURNAL OF MATERIALS RESEARCH 1992

Subscription at Member Rate (one per registrant) \$35 = **TOTAL \$** _____
Enter total here and in box at right.

C. PROCEEDINGS (published after this meeting)

These rates apply only to meeting and short course attendees, and MRS members. Nonmembers must contact MRS headquarters for prices and ordering information.

	No. Copies	Total
A. Beam-Solid Interactions	\$37 x _____ =	\$ _____
B. Photons and Low Energy Particles	\$35 x _____ =	_____
Ca. Interface Dynamics and Growth	\$37 x _____ =	_____
Cb. Interfaces in Materials	\$38 x _____ =	_____
D. Thin Films	\$35 x _____ =	_____
E. III-V Compound Semiconductors	\$35 x _____ =	_____
F. Low Temperature GaAs & Related Materials	\$35 x _____ =	_____
G. Wide Band-Gap Semiconductors	\$35 x _____ =	_____
I. Ferroelectric Thin Films	\$35 x _____ =	_____
J. Optical Waveguide Materials	\$35 x _____ =	_____
K. Advanced Cementitious Systems	\$37 x _____ =	_____
M. Shape-Memory Materials	\$33 x _____ =	_____
N. Organic Solid State Materials	\$38 x _____ =	_____
O. Complex Fluids	\$35 x _____ =	_____
Q. Synthesis and Processing of Ceramics	\$37 x _____ =	_____
R. CVD of Refractory Metals and Ceramics	\$33 x _____ =	_____
S. Gas Pressure Effects on Materials	\$33 x _____ =	_____
T. Tissue-Inducing Biomaterials	\$37 x _____ =	_____
V. Multiple Scattering Theory	\$37 x _____ =	_____
W. Specimen Preparation for TEM	\$35 x _____ =	_____
Z. Hierarchically Structured Materials	\$35 x _____ =	_____

TOTAL PROCEEDINGS \$ _____

Enter total here and in box at right.

D. SHORT COURSES

To preregister, check each course for which you wish to enroll. If you register for two or more course days, you may attend the technical meeting for only \$85; just complete the Meeting Preregistration section at left.

Facilities registering three or more persons at the same time in one MRS Short Course receive a 20% discount for the third and all additional persons.

At-meeting short course registrations will be \$25 higher for each course. Cancellations received by November 22, 1991, will be refunded less a service charge of \$25. There is no charge if you wish to transfer to another course.

- M-04 Optoelectronic Materials, Processes, and Devices \$565
- M-05 High Temperature Superconductors \$565
- M-12 Introduction to Cementitious Materials \$425
- M-14 Engineering Aspects of Shape-Memory Alloys \$385
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- C-01 Modern Materials Analysis Techniques \$795
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- F-02 Plasma Etching for Microelectronic Fabrication \$385
- F-04 Microelectronic Packaging: Materials, Processing, and Reliability \$795
- F-10 Fundamentals and Applications of Ion Beam Assisted Deposition \$385
- P-04 Film Formation, Adhesion, and Surface Preparation \$565
- P-10 MCVD and Atomic Layer Epitaxy \$385
- P-19 Compound Semiconductor Epitaxy and Processing \$795
- P-21 Silicides, Junctions, and Metallization for ULSI \$565

Combined Course Tuition

- C-02 and C-18 \$795
- P-19 and C-20 \$975

Any combination of P-04, F-02, T-05, F-10 and F-01 that results in 2, 3, 4, and 5 course days: \$565, \$795, \$975, and \$1125, respectively.

TOTAL SHORT COURSE TUITION \$ _____

Enter total here and in box below.

PAYMENT OPTIONS

Payment is enclosed. Make checks payable, in U.S. dollars, to Materials Research Society. Payment from outside the U.S. should be drawn on a correspondent U.S. bank.

Credit card payment: Visa MasterCard Diners Club

Card number _____

Exp. date _____

Signature _____

Registrations received without payment or credit card authorization will be invoiced the at-meeting rates.

A. Meeting preregistration fee (from left)	\$ _____
B. <i>Journal of Materials Research</i> (from left)	\$ _____
C. Proceedings (from left)	\$ _____
D. Short courses (from above)	\$ _____
TOTAL FEES PAID	\$ _____

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