

# Preview: 1986 MRS Fall Meeting

Boston, Massachusetts

December 1-6, 1986

## Meeting Chairs



**R.P.H. Chang**  
Department of Materials  
Science and Engineering  
Northwestern University



**Carol M. Jantzen**  
E.I. duPont de Nemours &  
Company  
Savannah River  
Laboratory



**J.B. Roberto**  
Oak Ridge National  
Laboratory  
Solid State Division

The following is a description of the symposia, equipment exhibit, short course program, job placement center, and other activities planned for this year's MRS Fall Meeting. Make plans now to attend the meeting and preregister early using the forms in this issue of the BULLETIN.

## General Information

### Registration

Preregistration is strongly encouraged to speed check-in at the meeting. Deadline for preregistration is November 1, 1986. The fee for the 1986 Fall Meeting for registrations received by November 1 is \$155; the preregistration fee for students is \$45. The registration fee after November 1 and on-site is \$175 (\$55 for students). Payment of the registration fee allows the participant to attend all symposia, the Plenary Session, and the Von Hippel Award Reception.

At-meeting registration will be on the fourth floor of the Boston Marriott.

Hours are:

Sunday: 4:00 p.m. - 9:00 p.m.  
Monday: 7:00 a.m. - 7:00 p.m.  
Tuesday through Thursday:  
7:30 a.m. - 5:00 p.m.  
Friday: 7:30 a.m. - noon

### Short Courses

Twenty-three short courses on advanced research techniques will be offered at various times during the week. A free descriptive brochure is available from MRS headquarters. Deadline for preregistration

for short courses is November 14, 1986. Later registration and at-meeting tuition fees are \$25 higher for all courses than if preregistered. (See full-page ad in this issue of the BULLETIN.)

### Job Placement Center

A job placement service for MRS members and meeting attendees will be held Tuesday through Thursday during the meeting, to arrange interviews between prospective employees and employers. There is a \$5.00 fee for prospective employees to use the placement service. Participants should complete the job placement form in this issue.

### Lodging

Symposia will be held at the Boston Marriott/Copley Place Hotel and the Westin Hotel. The hotels are connected by a covered walkway. Reservations must be made directly with the hotels. A block of rooms has been reserved at each hotel for meeting participants. The special hotel rates for MRS meeting attendees are given on the reservation card, along with other

pertinent information. Hotel reservations should be made by November 3, 1986.

### Poster Sessions

Poster sessions will be held 7:00-10:00 p.m. Tuesday and Thursday; these posters will be attended by their authors during these hours, but will also be available for viewing both before and after these times by participants unable to attend a poster session because of conflicts.

### Local Transportation

Shuttle service from Logan Airport to the Boston Marriott Hotel/Copley Place and the Westin Hotel departs every half hour from the designated shuttle stop in front of each terminal. The cost is \$6. Cab fare ranges between \$10 and \$15. Parking is available adjacent to both hotels at a cost of \$14 per day.

### Proceedings

Symposia A, B, C, D, E, F, G, H, I, J, L, M, N, O, P, Q, and R will publish proceedings

*Continued*

of their symposia individually in book form. MRS members and meeting attendees may purchase copies of these proceedings at special prepublication prices by filling out the order form on the back of the registration card and adding the cost of these proceedings to the registration payment. Prices for nonmembers are higher; for information on nonmember prices and ordering procedures, contact MRS headquarters. In addition, Symposia K, S, and U will publish extended abstracts that will be available at the meeting. These extended abstracts may be purchased by including the listed price with the registration payment. The *Communications on the Materials Science and Engineering Study* book will also be available at the meeting.

### Member Benefits

Attendees at the Fall Meeting will receive a complimentary one-year membership in the Materials Research Society. Membership benefits include subscriptions to *Journal of Materials Research* and the MRS BULLETIN. Members automatically receive calls for papers and preliminary programs for the MRS Spring and Fall Meetings, and are entitled to discounts on scientific books and reduced rates on *Materials Letters*. For information on membership, contact MRS headquarters. The membership fee for 1987 is \$45, of which \$25 is allocated to *Journal of Materials Research*.

Students may join MRS for \$15; membership benefits and privileges are the same as for regular members except that a subscription to *Journal of Materials Research* is not included. Students may subscribe to this journal for an additional \$15.

### Equipment Exhibit

A major equipment exhibit will be held during the MRS Fall Meeting to display analytical and processing equipment closely paralleling the nature of the technical symposia. (See list of exhibitors in this issue of the BULLETIN.)

### Plenary Session

**Monday, December 1, 1986**  
6:00 - 7:00 p.m.

Congressman George E. Brown, Jr. (36th District, California) will present a keynote speech entitled "U.S. Science and Technology Policy for the Nineties." Congressman Brown will discuss some of the broad issues confronting the committees and advisory groups whose deliberations are forging U.S. policies on science and technology for the future. Special reference will be made to the evolving roles of materials science research, technology R&D, and the supporting initiatives that will be needed from industry, academia, and government in the imminent future.

Mr. Brown, a graduate in industrial physics from UCLA, brings insights de-

veloped over many years of active leadership in public office. He is an advocate of parallel structures for national policy on technology and science. Presently a senior member of the House Science and Technology Committee, he chairs its Subcommittee on Transportation, Aviation, and Materials. He is the ranking member on the Subcommittee on Space Science and Applications, and also serves on the Subcommittee on Investigations and Oversight. Mr. Brown serves on the House Agriculture Committee as the ranking member of its Subcommittee on Department Operations, Research, and Foreign Agriculture and also as a member of the Subcommittee on Conservation, Credit, and Rural Development. In addition, he is a member of the Congressional Technology Assessment Board.

**Von Hippel Award  
Presentation and Reception**  
**Wednesday, December 3, 1986**  
6:00 p.m.

The Society's most prestigious award, the Von Hippel Award, will be presented to the 1986 recipient. The Von Hippel Award is presented annually to a living scientist who, in the Society's estimation, best exemplifies the originality, brilliance of intellect, and diligence of purpose throughout a career that is the hallmark of science at its best. Winners of MRS Graduate Student Awards will also be recognized at the ceremony and a reception for all meeting attendees will be held following the ceremony.

## Technical Program

### Symposium A

#### Beam-Solid Interactions and Transient Processing

Chairs: S.T. Picraux, Sandia National Laboratories  
M.O. Thompson, Cornell University  
J.S. Williams, Royal Melbourne Institute  
*Monday-Thursday, December 1-4*

Over 100 oral and poster presentations will explore fundamentals of beam-solid interactions, laser modification of materials, rapid solidification processes, thermodynamics and kinetics of laser-solid interactions, phase transformations and diffusion processes, fundamentals of rapid thermal annealing, growth and characterization of silicon-on-insulators materials. Invited speakers include: B.R. Appleton, J.E. Greene, H. Kurz, E.E. Marinero, P.S. Peercy, M. Aziz, W.J. Boettinger, A.E. Berkowitz, J.J.P. Bruines, E. Nygren, R.S. Averbach, J.F. Gibbons, L.N. Pfeiffer. Some sessions joint with Symposia B and G.

### Symposium B

#### Photon, Beam, and Plasma Stimulated Chemical Processes at Surfaces

Chairs: Vincent M. Donnelly, AT&T Bell Laboratories  
Irving P. Herman, Columbia University  
Masataka Hirose, Hiroshima University  
*Monday-Thursday, December 1-4*

Over 100 oral and poster presentations will span laser-assisted deposition of metals; laser-induced etching of Si and SiO<sub>2</sub>; etching of III-V compounds; deposition of Si and Ge; direct laser writing; photon, ion and electron effects on surface chemistry; etching mechanisms, laser-assisted deposition of III-V compounds; applications of selective-area photochemistry; chemical transformations in thin films; insulator growth; novel plasma processes and effects. Invited speakers include: B.R. Appleton, J.E. Greene, H. Kurz, R.M. Osgood, C.S. Higashi, M. Hirose, C.I.H. Ashby, J.T. Yates, Jr., H.F. Winters, T.W. Sigmon, D.J. Ehrlich, A.F. Bernhardt, A. Wagner. Some sessions joint with Symposia A and C.

### Symposium C

#### Science and Technology of Microfabrication

Chairs: Richard E. Howard, AT&T Bell Laboratories  
Evelyn L. Hu, University of California  
Stella Pang, MIT Lincoln Laboratory  
Susumu Namba, Osaka University  
*Thursday-Friday, December 4-5*

Approximately 68 oral and poster papers will cover nanophysics, micromechanics, nanofabrication, dry etching, VLSI materials. Invited speakers include: D.J. Ehrlich, Y. Horiike, A.F. Bernhardt, A. Wagner, W.J. Skocpol, K. Peterson, G. Kaminsky, M. Issacson, A.K. Sinha. Some sessions joint with Symposium B.

### Symposium D

#### Interfaces, Superlattices, and Thin Films

Chairs: John D. Dow, University of Notre Dame  
Ivan K. Schuller, Argonne National Laboratory  
John Hilliard, Northwestern University  
*Monday-Friday, December 1-5*

Approximately 146 papers will explore interfaces, superlattices and thin films; surfaces and superlattices. Invited speakers include: J.E. DeMuth, R.C. Jaklevic, M. Grimsditch, H. Fritsche, B. Vojak, G.A. Morou, K.E. Newman, Y. Bruynseraede, C.M. Falco, E.M. Gyorgy, M. Schneider, D.J. Wolford, B.A. Bunker, J.L. Ershine, W.G. Lagally, S.A. Lyon, J.H. van der Merwe.

*Continued*

## Symposium E

### Advanced Structural Ceramics

Chairs: P.F. Becher, Oak Ridge National Laboratory  
M.V. Swain, CSIRO  
S. Sômiya, Tokyo Institute of Technology

Monday-Wednesday, December 1-3

Approximately 47 papers will explore transformation analysis, transformation plasticity and toughness, mechanical properties and microstructures of zirconia toughened ceramics, mechanical behavior of reinforced ceramic composites, fracture and deformation behavior in ceramic composites. Invited speakers include: B.C. Muddle, J. Lankford, I-W. Chen, M. Rühle, K. Tsukuma, F.F. Lange, D.B. Marshall, P. Angelini, A.G. Evans.

## Symposium F

### Scattering, Deformation, and Fracture in Polymers

Chairs: B. Crist, Northwestern University  
T.P. Russell, IBM Almaden Research Center  
E.L. Thomas, University of Massachusetts  
G.D. Wignall, Oak Ridge National Laboratory

Monday-Friday, December 1-5

Approximately 78 papers will span introduction to small-angle scattering techniques, scattering from multicomponent systems; scattering from block copolymers and model systems; scattering and deformation; scattering, deformation, and fracture in polymers; scattering, orientation, crazing, and fatigue; deformation, fracture, and fatigue; molecular aspects of deformation and fracture. Invited speakers include: R.S. Stein, G.D. Wignall, D.W. Schaefer, R.J. Roe, E.W. Fischer, C.C. Han, T.P. Russell, W-L. Wu, J.F. Fellers, H. Benoit, J.T. Koberstein, F.S. Bates, G. Hadziioannou, S.L. Cooper, K.P. McAlea, H.G. Zachmann, J.M. Schultz, W.W. Adams, R. Ullman, J.B. Hayter, T. Hashimoto, R.S. Stein, D.T. Grubb, L.L. Berger, H.R. Brown, A.S. Argon, A. Moet, W.L. Bradley, M.T. Takemori, H.H. Kausch, R.P. Wool, U.W. Suter, Y. Termonia, J.R. Sabin.

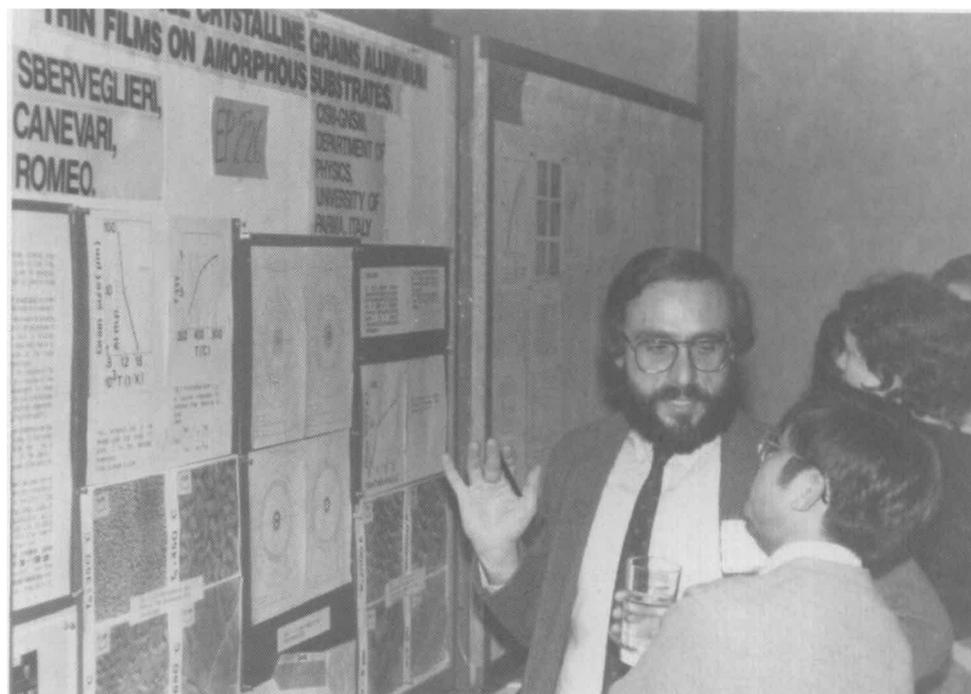
## Symposium G

### Science and Technology of Rapidly Quenched Alloys

Chairs: M. Tenhover, Standard Oil  
L.E. Tanner, Lawrence Livermore National Laboratory  
W.L. Johnson, California Institute of Technology

Monday-Wednesday, December 1-3

Approximately 66 papers will address new developments in the formation and processing of amorphous metal alloys, structure and properties of microcrystalline alloys, rapid solidification processes, magnetic properties of rapidly quenched



## Poster Session.

metals. Invited speakers include: L. Schultz, R.S. Henderson, N.J. Grant, S.K. Das, P.S. Peercy, M. Aziz, W.J. Boettinger, A.E. Berkowitz, R.C. O'Handley, J.J. Croat, A.M. Kadin, F.E. Luborsky.

Wichert, J.C.H. Spence, J.C. Bilello, J.Th.M. de Hosson, K.L. Merkle, S.L. Sass, J.L. Batstone, J.A. Golovchenko, D.J. Smith, K.S. Liang.

## Symposium H

### High Temperature Ordered Intermetallic Alloys

Chairs: O. Izumi, Tohoku University  
C.C. Koch, North Carolina State University  
C.T. Liu, Oak Ridge National Laboratory  
N.S. Stoloff, Rensselaer Polytechnic Institute

Tuesday-Thursday, December 2-3

Approximately 65 papers will address ordering behavior and theory, microstructures, mechanical behavior, alloy design and microstructural control, metallurgical properties. Invited speakers include: D.P. Pope, G.M. Stocks, R.W. Cahn, P.M. Hazzledine, S.S. Brenner, O. Izumi, N.S. Stoloff, G. Sauthoff, M. Yamaguchi, A.I. Taub, C.T. Liu, C.C. Koch, K. Vedula, M.G. Mendiratta, C.L. White, G.H. Meier.

## Symposium I

### Characterization of Defects in Materials

Chairs: R.W. Siegel, Argonne National Laboratory  
R. Sinclair, Stanford University  
J.R. Weertman, Northwestern University

Monday-Tuesday, December 1-2

Approximately 97 oral and poster papers will address atomic defects and aggregates, line defects and arrays, interfaces, surfaces, defect characterization. Invited speakers include: J.B. Cohen, P. Hautojärvi, T.

## Symposium J

### Physical and Chemical Properties of Thin Metal Overlayers and Alloy Surfaces

Chairs: D.M. Zehner, Oak Ridge National Laboratory  
G.W. Goodman, Sandia National Laboratories

Wednesday-Friday, December 3-5

Approximately 45 papers will explore structure and electronic properties of alloy surfaces, structure and electronic properties of thin metal overlayers, structure and chemistry of thin metal films, structure and properties of thin metal overlayers and alloy surfaces, reactions at thin metal interfaces.

## Symposium K

### Graphite Intercalation Compounds

Chairs: M.S. Dresselhaus, Massachusetts Institute of Technology  
G. Dresselhaus, Massachusetts Institute of Technology  
S.A. Solin, Michigan State University

Wednesday-Friday, December 3-5

Approximately 77 oral and poster papers will span electronic structure, structure and phase transitions, magnetic structure, domains and kinetics, potassium hydride ternaries and molecular diffusion, charge transfer, graphite fibers, transport and optical properties. Invited speakers include:

*Continued*

D.P. DiVincenzo, S-I. Tanuma, F. Rousseaux, S.C. Moss, M. Matsuura, H. Miyazaki, T. Enoki, A. Magerl, P.C. Eklund, L.S. Singer, P. Lagrange, R.S. Markiewicz, D. Davidov.

#### Symposium L

##### Scientific Basis for Nuclear Waste Management X

Chairs: John K. Bates, Argonne National Laboratory  
W.B. Seefeldt, Argonne National Laboratory

Monday-Thursday, December 1-4

Approximately 82 oral and poster papers will cover long-term projection of materials interactions, waste form performance: spent fuel; metal corrosion; low-level waste and materials; materials interactions; waste form performance: glass; radiation effects; groundwater chemistry and interactions; rock/backfill performance; groundwater chemistry and interactions. Invited speakers include: T.C. Johnson, A. Berusch, L.O. Werme, J.T. Fong, N.E. Bibler, R.C. Ewing, V.M. Oversby, M.B. McNeil, B.C. Bunker.

#### Symposium M

##### Microstructural Development During Hydration of Cement

Chairs: Leslie J. Struble, National Bureau of Standards  
Paul W. Brown, National Bureau of Standards

Tuesday-Thursday, December 2-4

Approximately 48 oral and poster papers will cover pore structure of hydrated cement, modeling the development of

microstructure, microstructure of hydrated cements, reactions and microstructure, relationships between microstructure and engineering properties, influence of chemical admixtures on the microstructure of hydrated cement. Invited speakers include: L. Parrott, H.M. Jennings, F.P. Glasser, M. Regourd, E.R. Fuller, Jr., P.L. Pratt, G.W. Groves, S. Diamond, J.D. Birchall. Some sessions joint with Symposium N.

#### Symposium N

##### Fly Ash and Coal Conversion By-Products: Characterization, Utilization and Disposal III

Chairs: F.P. Glasser, University of Aberdeen  
G.J. McCarthy, North Dakota State University  
D.M. Roy, Pennsylvania State University

Monday-Wednesday, December 1-3

Approximately 40 papers will cover environmental considerations; characterization, reactions, and resource recovery; utilization; reactions and microstructure. Invited speakers include: D. Rai, R.M. Majko, F.P. Glasser, M. Regourd. Some sessions joint with Symposium M.

#### Symposium O

##### Materials Processing in the Reduced Gravity Environment of Space

Chairs: R.H. Doremus, Rensselaer Polytechnic Institute  
P.C. Nordine, Midwest Research Institute

Monday-Wednesday, December 1-3

Approximately 48 papers will cover chemical vapor deposition, containerless

processing, isothermal dendritic growth, semiconductor crystal growth, convection, fluid flow, materials development in microgravity. Invited speakers include: T. Wang, M.E. Glicksman, H.C. Gatos, C.A. Lundquist, R.J. Bayuzick, F. Jelinek, C.E. Bugg.

#### Symposium P

##### Optical Fiber Materials and Properties

Chairs: S.R. Nagel, AT&T Bell Laboratories

J.W. Fleming, AT&T Bell Laboratories  
D.A. Thompson, Corning Glass Works

Wednesday-Friday, December 3-5

Approximately 35 papers will explore polymer fiber and coatings; oxides, glasses, processing and characterization; heavy metal halide glasses; nonsilicate lightguide materials; defects in optical fibers. Invited speakers include: L.L. Blyler, P.C. Schultz, D.A. Thompson, M.G. Drexhage, J.W. Fleming, H. Kawazoe.

#### Symposium Q

##### Diluted Magnetic (Semimagnetic) Semiconductors

Chairs: R.L. Aggarwal, Massachusetts Institute of Technology  
J.K. Furdyna, Purdue University  
S. von Molnar, IBM T.J. Watson Research Center

Monday-Wednesday, December 1-3

Approximately 58 papers will span magnetic properties of  $A_{1-x}Mn_xB^{VI}$  DMS; optical properties and spin-spin exchange interaction; lead salts, Fe alloys, and new DMS materials; theory, structure, transport; frontiers of materials science in IR/DMS materials; IR/DMS materials for IR detectors and sources. Invited speakers include: P.A. Wolff, R.L. Aggarwal, T.M. Giebultowicz, S. von Molnar, A.K. Ramdas, D.D. Awschalom, A.V. Nurmikko, J. Kossut, G. Bauer, A. Mycielski, A. Franciosi, H. Ehrenreich, Y. Shapira, J.K. Furdyna, R.L. Gunshor, T.C. McGill, J.F. Schetzina, M. Pessa, S.J.C. Irvine, J.T. Cheung. Some sessions joint with Symposium R.

#### Symposium R

##### Materials for Infrared Detectors and Sources

Chairs: J.F. Schetzina, North Carolina State University  
J.T. Cheung, Rockwell International  
R.F.C. Farrow, IBM Almaden Research Center

Monday-Friday, December 1-5

Approximately 67 papers will discuss III-V based infrared materials; materials requirements for infrared detectors, imagers and sources; issues in bulk crystal growth of infrared materials and structure-proper-



#### Technical Session

Continued

ty relations; bulk growth techniques and structure-property relations; frontiers of materials science in IR/DMS materials; IR/DMS materials for IR detectors and sources; characterization of infrared materials; epitaxial growth. Invited speakers include: M.B. Panish, M.A. Kinch, J.L. Schmit, D.L. Partin, K.J. Bachmann, N. Duy, A. Sher, R.L. Gunshor, T.C. McGill, J.F. Schetzina, M. Pessa, S.J.C. Irvine, J.T.

### Forum on the Materials Science and Engineering Study

(Date, time, and room  
to be announced in the final program)

Chair: B.R. Appleton, Oak Ridge National Laboratory  
Study Representative: P. Chaudhari, IBM Corporation

The purpose of the Materials Science and Engineering (MSE) Study, commissioned by the National Research Council at the request of the National Academy of Sciences and the National Academy of Engineering, is to develop and present a unified view of recent progress and new directions in materials science and engineering. Because of the scope and widespread support of this Study, its recommendations are expected to strongly influence congressional and administration policy and funding for materials over the next decade.

In response to a request for input to the MSE Study from Study Chairs P. Chaudhari (IBM) and M. Flemings (MIT), the Materials Research Society is conducting the *Forum on the MSE Study* as part of the 1986 MRS Fall Meeting. Representatives from each of the five Study panels will describe their findings to date, and selected speakers will present papers highlighting the issues and topics raised from within the MRS constituency. Members of the audience will be encouraged to discuss their views.

The Forum will focus on topics pertaining to the five MSE Study panels:

- Materials Research Opportunities and Needs in MSE
- Exploitation of MSE and Technology for National Welfare
- International Cooperation and Competition
- Research Resources in Materials Science and Engineering
- Education in Materials Science and Engineering

Selected speakers will base their presentations on their papers published in *Communications on the MSE Study*. This book will be published by MRS and made available at the Fall Meeting. To order a copy, see the back of the registration card.

Cheung, W.J. Takei, F.A. Ponce, T. Tung, E.R. Gertner, J.B. Mullin, W.E. Hoke, J-P. Faurie, J.W. Cook, Jr., S.R. Jost, B.W. Ludington. Some sessions joint with Symposium Q.

### Symposium S Superconducting Materials

Chairs: J. Bevk, AT&T Bell Laboratories  
A.I. Braginski, Westinghouse Research and Development Center

Wednesday-Friday, December 3-5

Approximately 42 oral and poster papers will explore barriers (fabrication, physics and diagnostics), tunneling in epitaxial NbN structures, materials and devices (Nb, Ta and NbN), materials for novel devices, multilayers and interfaces (physics), low-carrier-density superconductors, epitaxy of Nb and its properties, materials synthesis problems, unusual  $T_c$  and resistivity results. Invited speakers include: T.M. Klapwijk, M.R. Beasley, J.G. Adler, J. Halbritter, K. Hamasaki, F. Shinoki, J. Talvacchio, S. Morohashi, M. Igarashi, S.I. Raider, A.W. Kleinsasser, I.K. Schuller, L.H. Greene, J.E. Tkaczyk, K. Kitazawa, M. Gurvitch, T.H. Geballe, C.W. Chu, G. Oya, S.A. Wolf, R.H. Hammond, J.R. Gavaler, D.O. Welch, D.J. Scalapino, K. Ogawa, H. Yamamoto.

### Symposium T Solitons in Materials Science

Chairs: G.R. Barsch, Pennsylvania State University  
J.A. Krumhansl, Cornell University

Monday-Tuesday, December 1-2

Approximately 26 papers will cover martensitic transformation, structural phase transitions, dislocations, polymers, polyacetylene, solitons in liquid crystals. Invited speakers include: D.K. Campbell, J.A. Krumhansl, G.B. Olson, G.R. Barsch, L.E. Tanner, R. Bruinsma, P.F. Miceli, J.P. Hirth, A.J. Heeger.

### Symposium U Fractal Aspects of Materials

Chairs: D.W. Schaefer, Sandia National Laboratories  
R.B. Laibowitz, IBM  
B.B. Mandelbrot, IBM and Harvard University  
S.H. Liu, Oak Ridge National Laboratory

Tuesday-Thursday, December 2-4

Approximately 57 papers will explore phase separation, crack propagation, martensitic phase transformation, fractals in physics and materials science, turbulent diffusion, dendritic growth and crystallization, silica aggregates, random magnets, spin glasses, electrochemistry, pore filling, polymer solutions. Invited speakers include:

T.A. Witten, G. Deutscher, H.E. Stanley, M.F. Shlesinger, G. Daccord, J.S. Langer, S.R. Nagel, K.D. Keefer, D.R. Nelson, R.J. Birgeneau, A.P. Malozemoff, P. Bro, J.M. Drake, D.J. Wilkinson, J. Fripiat, A. Nur, D. Avnir, J.E. Martin, D.S. Cannell, L. Leibler, P. Meakin.

### Symposium V Multicomponent Ultrafine Microstructures

Chairs: B.H. Kear, Exxon Research and Engineering Co.  
D.E. Polk, Office of Naval Research

Wednesday-Thursday, December 3-4

Approximately 35 papers will discuss synthesis, microstructures and properties. Invited speakers include: H. Gleiter, H. Fujimori, C.L. Chien, P. Sheng.

### Symposium X Frontiers of Materials Research

Chair: Rustum Roy, Pennsylvania State University

Topics will include history of materials science, photobioelectric materials, amorphous semiconducting superlattices, optical properties of metal-insulator components, high-strength Nb/Cu microcomposites to high-field magnets, transition metal carbides and transition metal superlattices, solitons and materials, inorganic building materials, synchrotron radiation, and more.

**1986**  
**MRS Fall**  
**Meeting**  
**Registration**  
Use the  
convenient  
registration forms  
in the center  
of this  
issue.

**MATERIALS RESEARCH SOCIETY**

Return to:

American Institute of Physics, Placement Service  
335 East 45th Street, New York, NY 10017

Date \_\_\_\_\_

Name \_\_\_\_\_ Tel. # \_\_\_\_\_  
(Bus.) (Home)

Address \_\_\_\_\_  
Street City State Zip

Citizenship:  U.S.A.  Permanent Resident Visa  Temporary Visa

**EMPLOYMENT**

*(list in reverse chronological order—present position first)*

**Position and nature of work**

**Description of Thesis, Principal Research and Publications**

**State briefly just what kind of position you desire**

Call and  
File Number

Major Subject	Institution	Year	Degree
			BA or BS
			MA or MS
			PhD
			Other

Years of training and/or experience in area below.

Fill in the number of years beyond undergraduate degree in the appropriate column.	Teaching	Academic Research	Industrial/Laboratory Experience

**FIELD OF TRAINING**

Biology			
Chemistry			
Earth Sciences			
Engineering			
Materials Science			
Metallurgy			
Physics			
Other			
Subfield of the above			

**MATERIALS**

Amorphous materials/glasses			
Biomaterials			
Cement			
Ceramics			
Composites/Cermets			
Earth materials			
Electronic materials			
Insulators			
Magnetic materials			
Metals/Alloys			
Nuclear materials			
Nuclear waste form materials			
Optical materials			
Polymers			
Semiconductor materials			
Other			

**SELECTED TOPICS**

Catalysis			
Corrosion			
Crystal growth			
Crystallography/crystal chemistry			
Defects			
Environmental science/engineering			
Beam (laser and ion) analysis/solid interactions			
Materials processing/fabrication			
Mechanical and physical properties			
Phase equilibria/transitions			
Polymer science and engineering			
Thin films/surfaces/interfaces			
Vacuum science and technology			
Other			

Specify analytical techniques with which you have experience.

PREFERRED AND ACCEPTABLE POSITIONS (check)	P	A
Industrial Development		
Industrial Research		
Government Research or Civil Service		
Teaching only Undergraduates		
Undergraduate Teaching and Research		
Teaching Graduate and Research		
Academic Research only		
Institutional (Non-Profit) Research		
Other		

AIP/MRS has my permission to show this to any employer.

Signature \_\_\_\_\_

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# Short Course Program

MRS will sponsor 23 short courses in conjunction with the 1986 Fall Meeting. There will be one-, two-, and three-day courses at various times during the week. Certain courses are designed so that together they present a comprehensive treatment of a diverse subject; there are discounted fees for such combinations. The short courses are summarized briefly here; for a free brochure with details on each short course, contact MRS.

Title	Tuition for Preregistrants	Title	Tuition for Preregistrants
<b>P-01: Liquid Phase Epitaxy Techniques</b> Instructor: L. Ralph Dawson, Sandia National Laboratories Monday, Dec. 1	\$295	<b>C-05: Application of Reflection Electron Diffraction to Epitaxial Growth</b> Instructor: Philip I. Cohen, University of Minnesota Monday, Dec. 1	\$295
<b>P-02: Molecular Beam Epitaxy</b> Instructor: Gary W. Wicks, Cornell University Tuesday & Wednesday, Dec. 2-3	\$460	<b>C-06: Deep Level Transient Spectroscopy</b> Instructor: Charles E. Barnes, Aerospace Corporation Thursday, Dec. 4	\$295
<b>P-03: Vapor Phase Epitaxy</b> Instructors: Herbert M. Cox, Bell Communications Research; P. Dan Dapkus, University of Southern California Thursday & Friday, Dec. 4-5	\$460	<b>C-07: Amorphous Semiconductor Materials and Devices</b> Instructor: David Adler, Massachusetts Institute of Technology Thursday & Friday, Dec. 4-5	\$460
<b>P-04: Film Formation, Adhesion, and Surface Preparation</b> Instructor: Donald M. Mattox, Sandia National Laboratories Tuesday, Dec. 2	\$295	<b>F-03: Ion Beam Processes for Materials Modification</b> Instructor: James K. Hirvonen, SPIRE, Inc. Thursday, Dec. 4	\$295
<b>C-04: Properties of Films and Coatings</b> Instructor: Donald M. Mattox, Sandia National Laboratories Wednesday, Dec. 3	\$295	<b>P-06: Ion Implantation, Diffusion, Defects, and Rapid Thermal Processing</b> Instructors: Tom E. Seidel, J.C. Schumacher Company; Steven C. Shatas, Nanosil; Dennis M. Maher, AT&T Bell Laboratories Friday & Saturday, Dec. 5-6	\$460
<b>F-01: Films and Coatings for Science and Technology</b> Instructor: Donald M. Mattox, Sandia National Laboratories Friday & Saturday, Dec. 5-6	\$460	<b>F-04: Microelectronic Packaging: Materials, Processing, and Reliability</b> Instructors: Shankara K. Prasad, Microelectronic Packaging Services; Rama K. Shukla, Intel Corporation Thursday, Friday, Saturday, Dec. 4-6	\$625
<b>F-02: Plasma Etching for Microelectronic Fabrication</b> Instructors: Herbert H. Sawin, Massachusetts Institute of Technology; G. Kenneth Herb, AT&T Bell Laboratories Wednesday & Thursday, Dec. 3-4	\$460	<b>C-08: Introduction to Ceramic and Metal Matrix Composites</b> Instructors: Jack J. Mecholsky, Pennsylvania State University; Maurice F. Amateau, Pennsylvania State University Thursday & Friday, Dec. 4-5	\$460
<b>P-05: Plasma Enhanced Chemical Vapor Deposition of Thin Films for Microelectronics</b> Instructor: Rafael Reif, Massachusetts Institute of Technology Friday, Dec. 5	\$295	<b>P-07: Sol-Gel Processing of Glass</b> C. Jeffrey Brinker, Sandia National Laboratories; George W. Scherer, E.I. duPont de Nemours & Co. Friday & Saturday, Dec. 5-6	\$460
<b>T-01: Safety Considerations in Semiconductor Plasma Processing</b> Instructor: G. Kenneth Herb, AT&T Bell Laboratories Saturday, Dec. 6	\$295	<b>C-09: Fractals in Materials Science</b> Instructors: James E. Martin, Sandia National Laboratories; Alan J. Hurd, Sandia National Laboratories Monday, Dec. 1	\$295
<b>C-01: Modern Materials Analysis Techniques</b> Instructors: James A. Borders, Sandia National Laboratories; Kenneth H. Eckelmeyer, Sandia National Laboratories; Suzanne H. Weissman, Sandia National Laboratories Monday, Tuesday, Wednesday, Dec. 1-3	\$625	<b>U-01: Environmental Degradation of Materials</b> Instructors: Ronald M. Latanision, Massachusetts Institute of Technology; Gregory J. Yurek, Massachusetts Institute of Technology Thursday & Friday, Dec. 4-5	\$460
<b>C-02: Introduction to Transmission and Analytical Electron Microscopy</b> Instructors: Alton D. Romig, Jr., Sandia National Laboratories; David B. Williams, Lehigh University Thursday & Friday, Dec. 4-5	\$460	<b>T-02: Experimental Strategies for Optimizing Process Variables</b> Instructor: David H. Doehlert, Edgework, Inc. Thursday, Friday, Saturday, Dec. 4-6	\$625
<b>C-03: Surface and Thin Film Analysis</b> Instructors: Leonard C. Feldman, AT&T Bell Laboratories; James W. Mayer, Cornell University Friday & Saturday, Dec. 5-6	\$480		

To register for short courses, use the registration card in this issue. The **deadline for preregistration is November 14, 1986**. Tuition for later registrations and registrations at the meeting will be \$25 higher for all courses.

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# Equipment Exhibit

*Boston Marriott*  
*Tuesday-Thursday, December 2-4, 1986*

As part of the 1986 Fall Meeting, a major equipment exhibit will be held to display analytical and processing equipment closely paralleling the nature of the technical symposia. The exhibit will be on the third floor of the Boston Marriott Hotel, convenient to the symposium meeting rooms, and the technical program has been arranged to allow meeting participants ample opportunity to visit the exhibit.

## Show Hours

Tuesday	9:00 a.m. - 5:00 p.m.
Wednesday	9:00 a.m. - 5:00 p.m.
Thursday	9:00 a.m. - 2:00 p.m.

## Exhibitors (as of August 10, 1986)

Academic Press	Microscience
AG Associates	MKS Instruments
Alcatel Vacuum Products	Nanometrics
Anatech, Ltd.	National Bureau of Standards
American Institute of Physics	National Electrostatics
American Instruments	Neslab Instruments
Amplifier Research	Netzsch Incorporated
Bio-Rad Semiconductor Measurement Systems	NGS Associates
Blake Industries	North Eastern Analytical
Brimrose Corporation of America	NSA/Hitachi Scientific Instruments
Cahn Instruments	Oxford Instruments N.A.
Callery Chemical	Perkin-Elmer
Cameca Instruments	Philips Electronic Instruments
Ceramaseal	Physicon Corporation
Charles Evans & Associates	Physitec Corporation
Commonwealth Scientific Corporation	Plenum Publishing
Cryosystems	Polymer Laboratories
Denton Vacuum	Princeton Gamma-Tech
Ealing Electro-Optics	Questek
Eaton Corporation	Rigaku/USA
Edwards High Vacuum	Rudolph Research
Elsevier Science Publishing	Scintag
Emcore	Seacoast Scientific
Enraf-Nonius	Semiconductor Processing Company
Gaertner Scientific	Siemens Corporate Research & Support
Gatan	South Bay Technology
General Ionex	Spectramass
Granville-Phillips	Spire Corporation
HPS Corporation	Springer-Verlag New York
Huntington Laboratories	Stanford Research Systems
Ilford Ltd.	Structure Probe/SPI Supplies
Industrial Equipment & Sales Corporation	Surface Alloys Corporation
Innovative Technology	Surface Science Laboratories
Instruments S.A./Riber	The Semi Group
Janis Research Company	Thermionics Laboratory
JCPDS-International Centre for Diffraction Data	Tracor Northern
JEOL USA	UHV Instruments
Keithley Instruments/Instruments Division	Varian Associates
Kimball Physics	Varian/Vacuum Products
Lake Shore Cryotronics	VCR Group
Lambda Physik	VG Instruments
Leybold-Heraeus Vacuum Products	

For further information on the equipment exhibit, contact: Bob Finnegan, MRS Show Manager, American Institute of Physics, 335 East 45th Street, New York, NY 10017 - Telephone: (212) 661-9404