

## Location/Lodging

**Boston Marriott/  
Copley Place**  
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Boston, MA 02116  
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Fax (617) 236-5885  
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**Westin Hotel/  
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## Travel Arrangements

The official travel management company for the Materials Research Society's 1993 Fall Meeting is Giselle's Travel Bureau. They will guarantee the lowest fares on any airline at time of booking. *Call Giselle's and ask for MRS Group 001:*

**1-800-782-5545**

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or

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MRS meeting attendees receive the following travel benefits and services:

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To be eligible: You, your travel agent, or your in-house travel department must make your reservations through Giselle's Travel Bureau by calling the above phone number.

## 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 \$15-\$17 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."

## Parking

A parking garage is adjacent to both hotels at a daily cost of approximately \$21.

## DEADLINE FOR HOTEL RESERVATIONS: NOVEMBER 1, 1993

Blocks of rooms have been reserved for MRS meeting attendees at the Boston Marriott and Westin Hotels (above) and at the alternative hotels (below) located within a one-block radius. *When making your reservations at any hotel, mention the Materials Research Society to receive the special rates.*

## Alternative Housing

### The Colonnade

Phone: (617) 424-7000  
Fax: (617) 424-1717  
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### The Lenox Hotel

Phone: (617) 536-5300  
Fax: (617) 266-7905  
Rate: \$100/Single  
\$110/Double

### Sheraton Boston Hotel & Towers

Phone: (617) 236-2000  
Fax: (617) 236-1702  
Rate: \$109/Single; \$119/Double



## MRS Short Course/ Tutorial Program

### Characterization of Materials

- C-01 Modern Materials Analysis Techniques**  
Instructors: James A. Borders, Kenneth H. Eckeimeyer, and Michael R. Keenan
- C-03 Surface and Thin Film Analysis**  
Instructors: James W. Mayer and Leonard C. Feldman
- C-14 Scanning Tunneling Microscopy and Atom Force Microscopy**  
Instructor: Dawn A. Bonnell
- C-20 Optical Characterization of III-V Semiconductor Epitaxial Layers**  
Instructor: Gary W. Wicks
- C-23 X-Ray Diffraction Characterization of Semiconductor Wafers**  
Instructors: Mary Halliwell and Isabella Bassignana
- C-29 Practical Electron Diffraction**  
Instructor: Ronald M. Anderson
- C-30 Characterization of the Morphology, Structure and Properties of Inorganic Thin Films**  
Instructors: Alton D. Romig, Jr., and Donald M. Mattox
- New! C-31 Super-Resolution Imaging and Spectroscopy with Near-Field Scanning Optical Microscopy (NSOM)**  
Instructors: Michael Paesler and Hans Hallen

### Preparation and Fabrication of Materials

- F-02 Plasma Etching for Microelectronic Fabrication**  
Instructor: G. Kenneth Herb
- F-10 Fundamentals and Applications of Ion Beam Assisted Deposition**  
Instructor: James K. Hirvonen
- P-02 Molecular Beam Epitaxy**  
Instructor: L. Ralph Dawson
- P-04 Film Formation, Adhesion, and Surface Preparation**  
Instructor: Donald M. Mattox
- P-10 Metalorganic Chemical Vapor Deposition and Atomic Layer Epitaxy**  
Instructor: Robert Biefeld
- New! P-25 Chemical Vapor Deposition for Metallization Applications**  
Instructors: Mark J. Hampden-Smith and Toivo T. Kodas

- New! P-26 Metallization for Devices, Circuits, and Packaging and in Multilayer Schemes for VLSI and ULSI**  
Instructor: Shyam P. Murarka

### Advanced Materials

- M-15 Biological Processes for Materials Synthesis**  
Instructor: Mark Alper
- M-16 Ferroelectric Thin Films**  
Instructors: Angus I. Kingon and Seshu B. Desu
- M-19 Wide Bandgap II-VI Semiconductor Microstructures: Growth, Characterization, and Optical Devices**  
Instructor: Leslie A. Kolodziejcki

**New!**

### Techniques

- T-05 Plasma Technology for Thin Film Deposition**  
Instructor: Donald M. Mattox

### Tutorial Program

MRS Tutorials are designed to inform individuals about subjects that are outside their immediate interest or to bring individuals "up to speed" in an area that they have recently entered.

- TP-1 Transfer of Technology from R&D to Manufacturing**  
Instructors: Donald M. Mattox and Alton D. Romig, Jr.
- TP-2 Fractals in Materials Science**  
Instructor: James E. Martin
- TP-3 Fullerenes**  
Instructors: Mildred S. Dresselhaus and Peter C. Eklund
- TP-5 Light-Emitting Porous Silicon: Fabrication, Properties, and Device Applications**  
Instructor: Philippe M. Fauchet
- New! TP-6 Challenges in Design and Processing of Materials by Biomimetics**  
Instructors: Mehmet Sarikaya, David A. Tirrell, Eric Baer, and Ilhan A. Aksay

### Special Discounts

There are special discounted tuition fees for specific course combinations. 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.

### On-Site Short Course Program

Most MRS courses are available on a contract basis for presentation at your facility. For further details, contact Vivienne Harwood Mattox, MRS Short Course Manager. Telephone (505) 294-9532; Fax (505) 298-7942

### Registration Information

Call (412) 367-3003 or Fax (412) 367-4373 and ask for the Short Course Office to request a copy of the short course brochure and information about student scholarships.

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# 1993 FALL MEETING SESSION LOCATOR

Activity	Location	Monday, November 29			Tuesday, November 30		
		a.m.	p.m.	eve*	a.m.	p.m.	eve
<b>AA. Atomic Scale Imperfections</b>	Salon C/D (M)	AA1: Point Defects	AA2: Diffusion		AA3: Grain Boundaries	AA4: Interfaces 1	
<b>A. Ion Beams Synthesis &amp; Processing</b>	America South (W)	A1: Ion Beam Processing A2: Beam-Induced Damage & Recovery—Silicon	A3: Beam-Induced Damage & Recovery/Semiconductors A4: Other Materials	Posters A5	A6: Modification of Optical Properties A7: Materials Synthesis	A7: Materials Synthesis A8/D3: Ion Beam Synthesis of Silicides	Posters A9
<b>B. Thin Film Evolution</b>	America North (W)	B1: Atomistics	B2: Interface & Surface Structure		B3: Kinetic Roughening	B4: Islanding & Coarsening	Posters B5
<b>Ca. Interface Control of Properties</b>	Essex Center (W)	Ca1: Interface Properties	Ca2: Silicon Oxidation		Ca3: Metal/Semiconductor Contacts	Ca4: Heteroepitaxy	
<b>Cb. Defect-Interface Interactions</b>	Essex East (W)		Cb1: Heterostructures I		Cb2: Heterostructures II	Cb3: Interfaces & Point Defects	
<b>D. Silicides, Germanides &amp; Interfaces</b>	St. George C/D (W)		D1: Applications, Contacts & Devices		D2: Fabrication & Properties of Iron Silicides America South (W)	D3/A8: Ion Beam Synthesis of Silicides	Posters D4
<b>E. Amorphous Materials Crystallization</b>	America Center (W)	E1: Structure of Glasses I	E2: Structure of Glasses II E3: Structural Relaxation of Glasses		E4: Crystal Nucleation E5: Solid State Amorphization	E6: Crystallization Kinetics	Posters E7, E8, E9, E10
<b>F. High-Temperature Silicides/Refractory Alloys</b>	Salon A/B (M)	F1: Silicide Microstructures	F2: Silicide Synthesis & Processing		F3: Silicide Mechanical Behavior	F4: Silicide Oxidation/Properties	Posters F5
<b>G. Fullerenes</b>	Salon F (M)	G1: Formation & Separation	G2: Physical & Structural Properties	Posters G3	G4: Superconductivity & Electronic Structure	G5: Superconductivity & Electronic Structure	Posters G6
<b>H. Superconductivity</b>	Salon G (M)	H1: Bulk Applications	H2: Bulk $J_c$	Posters H3	H4: Fundamental Mechanisms	H5: Flux Pinning & Dynamics	Posters H6
<b>I. Materials Processes for Manufacturing</b>	Essex West (W)						
<b>J. Electronic Packaging</b>	Theater	J1: Low-Cost High-Performance Packages	J2: Deposition & Durability		J3: Environmentally Sound Materials J4: New Materials	J5: Supercomputer Applications	Posters J6
<b>K. Semiconductor Materials Processing</b>	Essex West (W)	K1: Modulation Spectroscopy & Reflectivity	K2: Ellipsometry		K3: IR & Raman Spectroscopy	K4: Processing Diagnostics I	
<b>L. Defects in Semiconductors</b>	Essex North Center (W)	L1: Defects in Quantum Wells & Superlattices	L2: Defects & Impurities in InP, SiGe/Si		L3: Doping & Defects in III-V Semiconductors	L4/M5: Semiconductor Alloys & Superlattices Staffordshire (W)	Posters L5
<b>M. Semiconductor Heterostructures</b>	Staffordshire (W)	M1: Epitaxy I	M2: Epitaxy II	Posters M3	M4: Quantum Wires & Dots	M5/L4: Semiconductor Alloys & Superlattices	
<b>N. Covalent Ceramics: Non-Oxides</b>	Theatre	N1/Y1: MOCVD of Non-Oxide Electronic Ceramics	N2: Copper Indium Diselenide for Photovoltaics N3: Fundamental Properties	Posters N4	N5: Interfaces & Composites	N6: Metal Sulfides	
<b>O. Complex Fluids</b>	Salon J/K (M)	O1: Surfactant Phases	O2: Lamellar Phases		O3: Membranes: Micelles	O4: Strongly-Interacting Polymers	
<b>P. Fractals, Scaling &amp; Dynamics</b>	Provincetown/Oriens (M)		P1: Patterns, Instabilities & Noise		P2: Granular Dynamics	P3: Pinning & Slow Relaxation	Posters P4
<b>Q. Organic Solid State Materials</b>	Essex South (W)	Q1: Plenary Session	Q2: Conducting Polymers		Q3: Molecular Engineering	Q4: Nonlinear Optical Polymers	Posters Q5
<b>R. Materials for Solid State Lasers</b>	Regis (M)	R1: Infrared Nonlinear Optical Materials R2: Bulk NLO Crystals	R3: Melt Growth of Laser Crystals R4: High Power Laser Materials	Posters R5	R6: Nonlinear Waveguide Materials R7: Up-Conversion & Visible Laser Materials	R8: MID-IR Laser Materials R9: Theoretical Modeling of Laser Materials	
<b>S. Biomolecular Materials by Design</b>	Yarmouth/Vineyard (M)	S1: Nanostructures	S2: Nanostructures—Silk/Other Fibers		S3: Nanostructures	S4: Crystallography	
<b>T. Biomaterials for Drug &amp; Cell Delivery</b>	Cape Cod/Hyannis (M)	T1: Tissue Scaffolding & Regeneration	T2: Genetic Engineering		T3: Cell-Biomaterial Interactions	T4: Biomacromolecular Controlled Delivery	
<b>U. Nanoscale Properties</b>	Salon H/I (M)		U1: Local Spectroscopy & Imaging		U2: Dynamic Properties at Nanoscale	U3: Local Structures & Properties	Posters U4
<b>V. Nuclear Waste Management</b>	Salon E (M)	V1: High-Level Nuclear Waste Glass	V2: HLW Glass Characteristics		V3: Objectives & Limitations V4: Radiation Effects & Gas Generation	V5: Ceramic Materials V6: Cementitious Materials	
<b>W. Gas-Phase Surface Chemistry in Electronic Materials</b>	Theatre	W1: Silicon & Carbon Systems	W1: Silicon & Carbon Systems	Posters W2, W3, W4	W5: III-V Semiconductors	W5: III-V Semiconductors W6: II-VI Semiconductors	Posters W7, W8, W9
<b>X. Frontiers of Materials Research</b>	Salon E (M)		X1				
<b>Y. MOCVD of Electronic Ceramics</b>	Theatre	Y1/N1: MOCVD of Non-Oxide Electronic Ceramics	Y2: Ferroelectric Materials	Posters Y3	Y4: Modeling	Y5: Precursor Design & Delivery	

Wednesday, December 1			Thursday, December 2			Friday, December 3	
a.m.	p.m.	eve	a.m.	p.m.	eve	a.m.	p.m.
AA5: Interfaces 2	AA6: Mechanical Aspects of Interfaces						
A10: Panel Discussion	A11: Ion Implantation Doping of Silicon A12: Ion Implantation Doping of Materials	Posters A13	A14/E13: Beam Assisted Crystallization & Amorphization	A15: Ion Implantation A16: Thin-Film Growth	Posters A17	A18: Low-Energy Ion Technology A19: Low-Energy Ion Effects	
B6: Stress & Defects	B7: Adsorbates in Growth		B8: Zone Models/Grain Growth	B9: Texture in Polycrystalline Films	Posters B10	B11: CVD & Ion Assisted Growth	
Ca5: Surfaces	Ca6: Film Stability		Ca7: Interfaces in Composites	Ca8: Surface & Interfaces Analyses Ca9: Thin Films & Bilayers	Posters Ca10, Ca11, Ca12, Ca13	Ca14: Ferroelectrics Ca15: Stress & Adhesion	
Cb4: Boundary Migration, Transformation & Kinetics	Cb5: Boundary Migration, Transformation & Kinetics	Posters Cb6	Cb7: Grain Boundary/Dislocation Interactions I	Cb8: Grain Boundary/Dislocation Interactions II			
D5: Surfaces & Interfaces	D6: Metals on Ge & SiGe		D7: Kinetics of Silicide Formation	D8: Novel Silicide Growth Techniques D9: Properties & Silicides			
E11: Crystallization Microstructure: Polymers	E12: Crystallization Microstructure		E13/A14: Beam-Assisted Crystallization & Amorphization America South (W)	E14: Crystallization of Amorphous Silicon E15: Interfacial Phenomena	Posters E16, E17, E18		
F6: Refractory Alloys & Processing	F7: Refractory Alloys		F8: Refractory Alloys	F9: Applications of Refractory Alloys			
G7: Chemistry	G8: Thin Films & Photophysics		G9: Onions, Spheroids & Endofullerenes	G10: Tubes & Capsules			
H7: Vortex Dynamics	H8: Microstructure of Superconducting Materials H9: New Mercury Cuprates	Posters H10	H11: Device Applications	H12: Materials Issues in Devices	Posters H13	H14: Josephson Junctions	H15: Thin Films/Heterostructures
	I1: Performance Measures		I2: Process Development for Factories Salon C/D (M)	I3: Process Development for Factories Salon C/D (M)			
J7: Dielectrics	J8: Durability		J9: Mechanical Testing				
K5/M6: Characterization of Epitaxial Material Staffordshire (W)	K6/M7: Optical Characterization of Quantum Wells & Superlattices Staffordshire (W)	Posters K7	K8: Processing Diagnostics II				
L6: Oxygen, Hydrogen & Other Impurities	L7: Defects in Low Temperature Grown GaAs						
M6/K5: Epitaxial Material	M7/K6: Quantum Wells & Superlattices	Posters M8	M9: Characterization I	M10: Characterization II			
N7: Microstructural Evolution	N8: Chemical Synthesis		N9: Transition Metal Carbides & Nitrides/Thin Films N10: Bulk Material				
O5: Monolayers	O6: Monolayers: Liquid Crystals	Posters: O7	O8: Complex Fluids in Flows	O9: Colloids		O10: Wetting Phenomena	
P5: Flux Line Dynamics P6: Fractal Growth & Aggregation	P7: Porous Media	Posters P8	P9: Dynamics of Rough & Fractal Surfaces	P10: Phase Separation & Cellular Patterns			
Q6: Molecular Engineering Q7: Third Order Nonlinear Opt. Mats	Q8: Liquid Crystal Displays	Posters Q9	Q10: Light Emitting Diodes Q11: Organic Ferromagnets	Q12: Nonlinear Optical Materials		Q13: Nonlinear Optics—Measurements Salon F (M)	Q14: Conducting Polymers Salon F (M)
R10: Novel Laser & NLO Materials R11: Sol-Gel & Plastic Laser							
S5: Ceramics/Inorganics I	S6: Ceramics/Inorganics II		S7: Adhesives, Films, Enzymes	S8: Natural Materials and Biomimetics		S9: Bioelectronics	S10: Smart Materials
T5: Biomaterials Characterization							
U5: Composition Determination	U6: Elemental Imaging		U7: Molecular Imaging	U8: Surface Structures & Physical Properties	Posters U9	U10: 3D Imaging at Atomic Resolution	
V7: Actinides & Spent Fuel V8: Glass Processing & Properties	V9: Glass Leaching, Dissolution & Alteration	Posters V10	V11: Natural & Ancient Analogues V12: Tru Wastes & Special Topics	V13: Sorption Mechanisms V14: Repository Studies V15: Geochemistry & Hydrology		V16: Containers V17: Backfill Materials	
W10: Metallization	W11: Dielectrics		W12: Etching	W13: Special Topics			
	X2			X3			
Y6: High $T_C$ Superconductors	Y7: Optoelectronic Materials: Oxide Ceramics						

# MRS EXHIBIT

## Boston Marriott Hotel Tuesday-Thursday, November 30 – December 2, 1993

As part of the 1993 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 Boston Marriott Hotel and a table-top display on the fourth floor of the Westin Hotel. The technical program has been arranged to allow meeting participants ample opportunity to visit the exhibit.

### Exhibit Hours

Tuesday .....noon - 7:00 p.m.  
Reception.....5:00 p.m. - 7:00 p.m.  
Wednesday .....9:30 a.m. - 5:00 p.m.  
Thursday .....9:30 a.m. - 2:00 p.m.

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

## Partial List of 1993 Fall Meeting Exhibitors

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**MAIL** Return this form with payment to:  
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