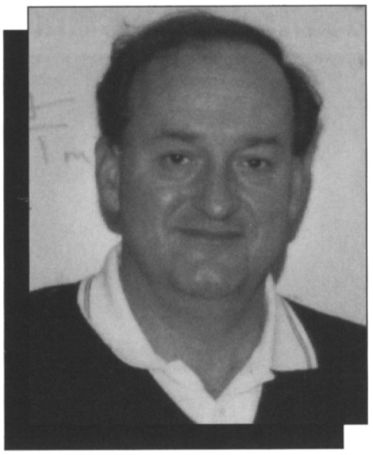
William L. Johnson Named 1998 MRS Medalist for Metallic Glass

The development and characterization of bulk metallic glass forming alloys, by William L. Johnson, Ruben and Donna Mettler Professor of Materials Science at the California Institute of Technology, have led to a new class of structural materials for advanced engineering applications. For his pioneering work, Johnson has been selected to receive the 1998 MRS Medal, which will be presented at the Materials Research Society Fall Meeting in Boston. He is cited for "the development and fundamental understanding of bulk metallic glass forming alloys."



William L. Johnson

Johnson's work, based on two decades of fundamental research on amorphous alloys, premiered in 1993 with a report published in *Applied Physics Letters* on the fabrication of $Zr_{41.2}Ti_{13.8}Cu_{12.5}Ni_{10.0}Be_{22.5}$ alloyed by induction melting. He and A. Peker, also at Caltech, found that their 5–6 g samples froze without any crystallization during preparation, resulting in a glassy ingot. According to their report, the alloy forms glass at cooling rates of less than 10 K/s. Johnson prepared the alloys by melting the material in a silica mold then quenching it in water. Previous techniques, such as rapid quenching methods, have been used to form metallic glasses by cooling the melt at rates of 10^5–10^6 K/s. According to Johnson, "the new materials can be cast from the molten state into glassy objects with dimensions up to several centimeters as compared with maximum thicknesses of 10–100 micrometers for rapidly quenched ribbons and powders."

The uniqueness of these alloys resides in their high resistance to crytallization. Johnson attributes this resistance to two factors: the low melting point of the corresponding crystalline alloys, and the fact that the alloys "generally have several (four or more) constituents with atoms of substantially different sizes." The alloys' resistance to crystallization has opened further opportunities for experimental study of the liquid state and glass transition. In February 1996, Johnson published the first report of experimental data on the crystallization kinetics of a metallic system covering the full temperature range of the undercooled melt down to the glass transition temperature (*Applied Physics Letters* **68**). The limited glass-forming ability of earlier alloys inhibited the acquisition of such data on metallic melts; however, by applying the containerless high-temperature high-vacuum electrostatic levitation (HTHVESL) processing technique to the undercooled $Zr_{41.2}Ti_{13.8}Cu_{12.5}Ni_{10.0}Be_{22.5}$ alloy, Johnson and his colleagues obtained measurement of the complete time-temperature-transformation diagram.

The high resistance level to crystallization also makes these alloys available for new engineering applications. Johnson said, "The undercooled liquid state...presents opportunities for the manufacture of inexpensive, high-quality, net-shape metal components with high strength and strength-to-weight ratio, high fracture toughness, fatigue resistance, and resistance to wear and corrosion." Johnson is currently involved in the development of technical applications of these bulk metallic glasses and metallic glass matrix composites through collaborative research with several other laboratories, including national laboratories in Oak Ridge and Argonne, the University of California in Berkeley, and with several companies, including Amorphous Technologies, MMM Corporation, Alcoa Research Laboratories, and General Motors.

Johnson received his PhD degree in applied physics from Caltech in 1974, and has been on the faculty there for 20 years. He has authored or co-authored over 275 articles, contributed eight chapters to books, and is an inventor or coinventor on 17 issued and pending U.S. patents. He is a member of several professional societies, including the Materials Research Society and the American Physical Society. Among his society services, he was Principal Editor for the *Journal of Materials Research* from 1985 to 1989 and on the editorial board of the *Journal of Applied Physics* and *Applied Physics Letters* from 1992 to 1996. He is currently a member of the Department of Energy's University Council for Materials Research.

Johnson will present his award talk, entitled "Bulk Glass Forming Metallic Alloys: Science and Technology," on December 2, 1998, at 5:00 p.m. in Fairfax A/B at the Sheraton Boston. MRS

MRS 1998 Fall Meeting Session Locator

SYMPOSIUM	LOCATION	MONDAY, NOVEMBER 30			TUESDAY, DECEMBER 1		
		a.m.	p.m.	eve.*	a.m.	p.m.	eve.*
A: Polycrystalline Thin Films	Salon A/B (M)				A1: Microstructural Evolution I	A2: Microstructural Evolution II	
B: Growth Instab. & Decomp. During Heteroepitaxy	Provincetown/ Orleans (M)						
C: Surface & Interface Structure & Dynamics	Salon C/D (M)	C1: Dynamics Of Adatoms, Vacancies and Clusters I	C2: Dynamics at Step Edges	C3: Posters (W)	C4: Alloys	C5: Morphology Evolution	
D: Integr. of Dissim. Matls. in Micro- & Optoelectronics	Provincetown/ Orleans (M)	D1: Bonding, Lift-Off, and Back-End Processes	D2: Defect Engineering I		D3: Defect Engineering II	D4: Integration of Dissimilar Materials	
E: Film Growth & Proc. Using Hyperthermal Beams	Cape Cod/ Hyannis (M)	E1: Semiconductor and Small Structures	E2: Surface Morphology And Roughness		E3: Superhard Nitrides and Carbides	E4: Nitrides	E5: Posters (W)
F: Microcrystalline & Nano-crystalline Semiconductors	Salon E (M)	F1: Light Emission from Nanocrystalline Silicon	F2: Properties of Nanocrystalline Semiconductors and Periodic Structures		F3: Biological Applications and Surface Chemistry of Nanocrystalline Semiconductors	F4: Synthesis and Spectroscopy of Nanocrystalline Semiconductors	F5: Posters (M)
G: GaN and Related Alloys ***Sunday Tutorial Session*** **	Salon G (M)	G1: Plenary	G2: Laser Diodes and Spectroscopy	G3: Posters (M)	G4: Epitaxial Lateral Overgrowth and Selective Growth	G5: Theory, Defects, Transport, Bandstructure	G6: Posters (M)
H: Infrared Semiconductor Materials and Devices	Wellesley (M)				H1: III-V Infrared Lasers and Materials - I	H2: III-V Infrared Lasers and Materials - II	
I: III-V & SiGe Grp. IV Device/ IC Proc. Challenges for Commercial Applications	Cape Cod/ Hyannis (M)						
J: Multiscale Modeling of Materials	Salon F (M)	J1: Dislocation Dynamics and Crystal Plasticity	J2: Quasi-Continuum Approaches To Matls. Modeling		J3/M3: Multiscale Modeling of Materials Strength	J4: Atomistic Modeling of Materials Deformation J5: Shock Dynamics in Metals	J6: Posters (M)
K: Computation of Rates of Activated Processes	Wellesley (M)	K1	K2		K3 **BOSTON COLLEGE (M)**	K4 **BOSTON COLLEGE (M)**	
L: Interacti. of Phase & Defect Microstruc. in Metal. Alloys	Vineyard (M)	L1: Nonlinear Approaches for Microstructural Evolution	L2: Phase Transformations and Microstructures - I		L3: Phase Transformations and Microstructures - II	L4: Interfaces, Interphases and Grain Boundaries	
M: Fracture & Ductile vs Brittle Behavior—Theory, Modeling, & Experiment	Salon J/K (M)	M1: Ductile-to-Brittle Trans. I - Steels & Structural Metals	M2: Ductitle-To-Brittle Trans. II Continuum Disloc. Models		M3/J3: Multiscale Modeling of Materials Strength **SALON F (M)**	M4: Fracture In Ceramics, Glasses, and Polymers	M5: Posters (M)
N: Microstructural Processes in Irradiated Materials	Simmons (M)	N1: Semiconductors	N2: Electronic Materials and Ceramics (Fundamentals)	N3: Posters (M)	N4: Ceramics and Nuclear Waste Materials	N5: Austenitic and Reactor Pressure Vessel Steels	
O: Ferroelectric Thin Films VII ***Sunday Tutorial Session*** **	Salon H/I (M)	O1: BST and DRAM	O2: Integration and Electrodes	O3, 04, 05, 06: Posters (W)	O7: Pb-Based Ferroelectrics	O8: Bi-Layered Ferroelectrics	
P: Magnetic Oxides and Oxide Devices	Suffolk (M)	P1: Spin Polarized Tunneling	P2: Novel Ferromagnetic Materials Systems		P3: Charge Ordering in CMR Materials	P4: Physical Properties of CMR Materials	P5, P6: Posters (W)
Q: High-Temp. Supercond.—Materials Challenges	Independence Center (S)	Q1: HTS Thin Films I	Q2: HTS Thin Films II		Q3: HTS Thin Film Devices	Q4: Symmetry, Interface, Grain Boundaries	Q5: Posters (S)
R: Organic Electronic & Photonic Matls. & Devices	America North (W)	R1: Materials	R2: Light-Emitting Diodes I	R3: Posters (W)	R4: Transistors	R5: LED Device Physics	
S: Carbon Nanotubes, Fullerenes & Related Carb. Matls	America Center (W)	S1: Solid State Fullerenes	S2: Molecular Fullerenes	S3: Posters (W)	S4: Nanotubes—Chemistry And Formation	S5: Carbons	
T: Recent Progress in Optical Data Storage & Processing	Essex East (W)						
U: Organics with Supramolec. Structure & Function	America South (W)	U1: Molecular Recognition in Supramolecular Solids	U2: Molecular Recognition in Supramolecular Solids (cont'd)		U3: Thin Films and Layered Structures	U4: Functional Thin Films and Materials	U5: Posters (W)
V: Solid Freeform and Additive Fabrication	Exeter A/B (S)	V1: Organics, Composites and Laser CVD	V2: Direct Metal Fabrication		V3: Ceramic Freeform Fabrication	V4: Ceramic Freeform and Layered Direct Fabrication	
W: Dynamics in Small Confining Systems V	Staffordshire (W)	W1	W2		W3	W4	
X: Frontiers of Materials Research	Salon E (M)					X1	
Y: Plasma Deposition and Treatment of Polymers ***Sunday Tutorial Session*** **	Essex Center (W)	Y1: Plasma Treatments for Biomaterials	Y2: Plasma Treatments for Biomaterials (cont'd) Y3: Fund. of Plasma Processing		Y4: Fundamentals of Plasma Processing (cont'd)	Y5: Plasma Processing for Electronics and Optics	Y6, Y7, Y8, Y9: Posters (W)
Z: Thermoelectric Materials	Independence W (S)	Z1: Guidance to Advanced TEs	Z2: Skutterudites I Z3: Chalcogenides I	Z4: Posters (S)	Z5: Nanostructures I Z6: Synthesis Strategies & Selection Criteria	Z7: Thin Films TEs Z8: Alternative Thermoelectric Materials & Methods	
AA: Matls. Science of Micro-electromechanical System (MEMS) Devices	St. George B/C/D (W)				AA1: Mechanical and Physical Properties	AA2: AA1: Mechanical and Physical Properties (cont'd) AA3: Adhesions & Coatings	AA4: Posters (W)
BB: Nonlithographic Methods for Organizing Materials into Functional Structures	Essex South (W)	BB1	BB2		BB3	BB4	
CC: Combinatorial Chemistry and Materials Science	Fairfax A/B (S)	CC1: Materials Discovery and Device Optimization	CC2: High-Throughput Screening and Novel Sensors		CC3/FF4: Combinatorial Methods in Catalysis I **HAMPTON A/B (S)**	CC4/FF5: Combinatorial Methods in Catalysis II **HAMPTON A/B (S)**	
DD: Solid-State Chemistry of Inorganic Materials II ***Sunday Tutorial Session*** **	Backbay Ballroom (S)	DD1: Framework Structures	DD2: Electronic & Magnetic Materials	DD3: Posters (S)	DD4: Nitrides & Chalcogenides	DD5: Intermetallics	
EE: Solid-State Ionics	Constitution (S)	EE1: Cathode Materials for Advanced Batteries	EE2: Cathode Materials for Advanced Batteries	EE3: Posters (S)	EE4: Cathode Materials for Advanced Batteries	EE5: Cathode Materials for Advanced Batteries	
FF: Advanced Catalytic Materials 1998	Hampton A/B (S)	FF1: Structured Catalysts	FF2: Catalytic Combustion FF3: Photocatalysis		FF4/CC3: Combinatorial Methods in Catalysis I	FF5/CC4: Combinatorial Methods in Catalysis II	

* Check Poster Session Locator In Program Book ** Check Tutorial Grid Shaded Blocks: No Session

MRS 1998 Fall Meeting Session Locator

WEDNESDAY, DECEMBER 2			THURSDAY, DECEMBER 3			FRIDAY, DECEMBER 4	
a.m.	p.m.	eve.*	a.m.	p.m.	eve.*	a.m.	p.m.
A3: Polycrystalline Silicon I	A4: Polycrystalline Silicon II A5: Ceramic Films	A6: Posters (S)	A7: Mechanical Properties	A8: Magnetic Properties A9: Electrical and Optical Prop.			
B1: Coherent Island Evolution I	B2: Coherent Island Evolution II	B3: Posters (W)	B4: The 2D-3D Transition	B5: Composition Modulation		B6: Segregation and Decomposition	
C6: Electronic Growth and Electromigration	C7: Dynamics of Adatoms, Vacancies and Clusters II	C8: Posters (W)	C9: Initial Growth	C10: Theory			
D							
E6: In-Plane Texture Development and Oxides							
F6: Synth. & Properties of Micro- & Nanocrystalline Semiconductors	F7: Oxicde and Chalcogenide Semiconductors	F8: Posters (M)	F9: Microcrystalline and Polycrystalline Semiconductors				
G7: LEDs, UV Detectors and Optical Properties	G8: Electronic Devices and Processing		G9: Quantum Dots and Processing	G10: Novel Growth, Doping and Processing		G11: Rare-Earth Doping and Optical Emission	
H3: Thermophotovoltaics (TPVs) and Substrate Mismatched Growth	H4: Infrared Detectors and Materials (III-V and Uncooled)		H5: II-VI Lasers and New IR Matls. H6: Posters **SIMMONS (M)**	H7: Infrared Detector Materials (II-VI)			
I	I1: SiGe and III-V Processing for Production	I2: Posters (M)	I3: III-V Process Challenges				
J7: Growth And Processing of Thin Films J8/K6	J9/N7: Modeling Radiation Effects in Metals	J10: Posters (M)	J11: Grain Boundaries, Surfaces, Interfaces	J12: Silicon Defects and Process Modeling			
K5 **BOSTON COLLEGE (M)** K6/J8 **SALON F (M)**	K7 **BOSTON COLLEGE (M)**						
L5: Plasticity—Size Effects and Instabilities	L6: Dislocation Dynamics Patterns and Microstructures - I		L7: Dislocation Dynamics, Patterns and Microstructures - II				
M6: Heterogeneous Media & Scaling M7: Dynamic Fracture	M8: Plasticity I — Deformation of Metals		M9: Plasticity II — Crack-Tip Region & Nanoscale Contacts M10: Electronic Origins of Ductile vs Brittle Behavior	M11: Integranular/Interfacial Fracture			
N6: Defect Production and Microstructure Evolution	N7/J9: Modeling Radiation Effects in Metals **SALON F (M)**	N8: Posters (M)					
O9: Fundamental Material Properties and Superlattices	O10/P8: Oxide Electronic Devices	O11, O12, O13, O14, O15, O16: Posters (W)	O17: Piezoelectric, Optical, and Pyroelectric Materials	O18: Capacitors, Pyroelectrics, and Ferroelectric Gates			
P7: Magnetic Imaging/Structure	P8/O10: Oxide Electronic Devices **SALON H/I (M)**	P9: Posters (W)	P10: Lattice Strain	P11: Growth and Structure			
Q6: HTS Materials, Synthesis and Processing	Q7: Flux Pinning	Q8: Posters (S)	Q9: HTS Thick Films and Tapes I	Q10: HTS Thick Films & Tapes II			
R6: Light-Emitting Diodes II	R7: Excited States and Interfaces	R8: Posters (W)	R9: Molecular Light-Emitting Diodes	R10: Photodiodes, Photonics and Other Devices			
S6: Nanotubes - Physical Prop. I	S7: Nanotubes - Physical Prop. II		S8: Theory	S9: Inorganic Fullerenes and Materials			
T1: Optical Data Storage	T2: Holographic Data Storage						
U6: Hybrid Supramolecular Materials	U7: Nanoscale Objects and Dendrimers	U8: Posters (W)	U9: Supramolecular Machines and Complex Polymers				
V							
W5	W6	W7 Posters (W)	W8	W9			
X	X2: **DAVID TURNBULL AWARD LECTURE**			X3			
Y10: Plasma Processing for Electronics and Optics Y11: Plasma Treatments and Functional Coatings	Y12: Plasma Treatments and Functional Coatings (cont'd)						
Z9: Skutterudites II Z10: Nanostructures II	Z11: Chalcogenides II Z12: Intermetallics		Z13: Clathrates Z14: Thermionic Emission	Z15: Nanostructures III Z16: TE Devices, Process./Meas.			
AA5: New Materials	AA6: New Materials (cont'd) AA7: Processing AA8: Theory and Simulation						
BB5	BB6						
CC							
DD6: Oxides	DD7: Oxides	DD8: Posters (S)	DD9: Solid-State Ionics and Synthesis	DD10: Ferroelectrics and Dielectrics		DD11: Synthesis and Solid-State Ionics	
EE6: Carb. Intercalation Electrode—Materials And Electrochemistry	EE7: Solid-State Ionic Materials And Devices		EE8: Solid-State Ionic Theory and Materials	EE9: Ionic and Electronic Conductive Polymers		EE10: Ionic and Electronic Conductive Polymers	EE11: Solid-State Ionic Technology
FF6: Nanomaterials	FF7 FF8: Theoretical Studies	FF9: Posters (S)	FF10: Porous Materials				

MRS 1998 Fall Meeting Session Locator

SYMPOSIUM	LOCATION	MONDAY, NOVEMBER 30			TUESDAY, DECEMBER 1		
		a.m.	p.m.	eve.*	a.m.	p.m.	eve.*
GG: Polymeric Materials—Drugs, Delivery & Devices	Essex East (W)	GG1: Polymer Drugs and Hydrogels	GG2: Polymeric Drugs and Delivery Systems	GG3: Posters (W)	GG4: Drug Delivery Systems—Lipid-Based	GG5: Drug Delivery Systems: Nano- and Microparticles	
HH: Tissue Engineering	Essex West (W)	HH1: Localized Patterning for Cellular Response HH2: Bioactive Surfaces	HH3: Orthopaedic & Dental Appl. HH4: Scaffold and Cell Characterization Techniques	HH5: Posters (W)	HH6/II3: Novel Materials, Porous Structures and Tissue Engineering	HH7: Composites for Bone Regeneration HH8: Scaffold Fabric. Methods	
II: Advanced Materials, Coatings, & Biological Cues for Medical Implants	Essex North Ctr. (W)		II1: Biological Cues and Organic/Inorganic Hybirds	II2: Posters (W)	II3/HH6: Novel Materials, Porous Structures and Tissue Engineering	II4: Orthopedic Bearing Surfaces and Novel Coatings	
JJ: Materials in Space—Science, Technology, and Exploration ***Sunday Tutorial Session*****	Berkeley A/B (S)	JJ1: Plenary Session—Key Issues for Materials Science and Space Exploration	JJ2: Mars Pathfinder Mission Results JJ3: Materials and Technologies for Space Exploration I		JJ4: Fundamental Studies for Advanced Materials and Devices JJ5: Microgravity Materials Science I — Fundamental Studies	JJ6: Space Photovoltaic Materials Technology	JJ7, JJ8 Posters (S)
KK: High-Temperature-Ordered Intermetallic Alloys VIII	Commonwealth (S)	KK1: Titanium Aluminides I	KK2: Titanium Aluminides II		KK3: Titanium Aluminides III	KK4: Iron Aluminides	KK5: Posters (W)
LL: Quasicrystals	Gardner A/B (S)	LL1: Phase Stability and Growth	LL2: Mechanical Properties	LL3: Posters (W)	LL4: Electronic and Atomic Structure	LL5: Magnetism, Diffusion, and Atomic Structure	LL6: Posters (W)
MM: Bulk Metallic Glasses	Fairfax A/B (S)				MM1: Atomic and Electronic Structure I	MM2: Atomic and Electronic Structure II	MM3: Posters (W)
NN: Aging of Engineered Systems with Focus on Aircraft	Clarendon A/B (S)	NN1: Aging Aircraft I	NN2: Aging Aircraft II		NN3: Aging Aircraft III	NN4: Aging Aircraft IV	
OO: Properties & Processing of Vapor-Deposited Coatings	Independence East (S)	OO1: Multilayered Coatings OO2: Mechanical Properties	OO3: Properties and Processing of PVD Coatings OO4: Coatings for Harsh Environments		OO5: CVD - Chemistry & Kinetics OO6: Properties and Processing of CVD Coatings and Films	OO7: Properties and Processing of CVD Coatings and Films OO8: Properites and Processing of CVD Diamond	
PP: Recent Advances in Ceramic Matrix Composites	Dalton A/B (S)	PP1: Standard Test Methods, Design Codes and Data Bases for CMCs	PP2: Environmental Effects		PP3: Oxide/Oxide Composites	PP4: Applications and Characterization of CMCs	
QQ: Scientific Basis for Nuclear Waste Management XXII	Republic Ballroom B (S)	QQ1: Glass Processing I QQ2: Glass Processing II	QQ3: Ceramic Corrosion QQ4: Spent Nuclear Fuel		QQ5: Waste Treatment QQ6: Performance Assessment I	QQ7: Repository Backfill QQ8: Flow and Transport	QQ9: Posters (S)
RR: Workshop on Materials Education	Regis/Boston Univ. (M)				RR1: Introductory Materials Science and Engineering Courses	RR2: Multimedia in Matls. Educ. RR3: Hands-On Demo Session	

*Check Poster Session Locator in Program Book ** Check Tutorial Grid Shaded Blocks: No Session

Hotel Reservations

MRS 1998 FALL MEETING • BOSTON, MA

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To assure staying at the conference hotel, make your reservation early. Reservation requests are accepted on a first-come, first-served basis. If the reserved block of rooms is filled, overflow accommodations will be provided through October 30. Rooms may still be available after the cut-off date, but not necessarily at the group rates.

If registering by telephone, refer to the Materials Research Society Meeting to receive the special rates.

Room rates:

Boston Marriott	Westin Hotel/Copley Place	Sheraton Boston Hotel and Towers
❑ $128 Single* • ❑ $142 Double*	❑ $131 Single* • ❑ $148 Double*	❑ $120 Single* • ❑ $132 Double*

plus Massachusetts tax, currently 12.45%

A hotel reservation form is available on the MRS Web site (http://www.mrs.org).

MRS 1998 Fall Meeting Session Locator

WEDNESDAY, DECEMBER 2			THURSDAY, DECEMBER 3			FRIDAY, DECEMBER 4	
a.m.	p.m.	eve.*	a.m.	p.m.	eve.*	a.m.	p.m.
GG							
HH							
II							
JJ9: Microgravity Matls. Science II: Flight Experiments	JJ10: Panel Discussion—Challenges and Opportunities for The Next Millenium **SIMMONS (M)** JJ11: Keynote Session—Mats. Sci. in Space: Mission Specialists **SIMMONS (M)**						
KK6: Silicides	KK7: Niobium Aluminides, Laves Phases and Other Intermetallics	KK8: Posters (W)	KK9: Nickel Aluminides I	KK10: Nickel Aluminides II and Other Intermetallics			
LL7: Hydrogen Storage and Surface Properties	LL8: Applications						
MM4: Glass Forming Ability (GFA) and Thermal Stability	MM5: GFA, Thermal Stability and Magnetic Properties **MEDAL AWARD TALK PRESENTATION**		MM6: Mechanical and Other Properties I	MM7: Mechanical and Other Properties II			
NN							
OO9: Novel Techniques OO10: Properties and Processing of Diamond-Like Carbon	OO11: Properties and Processing of Hard Coatings	OO12: Posters (S)					
PP5: Processing/Consolidation of CMCs							
QQ10: Ceramics I QQ11: Ceramics II	QQ12: Natural Analogues QQ13: Performance Assessment II		QQ14: Container Corrosion QQ15: Glass Corrosion	QQ16: Glass Formulation, Properties, and Structure QQ17: Cements		QQ18: Radionuclide Speciation and Solubility QQ19: Radionuclide Sorption	
RR4: Issues in MSE Education	RR5: Tools in Materials Education						

Symposium Tutorials

AVAILABLE ONLY TO MEETING ATTENDEES

(Details available in Program Book and on the MRS Web site)

Sunday • November 29

BOSTON MARRIOTT HOTEL

Symposium G

1:00 – 5:00 p.m.

FTG: GaN Electronic and Photonic Devices

Room: Salons C/D

INSTRUCTOR:

Michael S. Shur
Rensselaer Polytechnic Institute

Symposium O

8:30 a.m. – 5:00 p.m.

FTO: Ferroelectric Thin Films

Room: Salons H/I

INSTRUCTORS:

Angus I. Kingon
North Carolina State University

Seshu B. Desu
Virginia Polytechnic and State University

Symposium Y

1:00 – 5:30 p.m.

FTY: New Trends in Applications of Plasma Processing of Polymers

Room: Salons J/K

INSTRUCTORS:

Farzaneh Arefi-Khonsari
Laboratoire de Genie des Procedes Plasma ENSCP

Ritalba Lamendola
University of Bari

Hans J. Griesser
CSIRO Molecular Science

Richard Timmons
University of Texas at Arlington

Symposium DD

1:30 – 5:00 p.m.

FTd: Synthesis of Inorganic Materials

Room: Salons A/B

INSTRUCTOR:

Don Murphy
Lucent Technologies Bell Labs Innovations

Symposium JJ

1:00 – 5:00 p.m.

FTj: Materials in Space-Science, Technology, and Exploration

Room: Provincetown/ Orleans

INSTRUCTORS:

Dennis J. Flood
NASA Lewis Research Center

Bruce A. Banks
NASA Lewis Research Center

Geoffrey A. Landis
NASA Lewis Research Center

1998 MRS Fall Exhibit

Boston Marriott Hotel and Westin Hotel/Copley Place

The MRS Exhibit, held in conjunction with the 1998 MRS Fall Meeting, will feature over 205 international exhibitors who will display a full spectrum of equipment, instrumentation, products, software, publications and services for materials research. The exhibit will closely parallel the nature of the technical symposia and, as always, the program has been arranged to allow meeting participants ample opportunity to attend the exhibit. MRS encourages attendees to visit the exhibit by offering coffee breaks, deli-style lunches, and a meeting-wide reception in University Hall.

	Marriott Hotel	Westin Hotel
Tuesday, December 1	11:30 am - 6:30 pm	9:30 am - 5:00 pm
Wednesday, December 2	9:30 am - 5:00 pm	9:30 am - 5:00 pm 7:30 pm - 10:00 pm
Thursday, December 3	9:30 am - 2:30 pm	9:30 am - 1:30 pm

Complimentary Reception will be held in University Hall on Tuesday evening from 5:00 pm to 6:30 pm.

Partial List of 1998 Fall Exhibitors (as of September 21, 1998) ◆ *denotes MRS Corporate Affiliate*

A & N Corporation #U505
707 Southwest 19th Avenue
Williston, FL 32696
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E-mail: sales@ancorp.com
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A&N Corporation has been a manufacturer of high-quality vacuum components for over 30 years. Our product line includes flanges and fittings in the following styles: ISO-KF (QF), ISO-MF (LF), UHV (CF), ASA, tri-seal, vacuum couplings, feedthroughs, vacuum ball valves, and special fabrications. New for 1998: right angle valves, in-line valves and gate valves.

◆ **ABB Extrel #W68**
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Pittsburgh, PA 15238-2838
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