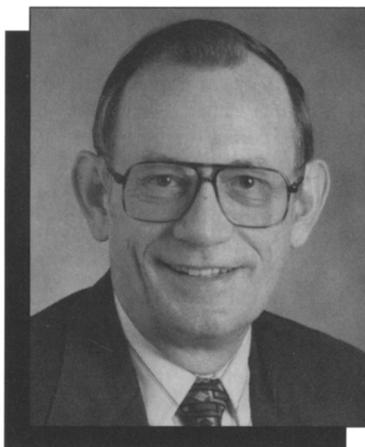


Peercy to Give Plenary Speech on the Future of Semiconductor Materials Research

Paul S. Peercy, president of SEMI/SEMATECH, a consortium of about 200 U.S.-owned and controlled semiconductor equipment and supplier companies, will present the plenary talk at the 1997 MRS Spring Meeting in San Francisco on Monday, March 31, 6:00 p.m., in Salon 7 at the San Francisco Marriott. In his discussion, "Semiconductor Materials Research for the Twenty-First Century," Peercy will elaborate on "projections for the future of the [semiconductor] industry, along with selected future materials and processing research needs."

Recent structural modifications in the semiconductor industry, driven by international competition and the increasing complexity of products and processes, is



Paul S. Peercy

changing the way research and development is handled. Previously, large, vertically integrated companies not only manufactured integrated circuits but also conducted the research of materials, processes, and equipment for integrated circuits. Device manufacturers in the future will outsource materials and processing technology to supplier companies who will incorporate the technology into semiconductor manufacturing equipment.

Peercy received his PhD degree from the University of Wisconsin—Madison in 1966. He was meeting chair for the 1984 MRS Fall Meeting, served two terms as program chair for MRS, and served as councillor and as second vice-president of the Society. MRS

Bowman Receives OYI Award for Work on Polymers

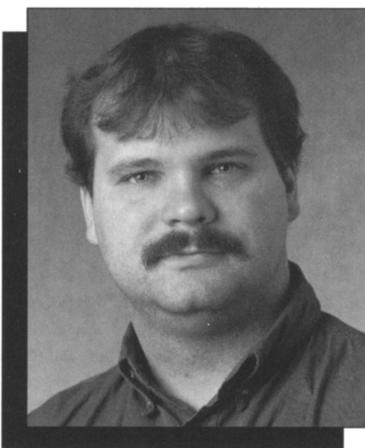
Christopher N. Bowman is the 1997 recipient of the Materials Research Society's Outstanding Young Investigator Award. The University of Colorado chemical engineering professor is cited "for seminal contributions to the field of highly crosslinked polymers, information storage materials, and computational methods in polymerization engineering."

The Outstanding Young Investigator Award recognizes exceptional, interdisciplinary scientific work in materials research by a young scientist or engineer who also displays leadership in the materials area.

Bowman's work focuses on kinetics and reaction engineering of multifunctional monomer polymerizations, preparation of novel membranes with specific active sites for separations, and preparation of microparticles with reactive sites for separations and purifications.

In his early studies, Bowman developed imaginative mathematical models to describe the polymerization reactions of multifunctional acrylates and methacrylates. He introduced the relaxation of the developing macromolecular structure to the kinetic model, and showed that certain phenomena such as volume shrinkage during polymerization can be explained by this relaxation process. Important applications of this work include the production of optical fibers, laser video disks, compact disks, and aspherical lenses. By developing well-characterized, crosslinked polymers, controlling the transport and release of solutes such as drugs, peptides, and proteins through such polymers should be possible.

Bowman has made major advances in understanding the kinetics of polymerization reactions. In a series of papers,



Christopher N. Bowman

Bowman demonstrated that a relaxational process, if coupled with the reactions, leads to chain diffusion dependent on free volume changes. He showed that the relaxation time can be calculated by real kinetic data, and he developed a calorimetric technique to follow the kinetics of fast ultraviolet-curing reactions. He also developed a laser interferometric technique to study the relaxational process. In a typical application, a liquid multifunctional monomer is exposed to light at room temperature and polymerized in seconds to form a densely-crosslinked polymer network.

An advanced kinetic gelation simulation developed by Bowman predicts the evolution of complex microstructures, particularly how the reaction conditions influence this evolution. In recent work, Bowman demonstrated that it is possible to simulate the gelation process in multi-

methacrylate reactions in the presence of micro- and macrocyclization processes by considering diffusion-controlled phenomena. From this simulation, he developed a rational approach to design dental resins with improved properties. The maximum conversion of double bonds in existing dental resins can be increased by adding small amounts of a higher molecular weight monomer.

The increased conversion was achieved without compromising the mechanical strength and dimensional stability of the polymer restoration, and the shrinkage associated with polymerization decreased. Such studies provide pathways to resolve specific issues such as incomplete conversion of double bonds, mechanical strength, and ease of cure that are of such importance to the applicability of photocrosslinked polymers. His biomedical research addresses important aspects of the design, characterization, and evaluation of new dental materials.

Bowman received a BS and PhD degree in 1988 and 1991, respectively, in chemical engineering from Purdue University. He joined the faculty at the University of Colorado in 1992, and was promoted to associate professor three years later.

The OYI Award will be presented to Bowman on Monday, March 31, at 6:00 p.m. at the 1997 MRS Spring Meeting in San Francisco. He will also give a presentation, "Polymerizations and Properties of Polymer Stabilized Ferroelectric Liquid Crystals," at 5:00 p.m. on Wednesday, April 2, in Symposium G at the Meeting. His lecture will focus on understanding how polymers change electro-optic and phase behavior, and how liquid crystals influence the polymerization. MRS

MRS 1997 Spring Meeting

SAN FRANCISCO, CA

MEETING ACTIVITIES

■ Technical Symposia

Twenty-six (26) technical symposia are offered during the 1997 Spring Meeting featuring the latest technological developments in materials science. The program has been designed to include intriguing new topics, all of which promote the interdisciplinary nature of materials science.

■ Symposium Tutorial Program

Available only to meeting registrants, the tutorials will concentrate on new, rapidly breaking areas of research and are designed to encourage the exchange of information by meeting attendees during the symposium.

■ Exhibit

A major exhibit encompassing the full spectrum of equipment, instrumentation, products, software, publications, and services will be held Tuesday through Thursday in Salon 8/9, San Francisco Marriott, adjacent to the technical meeting rooms. Meeting participants are invited to attend a reception on Tuesday evening from 5:00-6:30 p.m. in the exhibit area.

Complimentary coffee will be available during morning and afternoon breaks in the exhibit area, Tuesday through Thursday morning. Box lunches will be available Tuesday through Thursday during the noon break.

■ Poster Sessions

Authors will be available Tuesday through Thursday for in-depth discussions. Complimentary snacks and beverages will be available during these popular sessions.

■ Proceedings

Many symposia from this meeting will publish proceedings. MRS members and meeting attendees may purchase copies of these proceedings at special prepublication prices and receive priority shipment upon publication. Prices will be higher following the meeting. To take advantage of these special prices, order your proceedings while registering for the meeting. For information on nonmember proceedings prices and ordering procedures, contact MRS Member Services.

■ Job Center

A Job Center for MRS meeting attendees will be open Tuesday through Thursday, 8:00 a.m. - 5:00 p.m., in Sierra B/C, 5th Floor, San Francisco Marriott. For additional information, check the MRS Website (<http://www.mrs.org>) or contact: Member Services, Materials Research Society, 9800 McKnight Road, Pittsburgh, PA 15237-6006; 412-367-3004, ext. 402; Fax 412-367-4373; E-Mail: info@mrs.org.

■ Networking Happy Hour

TENTATIVE date: Tuesday, April 1, 7:00 - 8:00 p.m., location to be announced on site. Especially designed for students, postdocs, and other job seekers to meet informally with other MS&E professionals to discuss employment issues. Snacks and beverages will be served.

■ Junior Faculty Forum: Grantsmanship

TENTATIVE date: Monday, March 31, 12:00 noon - 1:00 p.m., location to be announced on site. Box lunches available.

■ Women in Materials Science and Education

TENTATIVE date: Tuesday, April 1, 7:00 - 8:00 a.m., location to be announced on site. Continental breakfast available.

STUDENT OPPORTUNITIES

■ Symposium Aide Positions

Graduate students who plan to attend the 1997 Spring Meeting and are willing to assist in the symposium presentations by operating audio-visual equipment are encouraged to apply for a Symposium Aide position. By assisting in a minimum of four half-day sessions, aides will earn a waiver of the student registration fee, a full-year MRS student membership commencing July 1, 1997, and a small stipend to help defray expenses. Symposium preferences are assigned on a first-come, first-serve basis. To request an application form and/or information, contact MRS Headquarters: (E-mail: info@mrs.org; Fax: 412-367-4373; Phone: 412-367-3003).

■ Student Mixer

All graduate students and members of MRS University Chapters are invited to attend a reception in the San Francisco Marriott (date, time, and location to be announced in the on-site *Meeting Guide*). Student chapters are a vital part of MRS, providing discussion between students and faculty and promoting student interest in materials science. Don't miss this opportunity to meet with others involved in MRS student activities. Consult the MRS Website (<http://www.mrs.org>) for more information.

■ University Chapter Representatives

Chapter officers and faculty advisors are invited to attend a meeting of MRS University Chapter representatives to compare notes on recent activities and brainstorm on new projects and issues of common concern. Anyone interested in starting a new chapter is also welcome (date, time, and location to be announced in the on-site *Meeting Guide*). For more information, contact June Maier, Member Services (maier@mrs.org).

■ Graduate Student Award Finalists' Special Talk Sessions

Check the on-site *Meeting Guide* for the special talk session schedule.

■ Student Tip Sheet

Consult the Student Tip Sheet on the MRS Website (<http://www.mrs.org>) for the latest information about student events at the meeting.

MRS 1997 SPRING MEETING SESSION LOCATOR

SYMPOSIUM	LOCATION	MONDAY, MARCH 31			TUESDAY, APRIL 1		
		a.m.	p.m.	eve.*	a.m.	p.m.	eve.*
A: Amorphous and Microcrystalline Silicon Technology	Golden Gate A2	Tutorial Session	Tutorial Session		A1/G1: Amorphous Silicon Thin-Film Transistors - I A2/G2: Thin-Film Trans. - II	A3: Carrier Kinetics & Density of States in a-Si	A4: Posters
B: Epitaxial Growth - Principles and Applications	Golden Gate C3	B1: Strained Layer Growth - Morpholog. & Compos. Evolution	B2: Defect Formation, Strain Relaxation, & Growth Issues		B3: Survey of Common Themes in Epitaxial Growth - I	B4: Survey of Common Themes in Epitaxial Growth - II	B5: Posters
C: Processing of Compound SCs for High-Speed Devices	Salon 13	C1: Materials and Characterization	C2: Materials and Processing		C3: Processing and Devices		
D: Gallium Nitride and Related Materials	Salon 7				D1: Growth - Mechanisms and Characterization	D2: Processing	D3: Posters
E: Defects and Diffusion in Silicon Processing	Salon 1/2				E1: Defects and Diffusion Phenomena in Si - Impact on Device Processing	E2: Defect Properties and Impurity-Defect Interactions in Si	
F: Rapid Thermal and Integrated Processing VI	Nob Hill B				Tutorial Session	F1: Measurement	
G: Flat Panel Display Materials and Large-Area Processes	Golden Gate A1		Tutorial Session		G1/A1: Amorphous Silicon Thin-Film Transistors - I G2/A2: Thin-Film Transistors - II (Golden Gate A2)	G3: AMLCD Materials and Processes G4: Polysilicon AMLCDs	
H: Organic Electronic Materials and Devices <i>Sunday Tutorial Session</i>	Golden Gate B1	H1: Light-Emitting Devices	H2: Optical Devices		H3: Field-Effect Transistors	H4: Light-Emitting Diodes	H5: Materials Preparation & Characteriz.
I: Polycrystalline Thin Films III	Golden Gate B2	I1: Evolution of Texture and Microstructure - I	I2: Evolution of Texture and Microstructure - II		I3: Grain Boundaries and Interfaces - I	I4: Grain Boundaries and Interfaces - II I5: In-Room Posters	I6: Posters
J: Materials Reliability in Microelectronics VII	Salon 5/6	Tutorial Session	J1: Adhesion and Fracture		J2: Future Interconnect/Copper Reliability J3: Gate-Oxide Growth/Deposition	J4/P3: Surface Preparation and Gate-Oxide Reliability	
K: Multilevel Process Integration	Salon 3				K1: Barriers	K2: Interconnects - I	
L: Epitaxial Oxide Thin Films	Golden Gate C1	L1: Epitaxial Ferroelectrics	L2: HTS Thin Films		L3: Colossal Magnetoresistive Oxide Thin Films	L4: CMR and Magnetic Oxides	L5 - L10: Posters
M: Magnetic Ultrathin Films, Multilayers, and Surfaces	Golden Gate C2	M1: Synthesis, Processing and Characterization	M2: Novel Applications and Approaches for Magnetism		M3: Nano/Microstructure and Magnetic Properties	M4: Structure and Properties - Mixing, Strain, and Steps	
N: Low-Dielectric Constant Materials & Applications in Microelectronics	Golden Gate B3					Tutorial Session	
O: Materials/Failure Analysis for Silicon ULSI Processing	Salon 4					Tutorial Session	
P: Science & Technology of SC Surface Preparation	Golden Gate A3				P1: Megasonic Cleaning P2: R/D Coordination/SC1 Technology	P3/J4: Surface Preparation and Gate-Oxide Reliability (Salon 5/6)	
Q: Thermoelectric Materials - New Directions & Approaches	Salon 14		Q1: Introduction to Thermoelectric Materials		Q2: Artificial Structures - I (Quantum Confinement, etc.) Q3: New Materials - I	Q4: Recent Advances in Bulk Bi ₂ Te ₃ , BiSb and PbTe Res. Q5: Alternative Directions in Thermoelectrics	Q6: Posters
R: Matls. Issues Related to Develop. of Textured High-T _c Superconducting Conductors	Salon 15				R1: Biaxially Textured YBCO Conductors	R2: Processing Issues for Coated Conductors	R3: Posters
S: Materials for Optical Limiting II	Salon 11	S1: Organics - I S2: Organics - II	S3: Inorganics - I S4: Inorganics - II		S5: Photorefractives S6: Liquid Crystals	S7: Organics - III S8: Organics - IV	
T: Computational Materials Science at the Mesoscale	Nob Hill D				T1: Atomistic Approaches to Dislocation Modeling	T2: Dislocation Dynamics	
U: Rapid Prototyping and Solid Freeform Manufacture	Salon 10	U1: Rapid Prototyping and Solid Freeform Manufacturing - I	U2: Rapid Prototyping and Solid Freeform Manufacturing - II		U3: Rapid Prototyping and Solid Freeform Manufacturing - III		
V: Interfacial Effects & Organiz. of Inorg.-Org. Comp. Solids	Nob Hill C	V1: Ordered Micro- and Mesoporous Inorganic Oxides	V2: Mesostructured Inorganic-Surfactant Materials		V3: Inorganic-Organic Thin Films	V4: Heterogeneous Inorganic-Polymer Composites	V5: Posters
W: Metast. & Critical Phenom. in Polymer Phase Behavior	Salon 12	W1: Crystalline Polymers - I	W2: Crystalline Polymers - II		W3: Block Copolymers and Polymer Blends - I	W4: Block Copolymers and Polymer Blends - II	
X: Frontiers of Materials Research	Salon 7		X1			X2	
Y: Materials in Sports and Recreation	Nob Hill A					Y1: Materials in Sailing and Wind Surfing	
Z: Workshop on Specimen Prep. for TEM of Materials IV	Salon 13						

* Evening Poster Sessions: Salon 7

Shaded Blocks = No Sessions

MRS 1997 Spring Meeting Tutorial Program

Sunday • March 30	Monday • March 31	Tuesday • April 1
Symposium H 1:00 – 5:00 p.m. STH: Organic Electronic Materials and Devices Room: Golden Gate B1	Symposium A 8:30 a.m. – 4:30 p.m. STA: Amorphous Silicon Materials and Devices for Large-Area Electronics Room: Golden Gate A2	Symposium F 8:00 a.m. – 12:00 noon STF: Rapid Thermal and Integrated Processing Room: Nob Hill B
	Symposium G 1:30 – 5:00 p.m. STG: Flat Panel Display Materials and Large-Area Processing Room: Golden Gate A1	Symposium N 1:00 – 5:00 p.m. STN: Low-Dielectric-Constant Materials for B.E.O.L. High-Performance Integrated Circuits Room: Golden Gate B3
	Symposium J 8:30 a.m. – 12:00 noon STJ: The Role of Mechanical Properties and Microstructure in the Reliability of Advanced Microelectronic Interconnect Systems Room: Salon 5/6	Symposium O 1:00 – 6:00 p.m. STO: Diagnosis of ULSI Circuits Room: Salon 4

WEDNESDAY, APRIL 2			THURSDAY, APRIL 3			FRIDAY, APRIL 4	
a.m.	p.m.	eve.*	a.m.	p.m.	eve.*	a.m.	p.m.
A5: Microcrystalline Silicon	A6: Growth A7: Hydrogen		A8: 20th Anniversary of the Staebler-Wronski Effect	A9: Solar Cells A10: Alloys	A11: Posters	A12: Devices A13: Hot-Wire Deposition	
B6: Epitaxial Growth Kinetics - Si and SiGe Alloys	B7: Epitaxy of Metastable Alloys and Other Compounds						
C							
D4: Doping/Contacts	D5: Devices		D6: Quantum Structures and Theory	D7: Characterization	D8: Posters	D9: Growth Substrates	
E3: Transient-Enhanced Diffusion E4: Low-Energy Implants and Shallow Junctions	E5: Defect Evolution in Ion-Implanted Si E6: Modeling of TED and Defect Evolution - I	E7: Posters	E8: Diffusion Mechanisms in Si E9: Gettering Procedures and Mechanisms	E10: Interaction Between Point and Extended Defects E11: Effect of Pressure and Strain on Defect Properties	E12, E13: Posters	E14: Defect Migration and Agglomeration at Low Temperature E15: Modeling of TED and Defect Evolution - II	
F2: RTCVD F3: Modeling and Manufacturing Issues	F3: Modeling and Manufacturing Issues (cont'd)		F4: Integrated Processing F5: Silicides	F6: Annealing and Defects F7: Dielectrics - I		F8: Dielectrics - II F9: RTP of III-V Materials and Other Novel Applications	
G5: Novel Materials and Systems G6: Liquid Crystal and Filter Materials	G7: FEDs - I G8: FEDs - II 5:00 PM Outstanding Young Investigator Oral Presentation	G9, G10, G11: Posters	G12: Phosphor Materials G13: Nanocrystals and EL	G14: Novel Approaches to Phosphors G15: Phosphor Materials and Processing			
H6: Device Reliability and Degradation	H7: Optical/Transport Properties	H8: Posters					
I7: Characterization and Representation	I8/J7: Microstructure, Texture and Reliability	I9: Posters	I10: Polycrystalline Si and SiGe Films - I	I11: Polycrystalline Si and SiGe Films - II			
J5: Gate Stack and Oxide Interfaces J6: Oxide Degradation and Defects	J7/I8: Microstructure, Texture and Reliability (Golden Gate B2)	J8: Posters	J9: Novel Measurement Techniques J10: Electromigration Modeling	J11: Electromigration and Microstructure J12: Stress & Stress Relaxation			
K3: Silicides K4: Interconnects - II	K5: Interconnects - III K6: In-Room Posters						
L11: Substrates for Oxide Epitaxy	L12: Oxide Structure and Growth						
M5: Nanoscale Magnetic Confinement, Particles, and Arrays	M6: Magnetization Reversal and Domain Structure	M7: Posters	M8: Synchrotron Radiation Studies of Magnetic Materials	M9: Magneto-Optical Properties, Effects and Measurements	M10: Posters	M11: Spin-Dependent Transport - CMR and Tunneling	M12: Inter-layer Coupling & Spin Polariz
N1: Organic and Inorganic Dielectrics	N2: Interfaces and Porous Materials		N3: Measurement and Characterization	N4: Vapor-Deposited Materials		N5: Fluorinated Oxides and Polyimides	
O1: Microcontamination	O2: Metrology and Defectivity	O3: Posters	O4: Materials and Process Characterization	O5: Failure Analysis		O6: Emerging Analytical Methods	
P4: CMP/CMP Cleaning P5: Post-Etch Processing	P6: Surface Microroughness P7: Wet Chemical Cleaning and Gate-Oxide Integrity	P8: Posters	P9: Analytical Studies of Surfaces P10: Wet Chemical Cleaning/Etch.	P11: Dry Wafer Cleaning P12: Environmentally Friendly Processing			
Q7: Artificial Structures - II (Quantum Confinement, etc.) Q8: Skutterudites	Q9: New Materials - II Q10: Silicides		Q11: Industry & Application Interest in New Thermoelectric Materials Q12: Govt. & Military Interest in New Thermoelectric Materials	Q13: New Materials - III Q14: Thermoelectrics Panel Discussion - New Directions and Approaches			
R4: Critical Currents, Pinning, and Grain Boundaries	R5: Processing of Deposits, BSCCO, and New Materials	R6: Posters					
S9: Characterization S10: Devices & Beam Propagation		S11: Posters					
T3: Microstructural Evolution	T4: Process Modeling	T5: Posters	T6: Mechanical Behavior and Materials Properties	T7: Linking Computational Length and Time Scales		T8: Atomistic Simulation Methods and Results	
U							
V6: Structure-Directed Condensation Processes	V7: Inorg.-Organic Interac. in Sol-Gel, Silicon Carb., & Polymeric Sys.						
W5: Liquid Crystalline Polymer Systems - I	W6: Liquid Crystalline Polymer Systems - II		W7: Metast. Polymer Structure/Patterns I	W8: Metast. Polymer Structure/Patterns II			
X	X3			X4			
Y2: Developments in Cars and Bicycles	Y3: Skiing, Baseball and Other Activities - Innov. Mats. & Designs						
Z	Z1	Z2: Posters					

LOCATION/LODGING/TRAVEL

San Francisco Marriott Hotel
55 Fourth Street
San Francisco, CA 94103

Rate: \$130/Single* • \$150/Double*
*plus 14% City Tax

(800) 228-9290 Nationwide
(415) 896-1600 Main Desk
(415) 442-6755 Reservations
Reservation Fax (415) 442-0141

Deadline for Hotel Reservations: March 1, 1997

A block of rooms has been reserved for MRS meeting attendees at the San Francisco Marriott Hotel (30 minutes from the San Francisco International Airport). When making your reservations, mention the Materials Research Society to receive the special rate.

Airline Transportation

The official travel management company for the Materials Research Society's 1997 Spring Meeting is Giselle's Travel Bureau. They will guarantee the lowest fares on any airline at time of booking. **Call Giselle's, 800-523-0100, Monday through Friday, 7:30 a.m. - 5:30 p.m. PST; or Fax 916-565-0936, and mention the Materials Research Society's meeting.**

MRS meeting attendees receive the following travel benefits and services: • Lowest fares on any airline guaranteed • Computerized driving instructions from major U.S. airports upon request • Car rental savings

Local Transportation

The San Francisco Airporter service is available between the airport and downtown San Francisco hotels.



San Francisco Marriott Hotel, Salon 8 and Salon 9, Tuesday—Thursday, April 1—3, 1997

The MRS Exhibit, held in conjunction with the 1997 MRS Spring Meeting, will encompass the full spectrum of equipment, instrumentation, products, software, publications and services for materials research. As always, the exhibit will closely parallel the nature of the technical symposia. The technical program has been arranged to allow meeting participants ample opportunity to visit the exhibit, and MRS encourages attendees to visit the exhibit by scheduling coffee breaks, deli-style lunches, and a meeting-wide reception in exhibit hall.

Exhibit Hours:

Tuesday, April 1	11:30 a.m. - 6:30 p.m. Complimentary Reception from 5:00 p.m. - 6:30 p.m.
Wednesday, April 2	9:00 a.m. - 5:00 p.m.
Thursday, April 3	9:00 a.m. - 1:30 p.m.

Partial List of 1997 Spring Exhibitors (as of January 10, 1997) ♦ denotes MRS Corporate Affiliate

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Northridge, CA 91324
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Fax: 818-727-9477
E-mail: aol@chemat.com

Chemat Technology specializes in sol-gel and MOCVD technologies. We supply a full line of products used in sol-gel and MOCVD processes, from precursors (metal alkoxides) to equipment (dip-coater and spin-coater). Our technical staff will work with you to find appropriate precursors and processes for your applications. Chemat also offers sol-gel R&D effort and custom coating. Other products include unique ultrahigh surface area powder (up to 500 m²/g).

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Fax: 703-548-7405

E-mail: csc@ionbeam.com

Commonwealth Scientific Corporation (CSC) is the leader in ion beam technology, manufacturing a complete line of ion beam sources and systems for surface modification processes including nitriding, dry etching and thin film deposition. CSC will be displaying their complete line of DC and RF ion sources ranging from 3 cm to 38 cm in diameter.

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E-mail: crksd@aol.com

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E-mail: specs@cryomech.com

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E-mail: rebecca@dca.fi

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Fax: 609-439-9111

E-mail: j_campbell@dentonvacuum.com

http://www.dentonvacuum.com

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◆ Digital Instruments, Inc.

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Fax: 805-899-3392

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