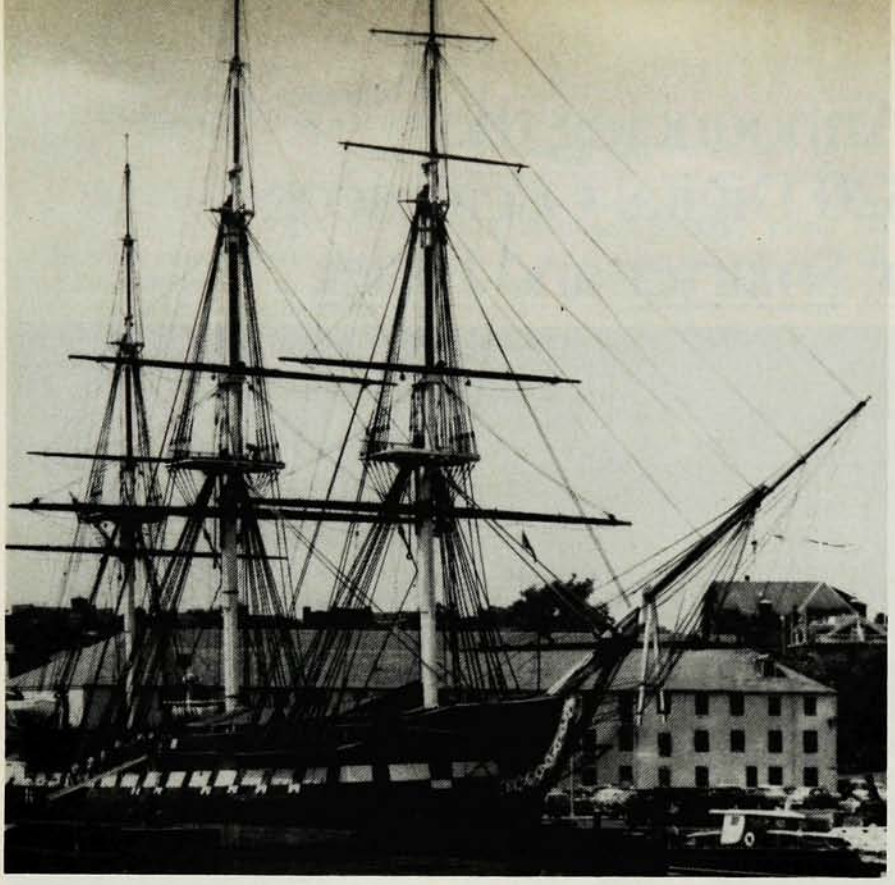

MRS meets in Boston

MRS hosts 22 technical symposia, as well as short courses, equipment exhibits, award presentations and a job-placement service.

The 1985 annual meeting of the Materials Research Society will be held 2–7 December at the Boston Marriott–Copley Place and Westin hotels, both located near Copley Square. More than 1250 papers (including approximately 270 invited papers) will be presented in 22 technical symposia, making this the Society's largest technical program. Attendance is expected to be in excess of 2400 scientists and engineers from the US and 35 foreign countries. Topics will include beam–solid interactions and phase transitions; rapid thermal processing, semiconductor-on-insulator and thin-film transistor technology; beam-induced chemical processes; thin films—interfaces and phenomena; transport and excitation in polymers; biomedical materials; layered structures and epitaxy; phase transitions in condensed systems; rapidly solidified alloys and their mechanical and magnetic properties; oxygen, carbon, hydrogen and nitrogen in crystalline silicon; defect properties and processing of high-technology nonmetallic materials; oxides, zeolites and clays in catalysis; fractal aspects of materials; nonlinear optical materials; defects in glasses; materials problem solving with the transmission electron microscope; computer-based microscopic description of the structure and properties of materials; cement-based composites—strain-rate effects on fracture; fly ash and coal conversion byproducts—characterization, utilization and disposal; frontiers in materials research; and frontiers in materials education. Registration for the meeting will be conducted as follows: Sunday, 1 December, 4 pm to 9 pm; Monday, 2 December, 7 am to 9 pm; Tuesday through Thursday, 3–5 December, 7:30 am to 5 pm; and Friday, 6 December, 7:30 am to noon.

CAHN

Special sessions and short courses

In addition to the technical sessions there will be two special sessions to which all meeting participants will be invited. The plenary session will be held on Wednesday evening. Gerold Yonas, Chief Scientist and Acting Deputy Director of the Strategic Defense Initiative Organization, will speak on "Materials for SDI."

At the formal awards ceremony on Monday evening, the Society will present the 1985 Arthur Von Hippel Award to John W. Cahn (National Bureau of Standards) for his achievements in materials research. Cahn received his PhD from the University of California at Berkeley in 1953. He taught at the University of Chicago (1952–54) and became a member of the research laboratory at General Electric

in 1954. During this time he wrote a series of classic papers with John Hilliard in which they derived the Cahn–Hilliard equation for determining the free energy of nonuniform systems; in addition they determined the necessary conditions for spinodal decomposition and nucleation in phase transformations. Cahn then turned his attention to the thermodynamics of phase separation. He derived what is now called the Cahn equation for diffusion along high concentration gradients; it has since been experimentally verified. In 1964 Cahn accepted a position as professor of metallurgy at MIT; he went to NBS in 1978. At MIT and NBS, Cahn's research has included studies of

Invited papers

MONDAY

morning

Pulsed laser interactions with condensed matter. *N. Bloembergen*

Femtosecond dynamics of highly excited semiconductors. *C. V. Shank*

Dynamics of molecule–surface interactions. *H. Walther*

Nonlinear optics and surface science. *Y. R. Shen*

Completing initial reactions at transition metal–Si interfaces. *G. W. Rubloff*

Electronic structure of silicide–silicon interfaces. *O. Bisi*

Dopant redistribution during silicide formation. *I. Ohdomari*

Role of reptation in polymer metallurgy. *P. G. deGennes*

Dynamics of entangled star and cyclic polymers. *J. Klein*

Forced Rayleigh scattering and its applications to polymer diffusion. *H. Yu*

Latest developments in laser materials processing. *B. L. Mordike, H. W. Bergmann*

Glass formation by solid-state reactions. *W. L. Johnson*

Keynote lecture. *J. B. Wachtman*

Chemistry and ceramic processing. *H. K. Bowen*

Flaw formation during sintering: The role of heterogeneities. *A. G. Evans, C. H. Hsueh, C. Ostertag*

Strategies for characterizing new mixed oxides and microporous, microcrystalline materials. *J. M. Thomas*

Characterization of basic oxides used as catalysts, matrices and supports. *F. S. Stone*

Tutorial on fractals for the beginner: Part 1. *R. F. Voss*

Tutorial on fractals for the beginner: Part 2. *D. W. Schaefer*

Properties of Laplacian fractals for dielectric breakdown in 2 and 3 dimensions. *H. J. Wiesmann*

Application of TEM to defects in semiconductors. *J. M. Brown*

Contributions of electron microscopy to understanding reactions on compound semiconductor surfaces. *T. Sands*

Research–technology interface in the fly-ash–concrete regime. *G. M. Idorn*

Fly ash beneficiation in theory and in practice, and influence of processed ash on properties of concrete. *W. B. Butler, M. A. Mearing*

afternoon

Collision cascades, ionization spikes and energy transfer. *W. L. Brown*

Transitions between condensed phases in Si and Ge. *D. Turnbull*

Amorphization, crystallization and related phenomenon in silicon. *J. S. Williams*

Phase formation and ion-beam mixing. *J. W. Mayer, M. Nastasi*

Diffusion modeling of ion-implanted impurities. *A. E. Michel*

Transient enhanced diffusion in heavily doped silicon. *S. J. Pennycook*

Epitaxial growth of transition-metal silicides on silicon. *L. J. Chen*

MBE growth of epitaxial insulator–semiconductor on silicon. *L. J. Schowalter, R. W. Fathauer*

Electronic properties of epitaxial calcium fluoride–silicon structures. *T. P. Smith III, J. M. Phillips, R. People, J. M. Gibson, L. Pfeiffer, P. J. Stiles*

Diffusion of liquid-crystal polymers. *S. F. Edwards*

Diffusion measurements of linear and and three-arm star polymers by small-angle neutron scattering. *B. Crist, C. R. Bartels*

Direct measurement of forces between polymer layers. *M. Tirrell*

Electronic structure and glass formability in metallic glasses. *R. Hasegawa*

Formation of quasicrystals in rapidly solidified Al alloys. *R. J. Schaefer, L. Bendersky*

High-resolution TEM studies of precipitation in crystalline Si. *A. Bourret*

Accommodation volume need associated with SiO_2 precipitate growth: A causal factor in understanding "nucleation." *T. Y. Tan*

Computer simulation of defect properties and processes at high temperature. *J. H. Harding*

Structure of dislocations and interfaces in nonmetallic crystalline materials. *C. B. Carter*

Solid-state chemistry of methane oxidation catalysts. *J.-X. Wang, J. H. Lunsford*

Nature of temporal hierarchies underlying relaxation in random materials. *J. Klafter, M. F. Shlesinger*

X-ray and neutron scattering from regular fractals. *P. W. Schmidt, X. Dacai*

Generation of anomalous noise in fractal interfaces produced by diffusion of intercalations. *B. Sapoval*

Formation of fractal cracks in a kinetic fracture model. *Y. Termonia, P. Meakin*

Optically induced defects in amorphous SiO_2. *M. Kastner*

Theory of point defects in amorphous SiO_2. *A. H. Edwards*

Atomic arrangement at semiconductor heterojunction interfaces. *F. A. Ponce*

Ion implantation and near-surface examination. *P. S. Sklad*

Characterization of inorganic constituents in coal. *R. B. Finkelman*

TUESDAY

morning

Kinetics of pulsed-laser-melted semiconductors: Effects of impurities and orientation. *M. O. Thompson*

Time-resolved spectroscopy of plasma resonances in highly excited silicon and germanium. *A. M. Malvezzi, C. Y. Huang, H. Kurz, N. Bloembergen*

Extended defects in rapid thermally annealed silicon. *D. M. Maher, R. V. Knoell, M. B. Ellington, R. Hull, D. C. Jacobson, D. C. Joy*

Role of organometallic precursor properties on rates of laser-induced metal deposition. *C. R. Jones, T. Baum, C. Moylan*

Laser direct-write metallization in inorganic and organometallic films. *M. E. Gross*

Measurement of polymer diffusion by fluorescence redistribution after pattern photobleaching. *B. A. Smith*

Self-diffusion in polymer systems, measured with pulsed-gradient spin-echo NMR method. *E. D. von Meerwall*

Relation between transport and physical aging of polymeric glasses. *H. B. Hopfenberg*

Small-diameter vascular graft: A biomaterials challenge. *A. S. Hoffman*

Novel approaches to blood compatibility problems. *H. K. Yasuda*

Interfacial defects and epitaxy. *R. C. Pond*

Rapidly solidified titanium alloys. *F. H. Froes.*

Rapidly solidified aluminum alloys. *J. R. Pickens*

Structure and properties of the oxygen donor. *L. C. Kimerling*

Electronic structure and atomic symmetry of the oxygen donor in silicon. *M. Stavola*

Magnetic resonance of oxygen-related defects in silicon. *J.-M. Spaeth*

Infrared studies of thermal donors. *P. Wagner*

Ion-beam and laser mixing of metal overlayers on silicon carbide and silicon nitride. *J. Narayan*

Design principles for microwave heating and sintering. *W. R. Tinga*

Formation mechanism, structure and surface properties of pillared (Al_{13}) beidellite. *A. Schutz, G. Poncelet, W. E. Stone, J. J. Fripiat*

Fractals in colloid aggregation. *D. A. Weitz, M. Y. Lin, J. S. Huang*

Fractal behavior in ore deposits. *K. Kubik*

Fractal dimension for self-affine (non-isotropic) surfaces. *B. B. Mandelbrot*

Partial filling of a fractal structure by a wetting fluid. *P. G. de Gennes*

Cross-linked chain-cluster model for low-dimensional Si_xSe_{1-x} inorganic polymer glasses. *J. E. Griffiths*

Elastic properties of glasses. *M. F. Thorpe*

Defects in glass studied by computer simulations. *S. A. Brawer*

High spatial resolution microanalysis. *A. J. Garrett-Reed*

Electron-energy-loss fine-structure analysis of carbides and nitrides. *M. Disko*

Symmetry determination for analysis of second phases. *J. A. Eades*

Impurity-atom site location using electron channeling effects on x-ray production at low temperature: Cold ALCHEMI. *J. C. H. Spence, D. Shindo*

Diffusion measurements by analytical electron microscopy. *A. D. Romig*

Relationship between pozzolanic activity and mineralogy, morphology and chemical properties of fly ashes. *R. C. Joshi, R. L. Day, V. M. Malhotra, G. G. Carette*

Materials education: Evolution and outlook. *M. Cohen*

Metals–materials dichotomy: Real or apparent. *I. M. Berstein*

Approaches to an integrated education in materials science and engineering. *M. C. Flemings*

Pedagogical theories, strategies, curricula and new materials appropriate to education for materials research. *R. Roy*

continued on next page

phase stability, precipitation, ordered alloys, the thermodynamics and kinetics of interfaces, and applications of the theory of stressed solids to such phenomena as diffusional creep. Very recently, Cahn, Dan Shechtman (Technion, Haifa), Denis Gratias (Centre d'Études de Chimie Metallurgique, Vitry, France) and Ilan Blech (Technion) proposed the existence of a quasicrystalline phase to explain the fivefold symmetric point diffraction pattern they obtained for a sample of rapidly cooled metallic alloy grains (see PHYSICS TODAY, February 1985, page 17).

MRS will also present 15 graduate-student awards for outstanding contributions to research in an area of interest to one or more of the meeting symposia.

MRS will offer 14 short courses on topics in advanced research techniques, including ion implantation and rapid thermal annealing; deep-level transient spectroscopy; sol–gel processing of glass; applications of reflection electron diffraction to epitaxial growth; ion-beam modification of nonsemiconductors; surface and thin-film analysis; liquid-phase, vapor-phase and molecu-

afternoon

Pulsed-laser melting of graphite. *G. Braunstein, J. Steinbeck, M. S. Dresselhaus, B. S. Elman, T. Venkatesan, B. Wilkens, D. C. Jacobson*

Amorphous Ga produced by pulsed-excimer-laser irradiation. *J. Fröhlingsdorf, B. Stritzker*

An overview and comparison of rapid-thermal-processing equipment. *S. R. Wilson, R. B. Gregory, W. M. Paulson*

Rapid thermal processing for integrated circuit applications. *S. Shatas*

Device implications of rapid thermal processing in VLSI technology. *P. K. Vasudev*

Crystal growth. *K. A. Jackson*

Crystalline films on amorphous substrates by zone melting and surface-energy-driven grain growth in conjunction with patterning. *H. I. Smith*

Stability of thin-film amorphous-metal alloys. *F. W. Saris*

Polyacetylene, $(CH)_x$: The prototype conducting polymer. *A. G. MacDiarmid*

Conducting organic polymers with inorganic backbones. *T. J. Marks*

Charge transport in transpolyacetylene: The role of solitons. *G. L. Baker*

Phtalocyanine-based conductive polymers: Simple narrow-band transport mechanism. *M. A. Ratner*

Biomaterials in opthalmology: A generalists' overview. *J. M. Lee*

Recent developments and future directions on biomedical polymers for ocular implants. *E. P. Goldberg*

Surface-active biomaterials. *L. L. Hench, J. Wilson-Hench*

Initial stages of epitaxy studied by UHV electron microscopy. *K. Takayanagi, Y. Tanishiro, S. Takahashi, K. Yagi*

Characterization of epitaxial films and interfaces by ion shadowing and blocking. *E. J. van Loenen, P. M. J. Maree, A. E. M. J. Fischer*

Metallic epitaxy. *G. A. Prinz*

Mechanical properties of rapidly solidified nickel-base superalloys and intermetallics. *A. I. Taub*

Status and potential of rapid solidification of magnesium alloys. *F. Hehmann, H. Jones*

A perspective on the revival in Sol-Gel science and technology. *R. Roy*

Compositional control of ceramic microstructures: An overview. *M. P. Harmer, H. Chan, D. M. Smyth*

Hydroisomerization activity of nickel-substituted mica montmorillonite. *R. A. van Santen*

Electron–fraction interfacing. *R. L. Orbach*

Engineering surfaces as fractals. *A. P. Thomas, J. R. Thomas*

Fractal-like exciton kinetics in grain boundaries, embedded aggregates, plugged pores and powder interfaces. *R. Kopelman, L. A. Harmon, E. I. Newhouse, S. J. Parns, J. Prasad*

Metallic networks of fractal structure. *Y. Gefen, I. Goldhirch, R. B. Laibowitz*

Mössbauer evidence for wrong bonds. *P. Boolchand*

Fluoride glasses for optical applications. *W. B. Sibley*

Ternary phase diagram determination by AEM. *M. Raghavan*

Use of symmetry in the TEM analysis of second phases. *U. Dahmen, K. H. Westmacott*

High-resolution Moiré imaging of small precipitates. *W. Kesternich*

High-resolution electron microscopy studies of precipitate growth at the atomic level. *J. M. Howe, H. I. Aaronson, R. Gronsky*

Small-particle analysis in steels. *J. R. Michael*

University–industry interaction education: Education for entrepreneurship. *J. J. Harwood*

Materials science in the electronics industry. *P. Chaudhari*

Materials education and the national laboratory. *S. Hecker*

evening

On the biocompatibility of high-technology materials. *D. F. Williams*

Areas of need for future biomaterials research. *J. E. Lemons*

WEDNESDAY

morning

Kinetics, microstructure and mechanisms of ion-beam induced-epitaxial crystallization of semiconductors. *R. G. Elliman, J. S. Williams, W. L. Brown, S. T. Johnson, R. V. Knoel, D. M. Maher*

Silicides and rapid thermal annealing. *F. M. d'Heurle*

Photon- and electron-beam processing of microelectronic films. *Z. Yu, G. J. Collins, R. Solanki*

Photon-assisted dry etching of GaAs. *R. M. Osgood, P. Brewer, W. Holber, J. Chu, J. Chen*

Silicide–silicon interface states. *E. S. Yang, X. Wu, H. L. Evans, P. S. Ho*

Electrical transport in thin silicides films. *J. C. Hensel*

Novel mechanisms for energy and charge transport in conjugated polymers. *A. J. Heeger*

Expanding family of polymeric metals and semiconductors. *R. L. Elsenbaumer*

Theoretical search for intrinsically conducting organic polymers. *J. L. Bredas*

Electronic structure of highly doped conducting polymers. *M. Kertesz*

Spectroscopic evidence for polarons in poly(3-methylthiophene). *G. Harbeke*

Giant orbital polymers and their electroactivity. *H. A. Pohl*

Magnetic relaxation and structural transformation in metallic glasses. *R. C. O'Handley*

Rapidly solidified alloys for permanent magnets. *G. C. Hadjipanayis*

Solubility and diffusivity of oxygen in silicon. *J. C. Mikkelsen Jr*

Point defects in silicon. *J. L. Lindstrom*

Gettering of impurities in semiconductors. *A. Ourmazd*

Impurity interactions with dislocations in silicon. *K. Sumino*

Problems associated with active-ion distributions in solid-state laser materials. *R. C. Powell*

Nonstoichiometry and processing of materials for guided-wave optics. *R. Holman*

Glass optical guided-wave technology. *T. Miyashita*

Trends and developments in synthesis of zeolites. *G. T. Kerr*

Theory of ballistic aggregation. *L. M. Sander*

Morphology of ballistically aggregated surface deposits. *R. Messier, J. E. Yehoda*

Defects and the photodarkening process in chalcogenide glasses. *P. C. Taylor*

Color centers in optical-fiber waveguides. *E. J. Friebele*

HVEM-induced crystalline-to-amorphous transitions in Ti-based alloys. *A. R. Pelton, P. Moine, R. Sinclair*

Numerical statistical mechanical techniques for calculating materials properties. *B. Berne*

Structural, electronic and magnetic properties of metallic surfaces, interfaces and superlattices. *A. J. Freeman*

Mechanisms of catalytic reactions. *W. A. Goddard III*

Structure and dynamics of point defects in silicon. *R. Car*

Scientific basis for effective fly ash disposal. *I. P. Murarka*

Safety of fly ash in various utilization options. *T. Anthony*

Polymer education in materials science and engineering. *E. L. Thomas*

Ceramic-engineering education. *D. W. Readey*

afternoon

Metastable alloy formation by ion irradiation of evaporated thin films. *F. W. Saris*

Formation of icosahedral Al(Mn) by ion-beam mixing. *J. A. Knapp, D. M. Follstaedt*

Transient thermal processing of GaAs. *S. J. Pearton*

Recent advances in SPE recrystallization of SOS films with applications to high-speed CMOS and bipolar devices. *P. K. Vasudev*

Formation of epitaxial SOI structures using alkaline-earth fluoride films. *H. Ishiwara, T. Asano*

MOS circuits on silicon–boron phosphide–silicon multilayers. *D. J. Dumin*

Electrical properties of epitaxial silicide–silicon interfaces. *R. T. Tung, A. F. J. Levi, J. M. Gibson, K. K. Ng, S. D. Kevan, G. P. Schwartz, D. C. Joy, A. Chantre*

Schottky–barrier formation at the episilicide-Si interface. *M. Liehr, P. E. Schmid, F. K. LeGoues, P. S. Ho*

Organic polymer batteries: Applications of the physics of electronic and ionic transport. *L. W. Shacklette*

Expanding applications horizon for conducting organic polymers. *T. A. Skotheim*

Clinical and laboratory experience with use of titanium and type-318 Ti-alloy for bone and joint replacement. *J. T. Scales*

New developments in mechanical behavior of ceramics: Transformation toughening. *A. H. Heuer*

lar-beam epitaxy; vacuum technology; materials aspects of silicon devices; electronic properties of amorphous semiconductors; processing–microstructure–mechanical property relationships in metals; and films and coatings for engineering applications.

Further information about the meeting may be obtained from John B. Ballance at 9800 McKnight Road, Suite 327, Pittsburgh, PA 15237; telephone (412) 367-3003.

Equipment show and job placement

More than 70 companies will display analytical and processing equipment at the annual equipment exhibit. The show will open to meeting participants on Tuesday and Wednesday, 9 am to 5 pm; and on Thursday, 9 am to 2 pm.

MRS will also offer a job-placement service, which will arrange interviews between job seekers and employers attending the meeting; the center will be open Tuesday through Thursday, 9 am to 5 pm. Individuals wishing to obtain an employment-candidate form may contact Beverly Citrynell, AIP, 335 East 45th Street, New York, NY 10017; telephone (212) 661-9404. □

Processing reliability of structural ceramics. *F. F. Lange*

Zeolite acidity: Influence of structural and chemical environment. *D. Barthomeuf*

Nonlinear optical processes in organic and polymer structures. *A. F. Garito*

Materials requirements for photorefractive volume holographic optical devices. *A. R. Tanguay*

Optical measurements of properties of photorefractive impurities for device design. *R. W. Hellwarth*

Defects in gel-derived glasses. *C. J. Brinker, D. R. Tallant, E. P. Roth*

Detection and imaging of supported catalyst particles. *M. M. J. Treacy*

High-spatial-resolution microanalysis of catalyst particles. *C. E. Lyman*

Study of surface phonons by electron-energy-loss spectroscopy: Theory of excitation cross sections. *D. L. Mills*

Hydrogen diffusion in and on metals. *J. Doll*

Computer simulation of electron-microscope images from atomic structure models. *W. Krakow*

Influence of strain rate on fracture of concrete. *F. H. Wittmann*

Concrete- and fiber-reinforced concrete subjected to impact loading. *S. P. Shah*

Interdepartmental materials science and engineering graduate program. *H. Marcus*

THURSDAY

morning

Silicon on insulator structures formed by oxygen on nitrogen implantation. *P. L. F. Hemment*

Effects of implantation, anneal and epitaxial growth conditions on oxygen- and nitrogen-implanted SOI. *H. W. Lam, B-Y. Mao, C. Slawiński, P. H. Chang, C. E. Chen, M. Matloubian*

Ion–surface interactions during growth of thin films from vapor phase. *J.-E. Sundgren, J. E. Greene*

Applications of laser linking to wafer-scale integration. *G. H. Chapman, B. L. Emerson, J. I. Raffel*

Ion-beam-induced silicide formation: Markers and moving species. *L. S. Hung, J. W. Mayer*

Formation of GaAs ohmic contacts by using ion beam mixing. *S. Furukawa, H. Ishiwara, K. Tsutsui*

Characterization of $Al_xGa_{1-x}As$/GaAs interfaces. *T. S. Kuan*

Energy transport in polymer systems. *C. W. Frank*

Intramolecular energy transport in polymers. *S. E. Webber*

Electronic excitations in polymeric semiconductors. *S. Etemad*

Photoconductivity in polymers. *P. M. Borsenberger*

Mechanistic studies on the uv laser ablation of PMMA and polystyrene at 193 nm and 248 nm. *R. Svinivasan, B. Braren*

Bioelectrodes for neuroprostheses. *F. T. Hambrecht*

Semiconductor quantum-well structures. *L. L. Chang*

Electron microscopy of superlattices. *P. Petroff*

New superlattice structures and tunable band discontinuities: From band-gap engineering to interface engineering. *F. Capasso*

Theoretical methods for calculating electronic and optical properties of semiconductor superlattices. *J. N. Schulman*

Emergence of modern nucleation theory. *J. W. Cahn*

Carbon in crystalline silicon. *R. C. Newman*

Role of carbon and point defects in silicon. *U. Gosele*

Hydrogen in crystalline Si. *S. J. Pearton*

Quantum-well structures for nonlinear optics. *A. C. Gossard*

Optical nonlinearities of composite materials. *D. Ricard, P. Roussignol, C. Flytzanis*

From Hamiltonians to phase diagrams. *J. Hafner*

Dynamics of glasses and the glass transition. *A. Angell*

Pseudopotential calculations of structural properties of solids. *M. L. Cohen*

Structural properties of transition-metal compounds and alloys. *O. K. Anderson*

Strain-rate effects on tensile strength of concrete as predicted by thermodynamic and fracture mechanics models. *H. W. Reinhardt*

afternoon

Defects in epitaxial silicon films on insulators. *J. M. Gibson*

Microchemistry of the silicon oxide–silicon interface. *C. R. M. Grovenor*

Electrical characterization of crystallized silicon thin films. *N. M. Johnson*

Process and device considerations for small-grain polysilicon MOS transistors. *H. Shichijo, S. D. S. Malhi, R. Sundaresan, S. K. Banerjee, H. W. Lam*

Reactions and interdiffusion at III–V compound semiconductor–metal interfaces. *L. J. Brillson*

Refractory silicide Schottky contacts to GaAs. *N. Yokoyama, T. Ohnishi, H. Nishi*

New processing methods for development of radiation-patterned images in polymeric materials. *G. N. Taylor*

Polymers in advanced lithography. *G. Willson*

Ion-induced reactions in polymer films. *G. Foti*

Strained-layer superlattices. *L. Dawson*

Ion-beam studies of strained layer superlattices. *T. Picraux*

Identification of the metallic glass state. *F. Spaepen*

Nitrogen in silicon. *T. Abe*

Nitrogen in crystalline silicon. *H. J. Stein*

Nitridation-induced reactions in silicon. *R. J. Jaccodine*

Bulk and waveguiding nonlinear organic structures for long- and short-pulse parametric effects. *J. Zyss*

Progress and novel concepts in inorganic nonlinear optical materials. *R. L. Byer*

Fracture and flow via nonequilibrium molecular dynamics. *W. Hoover*

Interatomic forces and structure of grain boundaries. *V. Vitek*

Reconstruction of semiconductor surfaces. *K. C. Pandey*

Dynamic compressive strength of cementitious material. *L. E. Malvern, T. Tang, D. A. Jenkins, J. C. Gong*

evening

Special-purpose processors for computing materials properties. *L. Bakker*

Materials by design: A hierarchical approach to the design of new materials. *J. Eberhardt*

Computer modeling in industrial research. *K. A. Jackson*

FRIDAY

morning

Assessment of silicon-on-insulator technologies for VLSI. *B.-Y. Tsaur*

Integration of semiconductor and magnetic-bubble devices: SOI on garnet. *D. W. Greve*

Fabrication process, application and future for an elemental-level vertically integrated circuit. *T. Enomoto*

Microelectrochemical devices based on the functionalization of microelectrode arrays with redox polymers: New kinds of diodes and transistors. *M. S. Wrighton, G. P. Kittlesen, E. W. Paul, J. W. Thackeray, H. S. White*

Metallic and semiconducting organic polymers: Recent results and prospects for the future. *R. H. Baughman*

Field-induced effects and their application for inorganic charge-transfer complexes. *R. S. Potember*

Nonlinear optics of conjugated polymers: Materials preparation, properties, and application. *S. Triphaty*

Piezo- and pyroelectricity of polymers: Fundamentals to applications. *M. G. Broadhurst*

Solution-grown polymer electrets. *J. I. Scheinbeim*

What can we predict before it is implanted? *D. F. Gibbons*

Equally strained Si–SiGe superlattices on Si substrates. *E. Kasper, H. J. Herzog, T. Ricker*

Multilayer x-ray mirrors. *E. Spiller*

Diffusion in crystalline and amorphous solids. *D. Lazarus*

Overview of nonlinear optical materials requirements from a DOD device perspective. *B. G. Kushner*

Nonlinear optical crystals grown in microgravity. *W. C. Egbert, D. J. Gerbi, D. A. Ender, E. L. Cook*

Structure-effect relation between anionic group and SHG in boron-oxygen compounds, together with the search for new type SHG materials. *C. Chuangtian, W. Bochang, J. Aidoing, Y. Guiming, W. Yicheng, L. Rukang*

Dynamics of long-chain aggregates. *J. Haile*

Calculation of resistivity and superconducting transition temperature of D-band elements. *P. B. Allen*

Microscopic phenomena of macroscopic consequences: Interfaces, glasses and small aggregates. *U. Landman*

afternoon

Contacts and metallization for VLSI. *A. K. Sinha*

Elastic properties of metal superlattices. *T. Tsakalakos*

Crystal-growth mechanisms and kinetics. *M. E. Glicksman* □