

SAN JOSE WILL HOST AVS IN OCTOBER

The 44th national symposium of the American Vacuum Society will be held from Monday, 20 October, through Friday, 24 October, in San Jose, California. San Jose's proximity to Silicon Valley has motivated several special sessions, tutorials and focus areas in this year's meeting. On the eve of the meeting, Sunday, 19 October, the AVS plasma science and technology division will sponsor an all-day symposium dealing with ultra-large-scale integration technology. To commemorate the 50th anniversary of the invention of the transistor, consultant Jack Kilby will speak at the plenary session on Monday at 12:30 pm about the history of the integrated circuit. That same afternoon there will be a session honoring the 100th anniversary of the discovery of the electron.

A special symposium on magnetic recording technology will run from Wednesday afternoon through Friday morning. Special topical conferences in this year's program will focus on quantitative surface analysis (Monday), flat panel displays (Monday through Wednesday) and microelectromechanical systems (Wednesday and Thursday). On Monday evening at 6:30, there will be two tutorials, on silicon-on-insulator and heterodyne-photodetection technologies. Tuesday evening will feature workshops on flat panel displays and on solutions to charging problems.

The technical sessions have been organized by the interdisciplinary divisions and groups of AVS: applied surface science, biomaterial interfaces, electronic materials and processing, magnetic interfaces and nanostructures, manufacturing science and technology, nanometer-scale science and technology, plasma science and technology, surface science, thin film, vacuum metallurgy and vacuum technology. A full program of short courses will run in parallel with the technical sessions, from 8:30 am to 5 pm on Monday through Friday.

In addition, the surface science division will hold a postdeadline discovery session on Thursday evening at 8.

The talks, courses and poster sessions will be held in San Jose's McEnery Convention Center and in nearby hotels. The Fairmont Hotel will be the headquarters hotel.

Job hunting skills will be discussed at the career services workshop on Sunday from 6 to 9 pm by Steven Brieger, a consultant at ETAK (a subsidiary of SONY Corp), and Ed Goldin, manager of career services at the American Institute of Physics. A job information forum at noon on Tuesday will feature a panel of scientists from industrial labs, government labs and academic institutions. The AVS Job Center will be open from Monday through Wednesday, from 9 am to 5 pm, in the convention center.

A key part of the AVS meeting will be the exhibit of equipment and services, to be held in exhibit halls 2 and 3 of the convention center. The show will be open on Tuesday from 11 am to 7 pm, on Wednesday from 9 am to 5 pm and on Thursday from 9 am to 3 pm.

At the AVS awards assembly and reception on Wednesday at 6 pm in the Fairmont Hotel, the society will gather to honor a number of individuals and their contributions to the discipline.

AVS will bestow its Medard W. Welch Award on **Phaedon Avouris** for "his seminal contributions to the understanding of the chemistry of semiconductor surfaces and for his development of the STM [scanning tunneling micro-

scope] as a tool for probing and inducing surface chemical reactions with atomic scale resolution and control." Avouris is a manager of nanometer-scale science and technology at IBM's Thomas J. Watson Research Center in Yorktown Heights, New York.

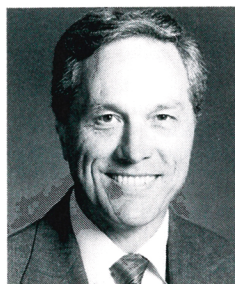
The Albert Nerken Award will go to **John C. Helmer**, who retired in 1994 from Varian Associates in Palo Alto, California. The citation praises "his many significant contributions to research on molecular beams, masers, cross-field discharges and plasmas, gas flow in molecular and transition regimes, ion-getting and hybrid turbomolecular pumps, and ultra-high vacuum and surface science instrumentation."

James M. E. Harper

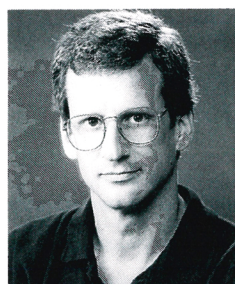
will garner the John A. Thornton Memorial Award and Lecture for "his pioneering research on ion beam deposition and sputtered thin films." Harper, the manager of the thin film metallurgy and interconnection in the silicon technology department at IBM's Thomas J. Watson Research Center, will deliver his lecture on Wednesday morning.

Brian S. Swartzentruber will receive the Peter Mark Memorial Award for "pioneering studies of atomic-scale, kinetic and thermodynamic aspects of the morphology of Si [silicon] surfaces, and significant innovations in scanning tunneling microscopy that make such measurements possible." Swartzentruber is a senior member of the technical staff in the interface science department at Sandia National Laboratories.

AVS's John L. Vossen Memorial Award, established last year for high school or middle school science teachers, will go to **Robert A. Shaner**, who teaches chemistry and physics for the school district in Grand Rapids, Michigan. The award recognizes "his demonstration experiment to examine the



JAMES M. E. HARPER



B. SWARTZENTRUBER



PHAEDON AVOURIS



JOHN C. HELMER

vapor pressure of water as a function of temperature."

The George T. Hanyo Award for outstanding performance in technical support of research or development, also created last year, will go to **Mark H. Engelhard**, a senior technical specialist at Pacific Northwest National

Laboratory. Among other projects, Engelhard has used an electrochemical cell connected to a Phi 560 spectrometer to study stress corrosion cracking and set up a laboratory to allow Auger analysis of radioactive materials.

The Nellie Yeoh Whetten Award for women graduate students will be given

to **Catherine B. Labelle**, a student at MIT. Two other graduate students—**Philip G. Clark Jr** of Harvard University and **Kimberly L. Turner** of Cornell University—are in contention for the Russell and Sigurd Varian Fellowship, and the awardee will be announced at the meeting. ■

Sessions with Invited Speakers

Monday, 20 October

morning

Advances in surface microscopy. *Warwick*
Ultra thin silicon oxides: Interface structure and kinetics. *Lucovsky*
Technology challenges for optical communications. *Li, Bowers, Mito, MacChesney, Booth*
Structure and magnetism of surfaces and interfaces. *MacKay, Kneeder, Stiles*
Contamination-free manufacturing I. *Ohmi*
Friction and nanoscale tribology. *Spencer*
Plasma sensors. *Surendra, Booth*
Plasma damage. *McVittie, Giapis*
Self-assembled monolayers and solid-liquid interfaces. *Philpott*
Metal oxide surface science I. *Freund*
Atom and vacancy diffusion on surfaces. *Zhu*
Thin films and processes for flat panel displays. *King, Bardsley, Robbins*
Issues in scale-up of coating processes and design of multifunctional films. *Munz, Bachrach, Mattox, Bright*
Ion methods. *Ratner, Simons, Malherbe*

afternoon

Applications of synchrotron radiation. *Fischer-Colbrie*
Ultra thin silicon oxides: Growth and electro characterization. *Garfunkel*
Critical issues in wide band nitrides. *Ploog, Steigerwald*
Magnetic spectroscopies. *First, Sinkovic*
Nanowires and electronic properties of materials. *Agrait, Chien*
Flat panel plasma sources & processes. *Williamson Jr, DeMaray*
Nucleation and growth on semiconductors. *Swartzentruber*
Atmospheric and environmental surface science. *Hemminger*
Flat panel emissive displays and oxides. *Warren, Hilgers*
Pulsed laser ablation and ion beam processes. *Alexander, Proskurovsky*
Contamination-free manufacturing II. *Dylla, Menon, Martinez*
XPS. *Fadley, Castle*
The discovery of the electron in 1897. *Redhead, Koijane, Gomer, Dylla, Lagally*

Tuesday, 21 October

morning

Depth profiling and analysis. *Tyler*
Surface characterization of biological materials. *Leckband, Grobny*
Role of hydrogen at semiconductor surfaces and interfaces. *Van de Walle*
Magnetic device technology. *Johnson, Everitt, Moodera*
Process and defect characterization for semiconductors. *Diebold*
Nanomechanics and adhesion. *Houston*
Novel plasma sources & systems. *Uchida*
Chamber cleaning and downstream processing. *Graves*
Gas-surface dynamics. *Holloway*
Diffusion and nucleation of molecules and clusters. *Fichthorn*
Hard coatings. *Zabinski*
ULSI interconnects and metallization I. *Biberger*
Structures & materials for field emission & vacuum microelectronics. *Geis*

afternoon

Practical aspects of quantification, data handling and standards. *Wildman, Gaarenstroom*
Biomolecule-solid surface interactions. *Mazzola, Sleytr*
Semiconductor surface chemistry: Making and breaking covalent bonds at surfaces. *Chidsey*
Photonic and electronic materials and processing. *Choquette*
Thin films and nanostructures. *Awschalom, Fullerton*
Partnerships in R&D for manufacturing science. *Cavin, Lemnios, Glaze, Masnari*
Compound semiconductor etching. *Fletcher*
Pulsed plasma material processing. *Matyi, Lieberman*

Surface photochemistry and dynamics. *Guyot-Sionnest*
Step dynamics and film growth on silicon. *Altman*
ULSI interconnects and metallization II. *Kaloyeros*
Pressure and beam effects on FPDs and vacuum microelectronics. *Clayton, Temple*

Wednesday, 22 October

morning

Polymer films and modified polymer surfaces. *Gardella Jr*
Cell solid surface interactions. *Curtis, Aizawa*
Organic materials for microelectronics, optoelectronics and flat panel displays. *Salaneck*
Micromagnetics: Modeling and imaging. *Zhu, Silva*
Modeling of processes and equipment. *Meyyappan*
Near-field optics and nanoparticles. *Bawendi*
Plasma reaction mechanisms. *Meeks*
Activation and dynamics of reactions. *Madix*
Electronic effects in structural studies. *Avouris*
Semiconductor thin films. *Harris, Harper*
Pumping, flow rate, and outgassing measurements. *Tison*
Packaging and assembly/materials issues. *Brown, Martin, Goodson*

afternoon

Biosensor-biology interface. *Fromherz, Yager*
Organic materials for microelectronics, optoelectronic, flat panel displays. *Fichou, Forrest*
Magnetic recording technology: Processing issues. *Yamashita, Sanders*
Nanomechanical sensors. *Gimzewski*
Oxide etching: Aspect ratio dependent etching and selectivity. *Cook*
Electronic structure: Modified surfaces and interfaces. *Hamann*
Reactions on model catalysts. *Niemantsverdriet*
Mechanical properties of thin films. *Evans*
In situ characterization. *Aita*
Vacuum gauging and partial pressure measurements. *Ellefson*
Surface properties/microanalysis. *Bousse, Maboudian, Anderson*

Thursday, 23 October

morning

New approaches of established techniques. *King*
SiGe heterostructures. *Eberl, Chu*
Ionized PVD. *Hopwood*
Plasma surface interactions I. *Tachibana*
Reaction kinetics at surfaces. *Wintterlin*
Facets, phase transitions, and surface reconstruction. *Bonzel*
Modeling of thin film deposition. *Berg, Wadley*
Ex-situ characterization II. *Baumann*
Microstructure development. *Oechsner*
Vacuum MEMS. *Henning, Anderson*
Magnetic recording materials: Advanced media and heads. *Re, Lambeth, Gurney, Mundt*

afternoon

Hard disc processing issues I. *Martner, Segar*
In situ sensors and metrology. *Sullivan, George*
Plasma surface interactions II. *Chang*
Energetic depositions. *Rabalais*

Friday, 24 October

morning

Hard disc processing issues II. *Chung, Vurens, Homola*
Process fundamentals for microelectronics. *Shankar, Borucki*
Real-time process control. *Butler, Hansmann*
Low-K dielectric and organic plasma processes. *Fraser*
Electronic ceramic thin films. *Helmersson*