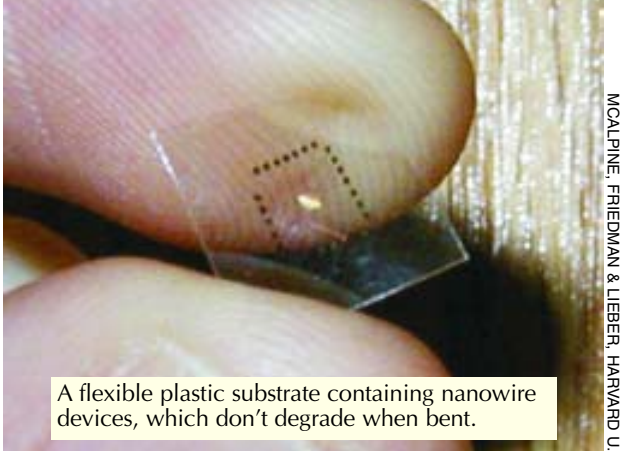
Plasma Science, Thin Films, and Nanotech Dominate AVS Symposium



A flexible plastic substrate containing nanowire devices, which don't degrade when bent.

MCALPINE, FRIEDMAN & LIEBER, HARVARD U.

Do you care about the future of solar power development? Are you curious about the potential applications of structural DNA nanotechnology? Want to know more about gas flow and pump technology?

These topics and scores of others of interest to the vacuum science community are part of the agenda for the 52nd International Symposium of AVS, the Science and Technology Society. This year the five-day annual meeting, which includes an awards ceremony, is slated for Sunday, 30 October, through Friday, 4 November, at the Hynes Convention Center in Boston.

"The Crossbar Architecture for Nanoelectronics" is the topic of this year's plenary symposium lecture by R. Stanley Williams, an H-P senior fellow at Hewlett-Packard Laboratories in Palo Alto, California. Williams's talk, at noon Monday in Ballroom A of the convention center, will focus on the "crossbar latch," a promising nanometer-scale alternative to the transistor. The symposium schedule also includes dozens of lectures, conferences, presentations, and discussions each day. Another highlight is the ASTM Plenary Lecture, which takes place at 2:00pm Sunday in the Hampton Room at the Sheraton Boston Hotel. Susan J. Kerber of Material Interfaces Inc will discuss the application of standards for surface analysis by photon, electron, and ion emission or reflection in manufacturing.

On Wednesday, symposium attendees will gather at 6:15pm in Ballroom A of the convention center for the awards ceremony and reception. Four scientists are being recognized for their accomplishments in the field.

Charles S. Fadley, advanced light source professor for the physics department at the University of California, Davis, and the materials sciences division of Lawrence Berkeley National Laboratory, will receive the Medard W. Welch Award for 2005. He is being honored "for the development of novel techniques based on photoelectron spectroscopy and synchrotron radiation, and their application to the study of the atomic, electronic, and magnetic structure of surfaces and buried interfaces."

Stan Veprek, retired professor, chair, and director of the Institute for Chemistry of Inorganic Materials at the Technical University Munich in Germany and a visiting principal scientist at the Singapore Institute of Manufacturing Technology, will receive the 2005 John A. Thornton Memorial Award and Lecture. He is being recognized "for the generic design concept of strong and hard materials as well as their deposition as thin films by plasma assisted techniques."

Jane P. Chang, associate professor in the chemical and biomolecular engineering department at the University of California, Los Angeles, is receiving the Peter Mark Memorial Award "for pioneering work in the synthesis, processing and characterization of novel materials for applications in microelectronics and optoelectronics."

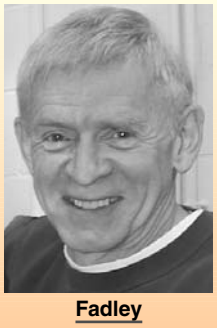
C. R. Brundle of C. R. Brundle & Associates of Soquel, California, a consultant and instructor in surface and thin film analytical methods, will receive the Albert Nerken Award "for pioneering early development in the field of electron spectroscopy, and sustained applications to surface science and a wide range of industrial materials characterization issues."

Poster sessions are 5:00pm Monday and 4:00pm Tuesday in Exhibit Halls C and D; technology exhibits are noon to 7:00pm Monday, 10:00am to 6:00pm Tuesday, and 10:00am to 4:00pm Wednesday, also in Exhibit Halls C and D.

Students who plan to attend will be interested in the job information forum at noon Tuesday in the Sheraton Hotel's Independence Ballroom. Four speakers from academia, national laboratories, industry, and nontraditional science careers will discuss how they acquired their jobs and how they have developed their careers. The forum is open to all symposium students and postdoc attendees. A student mixer is planned for 7:00pm Monday at popular nightspot Kings' Deville Lounge at 10 Scotia Street in Boston.

For attendees who are bringing spouses or friends, a companion lounge will open at 7:00am daily Monday through Thursday at the Sheraton's Turning Point Lounge, and daily tours of various sites around the Boston area will be offered. For more information and to register, visit http://www2.avs.org/symposium/boston/registration.html.

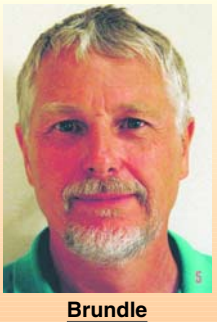
Karen H. Kaplan



Fadley

Veprek

Chang



Brundle

Sessions with Invited Speakers

Sunday, 30 October

afternoon

Renewable and Alternate Energy. *Lewis, Barnett, Schmidt, Zawodzinski*
Biomaterials Interfaces Plenary Session. *Ratner, Engel, Xie*

Monday, 31 October

morning

Nanocomposites and Coatings with Enhanced Thermal Stability. *Veprek, Voevodin, Bobzin*
Catalytic Chemistry of Hydrocarbons. *Kawai*
Oxide Surface Structure and Characterization. *Pacchioni*
Nanoscale Analysis: Biomaterial and Other Applications. *Dunn, Hartschuh, Diebold*
Processing and Characterization of Materials for MEMS & NEMS. *Auciello*
Nanowires. *Lieber*
Plasma Diagnostics. *Hershkowitz*
Thin Films for Photovoltaic and Energy Applications. *Richter*
Electronic Properties of High-*k* Dielectrics and Their Interfaces. *Robertson*
Novel Approaches in Wide-Bandgap Semiconductors. *Skowronski, Allerman*
DNA Structures and Surfaces. *Seeman, Levicky, Heller*
BioMaterials and Neutrons (BioMaN) I. *Steitz, Blasie, Kuhl*

afternoon

MAX Phases: Nanolaminates and Nanomechanical Measurements. *Barsoum, Hultman, Sproul*
Catalysis for the Hydrogen Economy. *Chorkendorff*
Nanotribology. *Salmeron*
Electron Spectroscopies. *Pireaux*
Materials and Processes for Bio-MEMS and Bio-NEMS. *Payne*
Nanometer Scale Assembly. *Nuzzo, Jacobs*
Dielectric Etch I. *Hudson*
Silicon Etching. *Paterson*
Focused Beam Processing and Fabrication. *Liang, Melngailis*
High-*k* Dielectric Growth and Processing. *Chang, Wilk*
Science of Semiconductor White Lighting. *Wetzel, Achermann, Fischer*
DNA Detection and Sensing. *Corn*
Biomaterials and Neutrons (BioMaN) II. *Chen, Byron, White, Rheinstädter, Anderson*

Tuesday, 1 November

morning

Total and Partial Pressure Gauging. *Tilford*
Hard Coatings and Wear Mechanisms of Protective Coatings. *Berg, Sawyer*
Vibrational Spectroscopy of Surfaces. *Trenary*
Defects on Oxide Surfaces. *Besenbacher, Diebold*
Magnetic Nanostructures, Surfaces, and Interfaces. *Shi, Qiu, Haskel, de Jongh*
Surface Characterization of Organic and Biological Systems. *Dyer, Sjovall*
Micro and Nano Fabrication Techniques for MEMS and NEMS. *Busnaina, Schwab*
Nanoscale Electronic Devices and Detection. *Jiang, Kouwenhoven, Mamin*
Plasmas in Bioscience. *Fisher, Rossi, Lopez*
Plasma Surface Interactions I. *Winters*
Atomic Layer Deposition—Oxides. *Hwang*
Defects, Interfaces, and Surface Passivation in Electronic Materials. *Strzhemechny, Zahn*
DNA Surface Characterization. *Gamble, Petrovykh, Georgiadis*
High-*k* Dielectric Characterization. *Gustafsson, Bennett*

afternoon

Compound Semiconductors. *Erwin*
Tribology, Adhesion, and Friction. *Perry*
Magnetization Dynamics. *Beschoten, Zhang, Hillebrands*
Ultrafast Surface Dynamics. *Heinz, El-Sayed*
Advanced Manufacturing Processes for Silicon Devices. *Grynkewich*
Atomic Layer Deposition—Metals. *Gordon*
Growth and Characterization of ZnO. *Osinsky*
Spin Injection. *Parkin, Hall*
Sensors/Diagnostics. *Whitten*
Bottom-Line Benefits from Sustainable Business Practices. *Gips, Paydos*

Wednesday, 2 November

morning

Growth and Alloying of Surfaces. *Brune, McGrath*
Gas Flow and Pump Technology. *Hinkle*
Self-Assembled Monolayers. *Allara*
Reactions on Metals and Oxides. *Kiskinova*
Magnetic Imaging and Spectroscopies. *L'abbe, Pietzsch, Fadley*
Essential Tools for Surface Analysis. *Gaarenstroom, Graham*
Magnetic Imaging and Spectroscopies. *Murday, Rueckes, Quake, Von Ehr*
Nanometer Scale Imaging. *Reichling, Grutter*
Plasma Enhanced CVD and ALD. *Kinoshiter, Leeser*
Advanced Gate-Stack Fabrication. *Chan*
Mechanical and Tribological Properties of Thin Films. *Spaepen*
Contacts to Organic and Molecular Devices. *Baldo*
In-Situ/Ex-Situ and Real-Time Monitoring. *Chabal, Levi, Hoffmann*
Protein–Surface Interactions. *Hook*
Biomembranes and Spectroscopy. *Zhang, Wiseman*

afternoon

Surface Structure and Morphology Modification. *Madey*
Hydrogen, Outgassing, and Vacuum Systems. *Outlaw, Hjörvarsson*
Organic Film Growth and Characterization. *Richardson*
Reactions on Nanoclusters. *Freund*
Magnetic Semiconductors. *Furdyna, Jonker*
SIMS Cluster Probe Beams and General Topics. *Magee, Garrison*
Metrology and Process Control for Advanced Manufacturing. *Norasetthekul*
Nanopatterning and Manipulation. *Stroscio*
Atmospheric Plasmas and Microdischarges. *Korzec, Tachibana*
Fundamentals of Thin Films. *Abelson*
Contacts to Semiconductors. *Schultz*

Thursday, 3 November

morning

Water-Surface Interactions. *Wandelt*
Functionalization of Semiconductor Surfaces. *Boland*
Reactivity of Bimetallic Surfaces. *Koel*
Advanced Magnetic Storage and Manufacturing Processes. *Ando, Cyrille, Gaidis*
Thin Film Characterization. *Feldman*
Nanotube–Based Devices. *Ishibashi, Appenzeller*
Process Equipment Modeling. *Nanbu*
Optical Thin Films. *Hodgkinson, Hendrix, Chipman*
Heteroepitaxy and Low-Dimensional Structures. *Goorsky, Petroff*
BioMEMS and Microfluidics. *Palmore*
Sugars at Surfaces. *Seeberger*

afternoon

Transport and Structural Stabilization of Surfaces. *Miranda*
Gas–Surface Reaction Dynamics. *Morris*
Magnetic Oxides. *Leighton*
Nano Processing. *Eriksson*
Emerging Plasma Applications. *Monaghan, Giapis*
Plasma Sources and Equipment. *Yeom*
Transparent Conducting Oxides. *Fan, Moodera*
Organic and Molecular Optoelectronics. *Bulovic, Thompson, Tessler*
Dilute Nitrides and Small-Bandgap Semiconductors. *Walukiewicz, Wanlass*
Bionanotechnology. *Jeon*

Friday, 4 November

morning

Surface Modification Through Etching. *Kolasinski*
Electronic Structure of Surfaces. *Rotenberg*
Biosensors and Biomagnetism. *Whitman, Hoffmann*
Practical Methods and Applications for Surface Analysis. *Fletcher*
Nanotube Processing and Properties. *Hata*
Thin Films on Flexible and Polymer Substrates. *Wagner, Lewis*
Organic Electronic Devices. *Roichman, Jackson* ■