



Golden Anniversary for AVS

AVS: The Science and Technology Society will commemorate 50 years of AVS symposia at the international symposium and exhibition that will run from 2 November through 7 November at the Baltimore Convention Center in Maryland. More than 3000 scientists and engineers will gather to celebrate this anniversary through a rich program of technical and plenary sessions, with both a nod to the past and a look toward the future of vacuum science and related technologies.

In parallel with the technical sessions scheduled, there will be topical conferences and special sessions on a range of topics that include contacts to organic materials, high- k gate dielectrics and devices, homeland security, quantitative surface analysis, sputtering, and biomaterials.

To mark the occasion, a series of special anniversary plenary sessions has also been scheduled. To stimulate debate on the direction science and technology may take in this century, speakers have been asked to anticipate the scientific and technical issues that will be central to future AVS symposia.

Keynote speaker Elwood "Woody" Norris will deliver the symposium plenary lecture on Monday at 12:15 PM. Norris, chairman and CEO of American Technology Corp, will talk about

"Invention and Innovation: Gathering Insights from the Future to Make Life Better."

Shekhar Borkar, an Intel Fellow who directs circuit research at the company's microprocessor research lab, is the 50th anniversary keynote speaker. He will give a talk entitled "Delaying 'Forever': The Future of Moore's Law" at 12:15 PM on Tuesday.

The conference awards assembly will be held at 6:15 PM on Wednesday. At the ceremony, AVS will present its Medard W. Welch Award to **Matthias Scheffler** for "developing density functional theory methods to describe surface chemical reactions and enabling their widespread use." Scheffler directs the theory department at the Fritz Haber Institute in Berlin, Germany.

Peter B. Barna will receive the Albert Nerken Award for his "seminal contributions in the use of in situ electron microscopy for the characterization and understanding of microstructural evolution and texture development during thin film growth." He is a scientific adviser in the Research Institute for Technical Physics and Materials Science at the Hungarian Academy of Sciences in Budapest.

The winner of the John A. Thornton Memorial Award and Lecture is **William D. Sproul**. He is being hon-

ored for his "seminal contributions to the science and technology of sputtering." Sproul is a senior scientist at Advanced Energy Industries Inc in Fort Collins, Colorado.

Charles H. Ahn will receive this year's Peter Mark Memorial Award. Ahn, assistant professor in the applied physics and physics departments at Yale University, is being recognized for "pioneering work on epitaxial complex oxide thin film heterostructures."

The George T. Hanyo Award will go to **Ernest A. Sammann**, a research engineer in the Frederick Seitz Materials Research Laboratory at the University of Illinois at Urbana-Champaign. He is being acknowledged for "maintenance, optimization, and development of a suite of complex analytical instruments at peak performance for hundreds of researchers."

New at the equipment and technology exhibition this year are workshops that will include lectures, demonstrations, and hands-on activities offered by experts from participating companies. The exhibition will be open Tuesday from 11:00 AM to 7:00 PM, Wednesday from 9:00 AM to 5:00 PM, and Thursday from 9:00 AM to 3:00 PM.

For more information about the conference, see <http://www.avs.org/symposium/baltimore/default.asp>.



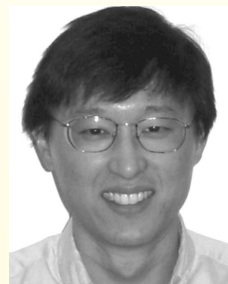
Scheffler



Barna



Sproul



Ahn



Sammann

Sessions with Invited Speakers

Sunday, 2 November

morning

Workshop on sputtering. *Berg, De Gryse, Kools*

afternoon

Workshop on sputtering. *Petrov, Scholl, Anders, Hopwood*
Biomaterials plenary session. *Nilsson, Lundstrom, Whitesides*

Monday, 3 November

morning

Protein-surface interactions. *Grainger*
Looking back: Fifty years of vacuum science and technology. *Kornelsen, Redhead, Welch, Hablani, Dylla*
Critical dimension etching. *Gottscho*
Quantum dots and nanoscale devices. *Klimov*
Electronic properties of high-*k* dielectrics and their interfaces. *Wilk, Miyazaki*
Contacts to molecules and molecular films I. *Cahen, Frisbie*
Advances in quantitative surface analysis. *Castle, Geller, Winograd*
Heteroepitaxy of wide-bandgap semiconductors. *Doolittle*
Modern challenges in surface engineering. *Robertson, Harrison, Cui, Schneider, Sproul*
Practical surface science. *Burrell*
Gas-surface dynamics. *Kay*
Catalysis I: Adsorption and reactions of small molecules at surfaces. *Scheffler*
Surface diffusion and wetting. *Swartzentruber*
Atomic layer deposition. *Ritala, Gordon*

afternoon

Non-fouling surfaces and biolubrication. *Kingshott, Spencer*
Challenges in advanced materials and new processes for semiconductor manufacturing. *Chong, Richardson, Shadman, Xi, Miller*
Where next for nanotechnology? *Hays, Hu, Tirrell, Tour, Randall*
Plasma sources. *Chen*
MEMS etching. *Gianchandani*
Magnetic recording and magnetoresistive structures. *Minor, Yuasa*
High-*k* dielectric stability. *Chang, Stemmer, Garfunkel*
Contacts to molecules and molecular films II. *Bredas*
Thin-film metrology. *Brundle, Seah*
Defects and interfaces in electronic materials and devices. *Bradley, Rosenwaks*
Hard coatings: Preparation, properties, wear, and nanotribology. *Vlcek*
Stimulated processes at surfaces. *McFarland*
Tribology, adhesion, and friction. *Israelachvili*
Structure and reactivity of metal clusters. *Goodman*
Atomic layer deposition and low-*k*. *Rossnagel, Travaly*

Tuesday, 4 November

morning

Cell/surface interactions. *Garcia, Dufrene*
Nanowires. *Yang*
Packaging and role of interface engineering in IC processing. *Hosack, Ho, Kelber, Suo, Murali*
Information. *Cremer, Craighead, Simmons, Goldstein, Stormer*
Plasma diagnostics: Processing. *Donnelly*
Plasma-enhanced chemical vapor deposition. *Schmitt, Shiratani*
Magnetic imaging and magnetic spectroscopies. *Smith, Schneider, Gamelin*
High-*k* dielectric growth and processing. *Bersuker*
Molecular and organic films and devices: Electronics. *Sirringhaus, Bao*
Development and characterization of MEMS and NEMS materials. *Butler*
Narrow-gap semiconductors. *Bennett, Chen, Schaff*
Nanostructured, nanocomposite, and functionally gradient coatings. *Mitterer*
Water at interfaces I: Structure and electrochemistry. *Searson, Schlossman*
Catalysis II: Hydrocarbons at metal surfaces. *Zaera*
Nucleation and growth. *Reutt-Robey*
Thin films on organic, polymeric, and biological substrates. *Jackson, Dibbs*

afternoon

Nanoscale patterning and lithography. *McClelland, Guarini*
Directions in semiconductor device scaling for the next decade. *Puhakka, Wisniewski, Trybula, Nishi, Huff*
Electronic materials. *Tu, Van de Walle, Holloway, Harper*
Dielectric etch. *Dalton*
Self-assembly and nanomagnetism. *Farle, Ross*
High-*k* dielectric characterization. *Stesmans, Cartier*
Molecular and organic films and devices: Optoelectronics. *Duggal, Ballato*
Fabrication and characterization of MEMS devices. *Livemore*
Compound semiconductor growth and processing. *Creighton*
High-temperature protective coatings. *Inspektor*
Biomaterials characterization. *Beebe Jr*
Water at interfaces II: Adsorbed layers. *Feibelman, Salmeron*

Surfaces and interfaces of semiconductors and compound materials. *Osterwalder*
Organic functionalization of semiconductor surfaces. *Wayner*
Transparent conducting oxides. *Wager*

Wednesday, 5 November

morning

Cell interactions with patterned surfaces. *Chen*
Nanomechanics. *Pethica, Jarvis*
Homeland security. *Mackay, Hallowell, Fainberg*
Surfaces, processing, and materials. *Ertl, Kushner, Craford, Tanaka*
Current-induced magnetic switching and excitations. *Zangwill, Sun*
Bionanoscale analysis: Theory to experiment. *Brooks*
Molecular electronics. *McEuen, Kagan*
New frontiers in microsystems: NEMS and BioMEMS. *Sekaric, Desai*
Multifunctional electronic materials. *Ahn, Kirchoefer*
Dynamic vacuum systems. *Berg*
High-*k* materials interface analysis. *Lucovsky*
Sensors, metrology, and control. *Adomaitis, Boning*

afternoon

Biomolecular surface science and microfluidics. *Hitchcock, Manz*
Nanotribology. *Dickinson*
Detection of explosives and other chemicals for homeland security. *Swager*
Future issues in electronics and optoelectronics. *Tsao, Stolka, Flatté, Gossard, Isberg*
Mechanisms in plasma-surface interactions. *van de Sanden*
Atmospheric plasmas and micro discharges. *Terashima*
Magnetic thin films. *Allongue*
Properties of carbon nanotubes. *Suzuki, Matsumoto, Li*
Outgassing and large vacuum systems. *Watanabe, Weiss*
Fuel cell and battery materials/corrosion. *Ross, Abraham*
Sensors, smart films, and functional materials. *Brand, Ullom*
Growth and characterization of organic films. *Fritz*
Perspectives and new opportunities. *Duke, Hla, Berndt*
Optical thin films and photovoltaics II. *Compaan*
Thin film-based combinatorial methods. *Takeuchi*

Thursday, 6 November

morning

Detection of biological agents and self-cleaning of contaminated surfaces. *Petersen, Dordick*
Patterned growth and etching of semiconductors. *Himpel*
Plasma-surface interactions: Deposition. *Arefi-Khonsari*
Low-*k* dielectric etch. *Hori*
New spintronic materials. *Abernathy, Bruno*
Nanotube growth and processing. *Lowndes, Ajayan*
Biosensor. *Stenger, Kasemo*
Development and implementation of sustainable processes. *Dornfeld, Chatterjee*
Materials for interconnects and contacts to semiconductors. *Zhang, Murakami*
Reproducibility, precision, and accuracy of vacuum and process measurements. *Seidel*
Electron spectroscopy. *Powell*
Heteroepitaxy and strain engineering. *Mooney, Chason*
Catalysis III: High vs. low pressures. *Frenken, Nørskov*
Oxide structure, growth, and defects. *Flavell*
Modeling and fundamentals in thin-film deposition. *Agarwal, Barnard*

afternoon

Plasma diagnostics: Mechanisms. *Klick*
Magnetization dynamics. *Freeman, Park*
Molecular monolayers. *Hamers*
Biodiagnostics. *Breaker, Wightman*
Science and technology related to global effects: Emissions, climate, and transport. *Shideler, Edmonds*
Ferromagnetic and dilute magnetic semiconductors. *Zunger, Munekata*
Industrial vacuum applications. *Mattox, Nemanic*
Electron and photon spectroscopies. *Zollner, Wightman*
In-situ/ex-situ and real-time monitoring. *Clarke, Yeadon*

Friday, 7 November

morning

Plasma-surface interactions: Etching. *Sawin*
Semiconductor spin injection. *Hanbicki, Van Dorpe*
Nanotechnology and biology. *Austin, Gustafsson, Blick*
Plasma methods for biointerfaces. *Ratner*
Low-dimensional structures and amorphous silicon. *Noetzel*
SIMS. *Stevie, Ruedenauer*
Mechanical properties of thin films. *Vinci*