AVS to Meet in Mile High City

From emerging science and novel technologies to the more traditional research and techniques, the 49th International Symposium of the AVS Science and Technology Society will offer the 3000-plus expected attendees an opportunity to learn more about a broad range of vacuum-related topics.

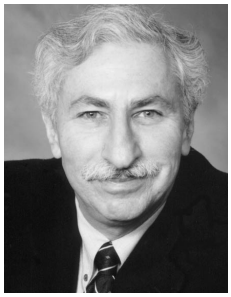
The Colorado Convention Center in Denver plays host to the conference from Sunday, 3 November, through Friday, 8 November. The weeklong technical program will feature sessions organized by the groups and divisions of AVS: advanced surface engineering, applied surface analysis, biomaterials interfaces, electrochemistry and fluid–solid interfaces, electronic materials and processing, magnetic interfaces and nanostructures, manufacturing science and technology, microelectromechanical systems, nanometer-scale science and technology, organic films and devices, plasma science and technology, processing at the nanoscale, surface sciences, thin films, and vacuum technology. More than 1300 papers will be presented in 103 technical sessions and 2 poster sessions.

Special topical conferences at this year's meeting will include a look at molecular- and bio-magnetism, photonics materials research and applications, the science and applications of nanotubes, advancement toward sustainability, homeland security science and technology, and a biomaterials plenary session.

Participants may enroll in short courses that will run in parallel with the technical sessions throughout the week. Those courses will provide practical training in applied vacuum technology, surface analysis and materials characterization, and processing and properties of materials, thin films, and coatings.

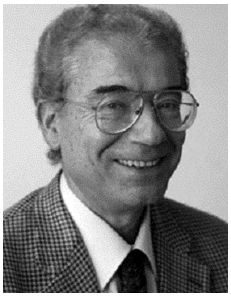
Retired US Navy Vice Admiral Richard H. Truly is scheduled to give the conference plenary lecture on Monday at noon in the ballroom at the convention center. Truly, director of the US Department of Energy's National Renewable Energy Laboratory, will deliver a talk entitled "Looking at Our Energy Future: Charting a New Destination."

On Wednesday night, AVS will host a reception and awards assembly at the convention center, starting at 6:15 PM. At the ceremony, AVS will present the Medard W. Welch Award to **Buddy Ratner** for his "innovative research on biomaterial interfaces and establishing the field of biomaterials surface science." Ratner is director of the University of Washington's engineered biomaterials program and is the Washington Research Foundation Distinguished Professor of Bioengineering at the university.



RATNER

HARRA



BENVENUTI

David J. Harra, senior technologist at Novellus Systems Inc in San Jose, California, will receive the Albert Nerken Award for the "development of sublimation pumps and the solution of technological problems in the design of novel systems for coating semiconductor wafers."

The Gaede– Langmuir Award will go this year to **Cristoforo Benvenuti**, a senior scientist at CERN, for the "development of advanced gettering technology for particle accelerators, its application to efficient ultrahigh vacuum pumping, and its impact on the design of large systems."

GOLDMAN

EVANS

Rachel S. Goldman, assistant professor of materials science and engineering at the University of Michigan, will garner the Peter

Mark Memorial Award for her "contributions to the fundamental understanding of strain relaxation, alloy formation, diffusion, and the correlations among microstructure, electronic, and optical properties."

The AVS John L. Vossen Memorial Award will go to **Toni L. Evans** for "developing a classroom demonstration in measuring the speed of sound as a function of gases." Evans is a science teacher at River Valley High School in Marion County, Ohio.

The exhibit of vacuum-related equipment and services, featuring more than 150 vendors, will be open on Tuesday from 11:00 AM to 7:00 PM, on Wednesday from 9:00 AM to 5:00 PM, and on Thursday from 9:00 AM to 3:00 PM in Exhibit Hall C at the convention center.

Sessions with Invited Speakers

Sunday, 3 November

afternoon
Biomaterials plenary session. *Eberhardt, Quake, Kricka*

Monday, 4 November

morning
Optical thin films. *Ockenfuss*
Fuel cells and surface electrochemical reactions. *Gorte, Korzeniewski*
Conductor etch I. *Coburn*
SIMS. *Niehuis, Schueler*
Semiconductors. *Tsong, Thoms, Kronik*
Adsorption and chirality. *Gellman*
In situ monitoring and metrology for coating growth and manufacturing. *Whitney, Woollam*
Theoretical studies of biosurfaces/biotribology and biorheology. *Kreuzer, Granick*
Spintronic materials and hybrid devices. *Jansen, Tsymbal, Jenkins*
Nanomechanics. *de Pablo, Wahl, Heuberger*
Nanotubes: Growth and characterization. *Merkulov*

afternoon
Transparent conductive coatings. *Exarhos*
Liquid–solid interfaces and nanoscale electrochemistry. *Fenter, Gimzewski*
Plasma processing for large area substrates. *Elyaakoubi*
Quantification and accuracy in surface analysis. *Weller*
Metal–semiconductor interfaces. *Crowell, Mohney*
Surface reactions: CO and NO. *Fridell*
Control issues in electronics manufacturing. *Shankar*
Protein surface interactions. *Dahint, Castner*
Self-assembly and nanomagnetism. *Krishnan, Tuominen*
Nanobiology. *Hoh, Spatz*
Nanotubes: Chemical functionalization, sensors. *Rao, Baughman*

Tuesday, 5 November

morning
Mechanical properties of thin films. *Kraft*
Atmospheric pressure and other emerging plasma applications. *Hicks, Gillis*
Novel vacuum materials and pumps, including getters. *Hseuh, Noonan, Benvenuti*
Plasma diagnostics and sensors. *Hebner, Nakano*
Polymer characterization. *Salaneck*
Hydrocarbon catalysis. *Madix*
Beyond planar CMOS: Manufacturing issues. *Heath, Zeitzoff, Hutchby, Maiz, Wong*
Diffusion and growth on metal surfaces. *Zhang*
Nanocomposite and nanolayered coatings. *Patscheider*
Metals, adsorbates, and defects on TiO_2. *Anderson*
Platforms for nonfouling and patterned surfaces. *Textor, Cremer*
Ferromagnetic semiconductors. *van Schilfgaarde, Samarth*
Nanotribology. *Martin, Zabinski, Dugger*
Aerosols and climate change, growing energy demands, and benign semiconductor manufacturing. *McMurry, Stringer, Miller*

afternoon
Atomic layer deposition: Oxides. *Carter*
Organic molecular films. *Russell*
Microdischarges. *Schoenbach*
Vacuum system architecture and specialized analytical techniques. *Poths*
Plasma surface interactions I. *Hamaguchi*
Imaging in surface analysis. *Fulghum*
Semiconductor characterization. *Long*
Ultrafast phenomena and dynamics at surfaces. *Fauster, Mullins*
Manufacturing issues in MEMS and related microsystems. *Bishop, Timp, Gogoi, Rao, Offenberg*
Atmospheric surface chemistry. *Tolbert*
Systems design of functional coatings. *Chudoba*
Metal/oxide surfaces. *Finnis*
Molecular recognition surfaces. *Ratner, Kasianowicz*
Molecular and biomagnetism. *Christou, Pederson, Kanger, Ulman*
Quantum dots. *Goldman, Johnson*
Nanotubes: Mechanical properties, NEMS. *Brenner*
Benign manufacturing, climate change, international trade and world economy, and theological considerations of sustainable development. *Heine, LeBlanc, Smith, Moomaw*

Wednesday, 6 November

morning
Atomic layer deposition: Barriers and nitrides. *Kim, Paranjpe*
Metal–organic interfaces. *Koch*
Plasma science and technology for nanostructures. *Mieno*
Outgassing. *Chiggiato*
Conductor etch II. *Pearton*
Optical methods and high-*k* dielectrics characterization. *Hilfiker*
New opportunities and technique innovations. *Rieder*
Ambient surface science techniques. *Buck*
Magnetic recording: GMR, tunneling, and media. *Weller, Mathon*
Plenary session on homeland security. *Raber, Hopkins, Michalske*
Nanotechnology and nanofabrication in NEMS. *Cleland*

afternoon
Molecular and organic films and devices. *Forrest*
Plasma processing for biocompatible surfaces. *Short*
Vacuum measurements, components, and control. *Kendall, Karlsen*
High-*k* dielectric characterization. *Wallace*
Semiconductor film growth and oxidation. *Kuech*
Structure and chemistry at metal surfaces. *Renaud*
Polyelectrolyte surfaces/cell–surface interactions. *Decher, Dufrene*
Magnetization dynamics. *Demokritov*
Nanolithography and self-assembly. *Guo*
Chemical and biological detection. *Sailor, Whitman, Walt*

Thursday, 7 November

morning
Plasma-enhanced deposition. *Roca i Cabarrocas*
Gas dynamics and flow. *Helmer*
Issues for gate dielectrics. *Schlom*
Electronic structure and stimulated processes. *Qiu*
Patterning and functionalization. *Dai*
Photonic nanostructures. *Kolodziejski, Wiltzius, Fleming*
Reactions and patterning of organics on silcon. *Buriak*
Biosensors and biodiagnostics. *Lopez*
Magnetic spectroscopies. *Ohldag, Gambardella*
Single-molecule devices. *Kawai, Weiss*
Development and characterization of MEMS materials. *Friedmann, Freidhoff*

afternoon
Ultrathin films. *Baumvol*
Practical surface science II. *Nieveen, Hull*
Charged particle patterning and emission. *Aziz*
Tribology at surfaces. *Krim*
Optical lightguides. *Rogers, White, Barbier*
Growth and etching on semiconductor surfaces. *Leone*
Cell patterning to engineer function. *Wheeler*
Magnetic imaging. *Mamin*
Nanowires. *Keating, Samuelson*
Fabrication, integration, and packaging techniques for MEMS. *Bright, Dutta*

Friday, 8 November

morning
Fundamentals of thin-film growth. *Engstrom, Larsson*
BioMEMS and medical devices. *Grunze, Martin, Beebe*
Self-assembly at surfaces. *Schwartz*
Magnetic thin films and surfaces. *Shen*
Novel surface nanoprobes. *Yip, Futamata* ■