

AVS TO CELEBRATE ITS 40TH YEAR AT ORLANDO MEETING

The 40th national symposium of the American Vacuum Society will take place in Orlando, Florida, from Monday, 15 November, to Friday, 19 November. The site is the Orange County Convention and Civic Center, where the technical sessions, equipment exhibit and short courses will be held.

During the technical sessions, researchers from the eight divisions of AVS will present some 1060 papers at 85 scheduled oral sessions and 12 poster sessions.

Two topical conferences will address areas of wide interest to meeting attendees. The first, called "The Key to Competitiveness: the Science and Technology of Manufacturing," will run Monday, Tuesday and

Wednesday and will include a panel discussion on Monday night. The second topical conference, "Biomaterial Interfaces," will be held on Monday and Tuesday.

The plenary speaker at the annual symposium, to be held this year at 12:45 pm Monday, will be Roland Schmitt, who is chairman of the governing board of the American Institute of Physics and who recently retired as president of Rensselaer Polytechnic Institute. He intends to address the question, "Do Manufacturing Technologies Need Federal Policies?"

40th anniversary

On Tuesday two special history sessions, sponsored jointly by the thin films and vacuum technology divi-

sions of AVS, will celebrate the 40th anniversary of the society's founding. Throughout the week several invited speakers will also discuss historical aspects of other divisions. A special historical equipment exhibit will highlight advances in vacuum science over the last four decades.

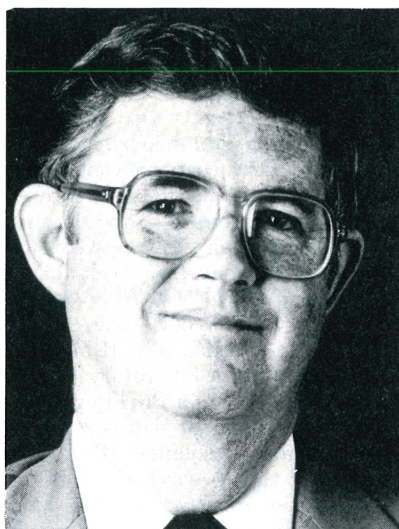
Annual awards assembly

Grand ballroom A of the Clarion Hotel will be the site for the annual awards assembly on Wednesday, 17 November, at 6:30 pm. An awards reception follows immediately.

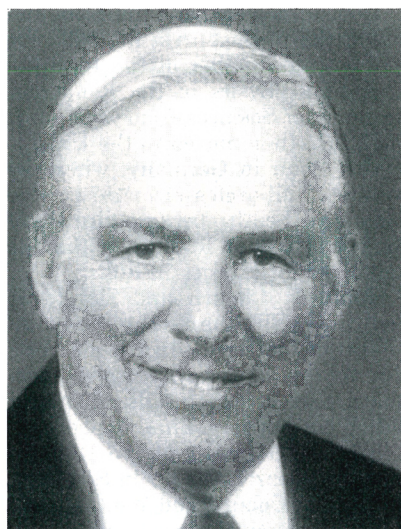
The 1993 Medard W. Welch Award winner is George Comsa of the Institute for Surface and Vacuum Physics in Julich, Germany. He is cited for "seminal discoveries and in-



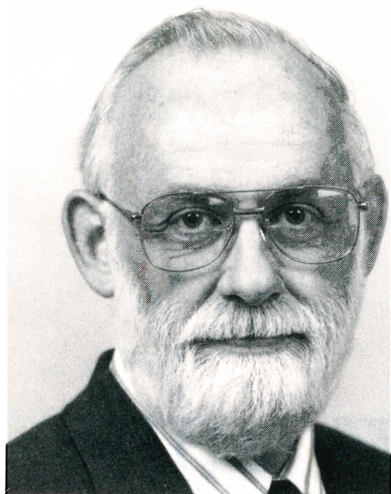
George Comsa



John W. Coburn



Harold F. Winters



John F. O'Hanlon

vestigations in vacuum and surface science, in particular the extensive development of thermal-energy atom scattering for the structural analysis of surfaces." Faced with technical and economic constraints while working in Bucharest in the 1960s, Comsa developed and built his own equipment for his surface studies in ultrahigh vacuum. At Jülich he led advances in vacuum instrumentation, among them the spinning-rotor friction gauge, which was chosen by the International Bureau of Weights and Measures in 1978 as an international transfer standard. Comsa has specialized in surface physics; he performed molecular-beam scattering experiments to investigate surface structure, especially surface disorder. More recently he has focused on the growth of metals on metals and sputtering by combining helium scattering with scanning tunneling microscopy.

Comsa earned his PhD from the University of Bucharest in 1960. He was a staff member at the Institute of Atomic Physics of the Romanian Academy of Sciences from 1953 until 1972. He then moved to the University of Bonn in Germany, where he became a full professor in 1974. The same year he also became director of the newly created Institute of Surface and Vacuum Physics in Jülich.

John W. Coburn and Harold F. Winters will share the John A. Thornton Memorial Award and Lecture for "seminal work in the mechanistic aspects of materials processing with glow discharges and ion beams."

Working together at the IBM Almaden Research Center in San Jose, California, Coburn and Winters used directed beams of ions, electrons, atoms and molecules along with mass spectrometric and surface analytical

techniques to investigate processes that occur in reactive-gas glow discharges. These studies have helped elucidate the role of energetic ions in plasma-assisted etching and have led to a qualitative picture of complex phenomena occurring at surfaces of reactive gas plasmas.

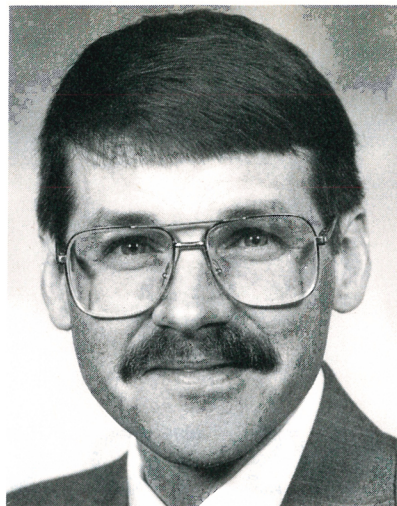
Early in his career Coburn used glow-discharge mass spectrometry to perform elemental analyses of thin films. His approach was later commercialized by others. He has also done research on plasma diagnostics. With other colleagues Winters has done systematic studies of important processes related to ion bombardment of solids and adsorption-desorption of gases from surfaces.

Coburn received his PhD in electrical engineering from the University of Minnesota in 1967. He then took a postdoctoral position at Simon Fraser University before joining the research staff of the IBM Almaden Research Center in 1968. He retired from IBM in May 1993 and is currently an Alexander von Humboldt Senior Scientist at the Fraunhofer Institute for Applied Solid-State Physics in Freiburg, Germany.

After earning a PhD in physics from Washington State University in 1963, Winters went to work for IBM and stayed there until his retirement last month.

The Albert Nerken Award will go this year to John F. O'Hanlon of the University of Arizona for "outstanding contributions to vacuum technology and the education of its practitioners and for significant contributions to a range of semiconductor, display and microcontamination problems." O'Hanlon has worked on a variety of vacuum technology topics, including the fabrication of high-speed germanium transistors, plasma anodization, electroluminescent and gas-panel displays, high-resolution multibeam cathode ray tubes and vacuum equipment for construction of active-matrix liquid crystal displays. At Arizona his research concerns contamination control in the manufacture of semiconductor products, and he has helped foster strong ties between the university and industry. O'Hanlon is the author of *A User's Guide to Vacuum Technology* (John Wiley, 1989).

O'Hanlon worked for IBM from 1957 to 1963 as a laboratory technician. After earning a PhD in physics from Simon Fraser University in 1967, O'Hanlon rejoined IBM as a member of the research staff at the T. J. Watson Research Center. Retiring in 1987 he went to the University of Arizona, where he is on the faculty of the department of electrical



Robert J. Hamers

and computer engineering and director of NFS's Center for Microcontamination Control at the university.

The Peter Mark Memorial Award goes to Robert J. Hamers of the University of Wisconsin, Madison, for his "outstanding contributions to the development of scanning tunneling microscopy and spectroscopy as tools for quantitative analysis of the electronic properties of surfaces." In 1985 he built one of the first ultrahigh-vacuum atomic-resolution scanning tunneling microscopes in the US in 1985. He has since used STM and new STM-based techniques to explore the correlation of atomic geometry, electronic structure and chemical reactivity of semiconductor surfaces at the atomic level.

Hamers earned his PhD in physical chemistry at Cornell University in 1985. He became a postdoc and then a research staff member at IBM's T. J. Watson Research Center in Yorktown Heights, New York. In 1990 he left to become an associate professor of chemistry at the University of Wisconsin.

The *Journal of Vacuum Science and Technology* Shop Note Award this year goes to J. Simpson and J. O. Williams of UMIST, Manchester, England for their paper entitled "Novel System for Maintaining Window Cleanliness in Pulsed Laser Photochemical Deposition Reactors."

The 1993 Nellie Yeoh Whetten Award, which recognizes graduate work by a woman in the field, goes to Laura Tedder of the University of California, San Diego.

The 1993 Student Prize winners are Varoujan Chakarian, University of California, Riverside; Manish Chander, University of Minnesota; Xi Chu, Northwestern University;

Tieer Gu, Pennsylvania State University; Shangir Gwo, University of Texas, Austin; Koblinski; Kelly; John Sudijono, University of Michigan, Ann Arbor; and Zhen-Hong Zhou, MIT.

The finalists for the Russell and Sigurd Varian Fellowship, which recognizes graduate work in vacuum science, are Pawel Koblinski of Pennsylvania State University and Daniel Kelly of the University of California, Santa Barbara. The winner will be announced at the November meeting.

Also to be announced at the meeting will be the winner of the Morton M. Traum Surface Science Division Student Award.

Equipment exhibit

AIP will run the equipment exhibit for AVS in the convention center. The exhibit will be open Tuesday, 11 am to 6 pm; Wednesday, 10 am to 5 pm; and Thursday, 10 am and 3 pm. Because AVS has expanded Wednesday's lunchtime to three hours, attendees

should have plenty of time to see exhibits and talk with many of the more than 150 exhibitors. The historical equipment exhibit will be at the center of the show area. On Wednesday between 3 pm and 5 pm there will be a new products poster session.

AIP will also provide an employment center in the ground-floor lobby of the convention center. It will be open from 8:30 am to 5 pm Monday through Thursday. ■

Sessions with Invited Speakers

Monday, 15 November

morning

Dynamics of adsorption/desorption. *Kevan*
Novel structures and structural techniques. *Hamers*
Advanced process equipment. *Granneman, Masnari*
Plasma etching. *Ephrath, Jurgensen, Tsujimoto*
Optical films. *Mir*
Quantitative analysis and data handling. *Yoshihara*
Chemical routes to group IV epitaxy. *Greve, George*
Protein-solid surface interfaces. *Vroman, Park, Sligar*
Nanotechnology I: Electro and mechanical devices. *Guckel*

afternoon

Molecular adsorption and desorption. *King*
Manufacturing challenges and the role of research. *Bordogna, George, Nakatsuka, Lange*
Modeling of rf and microwave plasma sources. *Porteous, Economou*
Large vacuum systems. *Moore, Alexander*
Semiconductor surface structure and dynamics. *Pashley, Williams*
Cell-solid surface interactions. *Ratner, Stenger, Hubbell*

Tuesday, 16 November

morning

Surface electronic properties of metals. *Smith*
Process/material characterization and real-time process control. *Diebold, Brueck, Bartelink*
High-density plasma processing I. *Heidenreich*
Adhesion and polymer-metal interface. *Boerio*
Strain and defect generation in semiconductor epitaxy. *Boeck, Fitzgerald*
Techniques for studying biomaterial interfaces. *Panitz, Gaub, Winograd*
Nanomechanics and innovations in proximal probes I. *Dürig, Alvarado*
Semiconductor surface cleaning and passivation. *Hirose, Tokumoto*
Vacuum issues of the SSC. *Turner*
Inertial confinement fusion target fabrication. *Verdon, Norimatsu*
Diamond, CBN and other ultrahard coatings. *Messier*
Historical perspectives of thin films. *Wehner, Vossen, Francombe, Hoffman, Cuomo*

afternoon

Liquid-solid interfaces: real and model systems. *Richmond*
Surface reactions II. *Bent*
Defect identification/control and reliability. *Poliak, Ho*
High-density plasma processing II. *Sadeghi*
Corrosion and surface modification. *Payer*
Chemical vapor deposition of metals and insulators. *Sherman*
The biosensor-biology interface. *Schultz, Parce*
Nanotechnology II: Microfabrication techniques and ultrasmall devices. *Likharev, Mooij*
Electronic structure and optical properties of semiconductor surfaces and heterostructures. *Houghton, Bimberg*
Energetic condensation. *Rother*
The AVS and UHV: An historical review. *Singleton, Redhead, Hablani, Welch, Palmberg, Dylla, O'Hanlon*

Wednesday, 17 November

morning

Magnetic films and interfaces. *Stohr*
Dynamics of adsorbates and reactions. *Feibelman*
Three-dimensional processing and manufacturability. *Hsieh, Sawin*
Plasma-induced damage. *Osburn*
Applications of synchrotron radiation. *Gudat*
Insulators on semiconductors. *Ross*
PVD and CVD coating applications. *Quinto, Sproul*
Nanometer-scale biotechnology. *Seeman*
Diamond film growth processes. *Winters, Pate*

afternoon

Semiconductor etching reactions. *Yates*
Adsorbate structure and reactions. *Ibach*
Process integration. *Paraszcak, De Keersmaecker*
Plasma-enhanced deposition. *Seidel, Weidman*
Radiation and beam modifications of surfaces. *Atwater*
Group III-V epitaxial growth and transport. *Isu, Weisbuch*
Fundamental processes of polycrystalline film growth. *Sundgren, Barna, Greene*
Innovations in proximal probes II. *Swartzentruber, Wolkow*
Vacuum materials. *Patton*
Metal-semiconductor interfaces. *Anderson*
Nucleation and growth: Semiconductors on semiconductors. *Snyder, Cullis*

Thursday, 18 November

morning

Nucleation and growth: Metals on metals. *Comsa, Evans, Ernst*
Plasma-surface interactions. *Oehrlein, Coburn*
Polymer/organic surfaces and interfaces. *Tirrell, Grainger*
Wide bandgap semiconductors. *Kahn*
Advances in deposition technologies and novel techniques. *Schmitt, Bunschah*
Pressure and flow measurements A. *Alpert*
Diamond and diamond-like carbon. *Glass*

afternoon

Metal and semiconductor nucleation and growth. *Campbell*
Plasma processing—particulate formation/*in situ* ellipsometry. *Irene*
Self-assembled monolayers/Langmuir-Blodgett films. *Mann*
In situ diagnostics and control of growth and deposition. *Tromp*
Pressure and flow measurements B. *Looney*
Sensors/mechanical properties of thin films. *Sickafus, Wise*

Friday, 19 November

morning

Semiconductor structure: Surfaces and interfaces. *Alivisatos*
Dry etching for micro- and nanofabrication. *Pearton*
Nanostructural properties of surfaces and interfaces. *Feenstra, Kubby*
Water in vacuum systems, outgassing and cleaning. *Chen*
Thin film characterization. *Magee*