

Joint vacuum-science meeting in Baltimore

This international symposium will feature discussions of materials and processes for microelectronics, optics, controlled fusion, metallurgy and surface science.

The American Vacuum Society and the International Union for Vacuum Science, Techniques and Applications will jointly sponsor the 10th International Vacuum Congress, the 6th International Conference on Solid Surfaces and the 33rd National AVS Symposium in Baltimore, Maryland, on 27-31 October. The International Union of Pure and Applied Physics will cosponsor the meeting. All events of the meeting will be held at the Sheraton Inner Harbor Hotel, the Hyatt Regency Hotel or the Baltimore Convention Center. Registration hours in the Pratt Street lobby area of the convention center will be Sunday, 26 October, from 3 pm to 10 pm; Monday through Wednesday from 7 am to 5 pm; Thursday from 7:30 am to 5 pm; and Friday from 8 am to 2 pm.

The IUVSTA divisions of electronic materials, fusion, surface science, thin films, vacuum metallurgy and vacuum science have organized technical sessions. Three plenary sessions are also

planned: John Armstrong (IBM Thomas J. Watson Research Center, Yorktown Heights, New York) will speak Monday morning on scientific challenges in materials and processing for microelectronics. Chikara Hayashi (Ulvac) will speak Tuesday morning on ultrafine particles. Harold Furth (Princeton Plasma Physics Lab, Princeton, New Jersey) will speak Thursday morning on progress in magnetic-fusion research. David J. Thompson (NASA/Goddard Space Flight Center) will present a Society of Physics Students lecture entitled "A guided tour of the universe" on Tuesday afternoon. In addition, several satellite conferences and workshops are planned: a topical symposium on sputtering, a workshop on quantitative surface analysis (sponsored by the AVS thin-film division), the fall meeting of the American Society of Testing Materials committee on surface analysis, an ultrahigh-vacuum gauging workshop (sponsored by the National Bureau of Standards and the AVS vacuum-technology division) and the international workshop on leak detection and repair in large vacuum systems.

The international-congress reception will be held on Tuesday evening in the Constellation Ballroom of the Hyatt. A session for postdeadline papers in surface science will be held on Thursday evening in the Hyatt.

Awards luncheon

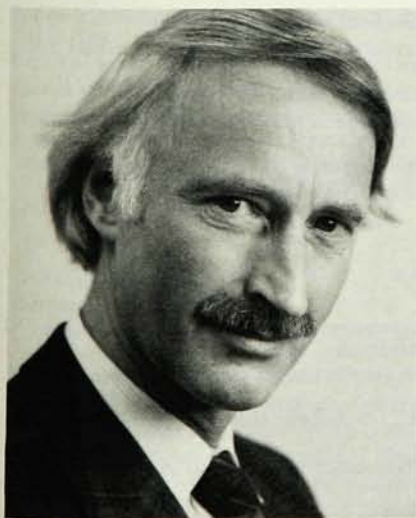
AVS will honor the following individuals at its awards luncheon on Wednesday in the Constellation Ballroom of the Hyatt Regency:

Harald Ibach (Kernforschungsanlage Jülich) will receive the Medard W. Welch Award "for the development of high-resolution electron energy-loss spectroscopy and its application to the characterization of surfaces and adsor-

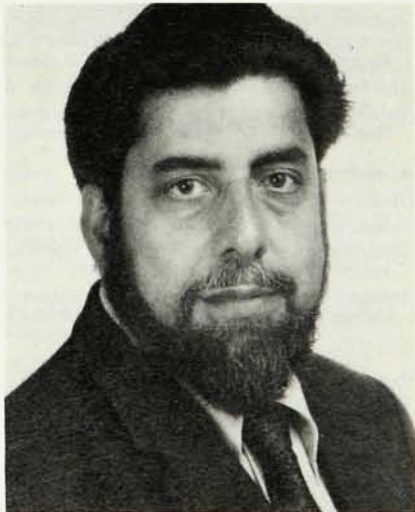
bates." Ibach received his undergraduate degree (1965) and his doctoral degree (1968) from the University of Aachen. He remained at the university as a research associate until 1972, when he became a member of the technical staff of Bell Laboratories (Murray Hill, New Jersey). In 1974 he accepted a joint appointment as director of the Institut für Grenzflächenforschung und Vakuumphysik at KFA Jülich and professor of physics at the University of Aachen. Ibach and his group at Jülich developed the technique of electron energy-loss spectroscopy and pioneered its use in vibration spectroscopy and the study of surfaces. Initially he studied small molecules on metal surfaces; later he studied the interaction of hydrocarbons with metallic surfaces. He is currently investigating surface-phonon dispersion and the relation of phonon anomalies and adsorbate-induced surface stresses.

Rointan F. Bunshah (University of California, Los Angeles) will receive

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BUNSHAH





SANTELER

the biennial Gaede-Langmuir Award "for his scientific and technical insight, demonstration and continuing involvement in the worldwide implementation of low-temperature vapor-phase deposition of refractory films." Bunshah received his BSc (1948) in metallurgy from the Benares Hindu University, India, and his MS (1951) and DSc (1952) from Carnegie-Mellon University. From 1954 to 1960 he was a research scientist and adjunct professor at New York University. In 1960 he became a metallurgist in the Lawrence Radiation Laboratory of the University of

California. Bunshah came to UCLA in 1969 as a professor of engineering. In 1971 he developed the activated reactive evaporation process for depositing refractory compounds at a high rate. Bunshah was a co-founder and the first chairman of the vacuum-metallurgy division of AVS (1960-63). He is currently studying plasma-assisted deposition processes, metallurgical coatings, films for use in microelectronics and optoelectronics, and biomaterials.

Donald J. Santeler (Process Applications, Oak Ridge, Tennessee) will receive the Albert Nerken Award, which was established in 1984 by Veeco Instruments in honor of its founder, for his "significant and longstanding contributions to vacuum technology, most notably in the areas of leak detection and pumping." Santeler received his BS in engineering physics from Ohio State University in 1948 after serving in the Pacific theater during World War II. He joined General Electric's general engineering laboratory in 1949 and was appointed supervisor of GE's vacuum and hermetic systems engineering division in 1953. Among other projects, he helped design the first large space-simulation chambers employing cryogenic pumping. In 1962 Santeler co-founded Aero Vac (Troy, New York); as manager of manufacturing he oversaw the company's development of compact mass spectrometers, specialty high-vacuum components and

ultra-high-vacuum systems for space research and gauge calibration. When Aero Vac was sold in 1972, Santeler decided to pursue graduate studies at Rensselaer Polytechnic Institute, receiving his PhD in 1974. He started two companies—Donlee Labs (Scotia, New York) in 1972 and Process Applications in 1980—to work on the gas-centrifuge enrichment program. Santeler was a founding member of AVS, serving as chairman of its standards committee (1957-62), director (1957-64) and president (1962).

Richard A. Gottscho (AT&T Bell Laboratories, Murray Hill, New Jersey) will receive the Peter Mark Memorial Award "for his insightful applications of spatially and temporally resolved spectroscopic techniques to the diagnostics and modeling of processing plasmas." Gottscho received his BS in physical chemistry from Pennsylvania State University in 1974 and his PhD in physical chemistry from Massachusetts Institute of Technology in 1979. He remained in MIT's physics department as a Weizmann Postdoctoral Fellow working on the spectroscopic analysis of weakly bound van der Waals molecules. Gottscho became a member of the technical staff at Bell Labs in 1980. At Bell Labs he has studied rf plasmas using laser-induced fluorescence and Stark-mixing spectroscopy; most recently he has used photodetachment spectroscopy to study negative-

Sessions with invited papers

Monday, 27 October morning

Electronic materials: High-speed semiconductor devices. *T. Tokuyama, T. Warabisako, M. Tamura, M. Miyao, T. H. Ning, M. Abe, T. Mimura, A. Shibamoto, M. Kobayashi*

Surface science: Dynamics. *R. R. Cavanagh, M. P. Casassa, E. J. Heilweil, J. C. Stephenson*

Applied surface science, electronic materials, thin films: Surface analysis of semiconductors, thin films and devices. *C. A. Evans, H. Oechsner*

Vacuum science: Applications of vacuum technology including space research and accelerators. *H. Ishimaru, T. Momose, K. Narushima, H. Mizuno, K. Kanazawa, Y. Suetsugu, H. Watanabe, M. Shimamoto, G. Horikoshi*

Thin films: Processes at surfaces and interfaces. *D. Hesse*

Vacuum metallurgy: Vacuum melting, refining and applied techniques. *J. A. Domingue, F. A. Schweizer, K. O. Yu, A. Mitchell, B. I. Medovar*

afternoon

Surface science: Adsorption and kinetics of reactions at surfaces. *M. Grunze*

Surface science: Vibrations at surfaces. *M. A. Chesters*

Vacuum science: Applications of vacuum technology including space research and accelerators. *A. S. R. Rao*

Vacuum metallurgy: Vacuum metallurgy processes. *W. Dietrich, H. Stephan, H. Stumpp, G. Sick, E. Weingaertner, M. I. Boulos, J. Fu, L. Gao*

Tuesday, 28 October morning

Electronic materials: Optoelectronic structures and devices. *G. H. Döhler, F. Capasso, I. Hayashi, J. D. Crow*

Surface science: Dynamics. *S. Holloway*

Surface science: Surface phase transitions. *J. Als-Nielsen*

Applied surface science, electronic materials, thin films: Surface analysis of semiconductors, thin films and devices. *P. I. Cohen, P. R. Pukite*

Vacuum science: Vacuum measurements. *A. Winkler*

Thin films: Characterization and properties of thin films. *J. L. Maurice, J. Y. Laval*

Vacuum metallurgy: Coatings for science and technology. *M. Gantois*

afternoon

Electronic materials: Semiconductor interfaces. *E. O. Kane*

Surface science: Electronic structure of metal surfaces. *P. J. Durham, J. H. Kaiser, L. T. Wille*

Surface science: Surface structure of metals. *H. Niehus*

Applied surface science: Quantitative surface analysis—SNMS, SIMS. *C. H. Becker*

Thin films: Thin-film deposition processes. *Z. Yu, C. A. Moore, G. J. Collins*

Thin films: Processes at surfaces and interfaces. *K. Yagi*

Wednesday, 29 October

morning

Electronic materials: Metal-semiconductor interfaces. *K. Stiles, A. Kahn, D. G. Kilday, N. Tache, G. Margaritonda*

Electronic materials, surface science: Electronic structure of semiconductors and metals. *V. Dose*

Surface science: Dynamics. *J. D. Beckerle, M. B. Lee, S. L. Tang, Q. Y. Yang, S. T. Ceyer*

Surface science: Metal surface reconstruction. *T. Sugibayashi, M. Hara, A. Yoshimori*

ion densities in discharges through strongly attaching gases.

Robert A. Langley (Oak Ridge National Laboratory) will receive the JVST Shop Note Award for his contribution "Correction of a vacuum design fault in leak detectors" (J. Vac. Sci. Technol. A3, 2040, 1985).

Short courses, exhibit

AVS will offer the following short courses at the Sheraton and the convention center during the meeting:

- Fundamentals of surface science
- Vacuum technology
- Fundamentals and technology of ion plating
- Applied thin-film optics
- Laser deposition and etching
- Pumping hazardous gases
- Operation and maintenance of vacuum pumping systems
- Surface analysis: electron and other emerging spectroscopies
- Vacuum equipment and computer interfacing
- Elementary introduction to vacuum techniques for the novice
- Advanced vacuum-system design and analysis
- Overview of ic processing
- Partial-pressure analyzers, analysis and applications
- Mechanical properties of thin films
- Vacuum-system design
- Sputter deposition and ion-beam processes

Introduction to the elements of cryo-pumping

Monitoring and controlling techniques for thin-film deposition processes

Rapid thermal annealing for semiconductor processing

Plasma and vacuum technology for fusion devices

Surface analysis: ion spectroscopies

UHV design and practices

Vacuum sealing and joining techniques

Plasma etching and reactive-ion etching

Surface spectroscopies

Handling hazardous materials in semiconductor processing

Overview of thin-film deposition and etching processes

Vacuum-leak detection

Chemical vapor deposition for electronics

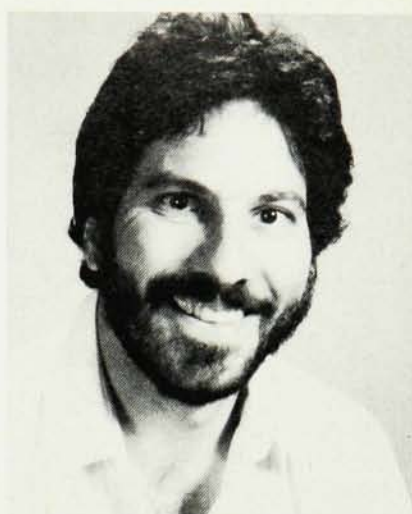
Clean-room technology

Vacuum safety

Adhesion of polymeric and metallic thin films

Characterization of films and coatings.

Some 125 companies, laboratories and organizations will display equipment and vacuum hardware for the production, control and analysis of films, surfaces and materials at the annual equipment exhibit. Viewing hours for the exhibit, located in the convention center, will be Tuesday, 28 October, from noon to 7 pm; Wednesday from 11 am to 6 pm; and Thursday from 10 am to 3 pm.



GOTTSCHO

An extensive companions' program has been planned, including day trips to Annapolis and Washington, DC, a luncheon cruise and a tour of historical sites in Baltimore. AVS will hold its 6th annual run on Wednesday at 7 am near the convention center. Applications and information are available from L. L. Kazmerski, Solar Energy Research Institute, 1617 Cole Boulevard, Golden, Colorado; (303) 231-1115.

An employment-opportunities bulletin board will be maintained throughout the congress, in the convention center. □

Vacuum science: Vacuum physics. *H. Jahrreiss*

Vacuum science, electronic materials: Apparatus for electronic materials processing. *J. F. O'Hanlon*

Vacuum metallurgy, thin films: Tribological coatings. *O. Knotek, W. D. Münz, H. E. Hintermann, K. Dadourek*

Fusion, vacuum science: Plasma fueling and recycling. *S. L. Milora; R. S. Post, P. Goodrich, L. Pocs, G. Shuy, K. Brau, S. Horne, J. Irby, S. Golovato, E. Sevillano, D. K. Smith, R. P. Torti; S. Veprek, M. Wiggins, F. Mattenberger, M. Kitajima, K. Yamashita*

afternoon

Surface science, electronic materials: Scanning tunneling and other surface microscopies. *J. A. Golovchenko; R. J. Behm*

Electronic materials, thin films: Epitaxial growth. *S. J. C. Irvine, J. B. Mullin; M. B. Panish*

Surface science: Semiconductor surfaces. *J. E. Northrup*

Vacuum science: Vacuum physics. *G. Horikoshi*

Thin films, fusion: Plasma-surface interactions. *W. O. Hofer*

Vacuum metallurgy, vacuum science: High-rate vapor deposition and large systems for coating processes. *S. Schiller, H. Förster, M. Neumann, G. Jäsch, G. Höttsch, B. Wenzel; K. Moriyama, H. Suwa, S. Ono, Y. Yoneda, H. Takei*

Thursday, 30 October

morning

Electronic materials: Advances in VLSI lithography. *A. Heuberger; G. G. P. Van Gorkom, A. M. E. Hoebrechts; H. Hashimoto, E. Miyauchi*

Electronic materials, thin films: Epitaxial growth. *J. Derrien, F. A. D'Avitaya*

Surface science: Reactions on modified surfaces. *M. Kiskinova*

Surface science: Metallic overlayers. *M. De Crescenzi*

Surface science: Vibrations at surfaces. *J. P. Toennies*

Applied surface science: Characterization of polymer surfaces. *D. Briggs*

Vacuum science: Vacuum production, including pumping and handling of hazardous gases. *P. Duval*

Thin films: Etching of films and surfaces. *M. W. Geis, N. N. Efremow, G. A. Lincoln*

Fusion, vacuum science: Design aspects of future fusion devices. *K. I. Thomassen; B. Coppi, M. Ulrickson, J. L. Cecchi; P. Deschamps*

afternoon

Surface science: Electronic structure of semiconductor surfaces. *P. Thiry, G. Jezequel, Y. Petroff*

Surface science: SEXAFS, NEXAFS and photoelectron diffraction. *J. Stöhr*

Vacuum science, fusion: Plasma diagnostics. *W. Poschenrieder*

Thin films: Epitaxial films. *J. F. Van Der Veen; J. E. Greene*

Thin films: Optical applications of thin films. *G. E. Thomas*

Fusion technology: Driver-target experiments. *S. Ido, Y. Izawa*

Friday, 31 October

morning

Electronic materials: Dry processing. *J. Nishizawa, T. Kurabayashi, H. Abe, N. Sakurai; G. S. Oehrlein, Y. H. Lee*

Surface science: Surface reactions. *D. W. Goodman, C. H. F. Peden, J. E. Houston, D. S. Blair*

Surface science: Electronic structure of adsorbates. *E. Wimmer, S. R. Chubb, A. J. Freeman; J. Harris, S. Andersson, P. Nordlander, C. Holmberg*

Applied surface science: Characterization of surface-modified materials. *E. Taglauer*

Vacuum science: Vacuum systems diagnostics, including leak detection and residual-gas analysis. *J. H. Leck*

Thin films, electronic materials: Ion-assisted deposition and bias sputtering. *P. J. Martin*

Thin films: Thin films for magnetic memories. *P. F. Garcia*

Fusion, vacuum metallurgy: Vacuum and fusion materials. *J. Winter; Y. Murakami, T. Abe*

Fusion technology: Microtarget fabrication. *D. W. Sutton*