

Medard W. Welch Award

Purpose

To recognize and encourage outstanding research in the fields of interest to AVS.

Eligibility

The nominee must have accomplished outstanding theoretical and/or experimental research within the ten years preceding the year in which the award is made. Special consideration will be given to nominees currently engaged in an active career of research. The award will be granted without further restriction except that current members of the Board of Directors and the Scholarship and Awards Committee are not eligible.

Nature of the Award

The award consists of a \$10,000 cash award, a struck gold medal and a certificate setting forth the reasons for the award, and an honorary lectureship at a regular session of the International Symposium. This award will be conferred at intervals of not less than one year. Travel expenses of the awardee to the meeting at which the award is presented shall be reimbursed.

Establishment and Support

The Award was established in 1969 to commemorate the pioneering efforts of M.W. Welch in founding and supporting AVS. The Welch Foundation provided the initial endowment.

[Nomination Procedures](#)

Recipients

2008 - Miquel Salmeron

"For seminal contributions to the development of surface characterization techniques usable in a variety of environments and their application to catalysis, tribology and related surface phenomena."

2007 - Jerry Tersoff

"For seminal theoretical contributions to the understanding of surfaces, interfaces, thin films and nanostructures of electronic materials."

2006 - John C. Hemminger

"For outstanding contributions to the development of quantitative, molecular level understanding of many important interfacial processes, especially those related to atmospheric chemistry."

2005 - Charles S. Fadley

"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."

2004 - Rudolf M. Tromp

"For fundamental discoveries in epitaxial growth and elucidation of their applications to technological problems."

2003 - Matthias Scheffler

"For developing Density Functional Theory methods to describe surface chemical reactions and enabling their widespread use."

2002 - Buddy D. Ratner

"For innovative research on biomaterial interfaces and establishing the field of biomaterials surface science."

2001 - E. Ward Plummer

"For the development of novel instrumentation, its use to illuminate new concepts in the surface physics of metals, and the mentoring of promising young scientists."

2000 - D. Phillip Woodruff

"For contributions to the understanding of the geometric properties of clean and adsorbate-decorated surfaces, and for innovative development of surface science techniques."

1999 - John H. Weaver

"For his seminal contributions to the atomic-level understanding of thin-film growth, interfacial interactions, and etching."

1998 - David E. Aspnes

"For novel applications and creative development of optical methods and effects for research on thin films, surfaces and interfaces which have significantly advanced the understanding of electronic materials and processes."

1997 - Phaedon Avouris

"For his seminal contributions to the understanding of the chemistry of semiconductor surfaces and for his development of the STM as a tool for probing and inducing surface chemical reactions with atomic scale resolution and control."

1996 - Peter Feibelman

"For his insightful predications and explanations of surface phenomena based on first principles calculations."

1995 - Gerhard Ertl

"For excellence in the use of modern methods for developing key concepts important to surface chemistry."

1994 - John T. Yates, Jr.

"For the development and use of modern measurement methods to provide insights into the behavior of chemisorbed species on metal and semiconductor surfaces."

1993 - George Comsa

"For seminal discoveries and investigations in vacuum and surface science, in particular the extensive development of thermal-energy atom scattering for the structural analysis of surfaces."

1992 - Ernst Bauer

"For his contributions to the fundamental understanding of thin film nucleation and growth and for his invention, development and use of multiple surface characterization techniques to study those thin films."

1991 - Max G. Lagally

"For outstanding contributions to the quantitative understanding of defects with respect to ordering and growth of surface structures."

1990 - Jerry M. Woodall

"For seminal contributions to compound semiconductor science and technology."

1989 - Robert Gomer

"For pioneering contributions to surface science, including definitive studies on the theory and application of field emission, chemisorption, and desorption phenomena."

1988 - Peter Sigmund

"For theoretical contributions to the field of physical sputtering and related phenomena."

1987 - Mark J. Cardillo

"For his innovative and pioneering research on the interaction of molecular beams with surfaces."

1986 - Harald Ibach

"For the development of high resolution electron energy loss spectroscopy and its applications to the characterization of surfaces and absorbates."

1985 - Theodore E. Madey

"For his investigations of surface processes at a fundamental atomic and molecular level, especially the determination of adsorbed molecule bonding geometries."

1984 - William E. Spicer

"For his contributions to the development and application of photoelectron spectroscopy in the study of the electronic structure and chemical properties of solids and their surfaces and interfaces."

1983 - H.H. Wieder

"For his contributions to growth of thin semiconductor single crystal films, and most importantly, for research leading toward III-V MOS technology."

1981 - Harrison E. Farnsworth

"For his pioneering studies of the preparation, structural characterization, and properties of atomically clean surfaces."

1979 - Gert Ehrlich

"For contributions to our understanding of the microscopic force laws by which atoms residing on solid surfaces interact with the substrate and with each other."

1978 - Georg H. Hass

"For techniques of preparation and characterization of thin films for optical coatings of importance to solar energy, space technology, and electro-optics."

1977 - Charles B. Duke

"For far-reaching theoretical contributions to surface science and solid state physics in the areas of low energy electron diffraction, electron tunneling and the electronic structure of large organic molecules."

1976 - Leslie Holland

"In recognition of his many important contributions to vacuum technology and to thin film and surface sciences."

1975 - Paul A. Redhead

"In recognition of his distinguished contributions to the science of low pressure measurement and his far-reaching research on the properties and behavior of absorbed species."

1974 - Homer D. Hagstrum

"For pioneering contributions to ultrahigh vacuum studies of solid surfaces, especially the incorporation into a single vacuum chamber of multiple experimental measurements on controlled, individual surfaces; the development of an experimental technique to measure with high precision the energy distribution of electrons ejected from surfaces by the neutralization of slow ions; and the conversion of this technique into spectroscopy of the electronic structure of well-characterized solid surfaces by virtue of his elucidation of the nature of the physical mechanism of this neutralization process."

1973 - Lawrence A. Harris

"For his pioneering work in the field of Auger electron spectroscopy. Dr. Harris was responsible for the key publication recognizing the potential of Auger electron spectroscopy as a surface analytical tool which he developed and demonstrated. His contribution has had far-reaching impact on the field of surface science and related technical activities."

1972 - Kenneth C.D. Hickman

"For his contributions in the development of condensation pumps and their working fluids and, in particular, for his discovery of the self-fractionating principle which has made these pumps possible."

1971 - Gottfried K. Wehner

"For his pioneering work in the field of sputtering, which has profoundly influenced many other scientists and engineers."

1970 - Erwin W. Mueller

"For work including the development of field electron and field ion microscopy."

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