LOHMAN

search interests range from physical optics to information processing, and he has made contributions to such pursuits as optical transfer theory, character recognition holography and astronomical-image processing. Following the award of a PhD in physics in 1953 from the University of Hamburg, Lohman held faculty positions at the Technical University of Braunschweig, the Royal Institute of Technology in Stockholm and the University of California at San Diego, as well as a research position at IBM Research Laboratories (1961–67), before joining the faculty of Erlangen in 1973. He served as president of the International Commission for Optics from 1978–81.

NAE Award to Bardeen; Bueche Medal to David

The National Academy of Engineering has presented its Founders' Award to John Bardeen, professor emeritus of physics and electrical engineering at the University of Illinois at Urbana-Champaign, and winner of two Nobel Prizes, in recognition of his "remarkable creativity in engineering, science and invention." Bardeen began his career as a geophysicist (1930–33) with the Gulf Research and Development Corporation, working on methods of interpreting magnetic and gravitational surveys. He was awarded a PhD in mathematical physics from Princeton University in 1936 for research on the theory of work functions of metals. Then, as a junior fellow at Harvard University from 1935–38, he studied solid-state physics—cohesion and electrical conduction—and conducted rudimentary investigations into superconductivity. In 1945 Bardeen joined the solid-state research group at Bell Telephone Laboratories; in 1956 he received his first Nobel Prize, together with Walter H. Brattain and William

Shockley, for the invention of the transistor (PHYSICS TODAY, January 1957, page 16). He came to the University of Illinois in 1951, where he worked with Leon N. Cooper and J. Robert Schrieffer in developing a successful microscopic theory of superconductivity; the three received a Nobel Prize for this work in 1972 (PHYSICS TODAY, December 1972, page 73). Bardeen is also known for his instrumental role in the development of the xerographic photocopying process while serving as an advisor to the Xerox Corporation.

Edward E. David Jr, president of the Exxon Research and Engineering Company, received the Arthur M. Bueche Award for his "seminal influence on engineering and science policy." David served as science advisor to President Richard M. Nixon from 1970–72; in that position he helped reorganize the Federal Government's scientific complex, initiated reciprocal agreements with several countries including the USSR and Poland, and promoted basic technological research. Prior to becoming science advisor, he worked for 20 years at Bell Telephone Laboratories. David then served as private consultant and executive vice president of Gould Inc from 1973–77 before joining Exxon. He has also worked to improve the quality of engineering education and to promote government–industry–university relations. His concern for the quality of engineering education prompted him to serve as coauthor of a pre-college text and curriculum, *Manmade World*. David holds a PhD in electrical engineering from the Massachusetts Institute of Technology.

Welch Award in chemistry to Kenneth S. Pitzer

Kenneth S. Pitzer, professor of chemistry at the University of California, Berkeley, has been named recipient of the 1984 Welch Award in chemistry. Pitzer is widely known for his theory on the internal rotation of groups within molecules and its extension to molecules with unsymmetrical groups; he has also compiled tables for the contribution of internal rotation to various thermodynamic properties. In a landmark paper in *Science* magazine, Pitzer showed that the internal rotational potentials contributed to the strain energies of ring molecules. He has also developed a semi-empirical form of series expansion to describe the statistical treatment of complex and concentrated ionic solutions. Pitzer is the ninth recipient of the Welch Award, established in 1972 "to foster and encourage basic chemical research and recognize research that will contribute to the betterment of mankind."

Wannier elected posthumously to Swedish academy

The late Gregory H. Wannier, professor emeritus of physics at the University of Oregon until his death in October 1983 (see May, page 100), has been elected to the Royal Society of Sciences of Uppsala, Sweden. A pioneer in theoretical condensed-matter physics, Wannier also made pivotal contributions to fluid and statistical mechanics and to the study of the dynamics of atoms in gases. His research provided the theoretical foundations for understanding amorphous materials and the crystalline systems of semiconductors and insulators.

Born in Basel, Switzerland, Wannier attended Cambridge University and, in 1935, received a PhD in mathematical physics from the University of Basel. He became a US citizen in 1939. Wannier is only the 33rd foreign member of the Society since 1937; it is the oldest of the Swedish academies, having been given its royal charter in 1728.

Shoemaker and Stevenson receive astronomy prizes

The Division for Planetary Sciences of the American Astronomical Society has presented the Kuiper Prize to Eugene M. Shoemaker of the US Geological Survey and the Urey Prize to David Stevenson of the California Institute of Technology.

Shoemaker was honored for "multidisciplinary contributions to understanding the geological histories of the solid bodies in the solar system." In addition to his position at USGS in Flagstaff, Shoemaker is also a professor of geology at the California Institute of Technology. He received his PhD from Princeton University in 1960; earlier he had participated in explorations for uranium deposits in Colorado and Utah (1948–50) and in regional geological studies of the Colorado Plateau (1951–56). One of his primary research interests has been the mechanics of meteor impact and explosion craters, and he discovered—with Edward C. T. Chao and B. M. Madsen—coesite at Meteor Crater in Arizona. The significance of the find is that coesite, a silicon-based mineral, can be formed in nature only under conditions of extreme pressure—indicating that the crater was indeed formed by meteor impact. Shoemaker was the principal investigator in the geological field studies of the Apollo lunar landings, and he initiated the Palomar planet-crossing Asteroid Survey in 1973. He continues his studies on the implications of cometary bombardment in the solar system and on