

Institute of Technology. Since graduate school he has been on the chemistry faculty of the University of Colorado, Boulder, where he now the E. U. Condon Professor of Chemistry and a fellow of the Joint Institute for Laboratory Astrophysics.

Hans R. Griem received the 1987 Meggers Award for his "contributions to atomic spectroscopy, especially its application to the understanding of the physics of plasmas." Griem received his PhD (1954) from Kiel University, West Germany. He came to the University of Maryland as a research assistant and is now a professor of physics there, working on spectral line broadening in plasmas. Griem is also a member of the university's Laboratory for Plasma Research, and was the laboratory's director from 1980 until 1987.

In 1988, James M. Burch won the Joseph Fraunhofer Award for optical engineering, for "his many significant accomplishments in optical engineering, particularly his pioneering contributions to modern optical design and testing." Burch graduated from Oriol College, Oxford, and received his PhD (1952) from the University of Bristol. He spent almost all of his 31-year research career at the National Physical Laboratory of Britain, where he attained the position of deputy chief scientific officer (individual merit).

Jerzy A. Dobrowolsky received the Fraunhofer Award in 1987 for his "development of numerical methods for the automatic design of optical multilayer coatings with pre-defined spectral characteristics, as well as

methods for their practical realization." Dobrowolski earned his bachelor's degree in physics and mathematics from the University of London, his master's degree in applied optics from the Imperial College of Science and Technology at the University of London, and his PhD in technical optics (1955), also from Imperial College. Since 1955 he has been at the National Research Council of Canada, where he is now a senior research officer and head of the thin film group of the physics division.

In 1988 the Max Born Award in physical optics went to Girish Saran Agarwal. The award cited his "contributions to physical optics" in areas such as quantum optics, "superfluorescence, optical bistability, phase conjugation, and surface effects in nonlinear optics." Agarwal received his MSc at Banaras Hindu University, Varanasi, India, and his PhD in physics (1959) from the University of Rochester. After appointments at the University of Rochester, the University of Stuttgart, and the Tata Institute, Bombay, Agarwal became head of the physics department at the Institute of Science, Bombay, in 1975. In 1977 he became a professor of physics at the University of Hyderabad in India, the position he currently holds.

Emil Wolf won the 1987 Born Award for his "contributions to the theory of partial coherence in the space-frequency domain, scattering and inverse scattering phase conjugation, radiation and radiometry." Wolf received his BS and PhD (1948) from the

University of Bristol, and a DSc from the University of Edinburgh (1955). Since 1959 he has been on the faculty at the University of Rochester, where he is currently the Wilson Professor of Optical Physics at the Institute of Optics and a professor of physics. With the award's namesake, Max Born, Wolf co-authored one of the best-known optics textbooks, *Principles of Optics* (known to thousands of undergraduates as "Born and Wolf").

In 1988 the Ellis R. Lippincott Award for vibrational spectroscopy, which is sponsored by the Coblentz Society and the Society for Applied Spectroscopy as well as OSA, went to Andreas C. Albrecht. Albrecht was cited for critical and distinctive contributions to condensed phase photochemistry, and vibronic and vibrational spectroscopy. He received his BS from the University of California, Berkeley, and his PhD in chemistry from the University of Washington (1954). In 1956 he came to Cornell, where he is currently a professor of chemistry.

In 1987 the Lippincott award went to C. Bradley Moore, in recognition of his "ingenious application of laser spectroscopy to the study of molecular energy transfer, chemical reaction dynamics, and photochemistry." Moore received a BA (1960) from Harvard and a PhD in chemistry (1963) from the University of California, Berkeley. That same year he became an assistant professor in the Berkeley college of chemistry, where he is now a professor and dean of the college.

NATIONAL ACADEMY OF ENGINEERING ANNOUNCES ELECTION OF NEW MEMBERS

The National Academy of Engineering announced in February the election of 90 new members. Many of them work in physics or a closely related field. The newly elected members include:

▷ Ali S. Argon (MIT), for "major contributions to the understanding of deformation and fracture of engineering materials through the application of mechanics to microstructure."

▷ David H. Auston (Columbia University), for "pioneering development in the field of picosecond and femtosecond optoelectronics."

▷ John R. Beyster (Science Applications International Corp, San Diego, California), for "outstanding scientific and engineering contributions related to nuclear energy and national defense."

▷ Robert P. Caren (Lockheed Corp, Calabasas, California), for "practical applications of space sciences in national security systems."

▷ Richard W. Damon (Concord, Massachusetts), for "contributions to microwave ferrite technology and for leadership in the development of electronic devices."

▷ Russell D. Dupuis (AT&T Bell Laboratories, Murray Hill, New Jersey), for "pioneering work in metal-organic chemical vapor deposition and demonstration of heterostructure devices."

▷ Frank F. Fang (IBM Thomas J. Watson Research Center, Yorktown Heights, New York), for "pioneering work in two-dimensional quantum transport in semiconductor inversion layers and for related contributions to

device physics."

▷ Harold K. Forsen (Bechtel National Inc, San Francisco, California), for "outstanding technical and leadership contributions to fission, fusion, and energy technology in industry and academia."

▷ Elsa Garmire (University of Southern California, Los Angeles), for "contributions to nonlinear optics and optoelectronics and for leadership in education."

▷ Keith E. Gubbins (Cornell University), for "pioneering development of computer simulation and perturbation theory for extending statistical mechanical techniques to systems of engineering interest."

▷ Michael Hatzakis (IBM Thomas J. Watson Research Center, Yorktown Heights, New York), "for innovation