Optical Society of America honors twelve

The Optical Society of America presented several awards at its June and October meetings.

Emmett N. Leith (University of Michigan, Ann Arbor) received the Frederic Ives Medal, the society's highest award, for his "contributions to modern holography, information processing and electromagnetics." Leith received his MS in physics in 1952 from Wayne State University in Detroit, Michigan. He then became a member of the electrical-engineering faculty at the University of Michigan. His contributions to holography began in 1961, when he suggested the use of an off-axis reference beam to remove the "twin images" that occur in in-line holography. He then began work with Juris Upatnikas to improve the quality of holographic images; this culminated in 1963 with their achievement of holographic arbitrary three-dimensional scenes. Leith's research interests have included white-light holography and optical-image processing, as well as holography with less than fully coherent light and image processing with incoherent light. Leith was made a full professor at Michigan in 1967.

Theodor W. Hänsch (Stanford University) was honored with the William F. Meggers Award for his "discoveries of powerful techniques for high-resolution laser spectroscopy and their application to fundamental problems of physics, particularly through precision measurements on atomic hydrogen." Hänsch received his PhD in 1969 from the University of Heidelberg. In 1972 he joined the physics faculty at Stanford, where he is a professor of physics. Hänsch built the first narrow-line tunable dye laser. In addition, he pioneered saturation, polarization and polinex methods for eliminating Doppler broadening. Using these techniques on atomic hydrogen, he achieved higher precision in measurements of the Rydberg constant, and made the first measurements of the Lamb shift of the ground state of atomic hydrogen.

Roy J. Glauber (Harvard University) was presented the Max Born Award for his contributions to the quantum theory of coherence and of coherent states and the extension of optical methods to an analysis of high-energy scattering collision processes of elementary particles and nuclei. Glauber received his PhD in 1949 from Harvard. He held research positions at Los Alamos (1944–46) and the Institute for Advanced Study (1949–51) and a teaching position at Caltech (1951–52) before joining the Harvard faculty in 1952. In the early 1950s he began developing what is now known as the Glauber approximation for scattering of particles by complex nuclei and atomic systems. This work included studies of multiple scattering and quantum-mechanical shadowing. It also led to his discovery of the process of diffraction dissociation (1955). He became a full professor at Harvard in 1961. In 1963, Glauber detailed his quantum theory of optical coherence in a letter and a series of papers published in *Physical Review* (see PHYSICS TODAY, July, page 84). Glauber was named Mallinckrodt Professor of Physics at Harvard in 1977.

Ira W. Levin (Laboratory of Chemical

Physics, National Institute of Arthritis, Diabetes and Digestive and Kidney Diseases) was presented with the 1985 Ellis R. Lippincott Award for his work on the vibrational properties of small molecular systems and for his "pioneering and innovative biophysical studies on the applications of vibrational spectroscopy toward understanding the dynamical and conformational properties of biological membrane assemblies." The Lippincott Award is sponsored by OSA, the Society of Applied Spectroscopy and the Coblentz Society; it was presented at the Federation of Analytical Chemistry and Spectroscopy Societies meeting in September. Levin received his PhD in chemistry from Brown University in 1961. In 1963 he joined the National Institutes of Health, becoming a research chemist in the chemical-physics laboratory in 1972 and chief of the molecular-biophysics section in 1979. He is currently using infrared and Raman spectroscopy techniques to study lipid–lipid and lipid–protein interactions in biological membranes.

Jon T. Hougen (National Bureau of Standards) received the Ellis R. Lippincott Award in 1984 for his "contributions to the development of new group-theoretical techniques for the analysis of vibrational, as well as rotation–vibration, spectra." He received his PhD in physical chemistry in 1960 from Harvard. He then worked at the Canadian National Research Council until 1967, when he joined NBS. Hougen has used a group-theoretic approach to describe the rotation–vibration spectra of isolated gas molecules that exhibit large-amplitude vibrational motions. His work focuses on small "floppy" molecules, such as hydrazine, that have groups of atoms that can rotate in relation to the rest of the molecule. In 1970 Hougen, P. R. Bunker and J. W. C. Johns developed a numerical model to describe such spectra. Hougen was chief of the molecular-spectroscopy section at NBS for 1969–73; in 1974 he was named research scientist. In 1985 Hougen was named senior NBS fellow.

William H. Steel (Commonwealth Scientific and Industrial Research Organization National Measurement Laboratory, Lindfield, Australia) received the C. E. K. Mees medal "in recognition of his contributions to many international organizations, as well as his technical achievements in image-diffraction theory, interferometry and optical design." Steel received his undergraduate education at the University of Melbourne and his PhD in 1952 from the University of Paris; he has been with the CSIRO National Measurement Lab since 1944. His research interests have included conventional optical instrumentation, the production of natural-color holograms and such industrial concerns as sugar polarimetry, rail wear and soft contact lenses. Steel was one of the first to apply Fourier-transform methods to the diffraction theory of images.

David H. Auston (AT&T Bell Laboratories, Murray Hill, New Jersey) received the R. W. Wood Prize, which is funded by the Xerox Corporation, for his "pioneering work in the field of picosecond optical electronics, and for the invention and demonstration of the picosecond optoelectronic photoconductive switch." Auston received his PhD in electrical engineering in 1969 from the University of California at Berkeley. He then joined Bell Labs, where he has worked on applications of pulsed lasers to nonlinear optics, materials characterization and high-speed electronics. Auston pioneered the use of ultrafast optical pulses and semiconductor materials to switch and gate electrical signals in microelectronic circuits. He also used ultrafast optical pulses to conduct early, fundamental studies of the kinetics of free carriers in semiconductors.

Peter K. Runge (AT&T Bell Laboratories, Holmdel, New Jersey) received the Joseph Fraunhofer Award for his "contributions to the design of optical-fiber connectors and the development of an undersea lightwave system." Runge received his PhD in electrical engineering in 1967 from Technische Universität Braunschweig in Germany. He then joined Bell Labs, where he has supervised research in fiber-optic systems, fiber-guide technology and undersea lightwave systems and regenerators. In 1980 he was named head of the Undersea Lightwave System Development Department.

Norman J. Brown (Lawrence Livermore National Laboratory) received the David Richardson Medal for his "extensive pioneering work, both experimental and theoretical, on the mechanisms of optical polishing." Brown received his MS in mechanical engineering from the University of California at Berkeley in 1959. He has worked extensively on optical-polishing pitch, annular lapping of precision optical flatware, free-abrasive grinding and computationally directed axisymmetric aspheric figuring.

Karl K. Kessler (NBS) was honored with a Distinguished Service Award for his contributions to OSA and for "service to the broader community of optical scientists and engineers through research and the leadership of the research efforts in atomic and molecular physics at the National Bureau of Standards." Kessler received his PhD in 1947 from the University of Michigan. In 1948 he became a physicist at NBS; he was named chief of the atomic-physics division in 1962 and chief of the optical-physics division in 1970. Kessler did pioneering work in atomic-beam interferometry, Doppler-free techniques and Zeeman-filtering groundwork for the atomic length standard. Since 1978 he has been director of the Center for Absolute Physical Quantities at NBS.

Two individuals were made honorary members of the Society: Rudolf Kingslake (University of Rochester) was honored as "the father of lens design in the US . . . [He] is considered by all of the lens designers as the grand master of the art." Nicolaas Bloembergen (Harvard University) was honored for his "pioneering contributions to nonlinear optics and laser spectroscopy."

—MARGARET MARYNOWSKI

AAS gives awards for 1985

The American Astronomical Society presented several awards at its meetings in July and October.

Lennox Lauchlan Cowie (Space Telescope Science Institute and Johns Hopkins University) received the 1985 Helen B. Warner Prize for his "fundamental contributions to our understanding of interstellar and intergalactic gas." Cowie explained the mechanism by which gas clouds may evaporate in a hot medium, which is a basic process in creating the structure of supernova remnants, the interstellar medium and intergalactic gas. In addition, he has made extensive studies of the dynamics and evolution of x-ray-emitting gas in clusters of galaxies and, in particular, put forward the theory of radiative accretion flows. He has studied the thermodynamics and hydrodynamics of the interstellar medium using ultraviolet spectroscopy of sensitive absorption lines to search for trace amounts of high-velocity gas. Cowie received his PhD in theoretical physics from Harvard University in 1976. He held a research position at Princeton University until 1981, when he became an associate professor of physics at the Massachusetts Institute of Technology. He is currently chief of the academic-affairs branch of the Space Telescope Science Institute and professor of physics and astronomy at Johns Hopkins University.

Richard G. Kron (University of Chicago) received the Newton Lacy Pierce Prize for his role in establishing "the observational basis for a modern analysis of the distribution of stars in the Galaxy and for counts of distant galaxies. He has provided to this classical subject crucial data at fainter magnitudes than were ever before possible." Kron received his PhD in 1978 from the