

OPTICAL SOCIETY RECOGNIZES OUTSTANDING WORK IN THE FIELD

The Optical Society of America recently announced the winners of its 1991 awards, which recognize achievement in physical optics, spectroscopy, fiber optics and various other areas. Most of the awards will be presented at OSA's November meeting in San Jose, California.

John L. Hall is this year's recipient of the Frederic Ives Medal, OSA's highest honor. Hall was chosen for his "outstanding contributions to laser frequency stabilization, innovations in high-resolution laser spectroscopy and high-accuracy tests of fundamental physical laws." Hall has used lasers to study hyperfine structures in molecules and atoms, to measure the speed of light and to stop and cool atoms. In addition, he has worked on the detection of blackbody radiation shift in Rydberg states, Doppler-free spectroscopy of positronium and the isotropy of space. Recently with Dieter Hils he used an improved Kennedy-Thorndike experiment to measure the difference between the special relativity constants, $\alpha - \beta$, with 280 times more accuracy than previous measurements.

Hall studied at the Carnegie Institute of Technology (now Carnegie-Mellon University), where he received a BS (1956), an MS (1958) and a PhD in physics (1961). He then became a physicist at the National Bureau of Standards (now the National Institute of Standards and Technology) and the University of Colorado's Joint Institute for Laboratory Astrophysics.

The 1991 Max Born Award for achievements in physical optics goes to James P. Gordon in recognition of his "manifold original contributions to physical optics, including masers, the theory of quantum noise in lasers and in optical communications, radiation pressure, ultrafast phenomena and solitons in optical fibers, and for his fruitful and selfless assistance to so many others." With Zeiger and Townes, Gordon conceived and built the first maser.

Gordon received a PhD in physics from Columbia University in 1955. He then joined AT&T Bell Labs, where he was head of the quantum electronics research department from 1959 to 1980. Since then he has been a technical staff consultant with Bell Labs.

James G. Baker is the recipient of the 1991 Joseph Fraunhofer Award, which is given for contributions to optical engineering. OSA cites Baker for his "continuing exemplary and pioneering work in optical engineering, particularly the development of high performance non-rotationally symmetric optical systems." Baker has worked on two-correcting-plate designs for convertible, wide-field correction systems used for paraboloidal telescope primaries.

Baker received a PhD in astronomy and astrophysics in 1942 from Harvard University and has over the years been associated with research and the activities of the staff at the Harvard College Observatory.

The Adolph Lomb Medal, which recognizes an individual's contributions to optics before the age of 30, is being given this year to David F. Welch. Welch is cited for his "re-

search and commercialization of high-power semiconductor laser diode arrays and coherent single-mode diode lasers." Welch's contributions have included designs of new epitaxial geometries for diode arrays and new techniques for high-power coherent emission using two-dimensional surface emitters.

Welch earned a PhD in electrical engineering from Cornell University in 1985. That same year he joined Spectra Diode Laboratories, in San Jose, California, where he is currently research manager.

Daniel Kleppner receives the 1991 William F. Meggers Award for his "outstanding contributions to spectroscopy, including development of the hydrogen maser, spectroscopy of Rydberg states, and analysis of the interaction of atoms with electromagnetic fields." Kleppner and Norman Ramsey of Harvard University built the first hydrogen maser in 1960.

Kleppner earned a PhD in physics from Harvard University in 1959 and served on the Harvard faculty from 1959 to 1966. He then joined MIT, where he is currently the Lester Wolfe Professor of Physics and associate director of the Research Laboratory of Electronics.

OSA's C. E. K. Mees Medal, which recognizes an individual who exemplifies the idea that "optics transcends all boundaries—interdisciplinary and international alike," is being given this year to Florin Abeles. Abeles is cited for his "internationally recognized work on the spectroscopy of thin films and metal alloys, and for innovative activity with international organizations and journals of major importance to the optics community." He is credited with the experimental demonstration in 1962 of virtual bound states in noble metal-transition metal alloys by optical spectroscopy.

Abeles completed a doctorate in physics at the Université de Paris in 1949 and was a researcher at the Centre National de la Recherche Scientifique until 1959, when he be-

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came a professor of physics at the Université Pierre et Marie Curie.

Gary K. Starkweather of Apple Computer is the recipient of the David Richardson Medal. He is cited for "contributions to the technology of laser xerography printing and to the realization of practical laser printers." Starkweather's work led to the development of the optical path features required to compensate for non-parallel facets in rotating-polygon scanning equipment.

Starkweather received an MS from the University of Rochester in 1966. He began working for Xerox in Rochester in 1964 and was a senior research fellow at the company's Palo Alto Research Center from 1971 to 1988. He then joined the advanced technology group at Apple.

This year the R. W. Wood Prize, which recognizes a discovery, scientific or technological achievement, or invention in optics, is shared by Thomas F. Deutsch of Massachusetts General Hospital, Daniel J. Ehrlich of MIT Lincoln Laboratory and Richard M. Osgood of Columbia University. The three are cited for "invention of laser photochemical deposition and the application of laser-induced photochemical reactions to materials processing." This work, which has applications in semiconductor device processing, was performed while the three were at Lincoln Laboratory in the late 1970s and early 1980s.

Deutsch earned a PhD in applied physics from Harvard University in 1961. From 1960 to 1974 he worked at Raytheon Company, and from 1974 to 1984 he was at Lincoln Laboratory. In 1984 he became a research physicist in the dermatology department at Massachusetts General Hospital.

Ehrlich received a PhD in optical engineering from the University of Rochester in 1977. He then joined Lincoln Laboratory, where he has served as a group leader in the microelectronics and submicrometer technology groups. He is currently a senior staff member there.

Osgood earned a PhD in physics from MIT in 1973 and was a researcher at Lincoln Laboratory from 1973 to 1981. He then moved to Columbia University, where he is currently a professor of applied physics and Higgins Professor of Electrical Engineering.

At the Conference on Optical Fiber Communication held in February in San Diego, California, the 1991 John Tyndall Award, given jointly by OSA and the IEEE Lasers and Electro-Optic Society for contributions to fiber optics technology, was presented to David N. Payne of the University of

Southampton in England. OSA cited Payne for "outstanding contributions to the design, measurement and fabrication of optical fibers, sensors and fiber devices." Payne's achievements in this area include developing a high-gain erbium-doped fiber amplifier and elucidating second harmonic generation in fibers.

Payne received a PhD in optical communications from the University

of Southampton in 1976. He has been a researcher there since 1969 and is currently a deputy director of the university's optoelectronics research center.

In addition to the awards described above, OSA presented the Charles Hard Townes Award to Elias Snitzer of Rutgers University at the May CLEO-LEOS Meeting (see PHYSICS TODAY, April, page 75).

OSTERBROCK AND OTHERS RECOGNIZED BY AAS

At its January meeting in Philadelphia, the American Astronomical Society announced the winners of its 1991 awards.

Donald Osterbrock of Lick Observatory of the University of California, Santa Cruz, received the Henry Norris Russell Lectureship, the society's highest honor, which recognizes lifetime achievement. The award citation called Osterbrock "a leader in the investigation of the properties of gaseous nebulae" and praised his "development of diagnostic tools aimed at understanding the physical conditions in ionized gas." The citation also noted his textbooks, which it described as "the standards in the field." Osterbrock's other research topics have included quasars and active nuclei of galaxies, galactic structure and interstellar matter.

Osterbrock was educated at the University of Chicago, where he received a BS (1948), an MS (1949) and a PhD in astronomy (1952). He served on the faculties of Caltech from 1953 to 1958 and the University of Wisconsin, Madison from 1958 to 1973. He then joined the University of Califor-

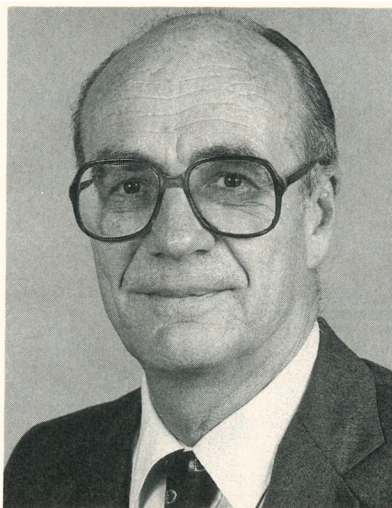
nia, Santa Cruz, where he is a professor of astronomy and astrophysics at Lick Observatory.

Wallace L. W. Sargent of Caltech received the 1991 Dannie Heineman Prize for Astrophysics, which is jointly administered by AAS and the American Institute of Physics. Sargent was chosen for his work on Lyman-alpha clouds. The citation credited his research with "opening up a whole new field of astronomy. . . . He has gained unique information on the gaseous components of galaxies and on the nature of the intergalactic medium."

Sargent studied at the University of Manchester in England, earning a BSc (1956), an MSc (1957) and a PhD in astrophysics (1959). In 1966 he joined the faculty of Caltech, where he is currently the Bowen Professor of Astronomy.

The 1991 Newton Lacy Pierce Prize, which honors achievement in observational astronomical research, went to Kenneth Libbrecht of Caltech for his work in helioseismology. He was cited for building and operating an instrument to measure solar oscil-

Donald Osterbrock



Wallace Sargent

