

WE HEAR THAT

APS Divisions Name Prize Recipients for 1999

At various division meetings held in recent months, the American Physical Society honored nine individuals for their contributions to physics.

The 1999 Robert R. Wilson Prize, given jointly by APS's divisions of beams and of particles and fields, went to **Robert B. Palmer**, director of Brookhaven National Laboratory's Center for Accelerator Physics. Palmer was recognized for, in the words of the citation, his "many diverse contributions and innovations in particle accelerator and detector technologies, including superconducting magnets, longitudinal stochastic cooling, bubble chambers and neutrino beam lines, crab crossing in lepton colliders, laser acceleration, and for leadership of the muon collider concept."

Zhirong Huang received the 1999 Award for Outstanding Doctoral Thesis Research in Beam Physics from the division of beams for his "analysis of radiation damping and quantum excitation in novel accelerator configurations." He received his doctorate from Stanford University in 1998, under the guidance of Ronald Ruth. Huang is currently a physicist at Argonne National Laboratory's Advanced Photon Source.

The division of atomic, molecular, and optical physics gave two DAMOP Thesis Awards in 1999. **Brett Esry**, an assistant professor of physics at Kansas State University, was recognized for his research in "many-body effects in Bose-Einstein condensates of dilute atomic gases." The other award went to **Jens U. Nöckel** for his research in "the emission properties of asymmetric dielectric resonators with chaotic ray dynamics." Nöckel is a staff member at the Max Planck Institute for the Physics of Complex Systems in Dresden, Germany.

The division of plasma physics honored three scientists in 1999. **John B. Taylor** received the James Clerk Maxwell Prize for "ground-breaking research, distinguished by its ingenuity and clarity, in such topics as: relaxation theory, transport, finite Larmor radius effects, the minimum-B concept, adiabatic invariance, the standard map, bootstrap currents, the ballooning representation, and confinement scaling laws." Taylor is retired from the UKAEA

Fusion Culham Science Centre in Oxfordshire, England and from the Institute for Fusion Studies at the University of Texas at Austin.

Raymond J. Fonck, a professor in the engineering physics department at the University of Wisconsin—Madison, was given the Award for Excellence in Plasma Physics Research. Fonck was cited for his "implementation, development, and exploitation of beam emission spectroscopy for measuring fluctuations and their relations to anomalous transport in hot, fusion-relevant plasmas."

Thomas R. Clark was the recipient of the Outstanding Doctoral Thesis in Plasma Physics Award, which recognized his "comprehensive elucidation of the hydrodynamics and the optical mode structure of the plasma waveguide." Clark received his doctorate in 1998 from the University of Maryland, College Park, where his thesis adviser was Howard Milchberg. He is currently a research physicist in the optical sciences division at the Naval Research Laboratory in Washington, DC.

The division of fluid dynamics presented the Fluid Dynamics Prize and the Otto Laporte Award in 1999. The Fluid Dynamics Prize went to **Daniel D. Joseph**, the Regents' Professor and the Russell J. Penrose Professor in the aerospace engineering and mechanics department at the University of Minnesota. According to the award citation, Joseph has earned recognition for "the broad range of his contributions to the stability and bifurcation of fluid flows, rheological fluid mechanics, and fluid mechanics of problems involving liquid-solid boundaries."

The Otto Laporte Award went to **Eli Reshotko**, the Kent H. Smith Professor of Engineering at Case Western Reserve University in Cleveland, Ohio. He was cited for his "lasting contributions and leadership to the understanding of transition to turbulence in high-speed flows and nonhomogenous flows."

ASA Honors Four Scientists

Four individuals received medals and awards from the Acoustical Society of America during the society's 138th meeting, held last month in Columbus, Ohio.

The Trent-Crede Medal was given to **David Feit**, a senior research scientist at the Naval Surface Warfare

Center in Bethesda, Maryland. Feit was honored for his contributions to "high frequency noise radiation from submerged structures and to the vibration of fuzzy structures."

Ronald T. Verrillo garnered the Silver Medal in Biomedical Ultrasound/Bioresponse to Vibration for "contributions to the psychophysics and physiology of vibrotactile sensitivity," according to the award citation. Verrillo is a professor emeritus at Syracuse University's Institute for Sensory Research.

The Silver Medal in Noise went to **Larry H. Royster**. A professor of mechanical and aerospace engineering at North Carolina State University at Raleigh, Royster was cited for his "contributions to worldwide hearing conservation."

The Science Writing Award for Professionals in Acoustics went to **Ilene J. Busch-Vishniac** for her article "Trends in Electromechanical Transduction," which appeared in the July 1998 issue of PHYSICS TODAY. Busch-Vishniac is dean of the Whiting School of Engineering at Johns Hopkins University.

Prizes Given at AAPT Meeting in Texas

The American Association of Physics Teachers held its annual summer meeting in San Antonio in August. Five awards were presented at the gathering.

The Robert A. Millikan Medal went to **Alan Van Heuvelen**, a physics professor at Ohio State University. According to the citation, Van Heuvelen received the award for his "outstanding contributions in developing research in physics education" and for his "dedication to the teaching and learning of physics."

The Paul Klopsteg Memorial Lecture Award went to **Michael S. Turner**, the Bruce V. and Diana M. Rauner Distinguished Service Professor and chair of the astronomy and astrophysics department at the University of Chicago. At the meeting, Turner, whose research focuses on the earliest moments of the universe, presented his lecture entitled "Cosmology: From Quantum Fluctuations to the Expanding Universe."

Howard G. Voss was the recipient of the Melba Newell Phillips Award, which is given occasionally to individuals who have made exceptional contributions to physics education through their leadership in

AAPT. Voss, chairman of the department of physics and astronomy at Arizona State University, was honored for the contributions he has made to "physics, physics teaching, AAPT, and the physics community."

The Excellence in Undergraduate Physics Teaching Award went to **Marvin Nelson**, head of the physics department at Green River Community College in Auburn, Washington. Nelson was cited for his "many and innovative contributions to physics and the teaching of physics."

Arthur Eisenkraft received the Award for Excellence in Pre-College Physics Teaching, which is given in recognition of outstanding contributions to precollege physics teaching that have had a national impact. Eisenkraft is a physics teacher and the science coordinator in the public school system of Bedford, New York.

IN BRIEF

In October, the Eduard Rhein Foundation, based in Hamburg, Germany, presented its 1999 Basic Research Award—together with DM 150 000 (about \$80 000)—to **Vladimir A. Kotelnikov**. A former

vice president of the Russian Academy of Sciences, Kotelnikov was cited "for the first theoretically exact formulation of the sampling theorem."

Pierre Villeneuve has left his position as a research scientist at MIT's Research Laboratory of Electronics to form his own Boston-based company, Clarendon Photonics, where he will be the chief technical officer and the interim chief executive officer.

In September, **Brian Schwartz** became vice president of research and sponsored programs at the Graduate School and University Center of the City University of New York. He had previously been a professor of physics at CUNY's Brooklyn College and, for the past four years, the director of centennial programs for the American Physical Society's March 1999 meeting in Atlanta.

John Kormendy, currently a professor of astronomy at the University of Hawaii at Manoa, will be moving next month to the University of Texas at Austin to assume the Curtis T. Vaughan Jr Centennial Chair in Astronomy.

with his students and coworkers.

In 1970, I had the good fortune to join his laboratory as a NATO postdoctoral fellow and to begin a close collaboration and warm friendship with Art that lasted many years. The early years of this collaboration, when we found ourselves at the heart of a revolution in laser spectroscopy, were most exhilarating. With the first highly monochromatic and widely tunable dye lasers, we explored powerful new techniques for laser spectroscopy without Doppler broadening—such as saturation spectroscopy or polarization spectroscopy—and we applied those methods to precision spectroscopy of the simple hydrogen atom, which makes possible unique confrontations between experiment and fundamental theory. These contributions to laser spectroscopy were cited when Art received the Nobel Prize in Physics in 1981. Our discussions also led to the first proposal for laser cooling of atomic gases, which we published in early 1975.

Art combined a vast range of knowledge and interests with brilliant intuition. He could see the significance of new discoveries before most others, and he had a rare gift for solving puzzling problems. With his keen interest in clever inventions and fundamental physics and with his contagious enthusiasm, he had a special ability to inspire others to attain high levels of achievement. Art gave critical encouragement to his students when he emphasized that one does not have to study everything that is known about a subject to be able to discover something new. One only has to find one thing that was not known.

As a public speaker and science writer, Art made immense contributions to the public understanding of lasers and optical science. He could explain complex ideas in the most simple and lucid terms, using his

OBITUARIES

Arthur Leonard Schawlow

Arthur Leonard Schawlow, who, with Charles H. Townes, invented the laser, succumbed to leukemia in Stanford, California, on 28 April.

Born in Mount Vernon, New York, on 5 May 1921, Art earned all his degrees, which were in physics, at the University of Toronto—a BA in 1941, an MA in 1942, and a PhD in 1949. Art's university education was interrupted by World War II, which Canada had joined in 1939. During the war, Art taught military personnel at Toronto and then spent the years 1944–45 working on a microwave project at a radar equipment factory. For his PhD, which was supervised by Malcolm Crawford, he studied the properties of nuclei by means of high-resolution spectroscopy of atomic beams.

Doctorate in hand, Art joined Townes at Columbia University as a postdoctoral fellow to work on the microwave spectroscopy of atoms and molecules. In 1951, he married Townes's younger sister, Aurelia, and accepted a position as a research physicist at Bell Telephone Laborato-

ries, in Murray Hill, New Jersey, where he turned at first to superconductivity.

During his ten years at Bell Labs, he and Townes wrote the classic monograph *Microwave Spectroscopy* (McGraw-Hill, 1955). In 1957, the two of them recognized that the principles of the maser—that is, the generation and amplification of microwaves by stimulated emission of radiation, as first demonstrated by Townes in 1954—could be extended to optical wavelengths. Art had the ingenious insight that the laser resonator could be formed by just two mirrors, like the Fabry-Pérot interferometer that he had used as a graduate student. When published in 1958, their first paper on lasers, entitled "Optical and Infrared Masers" triggered an explosion of laser research that would revolutionize many areas of science and technology.

In 1961, Art left Bell Labs to become a physics professor at Stanford University. He served as chair of the physics department from 1966 to 1970, and held the J. G. Jackson and C. J. Wood Chair of Physics from 1978 until his retirement in 1991. At Stanford, Art set out to explore the potential of lasers for spectroscopy



ARTHUR LEONARD SCHAWLOW