KLEPPNER RECEIVES 1991 LILIENFELD PRIZE FOR MASER WORK

Daniel Kleppner, the Lester Wolfe Professor of Physics and associate director of the Research Laboratory of Electronics at the Massachusetts Institute of Technology, has been awarded the 1991 Julius Edgar Lilienfeld Prize of The American Physical Society. Kleppner was cited for "his contributions to the development of the atomic hydrogen maser and other techniques for precise spectroscopy of neutral atoms, and for the clarity of his exposition of the physics involved."

Kleppner will accept the prize, which consists of $12 000 and a certificate, at the April meeting of APS in Washington, DC. The prize also covers expenses for the recipient to give three lectures, one at a predominantly undergraduate institution, one at a research university and one at a general APS meeting. The prize recognizes outstanding contributions to physics by an individual who has exceptional skills in lecturing to audiences of nonspecialists.

Born in 1932, Kleppner received a BS from Williams College in 1953, a BA from Cambridge University in 1955 and a PhD in physics from Harvard University in 1960. He joined the MIT faculty in 1966.

In 1960 Kleppner and Norman F. Ramsey of Harvard University invented the atomic hydrogen maser, which they used for a number of fundamental measurements, including the hyperfine separations of atomic hydrogen, deuterium and tritium. At MIT Kleppner and his colleagues have made important studies of Rydberg atoms—that is, atoms in which one electron is in a bound state very near the continuum and in a Bohr orbit with an enormous radius. In collaboration with Thomas J. Greytak, he has helped pioneer in the production and confinement of spin-polarized hydrogen and in the study of hydrogen at ultralow temperatures.

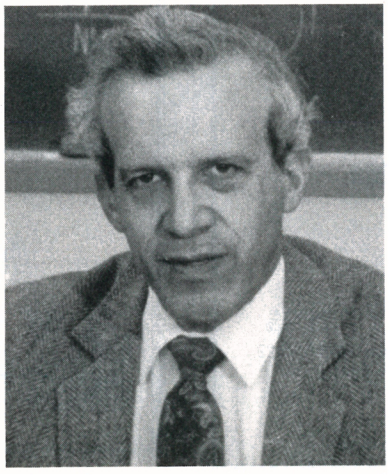
Kleppner is highly regarded as a teacher and lecturer. He has written two widely studied books and a number of articles for *Scientific American*, PHYSICS TODAY and other magazines (see, for example, his Reference Frame piece in PHYSICS TODAY, January, page 9). He has also been active in science policy, in particular as an advocate of funding for "small science."

Kleppner has served APS as a councillor, a member of the Executive Committee and a member of the editorial board of *Physical Review A*. Currently he is a member of the APS Panel on Public Affairs and the Physics Planning Committee. He is also a member of the APS division of atomic, molecular and optical physics. In 1985 he received the Davisson–Germer Prize for his studies of the properties of Rydberg atoms and their interactions with electromagnetic fields (see PHYSICS TODAY, June 1986, page 102).

Contacted at MIT, Kleppner described his reaction to receiving the award: "It came as a surprise out of the blue. I didn't know much about the prize—I had to go look it up." In addition to giving an invited lecture ("Quantum Chaos: An Experimental View") at the April APS meeting, Kleppner says he will fulfill the terms of the prize by speaking at a joint symposium of St. Olaf's College and Carleton College in Northfield, Minnesota, and at the University of Washington in Seattle.

The Lilienfeld Prize was established in 1988 as a result of a bequest by Beatrice Lilienfeld in memory of her husband, a physicist and inventor. Prior to the establishment of the prize, Julius Lilienfeld was a little known and rather overlooked figure in physics history. In the late 1920s, however, he was awarded three patents for the prototype of a device that closely resembles what is now known as the field-effect transistor (see PHYSICS TODAY, May 1988, page 87).

Daniel Kleppner



APS ESTABLISHES SCHAWLOW PRIZE IN LASER SCIENCE

APS has established the Arthur L. Schawlow Prize in Laser Science to recognize outstanding contributions to basic research that uses lasers to advance knowledge of the fundamental physical properties of materials and their interactions with light.

The annual prize, which is sponsored by the NEC Corporation, consists of $10 000, a certificate and an allowance for travel to the meeting at which the prize is conferred.

Schawlow is known primarily for the work he did with Charles Townes at AT&T Bell Labs in the late 1950s, extending the maser principle into the infrared and optical regions. The Swedish Academy noted in 1981, when Schawlow was awarded the Nobel Prize with Nicolaas Bloembergen and Kai M. Siegbahn, that the work by Schawlow and Townes "initiated the whole dynamic field which we now associate with the concept of 'laser.'" Subsequent to his work with Townes, Schawlow left AT&T for Stanford University, where he and colleagues developed a variety of important laser spectroscopy techniques. These included use of pulsed dye lasers to achieve broadband tunability and the external saturation method to observe Doppler-free optical spectra, and the invention of lower-level or population labeling to simplify complicated spectra. ■