

Greenspan wins Gold Medal from Acoustical Society

The Acoustical Society of America has awarded a Gold Medal to Martin Greenspan of the National Bureau of Standards. The Gold Medal, which is the highest honor the Society can bestow, is given to Greenspan "for wide-ranging and superlative contributions to experimental and theoretical physical acoustics, including ultrasonically induced cavitation in liquids and sound propagation in solids, liquids, and gases."

Greenspan joined the staff of the National Bureau of Standards in 1935, shortly after his graduation from the Cooper Union Institute of Technology, and maintains his NBS affiliation to this date, serving as a consultant since his retirement in 1974. Until 1946 Greenspan worked on elasticity and strength of materials. His theoretical work on engineering structures, as a member of a team under A. H. Strang, helped to set modern safety standards for structures, and his work on stress distribution on perforated plates made important contributions to modern elastic-fracture mechanics.

Since 1946, he has been working in physical acoustics as a member of the Sound Section, where he served as section chief from 1966 to 1974. In collaboration with Richard K. Cook and Moody C. Thomson Jr, he laid the foundation for our understanding of the propagation of sound in rarified gases. He was able to show that the Navier-Stokes equation gave a good approximation of the dispersion and attenuation of sound in monatomic gases even for short wavelengths approaching the mean free path. His measurements at substantially lower pressures, where the mean free path is significantly greater than the wavelength, showed substantial deviations from the Navier-Stokes results. Theoretical many-body results are now judged by their agreement with these measurements. Greenspan was able to demonstrate both experimentally and theoretically how molecular and translational relaxation in polyatomic gases combine to affect acoustic dispersion and attenuation.

In 1950, collaborating with Carl E.



GREENSPAN

Tschiegg, Greenspan developed an acoustic velocimeter which serves as the prototype for the version now used by the US Navy and in industry. Again with Tschiegg, he studied the effects of dissolved gases and of neutron radiation on the threshold of cavitation in liquids. Because the cavitation thresholds determined with neutrons are reproducible, Greenspan and Tschiegg were able to determine the temperature dependence of cavitation in degassed, neutron-irradiated liquids. In

collaboration with Tschiegg and Franklin R. Breckenridge, Greenspan improved acoustic emission measurements by developing a technique in which received signals were free of aberrations due to ringing or reflection. Greenspan is now working on the theoretical acoustics of the piston radiator, extending solutions for cases in which pressure and particle velocity vary over the surface of the piston.

In addition to his many scientific contributions, Greenspan has also played an active role in the acoustics community. He was president of the Acoustical Society from 1963 to 1964 and again from 1966 to 1967, having been president-elect 1965-66. He has also served on the executive council (1959-62), as chairman of the technical council (1967-68), as a member of the technical committee on physical acoustics (1961-64, 1968-71) and as the Society's representative to the council of the AAAS, to the US National Committee of IUPAP, and on the division of Physical Sciences of the National Research Council. He was editor of the *Journal of Research of the National Bureau of Standards Section C* (1962-73) and associate editor of the *Journal of the Acoustical Society* (1961-66), and he was the Society's representative on the governing board of The American Institute of Physics 1974-79.

DOE gives five Lawrence Awards

The Department of Energy has chosen five scientists to receive Lawrence Awards for their outstanding contributions to the field of atomic energy. The recipients are: George Chapline Jr of Lawrence Livermore National Laboratory; Mitchell J. Feigenbaum of Los Alamos National Laboratory and Cornell University; Michael J. Lineberry of Argonne National Laboratory; Nicholas Turro of Columbia University; and Raymond E. Wildung of Pacific Northwest Laboratory.

The awards have been given annually by DOE since they were established in 1959 as a memorial to Ernest O.

Lawrence. Each winner receives a cash award of \$5000, a medal and a citation.

DOE recognized Chapline "for his outstanding basic contributions in high-energy and nuclear physics, in high-energy-density astrophysics and cosmology, and in the highly creative and effective applications of atomic, nuclear and statistical physics to important national-security problems."

Perhaps best known for his studies on the theory and potential uses of x-ray lasers, Chapline was noted for "decisive contributions" to the weapons program since he came to Liver-