WE HEAR THAT

ASA Bestows Honors in San Diego

At the 134th meeting of the Acoustical Society of America, held this month in San Diego, six individuals were honored for their contributions to acoustics.

Robert W. Young, was elected to honorary fellowship in ASA, a distinction that has been given to only 12 other individuals (the first was Thomas Alva Edison). Young was honored for his "contributions encompassing many areas of acoustics, to international standards and acoustical terminology, and for sustained and devoted service to the Society." Until he retired in 1982, Young was a consultant to what was then the Naval Ocean Systems Center in San Diego.

Russell Johnson, owner and founder of Artec Consultants in New York City, received the Wallace Clement Sabine Award for "contributions to the understanding of the acoustics of performance spaces and the design of concert halls, theaters, and opera houses throughout the world."

Alice H. Suter, owner of Alice Suter and Associates in Ashland, Oregon, was given the Distinguished Service Citation for "increasing public awareness of acoustics and for dedicated service to the Society as editor of *Echoes*," the ASA quarterly newsletter.

The Silver Medal in Speech Communication went to **Patricia K. Kuhl**, chair of the department of speech and hearing sciences and the William P. and Ruth Gerberding Professor at the University of Washington, for "contributions to the understanding of the innate and learned aspects of speech perception and production."

Robert E. Apfel, the Robert Higgin Professor of Mechanical Engineering at Yale University, received the Silver Medal in Physical Acoustics for "contributions to the understanding of acoustic cavitation, acoustic radiation pressure, and the bioeffects of medical ultrasound."

The Silver Medal in Acoustical Oceanography went to **Herman Medwin**, an emeritus professor of physics at the Naval Postgraduate School and owner of Ocean Acoustics Associates in Pebble Beach, California, for "contributions to the understanding of acoustical scattering, absorption and ambient noise, particularly in relation to the acoustics of bubbles in the sea."

OBITUARIES

Joaquin M. Luttinger

On 6 April, the noted theoretical physicist Joaquin M. (Quin) Luttinger died suddenly in New York City at the age of 73 of complications arising from cancer of the bone marrow. He had been in good spirits until just a few days earlier. Luttinger's major work, done mainly in the period 1945–70, has left its imprint on physics and continues to have a strong influence on current developments.

Having earned a BSc in 1944 and PhD in 1947—both in physics at MIT—Luttinger took advantage of a Swiss–American exchange fellowship to become the first American postdoc in Wolfgang Pauli's group at the Swiss Federal Institute of Technology in Zurich after World War II. There, he demonstrated his brilliance in contributions, made partly with Res Jost, to the just-developed renormalized quantum electrodynamics. Especially noteworthy is his 1948 calculation of the anomalous magnetic moment of the electron, carried out independently of and approximately simultaneously with the calculation by Julian Schwinger.

JOAQUIN M. LUTTINGER

In his early work—as a National Research Council Fellow (1948–49), Jewell fellow at the Institute for Advanced Study (1949–50) and physics professor at the University of Wisconsin (1950–53)—Luttinger pursued interests that were eclectic, ranging from his thesis work on antiferromagnetism to studies of pion physics. In 1953, he joined the physics department at the University of Michigan. Four years later, he moved to the University of Pennsylvania (1958–60), before settling at Columbia University in 1960. He held visiting positions at the Ecole Normale Supérieure in Paris (1957–58) and at Rockefeller University (1967–1968 and 1975–1976).

Beginning in 1953, Luttinger spent more than a dozen summers at Bell Telephone Laboratories. There, he began a long and fruitful collaboration with Walter Kohn, another summer visitor. He also had strong interactions with resident theorists such as Conyers Herring, Melvin Lax and Philip Anderson, with other, less regular visitors such as Philippe Nozières and John Ward and with resident experimentalists. The early successes of the Kohn–Luttinger visits played a major role in Bell Labs' decision to form and support its theory department.

His research between 1953 and 1965 produced a long string of epoch-making papers. Partly in collaboration with Kohn, Luttinger developed the effective mass theory of electrons and holes in semiconductors and applied it to shallow impurity states and to optical and magnetic effects. Since then, effective mass theory has become an integral part of the thinking about charge carriers in semiconductors.

Also with Kohn, Luttinger carried out the quantum derivation of the Boltzmann transport equation, which made possible the study of higher-order quantum effects such as the ferromagnetic Hall effect.

Luttinger, partly with Kohn, Nozières and Ward, contributed critically to the many-body theory of interacting three-dimensional electrons, including the derivation of the Landau theory of interacting Fermi liquids to all orders in perturbation theory and the de Haas–Van Alphen effect for interacting electrons. Especially noteworthy was what became known later as the Luttinger theorem, which states that the volume enclosed by the Fermi surface of interacting electrons in an external potential is unaffected by the interaction and is completely and simply determined by the number of electrons. This exact theorem is a cornerstone of the theory of strongly interacting electron systems.

In 1963, Luttinger published an exact solution for interacting one-dimensional fermions. (His model was related to an earlier, approximate model devised by Sin-Itiro Tomonaga.) One-