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Gerald J. Posakony, Pioneer of Ultrasonic Technology, to Receive 2009 IEEE Honorary Membership Award

Lifelong Work in Medical Diagnostics Improved the Evaluation of Medical Conditions

PISCATAWAY, N.J. – 22 June 2009 – Gerald J. Posakony, a scientist who has devoted over 55 years of research to developing and improving ultrasonic technology for both medical and industrial applications, is being honored by IEEE with the 2009 IEEE Honorary Membership Award. The IEEE is the world's largest technical professional association.

The award, sponsored by IEEE, recognizes Posakony for pioneering contributions in ultrasonic techniques for medical diagnosis and nondestructive evaluation. The award will be presented on 25 June 2009 at the 2009 IEEE Honors Ceremony in Los Angeles, Calif. For the first time, the IEEE Honors Ceremony will be broadcast live on the Web through IEEE.tv (www.ieee.tv).

Ultrasonic technology is used in medicine for imaging internal organs, muscles and tendons. For industrial uses, ultrasonic testing is a form of nondestructive evaluation to find flaws in materials or to measure thickness that would otherwise be too difficult or expensive to determine, such as in aerospace, construction, manufacturing and power industry applications. In both medical and industrial applications, a transducer sends ultrasonic sound waves and evaluates the echo received from the target, converting it to electrical energy that can measured and displayed.

Posakony's first impact in the field of ultrasonics was seen in the early 1950s when he was the lead engineer on a ultrasonic diagnostic imaging system for investigating disease processes in the human body. The Somascope was a water-immersion motorized B-mode scanner that was able to produce images of human organs. Posakony served as the subject, and it was his scanned kidney that could be seen on the oscilloscope screen in a photo that appeared in the May 1954 issue of "Life" magazine. The device was considered experimental at the time, but the technology has served as the basis for most of the ultrasonic devices in use today. He also contributed to the development of the pan scanner and contact scanner.

Posakony is perhaps best known for his work in transducer design, the "critical component" of an ultrasound system. His expertise in transducer design is highly sought after, as he understands the materials and their limitations and capabilities as well as the circuits and systems needed to excite the transducers and measure and display the data. In many cases he personally fabricated and tested the prototypes.

Posakony is also known for finding solutions to problems where there is no standard test method available and developing the technology needed for nonconventional ultrasonics. In the late 1970s, he developed a program for the Electric Power Research Institute to conduct

inspections of nuclear power plant components using an ultrasonic phased array system. The system needed to be built from scratch, and Posakony designed, fabricated and tested the phased arrays. He also developed a transducer to test for aging in the Sparrow solid rocket motor, enabling the U.S national inventory to be screened and aged motors to be identified and removed, avoiding possible failures and improving overall safety.

Posakony continues to be active in the field, currently working on designing and testing novel methods for delivery of high-power ultrasonic fields for treating cells and processing fluid streams. He has also pursued correlating bone strength with ultrasonic attenuation for osteoporosis studies. He also devotes much of his time to mentoring young scientists.

A Fellow of the American Society for Nondestructive Testing (ASNT) and the American Society for Testing and Materials (ASTM), Posakony has received the ASTM Award of Merit, the ASNT Gold Medal Award and the American Institute of Ultrasound in Medicine Lecture and Pioneer awards. He received his bachelor's in electrical engineering from Iowa State University, Ames, in 1949. Posakony is currently a senior research scientist at Pacific Northwest National Laboratory, where he has worked since 1973.