

## Joseph H. Holmes Basic Science Pioneer Award

*The Pioneer Award, which honors individuals who have significantly contributed to the growth and development of medical ultrasound, was established in 1977. This special award was renamed in 1982 to honor Joseph H. Holmes, MD, who died that year. Dr Holmes, the first person named as an AIUM pioneer, was an important figure to both the field of diagnostic ultrasound and the AIUM. His early efforts in ultrasound research, which included tissue characterization and ultrasound's diagnostic use in polycystic kidney disease and orthopedics, helped advance the field of ultrasound and encourage others to conduct new research. Serving the AIUM in many capacities, Dr Holmes was president from 1968 to 1970 and was editor of the AIUM's official journal, which was then titled the Journal of Clinical Ultrasound, for nearly 10 years. Each year, the Joseph H. Holmes Pioneer Award honors individuals in clinical science and in basic science.*

## Kai E. Thomenius, PhD, FAIUM



There are many professional ultrasound societies in the United States, but one feature that makes the American Institute of Ultrasound in Medicine (AIUM) unique is the involvement of the science community. Although engineers, researchers, and basic scientists comprise a small contingent of the AIUM membership, they have had a significant influence on the AIUM's focus on safety and on new and innovative technology. A prime example of that focus is this year's recipient of the Joseph H. Holmes Basic Science Pioneer Award, Kai E. Thomenius, PhD, FAIUM.

A member of the AIUM for almost 40 years, he has been active in the AIUM's science and technical committees for as far back as the AIUM's electronic records go. Even the most committed professionals seem to burn out after a few years, but Dr Thomenius has been a stalwart participant of the AIUM's Technical Standards Committee, Bioeffects Committee, Output Standards Subcommittee, Contrast Agent Disruption Indicator Subcommittee, Thermal Index Subcommittee, and just about every other technical committee and task force created by the AIUM over the past decades. Members of the AIUM's technical committees are elected after the committees nominate the scientific professionals whom they think are the best of the best, the people who have the knowledge, expertise, and skills to help further ultrasound technology and its safe implementation. The fact that Dr Thomenius's scientific colleagues have continued to value his abilities year after year after year, and to continually welcome his participation as a resource member, says more about his talents and capabilities than any award ever could.

Dr Thomenius's dedication, commitment, and continuity are traits that are treasured by the AIUM, but more importantly, they are requirements for a successful scientist. These exceptional attributes displayed by Dr Thomenius may explain why he has been granted 25 patents focusing mainly on medical ultrasound, with an additional 33 patents pending. A graduate of Rutgers University with degrees in electrical engineering and a minor in physiology, he could have taken his skills in any direction. Fortunately for his medical and scientific colleagues and, ultimately, for patients, medical ultrasound became a primary focus. Highlights of his significant contributions include miniaturization of medical ultrasound scanners, including development of one of the first tabletop echocardiographic scanners, research into advanced handheld scanners, system design of ultrasound scanners focusing on integration of new technologies and the development of novel clinical applications for ultrasound, education of new ultrasound professionals in scanner system design and their evolution, and analysis of ultrasound bioeffects and acoustic output index development.

After working for GE Global Research, Diagnostics and Biomedical Technologies, for more than a decade, Dr Thomenius moved to his current position as a research scientist for the Institute for Medical Engineering and Science (IMES) of the Massachusetts Institute of Technology (MIT). Throughout his career, he has held numerous chief, manager, director, and other senior positions in engineering, science, and technology that reflect his strengths in research. In addition, he has held teaching positions at Rutgers University, the Stevens Institute of Technology, and the Rensselaer Polytechnic Institute (RPI) that reflect his commitment to education.

Scientists who work outside academia are often not acknowledged for their achievements. This is understandable, as companies do not want their prized employees to become targets for hiring by their competitors. Thus, it is even more notable that Dr Thomenius, whose career has been primarily in industry, has so often been recognized and sought out for his abilities. He has been a member of the academic advisory boards in biomedical engineering at the University of Cincinnati, RPI, University of Rochester, and University of Michigan. In addition to being designated a Technical Fellow in Perpetuity by Philips/ATL, he has received the CEO Award from GE Healthcare and been honored by GE Global Research as a Coolidge Fellow (their highest technical award).

Dr Thomenius has penned 24 manuscripts for refereed journals and is the author of 5 book chapters and 87 symposium or conference proceedings presentations. A reviewer for multiple grant agencies, numerous journals, and several symposia, he has been the principal investigator for 3 federally funded research grants and co-principal investigator or investigator for an additional 12 grants.

Dr Thomenius has been an invited speaker, instructor, or course organizer for dozens of technical events, and the AIUM is proud to highlight this dedicated scientist and engineer whose work—which might often have been hidden under the cloak of corporate privacy—has contributed so significantly to medical ultrasound and its future. Although the AIUM honors him with this award, the AIUM is honored by having him as a member.

