



## “High frequency ultrasound: a frontier for ultrasound “

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**Abstract:** High frequency ultrasound ( $> 30$  MHz) is considered to be the next frontier in ultrasonic imaging. Its clinical applications range from visualizing structures of blood vessel wall, mapping the anterior segments of the eye, to characterizing skin tumors. An added significance is the recent intense interest in small animal imaging for evaluating the efficacy of drugs and gene therapy. Combining high frequency ultrasound with optical imaging e.g. OCT and photoacoustic imaging has opened new doors for intravascular imaging. The development of ultrasonic transducers/arrays and imaging systems at such a high frequency will be reviewed in this talk. Design and fabrication of transducers in the frequency range 100 MHz – 1 GHz is a challenge. Ultrasound with frequency beyond 100 MHz may find many other potential biomedical applications. One exciting example of the applications is acoustic tweezer for manipulating microparticles. Other applications being studied at USC including cell sorting will be discussed in this talk as well.

**Biography:** Dr. K. Kirk Shung is a life fellow of IEEE, a fellow of the Acoustical Society of America and American Institute of Ultrasound in Medicine, a founding fellow of American Institute of Medical and Biological Engineering. He received the IEEE Engineering in Medicine and Biology Society Early Career Award in 1985, the best paper award for IEEE Transactions on UFFC in 2000. He was selected as the distinguished lecturer for the IEEE UFFC society for 2002-2003. He received the Holmes Pioneer Award in Basic Science from American Institute of Ultrasound in Medicine in 2010. He was selected to receive the academic career achievement award from the IEEE Engineering in Medicine and Biology Society in 2011. He has published more than 400 papers and book chapters. He authored two textbooks: “Principles of Medical Imaging” in 1992 and “Diagnostic Ultrasound: Imaging and Blood Flow Measurements” in 2005. He co-edited a book “Ultrasonic Scattering by Biological Tissues” in 1993. He is an associate editor of IEEE Transactions on UFFC and Medical Physics and a member of the editorial board of Ultrasound in Medicine and Biology and IEEE Transactions on Biomedical Engineering.

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