

## **Biosketch – Dr. Subha Maruvada**

Dr. Maruvada is the lead for the Therapeutic Ultrasound Program in the Division of Applied Mechanics which is a part of the Office of Science and Engineering Laboratories. With a background in Electrical and Acoustical Engineering and Acoustics, Dr. Maruvada has worked in the area of acoustics measurements and modeling for over 20 years. Her current areas of research are pre-clinical characterization of high-intensity therapeutic ultrasound (HITU) devices, characterization of tissue-mimicking materials for HITU applications, HITU-induced bioeffects, and comparison of acoustics measurements to modeling results. Specific studies are: 1) to evaluate and improve existing techniques for characterizing the acoustic fields produced by these devices, including radiation force, piezoelectric hydrophone, thermal, and acousto-optic techniques; 2) to evaluate computational models for mapping the temperature fields associated with HIFU; 3) to perform experimental investigations comparing the modeled temperature patterns with lesions produced in tissue mimicking materials and tissue samples. Dr. Maruvada is active in providing physics and engineering consults for FDA regulatory staff for HITU, Lithotripsy, Physiotherapy, and Diagnostic Ultrasound devices.

Dr. Maruvada is active in both scientific and standards organizations. She serves as Working Group Convener, primary liaison and technical expert on several working groups within International Electrotechnical Commission (IEC) Technical Committee (TC) 87 Ultrasonics and has led the development of an international standard the field specifications and methods of measurements for low frequency ultrasound physiotherapy devices within IEC/TC 87. She has led the completion of a FDA guidance document establishing guidelines to report ultrasound physiotherapy device characterization in support of safety evaluation of medical devices. She organizes and chairs international scientific conferences in the field of biomedical acoustics and ultrasound metrology, designs conference programs, coordinates sponsorships, plans sessions with invited chairs and speakers, designs call for abstracts and evaluated submissions, related publications, and awards as the current Chair of the Biomedical Ultrasound Technical Committee of the Acoustical Society of America.

Prior to coming to the FDA, Dr. Maruvada did a postdoctoral fellowship at Harvard Medical School and Brigham and Women's Hospital in the Focused Ultrasound Laboratory. Her area of research there was in vivo optical monitoring of high intensity ultrasound-induced bioeffects in the vasculature of glass catfish and chick embryos. The focus of her publications (JASA, UMB, PMB, IEEE Transactions) have been bioeffects in biological tissue, both in-vitro and in-vivo, methods of characterizing HITU devices for pre-clinical evaluation, and characterization of tissue mimics also to be used in HITU characterization.