

Fall 2007 SEMINAR SERIES

F21C Bioprocessing & Biosensing Center

DIVISION OF FOOD SYSTEMS & BIOENGINEERING

PRESENTER: **Dr. Hao F. Zhang, Assistant Professor**
Department of Electrical Engineering & Computer Science
University of Wisconsin - Milwaukee

TITLE: **Photoacoustic Microscopy and Its Biomedical Applications**

ABSTRACT:

Photoacoustic microscopy (PAM) is advantageous over existing high-resolution optical imaging modalities, including confocal microscopy, two-photon microscopy, and optical coherence tomography, in many aspects. For example, PAM does not rely on ballistic or quasi-ballistic photons to provide its spatial resolutions, hence it could image much deeper in biological tissues. PAM provides optical absorption contrast, which is directly related to the tissue's physiological states. Moreover, the spatial resolutions and the maximum imaging depth are scalable with the ultrasonic parameters so that PAM system can be tailored to a specific application.

PAM and other photoacoustic imaging techniques promise to open new windows for basic science and diagnostic medicine, and may have important implications for the future of medical discovery. This presentation reports on the dark-field PAM and its applications to volumetric imaging of microvasculature, skin tumors, acute skin burns, hemoglobin oxygen saturation, and hemodynamics. An optical-resolution PAM with its application to image capillary-level microvessels will also be discussed.

BIOGRAPHY:

Dr. Zhang joined the Department of Electrical Engineering and Computer Science at The University of Wisconsin-Milwaukee in Aug. 2007 as an assistant professor. He has worked in areas of photoacoustic imaging, bio-photonics, and other medical imaging technologies for more than 7 year. Before joining UWM, he was a research associate at Washington University in St. Louis.

In 1997, Dr. Zhang obtained his Bachelor degrees of Electrical Engineering and Computer Engineering from Shanghai Jiao Tong University, China. In 2000, he received his Master degree of Biomedical Engineering from the same university. In 2006, he received his Ph.D. degree of Biomedical Engineering from Texas A&M University, College Station, Texas under the supervision of Prof. Lihong V. Wang.

DATE • TIME • LOCATION:

Tuesday, Sept. 11th, 4:00pm
Ag Eng Bldg 105 • Refreshments