

# The School of Electrical and Computer Engineering Distinguished Seminar Series 2016

The Distinguished Seminar Series of the School of Electrical and Computer Engineering (ECE) presents the work of internationally recognized researchers. This seminar series is intended to provide an open platform for the faculty and students, to have a dialog with leading researchers in various fields of ECE, and to build-up a dynamic and vibrant culture of research and academic exchange in the ECE department. All seminars are free and open to the public.



## Phase Sensitive X-ray Imaging for Cancer Diagnosis

12: 30 p.m. - 1:30 p.m., Tuesday,  
March 22, ATRC 102

**Dr. Hong Liu** - Charles and Jean Smith Chair in Biomedical Engineering, George Lynn Cross Professor of Electrical and Computer Engineering, Director of Advanced Medical Imaging Core Facility at University of Oklahoma

Liu is a leading researcher in medical imaging. His current research projects include phase sensitive x-ray imaging for breast cancer diagnosis and optical and fluorescent imaging for clinical genetic diagnosis. He has published 270 scientific papers, book chapters and patents.

Dr. Liu received his college education in mechanical engineering and master training in applied physics, both in Beijing, China. He received a Ph.D. degree in biomedical engineering from Worcester Polytechnic Institute in Massachusetts. Liu was on faculty at the University of Virginia and Johns Hopkins University. He joined the faculty of the University of Oklahoma in 2000.

### Seminar abstract

Radiography is one of the important imaging techniques in medicine. Conventional radiography is principally based on x-ray tissue attenuations. However, x-ray contrast can also be obtained from phase-changes. Several advanced methods are currently under investigation to image phase variations. Among them, the in-line phase sensitive x-ray imaging technique has demonstrated its clinical potential, as it can be implemented with polychromatic sources. The in-line phase-sensitive x-ray imaging measures the Laplacian of phase, leading to improved feature visualizations through edge enhancement. Furthermore, the technique allows the retrieval of tissue's phase map, potentially enables quantitative tumor characterization. In this presentation, the basic principles of medical x-ray imaging will be introduced. The development of innovative phase-sensitive x-ray imaging prototypes; as well its clinical applications in breast cancer diagnosis will be discussed.

**Food provided at 12 P.M. - 12:30 P.M.**

**Food reservation can be made at the ES202 front desk one week prior to each seminar.**



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