Imaging Sciences Pathway
Washington University in St. Louis

Imaging Science Seminar

Multi-Modality Imaging Techniques for Breast, Ovarian and Colorectal Cancer Diagnosis and Treatment Monitoring and Prediction

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Abstract: Ultrasound-guided diffuse optical tomography in the near infrared spectrum is a promising technique in distinguishing malignant from benign breast lesions and in predicting and monitoring neoadjuvant chemotherapy response of breast cancers. In the first part of the talk, I will introduce this unique technique and present clinical results obtained from patients. Our initial results suggest that this technology has a great potential to serve as an adjunct tool to conventional ultrasound to reduce the huge number of benign breast biopsies, and to predict patients' neoadjuvant chemotherapy pathological response in the early treatment cycles.

Ovarian cancer has the lowest survival rate of the gynecologic cancers because it is predominantly diagnosed at the late stages due to the lack of reliable symptoms and efficacious screening techniques. In the second part of the talk, I will introduce a novel dual-modality ultrasound and photoacoustic imaging technique for ovarian cancer detection and diagnosis. On-going patients' studies will be presented to demonstrate the potential of this technique.

Cancer of the colon and rectum is the second most common malignancy diagnosed globally and represents the 4th leading cause of cancer mortality. At the end of the talk, I will present our on-going translational studies using optical coherence tomography, photoacoustic microscopy, and spatially modulated light techniques to characterize colorectal cancers. The potential of these new techniques for colorectal cancer detection, diagnosis and treatment prediction will be discussed.

Time: 8:40-9:30 a.m.
Date: Friday, September 22, 2017
Room: 0120 Green Hall

Quing Zhu obtained her Ph. D degree from the University of Pennsylvania. Her research interests are developing novel optical and ultrasound imaging devices and imaging algorithms for cancer diagnosis and treatment monitoring and prediction. Professor Zhu has been named Fellow of Optical Society of American, and Fellow of SPIE-International Society for Optics and Photonics.

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