PHOTONICS SEMINAR

Professor Ji-Xin Cheng

Spectroscopic Imaging for Biology and Medicine: Pushing the Limits of Speed, Depth and Resolution

Faculty Host: Professor Jerome Mertz

May 15, 2014

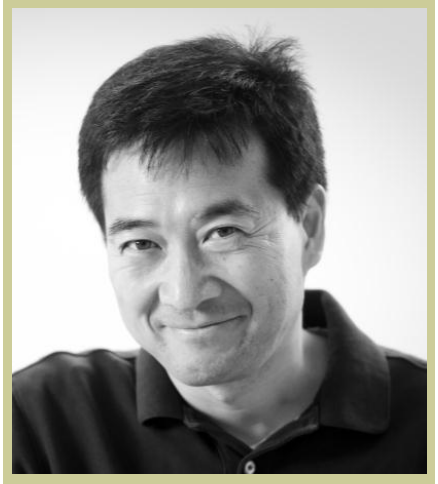
2-3 p.m.

Room 901

Photonics Center

8 Saint Mary's Street

Refreshments will be served!



Label-free imaging using intrinsic molecular spectroscopy signals is opening a new window for watching biomolecules and nanomaterials at work in live cells and inside the human body. We have made advances to allow real time vibrational spectral imaging of cellular processes, extraction of information from the crowded fingerprint bands, and vibrational imaging of a tissue that is a few centimeters deep under the surface. Our most recent advances in both development and applications of spectroscopic imaging platforms will be presented, including deep tissue imaging by acoustic detection of harmonic molecular vibration, study of altered cholesterol metabolism in cancer by Raman scattering microscopy, and super-resolution imaging of nanomaterials by transient absorption microscopy.

Ji-Xin Cheng was born in Jixi, Anhui Province, P. R. China in 1971. He attended University of Science and Technology of China (USTC) from 1989 to 1994. From 1994 to 1998, he carried out his Ph.D. study on bond-selective chemistry under the supervision of Qingshi Zhu at USTC. As a graduate student, he worked as a Research Assistant at Universite Paris-sud (France) and the Hong Kong University of Science and Technology (HKUST). After postdoctoral training in Yijing Yan's group at HKUST and Sunney Xie's group at Harvard University, Cheng joined Purdue University in 2003 as Assistant Professor. He was promoted to Associate Professor in 2009, and Full Professor in 2013 in Weldon School of Biomedical Engineering and Department of Chemistry.

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