



Ji Xin Cheng

Boston University, USA

Biography

Ji Xin Cheng is professor of photonics and optoelectronics at Boston University photonics center. He additionally works at division of materials science and engineering, department of chemistry, department of physics, neurophotonics center. His area of interest is molecular spectroscopic, imaging technologies, label-free microscopy, medical photonics, neurophotonics and photonics for infectious diseases. He is awarded with Moustakas chair professor in photonics and optoelectronics, Boston University, Purdue University College of Engineering research excellence award, 2016, Craver Award from Coblenz Society, 2015, Chang-Jiang scholar, minister of education, China, 2015-17, fellow of AIMBE (American Institute of Medicine and Biological Engineering), 2014, translational research award from international society for optics and photonics (SPIE), 2014.

jxcheng@bu.edu

CHEMICAL MICROSCOPY OF LIVING CELLS: A NEW WAY TO ELUCIDATING THE RULES OF LIFE

Until now, understanding of the exceptionally fast and selective chemical reactions occurring inside single living cells has been very limited, partly because conventional chemical assays essentially treat the cell, a highly dynamic structure, as a static bag of molecules. Using intrinsic signals from molecular spectroscopy, highly sensitive chemical imaging of living cells offers a way to circumvent the challenge. This presentation will show most recent innovations in instrumentation and data science that allowed real-time volumetric chemical imaging of living systems. Several advanced modalities including coherent Raman scattering microscopy, transient absorption microscopy and mid-infrared photo thermal microscopy will be discussed. Applications of these modalities to cancer biology, neuroscience and infectious diseases will be highlighted.



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