

Plenary talk:

Molecular Imaging of Cells and Tissues by Multicolor Stimulated Raman Scattering Microscopy

Yasuyuki Ozeki

Department of Electrical Engineering and Information Systems, The University of Tokyo
7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8656, Japan

Imaging of biological cells and tissues with subcellular spatial resolution is important in biology and medicine for exploring the dynamics of cells and for diagnosing the structure of tissues. Among various optical imaging modalities, laser microscopy with fluorescent staining is a powerful tool for this purpose, but suffered from the limited applicability and cytotoxicity of staining process. Stimulated Raman scattering (SRS) microscopy allows for high-speed, multicolor imaging based on molecular vibrational contrast, offering alternative opportunities of laser microscopy. In this talk, I will introduce the principle and applications of SRS microscopy and its recent technical advances for stain-free, multicolor, high-speed imaging of cells and tissues.



Invited talks:

3D printing and photonics

Kevin Cook, University of Technology Sydney

All-fibre real-time spectroscopic optical probe and OCT imaging

Frederique Vanholsbeeck, University of Auckland

Terahertz molecule-specific sensing platform and applications

Minah Seo, KIST

Applications of fiber optic sensors in geophysics and seismology

Wentao Zhang, Chinese Academy of Sciences

Distributed analysis of media outside optical fibers using forward stimulated Brillouin scattering

Avi Zadok, Bar-Ilan University

Ultra-fast distributed Brillouin optical fiber sensing for dynamic strain measurement

Yongkang Dong, Harbin Institute of Technology

Photoacoustic and ultrasound imaging with fiber-laser-based sensors

Long Jin, Jinan University

Sensing applications of "fused" optical fibers

Paulo Andre, Instituto de Telecomunicacoes

Variable-focus lens using ultrasound vibration

Daisuke Koyama, Doshisha University