

Multi-modal Nonlinear Microscopy and its Applications to Bio-Medical Imaging

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Abstract

Multimodal nonlinear optical microscopy has recently attracted much attention due to its various advantages: optical sectioning and label-free imaging capabilities with sub-cellular resolution. With this microscopy, *in-vivo* and label-free fluorescent and morphological images of bio-medical samples can be obtained by nonlinear interactions such as second-harmonic generation (SHG) and third-harmonic generation (THG), together with two-photon absorption (TPA).

In this presentation, high-speed and high-resolution multimodal laser scanning microscopes, designed for acquiring and tracking fast moving cells in live organisms, will be introduced. *In-vivo* and label-free images from various bio-medical samples will also be demonstrated.