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Publication Date

2020-03-06

DOI

10.1117/12.2543603

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Peer reviewed

6 March 2020

High-speed, high-resolution mesoscopic multiphoton microscopy of human skin (Conference Presentation)

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Proceedings Volume 11211, Photonics in Dermatology and Plastic Surgery 2020; 112110F
(2020) <https://doi.org/10.1117/12.2543603>

Event: SPIE BiOS, 2020, San Francisco, California, United States

Abstract

Multiphoton microscopy (MPM) can provide sub-micron resolution images of living tissues in their native environment with contrast from multiple modalities, including second harmonic generation (SHG) and two-photon excited fluorescence (TPEF). Recent advances of MPM in clinical skin imaging demonstrated the unique potential of this technology as a label-free research and clinical tool for a broad area of applications such as melanoma and non-melanoma skin cancer detection, monitoring pigmentary skin disorders, characterizing keratinocyte metabolism, etc. In this contribution we demonstrate the ability of this microscope to provide sub-micrometer resolution *ex-vivo* images of large areas of skin tissue (up to 5x5 mm²) in <1 minute. We demonstrate the importance of high-speed, high-resolution mesoscopic imaging on cancerous skin tissues that present heterogeneous morphology to show the ability of the instrument to capture both benign and malignant areas of the lesion.