Room G (Miami), 2F | Chair: Yoshiyaki Yasuno (Tsukuba University)

Mo2G | June 29 (Mon), 2026
Advances in Optical Coherence Tomography | 14:45-16:15

Mo2G-1 **14:45-15:00**

Investigation of Image-based Computational Aberration Correction in Visible-light Micro Optical Coherence Tomography

Ansel Chen[1], Shuichi Makita[2], Yoshiaki Yasuno[2], Myeong Jin Ju[1]
[1]University of British Columbia, [2]University of Tsukuba, Tsukuba

We investigate image-based computational aberration correction for visible-light micro-optical coherence tomography to reconstruct high-resolution volume. Correction performance is evaluated regarding different spectra and optimization regions, while short-time-Fourier-transform-based analysis examines wavelength-dependent scattering and spectroscopy potential.

Mo2G-2 **15:00-15:15**

Investigation of Physiology and Dynamics Structures of Cancer Spheroid by Dynamic OCT and Fluorescence Imaging

Rion Morishita[1], Ibrahim Abd El-Sadek[1,2], Atsuko Furukawa[1], Satoshi Matsusaka[1], Shuichi Makita[1], Yoshiaki Yasuno[1]
[1]University of Tsukuba, [2]Damietta University

This paper investigates the relationships between dynamic domains visualized by dynamic OCT and physiological domains of anti-cancer treated tumor spheroids. We found that the combination of dynamic OCT and fluorescence imaging gives a complementary understanding of cellular physiology.

Mo2G-3 **15:15-15:30**

Ultra-High-Sensitive Microvasculature Imaging of in vivo Human Skin Using Dynamic Optical Coherence Tomography (DOCT)

Haotian Li[1], Rion Morishita[1], Cunyou Bao[1], Shadil Basheer[1], Yu Guo[1], Ibrahim Abd El-Sadek[1,2], Shuichi Makita[1], Yoshiaki Yasuno[1]
[1]University of Tsukuba, [2]Damietta University

We demonstrated a dynamic OCT (DOCT)-based approach which achieved ultra-high-sensitivity for in vivo human skin microvasculature imaging. The proposed method visualizes fine capillaries at inner forearm skin and enables comprehensive assessment of skin microcirculation.

Mo2G-4 **15:30-15:45**

Neural-Network-Based High-Speed Multi-Contrast Dynamic Optical Coherence Tomography

Yusong Liu[1], Ibrahim Abd El-Sadek[1,2], Rion Morishita[1], Chettanat Padungatthakij[3], Atsuko Furukawa[1], Satoshi Matsusaka[1], Yoshiaki Yasuno[1]
[1]University of Tsukuba, [2]Damietta University, [3]King Mongkut's Institute of Technology Ladkrabang

We demonstrated a neural network method incorporating non-uniform time scanning to generate multicontrast dynamic optical coherence tomography (MCDOCT) while reducing the frame number to 1/8 of conventional method, enabling high-speed MC-DOCT imaging of 6 s/volume.

Mo2G-5 **Invited** **15:45-16:15**

High-Speed and Long-Range Optical Coherence Tomography Imaging with a MEMS-Tunable HCG-VCSEL Light Source

Hsiang-Chieh Lee
National Taiwan University

Swept-source optical coherence tomography (SS-OCT) enables high-speed, non-invasive, three-dimensional imaging and has become indispensable in ophthalmic diagnostics. However, the high cost of commercial swept-sources remains a major barrier to widespread deployment. To address this challenge, we investigate a compact, cost-effective high-contrast grating vertical-cavity surface-emitting laser (HCGVCSEL) as a wavelength-swept laser light source at ~1060 nm and demonstrate its applicability to SS-OCT imaging across multiple configurations.