

Room G (Miami), 2F

Chair: Tae Joong Eom (Pusan national university)

Tu4G

June 30 (Tue), 2026

Computational Methods in Imaging and Microscopy

15:00-16:30

Tu4G-1 **Invited** **15:00-15:30**

Seeing through Skins and Bones: Reflection Matrix Approaches for Deep-Tissue Optical Imaging

Wonshik Choi
Korea University

We present reflection matrix microscopy methods that deterministically exploit multiple scattering for deep-tissue imaging. Recent advances include through-skull brain imaging and super-resolution imaging beyond conventional depth limits.

Tu4G-2 **Invited** **15:30-16:00**

Uncertainty-Aware Computational Imaging

Ni Chen, Edmund Y. Lam
The University of Hong Kong

Computational imaging reconstructs scenes from indirect measurements via algorithms. This work presents an uncertainty-aware framework that quantifies and propagates reconstruction uncertainty, enabling robust, trustworthy imaging in applications spanning multiple computational imaging systems.

Tu4G-3 **16:00-16:15**

Perceptual-Enhancement in Light Field Microscope via Dual-Spectral Fusion Network

Munkh-Uchral Erdenebat, Suyeon Park, Jingwen Bu, Erdenebayar Bayarsaikhan, Eun-Joo Ha, Se-Han Kwon, Ji-Sub Park, Hak-Rin Kim
Kyungpook National University

We propose a perceptual-enhancement method for light field microscopic display system via dual-spectrum and related end-to-end multimodal network. This fusion enhances luminance and texture, producing high-fidelity three-dimensional models with improved accuracy for lowvisibility illumination conditions.

Tu4G-4 **16:15-16:30**

Bend-Induced Polarization Maintaining Fiber-Based Interferometer for Simultaneous Dual-Parameter Sensing

Ashish Kumar, Hyoung Won Baac
Sungkyunkwan University

This paper presents an interferometric scheme using a bent polarization-maintaining fiber for simultaneous refractive index and temperature sensing, achieving -260.32 nm/RIU and $-221 \text{ pm/}^\circ\text{C}$ sensitivities with a 20.98 dBm extinction ratio via bending-induced birefringence tuning.