

Room G (Miami), 2F

Chair: Pengfei Wang (Tohoku University)

Mo1G

June 29 (Mon), 2026

Quantum Sensing and Novel Devices

13:00-14:30

Mo1G-1 Invited 13:00-13:30

Distributed Quantum Sensing with Entangled Photons

Hyang-Tag Lim^{1,2}

¹Korea Institute of Science and Technology, ²Korea University of Science and Technology

We experimentally demonstrate distributed quantum sensing using polarization-entangled and multi-mode N00N states. Quantum-enhanced phase estimation beyond the standard quantum limit, approaching Heisenberg scaling, establishes scalable entanglement-based quantum metrology.

Mo1G-2 Invited 13:30-14:00

Photonic Quantum Sensing using Frequency Entangled Photons

Shigeki Takeuchi

Kyoto University

We report advances in quantum sensing with entangled photons, including ultra-broadband high-resolution quantum infrared spectroscopy (QIRS) and QIRS using pulsed laser pumping. We also report our recent progress in dispersion tolerant quantum optical coherence tomography (QOCT).

Mo1G-3 14:00-14:15

Multilevel Quantum Routing of Quantum-Classical Hybrid Packets Using All-Fiber Devices

Tae Yeong Park^{1,2}, Youn Chang Jeong³, Myeong Soo Kang², Kwang Yong Song⁴, Paul G. Kwiat⁵, Hee Su Park^{1,2,4}

¹Korea Research Institute of Standards and Science, ²Korea Advanced Institute of Science and Technology, ³The Affiliated Institute of Electronics and Telecommunications Research Institute, ⁴Chung-Ang University, ⁵University of Illinois at Urbana-Champaign

We propose and experimentally demonstrate a packetwise quantum router for hybrid packets containing both quantum and classical information. Time-bin BB84 quantum key distribution over tens of km verifies successful packet routing to multiple nodes with 4% QBER, implying applicability to scalable multi-user quantum networks.

Mo1G-4 14:15-14:30

Polarization Disturbance Compensation in a Deployed Fiber Entanglement Network

Marcus J. Clark, Nicole Luc, Ruizhi Yang, Rui Wang, Dimitra Simeonidou, Siddarth K. Joshi

University of Bristol

We present polarisation degree-of-freedom correction on an active, subterranean deployed fiber, quantum network, with counter-propagated entanglement and polarisation control signals simultaneously in deployed fibre links, achieving 99.98% QKD uptime on a deployed fibre link.