

Room D (Capri), 2F

Chair: Sang-Rok Moon (ETRI)

We2D

July 1 (Wed), 2026

Radio-over-Fiber and Optical Wireless Systems

13:15-14:45

We2D-1

13:15-13:30

216 Gbit/s, Polarization- Multiplexed Fully Coherent Optical and Wireless Transmission at 30 GHz for 6G RAN

Arata Watanabe, Yusei Sakuma, Tomoki Joichi, Keisuke Kasai, Toshihiko Hirooka, Masato Yoshida, Masataka Nakazawa
Tohoku University

We demonstrate a 216 Gbit/s polarization-division multiplexed (PDM) fully coherent transmission at 30 GHz. By using a polarization dependence-free injection-locked heterodyne-detection circuit, PDM-64 QAM signals were transmitted over a 10 km-SMF and over 10 m wirelessly.

We2D-2

13:30-13:45

1.5-Tb/s OWC Systems Employing High-Power EDFAs, Large-Aperture Receivers, and CPAs/FPAs

Wei-Zhi Jiang, Wei-Ting Huang, Chi-Hsiang Hsu, Yen-Chen Chen, Hai-Han Lu
National Taipei University of Technology

A 1.5-Tb/s OWC system over a 1.6-km free-space link is successfully implemented employing HP-EDFAs, large-aperture receivers, and CPAs/FPAs. The successful implementation of the 1.5-Tb/s OWC link validates the feasibility of high-capacity long-distance optical wireless transmission.

We2D-3

Invited

13:45-14:15

Towards Integrated Front-Ends for Radio-Over-Fiber Systems

Joonyoung Kim¹, Javier Perez Santacruz¹, Xin Yin², Gunther Roelkens³, Xavier Rottenberg¹, Dongjae Shin⁴
¹imec, ²imec-Ghent University, ³imec NL, ⁴imec-NL Holst Centre

We review recent advances in integrated photonics for radio-over-fiber systems, focusing on monolithic and hybrid integration of ultra-high-speed photodiodes, lasers, and modulators, enabling compact and scalable architectures for high-frequency wireless communication and sensing.

We2D-4

14:15-14:30

Ceiling-Source-Free Indoor OWC with SOA Lumped Amplification

Takahiro Kodama¹, Mikolaj Wolny², Eduward Tangdiongga²
¹Kagawa University, ²Eindhoven University of Technology

We demonstrate a single-fiber bidirectional indoor OWC cell using SOA lumped amplification and polarization-multiplexed seed distribution with external modulation, eliminating ceiling light sources. A 10-cm cell at 2 m achieves 500 Mb/s downlink.

We2D-5

14:30-14:45

A Tree Based 6G-RoF Architecture with Mutual Feeder Fiber Protection and Restoration

Po-Hong Tsai, Ching-Hung Chang, Zhen-Wei Wu, Wei-Che Yen
National Chiayi University

We propose a resilient 6G-RoF architecture where feeder fibers from two transmission systems act as mutual backups, ensuring robust self-healing and error-free transmission against fiber failures.