

Room F (Sicily), 2F

Chair: Chih-Hsien Cheng (NICT)

We2F

July 1 (Wed), 2026

Datacom & VCSELS

13:15-14:45

We2F-1

13:15-13:30

Integrated Wavelength Division Multiplexing Transmitter with Dispersion Pre-compensation

Weihan Wang, Ruitao Ma, Fei Huang, Mingyu Zhu, Aoyun Gao, Zexu Wang, Shujun Liu, Weike Zhao, Yiwei Xie, Zejie Yu, Daoxin Dai
Zhejiang University

We demonstrate a 4-channel wavelength division multiplexing transmitter using thin-film lithium tantalate, enabling 100 Gbaud signal transmission, and successfully mitigating the chromatic dispersion penalty over 1.5 km of single-mode fiber via dispersion pre-compensation.

We2F-2

13:30-13:45

3–300 K 850 nm VCSEL for Cryogenic Optical Interconnects with 128 Gbps PAM-4 at 3 K

Etina Zou¹, Zetai Liu², Min-Hsin Wu¹, Chung-Hsin Yu¹, Yun-Cheng Yang¹, Milton Feng², Chao-Hsin Wu¹
¹National Taiwan University, ²University of Illinois Urbana-Champaign

We demonstrate an 850 nm cryo-VCSEL operating from 3–300 K with 10–91 mW output, 1.18 W/A slope efficiency and 0.254 WPE. 128-Gb/s PAM-4 direct modulation at 3 K, indicating potential for cryogenic optical interconnects.

We2F-3

13:45-14:00

High-Bandwidth-Density 850 nm VCSEL Array for Terabit Optical Interconnects

Min-Hsin Wu, Etina Zou, I-Chi Liu, Yun-Cheng Yang, Chao-Hsin Wu
National Taiwan University

We demonstrate a compact 850-nm VCSEL array achieving over 1 Tb/s/mm² bandwidth density. Each channel supports 25.8 Gb/s NRZ and 53.1 Gb/s PAM-4 for high-density optical interconnects.

We2F-4

14:00-14:15

A 2- λ \times 50-Gb/s PAM-4 Silicon Ring Resonator-Based WDM Optical Receiver

Jae-Ho Lee¹, Dong-Hyeon Kim¹, Yongjin Ji¹, Seung-Jae Yang¹, Hyun-Kyu Kim², Woo-Young Choi¹
¹Yonsei University, ²Samsung Electronics Co., Ltd.

We demonstrate a 2- λ \times 50-Gb/s PAM-4 silicon (Si) ring resonator-based wavelength division multiplexing (WDM) optical receiver. Each optical receiver achieves BER less than 1e-12 for 32-Gb/s NRZ and less than 2.4e-4 for 50-Gb/s PAM-4 data.

We2F-5

Invited

14:15-14:45

Zn-Diffusion Single-Mode VCSELS at 850 and 1060 nm for High-Speed AI Interconnection

Jin-Wei Shi
National Central University

We review our recent work about 850 and 1060 nm single-mode VCSELS for high-speed modulations. With optimized Zn-diffusion apertures, simultaneous improvements in static, dynamic, and transmission performances can be achieved in both these two wavelengths.