

Room C (Grand Ballroom 3), 2F

Chair: Eduward Tangdionga
(Eindhoven University of Technology)

Mo2C

June 29 (Mon), 2026

Advanced Optical Devices for AI

14:45-16:15

Mo2C-1

14:45-15:00

Two-Dimensional Activation Functions for Interface Reduction in Optical Accelerators

Yamato Misugi, Chua Hanns Christian J., Junichi Suzuki, Junya Nishioka, Mizuki Shirao, Nobuo Ohata
Mitsubishi Electric Corporation

For classification task in optical accelerators, we proposed two-dimensional activation functions. This method is useful for achieving large-scale optical accelerators because it can reduce the number of photodiodes and high-speed interfaces.

Mo2C-2

15:00-15:15

3.1 Tbps/(λ ·mm) High Density Optical I/O with Multicore Fibers

Bo Xu¹, Yaotian Zhao¹, Fangchen Hu¹, Shuyuan Liu¹, Zhipei Wang², Aoxue Wang², Xiao Hu¹, Jianyang Shi¹, Haiwen Cai¹, Wei Chu¹
¹Zhangjiang Laboratory, ²Fudan University

We propose a solution to quadruple shoreline density with 4-core fibers, and demonstrate a transmission of 100 Gbps/ λ using bias-free silicon MRM and Ge/Si PD, achieving a high shoreline bandwidth density of 3.1 Tbps/(λ ·mm).

Mo2C-3

Invited

15:15-15:45

Terabit Data-Center Interconnects Enabled by Broadband TFLN Modulators

Yixiao Zhu¹, Lingjun Zhou², Xiansong Fang^{2,3}, Yaxi Yan⁴, Weisheng Hu¹, Ke Li³, Fan Zhang^{2,3}
¹Shanghai Jiao Tong University, ²Peking University, ³Pengcheng Laboratory, ⁴The Hong Kong Polytechnic University

Artificial intelligence is driving unprecedented bandwidth demands for computing data centers. We review the recent advances of thin-film lithium niobate modulators for boosting the baud rate, bitrate and coverage in coherent and direct-detection optical interconnects.

Mo2C-4

15:45-16:00

A Study on 2.5D Stacked Optical Chiplets on Glass Substrate for Terabit-Scale Interconnects

Jyung Chan Lee Joon Ki Lee
Electronics and Telecommunications Research Institute

We demonstrate 2.5D optical chiplets on glass, overcoming 'Se-Wa-Re' challenges. Results confirm 80 μ m warpage on glass wafer and >50GHz bandwidth, proving 2.5D/3D stacking and optical I/O essential for AI 'Scale-in' and 'Scale-out' architectures.

Mo2C-5

16:00-16:15

Flexible Optical Interconnects Enabled by Silicon Photonic Bandwidth Steering Using a 4 × 4 Dual-Microring Optical Switch

Bin Zhang^{1,2}, Qishen Liang¹, Baojie Hou¹, Yongdi Zhang¹, Lingzhi Yuan¹, Bangmin Gong¹, Zichao Zhao¹, Haoran Ma¹, Huihui Zhu¹, Junhui Shi², Hui Yu², Tao Zou², Yuehai Wang¹, Jianyi Yang¹
¹Zhejiang University, ²Zhejiang Lab

We propose an optical network architecture for building ML training clusters through dynamic bandwidth steering enabled by a nonblocking optical switch based on dualmicroring resonators. Our design accelerates the training time of ResNet18 by 41.8% on a physical testbed.