Best Paper Award in Industry Innovation Nomination

ACP2026-0624-2

Ultra-Low-Loss Fusion Splicing of Anti-Resonant Hollow-Core Fiber Enabled by Dual-Beam CO_2 Laser Processing

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Dual-beam CO_2 laser splicing of anti-resonant hollow-core fibres achieves record-low 0.01 dB insertion loss and 263.1 gf mechanical strength, overcoming arc-splicing thermal limits to enable scalable hollow-core fibre integration in optical networks.

ACP2026-0701-85

Mode-Hop-Free Electro-Optic Synchronous Tuning in an Integrated Vernier Laser

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We demonstrate a hybrid integrated Vernier laser on lithium tantalate on insulator with electro-optic synchronous tuning, achieving a 34.2 GHz chirp bandwidth at 1 MHz chirp rate with under 1% root-mean-square nonlinearity without predistortion.

ACP2026-0701-24

A 4×128 Gbps 7.8pJ/b Compact Integrated Transmitter with Silicon Slow-Light Modulator

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A 4-channel high-speed hybrid-integrated transmitter for LPO is designed in 90 nm SiGe BiCMOS and 300 mm SiPh, consisting of a linear driver wire-bonded to a co-design silicon slow-light MZM. Measurement results demonstrate 128 Gbps per channel PAM-4 optical eye diagrams.

ACP2026-0714-28

Monolithic SiN Passive Front-End for Polarization-Insensitive CWDM Applications

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We present a monolithic SiN passive platform for CPO, integrating ECs, PSRs, CWDM filters, and VCs in a 400-nm SiN layer via 12-inch CMOS. Wafer results: EC 1.7 dB (0.3 dB PDL), PSR PER 16.6 dB (loss 0.2 dB), CWDM loss 1.2 dB (crosstalk –14 dB), VC 44.1 mdB. SiN enables heater-free operation.

ACP2026-0715-71

Online Scheduling of Path-Coupled Key for Heterogeneous Servicesin Optical Satellite Networks

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Physical-layer key generation supplies link-local keys but suffers intermittent, path-coupled availability. We propose an SLA-aware online scheduler integrating credit allocation, reservation, and virtual queues, reducing security-sensitive PLKG-support miss rates from 94.2% to 50.3% in simulation.

ACP2026-0715-190

14.6-Tb/s GMI with 400G-per-channel Direct-Detection Optical Interconnects over 25-km AR-HCF

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1.Shanghai Jiao Tong Universit, China;2.Peking University, China;3.China Unicom Research Institute, China;4.Fudan University, China;5.Zhongtian Technology Advanced Materials Co., Ltd, China
We leverage the ultralow nonlinearity of anti-resonant hollow-core fiber to unlock launch power bottleneck for XPM-free massively-parallel DWDM transmission, enabling 400G-per-channel Kramers-Kronig direct detection with 17.4-Tb/s line rate and 14.6-Tb/s GMI-estimated capacity over 25 km.

ACP2026-0714-26

MoSE: Mode-Switching Expander for Mixed LLM Training and Inference

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We propose MoSE, a mode-switching optical expander that reallocates a fixed-degree edge budget between P-D-biased and uniform topologies, reducing communication cost for mixed LLM inference and training without additional ports or routing-policy changes.

ACP2026-0701-167

Low-Complexity 1-Order IIR Notch Filter for Efficient DC Leakage Frequency Estimation and Removal with 8.4-dB Tolerance Gain in 200G Upstream Coherent TDM-PON

Yicheng Xu[1];Yixiao Zhu[1];Yongxin Sun[1];Weisheng Hu[1];Qunbi Zhuge[1*]
1.Shanghai Jiao Tong University, China
We propose a DC leakage tracking and removal scheme with accurate frequency estimation and low-complexity notch filter for 200G upstream coherent TDM-PON. 6-dB power budget gain and 8.4-dB DC leakage tolerance improvement are experimentally achieved.

ACP2026-0701-127

First Real-time 128Tb/s and 256Tb/s Unrepeatered Field Trial using 400Gbps and 800Gbps OTN transponders over Field-deployed 137.76-km Ultra-low-loss Multi-core Fiber Link

Zilin Fan[1];Chao Wu[1];Jian Cui[1*];Yu Deng[1];Zhuo Liu[1];Yuxiao Wang[2];Yufeng Han[3];Nan Sun[3];Yue Tian[4];Bin Hao[1];Bin Wu[2];Jinggang Cao[2];Yong Chen[2];Shang Cao[4];Zhihui Dong[3];Wei Sun[3];Yanchun Zhang[3];Cheng Chang[1];Yan Sun[1];Bing Yan[2];Ninglun Gu[1]
1.China Mobile Communications Group Co., Ltd. , China;2.China Mobile Communications Group Shandong Co., Ltd., China;3.Jiangsu Hengtong Optic-Electric Co., Ltd., China;4.Huawei Technologies Co.,Ltd., China
First real-time unrepeatered 137.76-km field trial over field-deployed ultra-low-loss large-effective-aera 4-core fiber cable using 400Gbps and 800Gbps backbone OTN transponders is demonstrated, which achieves bit rates of 128Tb/s and 256Tb/s respectively.

ACP2026-0701-35

Real-time 24λ×1.6 Tb/s Transmission over 960km G.652.D Fiber on Super C Band Using 230 Gbaud 64-QAM-PCS Signals

Lingling Hu[1];Mingqing Zuo[1];Zihan Li[2];Shiyu Qin[2];Dawei Ge[1];Dong Wang[1];Dechao Zhang[1*]
1.China Mobile Research Institute, China;2.Huawei Technologies Co.,Ltd, China
We demonstrate a real-time 1.6-Tb/s 230-GBaud dual-subcarrier WDM system over 960-km G.652.D fiber using EDFAs. All 24 channels achieve error-free operation with 1.2-dB OSNR margin (σ=0.28), marking the first demonstration to simultaneously achieve 1.6 Tb/s and 900 km.

ACP2026-0701-155

Low-Complexity Cascaded Error Feedback Noise Shaping withResidualIn-Band Noise Suppression Achieving Over 10 dB SNR Gain for Fronthaul

Yicheng Xu[1];Yixiao Zhu[1];Yongxin Sun[1];Weisheng Hu[1];Qunbi Zhuge[1*]
1.Shanghai Jiao Tong University, China
We propose a low-complexity 2-bit cascaded error feedback noise shaping (CEFNS) scheme. By using simple-structured FIR filters, a 2-GHz 65536-QAM signal is delivered at 69.2 dB SNR, showing ~10 dB gain over single-stage 2-bit EFNS.

ACP2026-0714-47

Coherent Receiver Utilizing Real-Time OPLL with Doppler Shift Resistance for Low-power Consumption Inter-satellite Laser Communication

Zhen Luo[1];Yizhou Wang[1];Pengzhuo Sun[1];Shuren Mao[2];Jing Li[1];Shenmao Zhang[1];Xiaoxiao Dai[1*];Jing Zhang[2];Qi Yang[1];Changyuan Yu[3]
1.Huazhong University of Science and Technology, China;2.University of Electronic Science and Technology, China;3.The Hong Kong Polytechnic University, Hong Kong, China
This paper designs a coherent receiver based on a delay-XOR phase frequency detector. It tracks a 100 MHz/s Doppler ramp rate, achieving -36.5 dBm sensitivity for 40 Gbps QPSK at the FEC BER threshold of 3.8e-3.

ACP2026-0701-117

SIRT-Based Tomographic Reconstruction of Refractive Index Profiles in Specialty Sensing Fibers with Non-Circular Claddings

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We propose a tomographic method based on a simultaneous iterative reconstruction technique with phase-domain alignment for refractive index profiling of non-circular cladding fibers. By eliminating the circular symmetry assumptions required by conventional methods, it achieves accurate reconstruction of D-shaped fibers under mechanical jitter, with superior accuracy for sensor metrology.

ACP2026-0624-7

Fully On-Chip Ultra-Wideband Simultaneous Measurement of Doppler-Frequency-Shift and Angle-of-Arrival System

Xinyu Wang[1];Yuchen Shi[1];Zichen Guo[1];Shilan Zhou[1];Shuyue Zhang[1];Jianyi Yang[1];Qikai Huang[2];Qiang Zhang[2*];Hui Yu[2*]

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We demonstrate a fully on-chip ultra-wideband microwave photonic system for the simultaneous measurement of DFS and AOA, achieving precise measurements with DFS errors within ±0.03 Hz and AOA errors within ±2 °for a range of -90 °– 90 °in 2–40 GHz frequency band.

ACP2026-0715-113

All-Optical Suppression of Exciton Fine-Structure Splitting in a Semiconductor Quantum Dot under Continuous-Wave Two-Photon Resonant Excitation

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We suppress quantum dot fine-structure splitting via optical Stark effect under continuous-wave two-photon excitation, reducing it to 0.26 μeV. This all-optical approach holds promise for realizing high-fidelity entangled photon sources without external fields.

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