Best Student Paper Award

First Place

ACP2026-0701-205

Robust and Low-Complexity Duobinary-Encoded Out-of-Band Channel with Adaptive Equalization for Shared 200G Coherent Transceiver

Yongzhu Hu[1], Junhao Zhao[1], An Yan[1], Shouyun Cai[1], Penghao Luo[1], Xuyu Deng[1], Renle Zheng[1], Shuhong He[1], Aolong Sun[1], Zhenping Xing[2], Yanzhao Lu[2], Hongchen Yu[2], Zhicheng Ye[2], Nan Chi[1], Junwen Zhang[1*]

1.Fudan University, China; 2.Huawei Technologies, China

We demonstrate a Duobinary-encoded out-of-band channel sharing a 200-Gbps coherent PON transceiver over 20-km SSMF, recovered by low-complexity absolute-value operation tolerant to frequency offset, phase noise, and polarization rotation, reaching 1E-6 threshold at −40.5 dBm.

Runner-Up

ACP2026-0713-4

Low Memory Target-Response MLSE Receiver for Absorption-Notch-Resilient Hollow-Core Fiber Coherent Links

Tianhong Zhang[1], Yutong Pan[1], Yixiao Zhu[2]*, Shikui Shen[3]*, Yu Qin4,[5], Tianchi Zhong[1], Limin Xiao[4], Yichun Shen[5], Zelin Wang[3], Shuailuo Huang[3], Xian Zhou[6], Fan Zhang[1, 7*]

1.Peking University, China; 2.Shanghai Jiao Tong University, China; 3.China Unicom Research Institute, China; 4.Fudan University, China; 5.Zhongtian Technology Advanced Materials Co., Ltd., China; 6.University of Science and Technology Beijing, China; 7.Peng Cheng Laboratory, China

An absorption-aware TR-MLSE receiver is demonstrated for 64-GBaud 16QAM transmission over 25-km hollow-core fiber, using notch-matched target-response equalization to mitigate gas-line absorption, improve BER performance, and substantially reduce adaptive-equalization complexity without transmitter-side spectral shaping.

Third Place

ACP2026-0723-4

Bidirectional High-Capacity Integrated Sensing and Communication Emulation Using Interconnected Counter-Propagating Recirculating Loops

Junyu Wu[1], Zexu Liu[1], Lei Liu[1, 2], Honglin Jin[3], William Shieh[1, 2]*

1.Westlake University, China;2.Westlake Institute for Optoelectronics, China;3.Peng Cheng Laboratory, China

We demonstrate a bidirectional WDM integrated sensing and communication system using interconnected counter-propagating recirculating loops emulating long-haul fiber links, achieving 6.016-Tbps transmission over 2187.72 km, and DAS sensing with 1.85-km spatial resolution and over 15-dB sensing SNR.

Best Top-Score Paper Award

D-Track

ACP2026-0701-63

Inverse-designed Waveguides Enable Sub-picometer Resolution Spectrometer over 700nm Bandwidth

Hao He[1], Zengji Tu[1], Lin Chang[1*]

1.Peking University, China

We demonstrate a compact and high-performance on-chip spectrometer. By employing inverse design along the sidewalls of a single waveguide, this chip achieves a record full-width at half-maximum of 0.25 pm and an operation bandwidth over 700 nm.

N-Track

ACP2026-0626-10

Inverse-Designed Meta Processing Units for Task-aware Photonic Computing Systems

Chu Wu[1], Zeyu Cai[1], Songtao Yang[1], Ruoyu Shen[1], Yinan Zhao[1], Haiou Zhang[1], Wei Chu[1], Xing Lin[1]*

1.Tsinghua University, China

Photonic matrix processors require compact, composable operators for task-aware computing. Here, we demonstrate inverse-designedmeta processing units (MPUs) with coherent matrix cascading, hardware-in-the-loop dual-task learning, and neuron-level sharing, reducing programmable-mesh burden while preserving task-specific adaptation.

T-Track

ACP2026-0701-229

Photonic Integrated Complementary Carrier-Extracted Self-Coherent Receiver Enabled by Add-drop Resonators

Haojie Zhu[1], Zhengrong Zhao[1], Jinhong Xu[2], Boshu Sun[1], Yuhao Fang[1], Weiqi Lu[1], Dayu Shi[1], Jiwei Xie[1], Puzhen Yuan[1], Jingchi Li[3], Lan Li[1, 2], Yikai Su[3], William Shieh[1, 2*]

1.Westlake University, China;2.Westlake Institute for Optoelectronics, China; 3.Shanghai Jiao Tong University, China

Based on the bandpass and bandstop characteristics of the add-drop racetrack resonators, we

demonstrate an integratedcomplementary carrier-extracted self-coherent receiver on the silicon photonic platform, achieving 360-Gb/s data rate over 50-km SSMF.

NP-Track

ACP2026-0714-20

Coherent spin-photon interface of single PL6 color center in silicon carbide

Zhenxuan He[1], Gergo Thiering[2], Adam Gali[2], Jinshi Xu[1], Chuanfeng Li[1], Guangcan Guo[1]

1.University of Science and Technology of China, China; 2.Wigner Research Centre for Physics, Hungary

In this talk, I will presentour investigation of the oxygen-vacancy PL6 color center in 4H-silicon carbide as a coherent spin–photon interface. Although PL6 has recently emerged as a promising platform for quantum information processing, its spin–photon propert ieshave remained largely unexplored. I will first show how we combine group-theoretical modeling with strain-dependent photoluminescence excitation spectroscopy to fully resolve the excited-state fine structure. Using resonant excitation, we achieve a spin initialization fidelity of 99.69 ± 0.03% and a readout contrast of 98.31 ± 1.03%. The spin–photon entangled A2 transition exhibits narrow optical linewidths of about 180 MHz and a polarization visibility of ~82%. I will then discuss coherent optical driving, where we obtain Rabi frequencies up to 2.895 GHz—approximately 130 times the optical saturation power. Finally, by applying dynamical decoupling, we extend the spin coherence time from 0.5 ms to 5.70 ms, a ten-fold enhancement. Our results establish the PL6 center as a competitive solid-state spin–photon interface hosted in a commercially available semiconductor platform, combining near-unity initialization, high-speed coherent control, and millisecond-scale coherence without isotopic purification.

Best Paper Award in Industry Innovation

First Place

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 Deng1, 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.Department of Networks, China Mobile Communications Group Co., Ltd., China;2.Network Management Center, 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.

Runner-Up

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.

Third Place

ACP2026-0715-190

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

Yixiao Zhu[1]*, Yutong Pan[2], Xiang Cai[2], Tianhong Zhang[2], Tianchi Zhong[2], Shikui Shen[3]*, Yu Qin[4, 5], Yichun Shen[5], Limin Xiao[4], Shuailuo Huang[3], Zelin Wang[3], Weisheng Hu[1], Fan Zhang[2*]

1.Shanghai Jiao Tong University, 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.