Room A (Grand Ballroom 1), 2F | Chair: Tomoyuki Kato (1Finity Corp.)

We1A | July 1 (Wed), 2026
PCS and FEC Coding Technologies | 08:30-10:00

We1A-1 Invited 08:30-09:00

Probabilistic Constellation Shaping: From Point-to-Point Links to Networks

Joan M. Gené, Jordi Perelló
Universitat Politècnica de Catalunya · BarcelonaTech (UPC)

This paper presents an interferometric scheme using a bent polarization-maintaining fiber for simultaneous refractive index and temperature sensing, achieving -260.32 nm/RIU and -221 pm/°C sensitivities with a 20.98 dBm extinction ratio via bending-induced birefringence tuning.

We1A-2 09:00-09:15

Demonstration of Effective Block-Wise MLSE Using Pilot Symbols under Duobinary Coding

Yukinobu Nakajima, Hiroki Taniguchi, Shuto Yamamoto, Masanori Nakamura, Etsushi Yamazaki
NTT Network Innovation Laboratories

We analyzed block-wise MLSE for a duobinary signal generated from 64-Gbaud PDM-16QAM with 23-GHz bandwidth. Placing pilot symbols at both ends of each MLSE block improved Q-factor by 0.7 dB over other pilot symbol placements.

We1A-3 09:15-09:30

Experimental Evaluation of BER Performance of Polar-Coded Offload Method for Reducing SD-FEC Decoder Complexity

Zhiyuan Song[1], Yohei Koganei[2], Koji Igarashi[1]
[1]The University of Osaka, [2]1Finity Inc.

We experimentally evaluate the BER performance of the polar-coded offload method for reducing SD-FEC decoding complexity. Compared with an LDPC code, it reduces the complexity to one-third while maintaining BER performance.

We1A-4 09:30-09:45

Complexity Reduction with Adaptive Chase-2 Decoding for SFEC Inner Code

Shuto Yamamoto, Shuto Sugawara, Etsushi Yamazaki
NTT Network Innovation Laboratories

We evaluated the applicability of Adaptive Chase-2 decoding scheme to the SFEC inner code based on Hamming (68, 60) and demonstrate that the scheme reduces the number of test patterns in soft-decision decoding by 76%.

We1A-5 09:45-10:00

Experimental Evaluation of Quantization and Clipping Effects on Rate-Optimized PCS Signals

Shuto Sugawara, Minami Takahashi, Shuto Yamamoto, Masanori Nakamura, Asuka Matsushita, Etsushi Yamazaki
NTT Network Innovation Laboratories

The optimal PCS entropy rate and RMS were experimentally evaluated for DP-PCS-16QAM considering DAC quantization and clipping effects. Optimal RMS increased with entropy rate at 1.89 and 0.85 dB/(bits/symbol) for 600 and 400 Gbps, respectively.