Tu2A-1 **10:15-10:30**

Do Vector Beams Outperform Scalar Beams in Reducing Scintillation Index?

Woohyeon Moon, Hoon Kim
Korea Advanced Institute of Science and Technology

We analyze the minimum achievable scintillation indices of vector beams in atmospheric turbulence using constrained Riemannian optimization. For a given average received intensity, optimally structured vector and scalar beams exhibit identical minimum scintillation indices.

Tu2A-2 **10:30-10:45**

First Demonstration of Token Communication in Photonic-Assisted Fiber–mmWave Systems

Yuan Wei[1], Yuqin Yuan[1], Yinjun Liu[1], Junhao Zhao[1], Haoyu Zhang[1], Boyu Dong[1], Chaoxu Chen[1], Fang Dong[1], Nan Chi[1], Jianyang Shi[2], Junwen Zhang[1]
[1]Fudan University, [2]Zhangjiang Laboratory

A token communication framework is demonstrated in a photonic-assisted fiber–mmWave system, achieving a maximum compression ratio of 64× and significantly outperforming conventional JPEG and RS coding in transmission efficiency.

Tu2A-3 **10:45-11:00**

Probabilistic Constellation Shaping for Optical Wireless Communication with SiPMs

Xiaohan Zhao, Cuiwei He, Brian Kurkoski
Japan Advanced Institute of Science and Technology

A new asymmetrical probabilistic amplitude shaping (PAS) scheme is proposed for IM/DD-based optical wireless communication using SiPM to mitigate nonlinear signal distortion.

Tu2A-4 **11:00-11:15**

Real-Time THz Video Signal Optical Wireless Transmission System without Electrical Mixing

Zheng Wang, Zanxun Qiu, Xukai Ji, Mingkang Zhang, Feifei Yin, Yitang Dai, Kun Xu
Beijing University of Posts and Telecommunications

We demonstrate a real-time terahertz (THz) video signal optical wireless transmission system. The 4K video signal is successfully transmitted in the THz-over-fiber (ToF) wireless link without THz electrical mixers.

Tu2A-5 **Invited** **11:15-11:45**

Demonstration of an LLM-Centric Optical Network Control and Management Plane

Cen Wang, Chenxiao Zhang, Yuta Wakayama, Takehiro Tsuritani
KDDI Research, Inc.

This report summarizes a set of design principles for an LLM-centric optical network control and management plane. Based on these principles, a plane is designed and implemented, and its effectiveness in fault prediction and low-overhead recovery is validated through demonstrations in both a transport network and an AI scale-across scenario.