

Room D (Capri), 2F

Chair: Hongseok Shin (SK Telecom)

Tu2D

June 30 (Tue), 2026

Sub-THz and THz Wireless Transmission

10:15-11:45

Tu2D-1

10:15-10:30

Sub-THz Signal Generation Using Optical Heterodyne Detection of Cavity-Locked Lasers and Receiver DSP

Dohun Koh¹, Kyungmin Woo², Hoon Kim¹

¹Korea Advanced Institute of Science and Technology, ²Electronics and Telecommunications Research Institute

We propose and demonstrate sub-THz signal generation using two lasers wavelength-locked to an optical cavity and receiver-side DSP to suppress frequency drift and phase noise. The 132.2-GHz carrier achieves two-order improved frequency stability and 40-Gb/s transmission.

Tu2D-2

10:30-10:45

Integrated Secure Communication and Radar Jamming Empowered by THz Photonics

Junhao Zhang^{1,2}, Mingzheng Lei², Qing Zhong^{1,2}, Min Zhu^{1,2}, Junjie Ding², Long Zhang², Bingchang Hua², Yuancheng Cai², Jiao Zhang², Xingyu Chen², Jianjun Yu^{2,3}

¹Southeast University, ²Purple Mountain Laboratories, ³Fudan University

We experimentally demonstrate a photonics-aided OFDM ISAC system for secure communication and cooperative radar jamming at THz band. The system achieves a 105.8-Gbps data rate and a 7-mm radial resolution over a 3-m wireless link.

Tu2D-3

Invited

10:45-11:15

Feasibility and Performance of Photonics-Assisted Sub-THz Wireless X-haul Links

Sang-Rok Moon, Sooyeon Kim, Minkyu Sung, Seung-Hyun Cho
Electronics and Telecommunications Research Institute

This paper experimentally investigates the feasibility of 300-GHz-band transmission for X-haul links. A photonics-based transmitter is employed to deliver QPSK signals over 200 m wireless links, validating its practical applicability.

Tu2D-4

11:15-11:30

OptoChannelDiffusion: Conditional Latent Diffusion Channel Model for G-band Fiber-Terahertz Integrated Communication Systems

Liangtao Chen, Chengxi Wang, Yuan Wei, Yinjun Liu, Boyu Dong, Yaxuan Li, Nan Chi, Junwen Zhang
Fudan University

Enabling high-fidelity digital twins for G-band fiber-terahertz systems at 209-GHz, we propose OptoChannelDiffusion. Integrating conditional attention and 1D diffusion models for full-condition-domain modeling, it achieves a 0.0091 EVM error, reducing baseline errors by 95%.

Tu2D-5

11:30-11:45

Improved Pilot-Assisted Equalization in Phase-Noise-Limited Terahertz OFDM Links

Bowen Liu, Hitomi Uemura, Takasumi Tanabe
Keio University

A pilot-assisted equalizer for phase-noise-limited THz OFDM systems is proposed. Using phase-noise-aware weighted estimation, it stabilizes equalization, improves phase noise tolerance, and expands feasible regions for high-order QAM with low computational complexity.