**SPECIAL SESSION 01**

# The 34th Wireless and Optical Communications Conference

**IEEE WOCC 2025**

## Advanced Technologies for Space-Air-Ground-Sea Integrated Networks

The Space-Air-Ground-Sea Integrated Networks (SAGSINs) are emerging as an essential architecture for six-generation communication systems, supporting a wide range of applications. As these systems converge, the integration of space, air, and ground communication technologies introduces unique opportunities and challenges for high-performance transmission. This special session aims to explore the latest advancements in transmission technologies, performance analysis, and optimization methods in SAGSINs. The focus will be on innovative approaches to improve data throughput, minimize latency, and enhance system reliability across heterogeneous network architecture. The session will bring together leading researchers, engineers, and practitioners to discuss cutting-edge solutions for high-performance communication within SAGSINs. Topics of interest include, but are not limited to, advanced modulation schemes, dynamic resource allocation strategies, interference management, and seamless integration of space, air, and ground components for optimized transmission. Prospective authors are encouraged to submit papers addressing innovative methods, algorithmic developments, and theoretical and practical contributions to high-performance transmission in SAGSINs.

## Topics of the Special Session

- Massive MIMO, mmWave, terahertz and free-space optical communications for SAGSINs
- Multiple access techniques (e.g., NOMA) in SAGSINs
- Advanced modulation and demodulation techniques for SAGSINs
- Channel measurement and modeling on diverse transmission links in SAGSINs
- Antenna design and beamforming optimization for SAGSINs
- Performance analysis and optimization in SAGSINs
- Resource allocation and scheduling in SAGSINs
- Physical layer security and risk detection in SAGSINs
- Spectrum sharing and interference management in SAGSINs
- Seamless handover and mobility management in SAGSINs
- Integrated sensing and communications (ISAC) in SAGSINs
- Cooperative communications and computations in SAGSINs
- Federated edge computing, task offloading and service caching in SAGSINs
- Advanced technologies enhancing SAGSINs, such as semantic communication, deep learning, digital twins
- Additional topics related to low-latency, high-reliable, energy-efficient SAGSINs

## Session Chairs

**Yulei Wang** Lecturer

South-Central Minzu University, China

E-mail: ylwang@mail.scuec.edu.cn

Phone: (+86)15017459984

**Yalin Liu** Senior Lecturer

Hong Kong Metropolitan University, China

E-mail: ylliu@hkmu.edu.hk

Phone: (+852) 31202622

**Yujie Qin** Postdoctoral Fellow

University of Electronic Science and Technology of China, China

E-mail: yujie.qin@uestc.edu.cn

Phone: (+86) 13308049017

## Planned Contributions ▶▶▶▶

1. High-Throughput Cooperative Underwater Networks Using Acoustic-Magnetic Multimodal Communications, Zhangyu Li, South-Central Minzu University.

2. FBG Sensor Network-Based Impact Damage Detection for Aerospace Honeycomb Plates, Yongqiang Hu, Xin Xu, Kexia Peng, Zhengwen Zhou, Liangjie Guo, Yihong Han, Junhui Kou, DFH Satellite Co., Ltd., Faculty of Engineering, China University of Geosciences.

3. Finite Alphabet Iterative Demodulation for Rateless 16QAM, Wengui Rao, South-Central Minzu University.

4. Utility Aware Online Offloading for Fog Computing: A Neural Bandits Approach, Yuhao Feng, University of Southampton.

5. Neural Bandits for Task Offloading in Maritime Edge Intelligence Networks: A Utility-Based Approach, Letao Wang, Nanyang Technological University.

## Submission

Submission Deadline : **March 31, 2025**.

Submission Link: https://edas.info/newPaper.php?c=33162&track=129977

Haikie Liao    ✉ wocc@youngac.cn

📞 +86-13281280917/ +86-13739469027

Further information can be found on the conference website at: 🌐 **https://www.wocc.org**