Symposium on Selected Areas in Communications: Satellite and Space Communications

Co-Chairs

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Scope and Motivation

The rapid evolution of satellite communication technology has expanded the boundaries of satellite networks, becoming a cornerstone for new standards like 5G, Beyond 5G (B5G), and 6G. These are setting the stage for advanced satellite-terrestrial integration, offering opportunities to address unprecedented technical challenges. By creating highly resilient satellite networks adaptable to various use cases, the scientific community is unlocking possibilities for secure, high-speed communication across diverse environments. Integrating satellite systems with terrestrial and aerial networks has catalyzed new research and development directions into a seamless, "anywhere-anytime" service model. This integration supports distributed satellite architectures, offering increased flexibility, scalability, and fault tolerance for dual-use applications in both commercial and strategic sectors. This shift attracts academic and industrial focus on ensuring secure, resilient, and intelligent satellite networks that leverage AI, advanced sensing, and robust security—a suite of drivers essential for the 6G ecosystem.

The Satellite and Space Communications track solicits original and unpublished work not currently under review by any other conference or journal. The focus of this track is on exploring and discussing new technical breakthroughs and applications focusing on all aspects of satellite and space communications.

Topics of Interest

We solicit original contributions in (but not limited to) the following areas:

- Satellite and space communications and networking
- Near-Earth satellite communications
- Antennas for satellite communications
- MIMO satellite communications
- Hybrid satellite/terrestrial networks
- Coding, modulation and synchronization schemes for satellite communications
- Channel models for satellite communications
- Transport protocol performance over satellite
- Security, privacy, and trust in satellite networks
- Radio resource management in satellite networks
- Emerging standards: DVB-Sx, DVB-SH, DVB-RCS2, IP over Satellite

- Cognitive satellite networks
- Delay Tolerant Networking for satellite networks
- QoS and performance for satellite networks
- On-board switching and processing technologies
- Interference and Fade mitigation techniques over satellite channels
- Nano-satellites communications
- Mega-constellations design
- M2M over satellite applications
- New standard in navigation systems: Galileo, GPS, SBAS (EGNOS, WAAS...), GBAS.
- Signal detection and estimation for satellite communications
- Statistical and adaptive signal processing for satellite systems
- Distributed systems for the space and ground segment
- Satellite communications for maritime applications (e.g., AIS)
- Satellite-based disaster recovery
- Satellite-based remote e-Health
- Satellite-based solutions for aeronautical applications
- Interplanetary communications
- Next-generation channel coding for deep-space communications
- Telemetry/telecommand space protocol evolutions
- LEO-PNT with communication satellites
- Internet of Remote Things
- Satellite communications within 3GPP Standardization (NR-NTN, IoT-NTN)
- Satellite communications in 6G

Biographies of the Co-Chairs

Andreas Knopp is a German professor of satellite communications technologies. Since 2015, he has been the Chair Holder of Signal Processing and the Director of the Munich Center of Space Communications research facility at the Bundeswehr University in Munich. In addition, he is now a chairperson of SPACE, the largest German interdisciplinary research center on space technologies. In 2020, Prof. Knopp became a board member of the German Aerospace Center (DLR) and in 2023 he was appointed as a Senator of DLR. He is an advisor to the German Ministry of Defence, and a Visting professor of Naval Postgraduate School Monterey (CA), USA. He is also a member of the expert committee on radio systems in the German society of information technologies (VDE/ITG), and an IEEE Senior Member. Prof. Knopp has authored and co-authored about 160 publications on radio systems and space communications technologies, including 30 journal publications and several patents. He is also an enthusiastic entrepreneur and co-founder of multiple startups. Prof. Knopp holds a master's degree in information technology (2002) and a Ph.D. in wireless communications (2008), both from the Bundeswehr University Munich. In 2010, he received an Executive MBA degree from Gutenberg School of Business Mainz.

How to Submit a Paper

All papers for technical symposia should be submitted via EDAS. Full instructions on how to submit papers and important deadlines are posted at https://icc2025.ieee-icc.org/

The authors of selected papers from this symposium will be invited to submit an extended version of their work for fast-track review and possible publication in the IEEE Open Journal of the Communications Society.