Special Session on
Satellite and Space Communications

Name and affiliation of organizers

Wilfried Gappmair
Graz University of Technology, Austria
Email: gappmair@tugraz.at

Athanasios Panagopoulos
National Technical University of Athens, Greece
Email: thpanag@ece.ntua.gr

Franz Teschl
Graz University of Technology, Austria
Email: franz.teschl@tugraz.at

Prof. Gappmair's research activities include communication theory, channel coding, digital modulation, parameter estimation, synchronization in digital receivers, as well as satellite and wireless optical communications as such. He is author and co-author of about 100 refereed journal and conference papers, along with contributions to textbooks covering his areas of interest.

Prof. Panagopoulos' research interests include radio communication systems design, RF and optical satellite communication networks, but also propagation effects on multiple access systems and on communication protocols for the optimized allocation of radio resources. He has published more than 400 journal and conference papers. He is also author and co-author of 35 book chapters as well as editor of two textbooks covering his areas of interest.

Prof. Teschl's focus is on antennas and microwave propagation. His main research activities are in the fields of tropospheric propagation of microwaves, precipitation modelling, satellite-to-indoor/mobile scenarios, as well as opportunistic remote sensing. He has been a key researcher in several ESA propagation measurement campaigns and in CubeSat missions.

Scope of the session

Particularly interesting are problems related to power and spectrum efficiency, flexibility and adaptability to different propagation conditions, broadband requirements and regulatory implications, mobile services, operation at very low SNR values, fading and interference mitigation techniques, complexity and feasibility issues, but also cross-layer protocol and standardization problems might be considered.

Prospective authors are invited to submit original and unpublished work on the following research topics related to this Special Session:

- Propagation models and antenna design for next-generation satellite systems
- Novel modulation, synchronization and coding techniques
- Advanced fading and interference mitigation methods
- Ultrahigh throughput satellite systems
- Non-terrestrial constellations in the context of 5G and beyond
- Coexistence and synergy between 5G and GEO, MEO, LEO and small satellites networks
- Small satellite missions and technologies
- Optical wireless communications for satellite links
- Machine learning and artificial intelligence in satellite networks
- Satellite-based quantum communication