

Call for Papers

Track 5 – Beyond 5G and Towards 6G

Track Chairs:

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Scope and Motivation:

The first commercial deployments of 5G networks back in early 2019 signified the culmination of a decade of work towards the creation of faster, more ubiquitous networks for everyone and everything. Today, the never-ending demand for higher data-rates, lower latency, higher reliability, and higher energy efficiency for massive heterogeneous systems on the ground, in the air and even in space, requires the development of new wireless technologies, from devices to protocols. The forthcoming sixth generation (6G) wireless system will be driven by both the refinement of past trends, such as densification and massive antenna arrays, as well as emerging trends including the adoption of the spectrum above 100 GHz, the end-to-end control of signal propagation through intelligent reflecting surfaces, integration of sensing and communications, or the use of AI/ML for the design and orchestration of new networking architectures, such as, O-RAN. The purpose of this Special Track is to provide a platform for the discussion of the major research challenges, latest developments and recent advances from 5G towards 6G networks.

Main Topics of Interest:

Potential topics include, but are not limited to, the following:

- Breakthrough technologies and concepts for beyond 5G and towards 6G
- Key drivers and core requirements for beyond 5G and towards 6G
- Above 6 GHz: millimeter-wave, Terahertz-band, optical wireless communications
- Cell-free MIMO, Massive MIMO and Ultra-massive MIMO
- Smart environments enabled by intelligent reflecting surfaces
- Integration of sensing, positioning, and communications
- Smart radio resource management techniques
- B5G and 6G network architectures: Topologies and Functionalities.
- Integrated terrestrial, airborne, and satellite networks – Non-Terrestrial Networks
- Integrated access and backhaul
- Artificial Intelligence and Machine Learning-based approaches for 5G and towards 6G
- Energy transfer and harvesting techniques for enabling Self-Sustainable Networks
- Connected Robotics and Autonomous Systems (CRAS)
- Network softwarization: SDR, SDN, NFV and O-RAN (including RIC solutions)
- Network orchestration for B5G: Decision, Controlling, and Monitoring techniques for B5G and 6G
- End-to-end co-design of communication, caching, control, and computing functionalities
- New applications, new services classes and new media
- B5G and 6G verticals: Use cases, technical requirements, and testbed