

Call for Papers

Track 3 – NEXT GENERATION WIRELESS PROTOCOLS: MAC AND ABOVE

Track Chairs:

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Scope and Motivation:

The *Next Generation Wireless Protocols: MAC and Above Track* is focused on the topics that are related to all aspects of MAC and higher layer protocols in next generation networks, including both layer-specific solutions, cross-layer designs, and cross-technology designs for consumer communications and networking. As 5G wireless is being rolled out and 6G on the horizon, there is fast growth of new services and devices that are based on wireless communications. For instance, the recent advances in the Internet of Things (IoT) make it possible to interconnect billions of things for smart home and smart city applications. As a result, more and more wireless devices are concentrated into the spectrum ecosystem. There is a critical need for research to allow effective sharing of radio resources and harmonious co-existence of dense and heterogeneous wireless systems in the spectrum ecosystem. In many cases, cross-layer design is exploited to obtain a larger design and optimization space for higher efficiency. This track aims to provide a forum for researchers and practitioners working on MAC and higher layer protocols for next generation wireless systems. Papers that describe original and unpublished work addressing these topics of interest are welcome.

Main Topics of Interest:

The Next Generation Wireless Protocols Track seeks original contributions in the following, as well as other closely related, topical areas:

- Low-delay MAC design
- Energy-efficient MAC design
- MAC protocols for 5G and beyond
- Machine learning and data-driven MAC design
- MAC for mesh, ad hoc, relay and sensor networks
- MAC for near-field communications, e.g., body area networks and RFID systems
- MAC for low power wide area networks, e.g., LoRaWAN and NB-IoT
- MAC for machine-to-machine communications
- MAC for cellular networks, such as HetNet, Cloud-RAN, and Open RAN
- MAC for satellite communication systems
- Network layer protocols for emerging network systems
- Congestion control mechanisms
- RF sensing based applications
- Protocols for healthcare IoT
- Protocols for distributed machine learning
- Joint sensing/radar and communications codesign
- Cross-technology communications
- Spectrum coexistence
- Scheduling and radio resource management
- Mobile edge computing and caching
- Wireless network virtualization and software defined networking
- Wireless charging and energy harvesting
- Indoor/outdoor localization and navigation, and location based services
- Software defined radio and cognitive radio
- Cross-layer design for QoS/QoE provisioning (e.g., AR/VR/XR/metaverse systems)
- Cross-layer design for massive MIMO and distributed MIMO networks
- Cross-layer design for autonomous driving and vehicular networks
- Cross-layer design for mission critical applications
- Cross-layer design for the Internet of Things (IoT)
- Cross-layer design for Cyber Physical Systems (CPS) and digital twin

- Cross-layer design for security and privacy
- Implementation, testbeds and prototypes
- Standardization activities of emerging wireless technologies