Call for Papers
Track 4 – WIRELESS COMMUNICATIONS: FUNDAMENTALS, PHY AND ABOVE

Track Chairs:

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Scope and Motivation:
The track on *Wireless Communications: Fundamentals, PHY and ABOVE* covers theoretical and practical topics related to all aspects on physical (PHY), medium access control (MAC), and higher layers in wireless communications. In particular, topics related to current and future wireless communication systems are encouraged. In addition, papers on physical layer (PHY) techniques, PHY-related network analysis and design, cross-layer optimization techniques, field trials and applications, fundamental analysis for wireless communication systems are of special interest. To design future wireless communications systems meeting broad demands such as low latency, high data rate, ultra-high reliability, and high energy efficiency, discussions confined to a specific layer are insufficient. This track aims to provide opportunities for active discussions among researchers and practitioners working on different layers of wireless communications. Papers describing original and unpublished work addressing these topics of interest are welcome.

Main Topics of Interest:
This track seeks original contributions in the following areas, as well as others that are not explicitly listed but are closely related

- Beyond 5G/6G mobile communications
- Advanced modulation techniques (OTFS variants, OFDM, and waveform design)
- Antennas, beamforming, distributed and hybrid-beamforming techniques
- Cell-free massive MIMO, distributed MIMO, network MIMO, and cloud RAN
- Joint radar and communications and integrated sensing and communications (ISAC)
- Intellligent reflecting surfaces (IRS), relaying, and diversity techniques
- cmWave, mmWave, and Tera-hertz communication techniques
- Semantic communications and goal-oriented or mission-critical communications
- Orbital angular momentum (OAM)-based wireless communications
- Machine-learning techniques for wireless communications
- AI and data analytics for wireless communications
- Communications design for distributed machine leanring and federated learning
- Data-driven PHY/MAC/higher layer techniques
- Non-terrestrial wireless communications including Drone/UAV communications
- Wireless power transfer and simultaneous wireless information and power transfer (SWIPT)
- Energy harvesting and sustainable communication techniques
- Green communications & energy efficiency in wireless communications
- Ambient IoT, backscatter communications
- Information-theoretical aspects of wireless communications
- Channel modeling, estimation, and equalization techniques
- Fog networks, contents caching, and mobile edge computing techniques
- Non-orthogonal multiple access (NOMA) and various multiple access techniques
- Grant-free access, coded ALOHA, and grant-free NOMA
- Massive access, massive IoT/M2M, and wireless sensor networks
- Interference management (coordination, cancellation, and alignment) techniques
- Physical-layer security & Anti-jamming techniques
- Positioning and localization techniques
- Spectrum sharing/cognitive radio techniques and in-band network coexistence
- Healthcare IoT, body area network (BAN)
- QoS/QoE provisioning in wireless systems
- Cyber physical systems (CPS) and digital twin