

Call for Papers

Track 4 – WIRELESS COMMUNICATIONS: FUNDAMENTALS AND PHY

Track Chairs:

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Scope and Motivation:

The track on Wireless Communications: Fundamentals and PHY covers all aspects on theory and practice of 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.

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
- Intelligent reflecting surfaces (IRS), relaying, and diversity techniques
- cmWave, mmWave, and Tera-hertz communication techniques
- Semantic communications and goal-oriented communications
- Orbital angular momentum (OAM)-based wireless communications
- Machine-learning techniques for wireless communications
- AI and data analytics for wireless communications
- Data-driven PHY techniques
- Drone/UAV communications, non-terrestrial wireless 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 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
- Signal processing for wireless communications
- Spectrum sharing/cognitive radio techniques and network coexistence