



## Call for Papers

### *Symposium on Selected Areas in Communications: Backhaul/Fronthaul Networking & Communications Track*

#### Track Chair

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#### Scope and Motivation

To cope with the exponential growth of demand on wireless communications, along with improving the spectral efficiency and capacity, 5G Advanced and 6G standards will densify the network with many base stations (BSs) of different types. Such a network densification comes with new challenges, however. The BSs need to be connected to the operators' core network via a transport network. On a global scale, fiber and wireless technology are dominating media for backhaul/fronthaul communications, each with its own advantages and challenges. Particularly, to satisfy the quality-of-service requirements for a massive number of devices, there is a need to scale-up the rate, the reliability, and the latency of the backhaul/fronthaul networks with reasonable costs.

#### Topics of Interest

This symposium aims to foster research and innovation in the field of backhaul/fronthaul networking and communications, and provides a platform for dissemination of fundamental and applied results. We will address all 5G, 5G Advanced and 6G aspects of the backhaul/fronthaul networks from the academic and industrial perspectives. We particularly welcome the wireless communications, signal processing, information theory and artificial intelligence (AI) aspects of the backhaul/fronthaul networks. The call for papers is motivated by the network densification requirements, for which backhaul/fronthaul communication is a true enabler. To that end, we encourage researchers to submit recent high-quality findings including the following non-exhaustive list of topics:

- MIMO, massive MIMO, beamforming and quantization in backhaul/fronthaul networks
- Integrated sensing, localization and communications enabled backhaul/fronthaul networks
- Integrated access and backhaul (IAB) networks and IAB standardization
- AI and machine learning enhanced edge/cloud computing over backhaul/fronthaul networks
- Backhaul/fronthaul design requirements for rural and sparsely populated area, public safety
- Routing and topology adaptation, transmission protocols in backhaul/fronthaul networks
- Resource management in backhaul/fronthaul networks
- Caching in backhaul/fronthaul networks

- Non-terrestrial networks, internet-of-things (IoT) enabled backhaul/fronthaul
- Hybrid backhaul/fronthaul using underwater communications, free space optics and wireless fibers
- Electromagnetic signal and information theory (ESIT) for backhaul/fronthaul networks
- Experimentation, testbed findings and performance characterizations of backhaul/fronthaul networks
- Green backhaul/fronthaul, and energy consumption models for new backhaul/fronthaul technologies
- Software-defined radio/cognitive radio based backhaul/fronthaul designs
- PHY security and mobility management in backhaul/fronthaul networks
- Backhaul/fronthaul communication as an enabler for cloud, fog or edge computing
- Interference management in wireless backhaul/fronthaul networks
- Semantic communication, URLLC, eMBB, mMTC enabled backhaul/fronthaul
- Meshed communication in backhaul/fronthaul networks

## Important Dates

**Paper Submission:** 11 October 2023

**Notification:** 18 January 2024

**Camera Ready and Registration:** 15 February 2024

## How to Submit a Paper

All papers for technical symposium should be submitted via EDAS. Full instructions on how to submit papers are provided on the IEEE ICC 2024 website: <https://icc2024.ieee-icc.org/>

## Journal Publication Opportunity

The authors of selected papers from this symposium will be invited to submit an extended version of their work for fast-track review and possible publication in the IEEE Open Journal of the Communications Society.