# IEEE International Conference on Communications

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*Intelligent Connectivity for Smart World*

## Call for Papers for
## *Symposium on Selected Areas in Communications*
## *Backhaul/Fronthaul Networking & Communications Symposium Track*

**TRACK CHAIR:**

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**SCOPE AND MOTIVATION:**

Heterogeneous small-cell networks (HetNets) are considered as one of the key architectural enablers to the challenging demands such as high spectral and energy efficiency of next-generation wireless and mobile networks. Although the small-cell concept has been articulated and studied for many years within the 4G LTE framework, the concept has never found widespread application mainly due to the cost of deployment. In the conventional wireless networks, the cost of the macro base station has been a dominant factor. The cost of a small-cell base station, on the other hand, is much lower in comparison to that of a macro base station; but efficient and satisfactory operation of all these densely deployed small cells hinges on a smart, economical and ubiquitous backhaul/fronthaul networks provisioning ultra-low latency (time to reaction over wireless links), high data rate and high reliability. It is expected that in the beyond 5G/6G networks, the operators will continue to enhance the user experience in terms of latency and quality of experience with the aid of advanced mobile side technologies. However, comparatively less focus has been paid so far on the fixed side of the network, i.e., toward the management of physical network computing infrastructure including backhaul and fronthaul for networks.

It is anticipated that future networks will evolve from today's separate and incompatible fronthaul and backhaul into an integrated flexible smart wireless backhauling/fronthauling infrastructure that will support future cellular and ad hoc networks, Wi-Fi, IoT and enabling technologies efficiently. The development of smart backhaul/fronthaul solutions for economical and ubiquitous networks will enable ultra-low latency, high data-rates, and high reliability. Such integrated backhaul and fronthaul networks will meet the global information and communication requirements of future smart and resilient cities, providing ubiquitous connectivity and ensuring the convergence between the fixed and mobile side of the network and guarantee enhanced user experience and better scalability and latency.

**TOPICS OF INTEREST:**

The Backhaul/fronthaul Networking & Communications Symposium seeks original contributions in, but not limited to, the following areas:

- Backhaul/fronthaul requirements such as latency, scalability, cost, and data rates for multi-tier ultra-dense heterogeneous small cell networks
- Hybrid backhaul/fronthaul solutions (wired/wireless, point-to-point (PtP)/Point-to-Multi-Point (PtMP), line-of-sight (LOS)/Non-line-of-sight (NLOS), etc.)
- Synchronization approaches and latency issues to combat delays introduced in backhaul/fronthaul operations
- Satellite communications and Unmanned flying platforms such as HAPs/MAPs/LAPs, balloons, and airships, etc. enabled backhaul/fronthaul design for ultra-dense and sparsely populated areas
- Massive MIMO based backhaul/fronthaul for ultra-dense small cell deployment
- Backhaul/fronthaul relaxation in heterogeneous networks including traffic offloading and data caching
- Integrated access and backhaul (IAB) design and joint optimization of access and backhaul/fronthaul networks
- Green backhaul/fronthaul solutions and energy consumption models for new backhaul/fronthaul technologies
- Usability of higher frequency bands for backhaul/fronthaul design (Free Space Optical (FSO)/mm-wave based communications)
- Scheduling techniques and radio resource management (RRM) in backhaul/fronthaul networks
- Orchestration of in-band and out-of-band frequency usage for backhaul/fronthaul
- Backhaul/fronthaul issues over unlicensed frequency bands (2.4 GHz, 5 GHz, 60 GHz (WiGig))
- Interference management in wireless backhaul/fronthaul networks
- Backhaul/fronthaul convergence and application driven business models for commercial/regulatory deployments
- Comparative case studies with legacy backhaul networks
- Regulatory and policy issues for backhaul/fronthaul communications
- Backhaul as a Service (BaaS) and self-organized heterogeneous backhaul

**IMPORTANT DATES:**

**Deadline for paper submission**: 11 October 2021
**Date for notification**: 18 January 2022
**Deadline for final paper submission**: 15 February 2022