5G Wireless Communications Technology

Session Co-chairs: John Smee, Qualcomm Technologies, Inc., and Zhiqin Wang, China Academy of Information and Communications Technology

In both the United States and China, 2019 marks the year for the commercial rollouts of 5G wireless communication systems based on the global 3GPP 5G New Radio (5G-NR) standard. To support the expanded connectivity needs for the next decade and beyond, 5G will take on a more expansive role than previous cellular generations. 5G networks are being designed to not only deliver enhanced mobile broadband (eMBB) experiences with wider bandwidths and higher data rates, but also expand to support new ultra reliable low latency communications (URLLC) services as well as consumer and industrial IOT applications.

In addition to the breadth of applications being addressed, another key differences of 5G compared to 3G and 4G networks is the range of frequency bands being targeted from *low bands* (sub-1GHz), to *mid bands* (1-7 GHz), to millimeter wave (mmW) *high bands* (> 24Ghz), across licensed, shared, and unlicensed approaches. Furthermore, 5G networks are being designed to leverage a broad span of topologies and technologies such as cloud radio access networks (C-RAN), virtualized radio-access networks (VRAN), massive MIMO antenna arrays, mmW integrated access and backhaul, and lower latency mobile-edge computing (MEC) and communications.

This expansive range of 5G wireless communications technology and applications has resulted in very active research and development across the academic and industrial research communities. In this session we are pleased to have a mixture of academic and industry speakers who will not only each highlight the state of the art in key 5G technology area, but also give a broader perspective on future research challenges and how they are being addressed.

Speakers:

TBD
Chuan Zhang, Southeast University

Ultra Low-power Integrated Circuits Enabling Next-Generation IoT Applications
Patrick Mercier, University of California, San Diego

Current State pf the Art of 5G with Fous on Research for Low-Latency and High-Reliability Applications
Jing Lei, Qualcomm

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5G/B5G Key Technologies-enabled High-speed Railway Communication
Bo Ai, Beijing Jiaotong University