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Special Issue on
Deployment Challenges for Large-Scale MIMO Communications

Call for Papers

Large-scale or massive MIMO systems have been shown to hold great potential for realizing Gigabit data rates in the next generation wireless networks. When networks deploy massive MIMO-enabled base stations (BS), they are able to increase their data rate by as much as tenfold compared to the existing networks. This extra degree of freedom can be used to expand current system capacity by bringing in more users in the system or to increase the individual user's data rate/throughput. For these benefits to be realized effectively, however, several deployment challenges must be addressed which will eventually facilitate the integration of massive MIMO-enabled BS into the existing networks.

We invite investigators to contribute original research articles as well as review articles that will stimulate the continuing efforts to understand the fundamental limits on the theoretical performance of massive MIMO systems, as well as the deployment strategies for seamless integration of massive MIMO-enabled devices on the existing networks. Potential topics include, but are not limited to:

- RF front-end design and optimizations for massive MIMO-enabled BS
- Antenna designs and array processing for massive MIMO systems
- Cellular designs involving the use of massive MIMO systems
- Propagation aspects and channel modeling
- Low-complexity detectors for massive MIMO systems
- Coding and modulation designs for massive MIMO systems
- Green communication using massive MIMO: overall energy efficiency analysis
- Distributed massive MIMO system design
- Network throughput achievable with massive MIMO systems using different propagation environments
- Peak-to-average power reduction in massive MIMO-OFDM systems
- Limiting diversity gains achievable in multiuser massive MIMO systems
- Performance results from testbeds
- MAC layer simplifications offered by massive MIMO systems
- Network-level solutions to pilot contamination problems
- Deployment scenarios for massive MIMO systems besides the cellular systems

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Lead Guest Editor

Ahmed Iyanda Sulyman, Department of Electrical Engineering, King Saud University, Riyadh 11421, Saudi Arabia; asulyman@ksu.edu.sa

Guest Editors

Shahram Yousefi, Department of Electrical and Computer Engineering, Queen's University, Kingston, ON, Canada K7L3N6; s.yousefi@queensu.ca

Joonhyuk Kang, Department of Electrical Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon 305-701, Republic of Korea; jhkang@kaist.edu