Call for Papers

IET Signal Processing

Special Issue:
Signal Processing for Large Scale 5G Wireless Networks

With the envisioned 1000x explosion in mobile data traffic by the end of year 2020, the wireless network architecture needs to evolve rapidly. The evolution trajectory should be charted such that exponential gains can be harnessed in network wide resource efficiency. This requires a clean slate design for the 5G wireless networks while provisioning interoperability with the legacy deployment. Thus, it has been realized that 5G will not be a rebranded version of 4G which will merely provision faster data transfers. The 5G networks will be more dynamic due to heterogeneity in terms devices, spectral bands, technologies and deployment models. The so-called concept of a `tactile internet' with these heterogeneous network elements cannot be realized without adequate advancements in signal processing and communication algorithms. To this end, the main objective of this Special Issue is to provide a platform for dissemination of recent advancements in the signal processing techniques for enabling large scale heterogeneous 5G wireless networks.

Within the broad range of research challenges for the 5G wireless networks, this Special Issue is to present recent advances in signal processing for communication with an emphasis on signal processing techniques that may be relevant for emerging 5G networks. Submissions of both application specific technical contributions and comprehensive design tutorials are encouraged. Original papers with significant novelty and originality in aspects of signal processing are solicited for this Special Issue.

The topics of interest include (but are not limited to):

- New modulation, coding and waveforms design from the aspects of CSI acquisition and synchronisation;
- Signal processing for Massive MIMO systems;
- Signal processing for large scale multiple access systems;
- Hardware implementation of signal processing algorithms for large scale systems;
- Signal processing for large scale distributed antenna systems, e.g. Cloud radio networks, etc.;
- Resource virtualization for centralized signal processing;
- Interference management through advanced signal processing methods;
- Machine learning empowered signal processing for context aware 5G applications;
- New waveforms and channel coding from the aspects of channel estimation and synchronization;
- Signal processing for location-aware communications (e.g. D2D, smart spaces, etc.);
- Signal processing techniques for sensing and inference in 5G sensor networks (e.g. M2M, IoT etc.);
- Signal processing for Energy efficient large scale systems;
- Signal processing tools for large scale stochastic networks and their limiting behaviour (RMT);
- Signal processing for high higher frequency bands (e.g., mm-wave, 60GHz etc.);
- Signal processing for Full duplex wireless communication;
- Signal processing for data storage and management in large-scale 5G networks;
- Application in 5G systems with advanced signal processing approaches.

The authors are invited to submit full article according to IET research journal author guide, using IET manuscript central submission below. All submissions are subject to the journal’s peer-review procedures. The individual papers accepted for publication in the Special Issue will be published as e-first ahead of the print publication. The authors should follow the journal’s Author Guide at http://digital-library.theiet.org/journals/author-guide. Prospective authors should follow the Guide to Authors of Papers for IET journals, which can be accessed at the IET Signal Processing journal website at http://digital-library.theiet.org/content/journals/iet-spr. Papers must be submitted on-line. Authors should indicate “Special Issue on 5G wireless networks” on their manuscripts. Enquiries can be made to the IET or the Guest Editors.

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Important dates:
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