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SPECIAL ISSUE ON
Non5G: New waveform, Non-Orthogonal Multiple Access, and Networking for 5G

Overview:

Mobile/wireless communications and networking deeply influence human lives, while rapid growth in wireless networking also dramatically stimulates the mobile demands. Currently, the fifth generation (5G) mobile communication system is being studied and standardized around the worldwide. 5G asks for 1000 times system capacity, 10 times spectral efficiency, higher data rates (the peak data rate of 10 Gbps and the minimum guaranteed user data rate of 100Mbps), very large connections (1 million connections per sq.km), and ultra-low latency (radio latency less than 1ms and E2E latency less than 10ms). Unsurprisingly, there are strong demands on a series of new techniques supporting these challenging expectations.

Recently, some of the most promising approaches for 5G are emerging. Some new types of waveform are proposed to flexibly accommodate diversified services or applications with different requirements. By introducing new resource domains to separate multi-users, non-orthogonal multiple access can serve more users in the same frequency and time resource block, which significantly improves the capacity, connections, and spectral efficiency. Several non-orthogonal multiple access approaches have been proposed, such as NOMA in power, sparse code multiple access (SCMA) in code domain, multi-user shared access (MUSA), pattern division multiple access (PDMA), lattice partition multiple access (LPMA), and interleave division multiple access (IDMA). Moreover, to further address the extremely high capacity requirements, ultra-dense heterogeneous networking is considered as a promising architecture for 5G. Especially, providing high capacity and connections through directional transmission and large bandwidth, millimeter wave (mmWave) communications and networking can have captured increasing attentions. However, there are also a series of intractable technologies need to be addressed.

The special issue focuses on the key technologies of new waveform, non-orthogonal multiple access, and networking for 5G.

Topics

Topics of interest include, but are not limited to, the following scope:

- Filtered OFDM (FOFDM) for 5G	- Routing algorithm and protocol for multi-cell mmWave backhaul networking
- Non-OFDM waveforms for 5G	- MAC layer design for 5G heterogeneous networking
- Waveforms for ultra-reliable low latency communications	- Mobility and handoff control for heterogeneous networking
- Low power and energy efficient waveforms	- Unlicensed spectrum such as WiFi and LTE-u offloading for 5G
- Full-duplex communications	- Multiple access and networking for
- Fundamental information-theoretic and performance analysis of non-orthogonal multiple access	
- Resource allocation for non-orthogonal	

<ul style="list-style-type: none"> – multiple access – MAC layer design such as protocol and frame structure for non-orthogonal multiple access – Channel coding and modulation for non-orthogonal multiple access – Multi-user techniques such as OFDMA and MU-MIMO for non-orthogonal multiple access – non-orthogonal multiple access for unlicensed spectrum such as LTE-u and WiFi – Cross-layer design and optimization for non-orthogonal multiple access – Hardware implementations of non-orthogonal multiple access 	<ul style="list-style-type: none"> – ultra-dense wireless network – Software-defined and virtualized-enabled 5G heterogeneous networking architecture – Emerging applications of non-orthogonal multiple access and/or 5G heterogeneous networking – Big data for 5G heterogeneous networking – Social-aware 5G heterogeneous networking – Cloud computing and edge computing for 5G heterogeneous networking
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Important Dates

- **Manuscript submission deadline: May 31, 2017**
- Notification of acceptance: August 20, 2017
- Submission of final revised paper: September 30, 2017
- Publication of special issue (tentative): 1st or 2nd Quarter, 2018

Submission Procedure

Authors should follow the MONET Journal manuscript format described at the journal site. Manuscripts should be submitted on-line through <http://www.editorialmanager.com/mone/>. A copy of the manuscript should also be emailed to the Guest Editors at the following email address(es): libo.npu@nwpu.edu.cn.

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