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**SPECIAL ISSUE ON**  
**Won5G: 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:

<ul style="list-style-type: none"><li>- Filtered OFDM (FOFDM) for 5G</li><li>- Non-OFDM waveforms for 5G</li><li>- Waveforms for ultra-reliable low latency communications</li><li>- Low power and energy efficient waveforms</li><li>- Full-duplex communications</li><li>- Fundamental information-theoretic and performance analysis of non-orthogonal multiple access</li><li>- Resource allocation for non-orthogonal</li></ul>	<ul style="list-style-type: none"><li>- Routing algorithm and protocol for multi-cell mmWave backhaul networking</li><li>- MAC layer design for 5G heterogeneous networking</li><li>- Mobility and handoff control for heterogeneous networking</li><li>- Unlicensed spectrum such as WiFi and LTE-u offloading for 5G</li><li>- Multiple access and networking for</li></ul>
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<ul style="list-style-type: none"> <li>– multiple access</li> <li>– MAC layer design such as protocol and frame structure for non-orthogonal multiple access</li> <li>– Channel coding and modulation for non-orthogonal multiple access</li> <li>– Multi-user techniques such as OFDMA and MU-MIMO for non-orthogonal multiple access</li> <li>– non-orthogonal multiple access for unlicensed spectrum such as LTE-u and WiFi</li> <li>– Cross-layer design and optimization for non-orthogonal multiple access</li> <li>– Hardware implementations of non-orthogonal multiple access</li> </ul>	<ul style="list-style-type: none"> <li>– ultra-dense wireless network</li> <li>– Software-defined and virtualized-enabled 5G heterogeneous networking architecture</li> <li>– Emerging applications of non-orthogonal multiple access and/or 5G heterogeneous networking</li> <li>– Big data for 5G heterogeneous networking</li> <li>– Social-aware 5G heterogeneous networking</li> <li>– Cloud computing and edge computing for 5G heterogeneous networking</li> </ul>
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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](mailto:libo.npu@nwpu.edu.cn).

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Dr. Bo LI received the B.S., M.S. and Ph.D degrees in communications engineering from Xidian University, Xi'an, China, in 1994, 1996 and 2002, respectively. From 1997 to 1998, he was selected to study in the Electrical Engineering Department of Shizuoka University in Japan as an exchange student. From 2002 to 2004, he was a Postdoctoral Researcher at the University of Trento, Trento, Italy. In 2007, as a visiting professor, he visited the CITI LAB of INSA LYON for 6 months. He is currently with the School of Electronics and Information Engineering, Northwestern Polytechnical University, Xi'an, China, as a Full-Time Professor. He has authored about 80 research papers in the area of wireless communications and networking. Among these papers, some are published on famous international journals, such as, the IEEE Transactions on Vehicular Technology, the IEEE Communication Letters, and the International Journal of Computer Networks and so on. Moreover, these papers are cited by other authors for over 200 times. His current research interests include broadband wireless mobile networks, wireless local area networks, multimedia wireless communication networks, cross-layer design of wireless communications systems and resource allocations. In the above research areas, he is holding 13 authorized invention patents.

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Prof. SHAO received the B.E. and Ph.D. degrees in communication and information systems from the University of Electronic Science and Technology of China (UESTC), Chengdu, China, in 2003 and 2008, respectively. Since 2015, he has been a Professor with the National Key Laboratory of Science and Technology on Communications, UESTC as a Full-Time Professor. He has authored/co-authored more than 70 research papers in the area of wireless communications. Among these papers, some are published on famous international journals, such as the IEEE Transactions on Wireless Communications, the IEEE Transactions on Signal Processing, and the IEEE Transactions on Vehicular Technology. These research papers are cited worldwide for over 300 times. His current research interests include the design, modeling, and the analysis of full-duplex transceivers, MIMO detection, and all-digital transceivers. In his research areas, he is holding 24 authorized invention patents.



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