Editorial

Challenges for the Future Mobile Communication Systems

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As the wireless data traffic has been increased explosively, the future mobile communication system that can accommodate the traffic demand in a cost-effective and optimal manner attracts more and more attention in both academia and industry. Many standards bodies, countries, and major companies have proposed visions for the future mobile communication system and there have been a lot of proposals from the architectural changes to specific algorithms. For example, ITU specified the key performance requirements of 5G networks and 3GPP presented the roadmap for 5G standard deployment. NGNM presented use cases of 5G applications.

Future mobile communication systems will need to interconnect heterogeneous mobile communication systems and technologies and get them to work together so as to optimize services requirements and operational conditions. For example, software defined network is supposed to be deployed for core and access networks, machine-type communications will prevail, and self-organized mechanisms are introduced to increase network performance and reduce operational costs under highly variable and unpredictable network conditions. Even though a significant number of studies taking evolutionary approaches and revolutionary approaches are in progress to give shape to the vision of the future mobile communication system, more efforts are still required to crystallize the future mobile communication system.

The scope of this special issue is in line with recent contributions from academia and industry on the recent activities that tackle the technical challenges to concretize the future mobile communication system. For the current issue,

we are pleased to introduce a collection of papers covering a range of topics as follows:

- (i) Technologies for connected vehicle systems
- (ii) Technologies for cellular networks
- (iii) Technologies for wireless multihop networks
- (iv) Technologies for underwater wireless networks
- (v) Technologies for future mobile communication systems

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