

Special Issue on  
**Full-Duplex and Cognitive Radio  
Networking for the Emerging 5G Systems**

# CALL FOR PAPERS

Growing interest in very high data rates and high-quality services on one hand and scarcity of available frequency resources in mobile communication networks on the other hand spur exploiting new methods that can facilitate significant improvement in spectral efficiencies of the emerging 5G networks. Cognitive and full-duplex radios are considered as potential solutions for increasing the throughput of the 5th generation of wireless networks and beyond. Full-duplex communication will bring about the possibility for a transceiver to transmit and receive simultaneously in the same band, and cognitive radio enables more environment-awareness and frequency spectrum sharing among users. Combination of these two technologies can potentially improve the network capacity even further. However, the challenges and obstacles in efficient deployment of full-duplex and cognitive communication technologies in a multiuser dense network have yet to be overcome; in particular, research on security of shared spectrum/full-duplex networking, allocation of spatial and temporal resources to multiple transceivers, suppressing multiuser interference, and design of efficient and secure full-duplex/cognitive MAC and higher layer protocols is in its infancy.

Tackling these challenges can pave the way for major improvement in network throughput and QoS provisioning by exploiting full-duplex and cognitive communications in the emerging dense networks.

This special issue aims at publishing original research articles that address various challenges and spur the ongoing efforts in exploiting cognitive and full-duplex transceivers in a dense multiuser environment. We also invite the participants to submit papers on practical solutions for implementation of cognitive and/or full-duplex networks.

Potential topics include but are not limited to the following:

- ▶ Dynamic self-interference cancellation in wireless networks
- ▶ Security in cognitive/full-duplex networking
- ▶ Joint self-interference and multiuser interference cancellation in cognitive/full-duplex networks
- ▶ Cognitive MAC and full-duplex MAC protocols
- ▶ Higher layer full-duplex communication protocols in shared spectrum environments
- ▶ Capacity-delay trade-offs in flexible radio (cognitive/full-duplex radio) networks
- ▶ Adaptive multiuser MIMO in flexible radio communication
- ▶ RF design for efficient full-duplex/cognitive networking
- ▶ Standardization and testbeds for flexible radio networks
- ▶ Energy efficiency in flexible radio networks
- ▶ Full-duplex and cognitive M2M networks
- ▶ Full-duplex and cognitive radio in LTE-unlicensed networks
- ▶ Interference management for full-duplex and cognitive radio in LTE-unlicensed networks
- ▶ Full-duplex and cognitive radio with massive MIMO

Authors can submit their manuscripts through the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/wcmc/fdcr/>.

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