The past decade has seen a massive growth in the number of telecommunication devices and connections. The number of devices connected and controlled by the telecommunications networks is expected to grow to 50 billion by 2020. Each device needs technologies which can offer a high throughput to support high-speed data applications such as 360° 3D video streaming, movies, remote education, and online games. There is also a growing concern about green communication, which focuses on the effects of the radiation emitted from telecommunication devices on the human body. In addition, in future 5G systems, machine-type communications such as cloud computing, the Internet of Things, Internet of Everything, Web 3.0, and Smart X are expected to play an important role. Since machine-type communications are very different with human-type communications, they bring significant challenges regarding a unified radio solution for the current telecommunication systems. The research community of telecommunication networks have put in enormous efforts to meet the above demands. This Special Issue aims at bringing together academic and industrial researchers to discuss and share their work on the technical challenges and recent advances related to 5G telecommunications networks.

Topics of interest for this Special Issue include, but are not limited to:

Technologies for 5G
- Mm-wave communications
- Full-duplex communications
- Energy harvesting communications
- Non-orthogonal multiple access (NOMA)
- Massive MIMO and cell-free massive MIMO
- Ultra-dense cellular networks
- Device-to-device communications
- Distributed caching in wireless communications
- Principles, algorithms, and test-bed for telecommunications networks

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