Call for Papers

SPECIAL ISSUE ON:
Cellular Internet of UAVs for 5G and Beyond

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The emerging unmanned aerial vehicles (UAVs) have been playing an increasing role in the military, public, and civil applications. An important application is to exploit UAVs for sensing purposes due to its advantages of on-demand flexible deployment, the larger service coverage compared with the conventional fixed sensor nodes, and the ability to hover. In particular, UAVs, equipped with cameras or sensors, have come into our daily lives to execute critical real-time sensing tasks, such as smart agriculture, security monitoring, forest fire detection, and traffic surveillance. Due to the limited computation capability of UAVs, real-time sensory data needs to be transmitted to the BS/server for real-time data processing. In this regard, the cellular networks are necessarily committed to supporting the data transmission for UAVs, which we refer to as the Cellular Internet of UAVs. Very recently, 3GPP has approved the study item on enhanced support to seamlessly integrate UAVs into future cellular networks. Unlike terrestrial cellular networks, UAV communications have many distinctive features such as high dynamic network topologies and weakly connected communication links. Besides, they still suffer from some practical constraints such as battery power, no-fly zones, sensing requirements, etc. As such, many standards, protocols, and design methodologies used in terrestrial wireless networks are not directly applicable to airborne communication networks. Therefore, it is essential to develop new communication, signal processing, and optimization techniques in support of the ultra-reliable and real-time sensing applications.

Topics of interest relating to the cellular Internet of UAVs include but are not limited to:

- Network architecture and protocols
- Channel measurement and modeling
- Transmission technologies, e.g., mmWave, Massive MIMO, etc.
- Interference cancellation and coordination
- Cooperation and relay techniques
- Radio resource management
- QoS-aware trajectory optimization
- AI-enabled cellular Internet of UAVs communications
- Wireless power transfer aided cellular Internet of UAVs
- Mobile edge computing
- Safety and security issues
- Prototype results, testbeds, and new applications

All papers must be submitted through the journal’s peer review system:
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