



## Special Session

# Future 5G/GNSS High-precision Positioning for Mobile Terminals in Challenging Environments

### Abstract

With the emergence of artificial intelligence and unmanned technology, high-accuracy spatial-temporal information is becoming increasingly important in improving the capabilities of mobile terminals. However, current accurate positioning solutions face challenges including GNSS signal loss for indoor scenario, complex environmental and multipath interference, as well as weight, volume, and power limitations.

For terminals such as smart phones and IoT devices, the potential revolutionary techniques and applications of centimeter to decimeter level positioning are very attractive. It is necessary to explore new technologies, including joint 5G/GNSS positioning, carrier phase positioning, terahertz, and meta-surfaces. Additionally, this session will explore the importance of accurate indoor positioning for swarm intelligence and multi-terminal cooperation. New models and theories will help to understand how it enhances performance or reduces power consumption for mobile terminals, and accurate position, time, and altitude information may bring novel cooperative communication, sensing or computation technologies.

### In this Special Session, we invite authors to submit papers related (**but not limited**) to:

- 5G/GNSS joint high-accuracy positioning methods
- Potential applications of accurate positioning in 5G/GNSS and IoT
- Benefits of position, time, and attitude information for cooperative communication, sensing, and computation
- Novel high-accuracy positioning techniques for mobile terminals
- Demo and requirements for accurate indoor positioning in 5G/GNSS networks

### Keywords

5G/GNSS joint positioning, high-accuracy indoor positioning, Internet-of-Things (IoT), cooperative positioning and sensing, cooperative communication

### Organizers:

- Tengfei Wang, Tsinghua University, Beijing, China (co-organizers)
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### Suggested Reviewers:

- Mingquan Lu, Tsinghua University, Beijing, China
- Niu Xiaoji, Wuhan University, Wuhan, China
- HanWang, Huawei, Shanghai, China

### Important Dates

- Submission deadline: 15 May 2023
- Notification of acceptance: 21 June 2023

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