



Special Session

Seamless Positioning, Navigation, and Timing with GNSS, LEO, and Sensors Integration

Description of the proposed special session:

Compared to terrestrial navigation systems, satellite-based navigation using GNSS satellites or LEO satellites has the ability provide positioning, navigation, and timing (PNT) services globally, at least in outdoor scenarios. However, their performance is still limited in challenging areas, such as deep urban canyons and indoors, due to various signal blockages and large path losses encountered when signals penetrate the buildings. Therefore, looking for novel solutions to offer seamless and global PNT services is a timely research area. In addition, interferences are on the rise in GNSS L-bands, and find out robust interference detection and mitigation methods as well as hybrid solutions to deal with interferences is another area of high research interest nowadays. This special session invites new research in the area of seamless positioning, navigation, and timing with GNSS, LEO, and sensors integration, for reaching improvements over the state of the art in terms of accuracy, robustness to interferences, coverage, and reliability.

Scope of the session:

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

- GNSS receiver algorithms for increased robustness and accuracy of PNT solutions
- LEO-PNT systems as complementary to GNSS and indoor solutions for seamless positioning and navigation in challenging environments
- Studies on interoperability and hybridization between LEO-PNT, GNSS, and terrestrial navigation;
- Machine Learning-based solutions for satellite-based navigation
- Design of future satellite constellations, as well as ground- and space-segments of LEO for PNT and PPP purposes;
- Receiver architectures for code, Doppler, and/or angle/beamforming-based positioning with satellite signals;
- Solutions for LEO-PNT combined with Reconfigurable Intelligent Surfaces (RIS) for increased positioning accuracy especially under non-line-of-sight (NLOS) scenarios;
- Resilient and intelligent PNT services
- Applications of PNT with satellite signals and multi-source sensors

Session Chairs (Technical Program Committee):

- Prof. Elena Simona Lohan, Tampere University, Finland
- Prof. Gonzalo Seco Granados, Universitat Autònoma de Barcelona, Spain
- Assoc. Prof. Alexandru Rusu-Casandra, University Politehnica of Bucharest, Romania

**WE ARE LOOKING FORWARD TO WELCOME
YOU AT IPIN 2025!**

