



# **Work-in-Progress Proceedings of the 12<sup>th</sup> International Conference on Indoor Positioning and Indoor Navigation, IPIN 2022**

**September 5-7, 2022, Beijing, China**

**<http://www.ipin-conference.org/2022/>**

**Organized by**

**Aerospace Information Research Institute (AIR),  
Chinese Academy of Sciences (CAS)**

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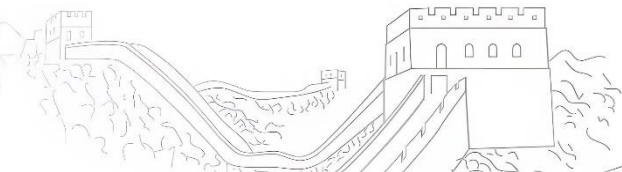
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## Preface

The 12th International Conference on Indoor Positioning and Indoor Navigation (IPIN 2022) was held in Beijing, China, on September 5-7, 2022. This proceeding contains the Work-in-Progress Papers presented at IPIN 2022. Launched in 2010 in Zurich, Switzerland, IPIN is a unique event entirely dedicated to indoor localization, its applications and its development.

Indoor navigation and positioning is called "the last mile" of navigation and positioning, which involves many industries and fields such as transportation, shopping and finance, special people care, safety production, etc. It is a hot topic in the field of navigation and positioning in recent years, and is also one of the key research directions in the fields of unmanned driving, 5G/6G, etc.

The conference received 110 papers from about 120 universities, research institutes and renowned companies worldwide. Each paper was reviewed by at least two members of the Program Committee of the Conference and, on the basis of their recommendations, 63 papers were accepted as Regular Papers (RP) and submission to the IEEE Xplore Digital Library, while 31 were accepted as Work-in-Progress (WiP) and submission to CEUR Workshop Proceedings. Both RP and WiP were presented as oral presentations online, due to the covid-19 pandemic situation.

IPIN 2022 hosted 2 tutorials, 5 Keynotes, 20 Parallel Sessions, including 5G positioning, geomagnetic navigation, acoustic navigation, and global navigation satellite system (GNSS) indoor positioning, and is open to global attendees through online conferences and webcasts. There were 185 attendees and nearly 16000 online free viewers during the conferences.

The conference also held the 9th International Indoor Positioning and Navigation Competition at the same time, which included 6 tracks such as 5G positioning, UWB positioning and smartphone positioning, attracting 34 teams from all over the world. Due to the covid-19 pandemic situation, the global synchronous online competition mode was adopted for the first time, demonstrating the highest level of the current international indoor positioning and navigation field.

IPIN 2022 awarded three Best Paper, one Best Presentation and six

Competition Track winners. Besides, selected papers have the opportunity to send a technically extended version to the Special Issue "Indoor Positioning and Indoor Navigation" by Springer's Journal of Satellite Navigation.

In addition, the world's first indoor positioning and navigation journal, Journal of Indoor and Seamless Positioning and Navigation, sponsored by IEEE, was inaugurated during the conference. The journal is currently the only international academic journal focusing on the field of indoor navigation and positioning.

Thanks to all members of the IPIN 2022 Technical Program Committee for their effort in the review process that was fundamental for maintaining the high scientific level of the conference. Thanks to all members of Organizer Committee for their hard work in making the meeting go on smoothly. Thanks to all the researchers who supported this event by submitting their work and actively participating in it. Thanks to all participants for their efforts to make IPIN 2022 a success.

September 2022  
Hong Yuan, Antoni Pérez-Navarro  
Conference co-chairs



**IPIN 2022**

TWELFTH INTERNATIONAL CONFERENCE ON  
**INDOOR POSITIONING  
AND INDOOR NAVIGATION**  
September 5–7, 2022, Beijing, China



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