

Resilient

PNT

Munich, March 26–28, 2025

**Backbone of Autonomy
& Critical Infrastructure**

2nd ANNOUNCEMENT


**MUNICH
SATELLITE NAVIGATION
SUMMIT 2025**

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“RESILIENT PNT - BACKBONE OF AUTONOMY & CRITICAL INFRASTRUCTURE!” this will be the theme of the **2025** edition of the **Munich Satellite Navigation Summit**, taking place from **March 26–28, 2025!** The registration opens on **December 1, 2024.**

The Summit will be held on site, as a hybrid conference.

Today PNT services from space are challenged from many directions. Jamming and spoofing events are at an all-time high, but also solar activity is at its maximum causing degraded navigation accuracy or malfunctioning systems in space and on earth. Whereas the everyday use of GNSS by smartphones is still perceived as perfectly normal, those challenges clearly impact operations of safety critical autonomous systems on land, at sea and in the air. The same is true for critical infrastructure depending on space-based PNT and required to operate it. But with the help of modernized GNSS including possible support via LEO-PNT, terrestrial navigation systems or other sensors, GNSS will continue to provide reliable services from the Earth to the Moon’s surface. In addition to this conference theme, the program will encompass the following topics:

- Current Status of Global Satellite Navigation Systems: Galileo (EU), GPS (USA), and BeiDou (China)
- Regional Navigation Systems: India’s IRNSS, Japan’s QZSS, and Korea’s KPS
- Ensuring Resilient PNT for Critical Infrastructure and Autonomous Systems
- Challenges to GNSS: Jamming, Spoofing, and Solar Activity
- Legal Perspectives on Jamming, Spoofing, and Countermeasure Implementation
- Advancing Performance and Resilience with Low Earth Orbit PNT (LEO-PNT)
- Innovative Technologies in PNT: Optical Systems, AI and Galileo PRS Receiver Technology
- Developing a Skilled Workforce for the European Space Sector
- Navigating around the Earth and to the Moon
- Driving Commercial Success through Cutting-Edge PNT Solutions

Make sure to check our website for the latest information: www.munich-satellite-navigation-summit.org

ABOUT THE MUNICH SATELLITE NAVIGATION SUMMIT:

The Munich Satellite Navigation Summit is a conference with global impact dealing with satellite navigation now and in the future. The one-of-a-kind convention of high-ranking worldwide speakers from industry, science and governments provides the participants with a broad overview and different perspectives on the latest developments in the field of GNSS. Meet at the reception in the Munich Residence, discuss upcoming projects on the sidelines of the conference and enjoy the closure of the Summit with a Bavarian networking event!

The Summit is part of the efforts of the Bavarian government and the cluster on aerospace and satellite navigation to stimulate applications and services in this high-tech field.



DAY 1.

Afternoon. OPENING Wednesday, March 26, 2025

OFFICAL OPENING OF THE EXHIBITION AND CHAMPAGNE WELCOME

OPENING PLENARY

Representatives of the Bavarian State Government and of the Federal Government of Germany, representatives of the European Commission, the European Space Agency, the EU Agency for the Space Programme, National Space Agencies as well as representatives from USA and China are opening the Munich Satellite Navigation Summit 2025.

Welcome:

Thomas Pany, Professor of Satellite Navigation, ISTA/FZ Space, University of the Bundeswehr Munich, Neubiberg, Germany

Michael Meurer, Professor, Head of Navigation Department, German Aerospace Center (DLR), Oberpfaffenhofen, Germany

Eva-Maria Kern, President, University of the Bundeswehr Munich, Neubiberg, Germany

Anke Kaysser-Pyzalla, Chair of the DLR Executive Board, German Aerospace Center (DLR), Cologne, Germany

Christoph Kautz, Director, Satellite Navigation and Earth Observation, DG DEFIS, European Commission (EC), Brussels, Belgium

Rodrigo da Costa, Executive Director, EU Agency for the Space Programme (EUSPA), Prague, Czech Republic

Francisco-Javier Benedicto Ruiz, Director of Navigation, European Space Agency (ESA), Noordwijk, The Netherlands

Moderator:

Claus Kruesken, Presenter, Bayerischer Rundfunk (Bavarian Broadcasting), Munich, Germany

ICEBREAKER-RECEPTION

We are looking very much forward to meeting you for drinks, food and great networking opportunities.

DAY 2.

Morning. Thursday, March 27, 2025

Session 1. GNSS PROGRAM UPDATES – GLOBAL, REGIONAL AND AUGMENTATION SYSTEMS

Speakers from the respective organizations and countries present news from the worldwide global, regional and augmentation satellite navigation systems in operation and under development.

Global: GALILEO (EU), GPS (USA), BeiDou (China)

Regional: QZSS (Japan), IRNSS/NAVIC (India), KPS (Korea)

Augmentation: EGNOS (EU), WAAS (USA), MSAS (Japan), Gagan (India)

Chairman:

Mike Swiek, Mike International, LLC, Washington, D.C., USA

Session 2. RESILIENT PNT - LEVERAGING RESILIENCE FOR AUTONOMOUS SYSTEMS AND CRITICAL INFRASTRUCTURE

Reliable Positioning, Navigation, and Timing (PNT) systems are critical for modern economies both for mobility as well as for synchronization of critical infrastructure. With the current trends towards increasing traffic volumes, autonomy and automation ensuring resilience in these systems is paramount, particularly in environments where signal disruption or spoofing could lead to catastrophic failures. The session will discuss the importance of robust PNT solutions and explore emerging technologies for enhancing resilience, such as e.g. artificial intelligence, quantum advancements or next-generation payloads. AI-driven algorithms can improve real-time decision-making and fault tolerance, while quantum technologies offer unprecedented security and accuracy. Join us and examine in this session how these innovations can safeguard and future-proof PNT for ensuring reliability and stability of critical systems in an increasingly complex world.

Chairman:

Will be announced soon on our webpage!

Session 3. JAMMING, SPOOFING, SOLAR ACTIVITY - EMERGING THREATS TO GNSS

Satellite navigation systems play a critical role in various applications, but face significant vulnerabilities due to external disruptions. In recent years, the impact of jamming and spoofing on GNSS has become apparent. In addition, we are currently approaching the peak of solar activity, which will further increase the need to increase the resilience of the systems affected. This session will explore the potential degradation of satellite navigation receivers, focusing on intentional disruptions such as jamming and spoofing, as well as natural phenomena such as solar storms. Experts will discuss the mechanisms of these disturbances, their impact on navigation accuracy and reliability, and strategies for detection, monitoring and mitigation. By addressing both technical and practical aspects, the session aims to foster a deeper understanding of how to improve the resilience of satellite navigation systems against these evolving threats.

Chairman:

Todd Humphreys, Professor, Department of Aerospace Engineering and Engineering Mechanics, The University of Texas at Austin, USA

DAY 2.

Afternoon.

Session 4. INNOVATIONS DRIVEN BY MULTI-LAYER PNT

Navigation has always been understood as an enabler for services to our society and economy. This session will feature PNT innovations that go beyond established services with the prospect of high market success: drone-based parcel delivery, robot taxis, and indoor location-based services with smartphones. The PNT enablers are LEO-PNT/signals of opportunity, sensor fusion with precise GNSS, and short-range communication signals (Wi-Fi, Bluetooth, UWB). Special emphasis will be given to 3GPP standardization (5G/6G/NTN) to reduce costs in the upstream/downstream sector of navigation by synergetic use of COM and NAV devices.

Chairman:

Li-Ta Hsu, Professor, Department of Aeronautical and Aviation Engineering, The Hong Kong Polytechnic University, Hong Kong

Session 5. EU NAVIGATION SERVICES IN OPERATION

Galileo services, including the Open Service (OS), Public Regulated Service (PRS), High Accuracy Service (HAS), and Open Service Navigation Message Authentication (OSNMA), as well as new services such as the Early Warning Satellite Service (EWSS), the Maritime Service, and the European Rail Traffic Management System (ERTMS), offer a broad range of precise and secure navigation solutions for various sectors, from transportation to critical infrastructure. The session will give you latest insights into the fast developing new services.

Chairman:

Robert Greinacher, Head of the Project Management Office and Quality Department, EUSPA, Prague, Czech Republic

Session 6. GALILEO PRS: RECEIVERS

This session will explore recent advancements in the development of Galileo PRS (Public Regulated Service) receivers and use cases, focusing on improving size, weight and power (SWaP) of the associated devices as well as the accuracy, security and resilience of the resulting services. Topics will include status and availability of receiver hardware, server-based processing, anti-jamming aspects, and multi-constellation GNSS integration.

Chairman:

Stefan Baumann, IABG, Ottobrunn, Germany

Session 7. LEGAL BOUNDARIES FOR JAMMING & SPOOFING AND RELATED COUNTERMEASURES

This year's Legal Session, as always organized and moderated by our partner BHO Legal, will focus on the legal boundaries for jamming & spoofing and related countermeasures, including within general international law, cyberlaw and aviation law. Key experts from the European Commission, the ITU and relevant international and European organisations in the aviation sector will discuss on the growing threats from jamming and spoofing, the applicable international law, policy and other measures taken by European and international stakeholders, and legal limitations of countermeasures.

Chairmen:

Ingo Baumann, BHO Legal, Cologne, Germany

Oliver Heinrich, BHO Legal, Cologne, Germany

Evening. EVENING RECEPTION



DAY 3.

Morning. Friday, March 28, 2025

Session 8. BAVARIAN & MUNICH FLASHLIGHTS – NEWS FROM GNSS IN DOWNSTREAM APPLICATIONS

Experts from the Bavarian satellite navigation network of excellence, the Bavarian Cluster Aerospace as well as from companies and start-ups report on their developments and activities. This year a special emphasis will be put on solutions integrating GNSS for various application areas. You are invited to experience more from the highly innovative scene contributing to the future space applications scene.

Chairwoman:

Baerbel Deisting, bavAIRia, Gilching, Germany

Session 9. MEASURES TO FOSTER THE DEVELOPMENT OF SKILLED WORKFORCES IN THE EUROPEAN SPACE SECTOR

The European Union has introduced several initiatives, including the SPACE4GEO partnership and the Space Career Launchpad, to address the skills gap in the space sector. The EU Space Strategy for Security and Defence (EU SSSD) underscores the urgency of upskilling and reskilling to meet growing industry demands. This round-table will explore critical questions: What skills are most in demand? How effective are current EU mechanisms for skills development? What additional measures are needed to bridge the gap between job supply and demand? By engaging academia and the industry, we aim to shape actionable solutions for the sector.

Chairwomen:

Grazia M. Fiore, Permanent representative, SPACE Y, Vincennes, France

Baerbel Deisting, bavAIRia, Gilching, Germany

Session 10. ENHANCING RESILIENCE WITH LEO-PNT

Modern systems are evolving towards more autonomous, non-centralized solutions, adopting a multi-layer System of Systems approach to enhance resilience and counteract the limitations and vulnerabilities of individual solutions. As the demand for robust and reliable Positioning, Navigation, and Timing (PNT) services continues to grow, the integration of LEO satellites presents a transformative opportunity. An architecture, where GNSS backbone is complemented by Low Earth Orbit (LEO) systems, terrestrial systems, and user-level integrated sensors, is essential to meet future demands for PNT performance and resilience. This panel will explore how LEO-PNT can enhance the resilience of autonomous applications and critical infrastructure. We will discuss different solutions, including robust signals, alternative bands, frequency diversity, and synergies with Satellite Communications (SatCom) and FusedPNT technologies. Our discussion will focus on how LEO-PNT can serve as a backup and alternative PNT solution, ensuring seamless and resilient services across various applications. By examining current initiatives and future prospects, we aim to provide a comprehensive overview of how LEO-PNT can bolster resilience within the broader PNT ecosystem.

Chairman:

Roberto Prieto Cerdeira, Head of the LEO-PNT Project, ESA, Noordwijk, The Netherlands

DAY 3.

Afternoon.

Session 11. TOWARDS FUTURE GNSS ARCHITECTURES ENABLED BY OPTICAL TECHNOLOGIES FOR TIME SYNCHRONIZATION AND RANGING

As global communication and navigation networks evolve, the need for precise time synchronization and ranging is paramount. This panel will explore the role of optical technologies in addressing these challenges for improvements of future navigation systems, with a focus on new architectures, performance assessments, as well as on corresponding in-orbit demonstrators and supporting R&D initiatives. Industry leaders and optical terminal manufacturers will discuss the path toward standardizing optical time synchronization and ranging to enable ultimate performance improvements. By fostering collaboration, this panel aims to address the importance of standardized optical solutions, to ensure a robust and interoperable ecosystem for future GNSS systems.

Chairman:

Michael Meurer, Professor, Head of Navigation Department, German Aerospace Center (DLR), Oberpfaffenhofen, and RWTH Aachen University, Germany

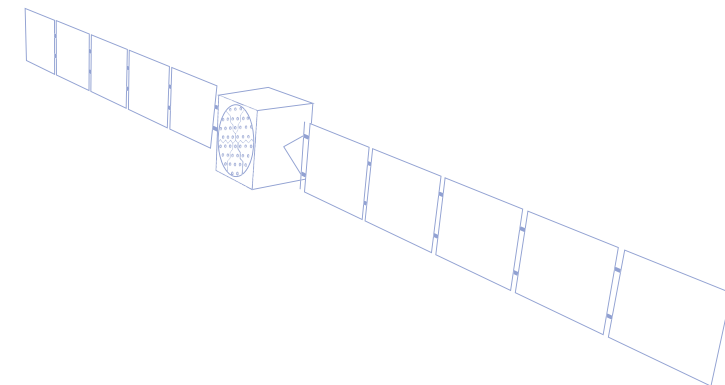
Session 12. NAVIGATION FOR LUNAR AND SPACE APPLICATIONS

This session will explore the challenges and advancements in navigation systems for lunar and space missions. Focusing on the unique requirements of lunar missions, such as precise landing, surface mobility, and autonomous operations, we will discuss novel approaches in spacecraft navigation, including advanced sensor technologies and autonomous guidance systems. Additionally, we will address the integration of Earth-based and in-situ navigation methods, the potential role of new technologies such as artificial intelligence, and the potential for collaboration between lunar and deep space navigation strategies. The session aims to give an insight in ongoing activities in relevant programs such as Moonlight or Novamoon as well as to highlight innovations that will enable safer, more efficient missions to the Moon and beyond.

Chairmen:

Will be announced soon on our webpage!

Closing of the Summit and Invitation to the [Bavarian Networking Event](#).



REGISTRATION

Online registration is possible via the website www.munich-satellite-navigation-summit.org

Virtual participation fee:

<p>Virtual participation € 350,00 valid at all times</p>
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The registration for the virtual participation includes access to all online streams.

On site participation fees:

<p>Early Summit rate € 800,00 valid from December 1, 2024 – February 15, 2025</p>	<p>Regular rate € 950,00 valid from February 16, 2025</p>	<p>Speaker rate € 250,00 valid at all times (individual code necessary)</p>	<p>Sponsor/Exhibition staff € 600,00 valid at all times (if not included in package) (individual code necessary)</p>
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The registration fee includes access to all sessions (onsite and via online stream), to various networking opportunities like the reception on the first evening as well as visiting the technical exhibition, admission to the lunches, coffee/tea, snacks and refreshments during the conference and the retrieving of the conference proceedings.

Which Registration Suits You Best?	In-Person	Virtual
Access to the Latest GNSS Developments and Program Updates	X	X
<ul style="list-style-type: none"> Access to all Sessions 	X	
<ul style="list-style-type: none"> Attendance to Premium Talks 	X	
<ul style="list-style-type: none"> Access to Online Session Streaming 	X	X
<ul style="list-style-type: none"> Real-Time Q&A and Discussions with Presenters 	X	X
<ul style="list-style-type: none"> Receive Electronic Conference Proceedings 	X	X
Participation in Various Networking Events	X	
<ul style="list-style-type: none"> Welcome Reception 	X	
<ul style="list-style-type: none"> State Reception 	X	
<ul style="list-style-type: none"> Various Round Tables 	X	
<ul style="list-style-type: none"> Access to Lunches, Coffee/Tea Breaks with Snacks and Refreshments 	X	
Connect and Network with Peers, Employers, GNSS Experts in Person	X	
Attend the Exhibition Trade Show in Person	X	
Identify Market, Programmatic and Research Trends	X	
Experience New Cultural Location	X	
No Travel Required		X

CANCELLATION/REFUND POLICY

Written cancellations until February 15, 2025 are refundable less € 150,00 cancellation fee. After February 16, 2025 there will be no refunds.

We regret that individual registration benefits are not transferable.

EXHIBITION

The Munich Satellite Navigation Summit will give your business a unique opportunity to position your latest products, services and technologies.

Manufacturers, organisations and service providers are invited to exhibit at this event. Please contact us for further information.

SUPPORT

We offer different packages for companies and institutions that are interested to be an official partner of the conference. If you would like to contribute, please contact us for further details.

CONTACT

Munich Satellite Navigation Summit, Phone +49 89 6004 3425

info@munich-satellite-navigation-summit.org

www.munich-satellite-navigation-summit.org

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