

NAVITEC 2026

20 – 22 May 2026 | ESA, ESTEC, Noordwijk



Co-sponsored by



Coordinated with



NAVITEC 2026

20 - 22 May | ESTEC

12th ESA Workshop on Satellite Navigation Technologies

“RESILIENT PNT IN A MULTI-LAYERED WORLD”

PROGRAMME



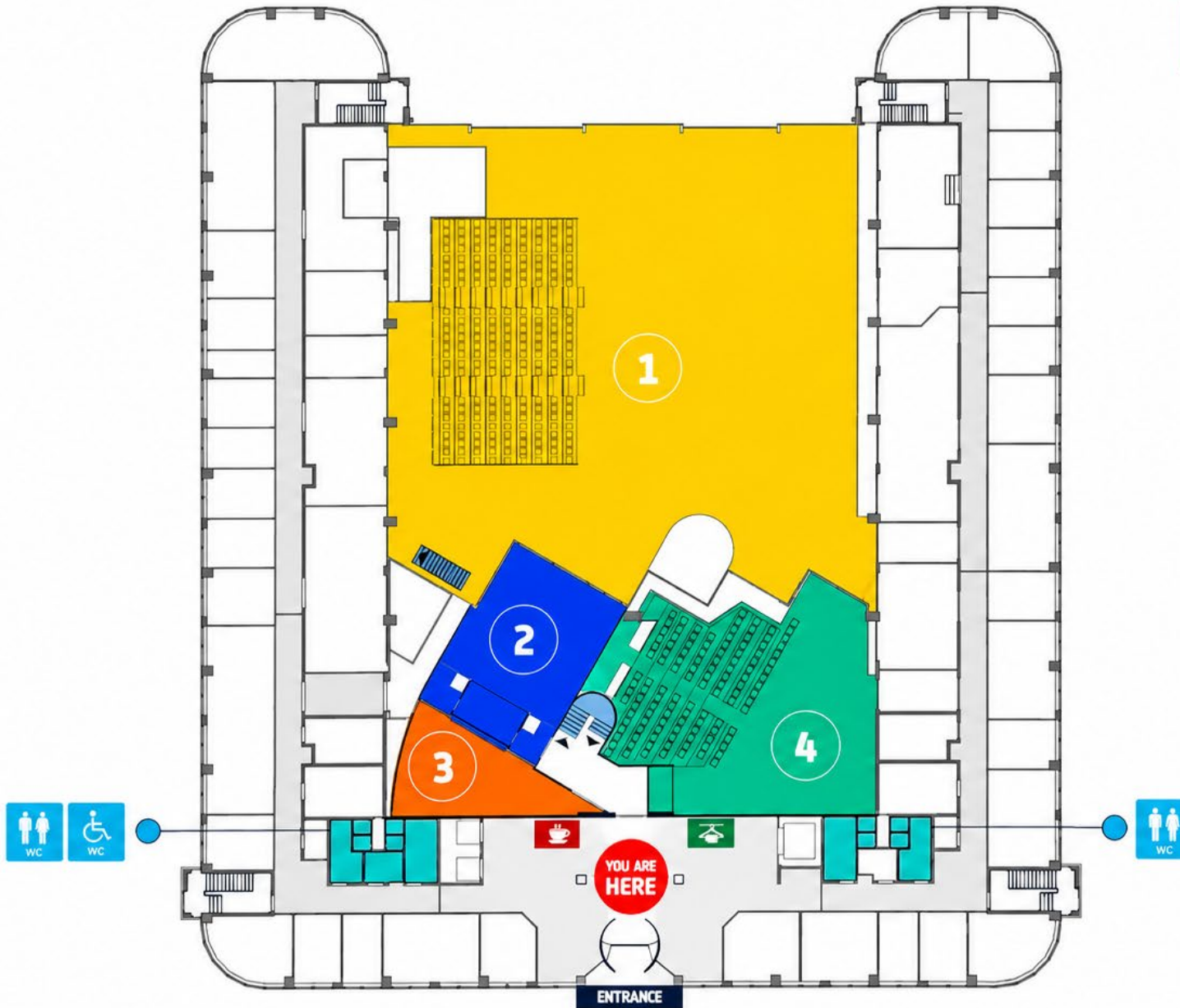
ESTEC
Gatehouse

Canteen

ERASMUS building

NAVITEC 2026
esa

GROUND FLOOR



- 1 HIGHBAY
- 2 EARTH ROOM
- 3 PRESHOW
- 4 AUDITORIUM
- ☕ COFFEE/WATER
- 🧥 CLOAKROOM
- ♿ TOILETTES

Wednesday 20-May			
High Bay			
08:45	Registration desk opens		
09:30	Welcome and Opening - Javier Benedicto		
09:40	Introduction to NAVITEC 2026 - Jose Antonio Garcia-Molina (ESA), Thomas Junique (CNES), Thomas Pany (UniBW), DLR		
10:00	Keynote - 30 Years of Progress towards Resilient PNT - Christopher Hegarty		
10:40	Plenary Panel on Resilient PNT in a Multi-Layered World - Introduction - Christopher Hegarty		
10:45	Panel Speaker - Fabio Dovis		
10:55	Panel Speaker - Roberto Prieto		
11:05	Panel Speaker - Rui Zuo		
11:15	Panel Speaker - Gary Berz		
11:25	Plenary Panel discussion		
11:50	Coffee break		
12:10	Plenary Session - Galileo Programme: Present and Future - Miguel Manteiga		
12:35	Plenary Session - FutureNav: Shaping the Future of Satellite Navigation - Jose Angel Avila Rodriguez		
13:00	Lunch break (Main Restaurant)		
	High Bay	Auditorium	Earth Room
	Session A1: Galileo Evolutions Panel: Towards Galileo 2nd Generation Moderator: Gustavo Lopez	Session B1: Space, Lunar, and Extraterrestrial PNT (I) Co-chairs: Cyril Botteron, Floor Melman	Session C1: Mass Market, Receiver Technologies, Sensors, Antennas, AI, Quantum (I) Co-chairs: Miquel Garcia-Fernandez, Ruediger Weiler
14:20	Gustavo Lopez, ESA Javier de Blas, EUSPA	10: Joint Orbit & Clock Determination of NovaMoon and Moonlight in a Lunar IGS-Type Framework	149: Advanced Beamforming Systems for Enhancing Low-Elevation GNSS Reception
14:40	Lars Stopfkuchen, Airbus	107: Navigation Message Demodulation at the Moon	4: Advanced Choke Ring Antenna for Enhanced GNSS Reference Station Performance
15:00	Miguel M. Romay Merino, GMV Pedro Sánchez Cañal, OHB	99: Enhancing Lunar Landing PVT Performance using LCNS Signals and Vision-Based Navigation	8: GNSS-SUT: A GNSS Snapshot Setup for Logistics: User Terminal to Server
15:20	Andrea Gallon, Thales Alenia Space Italy Philippe Tanguy, Thales Alenia Space France	138: Feasibility and Expected Performance of GNSS-Based Time Transfer for Static Lunar South Pole Users	37: On the role of Satellite Altitude and Geometry in Indoor Multipath Propagation for LEO-PNT
15:40	Romain Picart, Thales SIX Graziano Raffaele, Leonardo Virgile Hermann, Safran	49: The Solar System Internet Navigation System: A New Paradigm for Interplanetary Navigation	82: Dual Frequency Null steering: Power Ramp Jamming Experiment
16:00	Coffee break		
	Session A2: Resilience & Multi-Layer PNT Co-chairs: Chris Hegarty, Gianluca Caparra	Session B2: Integrity, Precise Positioning, Authentication (I) Co-chairs: Cillian O'Driscoll, Juan Parro	Session C2: Complementary & Alternative PNT Co-chairs: Gary Berz, Vicente Lucas Sabola
16:20	46: Impact of Ground-Based Interference on GNSS POD Receivers On-Board LEO Satellites	117: Transmission of the Galileo E6-C Encrypted Signal: Analysis of the Data Processing	61: Acquisition and Processing of Globalstar CSS Bursts for Opportunistic Doppler-based Positioning
16:40	71: Performance Assessment of Indoor LEO-PNT Using Next-Generation VHF/UHF Services	6: Carrier and code delay mathematical models for LEO signals and impact on tracking loops design	9: A Demonstrator for Network-Assisted PNT Assurance Using Encrypted GNSS and Iridium as Signals of Opportunity
17:00	144: Integrated SAR-PNT in LEO: Synthetic Aperture Radar, Timing and Positioning	146: SASlib: An Open Python Library for Galileo Signal Authentication Service	31: An Enhanced Outer-Loop LEO Doppler Positioning Framework Incorporating Propagation time
17:20	92: OpSTAR IOD: Optical Synchronized Time and Ranging In-Orbit Demonstrator for Next-Generation PNT	75: An RF propagation model for the railroad GNSS channel	93: RADIOBEACON – A Metropolitan Beacon System
17:40	62: What Defines a Strong Authentication Signal? – Threat Models and Signal Structure Considerations for Range Authentication	39: Multi-Frequency PPP with Galileo High Accuracy Service Phase 2-like Corrections	131: A GNSS-Video centric positioning systems for the ERTMS
18:00	Welcome Reception		

Session legend: IEEE / non-IEEE

Session A1: Galileo Evolutions Panel: Towards Galileo 2nd Generation

Tracks **High Bay**

Wednesday, May 20, 2026
2:20 PM - 4:00 PM

Details

Moderator:
Gustavo Lopez, ESA

Panelist:
Javier de Blas, EUSPA
Lars Stopfkuchen, Airbus
Miguel M. Romay Merino, GMV
Pedro Sánchez Cañal, OHB
Andrea Gallon, Thales Alenia Space Italy
Philippe Tanguy, Thales Alenia Space France
Romain Picart, Thales SIX
Graziano Raffaele, Leonardo
Virgile Hermann, Safran

Session B1: Space, Lunar, and Extraterrestrial PNT (I)

Tracks **Auditorium**

Wednesday, May 20, 2026
2:20 PM - 4:00 PM

Details

Co-Chairs:
Cyril Botteron
Floor Melman

Speaker

Francesco Gini ESA / ESOC	Joint Orbit & Clock Determination of NovaMoon and Moonlight in a Lunar IGS-Type Framework
Eng. Giovanni Campagnolo Qascom Srl	NAVIGATION MESSAGE DEMODULATION AT THE MOON
Dr. Michele Ceresoli Politecnico Di Milano	Enhancing Lunar Landing PVT Performance using LCNS Signals and Vision-Based Navigation
Ms. Jillian Oduber European Space Agency	Feasibility and Expected Performance of GNSS-Based Time Transfer for Static Lunar South Pole Users
Dr. Samuele Larese Esa Estec	The Solar System Internet Navigation System: A New Paradigm for Interplanetary Navigation

Session C1: Mass Market, Receiver Technologies, Sensors, Antennas, AI, Quantum (I)

Tracks **Earth Room**

Wednesday, May 20, 2026
2:20 PM - 4:00 PM

Details

Co-Chairs:
Miquel Garcia-Fernandez
Ruediger Weiler

Speaker

Mr. Jarno Vegting TU Delft	Advanced Beamforming Systems for Enhancing Low-Elevation GNSS Reception
Dr. Veenu Tripathi German Aerospace Center (DLR)	Advanced Choke Ring Antenna for Enhanced GNSS Reference Station Performance
Mr. Daniel Seybold Teleorbit GmbH	GNSS-SUT: A GNSS Snapshot Setup for Logistics: User Terminal to Server
Eng. Wout Van Uytsel Imec - Uantwerpen - Idlab	On the role of Satellite Altitude and Geometry in Indoor Multipath Propagation for LEO-PNT
Dr. Noori Bni Lam ESA	Dual Frequency Null steering : Power Ramp Jamming Experiment

Session A2: Resilience & Multi-Layer PNT

🔗 Tracks **High Bay**

📅 Wednesday, May 20, 2026
🕒 4:20 PM - 6:00 PM

Details

Co-Chairs:
Chris Hegarty
Gianluca Caparra

Speaker

Mr. Filipe De Oliveira Salgueiro Navigation Systems Definition Section (TEC-SEN), European Space Agency	Impact of Ground-Based Interference on GNSS POD Receivers On-Board LEO Satellites
Mr. Guillem Foreman-Campins Tampere University / Universitat Autònoma de Barcelona	Performance Assessment of Indoor LEO-PNT Using Next-Generation VHF/UHF Services
Dr. Jose Antonio Garcia Molina European Space Agency	Integrated SAR-PNT in LEO: Synthetic Aperture Radar, Timing and Positioning
Mr. Niklas Tarkian OHB System AG	OpSTAR IOD: Optical Synchronized Time and Ranging In-Orbit Demonstrator for Next-Generation PNT
Dr. Jon Winkel Winkel Consulting Sif	What Defines a Strong Authentication Signal? – Threat Models and Signal Structure Considerations for Range Authentication

Session B2: Integrity, Precise Positioning, Authentication (I)

🔗 Tracks **Auditorium**

📅 Wednesday, May 20, 2026
🕒 4:20 PM - 6:00 PM

Details

Co-Chairs:
Cillian O'Driscoll
Juan Parro

Speaker

Dr. Beatrice Motella Joint Research Centre	Transmission of the Galileo E6-C Encrypted Signal: Analysis of the Data Processing
Eng. Alexandra Reitu Ecole Nationale De L'aviation Civile	Carrier and code delay mathematical models for LEO signals and impact on tracking loops design
Dr. Rafael Terris-Gallego Univ. Autonoma Barcelona	SASlib: An Open Python Library for Galileo Signal Authentication Service
Mr. Thomas Prechtl JOANNEUM RESEARCH Forschungsgesellschaft mbH	An RF propagation model for the railroad GNSS channel
Mr. Javier Miguez European Space Agency	Multi-Frequency PPP with Galileo High Accuracy Service Phase 2-like Corrections

Session C2: Complementary & Alternative PNT

🔗 Tracks **Earth Room**

📅 Wednesday, May 20, 2026
🕒 4:20 PM - 6:00 PM

Details

Co-Chairs:
Gary Berz
Vicente Lucas Sabola

Speaker

Mr. Marc Fernández-Temprado Universitat Autònoma De Barcelona, IEEC-CERES	Acquisition and Processing of Globalstar CSS Bursts for Opportunistic Doppler-based Positioning
Dr. Elie AMANI M3 Systems	A Demonstrator for Network-Assisted PNT Assurance Using Encrypted GNSS and Iridium as Signals of Opportunity
Dr. Qi Liu Universitat Autònoma De Barcelona	An Enhanced Outer-Loop LEO Doppler Positioning Framework Incorporating Propagation time
Mrs. Federica Pattaro Qascom	RADIOBEACON – A Metropolitan Beacon System
Eng. Alessandro Neri Radiolabs	A GNSS-Video centric positioning systems for the ERTMS
Dr. Andrea Emmanuele Thales Alenia Space Italia	ACCEPTED AS ALTERNATE: GPS L1C enablers for resilient PNT and monitoring applications in harsh environments

Thursday 21-May			
High Bay			
08:45	R&D keynote 1 - Beyond Bandwidth: Phase-Coherent Distributed ISAC for 6G Positioning, Sensing, and Imaging - Henk Wymeersch		
09:25	Quick break to move to session rooms		
	High Bay	Auditorium	Earth Room
	Session A3: Celeste Panel: Signals, Access Opportunities, and Integration with NTN technologies and MSS S-band Moderator: Florin Catalin-Grec	Session B3: Space, Lunar, and Extraterrestrial PNT (II) Co-chairs: Oliver Montenbruck, Filipe Salgueiro	Session C3: Earth Observation & Science Co-chairs: Pau Closas, Thomas Fuhrmann
09:30	Jose del Peral, Airbus Jaun Francesc Munoz Martin, I2CAT Sergio Aguilar, Sateliot Peter Lonergan, EENA Bernardo Camaiori Tedeschi, Qalcomm	145: MOONLIGHT - LCNS Development Status and Performances, interoperability and integration with future ESA Moon initiatives	13: Towards GNSS-R and GNSS-RO space LEO missions: an initial airborne assessment
09:50		114: Development of a Real-Time LunaNet LANS Receiver for Augmented Forward Signal (AFS)	42: Genesis: a Future Geodetic Satellite Mission at the Foundation of Navigation
10:10		97: Understanding GNSS in space: Insights and research directions from the Lunar GNSS Receiver Experiment (LuGRE)	148: Enabling Millimetre-Level Geodesy from Space: NaviMEO GNSS Receiver for the GENESIS Mission
10:30		112: Lunar Navigation Payload Signal Performance Assessment and Prototyping Onboard Monitoring Capabilities using L-OASIS	143: NAVIGA AGGA4 receiver for launcher, orbital and re-entry applications. First results
10:50		57: Precise Orbit Determination of the ISS in the frame of ACES	124: A GNSS Receiver Breadboard for LEO Applications
11:10		Coffee break	
	Session A4: Fused PNT & 5G/6G PNT (I) Co-chairs: Gonzalo Seco-Granados, J.A. Garcia-Molina	Session B4: Resilient PNT (I) Co-chairs: Nicola Laurenti, Jaron Samson	Session C4: Mass Market, Receiver Technologies, Sensors, Antennas, AI, Quantum (II) Co-Chairs: Dominik Dötterböck, Noori Bni Lam
11:30	104: Integrated Communication and Positioning in LEO: A Resilient Complement to GNSS and Terrestrial 5G	56: Tracking of ground jammers from Low Earth Orbit: experimental results from cubesat PRETTY during Jammertest 2025	129: Accurate, affordable and assured (A3) positioning and navigation with a smartphone and geographic information
11:50	64: Technology Enablers Towards Unified PNT with GNSS, 5G and 6G Solutions	133: Directional Modulation Techniques for PNT Applications: The DM/TM4PNT Project	136: Benchmarking GNSS-SDR on RISC-V: Hardware Acceleration, Channel Processing, and OSNMA/HAS Workloads
12:10	34: All You Can STARE: Real-Time Software Receiver for Estimating PNT Measurements from NR-NTN, IoT-NTN, Starlink, and Arbitrary Satcom Signals	72: Particle Receiver: Assured PNT using encrypted signals and a secure element	23: Fractional resampling for clock alignment in a low-cost pseudolite
12:30	41: High-Accuracy Ranging in 5G Non-Terrestrial Networks: Receiver Architectures and Interference Analysis	29: Evaluating ML-Based Algorithms for GNSS Spoofing Detection with Cross-testing Capabilities: A Comparative Study	137: Bridging Space and Terrestrial Markets: An API-driven Mass-Marketplace for Scalable PNT Service Commercialization
12:50	88: NPRS Performance for GNSS-free NB-IoT NTN Positioning	150: GNSS Synthetic Aperture for Direction-Finding of Signal Sources in a Jamming Scenario	67: Enhancing GSharp high-accuracy PPP solution using Visual Inertial Odometry for GNSS-denied environments
13:10	Lunch break (Main Restaurant)		
	Session A5: LEO-PNT & Multi-Layer PNT (I) Co-chairs: Elena Simona Lohan, Rui Sarnadas	Session B5: Fused PNT & 5G/6G PNT (II) Co-Chairs: Jose Salcedo, Ivan Lapin	Session C5: Space, Lunar, and Extraterrestrial PNT (III) Co-Chairs: Florian Beck, Yoann Audet
14:20	139: LEO-PNT Real Time On Board ODTs - Performance of LEO Navigation Messages and GST Clock Steering	86: Hybrid Random-Directional RIS Phase Profile Design for Multi-Layer TN/NTN Positioning	89: SEXTANS Receiver: Real-Time P2OD and Precise Timing for Next-Generation LEO Missions
14:40	7: Outliers Detection and Exclusion for Orbit Determination using an Interacting Multiple-Model Approach with Variable Structure	94: Beam Characterization of a Flying 5G mmWave Base Station via Field Measurements	141: Triple-band GNSS Receiver with E6 HAS corrections for Precise On-board Orbit Determination in LEO
15:00	118: LEO-PNT - on-ground POD architecture and simulations with FocusPOD	53: SSB Acquisition for Positioning and Navigation in 5G Terrestrial Networks	151: Implementation and testing of a real-time POD algorithm onboard NaviLEO spaceborne GNSS receiver
15:20	77: GEMS Software receiver for LEO PNT Signal processing	85: 5G Positioning Reference Signal impact assessment in Non-Terrestrial Networks communication service	50: RADHARD GNSS receiver for LEO-PNT ODTs
15:40	103: Performance Analysis of Bandlimited GNSS Signals for LEO-PNT Applications	27: Aggregating Wideband 5G PRS Signals for Accurate Positioning via Frequency-Hopping	110: GMV GSharp® RT-POD for LEO Satellites: Achieving cm-level real time Precise Orbit Determination with GMV GSharp® and Galileo HAS
16:00	Coffee break		
	Session A6: PNT Signal Evolutions Co-chairs: Francois-Xavier Marmet, Miguel Cordero	Session B6: Resilient PNT (II) Co-chairs: Javier Tegedor, Aram Vroom	Session C6: Mass Market, Receiver Technologies, Sensors, Antennas, AI, Quantum (III) Co-Chairs: Veenu Tripathi, Paolo Crosta
16:20	58: A Proposal for Open Service Authentication Signals and Capabilities for Galileo 2nd Generation	36: GNSS Interference Classification Using Optimized CNNs	15: Modified Power Inversion Technique for Achieving Spatially Narrow Radiation Pattern Nulls
16:40	22: Galileo G1 and G2 Navigation Products	102: Spoofing Classification Using a Combination of Pre- and Post-Correlator Techniques: Results from Jammertest	28: Experimental Validation of Spatial Diversity Techniques for Interference Detection and Mitigation in Small Antenna Array GNSS Receivers
17:00	76: Super-Pilot Signals for Celeste LEO-PNT IOD	25: Impact Of GNSS Interference On Aircraft Navigation Systems: Operational Risks, Safety Implications, And Early Assessment Of Navigation Degradation	16: Hybrid Tree-Based Models for GNSS Position Error Estimation
17:20	63: Tracking architecture for the future Celeste IOD signals	122: GNSS Spoofing Mitigation with an Array Receiver and its Digital Twin: Field Test at Jammertest 2025 in Norway	32: Analysis of Range Authentication and OSNMA Performance in Urban Scenarios
17:40	70: Multilevel Coded Spreading Symbol Optimization Accounting for Ionospheric Dispersive Effects	116: Evaluation of the Galileo Authentication Services at the 2025 Jammertest	81: Calibrating Array GNSS Receivers Using Live Signals
18:00	Conference Dinner		

Session legend: IEEE / non-IEEE

R&D Keynote 1 - Henk Wymeersch

🔍 Tracks **High Bay**

📅 Thursday, May 21, 2026
🕒 8:45 AM - 9:25 AM

Details

Title:

Beyond Bandwidth: Phase-Coherent Distributed ISAC for 6G Positioning, Sensing, and Imaging

Abstract:

High-resolution positioning and sensing has traditionally been driven by bandwidth. Many 6G deployments, however, will operate well below bandwidth-rich mmWave and sub-THz bands, making classical delay-resolution arguments insufficient. This talk presents a complementary approach: phase-coherent processing across distributed infrastructure, creating a virtual aperture. Building on cell-free massive MIMO, RTK-GPS, and distributed radar, we outline coherent multi-node fusion and its gains for localization accuracy, detection sensitivity, and imaging resolution in ISAC. We compare coherent and non-coherent fusion, identify regimes where each is preferable, and explain trade-offs among bandwidth, aperture, geometry, and coherence time. We conclude with key practical challenges (calibration, synchronization, modeling, and deployment optimization) and a roadmap toward robust phase-coherent ISAC in 6G.

Session A3: Celeste Panel: Signals, Access Opportunities, and Integration with NTN technologies and MSS S-band

🔍 Tracks **High Bay**

📅 Thursday, May 21, 2026
🕒 9:30 AM - 11:10 AM

Details

Moderator:

Florin Catalin-Grec

Panelist:

Jose del Peral, Airbus
Jaun Francesc Munoz Martin, i2CAT
Sergio Aguilar, Sateliot
Peter Lonergan, EENA
Bernardo Camaliori Tedeschini, Qualcomm

Session B3: Space, Lunar, and Extraterrestrial PNT (II)

🔍 Tracks **Auditorium**

📅 Thursday, May 21, 2026
🕒 9:30 AM - 11:10 AM

Details

Co-Chairs:

Oliver Montenbruck
Filipe Salgueiro

Speaker

Dr. Carlo Albanese
Telespazio

MOONLIGHT – LCNS Development Status and Performances, interoperability and integration with future ESA Moon initiatives

Dr. Srinu Chittimalla
GMV-NSL Limited

Development of a Real-Time LunaNet LANS Receiver for Augmented Forward Signal (AFS)

Prof. Fabio Dovis
Politecnico Di Torino

Understanding GNSS in space: Insights and research directions from the Lunar GNSS Receiver Experiment (LuGRE)

Mr. Ben Wadsworth
ESA

Lunar Navigation Payload Signal Performance Assessment and Prototyping Onboard Monitoring Capabilities using L-OASIS

Dr. Martin Wermuth
DLR

Precise Orbit Determination of the ISS in the frame of ACES

Session C3: Earth Observation & Science

🔍 Tracks **Earth Room**

📅 Thursday, May 21, 2026
🕒 9:30 AM - 11:10 AM

Details

Co-Chairs:

Pau Closas
Thomas Fuhrmann

Speaker

Eng. Rachele Fratini
Thales Alenia Space Italia

Towards GNSS-R and GNSS-RO space LEO missions: an initial airborne assessment

Ms. Evelyn Honore-livermore
European Space Agency

Genesis: a Future Geodetic Satellite Mission at the Foundation of Navigation

Mr. Michele Scotti
SpacePNT

Enabling Millimetre-Level Geodesy from Space: NavMEO GNSS Receiver for the GENESIS Mission

Dr. Mariano Wis
Indra Deimos

NAVIGA AGGA4 receiver for launcher, orbital and re-entry applications. First results

Dr. Marie Bieber
OHB Austria GmbH

A GNSS Receiver Breadboard for LEO Applications

Session A4: Fused PNT & 5G/6G PNT (I)

🔍 Tracks **High Bay**

📅 Thursday, May 21, 2026
🕒 11:30 AM - 1:10 PM

Details

Co-Chairs:
Gonzalo Seco-Granados
J.A. Garcia-Molina

Speaker

- Dr. Florin Grec**
European Space Agency
Integrated Communication and Positioning in LEO: A Resilient Complement to GNSS and Terrestrial 5G
- Dr. José A. del Peral-Rosado**
Airbus Defence and Space
Technology Enablers Towards Unified PNT with GNSS, 5G and 6G Solutions
- Dr. Ivan Lapin**
European Space Agency
All You Can STARE: Real-Time Software Receiver for Estimating PNT Measurements from NR-NTN, IoT-NTN, Starlink, and Arbitrary Satcom Signals
- Dr. Idir Edjekouane**
Université du Luxembourg
High-Accuracy Ranging in 5G Non-Terrestrial Networks: Receiver Architectures and Interference Analysis
- Dr. Joan Francesc Muñoz Martin**
i2cat Research and Innovation Center
NPRS Performance for GNSS-free NB-IoT NTN Positioning

Session B4: Resilient PNT (I)

🔍 Tracks **Auditorium**

📅 Thursday, May 21, 2026
🕒 11:30 AM - 1:10 PM

Details

Co-Chairs:
Nicola Laurenti
Jaron Samson

Speaker

- Dr. Javier Tegedor**
European Commission Joint Research Centre
Tracking of ground jammers from Low Earth Orbit: experimental results from cubesat PRETTY during Jammertest 2025
- Prof. Giacomo Bacci**
University of Pisa - Dip. Ingegneria Informazione
Directional Modulation Techniques for PNT Applications: The DM/TM4PNT Project
- Mr. Brendan David Polidori**
Gascom
PARTICLE RECIEVER: ASSURED PNT USING ENCRYPTED SIGNALS AND A SECUR ELEMENT
- Mr. Syed Muneeb Ur Rahman**
Tampere University
Evaluating ML-Based Algorithms for GNSS Spoofing Detection with Cross-testing Capabilities: A Comparative Study
- Mr. Thiago Azevedo de Vasconcelos**
DLR - German Aerospace Center
GNSS Synthetic Aperture for Direction-Finding of Signal Sources in a Jamming Scenario

Session C4: Mass Market, Receiver Technologies, Sensors, Antennas, AI, Quantum (II)

🔍 Tracks **Earth Room**

📅 Thursday, May 21, 2026
🕒 11:30 AM - 1:10 PM

Details

Co-Chairs:
Dominik Dötterböck
Noori Bni Lam

Speaker

- Dr. Ismael Colomina**
Geonumerics
Accurate, affordable and assured (A3) positioning and navigation with a smartphone and geographic information
- Dr. Javier Arribas**
CTTC
Benchmarking GNSS-SDR on RISC-V: Hardware Acceleration, Channel Processing, and OSNMA/HAS Workloads
- Mr. Muhammad Subhan Hameed**
Universität Der Bundeswehr München
Fractional resampling for clock alignment in a low-cost pseudolite
- Mr. Kilian Hoeflinger**
Thya Aerospace GmbH
Bridging Space and Terrestrial Markets: An API-driven Mass-Marketplace for Scalable PNT Service Commercialization
- Mr. Theodore Russell**
GMV Aerospace and Defence, SAU
Enhancing GSharp high-accuracy PPP solution using Visual Inertial Odometry for GNSS-denied environments
- Dr. Andrea Emmanuele**
Thales Alenia Space Italia
ACCEPTED AS ALTERNATE: Enabling Metasignal Processing Technologies for Highly Accurate code-based PNT solutions

Session A5: LEO-PNT & Multi-Layer PNT (I)

🔗 Tracks **High Bay**

📅 Thursday, May 21, 2026
🕒 2:20 PM - 4:00 PM

Details

Co-Chairs:
Elena Simona Lohan
Rui Samadas

Speaker

Mr. Marco Laurenti
Thales Alenia Space

LEO-PNT Real Time On Board ODTs - Performance of LEO Navigation Messages and GST Clock Steering

Mr. Adam Ghribi
Institute of Navigation,
University of Stuttgart

Outliers Detection and Exclusion for Orbit Determination using an Interacting Multiple-Model Approach with Variable Structure

Mr. Jaime Fernández Sánchez
GMV Aerospace and Defence
SAU

LEO-PNT – ON-GROUND POD ARCHITECTURE AND SIMULATIONS WITH FOCUSPOD

Dr. Damien Serant
Thales Alenia Space

GEMS Software receiver for LEO PNT Signal processing

Prof. Marco Luise
University Of Pisa - Dip.
Ingegneria Informazione

Performance Analysis of Bandlimited GNSS Signals for LEO-PNT Applications

Session B5: Fused PNT & 5G/6G PNT (II)

🔗 Tracks **Auditorium**

📅 Thursday, May 21, 2026
🕒 2:20 PM - 4:00 PM

Details

Co-Chairs:
Jose Salcedo
Ivan Lapin

Speaker

Dr. Alda Xhafa
Dept. Of Telecommunication
And Systems Engineering,
Uab, Spain

Hybrid Random–Directional RIS Phase Profile Design for Multi-Layer TN/NTN Positioning

Dr. José A. del Peral-Rosado
Airbus Defence and Space

Beam Characterization of a Flying 5G mmWave Base Station via Field Measurements

Mr. Kai-Niklas Baasch
Leibniz University Hannover,
Institut Für Erdmessung

SSB Acquisition for Positioning and Navigation in 5G Terrestrial Networks

Dr. Alejandro Gonzalez Garrido
European Commission

5G Positioning Reference Signal impact assessment in Non-Terrestrial Networks communication service

Eng. Lucas Alvarez Navarro
Tu Delft

Aggregating Wideband 5G PRS Signals for Accurate Positioning via Frequency-Hopping

Session C5: Space, Lunar, and Extraterrestrial PNT (III)

🔗 Tracks **Earth Room**

📅 Thursday, May 21, 2026
🕒 2:20 PM - 4:00 PM

Details

Co-Chairs:
Florian Beck
Yoann Audet

Speaker

Eng. Artur Kobylkiewicz
GMV Innovating Solutions Sp.
z o.o

SEXTANS Receiver: Real-Time P2OD and Precise Timing for Next-Generation LEO Missions

Eng. Ricardo Prata
Indra Deimos (Deimos
Engenharia)

Triple-band GNSS Receiver with E6 HAS corrections for Precise On-board Orbit Determination in LEO

Mr. Michele Scotti
SpacePNT

Implementation and testing of a real-time POD algorithm onboard NavLEO spaceborne GNSS receiver

Eng. Gabriel Spick
Thales Alenia Space

RADHARD GNSS receiver for LEO-PNT ODTs

Jorge Gonzalez Castro
GMV Aerospace and Defence,
SAU

GMV GSharp® RT-POD for LEO Satellites: Achieving cm-level real time Precise Orbit Determination with GMV GSharp® and Galileo HAS

Session A6: PNT Signal Evolutions

📄 Tracks **High Bay**

📅 Thursday, May 21, 2026
🕒 4:20 PM - 6:00 PM

Details

Co-Chairs:
Francois-Xavier Marmet
Miguel Cordero

Speaker

Dr. Gianluca Caparra Esa	A Proposal for Open Service Authentication Signals and Capabilities for Galileo 2nd Generation
Dr. Ioulia Peppas Airbus Defence And Space GmbH	Galileo G1 and G2 Navigation Products
Dr. Jose Antonio Garcia Molina European Space Agency	Super-Pilot Signals for Celeste LEO-PNT IOD
Sebastien Roche Thales Alenia Space	Tracking architecture for the future Celeste IOD signals
Mr. Florian Beck German Aerospace Center (DLR)	Multilevel Coded Spreading Symbol Optimization Accounting for Ionospheric Dispersive Effects

Session B6: Resilient PNT (II)

📄 Tracks **Auditorium**

📅 Thursday, May 21, 2026
🕒 4:20 PM - 6:00 PM

Details

Co-Chairs:
Javier Tegedor
Aram Vroom

Speaker

Mr. Marc Casanovas Ventura Albora Technologies	GNSS Interference Classification Using Optimized CNNs
Mr. Bart Bekkema S&T Netherlands	Spoofing Classification Using a Combination of Pre- and Post-Correlator Techniques: Results from Jammertest
Eng. Patricia Pinheiro Ubi - Universidade Beira Do Interior	Impact Of GNSS Interference On Aircraft Navigation Systems: Operational Risks, Safety Implications, And Early Assessment Of Navigation Degradation
Eng. Niccolò Pastori Thales Alenia Space Italia	GNSS Spoofing Mitigation with an Array Receiver and its Digital Twin: Field Test at Jammertest 2025 in Norway
Dr. Beatrice Motella Joint Research Centre	Evaluation of the Galileo Authentication Services at the 2025 Jammertest

Session C6: Mass Market, Receiver Technologies, Sensors, Antennas, AI, Quantum (III)

📄 Tracks **Earth Room**

📅 Thursday, May 21, 2026
🕒 4:20 PM - 6:00 PM

Details

Co-Chairs:
Veenu Tripathi
Paolo Crosta

Speaker

Dr. Mohamed Emara Callian GNSS	Modified Power Inversion Technique for Achieving Spatially Narrow Radiation Pattern Nulls
Eng. Barbara Matos GMV Skysoft	Experimental Validation of Spatial Diversity Techniques for Interference Detection and Mitigation in Small Antenna Array GNSS Receivers
Sikhar Modi Politecnico di Torino	Hybrid Tree-Based Models for GNSS Position Error Estimation
Mr. Benedikt Schreiber Fraunhofer Institute for Integrated Circuits IIS	Analysis of Range Authentication and OSNMA Performance in Urban Scenarios
Dr. Noori Bni Lam ESA	Calibrating Array GNSS Receivers Using Live Signals

Friday 22-May			
High Bay			
08:45	R&D keynote 2 - Augmented physics-based models for navigation and tracking - Pau Closas		
09:25	Quick break to move to session rooms		
	High Bay	Auditorium	Earth Room
	Session A7: Space, Lunar, and Extraterrestrial PNT (IV) Co-chairs: Fabio Dovis, Samuele Larese	Session B7: Young Navigators Panel	Session C7: Resilient PNT (III) Co-Chairs: Alex Minetto, Lindy Spiteri
09:30	30: Enhancing High-Altitude Spaceborne Navigation with Low-MEO Layer in LEO-PNT Constellations		130: Real-time global detection of wide-area transient interference events and their impact on GNSS positioning
09:50	79: Space GNSS Receiver for Autonomous Flight Termination System and Precise Orbit Insertion		119: AI-Enhanced Detection, Localization, and Vulnerability Assessment of Jamming and Spoofing for Safety-Critical Users
10:10	17: Orbit determination and time synchronization in real-time using Galileo HAS: The HAUT-S satellite payload		19: Real-time monitoring of GNSS services with PULSE
10:30	5: GNSS-based Real-Time Onboard Orbit Determination for Agile Satellites		90: Benefits of Hybrid GEO/MEO/LEO Multi-Band Constellations for PNT resilience using PNT as a Service (PNTaaS)
10:50	45: Performance Assessment of Onboard Time-Synchronization for LEO Satellites		98: Prospects of new wideband allocations for High-Accuracy Robust PNT
11:10	Coffee break		
	Session A8: LEO-PNT & Multi-Layer PNT (II) Co-chairs: Rui Zuo, Cesar Vazquez	Session B8: Resilient PNT (IV) Co-chairs: Thomas Pany, Francesca Zanier	Session C8: Integrity, Precise Positioning, Authentication (II) Co-Chairs: Sandra Verhagen, Javier Miguez
11:30	68: Evaluating and Enhancing Ionospheric Models for LEO-PNT Simulation Applications: Towards a Machine Learning-Enhanced NeQuick2 Framework	120: Linear and Non-Linear Chirp Interference Mitigation Technique using the Fractional Fourier Transform in GNSS Snapshot receivers	54: Fast Convergence of PPP-RTK based on Ionospheric Corrections from Galileo High Accuracy Service
11:50	95: LEO-PNT Field Emulation with a Single UAV: Testbed and Initial Experimentation	26: Empirical Statistical Modeling of GNSS Multipath Error in Airport Environments: A Robust Student's t-Distribution Approach	108: Analysis and Impact of Galileo HAS Corrections Uncertainty on Kinematic Precise Point Positioning
12:10	74: LEOSG: Advanced RFSOC-Based Signal Generator for LEO-PNT Applications	100: Meta-Signal Processing for Next-Generation GNSS Receivers: Design Trade-Offs, Channel Robustness, and Wideband Tracking Strategies	44: Adaptive Factor Graph Optimization in Urban Environments for Liability Critical Applications
12:30	147: The Nordic PNT solution	127: Lightweight Pilot Estimation on LEO Satellite Signals for Enhanced SoOp Navigation	109: Phase Centre Position determination in Conformal Antenna Arrays
12:50	12: LEO-PNT as a Spoofing Monitor: Doppler-Based Cross-Layer Detection for GNSS Resilience	51: Real-Time Robust Factor Graph Optimization for GNSS Positioning: Performance Evaluation under Degraded Conditions	43: Factor Graph Optimization for GNSS-based PNT Determination
13:10	Lunch break (Main Restaurant)		
	Session A9: Integrity, Precise Positioning, Authentication (III) Co-chairs: Thomas Junique, Dimitrios Psychas	Session B9: Mass Market, Receiver Technologies, Sensors, Antennas, AI, Quantum (IV) Co-chairs: Gabriele Giorgi, Davide Leone	Session C9: Resilient PNT (V) Co-chairs: Marco Ceccato, Andrea Valenti
14:20	52: Performance Assessment of RAIM algorithms leveraging LEO constellations for civil aviation and road use cases	59: Evaluating Domain Adaptation Techniques for GNSS-Based Machine Learning: From Vehicular Systems to Soft Mobility Applications	40: Evaluating GNSS Interference Mitigation Using a Multi-Beam Luneburg Lens
14:40	18: Dual- and Triple-Frequency GNSS Ambiguity Resolution for High-Precision Spaceborne Relative Navigation	48: Deep RL-Tuned Factor Graphs for Pose-Level GNSS Trajectory Estimation	152: Proof of Position
15:00	106: Enhancing Ground Positioning with Low Earth Orbit Satellites Using Factor Graph Optimization	126: Real-time tightly coupled GNSS and IMU integration via Factor Graph Optimization	69: A Secure PNT Framework for GNSS: OSNMA & Ranging Authentication with multi-layer Cross-Checks for Robustness against Spoofing
15:20	60: Design and Evaluation of an Integrity Augmentation System for a Lunar Navigation Service	55: Crystal Oscillators in OSNMA-Enabled Receivers: An Implementation View for Security Applications	128: Threat Detection and Resilience Mechanisms in PRS-Assisted OTDOA 5G Positioning Systems
15:40	35: Algorithms for Space GNSS Guaranteed Positioning: Integrity for the Space Corridor (ISCO) – Experimentation Results	91: MIMO-DPE to the Rescue: Experimental Validation of Robust GNSS-Only PVT for Autonomous Vehicles	123: Correlation-Based GNSS Jamming: Mechanisms, Effects, and Mitigation Strategies
16:00	Awards & Closing session		

Session legend: IEEE / non-IEEE

R&D Keynote 2 - Pau Closas

📄 Tracks **High Bay**

📅 Friday, May 22, 2026
🕒 8:45 AM - 9:25 AM

Details

Title:
Augmented physics-based models for navigation and tracking

Abstract:
Location-based services, safety-critical applications, and modern intelligent transportation systems require reliable, continuous, and precise positioning, navigation, and timing (PNT) information. Modern PNT is based on the fusion of multiple sensing technologies, for which state estimation is at its core. This talk will discuss recent advances and applications in the area of augmented physics-based models (APBMs), enabling enhanced state estimation through the incorporation of online learned data-driven models. In particular, this talk will focus on applications in positioning and tracking where state dynamics are partially unknown. As opposed to black-box models, APBMs highlight the need to exploit the interplay between physics- and data-driven models, resulting in improved performance, interpretability, and robustness.

Session B7: Young Navigators Panel on Future of PNT and Early-Career Opportunities

📄 Tracks **Auditorium**

📅 Friday, May 22, 2026
🕒 9:30 AM - 11:10 AM

Details

Speakers
Dr. Urs Hugentobler, Professor in Space Geodesy at Technical University of Munich
Dr. Luca Canzian, Head of R&D at Qascom
Sara Gidlund, Head of Genesis Programme at ESA

Panel Description
The aim of this panel at NAVITEC 2026 is to bring together leading experts, from industry, academy, institution, and young navigators to discuss the future of navigation and positioning technologies. The discussion addresses key technological, scientific, and programmatic challenges shaping next-generation PNT systems, including future careers opportunities. Furthermore, the "Young Navigators" initiative will be briefly presented by its initiators.

Session A7: Space, Lunar, and Extraterrestrial PNT (IV)

📄 Tracks **High Bay**

📅 Friday, May 22, 2026
🕒 9:30 AM - 11:10 AM

Details

Co-Chairs:
Fabio Dovis
Samuele Laresse

Speaker

Mr. Heiko Engwerda
Royal Netherlands Aerospace
Centre

Enhancing High-Altitude Spaceborne Navigation with Low-MEO Layer in LEO-PNT Constellations

Ms. Natalia Conde Granados
Fraunhofer IIS

Space GNSS Receiver for Autonomous Flight Termination System and Precise Orbit Insertion

Mr. Florian Kunzi
German Aerospace Center
(DLR)

Orbit determination and time synchronization in real-time using Galileo HAS: The HAUT-S satellite payload

Prof. Oliver Montenbruck
DLR/GSOC

GNSS-based Real-Time Onboard Orbit Determination for Agile Satellites

Mr. Filipe De Oliveira Salgueiro
Navigation Systems Definition
Section (TEC-SEN), European
Space Agency

Performance Assessment of Onboard Time-Synchronization for LEO Satellites

Session C7: Resilient PNT (III)

📄 Tracks **Earth Room**

📅 Friday, May 22, 2026
🕒 9:30 AM - 11:10 AM

Details

Co-Chairs:
Alex Minetto
Lindy Spiteri

Speaker

Dr. Gerardo Allende-Alba
German Aerospace Center

Real-time global detection of wide-area interference events and their impact on PNT solutions

Rafael Herrera Troca
Gmv

AI-Enhanced Detection, Localization, and Vulnerability Assessment of Jamming and Spoofing for Safety-Critical Users

Dr. Pedro Jose Roldan Gomez
Thales Alenia Space

Real-time monitoring of GNSS services with PULSE

Dr. Alison Brown
PNTaaS LTD

Benefits of Hybrid GEO/MEO/LEO Multi-Band Constellations for PNT resilience using PNT as a Service (PNTaaS)

Mr. Cesar Vazquez Alocén
ESA

Prospects of new wideband allocations for High-Accuracy Robust PNT

Session A8: LEO-PNT & Multi-Layer PNT (II)

📄 Tracks **High Bay**

📅 Friday, May 22, 2026
🕒 11:30 AM - 1:10 PM

Details

Co-Chairs:
Rui Zuo
Cesar Vazquez

Speaker

Miss Sofia Vera-Quintana Université Gustave Eiffel	Evaluating and Enhancing Ionospheric Models for LEO-PNT Simulation Applications: Towards a Machine Learning-Enhanced NeQuick2 Framework
Dr. José A. del Peral-Rosado Airbus Defence and Space	LEO-PNT Field Emulation with a Single UAV: Testbed and Initial Experimentation
Mr. Jorge García Espinosa GMV Aerospace And Defence SAU	LEOSG: Advanced RFSoc-Based Signal Generator for LEO-PNT Applications
Mr. Jaakko Yliaho Sharpnav Oy	The Nordic PNT solution
Ms. Cécilia Anastasia Kalmeijer Curtin University	LEO-PNT as a Spoofing Monitor: Doppler-Based Cross-Layer Detection for GNSS Resilience

Session B8: Resilient PNT (IV)

📄 Tracks **Auditorium**

📅 Friday, May 22, 2026
🕒 11:30 AM - 1:10 PM

Details

Co-Chairs:
Thomas Pany
Francesca Zanier

Speaker

Mr. Xavier Alvarez-Molina Universitat Autònoma De Barcelona	Linear and Non-Linear Chirp Interference Mitigation Technique using the Fractional Fourier Transform in GNSS Snapshot receivers
Mr. Nasrellah Irahmar Airbus Operations	Empirical Statistical Modeling of GNSS Multipath Error in Airport Environments: A Robust Student's t-Distribution Approach
Mr. Marco Ceccato Gascom	Meta-Signal Processing for Next-Generation GNSS Receivers: Design Trade-Offs, Channel Robustness, and Wideband Tracking Strategies
Mr. Francesco Zanirato University Of Padova	Lightweight Pilot Estimation on LEO Satellite Signals for Enhanced SoOp Navigation
Mr. Thomas Barbero Abbia GNSS Technologies	Real-Time Robust Factor Graph Optimization for GNSS Positioning: Performance Evaluation under Degraded Conditions

Session C8: Integrity, Precise Positioning, Authentication (II)

📄 Tracks **Earth Room**

📅 Friday, May 22, 2026
🕒 11:30 AM - 1:10 PM

Details

Co-Chairs:
Sandra Verhagen
Javier Miguez

Speaker

Mr. Julian Dey ANavS GmbH - Advanced Navigation Solutions	Fast Convergence of PPP-RTK based on Ionospheric Corrections from Galileo High Accuracy Service
Mr. Gabriele Portelli University Of Naples Parthenope	Analysis and Impact of Galileo HAS Corrections Uncertainty on Kinematic Precise Point Positioning
Mr. OUSSAMA TAHRI UNIVERSITÉ GUSTAVE EIFFEL	Adaptive Factor Graph Optimization in Urban Environments for Liability Critical Applications
Mr. Jacobus A Keigel NLR, Netherlands Aerospace Centre	Phase Centre Position determination in Conformal Antenna Arrays
Dr. Charlotte ter Haar OHB Austria GmbH	Factor Graph Optimization for GNSS-based PNT Determination

Session A9: Integrity, Precise Positioning, Authentication (III)

📄 Tracks **High Bay**

📅 Friday, May 22, 2026
🕒 2:20 PM - 4:00 PM

Details

Co-Chairs:
Thomas Junique
Dimitrios Psychas

Speaker

Mr. Thierry Authié Thales Alenia Space France	Performance Assessment of RAIM algorithms leveraging LEO constellations for civil aviation and road use cases
Ms. Francesca Perazzetti DLR	Dual- and Triple-Frequency GNSS Ambiguity Resolution for High-Precision Spaceborne Relative Navigation
Mr. Majed Imad Tampere University	Enhancing Ground Positioning with Low Earth Orbit Satellites Using Factor Graph Optimization
Mr. Heiko Engwerda Royal Netherlands Aerospace Centre	Design and Evaluation of an Integrity Augmentation System for a Lunar Navigation Service
Mr. Jorge Garcia Espinosa GMV Aerospace And Defence SAU	Algorithms for Space GNSS Guaranteed Positioning: Integrity for the Space Corridor (ISCO) – Experimentation Results

Session B9: Mass Market, Receiver Technologies, Sensors, Antennas, AI, Quantum (IV)

📄 Tracks **Auditorium**

📅 Friday, May 22, 2026
🕒 2:20 PM - 4:00 PM

Details

Co-Chairs:
Gabriele Giorgi
Davide Leone

Speaker

Dr. Benjamin Beaucamp Université Gustave Eiffel	Evaluating Domain Adaptation Techniques for GNSS-Based Machine Learning: From Vehicular Systems to Soft Mobility Applications
Dr. Satya Srinivas Vemuri Tampere University	Deep RL-Tuned Factor Graphs for Pose-Level GNSS Trajectory Estimation
Dr. Florin Stoican Three Tensors S.r.l.	Real-time tightly coupled GNSS and IMU integration via Factor Graph Optimization
Dr. Francesco Ardizzone University of Padova	Crystal Oscillators in OSNMA-Enabled Receivers: An Implementation View for Security Applications
Mr. Marc Casanovas Ventura Albora Technologies	MIMO-DPE to the Rescue: Experimental Validation of Robust GNSS-Only PVT for Autonomous Vehicles

Session C9: Resilient PNT (V)

📄 Tracks **Earth Room**

📅 Friday, May 22, 2026
🕒 2:20 PM - 4:00 PM

Details

Co-Chairs:
Marco Ceccato
Andrea Valenti

Speaker

Mr. Ben Wadsworth ESA	Evaluating GNSS Interference Mitigation Using a Multi-Beam Luneburg Lens
Mr. Felix Abel ESA	Proof of Position
Mr. Guillermo Ortas GMV	A Secure PNT Framework for GNSS: OSNMA & Ranging Authentication with multi-layer Cross-Checks for Robustness against Spoofing
Mr. Thodoris Spanos University Of Patras/Loctio P.C.	Threat Detection and Resilience Mechanisms in PRS-Assisted OTDOA 5G Positioning Systems
Dr. Javier Arribas CTTC	Correlation-Based GNSS Jamming: Mechanisms, Effects, and Mitigation Strategies