

DGON - Inertial Sensors and System 2023



Symposium Gyro Technology

October 24-25, 2023 - Braunschweig, Germany

Areas:

- Inertial sensors - R&D (all technologies)
- Inertial sensor manufacturing and calibration
- Aiding sensor technologies for hybrid solutions
- Signal processing for navigation, localization, guidance and surveying
- Advanced application requirements and system solutions with inertial sensors
- Special contributions to 60th DGON ISS

Conference Chair:

Peter Hecker, TU Braunschweig - Germany

The Symposium will take place in Braunschweig as a face-to-face event. We will provide regular updates on our website.

Conference Website: <https://iss.iff.ing.tu-bs.de/>



Program Committee:

Steffen Zimmermann, PLC2 Design - Germany (Chair)
Andreas Fischer, Safran - France
Uwe Herberth, NG Litef - Germany
Fabrice Delhaye, Safran - France
Thomas Löffler, Diehl - Germany
Mike Perlmutter, Civitanavi - Pedaso (FM) - Italy
Ulrich Mangold, Anschütz - Germany
Thomas Lesage, Thales AVS - France
Andrei Shkel, University of California - USA
Edgar von Hinüber, iMAR - Germany
Jörg Wagner, University of Stuttgart - Germany
Yuanxin Wu, Shanghai Jiao Tong University - China

For questions please contact the conference administration:

E-Mail: iss-conference@tu-braunschweig.de



Program Day 1 - 2023 DGON Inertial Sensors and Systems

Tuesday, October 24, 2023

8:30 Registration - Welcome Coffee

9:00 **Welcome 60th Anniversary - Conference Chair** **Peter Hecker**

**60 Symposia on Inertial Sensors and Systems:
A Remarkable Series in the Course of Time** **Jörg Wagner**
University Stuttgart, Germany

Session 1: Emerging Gyro Technologies - Chair: Mike Perlmutter

9:30 A polar form rayleigh wave gyroscope **Barry Gallacher**
University Newcastle, UK

9:55 Miniaturized quantum systems for inertial measurement units **Alexander Kassner**
University Hannover, Germany

10:20 Coffee Break

Session 2: Resonator Gyros - Chair: Uwe Herberth

10:45 Research on the influence of temperature on errors of resonator gyroscopes related to dampingimperfection **Y. Pan**
Changsa, China

11:10 A new operational mode for axisymmetric coriolis vibrating gyroscopes: Force Angle Tracking (FAT) **José Luis Gruver**
IAI, Israel

11:35 The analysis and suppressing method of frequency drift in honeycomb disk resonator gyroscope **J.J. Li**
Changsa, China

12:00 Lunch

Session 3: Optical Sensor Technologies - Chair: Thomas Lesage

13:00 Novel integrated 3-fiber SLED sources and SLED transceivers for IMU/FOG applications **Stefan Gloor**
Exalos, Suisse

13:25 Preliminary assessment of the new routes towards a navigation-grade photonic chip-scale gyroscope **Teresa Natale**
University Bari, Italy

Session 4: MEMS Sensor - Chair: Ulrich Mangold

13:50 Next generation 15g and 35g accelerometers **Mike Durston**
Collins, UK

14:15 MEMS gyro compassing: is symmetry the key? **Maximilian Marx**
LITEF, Germany

14:40 Coffee Break

Session 5: Aerospace Applications - Chair: Thomas Löffler

15:00 First results and lessons learned during setup of a DO384 compliant Monte-Carlo Simulation for integrity monitoring validation **Ulf Bestmann**
TU Braunschweig, Germany

15:25 Quadrotor dead reckoning with multiple inertial sensors **Itzik Klein**
ANSFL, Israel

15:50 Technical Tours

18:30 Get together Location Steigenberger

Program Day 2 - 2023 DGON Inertial Sensors and Systems

Wednesday, October 25, 2023

9:10 Welcome Coffee

Session 6: MEMS Utilization I - Chair: Edgar von Hinüber

9:30	Comparison of the north finding capability of several MEMS IMUs of different performance grades	Benedikt Györfi <i>University Stuttgart, Germany</i>
9:55	A call for improved navigation algorithms in GNSS-IMU-based tracking data in sport science	Marcus Schmidt <i>TU Dortmund, Germany</i>
10:20	Inertial attitude estimation for a guided spin-stabilized projectile	Lorenz Schmitt <i>Diehl, Germany</i>

10:45 Coffee Break

Session 7: MEMS Utilization II - Chair: Andrei Shkel

11:10	Robust attitude estimates in cases of sensor failure with minimal sensor suite	Philippe Panten <i>TU Braunschweig, Germany</i>
11:35	Supervised learning regression for sensor calibration	Hossein Shoushtari <i>HafenCity Hamburg, Germany</i>

12:00 Lunch

13:00 Postersession

Session 8: Sensor Data Fusion - Chair: Yuanxin Wu

13:25	Inertial sensing and mapping of railway track properties	Raoul Schild <i>S&P, Austria</i>
13:50	Innovative and efficient GNSS-free inertial navigation system for train localization	Pierre d'Harcour <i>Exail, France</i>
14:15	Multi-pass phase-differential GNSS ambiguity fixing for post-processing application	David Becker <i>iMAR, Germany</i>
14:40	Navigation system integration and evaluation for precise underwater operations	Erik Rentzow <i>University Rostock, Germany</i>

15:05 Coffee Break

Session 9: From Lab to Market - Chair Steffen Zimmermann

15:30	Development of a MEMS IMU with optimized SWaP-C	Stefan Rombach <i>LITEF, Germany</i>
15:55	Navkite™ - Protection of inertial navigation system based on interference detection and mitigation solution	Hermance Baudry <i>Safran, France</i>

16:20 Closing & Announcement of next DGON ISS 2024 **Peter Hecker**

16:30 End of Conference

Technical Tour & Come together - 2023 DGON Inertial Sensors and Systems

16:00 - 18:30 h Technical Tour to DLR Braunschweig

Researchers in Braunschweig at DLR's third largest site work in the fields of aeronautics, transport, space and energy. At its research airport, more than 1200 highly qualified employees continue the tradition of the German Aviation Research Institute, which was founded in 1936.



In order to advance the latest ideas and developments in the fields of aeronautics, transport, space and energy, researchers in Braunschweig have at their disposal road and flight test vehicles, railway laboratories, wind tunnels and more. Rotor test rigs, road and flight simulators and test rigs for materials and noise research are also available.

DLR in Braunschweig - German Aerospace Center (DLR), Lilienthalplatz 7, 38108 Braunschweig

18:30 h Come together Steigenberger Parkhotel Braunschweig

Nîmes-Straße 2, Braunschweig, Germany



<https://hrewards.com/de/steigenberger-parkhotel-braunschweig>

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