

Program Day 1 - Inertial Systems and Applications - DGON ISA 2024

Tuesday, October 22, 2024

8:30 Registration - Welcome Coffee

9:00 Welcome 61th - Conference Chair

Peter Hecker

So, you want to start an inertial navigation company?

Michael Perlmutter
Civitanavi Systems, Italy

Session 1: Aerospace Applications - Chair: Peter Hecker

9:30 Feasibility Analysis and Considerations of Quantum Inertial Sensors for Navigation in Aviation Applications

O. Garcia Crespillo
DLR, Germany

9:55 Performance Evaluation of Quantum Accelerometers for Space Navigation

Benjamin Tennstedt
Leibniz University Hannover, Germany

10:20 Coffee Break

Session 2: Inertial Motion-Capturing - Chair: Ulrich Mangold

10:45 Validating the Integrated Motion Measurement of Flexible Beams

Michael Kohl
University of Stuttgart, Germany

11:10 Analyzing show jumping horses by IMU- and GNSS-sensor fusion

Marcus Schmidt
TU Dortmund University,, Germany

11:35 Poster Session - Chair: Steffen Zimmermann

12:05 Lunch

Session 3: System Design & Integration - Chair: Jörg Wagner

13:05 Top-Down Derivation of Performance Requirements for Inertial Navigation Systems

Lorenz Schmidt
Diehl, Germany

13:30 Tightly Coupled Integration as a Strategy for Robust Navigation: Civitanavi Systems' Approach

Roberto Senatore
Civitanavi Systems, Italy

13:55 System Performance Verification of highly precise INS/GNSS Solutions within GNSS denied Environments

Lukas Jung
iMAR Navigation, Germany

14:20 Coffee Break

Session 4: - Chair: Thomas Löffler

14:45 A LiDAR/INS SLAM Method Based on the PHD Filter

Zijing Zhang
Southeast University Nanjing, China

15:10 Timing Matters! Understanding the impact of sample timing on dynamic measurements

Benedict Seeger
PTB, Germany

15:45 Start Conference Tour „Herzog Anton Ulrich-Museum “

18:15 Get together - Location Parkhotel Steigenberger

18:30 Buffet opening

Program Day 2 - Inertial Sensors - DGON ISA 2024

Wednesday, October 23, 2024

9:10 Welcome Coffee

Session 5: MEMS Accels - Chair: Edgar von Hinüber

| | | |
|-------|---|---|
| 9:30 | A Detailed Journey from Tactical to High-End Navigation-Grade MEMS Accelerometers at EMCORE | Sergey Zotov <i>Emcore, USA</i> |
| 9:55 | High-Performance 100g Accelerometer with Integrated Electronics in 3 cm x 3 cm form factor | Theo Miani <i>Silicon Microgravity Cambridge, UK</i> |
| 10:20 | High-Performance triaxial MEMS Accelerometer for Applications with Harsh Environmental Conditions | Sebastian Nessler <i>LITEF, Germany</i> |

10:45 Coffee Break

Session 6: Vibratory Gyros - Chair: Jose Luis Gruver

| | | |
|-------|--|--|
| 11:10 | High-end MEMS Gyroscopes: Challenges on Mechanical Design | Carolina Viola <i>Northrop Grumman, Italia</i> |
| 11:35 | Compact Digital Symmetric MEMS Vibratory Structure Gyroscope | A. Dorian Challoner <i>InertialWave, USA</i> |
| 12:00 | Applying Method of Averaging to a Harmonically and Parametrically Excited HRG with FTR Control | Dogan Onur Arisoy, <i>Roketsan Inc., Turkey</i> |

12:25 Lunch

Session 7: Gyro Sensor Technology - Chair: Yuanxin Wu

| | | |
|-------|---|---|
| 13:40 | Optically levitated gyroscopes and its orientation manipulating | Kai Zeng <i>National University Changsha,, China</i> |
| 14:05 | High-Precision Inertial Measurement Unit with Closed-Loop Fiber Optic Gyros operated by 1550nm 3-fiber SLED Transceiver | Stefan Gloor, <i>Exalos, Switzerland</i> |

14:30 Coffee Break

Session 8: Gyro Modeling- Chair: Thomas Lesage

| | | |
|-------|--|--|
| 14:55 | A novel approach to model and identify quadrature errors in MEMS gyroscopes by finite-element-analysis | Johannes Pfeiffer <i>LITEF, Germany</i> |
| 15:20 | Data-Driven Gyroscope Calibration | Zeev Yampolsky <i>University of Haifa, Israel</i> |
| 15:45 | Can a perfect vibratory gyro provide a drift-free angle estimation? | Emilien Marolleau <i>Safran E&D, France</i> |

16:10 Closing & Announcement of next DGON ISA 2025 Peter Hecker

16:15 End of Conference

Information - Postersession

Postersession 11:35 Tuesday, October 22, 2024

| | | |
|----|--|--|
| 1. | Experimental Measurements on RTK-corrected embedded real-time Navigation | Patrick Bendel <i>MBDA, Germany</i> |
| 2. | EURISA: Developing a European IMU for Scientific and Commercial Applications | Louis Dutheil <i>Exail, France</i> |
| 3. | Analysis and suppression of Charge Accumulation Effect in Micro-shell Resonator Gyroscope | Mingze Gao, <i>NUDT Changsha, China</i> |
| 4. | Comprehensive radiation-hardening methods for spaceborne high-precision fiber optic gyroscopes | Jing Jin <i>Beihang University Beijing, China</i> |
| 5. | Development of a levitated linear accelerometer | Karsten Pyka <i>TII Abu Dhabi, United Arab Emirates</i> |
| 6. | A Novel Temperature Compensation Method for the Current-to-Frequency Converter | W. Lin <i>NUDT Changsha, China</i> |
| 7. | Research on the nonlinearity of thermal sensitivity in polarization-maintaining fiber and its influence on fiber optic gyroscope | Zuchen Zhang <i>Beihang University Beijing, China</i> |
| 8. | Self-Calibration and Alignment of Tri-Axis Rotational Inertial Navigation System under Mooring Conditions | Bin Hu <i>Southeast University Nanjing, China</i> |
| 9. | Explore the evolving market of high-end inertial sensors - from battlefield navigation to antenna stabilization | Pierre-Marie Visse <i>YOLE, France</i> |

We would like to thank our sponsors:

