

# **2025 IEEE 12th International Workshop on Metrology for AeroSpace (MetroAeroSpace 2025)**

**Naples, Italy  
18-20 June 2025**



**IEEE Catalog Number: CFP2532W-POD  
ISBN: 979-8-3315-0153-2**

**Copyright © 2025 by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP2532W-POD
ISBN (Print-On-Demand):	979-8-3315-0153-2
ISBN (Online):	979-8-3315-0152-5
ISSN:	2575-7482

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# WORKSHOP PROGRAM

---

Wednesday, June 18

---

## ***Session 1.1 - General Track - PART I***

**Room: Aula Magna**

- 1 Applications of Galileo HAS to Maritime Buoys**  
*Francesco De Angelis, Alessandro Petrangeli and Giovanni B. Palmerini (Sapienza Università di Roma, Italy)*
  - 7 Lunar Lava-Tube Structures Characterization in Microwave Reverberating Environment**  
*Andrea Delfini (Sapienza University of Rome, Italy); Davide Micheli (Telecom Italia - TILAB, Italy); Roberto Pastore (Sapienza University of Rome, Italy); Mario Marchetti (VIA SUVERETO 263, Italy & Sapienza University of Rome, Italy); Fabrizio Piergentili (DIMA SAPIENZA, Italy); Marco Costanzi (TiFast srl, Italy)*
  - 12 Development of an Integrated System for Screening and Testing of Electrochemical Cells for CubeSats**  
*Alexander Solís Quesada (Instituto Tecnológico de Costa Rica, Costa Rica); Jesus Gonzalez-Llorente (École de Technologie Supérieure, Canada); Juan J. Rojas (Instituto Tecnológico de Costa Rica, Costa Rica)*
  - 18 Preliminary Design and PIL Testing of a Battery Monitoring System for eVTOL UAVs Based on an Extended Kalman Filter and Electro-Thermal Model**  
*Aleksander Suti and Gianpietro Di Rito (University of Pisa, Italy); Marc Budinger (INSA Toulouse, France); Aurelien Reyssset and Ion Hazyuk (INSA-Toulouse, France); Roberto Di Rienzo (University of Pisa, Italy)*
- 

## ***Session 1.2 - Space based gravitational measurements: from the detection of Gravitational Waves to ultra-sensitive geodesy - PART I***

**Room: Room A**

- 23 A Modal-Based Measurement of Adhesion Impulses in Space Mechanisms**  
*Francesco Marzari and Edoardo Dalla Ricca (University of Trento, Italy); Carlo Zanoni (TIFPA, Istituto Nazionale di Fisica Nucleare (INFN), Italy); Daniele Bortoluzzi (University of Trento, Italy)*
  - 29 Experimental and Model-Based Analysis of the LISA Pathfinder GPRM Force Sensor Interference**  
*Abraham Ayele Gelan, Matteo Tomasi, Francesco Marzari and Daniele Bortoluzzi (University of Trento, Italy)*
  - 35 Delta-Development of the LISA Release Mechanism**  
*Giuliano Agostini, Matteo Tomasi, Francesco Marzari and Daniele Bortoluzzi (University of Trento, Italy); Alessandro Moroni (OHB Italy, Italy); Matteo Grespi and Riccardo Freddi (OHB Italia, Italy)*
  - 41 High Resolution Accelerometer with Interferometric Readout**  
*Massimo Zucco (Istituto Nazionale di Ricerca Metrologica, Italy); Marco Pisani (Istituto Nazionale di Ricerca Metrologica (INRiM), Italy)*
- 

## ***Session 1.3 - The use of unmanned aerial vehicles for various sectors of the economy: problems and solutions***

**Room: Room B**

- 46 Towards Visual Navigation Input Monitoring in Autonomous Aerial Vehicles**  
*Christian Kexel and Mark-Felix Schütz (SWIFT - Corporation for Data Acquisition Systems, Germany)*
- 51 UAV-Based Territorial Surveillance System**  
*Vitaliy Zaytsev (Alfred Nobel University, Ukraine)*
- 57 Real-Time Evaluation of Inner-Loop Controllers with NMPC-Based Outer-Loop for UAV**  
*Riccardo Enrico, Stefano Primatesta, Mauro Mancini and Elisa Capello (Politecnico di Torino, Italy)*

---

## **Session 2.1 - Sensor Data Fusion for Aerospace Systems**

**Room: Aula Magna**

**63 Above-Ground Biomass Prediction in Agroforestry Areas Using Machine Learning and Multispectral Drone Imagery**

*Andsera Adugna Mekonen (University of Naples Federico II, Italy); Domenico Accardo (Università degli Studi di Napoli FEDERICO II, Italy); Alfredo Renga (University of Naples Federico II, Italy)*

**69 Improved UAS Distance Estimation via LiDAR-Radar Data Fusion Using Extended Kalman Filter**

*Gennaro Ariante, Luigi Farina and Francesco Lo Caso (University of Naples Parthenope, Italy); Aniello Menichino (Italian Aerospace Research Centre - CIRA, Italy); Vittorio Di Vito (CIRA Italian Aerospace Research Center, Italy); Salvatore Ponte (University of Campania "L. Vanvitelli", Italy); Giuseppe Del Core (University of Naples Parthenope, Italy)*

**75 Radar-Aided Navigation for Precise Approach at Vertiports**

*Sinan Çimen and Manuel Storrer (University of Stuttgart, Germany); Dirk Dickmanns (Kymati GmbH, Germany); Klaus Kittmann (Airbus Urban Mobility GmbH, Germany); Walter Fichter (University of Stuttgart, Germany)*

**81 On Board Systems Configuration for High Precision Aerial Indoor Inspections**

*Vincenzo Donato (University of Naples Federico II, Italy); Alberto Moccardi (Università degli studi di Napoli Federico II, Italy); Claudia Conte and Giorgio de Alteriis (University of Naples Federico II, Italy); Pasquale Accardo and Michele Federico (ARIAS Group srl, Italy); Dalila Cesiro (Consortium MedITech, Italy); Rosario Schiano Lo Moriello and Flora Amato (Università degli Studi di Napoli Federico II, Italy); Giancarlo Rufino (University of Naples Federico II, Italy); Domenico Accardo (Università degli Studi di Napoli FEDERICO II, Italy)*

---

## **Session 2.2 - Space based gravitational measurements: from the detection of Gravitational Waves to ultra-sensitive geodesy - PART II**

**Room: Room A**

**87 Advances in the Formulation of Minimal Thermodynamically Consistent Models for Dispersion Force-Driven High-Accuracy Inertial Nano-Sensors**

*Fabrizio Pinto (Izmir University of Economics, Turkey)*

**93 Investigation of the Surface Properties of the LISA Pathfinder Witness Samples and Their Implications on the LISA Discharge System**

*Teodoro Klaser (Università degli studi di Trento, Italy & TIFPA - Trento Institute for Fundamental Physics and Applications, Italy); Antonella Cavalleri (Università degli studi di Trento, Italy); Roberto Canteri (Fondazione Bruno Kessler, Italy); Davide Dal Bosco (Università degli studi di Trento & TIFPA-INFN, Italy); Rossana Dell'Anna (Fondazione Bruno Kessler, Italy); Vittorio Chiavegato (Università degli studi di Trento & TIFPA-INFN, Italy); Francesco Dimiccoli (University of Trento, Italy & INFN-TIFPA, Italy); Rita Dolesi (Università di Trento and Trento & TIFPA-INFN, Italy); Elena Missale (Fondazione Bruno Kessler, Italy); Luca Pasquali (Università di Modena e Reggio Emilia, Italy); Andrea Pedrielli (Fondazione Bruno Kessler, Italy); Lorenzo Sala and Francesco Venturelli (Università di Trento and Trento & TIFPA-INFN, Italy); William J. Weber (Università di Trento and Trento & TIFPA-INFN, Italy)*

**99 A Functional Test Bed for Electrostatic Space Accelerometers**

*Carlo Sasso (INRiM, Italy); Massimo Zucco and Christian Di Sannio (Istituto Nazionale di Ricerca Metrologica, Italy); Marco Pisani (Istituto Nazionale di Ricerca Metrologica (INRiM), Italy)*

---

## **Session 2.3 - General Track - PART II**

**Room: Room B**

**105 CFAR Analysis of Adaptive Detection Schemes for Multistatic/Polarimetric Radar Systems**

*Vincenzo Carotenuto (University of Naples Federico II, Italy); Augusto Aubry (Università degli studi di Napoli, Italy); Antonio De Maio (University of Naples "Federico II", Italy); Luca Pallotta (University of Basilicata, Italy)*

- 110 **Cooperative Cross-Eye Jamming Against Advanced Radars: Effectiveness and Countermeasures**  
*Massimo Rosamilia (University of Naples Federico II, Italy); Vittorio Calligaris, Dario Gabutti and Aurora Manfredi (Italian Air Force, Italy); Vincenzo Carotenuto (University of Naples Federico II, Italy)*
- 116 **Radar Cross-Section Analysis of in-Flight UAVs in X- and L-Band**  
*Marianna Franzese (University of Naples Federico II, Italy & IREA-CNR, Italy); Vincenzo Carotenuto (University of Naples Federico II, Italy); Fausta Mattei (University of Study of Naples Federico II & University of Bergamo, Italy); Claudia Conte and Giancarlo Rufino (University of Naples Federico II, Italy); Domenico Accardo (Università degli Studi di Napoli FEDERICO II, Italy); Claudio De Luca (IREA-CNR, Italy); Paolo Bernardino (Istituto per il Rilevamento Elettromagnetico dell'Ambiente IREA-CNR, Italy); Alessandro Di Vincenzo (Università Degli Studi di Napoli Parthenope & Istituto per Il Rilevamento Elettromagnetico dell'Ambiente IREA-CNR, Italy); Carmen Esposito (Istituto per il Rilevamento Elettromagnetico dell'Ambiente IREA-CNR, Italy); Antonio Natale (Istituto per il Rilevamento Elettromagnetico dell'Ambiente IREA-CNR, Italy); G Palmese (Elettra Microwave Srl, Italy); Stefano Perna (Università degli Studi di Napoli Parthenope, Italy); Riccardo Lanari (IREA-CNR, Italy); Antonio De Maio (University of Naples "Federico II", Italy)*
- 122 **Efficient Phase-Only Transmit Beamforming: a Comprehensive Analysis**  
*Alfonso Farina (Leonardo Company Consultant, Italy); Danilo Orlando (University of Pisa, Italy)*
- 

### **Session 3.1 - Applied Metrology for Navigation and Precise Positioning in UAVs**

**Room: Aula Magna**

- 127 **The Galileo-Based UAV Velocity: Doppler and Time-Differenced Carrier Phase**  
*Giovanni Cappello (University of Naples Parthenope, Italy); Ciro Gioia (European Commission, Joint Research Centre, Italy); Andrea Piccolo (Joint Research Centre European Commission, Italy); Antonio Angrisano (Messina University, Italy); Salvatore Gaglione (University of Naples Parthenope, Italy)*
- 132 **The Issue of North: Determining Magnetic Heading Onboard a Drone**  
*Alfonso Farina (Leonardo Company Consultant, Italy); Salvatore Ponte (University of Campania "L. Vanvitelli", Italy); Francesco De Angelis (Sapienza Università di Roma, Italy)*
- 137 **Methodology for Localizing an Indoor Drone Using Onboard Sensors and Validating by a Fixed Lidar**  
*Giulia Slavic (University of Genova, Italy); Lucio Marcenaro (Università degli Studi di Genova, Italy); David Martín Gómez (Universidad Carlos III de Madrid, Spain); Carlo S Regazzoni (University of Genoa, Italy)*
- 143 **Characterisation of the Flight Chain for Sounding Balloon Missions**  
*Federico Toson (University of Padova & CISAS G. Colombo, Italy); Carlo Bettanini (University of Padova, Italy)*
- 149 **Kalman Filter-Based Position Estimation in UAV Swarms: Impact of Swarm Size, Flight Paths and Onboard Sensors**  
*Sena Turan (Middle East Technical University & Roketsan Missile Inc., Turkey); Halil Ersin Söken (Middle East Technical University, Turkey)*
- 

### **Session 3.2 - Aerodynamic Measurement and Propulsion System Control of Aerial Vehicles**

**Room: Room A**

- 155 **Effect of Changing the Integral Parameter of the PI Controller on the Quality of Speed Control in a Helicopter Diesel Engine**  
*Paweł Magryta and Grzegorz Barański (Lublin University of Technology, Poland)*
- 160 **Evaluation of Wind Effects on Synthetic Flow Angles Estimator ASSE**  
*Andrea Patacchiola, Luca de Pasquale, Gabriele Tarascio and Angelo Lerro (Politecnico di Torino, Italy)*
- 166 **Assessment of Artificial Neural Networks' Performance for the Synthetic Model-Free Angle of Attack and Sideslip Estimator**  
*Gabriele Tarascio, Luca de Pasquale, Andrea Patacchiola and Angelo Lerro (Politecnico di Torino, Italy)*
- 172 **Wind Estimation in Urban Air Mobility Operations via Power Monitoring and Sensor Fusion**  
*Mewael A Abraham (Khalifa University, United Arab Emirates); Alessandro G M Gardi (Khalifa University, United Arab Emirates & RMIT University, Australia)*

**178 Energy Analysis of a Propeller in a Wind Tunnel for Different Airflow Velocities**

*Jan Dawid Pytka (Lublin University of Technology, Poland); Zbigniew Czyż (Polish Air Force University, Poland); Krzysztof Skiba and Łukasz Grabowski (Lublin University of Technology, Poland)*

---

**Session 3.3 - Aerospace systems monitoring through optical and innovative sensors networks**

**Room: Room B**

**183 Ground-Based Optical Observation Methods for Space Situational Awareness at the Astronomical Institute University of Bern**

*Pascal Sauer and Silas Fiore (University of Bern, Switzerland); Nicola Cimmino (Astronomical Institute of the University of Bern, Switzerland); Pierre Lauber and Michael Ackermann (University of Bern, Switzerland); Alessandro Vananti and Thomas Schildknecht (Astronomical Institute of the University of Bern, Switzerland)*

**188 Laser-Based Multimodal Characterization Allows Quantitative Modeling for Fasteners**

*Rufei Zou and Chen Cui (Beijing Taigee Co. Ltd, China); Yuexiang Peng and Tianlong Man (Beijing University of Technology, China)*

**193 Exploring Fiber Bragg Gratings for High-Sensitivity Pressure Monitoring Applications**

*Matteo Bertone, Alessandro Aimasso, Matteo Davide Lorenzo Dalla Vedova and Paolo Maggiore (Politecnico di Torino, Italy)*

**198 UAV in-Flight Monitoring Approach Through Interaction Between AR Visualization and Embedded Optical Fiber Sensors**

*Antonio C Marceddu, Alessandro Aimasso, Matteo Bertone, Bartolomeo Montrucchio, Paolo Maggiore and Matteo Davide Lorenzo Dalla Vedova (Politecnico di Torino, Italy)*

---

**Thursday, June 19**

---

**Session 4.1 - Advances in measurements for autonomous space systems and for the development and testing of their subsystems**

**Room: Aula Magna**

**204 Investigation of Attitude-Independent Magnetometer Calibration Approaches Under Various Conditions**

*Mehmet Umut Türker and Demet Cilden-Guler (Istanbul Technical University, Turkey)*

**210 Low-Cost Approach of Ground-Based GNC Experiments of Distributed Space Systems**

*Alex Caon (Delft University of Technology, The Netherlands); Stefano Silvestrini (Politecnico di Milano, Italy); Jian Guo (Delft University of Technology, The Netherlands)*

**216 Characterisation of the Thermal Control System for NIR Emitter of a Miniaturised Lidar for Mars**

*Kirill A. Potemkin and Diego Scaccabarozzi (Politecnico di Milano, Italy)*

**221 A 2-DoF on-Line Template Matching Strategy for LIDAR-Based Pose Initialization of Non-Cooperative Spacecraft**

*Matteo Palescandolo, Alessia Nocerino, Giancarmine Fasano, Roberto Opromolla and Michele Grassi (University of Naples Federico II, Italy)*

**227 Modelling and Verification of Optical Landmark Navigation for Nanosatellite Star Trackers**

*Ming Q. Zhang, Emmanuel Buraga and John Enright (Toronto Metropolitan University, Canada)*

---

**Session 4.2 - CONNECT - Technical Session 1: Radio and optical transmission technologies for non-terrestrial networks**

**Room: Room A**

- 233 **Power-Domain Non-Orthogonal Multiple Access for Distributed Non-Terrestrial Networks: a Semi-Analytical Throughput Estimation**  
*Massimiliano Comisso, Fulvio Babich and Giulia Buttazzoni (University of Trieste, Italy); Alberto Carini (Università di Trieste, Italy); Sergio Carrato (Uni Trieste, Italy); Stefano Marsi (University of Trieste, Italy); Fabio Patrone (University of Genoa, Italy); Claudio Sacchi (University of Trento, Italy); Francesca Vatta (University of Trieste, Italy)*
- 239 **Experimental Emulation of LEO Downlink OFLs Affected by Turbulence and Pointing Jitter**  
*Ilaria Marasco (Politecnico di Bari, Italy); Carla Cantore and Davide Monopoli (Polytechnic University of Bari, Italy); Giovanni Magno (Politecnico di Bari, Italy)*
- 245 **Design of High Speed FSO Feeder Links for HAPS Based on COTS Components**  
*Sujit Basu (Scuola Superiore Sant'Anna of Pisa, Italy); Giulio Cossu (Scuola Superiore Sant'Anna University, Italy); Luca Oliviero (Scuola S. Anna, Italy); Ernesto Ciaramella (Scuola Superiore Sant'Anna, Pisa, Italy)*
- 251 **RF ISLs in LEO Mega-Constellations - Network Topology and Latency**  
*Mauro De Sanctis (University of Rome "Tor Vergata", Italy); Ernestina Cianca (University of Rome Tor Vergata, Italy); Tommaso Rossi (University of Rome "Tor Vergata", Italy); Harshal More (Tor Vergata University, Italy)*
- 256 **UAV/HAPS Feeder Link in W and D Bands: a Feasibility Study**  
*Alberto Tarable (CNR-IEIIT, Italy); Andrea Tani (University of Florence, Italy); Giuseppe Virone (Consiglio Nazionale delle Ricerche, Italy); Roberto Nebuloni (Ieiit - Cnr, Italy); Ada Vittoria Bosisio (CNR-IEIIT c/o Politecnico di Milano, Italy); Rudi Paganelli (CNR, National Research Council, Italy); Giulio Cossu (Scuola Superiore Sant'Anna University, Italy); Ernesto Ciaramella (Scuola Superiore Sant'Anna, Pisa, Italy); Claudio Sacchi (University of Trento, Italy); Simone Morosi (University of Florence, Italy & CNIT - Research Unit of Florence University, Italy)*

### **Session 4.3 - Innovative technologies and solutions for Advanced Air Mobility and Urban Air Mobility**

**Room: Room B**

- 262 **Optimal Navigation and Obstacle Avoidance for UAV in Urban Canyons**  
*Yuquan Hu (University of Electronic Science and Technology of China, China); Alessandro G M Gardi (Khalifa University, United Arab Emirates & RMIT University, Australia)*
- 268 **Collision-Free Nonlinear Model Predictive Control for Quadrotors in Dynamic Outdoor Environments**  
*Beyza Acar (Middle East Technical University & ROKETSAN MISSILE INC, Turkey); Halil Ersin Söken (Middle East Technical University, Turkey)*
- 274 **A Robust Nonlinear MPC and Incremental Dynamic Inversion Control Framework for Quadrotors Under Rotor Failure**  
*Cihangir Mehmetcik Elif (Middle East Technical University & HSB SOLUTIONS, Turkey); Ozan Tekinalp (Middle East Technical University, Turkey)*
- 280 **Impact of Temperature and Humidity on a 3D LiDAR Sensor: Performance and Characterization**  
*Francesco Lo Caso, Luigi Farina and Gennaro Ariante (University of Naples Parthenope, Italy); Aniello Menichino (Italian Aerospace Research Centre - CIRA, Italy); Vittorio Di Vito (CIRA Italian Aerospace Research Center, Italy); Salvatore Ponte (University of Campania "L. Vanvitelli", Italy); Vincenzo Quaranta (CIRA, Italy); Carmine Carandente Tartaglia (Italian Aerospace Research Centre - CIRA, Italy); Giuseppe Del Core (University of Naples Parthenope, Italy)*

### **Session 5.1 - Space To Space: Scientific and Technological Challenges for Human and Robotic Space Exploration - PART I**

**Room: Aula Magna**

- 286 Holographic Flow Cytometry Based on Sagnac Interferometer Integrates Single Cell Tomography and Spatiotemporal Analysis**  
*Zhe Wang (University of Naples Federico II, Italy); Marika Valentino (ISASI-CNR, Italy); Giusy Giugliano (Institute of Applied Sciences and Intelligent Systems E. Caianiello, National Research Council, Italy & University of Campania Luigi Vanvitelli, Italy); Massimiliano Villone (University of Naples Federico II, Italy); Silvia Mari and Francesca Ferranti (ASI, Italy); Pasquale Memmolo and Vittorio Bianco (CNR-ISASI, Italy); Pier Luca Maffettone (University of Naples Federico II, Italy); Lisa Miccio (CNR-ISASI, Italy)*
- 291 Pyro-Electrohydrodynamic Approach for Biomarker Detection in Neurodegenerative Space-Related Disorders**  
*Concetta Di Natale and Stefania Carbone (University of Naples Federico II, Italy); Sara Coppola (CNR-ISASI, Italy); Simone Russo (Università Degli Studi di Napoli Federico II, Italy); Giuseppe Vitiello and Giuseppina Luciani (University of Naples Federico II, Italy); Veronica Vespini (CNR-ISASI, Italy); Volodymyr Tkachenko (Institute of Applied Sciences and Intelligent Systems, Italy); Pietro Ferraro (ISASI CNR, Italy); Francesca Ferranti and Silvia Mari (ASI, Italy); Simonetta Grilli (National Council of Research, Italy)*
- 297 Validation of Hazard Detection Strategies in a Moon Landing Scenario by an Advanced Simulation Framework**  
*Luca Ostrogovich (University of Naples Federico II, Italy & Telespazio S.p.A., Italy); Alfredo Renga (University of Naples Federico II, Italy); Simone Giannattasio, Luca Andolfi and Giuseppe Tomasicchio (Telespazio S.p.A., Italy)*
- 303 Smart Solar Panel Project: Modelling of the Self-Cleaning Strategy by Piezoelectric Patches**  
*Andrea Appiani and Diego Scaccabarozzi (Politecnico di Milano, Italy)*
- 309 Size-Based Separation of MCF-7 Breast Cancer Cells and White Blood Cells Using a Custom-Made 3D-Printed Microfluidic Chip**  
*Daniele Tammaro (University of Naples Federico II, Italy); Martina Mugnano (DICMAPI UNINA, Italy); Lisa Miccio (University of Naples Federico II, Italy); Mario Capasso, Vincenza Cerbone, Giulia Scalia and Anna Montella (CEINGE-Biotecnologie Avanzate Franco Salvatore, Italy); Massimiliano Villone (University of Naples Federico II, Italy); Silvia Mari and Francesca Ferranti (ASI, Italy); Pier Luca Maffettone (University of Naples Federico II, Italy)*

---

### **Session 5.3 - Manufacturing and Metrology in the Aerospace Industry - PART I**

**Room: Room B**

- 315 Analysis of Impact of Selected Weather Parameters on Aircraft Takeoff and Landing Distance Using Kolmogorov-Arnold Network**  
*Paweł Tomiło, Jan Laskowski, Agnieszka Laskowska and Joanna Michałowska (Lublin University of Technology, Poland); Roman Kochan and Orest Kochan (Lviv Polytechnic National University, Ukraine); Edward Kozłowski (Lublin University of Technology, Poland); Jonas Matijošius (Vilnius Gediminas Technical University, Lithuania)*
- 321 Retention Mechanism Based Neural Network Model for Measuring Aircraft Landing Distance**  
*Paweł Tomiło (Lublin University of Technology, Poland)*
- 327 Surface Analysis of Two-Layer Aluminum-Silicone Structure After High-Pressure Abrasive Water Jet Cutting**  
*Michał Leleń (Lublin University of Technology, Poland)*
- 333 Analysis of the Chip Formation Process During Precision Milling of Magnesium Alloy**  
*Jarosław Korpysa (Lublin University of Technology, Poland)*

---

### **Poster Session I**

**Room: Poster Area**

- 338 Ensemble Deep Learning Approach for Object Recognition in Large-Scale Remote Sensing Imagery**  
*Ivan Saetchnikov, Elina Tcherniavskaia and Victor Skakun (Belarusian State University, Belarus)*
- 343 Experiment on Mission Planning of Wide-Aperture Antenna Test Using Unmanned Aircraft System**  
*Siarhei Liashkevich, Vladimir Saetchnikov and Halina Liashkevich (Belarusian State University, Belarus)*

- 349 **Initial Orbit Determination Method for an Unknown Resident Space Object with a Matched Velocity Magnitude Association in the Frame Plane**  
*Vasilina Baranova, Alexander Spiridonov, Vladimir Cherny and Vladimir Saetchnikov (Belarusian State University, Belarus)*
- 355 **Impact Assessment of Solar Activity on Low Earth Orbit Satellite Systems Using Advanced Machine Learning Techniques**  
*Evgeniy Gleba, Vasilina Baranova, Alexander Spiridonov, Vladimir Cherny and Vladimir Saetchnikov (Belarusian State University, Belarus)*
- 361 **Integrating UAV LiDAR Terrain Mapping and Real Photogrammetry Data for Rapid Evaluation, Assessment and Analysis**  
*Veaceslav Sprincean, Liviu Dontu, Aurel Zancoci, Sergiu Pascari and Ion Rosca (Moldova State University, Moldova); Florentin Paladi (Moldova State University & ePhysMCS Research Laboratory, Moldova)*
- 367 **Design and Experimental Validation of a Hybrid Energy Storage System for Nanosatellites**  
*Faiza Arezki (Algerian Space Agency, Algeria)*
- 373 **Design and Implementation of Balancing Platform for Nanosatellite Reaction Wheel Actuator**  
*Aissa Boutte (Satellite Development Centre, (CDS) Algerian Space Agency, (ASAL), Algeria); Brahim Gueddache (Satellite Development Center,(CDS) Algerian Space Agency, (ASAL)); El Yazid Belaidi, Kada Hadda and Mohamed Berroua Benzina (Satellite Development Centre, (CDS) Algerian Space Agency, (ASAL)); Salah Eddine Bentata (Satellite Development Centre, (CDS) Algerian Space Agency, (ASAL), Algeria)*
- 379 **Design LED Sensors for Fire Prevention in Aircraft Cabins**  
*Federico Fina (Roma Tre University, Italy); Iacopo Nannipieri (Sensichips Srl, Italy); Andrea Ria (University of Pisa, Italy); Fabio Leccese ("Roma Tre" University, Italy)*
- 384 **Availability and Maintainability of Medium and Low Complexity UAV: a New Approach**  
*Enrico Petritoli (Università degli Studi "Roma Tre", Italy); Ruggero De Francesco (SeTeL, Italy); Fabio Leccese ("Roma Tre" University, Italy)*
- 389 **Effective and Simple Identification Indicators of Different Rolling Bearing Fault Types**  
*Dariusz Mika (The University of Applied Sciences in Chełm, Poland); Jerzy Józwiak (Lublin University of Technology, Poland); Arkadiusz Tofil and Paweł Pioś (University of Applied Sciences in Chełm, Poland); Alessandro Ruggiero (University of Salerno, Italy); Fabio Leccese ("Roma Tre" University, Italy)*
- 395 **Calibration Accuracy of RCS Measurements in Free Space**  
*Pathiraja Dewa Thusitha Wickramasinghe and Alessio Balleri (Cranfield University, United Kingdom (Great Britain))*
- 401 **Smart Landing Gear: a FBG-Based Approach for Weight on Wheel**  
*Angela Brindisi and Antonio Concilio (Centro Italiano Ricerche Aerospaziali, Italy); Cristian Vendittozzi (SAPIENZA- Rome University, Italy); Lida Travascio (CIRA, Italy); Marika Belardo (Italian Aerospace Research Centre - CIRA, Italy); Michele Ignarra and Vincenzo Fiorillo (CIRA, Italy); Simone Frosecchi (Sapienza, Italy)*
- 406 **Measurements of Aerodynamic Loads on a Model of a Selected Fighter Aircraft**  
*Kacper Szatkowski (Sunreef Yachts, Poland); Tomasz Zahorski and Zbigniew Czyż (Polish Air Force University, Poland)*
- 412 **Efficiency Measurements of Propellers with Different Pitch in Electric Propulsion Systems**  
*Zbigniew Czyż (Polish Air Force University, Poland); Paweł Karpiński (University of Life Sciences in Lublin, Poland); Krzysztof Skiba (Lublin University of Technology, Poland)*
- 418 **Experimental and Numerical Studies of the Effect of Icing on the Aerodynamic Characteristics of the WORTMANN FX 63-137 Airfoil**  
*Robert Bąbel and Zbigniew Czyż (Polish Air Force University, Poland); Robert Szczepaniak (Polish Air Force University)*
- 424 **On the Optimum Update of Satellite Constellations with AOA Receivers: a Comparative Analysis**  
*Marcello Ascioffa (Politecnico di Bari, Italy); Rodrigo Blazquez-Garcia (Universidad Politécnica de Madrid, Spain); Angela Cratere (Polytechnic University of Bari, Italy & The University of Arizona, USA); Francesco Dell'Olio (Micro Nano Sensor Group Polytechnic University of Bari, Italy)*
- 430 **Exploring Stochastic Variational Gaussian Processes for Trustworthy Monocular Pose Estimation in Space**  
*Alessandro Lotti, Dario Modenini and Paolo Tortora (University of Bologna, Italy)*

- 436 **Development and Testing of a Novel Graphene Based Thermal Strap**  
*Richard Högström (VTT Technical Research Centre of Finland Ltd, Finland); Shahin Tabandeh (VTT-MIKES, Finland); Henrik Sandberg, Jussi Hämäläinen, Tomi Viitanen, Anssi Järvinen and Virpi Korpelainen (VTT Technical Research Centre of Finland Ltd, Finland)*
- 442 **Modelling the Oscillating Pattern of the Apparent Spin Period of Inactive GLONASS Satellites**  
*Nicola Cimmino, Alessandro Vananti and Thomas Schildknecht (Astronomical Institute of the University of Bern, Switzerland)*
- 448 **PANCAM Panoramic Bifocal Acquisition and Processing System for the PNRR Infrastrutture (NRRP) Earth-Moon-Mars (EMM) Project**  
*Paolo Martini and Claudio Pernechele (INAF, Italy); Emanuele Simioni (INAF- Osservatorio di Padova, Italy); Francesca Esposito and Fabio D'amico (INAF, Italy); Ugo Cortesi (IFAC-CNR, Italy); Marco Gai (IFAC Cnr, Italy); Andrea Argan and Luigi Lessio (INAF, Italy); Immacolata Donnarumma and Alessandro Turchi (ASI, Italy); Giovanni Costa (INAF, Italy)*
- 453 **MERCURIO, an Innovative Monitoring System for the Safety of Railway Infrastructure**  
*Chiara Abbundo (University of Naples Federico II & University of Rome Sapienza, Italy); Maria Daniela Graziano (University of Naples Federico II, Italy); Valerio Striano (Distretto Aerospaziale Campano (DAC), Italy); Pasquale Rovito, Andrea Vitiello and Luca Continisio (Ente Autonomo Volturno (EAV), Italy); Mario Pucciarelli (Medinok SpA Company, Italy); Mariano Focareta (MAPSAT Srl, Italy); Giancarmine Fasano (University of Naples Federico II, Italy); Diego Di Martire (University of Naples, Italy); Flavia Causa (University of Naples Federico II, Italy & University of Naples, Federico II, Italy); Gennaro Maria Crispino (University of Naples Federico II, Italy); Francesco Carotenuto (Università degli Studi di Napoli Federico II, Italy); Ester Piegari, Enrico Cascella, Giacomo Russo and Luca Cozzolino (University of Naples Federico II, Italy)*
- 459 **Deep Learning-Optimized Monocular Navigation for Autonomous Rendezvous and Proximity Maneuvers in Small Satellite Missions**  
*Lucrezia Lovaglio and Fabrizio Stesina (Politecnico di Torino, Italy)*
- 465 **Inconel Thrust Chamber Comparison Between 3D Printing and Machined Prototypes**  
*Ludovica Canta (University of Roma Tre, Italy & MIEEG Srl, Italy); Daniele Ferrara (Roma Tre University, Italy); Angelo Minotti (MIPRONS Srl, Italy); Giorgia Fiori (Roma Tre University, Italy); Salvatore Andrea Sciuto (University of ROMA TRE, Italy); Andrea Scorza (Roma TRE University, Italy)*
- 471 **A Neural Network Analysis of Single-Channel Light Curves for the Characterization of Resident Space Objects**  
*Pasquale Bencivenga, Matteo Anton Matarca, Giorgio Isoletta, Roberto Opromolla and Giancarmine Fasano (University of Naples Federico II, Italy)*
- 477 **A Solar Sail-Propelled SmallSat Mission to Phobos: Gravitational Field Uncertainties, Trajectory Design, and Situational Awareness**  
*Ozge Ozturk, Burakcan Akçit and Cengiz Yildirim (Izmir University of Economics, Turkey)*
- 483 **Vision-Based Sensor Package for Satellite Docking**  
*Marco Pertile, Francesco Branz, Sebastiano Chiodini, Andrea Valmorbidia, Giovanni Paolo Maria Buonconsiglio and Alessandro Francesconi (University of Padova, Italy)*

---

## **Session 6.1 - Space To Space: Scientific and Technological Challenges for Human and Robotic Space Exploration - PART II**

**Room: Aula Magna**

- 489 **Smart Solar Panel Project: Design of Compliant Supports to Operate on Mars**  
*Andrea Appiani and Diego Scaccabarozzi (Politecnico di Milano, Italy)*
- 494 **Holographic Characterization of Soft Matter Opens Up New Possibilities for the Creation of Functionalized Membrane**  
*Zhe Wang (University of Naples Federico II, Italy); Anna Palma (Institute of Applied Sciences and Intelligent Systems E. Caianiello, Italy); Vincenzo Ferraro (University of Parma, Italy); Concetta Di Natale (University of Naples Federico II, Italy); Veronica Vespini (CNR-ISASI, Italy); Francesca Ferranti and Silvia Mari (ASI, Italy); Simonetta Grilli (Institute of Applied Sciences and Intelligent Systems (ISASI), CNR, Italy); Pier Luca Maffettone (University of Naples Federico II, Italy); Sara Coppola (CNR-ISASI, Italy)*

- 499 **THz Rotational Coherent Scattering Super-Resolution Imaging Based on Deep Convolutional Neural Networks**  
*Jie Zhao, Chenyu Zhao, Yunxin Wang and Dayong Wang (Beijing University of Technology, China)*
- 504 **Commercial Satellite Operations: Measuring Their Overall Sustainability**  
*Lucilla Gatt and Ilaria Amelia Caggiano (Università Degli Studi Suor Orsola Benincasa, Italy); Luigi Izzo (University of Naples Suor Orsola Benincasa, Italy); Carlo Campanile (Sapienza University of Rome, Italy)*
- 510 **EO Data, AI and Damage Measurement in the Insurance Industry**  
*Alessandra Fabrocini (University La Sapienza, Italy)*
- 514 **Wireless Power Transmission for Lunar Applications**  
*Domenico Edoardo Sfasciamuro, Stefano Mauro and Leonardo Pappalardo (Politecnico di Torino, Italy); Ivano Verzola (Lazzerio, Italy); Erica Scantamburlo and Marco Luigi Ottavi (Politecnico di Torino, Italy)*
- 521 **Modeling the Transition Between Orbital and Contact Phase in Rendezvous and Proximity Operations**  
*Erica Scantamburlo, Martina Ferrauto, Davide Sorli and Stefano Mauro (Politecnico di Torino, Italy)*
- 527 **Label-Free Holographic Imaging Flow Cytometry for White Blood Cell Analysis: a Step Toward Space Applications**  
*Giusy Giugliano (Institute of Applied Sciences and Intelligent Systems E. Caianiello, National Research Council, Italy & University of Campania Luigi Vanvitelli, Italy); Daniele Pirone (CNR-ISASI, Italy); Jaromir Behal (Palacky University, Olomouc, Czechia); Lisa Miccio, Pasquale Memmolo, Vittorio Bianco and Pietro Ferraro (CNR-ISASI, Italy)*

---

## **Session 6.2 - CONNECT - Technical Session 2: Selected topics on non-terrestrial networks**

**Room: Room A**

- 532 **Non-Terrestrial Networks Supporting Internet of Remote Things for Smart Agriculture**  
*Mauro De Sanctis (University of Rome "Tor Vergata", Italy); Ernestina Cianca (University of Rome Tor Vergata, Italy); Sara Pizzi and Giuseppe Araniti (University Mediterranea of Reggio Calabria, Italy); Arcangela Rago, Giuseppe Piro and Luigi Alfredo Grieco (Politecnico di Bari, Italy); Simone Morosi (University of Florence, Italy & CNIT - Research Unit of Florence University, Italy); Francesco Matera and Marina Settembre (Fondazione Ugo Bordoni, Italy)*
- 537 **NB-IoT Non-Terrestrial Network Path Loss Estimation with Precise 3D Modeling of Urban Environment**  
*Najmeh Alibabaie (Istituto di Scienza e Tecnologie dell'Informazione (ISTI) CNR, Italy); Antonello Calabrò (ISTI-CNR, Italy); Pietro Cassarà (National Research Council (CNR) at Pisa, Italy); Alberto Gotta (ISTI-CNR, Italy & CNIT, Italy); Eda Marchetti (CNR, Italy)*
- 543 **Assessing 5G PRS Signal Interference in High Frequency NTN Fused PNT Applications**  
*Alejandro Gonzalez Garrido (University of Luxembourg, Luxembourg); Ottavio Picchi (Joint Research Centre, European Union); Francesco Menzione (European Commission Joint Research Center, European Union); Jorge Querol and Symeon Chatzinotas (University of Luxembourg, Luxembourg)*
- 549 **A Methodological Framework for Positioning of Wireless Sensors in New Generation Launchers**  
*Ivan Iudice (CIRA - Italian Aerospace Research Centre, Italy); Domenico Pascarella (CIRA scpa, Italy); Sonia Zappia (CIRA - Italian Aerospace Research Centre, Italy); Giovanni Cuciniello (CIRA, Italy); Hernan M. Giannetta (SpaceLab SpA, Italy); Marta Albano and Enrico Cavallini (Agenzia Spaziale Italiana, Italy)*

---

## **Session 6.3 - Complex Systems Operational Availability: Measurements, Methodologies and Requirements**

**Room: Room B**

- 555 **High Safety and Continuity of Operation of Low Voltage Plants**  
*Roberto Paggi, Gian Luca Mariotti and Anna Paggi (ItalConsul, Italy); Eduardo De Francesco (SETEL, Italy); Cipriano Bartoletti (Università degli Studi Roma Tre, Italy); Fabio Leccese ("Roma Tre" University, Italy)*
- 560 **A Cellulose Based Biodegradable Humidity Sensor with Embedded Salts for Crop Monitoring and Nutrient Supply in Space Greenhouses**  
*Elena Palmieri and Luca Montaina (CNR-IMM, Italy); Francesco Maita and Antonio Minotti (IMM-CNR, Italy); Ivano Lucarini and Luca Maiolo (CNR-IMM, Italy)*

- 565 Design of a Wireless Multi-Sensor Crop Monitoring Platform**  
*Massimiliano Benetti and Massimiliano De Luca (Consiglio Nazionale delle Ricerche, Italy); Davide Polese (Consiglio Nazionale delle Ricerche - Istituto per la Microelettronica e Microsistemi, Italy); Alessandro Checco (University of Rome La Sapienza, Italy)*
- 570 Application of Blind Source Separation Methods in the Diagnosis of Rolling Bearings**  
*Dariusz Mika (The University of Applied Sciences in Chełm, Poland); Jerzy Józwick (Lublin University of Technology, Poland); Arkadiusz Tofil (University of Applied Sciences in Chełm, Poland); Jaroslaw Pytko (Lublin University of Technology, Poland); Fabio Leccese ("Roma Tre" University, Italy); Alessandro Ruggiero (University of Salerno, Italy)*
- 575 Advanced Measurement Technology for Military Aircraft Operational Availability**  
*Jarosław Pytko (University College of Applied Sciences in Chelm, Poland & Lublin University of Technology, Poland); Dariusz Mika (The University of Applied Sciences in Chełm, Poland); Jerzy Józwick and Paweł Tomiło (Lublin University of Technology, Poland); Krzysztof Dragan (Air Force Institute of Technology, Poland); Michał Dziendzikowski (Instytut Techniczny Wojsk Lotniczych, Poland); Paweł Pioś (University of Applied Sciences in Chełm, Poland)*
- 581 Aircraft Diagnosis Based on Machine Learning Methods**  
*Karol Kawka (Polish Air Force University, Poland); Bartłomiej Główczyk (Air Force Institute of Technology ITWL, Poland); Kinga Karwowska (Military University of Technology, Poland)*
- 

**Friday, June 20**

---

**Session 7.1 - Structural Health Monitoring and Nondestructive Testing For Aerospace - PART I**

**Room: Aula Magna**

---

- 586 Dimensional Analysis Approach for Lift-off Estimation Based on Eddy Current Testing**  
*Alessandro Sardellitti (Universitas Mercatorum, Italy); Vincenzo Mottola and Filippo Milano (University of Cassino and Southern Lazio, Italy); Luigi Ferrigno (University of Cassino, Italy); Antonello Tamburrino (University of Cassino and Southern Lazio, Italy); Marco Laracca (Sapienza University of Rome, Italy)*
- 592 High-Frequency Modal Analysis via Low-Speed DIC: Mitigation of Harmonic Peaks in the FRF**  
*Lorenzo Esposito (University of Naples Federico II, Italy); Davide Mastrodicasa (Siemens Digital Industry Software, Belgium); Vittorio Memmolo (Goethe University Frankfurt, Germany & University of Naples Federico II, Italy); Emilio Di Lorenzo (Siemens Digital Industries Software, Italy); Fabrizio Ricci (Università degli Studi di Napoli Federico II, Italy)*
- 598 Characterization of SiC-Coated CMC by Means of Pulse Thermography and Deep Learning Approaches**  
*Giovanni Santonicola, Francesca Di Carolo, Tiziana Matarrese, Umberto Galietti and Ester D'Accardi (Politecnico di Bari, Italy); Mario De Cesare and Mario De Stefano Fumo (Italian Aerospace Research Centre, Italy); Davide Palumbo (Politecnico di Bari, Italy)*
- 603 Development and Characterization of Graphene Nanoplatelet-Based Strain Sensors for Structural Health Monitoring**  
*Pegah Zarafshani (University of Naples Parthenope, Italy); Fabrizia Cilento (National Research Council (CNR), Italy); Flavio Esposito and Stefania Campopiano (University of Naples Parthenope, Italy); Lucia Sansone (National Research Council (CNR), Italy); Muhammad Zahid and Stefano G Corvaglia (Leonardo SPA, Italy); Agostino Iadicicco (Università di Napoli Parthenope, Italy); Michele Giordano (National Research Council (CNR), Italy)*
- 608 Intelligent Damage Detection in Composite Pressure Vessels Under Varying Environmental and Operational Conditions**  
*Octavio Marquez Reyes (University of Siegen, Germany); Oliver Schackmann (University of Frankfurt, Italy); Vittorio Memmolo (Goethe University Frankfurt, Germany & University of Naples Federico II, Italy); Daniel Lozano (BAM, Italy); Jens Prager (BAM, Germany); Jochen Moll and Peter Kraemer (University of Siegen, Germany)*

---

## ***Session 7.2 - Sustainable human space exploration: quantification and mitigation of radiation risk***

**Room: Room A**

- 614 **Irradiation Testing of Electronic Space Components in the Framework of ASIF Infrastructure**  
*Rita Carpentiero (Italian Space Agency, Italy); Alessia Cemmi, Beatrice D'Orsi, Andrea Colangeli and Guglielmo Pagano (ENEA, Italy); Corrado Altomare and Daniele Lazzaro (IMT srl, Italy)*
- 619 **Calculation of Doses and Biological Damage for Astronauts Exposed to Space Radiation**  
*Francesca Ballarini (University of Pavia, Italy)*
- 624 **Radiation Risk Models for Mars Exploration**  
*Chiara de Vita (University of Naples Federico II, Italy); Chiara Imperato (University of Campania Luigi Vanvitelli, Italy); Fabrizio Ambrosino (University of Naples Federico II, Italy); Giuseppe La Verde (UNINA, Italy); Marina Poje Sovilj (University Josip Juraj Strossmayer of Osijek, Croatia); Mariagabriella Pugliese (University of Naples Federico II, Italy)*
- 629 **High Altitude Balloon-Radiation Monitoring and Test Platform YIB: Design and Flight Results**  
*Bilge Demirköz (METU-IVMER, Turkey); Mehlika Zeynep Arslan (Middle East Technical University & IVMER (the Research and Application Center for Space and Accelerator Technologies), Turkey); Bahadır Han Demircan and Uğur Kılıç (METU-IVMER, Turkey)*

---

## ***Session 7.3 - Manufacturing and Metrology in the Aerospace Industry - PART II***

**Room: Room B**

- 634 **Integrated System for Intelligent Monitoring of Accuracy and Repeatability on Numerically Controlled Machine Tools Supported by Machine Learning Techniques**  
*Daria Sałamacha, Jerzy Józwiak, Michał Leleń, Paweł Tomiło and Marcin Barszcz (Lublin University of Technology, Poland); Dariusz Mika (The University of Applied Sciences in Chełm, Poland)*
- 639 **The Application of an Optical Measurement System to Investigate Strains in a Thin-Walled Element During Milling**  
*Magdalena Zawada-Michałowska (Lublin University of Technology, Poland)*
- 644 **Reverse Engineering and Metrological Validation of Aircraft Fuselage Components: Experimental Insights from the NEMESI Project**  
*Cristina Mastrapasqua (AxiSt srl, Italy); Raffaella Prisco (Essematica SPA, Italy); Francesco Carangelo, Francesco Calleri and Luigi Berri (AxiSt srl, Italy); Salvatore Rampone (Università del Sannio, Italy)*
- 649 **Experimental Study on Automatic Locking of Repetition Rate in Optical Frequency Comb**  
*Zhitao Zhang (China Academy of Launch Vehicle Technology & Beijing Aerospace Institute for Metrology and Measurement Technology, China); Xiaoqiang Gao (Beijing Aerospace Institute for Metrology and Measurement Technology, China); Beibei Wang (Industry, China); Wu Weiwei and Xu Yongyao (Industry, China); Tieli Zhang (Beijing Aerospace Institute for Metrology and Measurement Technology, China)*

---

## ***Session 7.4 - Exploring GNSS: Precision Navigation and Timing Solutions for Aerospace Metrology***

**Room: Room C**

- 654 **Robust and Resilient GNSS Synchronization of LEO Satellites for Space-Based Aircraft Multilateration**  
*Mauro Leonardi, Mahsa Mohebbi and Giulio Sidoretti (University of Rome Tor Vergata, Italy)*
- 660 **Embedded RTK and PPP for the TeseoVI Next Generation GNSS Chipset**  
*Fabio Pisoni (STMicroelectronics, Italy); Giovanni Gogliettino (STMicroelectronics (Italy), Italy); Domenico Di Grazia (STMicroelectronics, Italy); Lucas Yao (STMicroelectronics (China), China); Salvatore Crasta (STMicroelectronics, Italy)*

- 666 **Toward New Space Applications and Services: the JRC Testing and Demonstration Hub**  
*Andrea Piccolo, Javier Tegedor and Luca Cucchi (Joint Research Centre European Commission, Italy);*  
*Ciro Gioia (European Commission, Joint Research Centre, Italy); Francesco Menzione (European Commission*  
*Joint Research Center, European Union); Sophie Damy (European Commission, Joint Research Centre, Italy);*  
*Beatrice Motella (LINKS Foundation, Italy); Paolo Zoccarato (Joint Research Centre European Commission,*  
*Italy); Lukasz K Bonenberg (Joint Reserch Centre, Italy); Matteo Sgammini (Joint Research Centre, Italy);*  
*Matteo Paonni (Joint Research Centre, European Commission, Italy); Joaquim Fortuny-Guash (European Commission*  
*Joint Research Centre, Italy); Ottavio M. Picchi (MBI, Italy); Fausto Bonavitacola (Energy Security, Distribution*  
*and Markets Unit, Joint Research Centre, EC, Italy); Tommaso Senni (External Consultant at European Commission*  
*Joint Research Center (JRC), Italy); Antoine Grenier (External Consultant at European Commission Joint*  
*Research Center (JRC), Finland)*
- 672 **Relative Velocity Estimation in a Cluster of CubeSats by Differential GNSS**  
*Francesca Pelliccia (University of Naples Federico II); Alfredo Renga (University of Naples Federico II,*  
*Italy); Flavia Causa (University of Naples Federico II, Italy & University of Naples, Federico II, Italy); Giancarmine*  
*Fasano (University of Naples Federico II, Italy); Andrea Piccolo (Joint Research Centre European Commission,*  
*Italy); Francesco Menzione (European Commission Joint Research Center, European Union)*
- 678 **A Micro Radar-Based Low-Cost Solution for Positioning and Detection and Avoidance System**  
*Gennaro Ariante (University of Naples Parthenope, Italy); Lucie Rocquelain (ENAC, France); Salvatore*  
*Gaglione, Silvio Del Pizzo and Giuseppe Del Core (University of Naples Parthenope, Italy)*

## Poster Session 2

Room: Poster Area

- 684 **Design and Development of an Interface for Picosatellites Space Qualification**  
*Marco Peviani, Luca Dallago and Giacomo Porcarelli (University of Padova, Italy); Federico Toson (University*  
*of Padova & CISAS G. Colombo, Italy); Giacomo Colombatti (University of Padova, Italy)*
- 690 **Evaluation of the Measurement Uncertainty of the R-Test System Enabling the Measurement of the Rotary Axes Position of Five-Axis CNC Machine Tools**  
*Paweł Pieśko, Daria Sałamacha, Jerzy Józwiak, Paweł Tomiło and Marcin Barszcz (Lublin University of*  
*Technology, Poland); Dariusz Mika (The University of Applied Sciences in Chełm, Poland)*
- 695 **Methodology for Assessing Aircraft Tire Wear**  
*Jerzy Józwiak (Lublin University of Technology, Poland); Paweł Pioś (University of Applied Sciences in Chełm,*  
*Poland); Dariusz Mika (The University of Applied Sciences in Chełm, Poland); Alessandro Ruggiero (University*  
*of Salerno, Italy); Fabio Leccese ("Roma Tre" University, Italy); Kacper Tomaszewski (University College of*  
*Applied Sciences Chelm, Poland)*
- 701 **Dielectric Characterization of High-Temperature Liquids via Resonant Cavity Perturbation Technique**  
*Shuchao Liu (School of Integrated Circuits and Electronics, Beijing Institute of Technology, China); Jinkai Li*  
*(Tangshan Research Institute of BIT, China); Giovanni Gugliandolo (University of Messina, Italy); Mariangela*  
*Latino (Institute for Chemical and Physical Processes - IPCF CNR, Italy); Giovanni Crupi and Nicola Donato*  
*(University of Messina, Italy); Lili Fang and Liming Si (Beijing Institute of Technology, China); Xiue Bao*  
*(Beijing Institute of Technology, China & KU Leuven, Belgium)*
- 706 **A Straightforward Fitting Strategy Based on the Complex Lorentzian Function to Fully and Systematically Characterize the Kink Effect in the Output Reflection Coefficient of the GaN HEMT Technology**  
*Giovanni Gugliandolo and Giovanni Crupi (University of Messina, Italy); Valeria Vadalà (University of*  
*Ferrara, Italy); Rocco Giofrè (University of Roma Tor Vergata, Italy); Antonio Raffo (University of Ferrara,*  
*Italy); Nicola Donato (University of Messina, Italy)*
- 711 **Testing Relativistic Gravity with Lunar Laser Retroreflectors and PEP**  
*Roberto Campagnola (Istituto Nazionale di Fisica Nucleare-Laboratori Nazionali di Frascati (INFN-LNF),*  
*Italy)*
- 716 **Localization of Electromagnetic Emitters by Drone Swarms and Time-Difference-of-Arrival Techniques**  
*Gioele Bucchioni (University of Naples, Federico II, Italy); Flavia Causa (University of Naples Federico II,*  
*Italy & University of Naples, Federico II, Italy); Giancarmine Fasano (University of Naples Federico II, Italy);*  
*Alfonso Masciavè (Italian Air Force, Italy)*

- 722 **Preliminary Analysis of European Underwater Infrastructure Security**  
*Francesco De Angelis and Michele Fiorini (Leonardo S.p.A., Italy)*
- 728 **A Deep Learning-Based Multi-Modal Approach for Wake Detection**  
*Angela Carmen Cristofano, Andrea Mazzeo, Maria Daniela Graziano and Alfredo Renga (University of Naples Federico II, Italy); Giuliano Vernengo (University of Genova, Italy); Davide Bonaldo (CNR-ISMAR, Italy); Diego Villa and Nicola Petacco (University of Genova, Italy); Gian Marco Scarpa, Federica Braga, Paolo Vavasori and Stefano Menegon (CNR-ISMAR, Italy); Amedeo Fadini (CNR-ISMAR & IUAV University of Venice Scuola di Dottorato, Italy)*
- 734 **Vectorized Thrust Measurement for Aerospace Propulsion Nozzles**  
*Jehangir Hassan, Gaetano Maria Di Cicca, Michele Ferlauto and Roberto Marsilio (Politecnico di Torino, Italy)*
- 739 **New Figures of Conducted and Radiated Emissions of Electrical Power PCB with External Thermal Stress**  
*Jean-Marc Dienot (Laboratoire SIAME, E2S/UPPA, Labceem, University of Toulouse & Institute of Technology, France); Noan Artaud (SIAME E2S UPPA et ONERA, Université de Toulouse, France); Robert Ruscassié (Laboratoire SIAME, Université de Pau et Pays de l'Adour, France); Veronika Gavrilenko (Laboratoire Siame, Université de Pau et Pays de l'Adour)*
- 745 **Bright Shadow Detection in Cross-Polarized SAR Analysis for Moving Ships Discrimination**  
*Roberto Del Prete (European Space Agency, France); Andrea Mazzeo, Martina Sciarra, Alfredo Renga, Angela Carmen Cristofano and Maria Daniela Graziano (University of Naples Federico II, Italy)*
- 750 **Statistical Approach for the Definition of Satellite Pattern of Life**  
*Lorenzo Perugino (Università degli studi di Napoli Federico II, Italy); Giorgio Isoletta and Giancarmine Fasano (University of Naples Federico II, Italy)*
- 756 **The Role of Pan-Sharpning in Coastline Extraction from High-Resolution Satellite Images**  
*Andrea Vallario and Emanuele Alcaras (Parthenope University of Naples, Italy)*
- 762 **Shape Memory Alloy Actuator for the DORA Deployable Telescope**  
*Abdelrahman Mohamed Ragab M Ahmed and Diego Scaccabarozzi (Politecnico di Milano, Italy)*
- 768 **BART-LISA: Beam-like Application of Radiation on Test-Masses of the Laser Interferometer Space Antenna (LISA)**  
*Francesco Dimiccoli (University of Trento, Italy & INFN-TIFPA, Italy); Antonella Cavalleri (Università degli studi di Trento, Italy); Rita Dolesi (Università di Trento and Trento & TIFPA-INFN, Italy); Teodoro Klaser (Università degli studi di Trento, Italy & TIFPA - Trento Institute for Fundamental Physics and Applications, Italy); Francesco Venturelli (Università di Trento and Trento & TIFPA-INFN, Italy); William J. Weber (Università di Trento and Trento & TIFPA-INFN, Italy); Davide Dal Bosco (Università degli studi di Trento & TIFPA-INFN, Italy); Valerio Ferroni (University of Trento, Italy)*

---

## **Session 8.1 - Structural Health Monitoring and Nondestructive Testing For Aerospace - PART II**

**Room: Aula Magna**

- 774 **Rotating Eddy Current Testing: a Probe Optimization Analysis to Improve Test Performance**  
*Federico Carere (Telematic University Pegaso, Italy); Alessandro Sardellitti (Universitas Mercatorum, Italy); Silvia Sangiovanni (Sapienza University of Rome, Italy); Andrea Bernieri (University of Cassino, Italy); Marco Laracca (Sapienza University of Rome, Italy)*
- 780 **Experimental Application of a Reversible Reference Damage Model for Radar-Based SHM of Glass Fiber Reinforced Polymer Structures**  
*Manuel E. Rao (University of Siegen, Germany); Jochen Moll (Goethe University Frankfurt am Main, Germany); Peter Kraemer (University of Siegen, Germany); Viktor Krozer (Goethe University of Frankfurt am Main, Germany)*
- 785 **Modal Parameters Identification and Modeshapes Reconstruction for CFRP Panels with Operational Modal Analysis Performed with Digital Image Correlation**  
*Nicola Russo and Lorenzo Esposito (University of Naples Federico II, Italy); Ernesto Monaco (University of Napoli Federico II, Italy)*

- 791 **Syringe-Based Extruded Customized Crack Propagation Sensor Shape Tailoring and Thermography Manufacturing Defect Control**  
*Artur Kurnyta (Air Force Institute of Technology, Poland & Łukasiewicz Research Network - Institute of Aviation, Poland); Klaudia Olkowicz and Kacper Lewicki (Air Force Institute of Technology, Poland)*
- 796 **Porosity Assessment in Resin-Infused CFRP Laminates Through Ultrasound and Infrared Thermography**  
*Leandro Maio (The University of Manchester, United Kingdom)*
- 

### **Session 8.2 - General Track - PART III**

**Room: Room A**

- 800 **Temperature Measurement Accuracy of Thin-Film Heaters for Quartz Crystal Microbalances**  
*Chiara Martina and Diego Scaccabarozzi (Politecnico di Milano, Italy)*
- 806 **Preliminary Design of the InfraRed Telescope Instrument for the ESA THESEUS Mission**  
*Marco Giovanni Corti and Diego Scaccabarozzi (Politecnico di Milano, Italy); Bortolino Saggin (Università degli Studi di Padova, Italy)*
- 812 **Active Beamforming Implementation for CubeSat Antenna Arrays: Exploring Trade-Offs in IC Requirements, Power, and Performance**  
*Fatemeh Abbassi, Abdolhamid Noori and Saeid Karamzadeh (Silicon Austria Labs, Austria)*
- 817 **PLATA Martian Facility for Sand and Dust Mobilization Experiments (EMM Project)**  
*Gabriele Franzese, Giuseppe Mongelluzzo, Carmen Porto, Simone Silvestro and Francesca Esposito (INAF, Italy); Ciprian Popa (INAF - Istituto Nazionale di Astrofisica, Italy); Sofia Grusovin, Loris Todesco, Paolo Vagliasindi and Rolando Parmesani (ASSE srl, Italy); Martina Maselli (Opto Engineering, Italy); Gabriele Marzullo (ASSE srl, Italy); Giacomo Martinetti and Christian Nardella (Opto Engineering, Italy); Ugo Cortesi (IFAC-CNR, Italy); Marco Gai (IFAC Cnr, Italy); Andrea Argan (INAF, Italy); Alessandro Turchi and Immacolata Donnarumma (ASI, Italy); Fabio D'amico (INAF, Italy)*
- 823 **Resident Space Objects Detection and Tracking with a Multi-Camera Telescope**  
*Pasquale Bencivenga, Giorgio Isoletta, Roberto Opromolla and Giancarmine Fasano (University of Naples Federico II, Italy); Moreno Peroni (Flight Test Wing of the Italian Air Force, Italy)*
- 

### **Session 8.3 - Metrology in Earth observation from aerospace**

**Room: Room B**

- 828 **Neo-Pleiades Imagery for Posidonia Oceanica Mapping**  
*Valerio Baiocchi (Sapienza University of Rome, Italy); Alessandro Bosman (CNR, Italy); Flavia Cianfanelli and Chiara Magurano (Sapienza University of Rome, Italy)*
- 833 **Thermal Analysis for the Laser Microreflector Array Onboard CRISTAL Satellite (Copernicus Polar Ice and Snow Topography Altimeter)**  
*Igor Di Varano (INAF-IAPS Roma, Italy); Mattia Tibuzzi (Laboratori Nazionale di Frascati (LNF) of Istituto Nazionale di Fisica, Italy); Lorenzo Salvatori (Laboratori Nazionale di Frascati (LNF) of Istituto Nazionale di Fisica Nucleare, Italy); Simone Dell'Agnello (Laboratori Nazionale di Frascati (LNF) of Istituto Nazionale di Fisica Nucleare (INFN), Italy)*
- 838 **Drone-Based Laser Scanning for Improved Archaeological Surveys in Heavily Vegetated Zones: a Roman Coastline Case Study**  
*Luca Alessandri and Valerio Baiocchi (Sapienza University of Rome, Italy); Alberto Guarnieri (University of Padua, Italy); Anna Maria Ciardulli (Sapienza University of Rome, Italy)*
- 843 **Cloud Mask Application on Landsat 8 OLI Imagery for Performing Automatic Classification of Vegetation and Water Bodies**  
*Francesca Guastaferrero (Almaviva Digitaltec, Italy); Pasquale Maglione (Parthenope University of Naples, Italy); Claudio Parente (University of Studies of Naples Parthenope, Italy); Giuseppina Prezioso (University of Naples Parthenope, Italy); Vincenzo Verde (Parthenope University of Naples, Italy)*

- 849 **Land Surface Temperature from Landsat 9 Imagery Compared with in Situ Air Temperature Measurements**  
*Davide Morale (University of Naples Parthenope, Italy); Ugo Falchi (Parthenope University of Naples, Italy); Paola Mercogliano (Centro Euro-Mediterraneo sui Cambiamenti Climatici, Italy); Claudio Parente (University of Studies of Naples Parthenope, Italy)*
- 

***Session 8.4 - Space-Based Solutions for Global Challenges: Telemedicine, Earth Observation, and Sustainable Development in Remote Areas***

**Room: Room B**

- 855 **Design of the Sensing Elements of LD-GRIDS, a Charged Dust Analyser for Lunar Surface in the EMM Project Framework**  
*Abdelrahman Mohamed Ragab M Ahmed and Diego Scaccabarozzi (Politecnico di Milano, Italy)*