



**UTh
AEROSPACE
PHD-DAYS
2024**

INTERNATIONAL CONGRESS OF PHD
STUDENTS IN AEROSPACE SCIENCE
AND ENGINEERING



PROGRAMME
SCOPELLO, 6-9 MAY 2024



07 May 2024

8.45 - 9.00 Registration & Welcome

9.00 - 11.00 Session 1.1 - Chair:

- 1.1.1 Characterization of Fragmentation Events in Near Earth Environment exploiting Conjunction Analysis
Paola Grattagliano - Politecnico di Milano
- 1.1.2 Least-Weight Design of Tow-Steered Composites
Dario Zamani - Politecnico di Torino
- 1.1.3 A roadmap for the implementation of Augmented Reality solutions for airport control towers in an operative environment
Tommaso Fadda - Università di Bologna
- 1.1.4 Vision-based relative navigation system for autonomous proximity orbital operations
Matteo Forasassi - Università di Pisa
- 1.1.5 Simulation of post-grasping operations in closed-chain configuration using Kane's method
David Paolo Madonna - Università di Roma "La Sapienza"
- 1.1.6 Active Debris Removal employing a robotic arm equipped CubeSat
Federico Basana - Università degli Studi di Padova
- 1.1.7 Continuum Sensitivity Analysis and Improved Nelson's method for Beam Shape Eigensensitivities
Giuseppe Maurizio Gagliardi - Università di Napoli "Federico II"
- 1.1.8 Interior Penalty coupling of trimmed IGA Reissner-Mindlin patches
Giuliano Guarino - EPFL, Institute of Mathematics

11.00 - 11.30 Coffee Break

11.30 - 12.45 Session 1.2 - Chair:

- 1.2.1 CFD analysis of a hydrogen powered scramjet with multistage injection
Oreste Russo - Centro Italiano Ricerche Aerospaziali
- 1.2.2 Feedback control of a density-based space debris model to support the definition of efficient mitigation and remediation strategies
Martina Rusconi - Politecnico di Milano
- 1.2.3 Modal analysis of hyperelastic structures in non-trivial equilibrium states via higher-order plate finite elements
Piero Chiaia - Politecnico di Torino
- 1.2.4 Extended Reality-based Human Machine Interface for drone monitoring in Airport Control Tower environment
Marzia Corsi - Università di Bologna
- 1.2.5 Nonlinear dynamic modelling and performance of deployable Telescopic Tubular Mast (TTM)
Tongtong Sun - Northwestern Polytechnical University

13.00 - 14.10 Lunch Break

14.15 - 16.30 Session 1.3 - Chair:

- 1.3.1 Model Based Systems Engineering and Concurrent Engineering for Space Systems
Alessandro Mastropietro - Kongsberg NanoAvionics UAB
- 1.3.2 Cislunar orbit dynamics with an application to space situational awareness
Mathilda Bolis - Politecnico di Milano
- 1.3.3 Short and long-term reconstruction of in-orbit fragmentation events
Francesca Ottoboni - Politecnico di Milano
- 1.3.4 Influence of fiber misalignment on the thermal buckling of Variable Angle Tows laminated plates
Francesca Bracaglia - Politecnico di Torino
- 1.3.5 A short overview of hydrogen storage for sustainable aviation
Sergio Bagarello - Università degli Studi di Palermo
- 1.3.6 Deep learning-based spacecraft pose estimation for the pre-capture phase scenario
Roman Prokazov - Università di Bologna
- 1.3.7 Optimization Strategies for a 16U Cubesat Mission
Matteo Gemignani - Università di Trento
- 1.3.8 Compressibility and wall-cooling effects on high-speed turbulent boundary layers
Michele Cogo - Università degli Studi di Padova
- 1.3.9 Numerical Characterisation of Additively Manufactured Components
Giuseppe Mantegna - Università di Enna Kore

16.30-17.00 Coffee Break

- 17.05-18.05 General Lecture: My personal experience in writing a proposal for a MSCA Individual Fellowship
Riccardo Augello - Postdoctoral Fellow under the Marie Skłodowska-Curie Actions

20 Dinner



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08 May 2024

8.45 - 9.00 Registration & Welcome

9.00 - 11.15 Session 2.1 - Chair:

- 2.1.1 Fuel-optimal low-thrust CAM with eclipse constraints
Eduardo Maria Polli - Politecnico di Milano
- 2.1.2 Towards a Greener Cosmos: Tool for Integrating Life Cycle Costs and Sustainability for Future Space Systems Development
Sai Tarun Prabhu Bandemegala - Politecnico di Torino
- 2.1.3 Digital optics and machine learning algorithms for aircraft maintenance
Salvatore Merola - Università di Napoli "Federico II"
- 2.1.4 Design, Realization and Testing of a Azimuth-Stabilized Modular Stratospheric Platform
Irene Marsili - Università di Trento
- 2.1.5 Investigation of radiative needle flow dynamics with variable viscosity and thermal conductivity
Niba Kainat - Università degli Studi di Palermo
- 2.1.6 Integration of a low-cost camera system for smart agriculture aboard tethered balloons and drones
Federico Toson - Università degli Studi di Padova
- 2.1.7 In situ Space Debris inspection: from observation to 3D reconstruction
Luca Lion - Università degli Studi di Padova
- 2.1.8 Novel Approach to Damage Detection in Laminated Structures: Modal Damping as a Damage Indicator
Shabnam Kiasat Dolatabadi - Politecnico di Torino
- 2.1.9 Hybrid-triggered orbit-attitude coupled station keeping control of a spacecraft with pure thrusters
Xie Hongyi - Politecnico di Milano

11.15 - 11.45 Coffee Break

11.45 - 13.00 Session 2.2 - Chair:

- 2.2.1 Multilayer and Multifield Analysis of Origami Deployable Structures
Tommaso Sironi - Politecnico di Bari
- 2.2.2 Evolutionary Predictive Model of the Space Debris Environment
Wiebke Retagne - Politecnico di Milano
- 2.2.3 Coupled thermoelastic analysis using 1D higher-order structural theories and finite elements
Martina Santori - Politecnico di Torino
- 2.2.4 High-fidelity simulation and low-order analysis for planetary descent investigation of capsule-parachute interaction
Luca Placco - Università degli Studi di Padova
- 2.2.5 Selection of best beam theories based on natural frequencies and dynamic response obtained through mode superposition method
Pierluigi Iannotti - Politecnico di Torino

13.00 - 14.30 Lunch Break

14.30 - 15.45 Session 2.3 - Chair:

- 2.3.1 Integrated Process Chain for Crashworthiness Assessment of Innovative Aircraft Cabin Layouts
Leonardo Marconi - German Aerospace Center (DLR)
- 2.3.2 Machine Learning Techniques for Space Objects Detection in Space-Based Optical Images
Sebastian Samuele Rizzuto - Politecnico di Milano
- 2.3.3 Multi-fidelity approach for Sonic Boom estimation and annoyance
Samuele Graziani - Politecnico di Torino
- 2.3.4 Coupling VLM and DG methods for the aeroelastic analysis of composite wings
Dario Campagna - Università degli Studi di Palermo
- 2.3.5 Reading, Transmission, Storage, and Display of Near Real-Time Data Acquired by Fiber Bragg Grating Sensors Installed on an Unmanned Aerial Vehicle
Antonio Costantino Marceddu - Politecnico di Torino

15.45 - 16.45 General Lecture (online): ERC Starting Grant & MSCA-Postdoctoral Fellowships opportunities

Angelo D'Agostino - Agenzia per la Promozione della Ricerca Europea - Head of Research career and NCPs coordination Unit

16.45 - 17.15 Coffee Break

17.15 - 19.00 Free time

20 Social Dinner



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09 May 2024

9.15 - 9.30	Registration & Welcome
9.30-10.30	Session 3.1 - Chair:
1.1.1	Space-based observation modeling method with consideration of space object state uncertainty <i>Yifan Cai - Politecnico di Milano</i>
1.1.2	2D higher-order theories for progressive damage model of composite structures based on Hashin and Puck failure criteria <i>Elisa Tortorelli - Politecnico di Torino</i>
1.1.3	Wing-aileron adaptive flutter suppression system <i>Carmelo Rosario Vindigni - Università di Enna Kore</i>
1.1.4	Post mission disposal design: Dynamics and Applications <i>Xiaodong Lu - Politecnico di Milano</i>
10.30 - 11.00	Comfort Break
11.00 - 12.00	General Lecture: Telespazio T-Tech <i>Marco Brancati - Chief Technology & Innovation Officer - Telespazio</i>
12.30 -	Lunch
