



3RD
AEROSPACE
PHD-DAYS
2023

INTERNATIONAL CONGRESS OF PHD
STUDENTS IN AEROSPACE SCIENCE
AND ENGINEERING

PROGRAMME

BERTINORO, 16-19 APRIL 2023

17 April 2023

8.30 - 8.40 Registration & Welcome

8.40-10.45 Session 1.1 - Chair: Erasmo Carrera

- 1.1.1 Autonomous Navigation Methods for Spacecraft Formation Flying in Cislunar Space
Sergio Bonaccorsi - Politecnico di Milano
- 1.1.2 Relative visual navigation based on CNN in a proximity operation space mission
Antonio D'Ortona - Politecnico di Torino
- 1.1.3 Enhanced radar detection of Small Remotely Piloted Aircraft in U-Space Scenario
Fausta Mattei - Università degli Studi di Napoli Federico II
- 1.1.4 Prediction of aeroacoustics of deformable bodies with solid or porous surface through a boundary integral formulation
Beatrice De Rubeis - Università degli Studi Roma 3
- 1.1.5 Numerical Prediction of Plasma Formation on a Sphere in Hypersonic Sub-orbital Flight Regime
Salvatore Esposito - Politecnico di Torino
- 1.1.6 Digital Technologies and Human-Machine Interaction in Air Traffic Control Operations
Marzia Corsi - Università di Bologna
- 1.1.7 DNS of momentum and heat transfer inside rough pipes
Mariangela De Maio - Università di Roma La Sapienza
- 1.1.8 Exact solutions for free vibration analysis of train body by Carrera Unified Formulation (CUF) and Dynamic Stiffness Method (DSM)
Liu Xiao - Central South University
- 1.1.9 Higher order discontinuous Galerkin methods for mechanical analysis of laminated shells
Giuliano Guarino - Università degli Studi di Palermo

10.45-11.05 Coffee Break

11.05-12.00 Session 1.2 - Chair: Erasmo Carrera

- 1.2.1 Condition-Based-Maintenance for Fleet Management
Leonardo Baldo - Politecnico di Torino
- 1.2.2 Investigation of the space debris environment for a sustainable evolution of the space around the Earth
Andrea Muciaccia - Politecnico di Milano
- 1.2.3 Innovative design methodology with LTO noise prediction capabilities for future supersonic aircraft
Grazia Piccirillo - Politecnico di Torino
- 1.2.4 Vibro-acoustic analysis and design optimization to improve comfort and sustainability of future passenger aircraft
Martino Carlo Moruzzi - Università di Bologna

12.00-13.00 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

13.00-14.15 Lunch Break

14.15-15.15 General Lecture: Aerospace perspectives of Leonardo Company

Franco Ongaro - Chief Technology and Innovation Officer - Leonardo

15.15-16.00 Session 1.3 - Chair: Sara Bagassi

- 1.3.1 Sonic boom CFD near-field analysis of a Mach 5 configuration
Samuele Graziani - Politecnico di Torino
- 1.3.2 Acoustic metamaterial design for aeronautical purposes
Giuseppe Catapano - Università degli Studi di Napoli Federico II
- 1.3.3 Co-creation in Aviation Industry using Extended Reality Technologies
Sandhya Santhosh - Università di Bologna

16.00-16.20 Coffee Break

16.20-17.05 Session 1.4 - Chair: Sara Bagassi

- 1.4.1 Matlab Code for Highly Energetic Materials
Andrea Cucuzzella - Politecnico di Torino
- 1.4.2 Probing the surface of Ganymede by means of Bistatic Radar with the JUICE mission
Giancorrado Brighi - Università di Bologna
- 1.4.3 Tracking error and input aggression for point tracking tasks under boundary avoidance situations.
Qiyang Xia - Politecnico di Milano

17.05-18.05 General Lecture: Innovations in ATM

Tatjana Bolić - Chair of the SESAR 3 Joint Undertaking's Scientific Committee - University of Westminster



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18 April 2023

8.30 - 8.40 Registration & Welcome

8.40-10.45 Session 2.1 - Chair: Martino Carlo Moruzzi

- 2.1.1 Exploring the use of a technology scouting methodology to integrate innovative solutions from startups into an aerospace industry
Giovanna Carrera - Politecnico di Torino
- 2.1.2 High-fidelity modeling of supersonic parachutes for planetary descent
Luca Placco - Università degli Studi di Padova
- 2.1.3 A wavelet analysis of the noise emitted by an installed propeller
Michele Falsi - Università degli Studi Roma 3
- 2.1.4 Recent Advances in Dynamical Modeling and Attitude Control of Flexible Spacecraft
David Paolo Madonna - Università di Roma La Sapienza
- 2.1.5 Analysis of composite beams, plates, and shells using Jacobi polynomials and NDK models
Daniele Scano - Politecnico di Torino
- 2.1.6 A metamodel based on basis spline hyper-surfaces for thermal simulation of the wire arc Additive Manufacturing process
Mathilde Zani - Université de Bordeaux
- 2.1.7 Comparison of predictive techniques for spacecraft shock environment
Ada Ranieri - Politecnico di Bari
- 2.1.8 Enabling strategies for safe proximity operations to uncooperative and non-collaborative objects in Low Earth Orbit
Giacomo Borelli - Politecnico di Milano
- 2.1.9 Mechanical Properties of Additively Manufactured Lattice Structures through Numerical BCC cell characterisation
Giuseppe Mantegna - Università degli Studi di Enna Kore

10.45-11.05 Coffee Break

11.05-13.10 Session 2.2 - Chair: Marco Petrolo

- 2.2.1 Interplanetary trajectory design in high-fidelity model: application to deep-space CubeSats' cruises
Claudio Toquinho Campana - Politecnico di Milano
- 2.2.2 Micromechanical analysis for evaluation of voids effect on thermoelastic properties of composites via 1D higher-order theories
Rebecca Masia - Politecnico di Torino
- 2.2.3 Freeform offner spectrometer for space applications
Chiara Doria - Università degli Studi di Padova
- 2.2.4 A distributed nanosatellite attitude testing laboratory for joint research activities
Andrea Curatolo - Università di Bologna
- 2.2.5 Time domain aeroelastic analysis of wing structures by means of an alternative aeroelastic beam approach
Carmelo Rosario Vindigni - Università degli studi di Enna Kore
- 2.2.6 Development of accurate fluid-structure interaction models for aerospace problems
Andrea Rubino - Politecnico di Bari
- 2.2.7 A study of characteristic element length for higher-order finite elements
Jiahui Shen - Politecnico di Torino
- 2.2.8 On modelling damage in composite laminates using the Ritz method and Continuum Damage Mechanics
Dario Campagna - Università degli Studi di Palermo
- 2.2.9 State-Space Aeroelasticity of Deformable-Camber Morphing Wings through Lifting Line Theory
Riccardo Giansante - Università degli Studi Roma 3

13.10-14.20 Lunch Break

14.20-15.20 General Lecture (online): Exploration: from LEO to Moon and Mars

Maria Antonietta Perino - Director Space Economy Exploration and International Network - Thales Alenia Space

15.20-16.40 Session 2.3 - Chair: Dario Modenini

- 2.3.1 Development of a Flat-sat Software for Deep-Space Autonomous GNC Hardware-In-the-Loop Testing
Davide Perico - Politecnico di Milano
- 2.3.2 How Space Technologies can Address the Impact of Climate Change on Aeronautic and the Aviation
Marianna Valente - Politecnico di Torino
- 2.3.3 Design and Challenges of an IOD/IOV 12U Cubesat Mission
Matteo Gemignani - Università di Pisa
- 2.3.4 Design of an orbit determination computer for AI autonomous navigation
Aurel Zeqaj - Università di Bologna
- 2.3.5 Navier-Stokes simulations of vertical sloshing with time-periodic excitation
Daniele Rossi - Università di Roma La Sapienza
- 2.3.6 Storage and Visualization On-The-Ground and in Near Real-Time of the Data Measured by the Optical Sensors Connected to a Flying Test Bench
Antonio Costantino Marceddu - Politecnico di Torino

16.40-17.00 Coffee Break

17.00-18.20 Session 2.4 - Chair: Dario Modenini

- 2.4.1 HACK: a Holistic modeling Approach for Cubesat cyberattacks
Salvatore Borgia - Politecnico di Milano

 - 2.4.2 Optical fiber sensor fusion for aerospace systems lifecycle management
Alessandro Aimasso - Politecnico di Torino

 - 2.4.3 Electric Model of a Bare-Photovoltaic Tether in the Passive Mode
Angel del Pino Jiménez - Universidad Carlos III de Madrid

 - 2.4.4 An extended ordinary state-based Peridynamics model for ductile fracture analysis
Jing Zhang - Beijing University of Technology

 - 2.4.5 Study of the upstream influence of the diffuser of CICLoPE "Long Pipe" using oil film interferometry
Lorenzo Lazzarini - Università di Bologna

 - 2.4.6 Structural modeling of manufacture-induced gaps and overlaps by high-order unified finite elements
Alberto Racionero Sánchez-Majano - Politecnico di Torino
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19 April 2023

8.30 - 8.40	Registration & Welcome
8.40-10.15	Session 3.1 - Chair: Francesca De Crescenzo
3.1.1	Integrated Optical and X-ray Pulsar Methods for Deep-space Autonomous Navigation based on an Adaptive Nonlinear Filter <i>Sui Chen - Politecnico di Milano</i>
3.1.2	iDREAM: a multidisciplinary methodology and integrated toolset for flight vehicle engineering <i>Giuseppe Narducci - Politecnico di Torino</i>
3.1.3	Could a remotely operated UAV fleet improve emergency response? <i>Arrigo Avi - Politecnico di Milano</i>
3.1.4	Innovative Navigation Strategies based on Multiple Signals for Performance Improvement of Drone-based Operations <i>Verdiana Bottino - Università degli Studi di Napoli Federico II</i>
3.1.5	Accurate characterization of the noise sources affecting BepiColombo's radio tracking observables <i>David Bernacchia - Università di Bologna</i>
3.1.6	Coupled 3D peridynamics and refined 2D finite elements models embedded in a global\local approach <i>Marco Enea - Politecnico di Torino</i>
3.1.7	Peridynamic simulation of elastic wave propagation by applying the boundary conditions with the surface node method <i>Francesco Scabbia - Università degli Studi di Padova</i>
10.15-10.35	Coffee Break
10.35-12.10	Session 3.2 - Chair: Marco Petrolo
3.2.1	Possible applications of manoeuvre detection techniques for measurements correlation in cislunar space <i>Alessia De Riz - Politecnico di Milano</i>
3.2.2	Photogrammetric analysis for inspection and damage detection: preliminary assessment and future extension to large-volume structures <i>Mattia Trombini - Politecnico di Torino</i>
3.2.3	Sensitivity analysis of analytically—corrected acoustic metamaterials into the spacetime domain <i>Giada Colombo - Università degli Studi Roma 3</i>
3.2.4	Simulation of flow field characteristics in gap between high-speed rocket sled slipper and track <i>Tianjiao Dang - Politecnico di Milano</i>
3.2.5	Improving Satellite Pose Estimation Across Domain Gap with Generative Adversarial Networks <i>Alessandro Lotti - Università di Bologna</i>
3.2.6	Towards a CO2 emission standard for supersonic transport: a Mach 2 concept case study <i>Oscar Gori - Politecnico di Torino</i>
3.2.7	High-fidelity simulation of shock-wave/boundary layer interactions <i>Alessandro Ceci - Università di Roma La Sapienza</i>
12.10-12.30	Closing Ceremony: Anthea Comellini - Member of the ESA astronaut reserve
12.30-13.45	Lunch

