

# AIDAA XXVII INTERNATIONAL CONGRESS

PADOVA, 4 - 7 SEPTEMBER 2023

## Plenary Lectures overview

Date	Speaker		Hall	Location
<b>Monday, 04 September</b>	Dunay Badirkhanov	10:40 - 11:15	Aula Magna G. Galilei	Palazzo Bo
	Gianluca Iaccarino	11:15 - 11:50		
	Franco Malerba	11:50 - 12:25		
<b>Tuesday, 05 September</b>	Erasmus Carrera	10:00 - 10:30	Aula Magna Beato Pellegriano	Complesso Beato Pellegriano, Dipartimento di Studi Linguistici e Letterari
	Giorgio Guglieri	10:30 - 11:00		
<b>Wednesday, 06 September</b>	Ian Carnelli	11:50 - 12:20	Aula Magna Beato Pellegriano	Complesso Beato Pellegriano, Dipartimento di Studi Linguistici e Letterari
	Roland Gerhards	12:20 - 12:50		
<b>Thursday, 07 September</b>	Daniele Ragni	08:30 - 09:00	Aula Magna Beato Pellegriano	Complesso Beato Pellegriano, Dipartimento di Studi Linguistici e Letterari
	TBD	09:00 - 09:30		



# AIDAA XXVII INTERNATIONAL CONGRESS

PADOVA, 4 - 7 SEPTEMBER 2023

## Monday, 04 September 2023, parallel sessions, 14:30-15:50

Hall	Aula Magna Beato Pellegrino			[* indicates the presenting author]	
	Satellite and Space Systems I	Fluid-Dynamics I	Materials & Aerospace Structures I	Aeronautical Systems I	
Chair					
14:30	M. Sabatini*, G.B. Palmerini, P. Gasbarri, F. Angeletti, Facility for Validating Technologies for the Autonomous Space Rendezvous and Docking to Uncooperative Targets	Enrico Galli*, Gregorio Frassoldati, Davide Prederi, Giuseppe Quaranta, Assessment and optimization of dynamic stall semi-empirical model for pitching aerofoils	Laura Pernigoni*, Ugo Lafont, Antonio Mattia Grande, Self-healing flexible materials for large space structures	Rosario Arcuri*, Roberta Masciullo and Roberto Bertola, Neural networks for the identification of degraded components of aircraft fuel quantity system	
14:50	Antonio Gigantino*, Alfredo Renga, Maria Daniela Graziano, Considerations on baseline design for a distributed SAR configuration based on chronogram	Giacomo Baldan*, Alberto Guardone, Pattern recognition of the flow around a pitching NACA 0012 airfoil in dynamic stall conditions	Francesco Dal Corso*, Panagiotis Koutsogiannakis, Diego Misseroni, Davide Bigoni, recent results on variable-length structures: actuation and dynamic stabilization	Marco Fiorio*, Roberto Galatolo, Gianpiero Di Rito, Hardware-in-the-loop validation of a sense and avoid system leveraging data fusion between radar and optical sensors for a mini uav.	
15:10	Andrea Delfini, Roberto Pastore*, Fabio Santoni, Michele Lustrino and Mario Marchetti, Scientific Activity of Sapienza University of Rome Aerospace Systems Laboratory on the Study of Lunar Regolith Simulants, Focusing on their Effect on the Microwave Fields Propagation	Luigi Cutrone*, Antonio Schettino, Rans Transition Model Predictions on Hypersonic Three-Dimensional Forebody Configuration	Giuliano Guarino* and Alberto Milazzo, Nonlinear mechanical analysis of aerospace shell structures through the discontinuous Galerkin method	Sofia Caggese*, Marco Fioriti, Flavio Di Fede, A parametric model for thermal management system for more electric and hybrid aircraft	
15:30	G. Bianchi*, S. Mariotti, M.F. Montaruli, P. Di Lizia, M. Massari, M.A. De Luca, R. Demuru, G. Sangaletti, L. Mesiano, I. Boreanaz, The new transmitting antenna for BIRALES	Francesco Bonelli*, Davide Ninni, Gianpiero Colonna and Giuseppe Pascazio, A Finite-Volume Hybrid WENO/central-difference shock capturing approach with detailed state-to-state kinetics for high-enthalpy flows	Leonardo Barilaro, Lorenzo Olivieri, Mark Wylie, Joseph Borg, Exploring aerospace advancements and global collaborations: a comprehensive analysis of MCAST's aerospace program in Malta	Roberto Guida*, Antonio Carlo Bertolino, Andrea De Martin, Giovanni Jacazio and Massimo Sorli, Preliminary Design of an Electromechanical Actuator for eVTOL Aircrafts in an Urban Air Mobility Context	

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**Monday, 04 September 2023, parallel sessions, 16:20-17:40**  
author)

(\* indicates the presenting

Hall	Aula Magna Beato Pellegrino	3	4	5
Topic	Satellite and Space Systems II	Fluid-Dynamics II	Materials & Aerospace Structures II	Aeronautical Systems II
Chair				
16:20	M. C. NovIELLO*, N. Favalaro, Continuous empowering with laser power transmission technologies for isru moon assets: cira approach	Giulio Malinverno*, Javier Blasco Albertolion Lecumberri SanMartin, Quantum Computing CFD simulations: state of the art	Giuseppe Mantegna, Carmelo Rosario Vindigni*, Davide Tumino, Calogero Orlando, Andrea Alaimo, Comparison of lattice core topologies in sandwich structures	Aleksander Sui*, Gianpietro Di Rito, Roberto Galatolo, Luca Sani, Giuseppe Mattei, Experiments and simulations for the development of a dual-stator pmsm for lightweight fixed-wing uav propulsion
16:40	Francesca Pelliccia*, Raffaele Minichini, Maria Salvato, Salvatore Barone, Salvatore Dario dell'Aquila, Vincenzo Esposito, et al., Alfredo Renga , Preliminary design of a CubeSat in loose formation with ICEYE-X16 for plastic litter detection	Salvatore Esposito* and Domenic D'Ambrosio, Analysis of plasma formation during hypersonic flight in the earth atmosphere	Alfonso Pagani*, Alberto Racionero Sánchez-Majano, Analysis of the manufacturing signature on AFP-manufactured variable stiffness composite panels	Salvatore Bassolillo, Egidio D'Amato, Massimiliano Mattei, Immacolata Notaro*, Target Localization with a Distributed Kalman Filter over a Network of UAVs
17:00	David Paolo Madonna*, Paolo Gasbarri, Mauro Pontani, Fabrizio Gennari Luigi Scialanga Andrea Marchetti, A revisited and general kane's formulation applied to very flexible multibody spacecraft	Donizetti Alessandro*, Bellaista Tommaso, Gallia Mariachiarra, Guardone Alberto, Multi-step ice accretion on complex three-dimensional geometries	Francesco Scabbia*, Mirco Zaccariotto, Ugo Galvanetto, Surface node method for the peridynamic simulation of elastodynamic problems with Neumann boundary conditions	Guida Michele, Marulo Giovanni, Marulo Francesco*, Landing Gear Shock Absorbers Guidelines
17:20	Monica Mozzato, Samuele Enzo, Riccardo Lazzaro, Marco Minato*, Giulia Bemporad, Davide Visentin, Francesca Filippini, Alain Dalla Via, Andrea Farina, Elena Pilone, Federico Basana, Lorenzo Olivieri, Giacomo Colombatti, Alessandro Francesconi, Concept and feasibility analysis of the alba cubesat mission	Luca Placco*, Giulio Soldati, Alessio Aboudan, Francesca Ferri, Matteo Bernardini, Federico Dalla Barba and Francesco Picano, High-fidelity simulation of the interaction between the wake of a descent capsule and a supersonic parachute	Andrea Vincenzo De Nunzio*, Giada Faraco, Nicola Ivan Giannoccaro, Arcangelo Messina, Crack localization on a statically deflected beam by high-resolution photos	

# AIDAA XXVII INTERNATIONAL CONGRESS

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## Tuesday, 05 September 2023, parallel sessions, 09:40-11:00

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Hall	3			4		5
Topic	Aula Magna Beato Pellegrino	Fluid-Dynamics III	Satellite and Space Systems III	Space Flight Mechanics I		
Chair	Materials & Aerospace Structures III					
09:40	Maria Cinefra* and Andrea Rubino, Adaptive Finite Elements based on Carrera Unified Formulation for meshes with arbitrary polygons	Manuel Carreño Ruiz* and Domenic D'Ambrosio, Large Eddy Simulations and Reynolds-Averaged Navier-Stokes Simulations of Separation-Induced Transition using an Unstructured Finite Volume Solver	Chiara Bertolini, Riccardo Cipollone, Andrea De Vittori, Pierluigi Di Lizia, Mauro Massari*, Space object identification and correlation through AI-aided light curve feature extraction	A. Almonte*, I. Ziccardi, A. Adriani, A. Marchetti, M. Pontani, Low-energy earth-moon mission analysis using low-thrust optimal and feedback control		
10:00	A. Pagani, E. Zappino, R. Masia*, F. Braccaglia and E. Carrera, Thermal buckling analysis and optimization of vat structures via layer-wise models	Guagliardo Davide, Cestino Enrico, Nicolosi Gabriele, Guarino Enrica, Viridis Antonio, Alfero Andrea, Pittalis Domenico and Sabella Mattia Luigi, Impact of a wedge in water_assessment of the modeling keyword, presence of cavitation and choice of the filter most suitable for the case study	Alex Caon, Luca Lion, Lorenzo Olivieri, Francesco Branz*, Alessandro Francesconi, Development of a smart docking system for small satellites	Mark Wylie*, Leonardo Barilato, The application of modal effective mass for pcb friction lock compliance against spacecraft launch random vibration spectrum.		
10:20	E. Zappino*, M. Petrolo, R. Masia, M. Santori and N. Zobeiry, An analytical tool for studying the impact of process parameters on the mechanical response of composites	Vincenzo Gulizzi*, Thermal fluid-structure interaction by discontinuous Galerkin methods	Alex Caon*, Martina Imperatrice, Mattia Peruffo, Francesco Branz, Alessandro Francesconi, AUTOMA project: technologies for autonomous in orbit assembly operations	Direnc Atmaca* and Mauro Pontani, Near-optimal feedback guidance for low-thrust earth orbit transfers		
10:40	L.M. Cardone*, S. De Rosa, G. Petrone, G. Catapano, A. Squillace, L. Landolfi, A. L. H. S. Deiry, Acoustic characteristics evaluation of an innovative metamaterial obtained through 3D printing technique	Vincenzo Barbato*, Matteo Fiore, Francesco Nasuti, Conjugate Heat Transfer applied to Transitory Analysis for Rocket Engine Cooling Systems Design	Chilin Laura*, Bedendo Martina, Banzi Davide, Casara Riccardo, Costa Giovanni, Dolejsi Elisabetta, Quitadamo Vincenzo, Trabacchin Nicolò, et al., Francesconi Alessandro, Feasibility analysis of a cubesat mission for space rider observation and docking	Fabio Celani, Reduced-Attitude Stabilization for Spacecraft Bore-sight Pointing Using Magnetorquers		

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**Tuesday, 05 September 2023, parallel sessions, 11:30-13:10**

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Hall	Aula Magna Beato Pellegrino			5	
Topic	Materials & Aerospace Structures IV		Satellite and Space Systems IV		Space Flight Mechanics I
Chair	Fluid-Dynamics IV				
11:30	Christian Bianchi*, Pietro Aceti, Giuseppe Sala, Hygrothermal effects in aeronautical composite materials subjected to Freeze-Thaw cycling	D'Aniello Francesco*, Antonio Catalano Pietro Favoloro Nunzia, Assessment of Aerodynamics of Low Martian Atmosphere within the CIRA program TEDS	Tobia Armando La Marca*, Giorgio Isoletta, Michele Grassi, Analysis of Small Spacecraft Mars Aerocapture Through a Single-Event Drag Modulation	Eduardo Maria Leonardi*, Mauro Pontani, Trajectory optimization and multiple-sliding-surface Terminal guidance in the lifting atmospheric reentry	
11:50	Davide Airolidi*, Pietro Aceti, Giuseppe Sala, Polymer matrices for composite materials: monitoring of manufacturing process, mechanical properties and ageing using fiber-optic sensors	Antonio Esposito*, A combustion-driven facility to study phenomenologies related to hypersonic sustained flight	Luca Capocchiano*, Michele Maestrini, Mauro Massari, Pierluigi Di Lizia, Onboard autonomous conjunction analysis with optical sensor	Silvano Sgubini*, Giovanni B. Palmerini, Analytic Formulation for J2 Perturbed Orbits	
12:10	Alessandro De Gaspari*, Vittorio Cavalieri and Nicola Fonzi, An Energy-Based Design Approach in the Aero-Structural Optimization of a Morphing Aileron	Giulio Soldati*, Alessandro Ceci, Sergio Pirozoli, Development of a DNS solver for compressible flows in generalized curvilinear coordinates	Stefano Munguerra, Raffaele Savino*, Paolo Vermillo, Luca Ferracina, et al., Marta Albano, Mini-IRENE, a Successful Re-Entry Flight of a Deployable Heatshield Capsule	Riccardo Cipollone, Pierluigi Di Lizia*, Low-thrust Maneuver Anomaly Detection of a Cooperative Asset using Publicly Available Orbital Data	
12:30	Dario Campagna Vincenzo Gulizzi Alberto Milazzo Ivano Benedetti*, A Boundary Element Method for Thermo-elastic Homogenization of Polycrystals	Francesca Rossetti*, Marco Pizzarelli, Rocco Pellegrini, Enrico Cavallini, and Matteo Bernardini, Numerical Tank Self-Pressurization Analyses in Reduced Gravity Conditions	Anese Giovanni*, Colombatti Giacomo, Brunello Alice, et al., Lorenzini Enrico C... Electro-thermal dynamic simulations and results of a deorbiting tethered system	Juan Luis Gonzalo*, Camilla Colombo, Pierluigi Di Lizia, Andrea De Vittori, et al. Diego Escobar Antón, Efficient Models for Low Thrust Collision Avoidance in Space	
12:50	Davide Bigoni*, Francesco Dal Corso, Andrea Piccolroaz, Diego Misseroni, Giovanni Nosell, Flutter Instability in Elastic Structures	Giuseppe Pezzella, Antonio Viviani*, Aerodynamic Analysis of a High-Speed Aircraft from Hypersonic down to Subsonic Speeds	Simone Galleani, Thomas Berthod, Alex Caon, Luca Lion*, Federico Basana, et al., Alessandro Francesconi, Mechanical and Pneumatic Design and Testing of a Floating Module for Zero-gravity Motion Simulation		

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## Tuesday, 05 September 2023, parallel sessions, 14:25-15:45

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Hall	Aula Magna Beato Pellegrino	3	4	5
Topic	Materials & Aerospace Structures V	Space Propulsion I	Satellite and Space Systems V	Space Flight Mechanics II
<b>Chair</b>				
14:25	Chiara Bisagni*, Can We Use Buckling to Design Adaptive Composite Wings?	F. Barato*, A. Ruffin, M. Santì, M. Fagherazzi, N. Bellomo, D. Pavarin, Update on green chemical propulsion activities and achievements by the university of padua and its spin-off T4i	Casini Chiara, P. Chioetto, Comisso A., Corso, F. Frassetto, P. Zuppella, V. Da Deppo, Simulations for in-flight stellar calibration aimed at monitoring space instruments optical performance	Marco Lombardo*, Luis Gomez Casajus, Marco Zannoni, Igor Gai, Edoardo Gramigna, Paolo Tortora, Elisabetta Dalto, Marilena Amoroso, Simone Pirrotta, Valerio Di Tana, Biagio Cotugno, Silvio Patruño, Francesco Cavallo, and the LICIACube Team, An overview of the ArgoMoon and LICIAcube flight dynamics operations
14:45	D. Misseroni*, P.P. Pratapa, K. Liu, G.H. Paulino, Reprogrammable Frustration and Tunable mechanical properties in Origami Metamaterials	Angelo Romano*, Daniele Ricci, Francesco Battista, 1Dnumerical simulations aimed to reproduce the operative conditions of a lox/lch4 engine demonstrator.	Andrea Troise*, Paolo Celli, Maria Cinefra, Vittorio Netti, Alessandro Buscicchio, Reduced-order modelling of the deployment of a modified flasher origami for aerospace applications	Franco Bernelli-Zazera, Camilla Colombo, Mattia Recchia*, Re-entry predictions of space objects and impact on air traffic
15:05	Riccardo Augello*, Erasmo Carrera, Alfonso Pagani and Sergio Pellegrino, Folding simulation of TRAC longérons via unified one-dimensional finite elements	Antonio Sannino*, Stefano Munguerra, Sergio Cassese, Raffaele Savino, Alberto Fedele, Silvia Natalucci, Fast Reconfiguration Maneuvers of a Micro-Satellite Constellation based on a Hybrid Rocket Engine	Giulio Polato, Andrea Valmorbidia, Alice Brunello, Giovanni Anese, Sebastiano Chiodini, Giacomo Colombatti, Enrico C. Lorenzini, Deployment profile analysis for tethered deorbiting technologies	Zeno Pavanello*, Laura Pirovano, Andrea de Vittori Pierluigi di Lizia Roberto Armellini, Collision Avoidance in Low-Thrust Orbit Raising Scenario
15:25	Guagliardo Davide*, Cestino Enrico and Nicolosi Gabriele, Numerical-analytical evaluation about the impact in water of an elastic wedge using the SPH method		G. Colombatti*, A. Aboudan, M. Bartolomei, S. Chiodini, A. Dattolo, G. Noci, F. Sarti, T. Bilotta, A. Colosimo, The Janus COM mechanism onboard the Juice probe to the Jovian System	

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## Tuesday, 05 September 2023, parallel sessions, 16:15-17:35

(\* indicates the presenting author)

Hall	Aula Magna Beato Pellegrino			5	
Topic	Materials & Aerospace Structures VI		Satellite and Space Systems VI		Aircraft Design and Aeronautical Flight Mechanics I
Chair	Space Propulsion II				
16:15	Federica Angeletti*, Paolo Gasbarri, Marco Sabatini. <i>Data-driven deep neural network for structural damage detection in composite solar arrays on flexible spacecraft</i>	Stefano Munguerra*, Daniele Cardillo, Giuseppe Gallo, Raffaele Savino, Francesco Battista. <i>Tests and Simulations on 200N Paraffin-Oxygen Hybrid Rocket Engines with different Fuel Grain Lengths</i>	Ignazio Ciuffolini, Antonio Paolozzi, Emiliano Ortole, Claudio Paris*, Erricos C. Pavlis, John C. Ries and Richard Matzner. <i>Comparison of LARES 1 and LARES 2 Missions - One Year After the Launch</i>	Sergio De Rosa*, Marco Cinque, Giuseppe Petrone and Leonardo Lecce. <i>Cruising by air and sea: brief history, status and outlook for a submersible aircraft</i>	
16:35	Angela Russo*, Andrea Sellitto, Concetta Palumbo, Rossana Castaldo and Aniello Riccio. <i>A numerical parametric study on delamination influence on the fatigue behaviour of stiffened composite components</i>	Alessandro Finazzi*, Filippo Maggi, Tobias Lips. <i>Thermite-for-Demise (T4D): Thermite Characteristics Heuristic Optimization on Object- and Spacecraft-Oriented Re-entry Models</i>	Loïc James Azzalini* and Dario Izzo. <i>Tracking Particles Ejected from Active Asteroid Bennu with Event-Based Vision</i>	E. Riccio*, P. Scavella, L. Lecce, G. Petrone, F. Franco, S. De Rosa. <i>Feasibility study of a full electric seaplane</i>	
16:55	Antonio Garofano*, Andrea Sellitto, and Aniello Riccio. <i>On the Use of Double-Double Design Philosophy in the Redesign of Composite Fuselage Barrel Components</i>	Emanuele Resta*, Gaetano Maria Di Cicca, Michele Ferlauto and Roberto Marsilio. <i>Numerical and experimental assessment of a linear aerospike</i>	Amy Thomas, Jai Grover, Dario Izzo and Dominik Dold*. <i>Totimorphic Structures for Space Application</i>	Richiardi Giacomo*, Gori Oscar, Graziani Samuele, Viola Nicole. <i>Low-Boom Supersonic Business Jet: Aerodynamic Analysis and Mission Simulation towards a CO2 Emission Standard</i>	
17:15	Giuliano Guarino*, Pablo Antolin, Alberto Milazzo and Annalisa Buffa. <i>Immersed Boundary-Conformal Coupling of Cylindrical IGA Patches</i>		Stefano Lopresti, Lorenzo Olivieri*, Cinzia Giacomuzzo, Alessandro Francesconi. <i>Overview of spacecraft fragmentation testing</i>	Giulio Avanzini*, Giovanni Curtazio, Lorenzo Vampo. <i>A tool for risk assessment after a catastrophic event during suborbital flight operations</i>	



# AIDAA XXVII INTERNATIONAL CONGRESS

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## Wednesday, 06 September 2023, parallel sessions, 8: 30-10: 10

(\* indicates the presenting author)

Hall	Aula Magna Beato Pellegrino	3	4	5
Topic	Aeronautical Propulsion I	XR and Human Factors for future air mobility I	Satellite and Space Systems VII	Vibroacoustics I
<b>Chair</b>				
8:30	Ainslie D. French*, Giuseppe Mingione, Antonio Scheffino, Luigi Cutrone, Pietro Roncioni. <i>Studies in Hydrogen Micromix Combustion Technologies for Aircraft Applications</i>	Giuseppe Iacolino*, Antonio Esposito, Calogero Orlando, Andrea Alaimo, A Brief Review of Pilots' Workload Assessment using Flight Simulators: Subjective and Objective Metrics	Giuseppe Guidotti, Giuseppe Governale*, Nicole Viola, Ingrid Dietlein, , et al., Giada Dammacco. <i>Pushing the limits of re-entry technology: an overview of the Efesto-2 project and the advancements in inflatable heat shields</i>	Giulia Mazzeo*, Mohamed Ichchou, Giuseppe Peitrono, et al., Sergio De Rosa, <i>Experimental application of pseudo-equivalent deterministic excitation method for the reproduction of a structural response to a turbulent boundary layer excitation</i>
8:50	Sergio Bagarello* and Ivano Benedetti, <i>Electric Conversion of a General Aviation Aircraft A case study</i>	Jürgen Teutsch*, <i>Innovative Ideas for the Use of Augmented Reality Devices in Aerodrome Control Towers</i>	Federico Toson*, Alessio Aboudan, Carlo Bettanini, Giacomo Colombatti, Irene Terlizi, Sebastiano Chiodini, Lorenzo Olivieri, <i>The ATEMO device: a compact solution for earth monitoring</i>	Paolo Gardonio*, Sofia Baldini, Emiliano Rustighi, Ciro Malacarne, Matteo Perini, <i>In-Vacuo Structured Fabrics For Vibration Control</i>
9:10	Francesco Piccionello*, Grazia Piccirillo, Nicole Viola. <i>Performance Assessment of Low-By-Pass Turbofan Engines for Low-Boom Civil Supersonic Aircraft</i>	Tommaso Fadda*, Sara Bagassi, Marzia Corsi, <i>ADS-B Driven Implementation of an Augmented Reality Airport Control Tower Platform</i>	M. Cardì*, M. Pavoni, D. Calvi, F. Perez, P. Martino, I. Carnelli, <i>The Hera Milani Mission</i>	G. Catapano*, G. Peitrono, O. Robin, J.-C. Gauthier-Marquis, S. De Rosa, <i>Labyrinthin Quarter-Wavelength Tubes Array for the Reduction of Machinery Noise</i>
9:30	Valeria Boria*, Guido Saccone, et al., Nicole Viola. <i>Conceptual design emissions evaluation for the STRATOFly MR3 vehicle</i>	Sara Bagassi, Marzia Corsi*, et al., Sandhya Santhosh, <i>Maturity-based taxonomy of eXtended Reality technologies in aircraft lifecycle</i>	Lorenzo Olivieri*, Cinzia Giacomuzzo, Stefano Lopresti, Alessandro Francesconi, <i>Simulation of in-space fragmentation events</i>	Ada Raniieri*, Simone De Carolis, et al., Leonardo Soria, <i>Comparative study of shock response synthesis techniques for aerospace applications</i>
9:50	Andrea Battiston*, Andrea Magrini, et al, James Alderman, <i>Numerical and experimental studies on BLI propulsor architectures</i>	Jessica Herzig*, Fabian Reimer, et al., B. Nagel, <i>Applying an Interior VR Co-Design Approach for the Medical Deployment Vehicle of the Future</i>		Mattia Rossi, Martino C. Moruzzi*, et al. <i>Maria Cinefra, Vibro-acoustic analysis of additively manufactured acoustic metamaterial via CUF Adaptive finite elements</i>

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## Wednesday, 06 September 2023, parallel sessions, 10:40-11:40

(\* indicates the presenting author)

Hall	3	4	5
<b>Topic</b>	<b>Air Traffic Control, Aircraft Operations and Navigation I</b>	<b>Aeroacoustics I</b>	<b>Space Propulsion III</b>
<b>Chair</b>	<b>Aula Magna Beato Pellegrino</b>		
10:40	<b>Materials &amp; Aerospace Structures VII</b> M. Lo Cascio*, I. Benedetti, A. Milazzo, Virtual element method for damage modelling of two-dimensional metallic lattice materials	Francesco P. Adamo*, Mattia Barbarino, Antonio Visingardi, Adolfo Sollazzo, Luciano De Vivo, Aeroacoustic Assessment of Blended Wing Body configuration with Low Noise Technologies	Nabil Souhair*, Numerical Suite for the Design, Simulation and Optimization of Cathode-less Plasma Thrusters
11:00	Marianna Orrico*, Mariamelia Stanzione, Brigida Silvestri, Bruno de Gennaro, Fabiana Tescione, Effects of different surface treatments of aluminium alloy aa2024-t3 on the adhesion and corrosion properties of aerospace coatings	Giuseppe Dillillo*, Paul B. Murray, Nicola Gravagnone, Massimiliano Di Giulio, Leonardo I4N research program – Design of novel acoustic liners for aero engine nacelles	Raoul Andriulli*, Nabil Souhair, Luca Fadigati, Mattia Magnani, Fabrizio Ponti, Particle Migration Modeling in Solid Propellants
11:20	Gennaro Di Mauro, Michele Guida*, Fabrizio Ricci, Leandro Maio, Dynamic Buckling Structural Test of A CFRP Passenger Floor Stanchion	Beatrice De Rubeis*, Massimo Gennaretti, Giovanni Bernarini, Caterina Poggi, Boundary integral formulations for predicting aeroacoustics of deformable bodies with solid or porous surfaces	Marco Daniel Gagliardi, Luca Fadigati, Nabil Souhair, Fabrizio Ponti*, Validation of a Numerical Strategy to Simulate the Expansion Around a Plug Nozzle

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## Wednesday, 06 September 2023, parallel sessions, 14:05-15:45

(\* indicates the presenting author)

Hall	Aula Magna Beato Pellegrino		5	
Topic	Materials & Aerospace Structures VIII	Aircraft Design and Aeronautical Flight Mechanics II	Aeroelasticity I	MOST project I
<b>Chair</b>				
14:05	Ernesto Monaco*, Fabrizio Ricci, Deep learning algorithms for delaminations identification on composites panels by wave propagation signals analysis	Antonio Carozza*, Giuseppe Mingione, Pier Luigi Vitagliano, Effects of different drag laws on ice crystals impingement on probes mounted on a fuselage	E. Riccio*, E. Ciappi, G. Petrone, F. Franco, S. De Rosa, Review of semi-empirical wall pressure spectral modelling for non-zero pressure gradient flows	Francesca De Crescenzo, Sandhya Santhosh, Millene Gomes Araujo*, Marzia Corsi, Sara Bagassi, et al., Joyce Adriano Losi, Insights on state of the art and perspectives of XR for human machine interfaces in advanced air mobility and urban air mobility.
14:25	Mirco Zaccarotto*, Atefeh Pirzadeh, Federico Dalla Barba, et al., Ugo Galvanetto, A Peridynamics elastoplastic model with isotropic and kinematic hardening for static problems	Fernando Montano*, Vincenzo Gulizzi, Ivano Benedetti, Morphing technology for gust alleviation an UAS application	Carmen Talamo*, Andrea Zanoni, Davide Marchesoli, Pierangelo Masarati, On the influence of airframe flexibility on rotorcraft pilot couplings	Salvatore Corcione, Vincenzo Cusati* and Fabrizio Nicolosi, Aerodynamic Design of Advanced Rear End for Large Passenger Aircraft
14:45	Filippo Carnier*, Alberto Riccardo, Donati, Elena Villa, Daniela Rigamonti, Paolo Bettini, Deployment of a CubeSat radiative surface through an autonomous torsional SMA actuator	Lorenzo Trainelli*, Carlo E. D. Riboldi, Luca Caccetta and Gabriele Sirtori, A Preliminary Sizing Methodology for Hydrogen-Burning Jetliners	Gianni Cassoni*, Alessandro Cocco, Aykut Tamer, Andrea Zanoni, Pierangelo Masarati, Tiltrotor Whirl-Flutter Stability Analysis Using the Maximum Lyapunov Characteristic Exponent Estimated from Time Series	Luca Pusina*, Matteo Blandino, Pietro Paolo Ciottoli and Franco Mastrodidi, Towards Multidisciplinary Design Optimization of Next-Generation Green Aircrafts
15:05	Alessandro Taraborrelli*, Alessandro Gurioli, Paride De Fidelibus, Emanuele Casciaro, Maurizio Boffadossi, Paolo Bettini, Development of an FBG-based hinge moment measuring system for wind tunnel testing	Filippo Trevisi*, Alessandro Croce, Carlo Riboldi, Multidisciplinary design, analysis and optimization of fixed-wing airborne wind energy systems	Riccardo Giansante*, Giovanni Bernardini, Massimo Gennaretti, State-space Aeroelasticity of Deformable-camber Morphing Wings through Lifting Line Theory	Matteo Filippi, Elisa Tortorelli, Marco Petrolò and Erasmo Carrera*, Refined structural theories for dynamic and fatigue analyses of structure subjected to random excitations
15:25	Salvatore Mallardo*, Gennaro di Mauro, et al., Rosa Turco, Multifunctional Composites as Solid-Polymer-Electrolytes (SPE) for Lithium Ion Battery (LIB)		Luca Marchetti*, Stephan Adden, Michael Meheut, and Sergio Ricci, Wind Tunnel Flutter Tests of a Strut-Braced High Aspect Ratio Wing	Claudia Conte and Domenico Accardo*, Improvements in On-board Systems Design for Advanced Sustainable Air Mobility

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## Wednesday, 06 September 2023, parallel sessions, 16:15-17:15

(\* indicates the presenting author)

Hall	Aula Magna Beato Pellegrino		3		4		5	
Topic	Materials & Aerospace Structures IX		General session I		Aeroacoustics II		MOST project II	
<b>Chair</b>								
16:15	Luisa Boni, Daniele Fanterla*, Tommaso Lucchesi, Buckling and Post-Buckling Response of Curved, Composite, Stiffened Panels Under Combined Loads Including Pressurization	Lorenzo Dozio*, Leonardo Peri, Michelino Pagano, Pietro Nali, Virtual Testing Application to ESA Micro Vibrations Measurement System	Luca Abergo*, Alberto Guardone, Aeroacoustics computation based on harmonic balance solution	Nicolò Avogadro*, Renato Redondi, Cost analysis of short-haul conventional and all-electric aircraft on regional routes in Europe				
16:35	A. Airoidi*, M. Riva, E. Novembre, A.M. Caporale, G. Sala, M. De Stefano Fumo, and L. Cavalli, A meso-scale model of progressive damage and failure in LSI-produced ceramic matrix composites for aerospace applications	Matteo Filippi*, Rodolfo Azzara and Erasmo Carrera, Nonlinear transient analyses of composite and sandwich structures via high-fidelity beam models	Michele Falsi*, Ismaeel Zaman, Matteo Mancinelli, Stefano Meloni, Roberto Camussi, Bin Zang, Mahdi Azarpeyvand, Experimental investigation of the noise emitted by two different propellers ingesting a planar boundary layer	L. M. Cardone*, S. De Rosa, G. Petrone, F. Franco, C. S. Greco, Recent Developments about Hybrid Propelled Aircraft: a Short Review				
16:55	Gennaro Di Mauro, Michele Guida, Gerardo Olivares, Luis Manuel Gomez, Structural Batteries Challenges for Emerging Technologies in Aviation	Leonardo Barilaro*, Jason Gaucci, Marlon Galea, Andrea Filippozzi, David Vella, Robert Camilleri, BEA: Overview of a multi-unmanned vehicle system for diver assistance	Riccardo Colombo*, Lorenzo Maria Pii, Gianluca Romani, Maurizio Boffadossi, Predicting noise spectrum of a small drone rotor in a confined environment: a lattice boltzmann VLES analysis					

# AIDAA XXVII INTERNATIONAL CONGRESS

PADOVA, 4 - 7 SEPTEMBER 2023

## Thursday, 07 September 2023, parallel sessions, 09:40-11:00

Hall	(* indicates the presenting author)			
Topic	3	4	5	
Chair	Special Session in Memory of Professor Debei I			
09:40	<p><b>Aula Magna Beato Pellegrino</b></p> <p><b>Aeroelasticity II</b></p> <p>Sergio Ricci*, Ten years of aero-servo-elastic tests at large Polimi's wind tunnel for active flutter control and loads alleviation</p>	<p><b>Artificial Intelligence Application I</b></p> <p>Marco Petrolo*, Pierluigi Iannotti, Mattia Trombini, Mattia Melis, Refinement of Structural Theories for Composite Shells through Convolutional Neural Networks</p>	<p><b>General session II</b></p> <p>Marta Albano*, Rocco Carmine Pellegrini, Roberto Bertacin, Simone Ciabuschi, Simone Illiano, Rocco Maria Grillo, Enrico Cavallini, Italian Space Agency space transportation activities and programs</p>	<p>G.Cremonese*, C.Re, the SIMBIO-SYS team, SIMBIO-SYS, the remote sensing instruments on board the bepicolombo mission</p>
10:00	<p>Francesco Toffol*, Sergio Ricci, Aeroelastic Design and Optimization of Strut-Braced High Aspect Ratio Wings</p>	<p>Alessandro Casaburo*, Cyril Zwick, Pascal Fossat, Mohsen Arabilian, Olivier Baille, Franck Sossou, Decision Trees-based Methods for the Identification of Damages in Strongly Damped Plates for Aerospace Applications</p>	<p>G. Saccone*, N. Favalaro, Dust mitigation technology for lunar exploration and colonization: existing and future perspectives</p>	<p>Giampiero Naletto*, The Wide Angle Camera of Rosetta</p>
10:20	<p>Nicola Fonzi*, Sergio Ricci, Eli Livne, New insights on limit cycle oscillations due to control surface freeplay</p>	<p>Gennaro Scarselli*, Flavio Dipietrangelo, Francesco Nicassio, SHM implementation on a RPV airplane model based on machine learning for impact detection</p>	<p>Bettanini C. , Bartolomei M. , Aboudan A* , and Olivieri L., Ascent trajectory of sounding balloons: dynamical models and mission data reconstruction</p>	<p>Marrocchi L. *, Marchetti M., Costa F. and S.Debei , Development of a modular central electronic unit (CEU) for data handling and management in martian atmosphere investigations</p>
10:40	<p>M. Pizzoli, F. Saltari, L. Pustina, G. Mariani, G. Coppotelli, F. Mastrodidi*, Slashing effects on free-body commercial aircraft aeroelastic loads</p>	<p>I. Terlizzi*, F. Morbidini, C. Maucieri, C. Bettanini, G. Colombatti, S. Chiodini, F. Toson, M. Borin, Remote Sensing Validation with In-Situ Measurements for Efficient Crop Irrigation Management</p>	<p>Bettanini C. *, Bartolomei M. , Chiodini S. , Tasinato L. , Ramous P. , Dona' F. and Debei S., Solar simulator facility for the verification of space hardware performance</p>	

# AIDAA XXVII INTERNATIONAL CONGRESS

PADOVA, 4 - 7 SEPTEMBER 2023

## Thursday, 07 September 2023, parallel sessions, 11:30-12:50

Hall	3	4	5
Topic	Aula Magna Beato Pellegrino Meeting	General session III	Special Session in Memory of Professor Debei II
Chair			
11:30	Meeting with stakeholders	Castrese Di Marino, Valeria Vercella*, Rocco Gentile, Giacomo Nasi, Stefano Centomo, Requirements Definition in Support of Digital Twin Platform Development	Matteo Massironi*, Francesco Sauro , Samuel J. Payler, Riccardo Pozzobon , Harald Hiesinger, Nicolas Mangold, Charles S. Cockell , Jesus Martínez Frias, Káre Kullerud, Leonardo Turchi, Igor Drozdovskiy, Loredana Bessone, The ESA pangaea programme: training astronauts in field science
11:50		Fabio Frassetto*, Lorenzo Cocola, Paola Zuppella, Vania Da Deppo, Riccardo Claudi and Luca Paletto, A static, refractive and monolithic fourier spectrometer for an hemera balloon flight	Sebastiano Chiodini*, Giovanni Trevisanuto, Carlo Bettanini, Giacomo Colombatti and Marco Perille, Trajectory Reconstruction by Means of an Event-Camera-Based Visual Odometry Method and Machine Learned Features
12:10		G. Catapanè*, L.M. Cardone, G. Petrone, O. Robin, F. Franco, Coupling Effect of Acoustic Resonators for Low-Frequency Sound Suppression	
12:30		Arrigo Avi*, Giuseppe Quaranta and Riccardo Parin, New UAV ice tunnel characterization	

(\* indicates the presenting author)