

Sunday

Sunday, 11 June 2023

AIAA-1 1830 - 1930 hrs	Student Welcome Mixer	Marriott Marquis Hotel
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Mingle with your peers and hear from AIAA leadership. This is a student-only event.

Location: South Poolside – at the Marriott Marquis

*Please note this event is being held at a different location than forum hotel.

Monday

Monday, 12 June 2023

SP-1 0730 - 0800 hrs	Technical Papers Session Prep	Session Rooms
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Authors who are presenting papers will meet with session chairs and co-chairs in their session rooms for a short 30-minute prep on the day of their sessions to exchange bios and review final details prior to the session. Please attend on the day of your session(s).

Monday, 12 June 2023

PLNRY-1 0800 - 0900 hrs	Opening Keynote: Revolutionary Leaps Toward a New Age of Aviation	Grand Hall A-C
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The first Age of Aviation proved that human flight was possible and developed aviation into a safe and viable transportation industry. The second Age of Aviation started with the development of the jet engine, which enabled higher speeds, improved safety, and paved the way for air travel accessibility for all. The next Age of Aviation will leverage power and propulsion technologies in conjunction with specialized materials and modern avionics and software to enable unique mission-specific aircraft and elevate human connectivity while reducing environmental footprint.

Dr. Will Roper, Founder & CEO, Istari

Monday, 12 June 2023

NW-1 0900 - 0930 hrs	Networking Break	Foyers
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Coffee breaks allow even more time for making new contacts, continuing discussions from sessions, visiting the Exposition Hall, or checking emails and voicemails to keep in touch with the office while you are at the forum.

Monday, 12 June 2023

AA-1/TF-2	Advanced Air Mobility Noise I (joint AA/TF) - Modeling	Cortez Hill A
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Chaired by: S. KRISHNAMURTHY, NASA Langley Research Center and D. CASALINO, Dassault Systèmes Deutschland GmbH

0930 hrs AIAA-2023-3221 Multi-Fidelity Numerical Approach to Aeroacoustics of Tandem Propellers in eVTOL Airplane Mode F. Caccia, L. Abergó, A. Savino, M. Morelli, Politecnico di Milano, Milano, Italy; B.	0950 hrs AIAA-2023-3222 A Moving Source Model for Rotor Broadband Noise C. Tinney, J. Valdez, Y. Zhao, The University of Texas at Austin, Austin, TX	1010 hrs AIAA-2023-3223 Noise Characterisation of Multi-Propeller in Hovering and Transitional Configurations Under Static Condition M. Bhardwaj, P. Woodhead, M. Scholz, T. Chong, Brunel University London College of			
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Zhou, University of Bristol, Bristol, United Kingdom; G. Gori, Politecnico di Milano, Milano, Italy; et al.		Engineering Design and Physical Sciences, London, United Kingdom			
Monday, 12 June 2023					
AA-2	Airframe / High-Lift Noise I				Cortez Hill B
Chaired by: N. MOLIN, Airbus and P. SIJTSMA, PSA3					
0930 hrs AIAA-2023-3200 Experimental investigation of tonal and broadband trailing-edge noise for the flow around a NACA0012 profile with rounded trailing edge S. Demange, S. Jekosch, B. Church, E. Sarraj, K. Oberleithner, Technische Universität Berlin, Berlin, Germany; A. Cavalieri, Instituto Tecnológico de Aeronautica, São Jose dos Campos, Brazil	0950 hrs AIAA-2023-3201 Aeroacoustic Characterization of the 30P30N High-Lift Airfoil M. Okoronkwo, R. Alsaif, N. Farvolden, D. Geneau, H. Ben-Gida, P. Lavoie, University of Toronto Institute for Aerospace Studies, Toronto, Canada; et al.	1010 hrs AIAA-2023-3202 Numerical simulations of aerofoil tonal noise reduction by roughness elements Z. Yuan, Kungliga Tekniska Hogskolan, Stockholm, Sweden; R. Alva Navarro, T. Araujo, A. Cavalieri, Instituto Tecnológico de Aeronautica, São Jose dos Campos, Brazil; A. Hanifi, Kungliga Tekniska Hogskolan, Stockholm, Sweden	1030 hrs AIAA-2023-3203 Modified TNO-Blake model for aerofoil surface pressure prediction with canopies S. Palani, C. Paruchuri, P. Joseph, University of Southampton Institute of Sound and Vibration Research, Southampton, United Kingdom; S. Karabasov, A. Markesteijn, H. Abid, Queen Mary University of London, London, United Kingdom; et al.	1050 hrs AIAA-2023-3204 Pressure shielding mechanism of canopies for trailing edge noise reduction in aerofoils S. Palani, C. Paruchuri, P. Joseph, University of Southampton Institute of Sound and Vibration Research, Southampton, United Kingdom; T. Chong, Brunel University London, London, United Kingdom; S. Karabasov, A. Markesteijn, Queen Mary University of London, London, United Kingdom; et al.	
Monday, 12 June 2023					
AA-3	Computational Aeroacoustics I				Cortez Hill C
Chaired by: A. WILSON, University of Southampton and M. TERRACOL, ONERA					
0930 hrs AIAA-2023-3205 Detailed noise analysis of automotive engine cooling modules using the Lattice-Boltzmann Method S. Tebib, A. Jayasimha, S. Moreau, Université de Sherbrooke, Sherbrooke, Canada; B. Demory, M. Henner, Valeo SE, Paris, France; A. Mann, Dassault Systemes Simulia Corp, Santa Clara, CA; et al.	0950 hrs AIAA-2023-3206 A weakly-coupled simulation for HVAC duct aeroacoustics including propagation into the cabin K. Kucukcoskun, Siemens Digital Industries Software, Leuven, Belgium; L. Erbig, Siemens Digital Industries Software, Frankfurt, Germany	1010 hrs AIAA-2023-4052 Flow-field and Noise Characterization of a Controlled-Diffusion Airfoil under stall S. Kalyani, P. Jaiswal, J. Rendon, S. Moreau, Université de Sherbrooke Faculte de Genie, Sherbrooke, Canada; D. Ragni, Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek, Delft, The Netherlands			
Monday, 12 June 2023					
AA-4	Duct Acoustics I: Inlets and Ducts				Torrey Hills A
Chaired by: J. ALONSO-MIRALLES, Collins Aerospace and D. PAPAMOSCHOU, University of California Irvine					

0930 hrs AIAA-2023-3207 Acoustics of a Supersonic Mach 1.4 Axisymmetric Spike Inlet D. Stephens, A. Svetgoff, E. Envia, NASA Headquarters, Washington, D.C.	0950 hrs AIAA-2023-3208 Estimation of the relative balance between the rotor and the OGV broadband noise R. Venkateswaran, P. Joseph, C. Paruchuri, University of Southampton Institute of Sound and Vibration Research, Southampton, United Kingdom	1010 hrs AIAA-2023-3209 The Acoustic Boundary Layer at Permeable Walls Exposed to Grazing Turbulent Shear Flow D. Ronneberger, Self, Freiburg, Germany; A. Schulz, Hochschule für Technik und Wirtschaft Berlin, Berlin, Germany			
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Monday, 12 June 2023

AA-5	Jet Aeroacoustics I: Noise Sources	Harbor B
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Chaired by: K. AHUJA, Georgia Institute of Technology and I. PADILLA MONTERO, Universidad Politecnica de Madrid

0930 hrs AIAA-2023-3210 Diagnosing Noise Features of Internally Mixed, External Plug Exhaust Systems J. Bridges, NASA John H Glenn Research Center, Cleveland, OH	0950 hrs AIAA-2023-3211 Experimental and Numerical Investigation of Acoustic Source Localization and Forward Flight Effects of a Nozzle to Enhance Jet Noise Shielding Effect J. Akatsuka, Japan Aerospace Exploration Agency, Mitaka, Japan; J. Hisasue, Y. Nishizaki, Kawasaki Heavy Industries, Ltd, Kakamigahara, Japan; T. Ishii, Japan Aerospace Exploration Agency, Mitaka, Japan	1010 hrs AIAA-2023-3212 Coherence-based Acoustic Source Decomposition of Installed GE F404 Engine Noise L. Mathews, Brigham Young University, Provo, UT; A. Wall, Air Force Research Laboratory 711th Human Performance Wing, Wright-Patterson AFB, OH; K. Gee, Brigham Young University, Provo, UT	1030 hrs AIAA-2023-3213 Wavelet-based Analysis of Spectral and Temporal Structures in F404 Engine Jet Noise T. Olaveson, K. Gee, Brigham Young University, Provo, UT; J. Johnson, Brigham Young University-Idaho, Rexburg, ID	1050 hrs AIAA-2023-3214 Mapping 3D Acoustics of a Supersonic Diamond Jet: An Odyssey in the Golden Age of Aeroacoustics Y. Saleh, S. Seckin, M. Song, F. Alvi, Florida State University, Tallahassee, FL	
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Monday, 12 June 2023

AA-6	Propeller, Rotorcraft and V/STOL Noise I: Isolated Rotors	Harbor A
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Chaired by: B. HENDERSON, NASA Glenn Research Center and S. LEE, University of California, Davis

0930 hrs AIAA-2023-3215 Low-Frequency Intensity Modulation of High-Frequency Rotor Noise W. Baars, D. Ragni, Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek, Delft, The Netherlands	0950 hrs AIAA-2023-3216 Acoustic analysis of a rotor in forward flight with deformable blades through a boundary integral formulation M. Gennaretti, B. De Rubeis, C. Poggi, G. Bernardini, Università degli Studi Roma Tre, Roma, Italy	1010 hrs AIAA-2023-3217 Aerodynamics and Far-field Noise Emissions of a Propeller in Positive and Negative Thrust Regimes at Non-zero Angles of Attack J. Goyal, T. Sinnige, C. Ferreira, Technische Universiteit Delft Faculteit	1030 hrs AIAA-2023-3218 Assessment of the Performance of Tonal-Broadband Decomposition Algorithms for Propeller Noise L. Bonomo, J. Cordioli, Universidade Federal de Santa Catarina, Florianopolis, Brazil; A. Colaciti, J. Fonseca,	1050 hrs AIAA-2023-3219 Optimised propeller Geometries for Low Broadband Noise A. Karimian, C. Paruchuri, P. Joseph, University of Southampton Institute of Sound and Vibration Research, Southampton, United Kingdom	1110 hrs AIAA-2023-3220 Sensitivity of Laminar Separation Noise from a Rotor to Inflow Turbulence D. Casalino, G. Romani, Dassault Systemes Deutschland GmbH, Stuttgart, Germany; L. Pil, R. Colombo, Dassault Systemes Italia Srl, Milan, Italy
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		Luchtvaart- en Ruimtevaarttechniek, Delft, The Netherlands; F. Avallone, Politecnico di Torino, Torino, Italy	L. Simões, Embraer SA, São Jose dos Campos, Brazil		
Monday, 12 June 2023					
ACD-1	Aerodynamic Design & Validation				Balboa A
Chaired by: M. ORR, Boeing Commercial Airplanes and C. BIL, RMIT University					
0930 hrs AIAA-2023-3224 Advancement of the General Aviation Synthesis Program Using Python to Enable Optimization-Based Hybrid-Propulsion Aircraft Design K. Lyons, B. Margolis, J. Bowles, NASA Ames Research Center, Moffett Field, CA; J. Gratz, S. Schnulo, E. Aretskin-Hariton, NASA John H Glenn Research Center, Cleveland, OH; et al.	0950 hrs AIAA-2023-3225 Validation and Calibration of Conceptual Design Tool SUAVE C. Gallagher, C. Stuart, S. Spence, The University of Dublin Trinity College, Dublin, Ireland	1010 hrs AIAA-2023-3226 Conceptual Aerodynamic Design Considerations for a Fixed-Wing Microgravity UAV A. Ilersich, S. Bansal, University of Toronto Institute for Aerospace Studies, Toronto, Canada			
Monday, 12 June 2023					
ACD-2	High Speed Vehicles				Balboa B
Chaired by: P. CLARK, Lockheed Martin Aeronautics and K. AMADORI, Linköping University					
0930 hrs AIAA-2023-3231 A Review of High-Speed Aircraft Stability and Control Challenges T. Takahashi, Arizona State University Ira A Fulton Schools of Engineering, Tempe, AZ; J. Griffin, R. Grandhi, Air Force Institute of Technology, Wright-Patterson AFB, OH	0950 hrs AIAA-2023-3232 Benchmark Study of Charles Lindbergh's Transatlantic Flight in Supersonic and Hypersonic Speed Regimes S. Sato, G. Alcorn, C. Harris, B. Chudoba, The University of Texas at Arlington, Arlington, TX	1010 hrs AIAA-2023-3233 Configuration and Control Strategies for Maneuvering Supersonic Flight K. O'Brien, T. Takahashi, Arizona State University Ira A Fulton Schools of Engineering, Tempe, AZ	1030 hrs AIAA-2023-3234 Optionally Piloted Hypersonic Aerospace Vehicle With Inflight Hydrogen Generation Propulsion system I. Maisaia, Unmanned Air Technologies, Tbilisi, Georgia	1050 hrs AIAA-2023-3235 A Study of High Speed Aerodynamic Configurations Optimized for Lateral-Directional Controllability C. Hoopes, T. Takahashi, Arizona State University Ira A Fulton Schools of Engineering, Tempe, AZ	
Monday, 12 June 2023					
ACD-3	Hydrogen Powered Aircraft				Balboa C
Chaired by: N. BLAESSER, NASA Langley Research Center and M. DRAKE, Boeing Commercial Airplanes					
0930 hrs AIAA-2023-3227	0950 hrs AIAA-2023-3228 Conceptual Design Optimization of Liquid-	1010 hrs AIAA-2023-3229 Design and Assessment of Long Range Aircraft	1030 hrs AIAA-2023-3230 Case study in design and transient analysis of		

Notional Aircraft Platforms for Hydrogen Fuel Cell Propulsion N. Wood, M. Hales, S. Taylor, GKN Aerospace, Redditch, United Kingdom	Hydrogen-Fueled Transport Aircraft for Environmental and Economic Performance A. VanLandingham, D. Hall, The Pennsylvania State University, University Park, PA	Concepts with focus on Fossil Kerosene, Sustainable Aviation Fuel and Liquid Hydrogen as Energy Carriers S. Woehler, T. Burschik, Deutsches Zentrum für Luft- und Raumfahrt eV, Hamburg, Germany; J. Häßly, Deutsches Zentrum für Luft- und Raumfahrt eV, Köln, Germany; M. Iwanizki, Deutsches Zentrum für Luft- und Raumfahrt eV, Braunschweig, Germany	hydrogen-propelled aircraft using direct combustion M. Sielemann, Modelon, Munich, Germany; J. Huete, Cranfield University, Cranfield, United Kingdom; D. Andersson, Modelon, Lund, Sweden; A. Nguyen, Modelon, Hartford, CT; C. Coïc, Modelon, Munich, Germany		
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Monday, 12 June 2023

APA-1	Aerodynamic Design I	Hillcrest B
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Chaired by: M. BANCHY, NASA Langley Research Center and V. CHITTA, Luminary Cloud

0930 hrs AIAA-2023-3248 Improvement of Supersonic Nozzles Performances by a New Design Method M. Salhi, Universite Saad Dahlab Blida 1 Departement de Genie Mecanique, Blida, Algeria	0950 hrs AIAA-2023-3249 Flight Dynamics of Boomerangs: Impact of Joint Angle E. Foss, W. Beatty, C. Lu, J. Alvarez, University of California San Diego, La Jolla, CA; T. Hunt, Stanford University, Stanford, CA; P. Gudem, University of California San Diego, La Jolla, CA	1010 hrs AIAA-2023-3250 Constrained Aerodynamic Shape Optimisation of the Flying V Outer Wing N. van Luijk, R. Vos, Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek, Delft, The Netherlands	1030 hrs AIAA-2023-3251 Development of Rapid Aerodynamic Analysis Method Including Propeller Effect M. Tai, W. Lee, D. Park, Pusan National University College of Engineering, Busan, South Korea; J. Lee, Hyundai Heavy Industries Co Ltd, Ulsan, South Korea; B. Chang, Korea Aerospace Research Institute, Daejeon, South Korea		
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Monday, 12 June 2023

APA-2/INPSI-2	Aerodynamics of Inlet and Exhaust Systems	Pier
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Chaired by: M. CARTER, NASA-Langley Research Center and F. FERGUSON

0930 hrs AIAA-2023-3254 Computational assessment of non-axisymmetric separate-jet exhausts on test rig configurations J. Hueso-Rebassa, D. MacManus, I. Goulos, Cranfield University, Cranfield, United Kingdom	0950 hrs AIAA-2023-3255 Experimental characterization of flow distortion in a semi-embedded engine intake for boundary layer ingestion application N. Rembaut, O. Atinault, V. Brion, Office National d'Etudes et de Recherches	1010 hrs AIAA-2023-3256 Effect of Incoming Boundary Layer Thickness on the Flow Characteristics of a Supersonic Air Intake R. Smith, N. Khobragade, R. Kumar, Florida State University Florida Center for Advanced Aero Propulsion, Tallahassee, FL			
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	Aerospatiales, Meudon, France				
Monday, 12 June 2023					
APA-3	Applied Computational Fluid Dynamics I				Hillcrest C
Chaired by: R. BARTELS, NASA-Langley Research Center and J. KOCH, NASA Ames Research Center					
0930 hrs AIAA-2023-3240 High Fidelity Adaptively Refined CFD and Reduced Order Models of the Integrated Adaptive High Aspect Ratio Wing Wind Tunnel Model R. Bartels, NASA Langley Research Center, Hampton, VA	0950 hrs AIAA-2023-3241 Assessment of Interface Gradient Reconstruction Techniques for Finite Volume Methods in Aerospace Applications F. Oliveira, Instituto Tecnologico de Aeronautica, São Jose dos Campos, Brazil; J. Azevedo, Instituto de Aeronautica e Espaco, São Jose dos Campos, Brazil	1010 hrs AIAA-2023-3242 Identifying Active Regions of Finite-Wing Transonic Buffet using Resolvent Method J. Houtman, U. Vevek, S. Timme, University of Liverpool, Liverpool, United Kingdom	1030 hrs AIAA-2023-3243 Wall-Modeled Large-Eddy Simulation of Supersonic Flow over Backward- Facing Step for Aero- Optical Distortion Analysis P. Castillo Gomez, A. Gross, New Mexico State University, Las Cruces, NM; A. Fassler, S. Leonov, S. Gordeyev, Notre Dame University, Notre Dame, IN	1050 hrs AIAA-2023-3528 Numerical Analysis of Aerodynamic Flap Hinge Moment under Unsteady Flow Conditions considering Laminar- Turbulent Transition C. Sebastia, M. Hornung, Technische Universitat Munchen, Munchen, Germany	1110 hrs AIAA-2023-3527 Modelling of Transonic Buffet Alleviation via Spoilers A. Petrocchi, G. Barakos, University of Glasgow, Glasgow, United Kingdom
Monday, 12 June 2023					
APA-4	Low Speed, Low Reynolds Number Aerodynamics				Torrey Hills B
Chaired by: I. CHOUTAPALLI, The University of Texas - Rio Grande Valley and M. MUNSON, U.S. Air Force Academy					
0930 hrs AIAA-2023-3244 Airfoils Design for the Low Reynolds Number Applications in Rotors Y. Patel, P. Ansell, University of Illinois Urbana-Champaign, Urbana, IL; J. Lim, NASA Ames Research Center, Moffett Field, CA; S. Barr, T. Weathers, Combustion Research and Flow Technology Inc, Pipersville, PA; D. Abramov, Israel Aerospace Industries Ltd, Lod, Israel; et al.	0950 hrs AIAA-2023-3245 Airfoil Performance Sensitivity to Laminar Separation Bubble Topology Y. Patel, P. Ansell, University of Illinois Urbana-Champaign, Urbana, IL	1010 hrs AIAA-2023-3246 Effect of Strouhal Number on the Flow Field of an Incompressible Pulsed Jet C. Leos, University of Nebraska-Lincoln, Lincoln, NE; R. Freeman, I. Choutapalli, The University of Texas Rio Grande Valley, Edinburg, TX	1030 hrs AIAA-2023-3247 Passenger Aircraft Cabin Ventilation – Investigations within the Do728 Research Facility D. Schmeling, T. Dehne, Deutsches Zentrum fur Luft- und Raumfahrt eV, Göttingen, Germany; S. Lange, Volkswagen AG, Wolfsburg, Germany; D. Schiepel, A. Shishkin, Deutsches Zentrum fur Luft- und Raumfahrt eV, Göttingen, Germany		
Monday, 12 June 2023					
APA-5	Rotorcraft and Propeller Aerodynamic I				Hillcrest A
Chaired by: J. RAULEDER, Georgia Institute of Technology and G. TRAPANI, Dassault Systemes Simulia					
0930 hrs AIAA-2023-3236 An Experimental Study to Characterize the Effects of Ice Accretion on the	0950 hrs AIAA-2023-3237 Multirotor Interactional Aerodynamics with Boundary Effects	1010 hrs AIAA-2023-3238 Experimental investigation of laser Riblet application	1030 hrs AIAA-2023-3239 Optimal rotation speed combination of contra-		

Performance of an UAV Propeller A. Dhulipalla, N. Han, H. Hu, H. Hu, Iowa State University, Ames, IA	D. Carter, J. Rauleder, Georgia Institute of Technology, Atlanta, GA	on a helicopter rotor blade P. Leidl, M. Garcia de Albeniz Martinez, bionic surface technologies GmbH, Graz, Austria; H. Tsuchihashi, Nikon Corporation, Tokyo, Japan; A. Flanschger, bionic surface technologies GmbH, Graz, Austria; K. Mikami, Nikon Corporation, Tokyo, Japan; D. Kohl, Schiebel Corporation, Vienna, Austria; et al.	rotating rotors for multicopters H. Zhang, Southern University of Science and Technology, Shenzhen, China; Y. Yang, South China University of Technology, Guangzhou, China; P. Li, Y. Liu, Southern University of Science and Technology, Shenzhen, China; Q. Li, Aviation Industry Corporation of China, Zhuhai, China; B. Noack, Harbin Institute of Technology Shenzhen, Shenzhen, China		
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Monday, 12 June 2023

APA-6	Special Session: 7th AIAA CFD Drag Prediction Workshop I	Harbor C
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Chaired by: B. POMEROY, NASA Langley Research Center and J. VASSBERG, JetZero

0930 hrs AIAA-2023-3252 USM3D-ME Revised SA-neg Implementation and Assessment for Seventh Drag Prediction Workshop Solutions B. Diskin, National Institute of Aerospace, Hampton, VA; M. Pandya, B. Pomeroy, T. Boyett, NASA Langley Research Center, Hampton, VA	0950 hrs AIAA-2023-3253 The Application of Flow360 to the 7th Drag Prediction Workshop Cases T. Fitzgibbon, Flexcompute, Boston, MA	1010 hrs 3892857 Drag Prediction Workshop 7: Boeing Results using OVERFLOW and GGNS B. Rider, The Boeing Company, Chicago, IL; B. Pomeroy, NASA Langley Research Center, Hampton, VA	1030 hrs 3892890 Shock-Induced Separation Prediction on an Industry Relevant Aircraft Configuration K. Zore, ANSYS Inc, Canonsburg, PA		
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Monday, 12 June 2023

ATS-1	AAM and UAM I	Harbor D
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Chaired by: H. LEE, NASA Ames Research Center

0930 hrs AIAA-2023-3261 Analysis of Electrical Grid Capacity in Major U.S. Metropolitan Areas for Urban Air Mobility D. Thipphavong, NASA Ames Research Center, Moffett Field, CA	0950 hrs AIAA-2023-3262 Urban Air Mobility Network Distribution in Chicago Metropolitan Area Q. Zhang, J. Mott, Purdue University, West Lafayette, IN	1010 hrs AIAA-2023-3263 Estimating Throughput for Urban Air Mobility Operations H. Lee, R. Windhorst, T. Lauderdale, A. Cone, NASA Ames Research Center, Moffett Field, CA; K. Moolchandani, Universities Space Research Association, Washington, D.C.	1030 hrs AIAA-2023-3264 Analysis of Sustainability Specifications of Urban Air Mobility Fleet Operations using Agent-based Transportation Simulation A. Kirste, M. Husemann, E. Stumpf, Rheinisch-Westfälische Technische Hochschule Aachen, Aachen, Germany	1050 hrs AIAA-2023-3265 Effects of Communication Modality on Pilot-Controller Coordination during a Simulated m:N Operation G. Sadler, M. Chandarana, J. Keeler, NASA Ames Research Center, Moffett Field, CA	
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Monday, 12 June 2023

ATS-2	Advanced ConOps				Harbor I
Chaired by: R. LOUIE, Hong Kong University of Science and Technology					
0930 hrs AIAA-2023-3257 Optimal Sequencing and Scheduling of Airport Operations S. Chakrabarti, A. Vela, University of Central Florida, Orlando, FL	0950 hrs AIAA-2023-3258 Data-Driven Analysis of Inefficient Arrival Separation R. Louie, G. Lui, T. Tai, R. Liem, The Hong Kong University of Science and Technology School of Engineering, Hong Kong, Hong Kong	1010 hrs AIAA-2023-3259 Validation of the Flight Centric ATC Concept using Hungarian Airspace as an Example T. Finck, C. Klunker, A. Martins, Deutsches Zentrum für Luft- und Raumfahrt eV, Braunschweig, Germany	1030 hrs AIAA-2023-3260 Robust Emergency Aircraft Avoidance Solutions for Commercial Aircraft Formations S. Saber, King Abdullah University of Science and Technology Physical Sciences and Engineering Division, Thuwal, Saudi Arabia; E. Feron, King Abdullah University of Science and Technology Computer Electrical and Mathematical Science and Engineering Division, Thuwal, Saudi Arabia		
Monday, 12 June 2023					
CFD-1	Algorithms and Applications of Reduced Order Modeling I				Solana Beach A
Chaired by: T. COLONIUS, California Institute of Technology and H. YANG, CFD Research Corporation					
0930 hrs AIAA-2023-3266 A Reduced-Order CFD Method for Predicting Flutter Boundary of a Full F-16 Aircraft H. Yang, T. Armstrong, CFD Research Corporation, Huntsville, AL	0950 hrs AIAA-2023-3267 Residual minimization formulations for model reduction of steady hypersonic flow R. Van Heyningen, Massachusetts Institute of Technology, Cambridge, MA; D. Ching, P. Blonigan, E. Parish, Sandia National Laboratories California, Livermore, CA; F. Rizzi, NexGen Analytics, Sheridan, WY	1010 hrs AIAA-2023-3268 Direct Measurement of the Eddy Viscosity Tensor in a Turbulent Separation Bubble with Sweep D. Park, A. Mani, Stanford University, Stanford, CA	1030 hrs AIAA-2023-3269 Comparison of Numerical Reduced Order Models of a Generic UCAV Configuration using a New Displacement Grid Method B. Isnard, G. Tanguy, D. Farcy, ONERA Lille, Lille, France; A. Dugeai, Office National d'Etudes et de Recherches Aérospatiales, Meudon, France; E. Garnier, ONERA Lille, Lille, France; J. Foucaut, Laboratoire de Mécanique des Fluides de Lille - Kampe de Fériet, Villeneuve-d'Ascq, France		
Monday, 12 June 2023					
CFD-2	Boundary Layer Transition I				Ocean Beach
Chaired by: B. VENKATACHARI, National Institute of Aerospace					
0930 hrs AIAA-2023-3270	0950 hrs AIAA-2023-3271	1010 hrs AIAA-2023-3272	1030 hrs AIAA-2023-3273		

Exploring the Langtry-Menter Transition Model for High Speed Applications Using FUN3D D. Friedlander, N. Georgiadis, NASA Headquarters, Washington, D.C.	Eigenvalue Sensitivity Computations for Linear Stability Theory C. Klauss, University of Maryland at College Park, College Park, MD; P. Paredes, B. Diskin, National Institute of Aerospace, Hampton, VA; M. Choudhari, NASA Langley Research Center, Hampton, VA; J. Baeder, University of Maryland at College Park, College Park, MD	Computational Study of Low-Speed Boundary-Layer Laminar-Turbulent over a 30-Degree Swept Plate in a Channel M. Denison, NASA Ames Research Center, Moffett Field, CA; J. Smith, Arizona State University, Tempe, AZ; J. Eppink, NASA Langley Research Center, Hampton, VA	Nonlinear stability of wall-bounded flows using the One-Way Navier-Stokes (OWNS) Equations M. Sleeman, California Institute of Technology, Pasadena, CA; M. Lakebrink, The Boeing Company, Hazelwood, MO; T. Colonius, California Institute of Technology, Pasadena, CA		
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Monday, 12 June 2023

CFD-3	Verification, Validation, and Uncertainty Quantification	Solana Beach B
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Chaired by: B. FRENO, Sandia National Laboratories and R. RANJAN, University of Tennessee at Chattanooga

0930 hrs AIAA-2023-3274 Probability Density Function Equations for Propagating Parameter Uncertainty in Hypersonic Reacting Flow CFD H. Kolla, Sandia National Laboratories California, Livermore, CA; M. Hansen, Sandia National Laboratories, Albuquerque, NM	0950 hrs AIAA-2023-3275 Simulating the Common Research Model using the new CFD software from ONERA, DLR and Airbus P. Volpiani, ONERA Meudon, Meudon, France; J. Chapelier, Office National d'Etudes et de Recherches Aerospatiales, Chatillon, France; A. Schwöppe, J. Jägersküpper, Deutsches Zentrum für Luft- und Raumfahrt eV, Braunschweig, Germany; S. Champagneux, Airbus SAS, Toulouse, France	1010 hrs AIAA-2023-3276 An Object-Oriented Approach to Tracking Particles in a Flow D. Kalagotla, P. Orkwis, University of Cincinnati, Cincinnati, OH	1030 hrs AIAA-2023-4339 Numerical Investigation of Helicopter Rotor-Empennage Aerodynamic Interactions F. Kurban, O. Gungor, M. Senipek, A. Ezertas, Tusas-Turk Havacilik ve Uzay Sanayii AS, Ankara, Turkey		
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Monday, 12 June 2023

F360-1 0930 - 1130 hrs	Executive Panel - Current and Future State of the Industry	Grand Hall A-C
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The AVIATION industry has had some very important successes over the past year, and some exciting changes coming to the industry. Our executives will cover these subjects, and provide their view of the impact of advancing technology, as we assess the current and future state of the industry!

White House Aviation Initiatives: "A Vision for America's Continued Global Leadership in Aeronautics", Dr. Ezinne Uzo-Okoro, OSTP Assistant Director for Space Policy

Moderator: Graham Warwick, Aviation Week

Todd Citron, Boeing

Renee Pasman, Lockheed

Tom Jones, Northrop Grumman

Johnny Hodges, Gulfstream

Frank Preli, Pratt & Whitney

Monday, 12 June 2023

FD-1	Flow Control Devices and Applications: Separation Control				Mission Beach A
Chaired by: J. WEISS, TU Berlin					
0930 hrs AIAA-2023-3282 Effect of Acoustic Excitation Amplitude on Flow Separation over NACA0015 Aerofoil for Near-Stall Angle-of- Attacks S. Coskun, D. Rajendran, V. Pachidis, Cranfield University Cranfield School of Aerospace Transport and Manufacturing, Cranfield, United Kingdom; M. Bacic, Rolls-Royce plc, London, United Kingdom	0950 hrs AIAA-2023-3283 Separation Control using Vortex-Generator-Type Plasma Actuator over Wide Reynolds Number Range S. Mayahara, M. Sato, Kogakuin Daigaku, Shinjuku- ku, Japan	1010 hrs AIAA-2023-3284 Control of Flow Separation in a High-speed Compressor Cascade Through Acoustic Excitation S. Coskun, D. Rajendran, V. Pachidis, Cranfield University Cranfield School of Aerospace Transport and Manufacturing, Cranfield, United Kingdom; M. Bacic, Rolls-Royce plc, London, United Kingdom	1030 hrs AIAA-2023-3285 Three-Dimensional Flow Development on a 30° Swept Wing with Active Flow Control P. Brandt, E. McFadden, J. Bons, The Ohio State University, Columbus, OH	1050 hrs AIAA-2023-3286 Study on High-frequency Control aiming for Improving Deep Reinforcement Learning- based Flow Separation Control over an Airfoil N. Takada, A. Watanabe, S. Shimomura, H. Nishida, Tokyo University of Agriculture and Technology, Koganei, Japan	
Monday, 12 June 2023					
FD-2	Shock-Boundary Layer Interactions: Computational Approaches				Mission Beach B
Chaired by: U. SASIDHARAN, Florida State University					
0930 hrs AIAA-2023-3278 Upstream Forcing of Fin Induced Shock-Wave / Boundary-Layer Interactions H. Ngoh, J. Poggie, Purdue University, West Lafayette, IN	0950 hrs AIAA-2023-3279 Evaluation of Non- Equilibrium Wall-Stress Models for LES of Shock- Wave/Boundary-Layer Interactions C. Johnson, P. Mysore, J. Oefelein, Georgia Institute of Technology, Atlanta, GA	1010 hrs AIAA-2023-3280 Spectral analysis of swept shock-boundary layer interaction T. Bergier, R. Gojon, J. Gressier, S. Jamme, L. Joly, ISAE-SUPAERO, Toulouse, France			
Monday, 12 June 2023					
FD-3	Special Session: Prof. Anatoli Tumin Memorial Session I				Cove
Chaired by: K. GROOT, Texas A&M University and T. CORKE, University of Notre Dame					
Monday, 12 June 2023					
FD-4	Stability and Transition: Numerical Studies				Mission Beach C
Chaired by: T. SAXTON-FOX, University of Illinois at Urbana-Champaign and J. EPPINK, NASA Langley Research Center					
0930 hrs AIAA-2023-3287 Delay of Separation and Transition for a Laminar Airfoil Using Active Flow Control	0950 hrs AIAA-2023-3288 Implicit Large Eddy Simulations of Crossflow Instabilities on a Slotted, Control	1010 hrs AIAA-2023-3289 On the Unsteadiness of a Hypersonic Flow over an Axisymmetric Double	1030 hrs AIAA-2023-3290 Validation of Porous Impedance Boundary Condition for a PSE code		

S. Hosseinverdi, H. Fasel, The University of Arizona, Tucson, AZ	Natural-Laminar-Flow Airfoil S. Gosin, J. Coder, The Pennsylvania State University, University Park, PA	Cone using Kinetic Methods I. Karpuzcu, D. Levin, University of Illinois Urbana-Champaign, Urbana, IL; V. Theofilis, University of Liverpool Faculty of Science and Engineering, Liverpool, United Kingdom	T. Liang, J. Kuehl, University of Delaware, Newark, DE		
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Monday, 12 June 2023

FT-1 0930 - 1030 hrs	2022 RVLT VMS Experiment to Study Impact of the Powertrain on Handling/Flying Qualities	Gaslamp C
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Continued discussions of the results from the Revolutionary Vertical Lift Technology Project's 4 Week eVTOL aircraft handling qualities at the NASA Ames Vertical Motion Simulator.

Monday, 12 June 2023

FT-2	Rotorcraft and Fixed-Wing Flight Testing	La Jolla B
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Chaired by: D. OWENS, NASA Langley Research Center and O. DANTSKER, University of Illinois at Urbana-Champaign

0930 hrs AIAA-2023-3291 Performance Characterization of an Autogyro in Level Flight B. Jones, R. Niewoehner, United States Naval Academy, Annapolis, MD	0950 hrs AIAA-2023-3292 Flight Path Reconstruction for a Coaxial Helicopter Equipped with Rotational Accelerometers R. Hofmann, S. Hosseini, X. Fang, F. Holzapfel, Technische Universitat Munchen, Munchen, Germany	1010 hrs AIAA-2023-3293 Flight testing of the effects of airspeed and aircraft configuration in lateral-directional static stability for a Jetstream 31 E. Seaver, C. Bennett, Embry-Riddle Aeronautical University, Prescott, AZ; N. Lawson, University of Sydney - Camperdown and Darlington Campus Burkitt-Ford Library, Sydney, Australia			
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Monday, 12 June 2023

GA-1/TF-1	Advanced Regional Air Mobility	Harbor E
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Chaired by: M. PATTERSON, NASA Langley Research Center

0930 hrs AIAA-2023-3294 Regulatory Considerations for Future Regional Air Mobility Aircraft N. Borer, N. Blaesser, M. Patterson, NASA Headquarters, Washington, D.C.	0950 hrs AIAA-2023-3295 The Business Case for Regional Air Mobility at Scale I. Villa, L. Morejon Ramirez, M. Moore, Whisper Aero Inc., Crossville, TN	1010 hrs Expanding NASA's Research and Documentation of Regional Air Mobility: Mission Parameters Panelists: Matt Metcalfe, Deloitte and Nicholas Flom, Deloitte Topic 1: Mission Parameters Presentation – 10:10 – 10:25	1030 hrs Expanding NASA's Research and Documentation of Regional Air Mobility: Use Cases Panelists: Matt Metcalfe, Deloitte and Nicholas Flom, Deloitte Topic 2: Use Cases and Scenarios	1050 hrs Expanding NASA's Research and Documentation of Regional Air Mobility: Goals Panelists: Matt Metcalfe, Deloitte and Nicholas Flom, Deloitte Topic 3: Goals Presentation – 10:50 – 11:15	
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		am Feedback & Questions – 10:25 – 10:30 am	Presentation – 10:30 – 10:45 am Feedback & Questions – 10:45 – 10:50 am	am Feedback & Questions – 11:15 – 11:25 am	
Monday, 12 June 2023					
GT-1	Hypersonic Wind Tunnel Measurements and Characterization				Promenade A
Chaired by: D. BACCARELLA, University of Tennessee and I. NEEL, NASA Langley Research Center					
0930 hrs AIAA-2023-3296 Characterization of the Mach 5 Shock Tunnel at New Mexico State University L. Saenz, L. Vergeer, J. Frankel, F. Shu, New Mexico State University, Las Cruces, NM	0950 hrs AIAA-2023-3297 Spectroscopic Characterization of a Hypersonic Arcjet Flow D. Baccarella, K. Samuels, The University of Tennessee Knoxville Tickle College of Engineering, Knoxville, TN	1010 hrs AIAA-2023-3298 Characterizing Heat Flux in the miniature Arc jet Research Chamber (mARC II) M. MacDonald, M. Haw, R. Martinez, NASA Headquarters, Washington, D.C.; S. Colom, Analytical Mechanics Associates, Inc., Hampton, VA; J. Rodrigues, NASA International Internship Program, Moffett Field, CA; R. Chung, Sierra Lobo, Fremont, OH; et al.	1030 hrs AIAA-2023-3299 In-Situ Laser-Based Ultrasonic Measurement of Material Cooling from Supersonic and Hypersonic Flow J. Lum, B. Goldberg, E. Busby, D. Stobbe, Lawrence Livermore National Laboratory, Livermore, CA; J. Threadgill, A. Singh, The University of Arizona, Tucson, AZ; et al.		
Monday, 12 June 2023					
HSABP-1	High-Speed Cavity Flameholders				Gaslamp D
Chaired by: V. TANGIRALA, CPEC Technologies LLC and L. ZHANG, University of Texas at Arlington					
0930 hrs AIAA-2023-3300 Simulations of non- reacting ethylene/air supersonic flow in a cavity flame holder at Mach 2 and Mach 3 Z. Chapman, South Dakota State University, Brookings, SD; D. Peterson, Air Force Research Laboratory, Wright- Patterson AFB, OH; J. Doom, South Dakota State University, Brookings, SD	0950 hrs AIAA-2023-3301 Flow and Combustion in a Scramjet Engine with Two Opposed Cavity Flameholders J. Small, L. Zhang, The University of Texas at Arlington, Arlington, TX; B. Crawford, V. Viti, ANSYS Inc, Canonsburg, PA	1010 hrs AIAA-2023-3302 Analysis and Optimisation of an Ejector Ramjet using CFD and a 1D Control Volume Solver D. Lastiwka, A. Korobenko, C. Johansen, University of Calgary, Calgary, Canada	1030 hrs AIAA-2023-3303 PMMA Solid Fuel Flamelet Model for High Speed Flows H. Pace, L. Massa, C. Arnold, Virginia Polytechnic Institute and State University, Blacksburg, VA	1050 hrs AIAA-2023-3304 Laser absorption measurements of HTPB hydrocarbon intermediates inside a shock tube at solid-fired ramjet conditions J. Pellegrini, J. Higgs, R. Rahman, S. Vasu, University of Central Florida, Orlando, FL	
Monday, 12 June 2023					
INPSI-1	Aerodynamics of Complex Inlet and Nozzle Configurations				Bankers Hill
Chaired by: C. WINKLER, The Boeing Company and E. IRANI, Spirit AeroSystems, Inc.					
0930 hrs AIAA-2023-3305	0950 hrs AIAA-2023-3306	1010 hrs AIAA-2023-3307	1030 hrs AIAA-2023-3308	1050 hrs AIAA-2023-3309	

Angle of Attack Effects on Open Fan Propulsion Systems at Take-Off Conditions A. Stuermer, Deutsches Zentrum fur Luft- und Raumfahrt eV, Braunschweig, Germany	CFD Modeling of Turbofan Intake Aerodynamics at Crosswind Conditions A. Stuermer, R. Geisler, Deutsches Zentrum fur Luft- und Raumfahrt eV, Braunschweig, Germany	Deep-Learning for Flow-Field Prediction of 3D Non-Axisymmetric Aero-Engine Nacelles F. Tejero , D. MacManus, J. Matesanz García, L. Boscagli, J. Hueso-Rebassa, Cranfield University Cranfield School of Aerospace Transport and Manufacturing, Cranfield, United Kingdom; C. Sheaf, Rolls-Royce plc, Derby, United Kingdom	Modal Analysis of Serpentine Diffuser Distortion S. Stahl, D. Gaitonde, The Ohio State University, Columbus, OH; R. Powers, J. Spyropoulos, Naval Air Systems Command, Patuxent River, MD	Aerodynamics of a Compact Nacelle at Take-Off Conditions A. Swarthout, D. MacManus, F. Tejero , J. Matesanz García, I. Goulos, L. Boscagli, Cranfield University, Cranfield, United Kingdom; et al.	
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Monday, 12 June 2023

MDO-1	Aerodynamic Design and Shape Optimization I	Old Town A
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Chaired by: J. HICKEN, Rensselaer Polytechnic Institute and S. RALLABHANDI, NASA Langley Research Center

0930 hrs AIAA-2023-3310 A Density based Volume of Solid Geometry Parameterisation Method For Aerodynamic Topology Optimisation M. Wood, T. Rendall, C. Allen, University of Bristol, Bristol, United Kingdom; N. Taylor, J. Fincham, MBDA UK Ltd, Bristol, United Kingdom; N. Leppard, BAE Systems Plc, London, United Kingdom	0950 hrs AIAA-2023-3311 Unsteady Adjoint Optimization in SU2 Based on the Hybrid Harmonic Balance-URANS Approach L. Abergo, A. Guardone, Politecnico di Milano, Milano, Italy	1010 hrs AIAA-2023-3312 Towards a Framework for Parametric Models and Geometric Sensitivity Computations with SU2 and pyCAPS Y. Shen, Stanford University, Stanford, CA			
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Monday, 12 June 2023

MDO-2	Aeroelastic and Aero-Structures Optimization	Old Town B
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Chaired by: G. CATALDO, NASA Goddard Space Flight Center and S. CHOI, Gwangju Institute of Science and Technology

0930 hrs AIAA-2023-3314 Exploring the Benefit of Engaging the Coupled Aero-Elastic Adjoint Approach in MDO for Different Wing Structure Flexibilities M. Abu-Zurayk, M. Schulze, Deutsches Zentrum fur Luft- und Raumfahrt eV, Braunschweig, Germany	0950 hrs AIAA-2023-3315 Advancing Modularity and Framework Integration Level for Scalable High-Fidelity MDO T. Backhaus, Deutsches Zentrum fur Luft- und Raumfahrt eV, Braunschweig, Germany; M. Abdul-Kaiyoom, A. Yildirim, University of Michigan, Ann Arbor, MI; A. Stueck, Deutsches Zentrum	1010 hrs AIAA-2023-3316 Geometrically Nonlinear High-fidelity Aerostructural Optimization Including Geometric Design Variables A. Gray, University of Michigan College of Engineering, Ann Arbor, MI; G. Kennedy, Georgia Institute of Technology, Atlanta, GA; J. Martins, University of	1030 hrs AIAA-2023-3317 High-fidelity Aero-Structural Optimisation using Individual Discipline Feasible Strategy C. Conti, A. Da Ronch, University of Southampton, Southampton, United Kingdom		
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	fur Luft- und Raumfahrt eV, Braunschweig, Germany; J. Martins, University of Michigan, Ann Arbor, MI	Michigan College of Engineering, Ann Arbor, MI			
Monday, 12 June 2023					
MST-1	Motion-Based Simulation				La Jolla A
Chaired by: M. MADDEN, NASA-Langley Research Center and D. SAROJINI, University of California San Diego					
0930 hrs AIAA-2023-3318 Simulating Flexible Aircraft in a Full Motion Simulator J. Schwithal, J. Buch, C. Seehof, Deutsches Zentrum fur Luft- und Raumfahrt eV, Braunschweig, Germany; M. Alves Júnior, Self, São Jose dos Campos, Brazil; D. Drewiacki, F. Oliveira Moreira, Embraer SA, São Jose dos Campos, Brazil	0950 hrs AIAA-2023-3319 Model Reference Control for Reducing Pilot-Induced Oscillation Tendencies Due to Aeroelastic Interactions L. Newton, I. Kroo, Stanford University, Stanford, CA	1010 hrs AIAA-2023-3320 Don't Touch! Using the NISER Method to Avoid Reaching the Space Envelope Limits of a Hexapod System C. Seehof, A. Schiller, Deutsches Zentrum fur Luft- und Raumfahrt eV, Koln, Germany	1030 hrs AIAA-2023-3321 Non-Invasive Optical Sensors to Measure Pilots' Forces on Aircraft Control Inceptors P. Garbo, G. Quaranta, Politecnico di Milano, Milano, Italy; P. Capone, Zurcher Hochschule fur Angewandte Wissenschaften, Winterthur, Switzerland		
Monday, 12 June 2023					
TP-1	Ablation: Modeling, Experiments, and Applications I				Golden Hill A
Chaired by: R. FU, University of Kentucky and E. SHORT, Raytheon					
0930 hrs AIAA-2023-3325 Material Response Analysis of PICA-NuSil at the Hypersonic Materials Environmental Test System B. Bessire, J. Meurisse, NASA Ames Research Center, Moffett Field, CA; F. Panerai, University of Illinois System, Urbana, IL; N. Mansour, NASA Ames Research Center, Moffett Field, CA	0950 hrs AIAA-2023-3326 Air-carbon ablation resulting from boundary layer flow over resolved material microstructure S. Ramjatan, M. Kroells, T. Schwartzentruber, University of Minnesota Twin Cities, Minneapolis, MN	1010 hrs AIAA-2023-3327 Modeling of high enthalpy test article assemblies with instrumented thermocouples in the Plasmatron X aerothermal environment S. Oruganti, V. Le Maout, S. Kumar, L. Capponi, M. Panesi, F. Panerai, University of Illinois Urbana-Champaign, Urbana, IL	1030 hrs AIAA-2023-3328 A Multi-Species High-Fidelity Material Response Framework for Ablation Physics R. Fu, B. Gur, A. Zibitsker, A. Martin, University of Kentucky, Lexington, KY	1050 hrs AIAA-2023-3487 A Multi-Solver Approach for Studying Ablation and Radiation Interactions in Hypersonic Flows S. Jo, V. Le Maout, A. Munafò, M. Panesi, University of Illinois Urbana-Champaign, Urbana, IL	1110 hrs AIAA-2023-3486 Deviation from Equilibrium Thermochemistry and Aerodynamic Heating Assumptions in the Ablation Process of Camphor A. Zibitsker, University of Kentucky, Lexington, KY; J. McQuaid, C. Brehm, University of Maryland at College Park, College Park, MD; A. Martin, University of Kentucky, Lexington, KY
Monday, 12 June 2023					
TP-2	Nonequilibrium Flow Physics (joint FD/TP) I				Golden Hill B
Chaired by: H. KLINE, Virgin Galactic and W. TSAI, California State University, Maritime Academy					
0930 hrs AIAA-2023-3329 Investigating the accuracy of a fully	0950 hrs AIAA-2023-3330	1010 hrs AIAA-2023-3331 Reduced Order Modelling and Quantification of	1030 hrs AIAA-2023-3332 Effects of Vibrational Thermal Accommodation		

coupled fluid / thermal strategy with nonequilibrium chemistry to compute graphite ablation V. Loridan, S. Peluchon, J. Claudel, CEA-Cesta, Le Barp, France	Analysis of Critical Rate Processes for Ionization in Shock-Heated Air T. Aiken, I. Boyd, University of Colorado Boulder, Boulder, CO	Uncertainty in Non Equilibrium Flows M. Kuppa, N. Singh, M. Panesi, University of Illinois Urbana-Champaign, Urbana, IL	in Hypersonic Flows over Spheres E. Huff, S. Poovathingal, University of Kentucky, Lexington, KY; A. Verhoff, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH		
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Monday, 12 June 2023

UAS-1	Autonomous Mission Management Concepts & Technologies I	Gaslamp B
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Chaired by: R. FONTANELLA, Leonardo S.p.A. and B. WANETICK, Collins

0930 hrs AIAA-2023-3333 U-Space modeling and efficiency evaluation in the city of Hamburg M. Swaid, A. Lau, F. Linke, Deutsches Zentrum für Luft- und Raumfahrt DLR Standort Hamburg, Hamburg, Germany	0950 hrs AIAA-2023-3334 Predictive Model for Workload in Remote Operators During sUAS Contingency Scenarios M. Chandarana, M. Shyr, T. Tyson, NASA Ames Research Center, Moffett Field, CA	1010 hrs AIAA-2023-3335 Obstacle Avoidance Algorithm for Circular Objects During Multiple Target Waypoints Navigation Mission of a Fixed-Wing UAV Using Polar Coordinates. F. Hasanbasri, I. Said, S. Gururajan, Saint Louis University, Saint Louis, MO			
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Monday, 12 June 2023

LUNCH-1 1130 - 1300 hrs	Networking Lunch	Foyers
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Proof of purchase is required and included in the registration fee where indicated.

Monday, 12 June 2023

AA-7	Acoustic / Fluid Dynamics Interactions I	Cortez Hill B
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Chaired by: J. WINKLER, Raytheon Technologies and J. DELFS, DLR - German Aerospace Center

1300 hrs AIAA-2023-3336 Perturbation of Turbulent Boundary Layer by Outer Layer and Inner Layer Devices for Turbulent Noise Source Reduction C. Muhammad, T. Chong, Brunel University London College of Engineering Design and Physical Sciences, London, United Kingdom	1320 hrs AIAA-2023-3337 Pressure Gradient Effects on Boundary Layer Superstructures H. Butt, S. Damani, S. Srivastava, S. Chaware, M. Szoke, W. Devenport, Virginia Polytechnic Institute and State University, Blacksburg, VA; et al.	1340 hrs AIAA-2023-3338 Prediction of wall-pressure spectra for separated/reattached boundary layer flows T. Rossi, P. Sagaut, Aix-Marseille Université, Marseille, France	1400 hrs AIAA-2023-3339 Acoustic Streaming for Flow Manipulation and Control C. Stone, L. Bowen, B. Drinkwater, A. Croxford, M. Azarpeyvand, University of Bristol, Bristol, United Kingdom		
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Monday, 12 June 2023

AA-8/TF-5	Advanced Air Mobility Noise II (joint AA/TF) - Community Noise				Cortez Hill A
Chaired by: S. KRISHNAMURTHY, NASA Langley Research Center and P. SHAH, ATA Engineering, Inc.					
1300 hrs AIAA-2023-3360 Development of A Community Noise Prediction Code for e-VTOL Vehicles H. Cho, Y. Jo, Hanseo University, Seosan, South Korea	1320 hrs AIAA-2023-3361 Flight Procedure and Community Noise Modeling of Advanced Air Mobility Flight Vehicles N. Yeung, J. De la Cruz, V. Pellerito, University of California Irvine, Irvine, CA; Z. Wang, Massachusetts Institute of Technology, Cambridge, MA; M. Lepe, J. Huynh, University of California Irvine, Irvine, CA; et al.	1340 hrs AIAA-2023-3362 Community Noise Impact of Multirotor Configurations During Landing Procedures J. Ko, B. German, J. Rauleder, Georgia Institute of Technology, Atlanta, GA	1400 hrs AIAA-2023-3363 On the Modeling of UAM Aircraft Community Noise in AEDT Helicopter Mode S. Rizzi, NASA Langley Research Center, Hampton, VA; M. Rafaelof, National Institute of Aerospace, Hampton, VA	1420 hrs AIAA-2023-3364 Community Noise Impact of Urban Air Mobility Aircraft with Noise Propagation Effects J. Miranda, S. Lee, University of California Davis, Davis, CA	1440 hrs AIAA-2023-3365 An Open-Source Framework For Modeling Aircraft Noise In Urban Environments M. Clarke, University of Illinois Urbana-Champaign, Urbana, IL
Monday, 12 June 2023					
AA-9	Computational Aeroacoustics II				Cortez Hill C
Chaired by: R. EWERT, DLR - German Aerospace Center and R. POWERS, Naval Air Warfare Center					
1300 hrs AIAA-2023-3340 Post-processing subsonic flows using physics-informed neural networks S. Schoder, E. Museljic, F. Kraxberger, A. Wurzinger, Technische Universitat Graz, Graz, Austria	1320 hrs AIAA-2023-3341 Correcting the Prediction of Noise Scattering at Sharp Edges for a Spatio-Temporal Deep Learned Acoustic Surrogate A. Alguacil, Universite de Sherbrooke, Sherbrooke, Canada; M. Bauerheim, ISAE-SUPAERO, Toulouse, France; M. Jacob, Ecole Centrale de Lyon, Ecully, France; S. Moreau, Universite de Sherbrooke, Sherbrooke, Canada	1340 hrs AIAA-2023-3342 On a stabilization of the Ingard-Myers impedance boundary condition F. Hu, Old Dominion University, Norfolk, VA; D. Nark, NASA Langley Research Center Structural Acoustics Branch, Hampton, VA	1400 hrs AIAA-2023-3343 Optimized Combined Compact Differencing (CCD) Methods for Computational Aeroacoustics D. Hixon, The University of Toledo, Toledo, OH	1420 hrs AIAA-2023-3344 A New Method for the Accurate Calculation of Derivatives at Structured Multiblock Grid Singularities D. Hixon, The University of Toledo, Toledo, OH	
Monday, 12 June 2023					
AA-10	Duct Acoustics II: Liners/Treatments				Torrey Hills A
Chaired by: A. SHARMA, Iowa State University and D. CASALINO, Dassault Systèmes Deutschland GmbH					
1300 hrs AIAA-2023-3345 A Fundamental Study of Bifurcation Acoustic Treatment Effects on Aft-Fan Engine Noise	1320 hrs AIAA-2023-3346 A Comparison of Impedance Eduction Test Rigs with Different Flow Profiles L. Bonomo, N. Quintino, J. Cordioli, Universidade Federal	1340 hrs AIAA-2023-3347 Experimental Investigations of Flexible Wall Effects in Helmholtz Resonators for Aircraft Engine Acoustic Liners	1400 hrs AIAA-2023-3348 Experimental and Numerical Analysis of the Vibro-Acoustic Behavior of a Helmholtz Resonator with a Flexible Wall		

D. Nark, M. Jones, NASA Langley Research Center, Hampton, VA	de Santa Catarina, Florianopolis, Brazil; F. Avallone, Politecnico di Torino, Torino, Italy; M. Jones, B. Howerton, NASA Langley Research Center, Hampton, VA; et al.	J. Genßler, F. Kohlenberg, Technische Universität Berlin, Berlin, Germany; K. Knobloch, Deutsches Zentrum für Luft- und Raumfahrt eV, Köln, Germany; L. Enghardt, Technische Universität Berlin, Berlin, Germany	F. Kohlenberg, V. Radmann, J. Genßler, L. Enghardt, Technische Universität Berlin, Berlin, Germany; K. Knobloch, Deutsches Zentrum für Luft- und Raumfahrt eV, Köln, Germany		
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Monday, 12 June 2023

AA-11	Jet Aeroacoustics II: Supersonic Jet Noise	Harbor B
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Chaired by: P. MORRIS, Pennsylvania State University and C. BROWN, NASA Glenn

1300 hrs AIAA-2023-3349 Noise prediction of a single-stream under-expanded jet in OpenFOAM W. Wang, A. Rona, N. Duggins, M. Angelino, University of Leicester College of Science and Engineering, Leicester, United Kingdom	1320 hrs AIAA-2023-3350 Mean Flow and Linear Stability Analysis of Twin Supersonic Jets I. Padilla Montero, D. Rodriguez, Universidad Politecnica de Madrid, Madrid, Spain; V. Jaunet, S. Girard, D. Eysseric, P. Jordan, National Center for Scientific Research (CNRS), Poitiers, France	1340 hrs AIAA-2023-3351 Connecting the Convective Mach Number to Full-scale Supersonic Jet Noise Directivity M. Christian, K. Gee, T. Olaveson, Brigham Young University, Provo, UT	1400 hrs AIAA-2023-3352 The Effect of Thermal Non-Uniformity on Coherent Structures in Supersonic Free Jets J. Tang, T. Lowe, W. Ng, Virginia Polytechnic Institute and State University, Blacksburg, VA	1420 hrs AIAA-2023-3353 A machine learning approach to identifying waveform coalescence in supersonic jet noise W. Willis, J. Valdez, C. Tinney, M. Hamilton, The University of Texas at Austin Applied Research Laboratories, Austin, TX	1440 hrs AIAA-2023-3354 Optimization of Microjet Control for Supersonic Impinging Jet Using Genetic Algorithm M. Song, S. Seckin, Y. Saleh, Florida State University, Tallahassee, FL; F. Zigunov, Los Alamos National Laboratory, Los Alamos, NM; R. Kumar, F. Alvi, Florida State University, Tallahassee, FL
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Monday, 12 June 2023

AA-12	Propeller, Rotorcraft and V/STOL Noise II: Installed Rotors	Harbor A
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Chaired by: J. GALLMAN, Northrop Grumman Aeronautics Systems

1300 hrs AIAA-2023-3355 Aeropropulsive Performance Modelling of Over-The-Wing Propulsion at Incidence H. Dekker, M. Tuinstra, Koninkrijk Nederlands Lucht- en Ruimtevaartcentrum Marknesse, Emmeloord, The Netherlands; W. Baars, F. Scarano, D. Ragni, Technische Universiteit Delft, Delft, The Netherlands	1320 hrs AIAA-2023-3356 Aeroacoustics source mechanisms of fixed-wing VTOL configuration C. Paruchuri, S. Palreja-Cabre, P. Joseph, D. Akiwate, O. Westcott, M. Ferraro, University of Southampton, Southampton, United Kingdom	1340 hrs AIAA-2023-3357 Propeller wake interaction noise with downstream wing: effect of wing sweep, lean, and offset D. Akiwate, A. Parry, University of Southampton, Southampton, United Kingdom	1400 hrs AIAA-2023-3358 Tonal Noise Measurements and Simulations of an Over-The-Wing Propeller H. Dekker, H. Brouwer, J. Kok, M. Laban, M. Tuinstra, Koninkrijk Nederlands Lucht- en Ruimtevaartcentrum Marknesse, Emmeloord, The Netherlands	1420 hrs AIAA-2023-3359 Experimental Study of the Aerodynamic Noise of a Pair of Pusher-Propellers Installed Over a Wing D. Acevedo Giraldo, M. Roger, M. Jacob, Ecole Centrale de Lyon, Ecully, France	
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Monday, 12 June 2023

ACD-4	Ultra Efficient Aircraft Design & Dynamics	Balboa A
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Chaired by: P. REA, The Boeing Company and G. MARTINEZ RODRIGUEZ, NASA Langley Research Center

1300 hrs	1320 hrs	1340 hrs	1400 hrs	1420 hrs	
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AIAA-2023-3366 Study of Fuel Consumption Reduction Using CoFlow Jet Empennage on B-787-8 M. Anhalzer, University of Miami, Coral Gables, FL; L. Kendall, The University of Texas at Austin, Austin, TX; G. Zha, University of Miami, Coral Gables, FL	AIAA-2023-3367 Analysis and Optimization of Baseline Single Aisle Aircraft for Future Electrified Powertrain Flight Demonstration Comparisons C. Recine, D. Pham, J. Bowles, K. Lyons, B. Margolis, J. Garcia, NASA Ames Research Center, Moffett Field, CA	AIAA-2023-3368 Short-Medium-Range Turboprop-Powered Aircraft as a Cost-Efficient Enabler for Low Climate Impact G. Atanasov, D. Silberhorn, Y. Cabac, Deutsches Zentrum für Luft- und Raumfahrt DLR Standort Hamburg, Hamburg, Germany	AIAA-2023-3369 Gust and Maneuver Load Alleviation in Conceptual Overall Aircraft Design M. Krengel, M. Hepperle, Deutsches Zentrum für Luft- und Raumfahrt eV, Braunschweig, Germany	AIAA-2023-3370 Geometry and Trim Parameters' Influence on Joined-Wing Flight Dynamics J. Quitter, M. Marino, RMIT University, Melbourne, Australia; J. Bauschat, FH Aachen, Aachen, Germany	
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Monday, 12 June 2023

APA-7	Aerodynamic Design II	Hillcrest B
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Chaired by: R. DJEDDI, Cadence Design Systems, Inc. and J. CODER, Pennsylvania State University

1300 hrs AIAA-2023-3387 A Sensitivity-Driven Approach to Automotive Aerodynamic Design M. Nayman, R. Perez, Royal Military College of Canada, Kingston, Canada	1320 hrs AIAA-2023-3388 Experimental validation of a Surface Vorticity flow solver for swept wings S. Sathe, V. Ahuja, R. Hartfield, Research In Flight, Austin, TX	1340 hrs AIAA-2023-3389 Development of numerical accuracy indicators for the far-field exergy balance method I. Petropoulos, D. Bailly, I. Berhouni, ONERA Meudon, Meudon, France	1400 hrs AIAA-2023-3390 Analysis of Flow Around an Aerial Tactical Pod carried by the A29B Aircraft for Viscous Drag Optimization J. Anguisaca, Center for Research and Development of the Ecuadorian Air Force, Quito, Ecuador; S. Castellanos, X. Sanchez, Armed Forces University ESPE, Sangolqui, Ecuador	1420 hrs AIAA-2023-3391 Application of a Boundary Layer Integral Method Based on the Universal Velocity Profile to Drag Prediction for Three-dimensional Wings E. Bilgin, J. Needels, B. Cantwell, Stanford University, Stanford, CA	
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Monday, 12 June 2023

APA-8	Aero-Propulsive Interactions I	Old Town B
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Chaired by: N. HALL, Lockheed Martin Aeronautics and V. MALDONADO, Texas Tech University

1300 hrs AIAA-2023-3392 Design of a quasi-2D rig configuration to assess nacelle aerodynamics under windmilling conditions L. Boscagli, F. Tejero, A. Swarthout, D. MacManus, Cranfield University, Cranfield, United Kingdom; K. Sabnis, H. Babinsky, University of Cambridge, Cambridge, United Kingdom; et al.	1320 hrs AIAA-2023-3393 Aerodynamic evaluation of distributed propulsion for a regional aircraft M. Barry, C. Maury, A. Turnbull, Safran Tech, Chateaufort, France	1340 hrs AIAA-2023-3394 Experimental Investigation of External Fan Cowl Separation for Compact Nacelles in Windmilling Scenarios K. Sabnis, University of Cambridge, Cambridge, United Kingdom; L. Boscagli, Cranfield University, Cranfield, United Kingdom; H. Babinsky, University of Cambridge, Cambridge, United Kingdom; D. MacManus, Cranfield University, Cranfield, United Kingdom	1400 hrs AIAA-2023-3395 Boundary Layer Ingestion Modeling in Aircraft Conceptual & Preliminary Design J. Pyska, The University of Dublin Trinity College, Dublin, Ireland; V. Ahuja, Research in Flight, Austin, TX; A. Turnbull, Safran Group, Magny-les-Hameaux, France; R. Hartfield, Auburn University, Auburn, AL	1420 hrs AIAA-2023-3396 CFD-based Studies of Propeller Sizing and Operation Settings for High-Lift Applications of Distributed Propulsion M. Firnhaber Beckers, M. Kern, M. Schollenberger, T. Lutz, Universitat Stuttgart Institut für Aerodynamik und Gasdynamik, Stuttgart, Germany	
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		Kingdom; C. Sheaf, Rolls-Royce plc, London, United Kingdom			
Monday, 12 June 2023					
APA-9	Applied Computational Fluid Dynamics II				Hillcrest C
Chaired by: S. RALLABHANDI, NASA Langley Research Center and M. CARTER, NASA-Langley Research Center					
1300 hrs AIAA-2023-3382 Computational Analysis on the Effects of High-lift Propellers and Wing-tip Cruise Propellers on X-57 S. Yoo, NASA Armstrong Flight Research Center, Edwards, CA; J. Duensing, NASA Ames Research Center, Moffett Field, CA; K. Deere, J. Viken, NASA Langley Research Center, Hampton, VA; M. Frederick, NASA Armstrong Flight Research Center, Edwards, CA	1320 hrs AIAA-2023-3383 CFD Validation for NACA 4412 with Flow Transition in Strong Ground Effect C. Hiemcke, K. Nickell, General Atomics Aeronautical Systems Inc, Poway, CA	1340 hrs AIAA-2023-3384 Characteristics of shock-induced boundary layer separation on nacelles under windmilling diversion conditions L. Boscagli, D. MacManus, F. Tejero, Cranfield University, Cranfield, United Kingdom; K. Sabnis, H. Babinsky, University of Cambridge, Cambridge, United Kingdom; C. Sheaf, Rolls-Royce plc, London, United Kingdom	1400 hrs AIAA-2023-3385 Numerical Prediction of Heat Exchanger Performances for a hybrid electric Propulsion Aircraft Concept A. Huebner, J. Kirz, Deutsches Zentrum fur Luft- und Raumfahrt eV, Braunschweig, Germany	1420 hrs AIAA-2023-3386 Investigating a Generalized Two-Equation Turbulence Model for Applied Computational Aerodynamics V. Rossano, Leonardo SpA, Roma, Italy; G. De Stefano, Universita degli Studi della Campania Luigi Vanvitelli, Caserta, Italy; D. Malacrida, F. Di Fede, R. Gentile, Leonardo SpA, Roma, Italy	1440 hrs AIAA-2023-3529 Aerodynamic Analysis of Hybrid Aerial Vehicle for Venus Exploration A. Miller, J. Rosales, E. Nunez, A. Gross, N. Chanover, New Mexico State University, Las Cruces, NM
Monday, 12 June 2023					
APA-10	Rotorcraft and Propeller Aerodynamic II				Hillcrest A
Chaired by: G. TRAPANI, Dassault Systemes Simulia and L. MACHADO, NASA					
1300 hrs AIAA-2023-3376 Vortex Particle Method for Electric Ducted Fan in Non-Axisymmetric Flow E. Alvarez, Whisper Aero Inc., Crossville, TN; C. Joseph, A. Ning, Brigham Young University, Provo, UT	1320 hrs AIAA-2023-3377 CFD Validation and Parametric Design Exploration of a Small Quadcopter UAV G. Trapani, G. Laskowski, Dassault Systemes Americas Corp, Waltham, MA	1340 hrs AIAA-2023-3378 Extension and validation of the Body Force Method to a propeller blade T. Kiffer, G. Dufour, R. Gojon, ISAE-SUPAERO, Toulouse, France; W. Thollet, L. López de Vega, Airbus SAS, Toulouse, France	1400 hrs AIAA-2023-3379 ROT8: A Matlab App for Low Reynolds number Airfoil and Rotor Aerodynamic Design M. Carreno Ruiz, D. D'Ambrosio, Politecnico di Torino, Torino, Italy	1420 hrs AIAA-2023-3380 Modelling Isolated Propeller Performance at High Angles of Attack S. Chadha, PLANA, Yongin-Si, South Korea	1440 hrs AIAA-2023-3381 Study of Frigate Airwake effects on helicopter recovery maneuvers by PIV measurements. R. Bardera, Instituto Nacional de Tecnica Aeroespacial, Madrid, Spain; Á. Rodríguez-Sevillano, Universidad Politecnica de Madrid, Madrid, Spain; J. Matias-Garcia, E. Barderas, Instituto Nacional de Tecnica Aeroespacial, Madrid, Spain; J. Fernandez, Universidad Politecnica de Madrid, Madrid, Spain
Monday, 12 June 2023					
APA-11	Special Session: 7th AIAA CFD Drag Prediction Workshop II				Harbor C
Chaired by: E. TINOCO and M. MURAYAMA, Japan Aerospace Exploration Agency					

1300 hrs 3892860 Drag Prediction Workshop 7: Boeing Applications of Recent Progress D. Kamenetskiy, B. Rider, The Boeing Company, Chicago, IL	1320 hrs AIAA-2023-3397 Contribution to the 7th AIAA CFD Drag Prediction Workshop Using TAS-code and FaSTAR A. Sansica, M. Murayama, Y. Ito, A. Hashimoto, Japan Aerospace Exploration Agency, Chofu, Japan; R. Furuya, Ryoyu Systems Co., Ltd., Nagoya, Japan	1340 hrs AIAA-2023-3398 Contribution to the 7th AIAA CFD Drag Prediction Workshop Using FaSTAR- AMM H. Abe, Uchu Koku Kenkyu Kaihatsu Kiko, Chofu, Japan	1400 hrs 3892866 Buffet onset prediction using global stability analysis for the 7th AIAA CFD Drag Prediction Workshop A. Sansica, A. Hashimoto, Japan Aerospace Exploration Agency, Chofu, Japan	1420 hrs AIAA-2023-3399 DPW7 Results from Champs, Including Global Stability Analyses F. Plante, Polytechnique Montreal, Montreal, Canada	
Monday, 12 June 2023					
APA-12	Unsteady Aerodynamics				Hillcrest D
Chaired by: B. MCGRATH, The Johns Hopkins University - Applied Physics Laboratory (JHU/APL) and M. BOZEMAN, NASA Langley Research Center					
1300 hrs AIAA-2023-3371 Effects of Compressibility on Leading-Edge Dynamic Stall Criteria S. Sudharsan, Iowa State University, Ames, IA; S. Narsipur, Mississippi State University, Mississippi State, MS; A. Sharma, Iowa State University, Ames, IA	1320 hrs AIAA-2023-3372 State-Space Lifting Line Aerodynamic Modelling for Aeroelasticity of Camber Morphing Wings R. Giansante, G. Bernardini, M. Gennaretti, Universita degli Studi Roma Tre Dipartimento di Ingegneria, Roma, Italy	1340 hrs AIAA-2023-3373 Analysis of Flowfield Vortex Interactions of Nonlinear Sharp-Edged Transverse Gusts C. Bonnet, M. Smith, Georgia Institute of Technology College of Engineering, Atlanta, GA	1400 hrs AIAA-2023-3374 Wake energy recovery potential determination for unsteady flows by exergy analysis. J. Ruscio, S. Duplaa, N. Binder, ISAE SUPAERO, Toulouse, France	1420 hrs AIAA-2023-3375 Effect of Ground Proximity on Heaving Multielement Airfoils M. Jenkins, A. Gopalathnam, NC State University, Raleigh, NC	
Monday, 12 June 2023					
ATM-1	Innovative Systems Approaches to Aerospace Traffic Management				Balboa C
Chaired by: M. LI, University of Michigan, Ann Arbor					
1300 hrs AIAA-2023-3400 NASA's Digital Information Platform (DIP) to Accelerate NAS Transformation M. Gurram, P. Hegde, S. Saxena, NASA Ames Research Center, Moffett Field, CA	1320 hrs AIAA-2023-3401 A Blockchain Case Study for Urban Air Mobility Operational Intent K. Freeman, N. Gillem, A. Jones, NASA Ames Research Center, Moffett Field, CA; N. Sharma, Intrinsix Technologies, Mountain View, CA	1340 hrs AIAA-2023-3402 Initial Development and Integration of a Vertiport Automation System for Advanced Air Mobility Operations J. Homola, NASA Ames Research Center, Moffett Field, CA; A. Tiwari, San Jose State University, Moffett Field, CA	1400 hrs AIAA-2023-3403 A Comparison of Recruitment Methods for Drone Public Perception Surveys J. Davis, N. Tepylo, J. Laliberte, Carleton University Faculty of Engineering and Design, Ottawa, Canada		
Monday, 12 June 2023					
ATS-3	AAM and UAM II				Harbor D
Chaired by: F. WIELAND, Mosaic ATM, Inc. and K. SHETH, NASA/ARC-AFT					
1300 hrs	1320 hrs	1340 hrs	1400 hrs	1420 hrs	

AIAA-2023-3408 Missed Approach Procedures in Advanced Air Mobility: Conceptual Exploration J. Homola, NASA Ames Research Center, Moffett Field, CA; A. Tripathi, J. Garber, L. Clark, T. Meliska, Wisk Aero, Mountain View, CA; L. Glaab, NASA Langley Research Center, Hampton, VA	AIAA-2023-3409 Precision Landing Trajectory Optimization for eVTOL Vehicles with High-Fidelity Aerodynamic Models Y. Wu, S. Deniz, Y. Shi, Z. Wang, The University of Tennessee Knoxville Tickle College of Engineering, Knoxville, TN; D. Huang, The Pennsylvania State University, University Park, PA	AIAA-2023-3410 A Comparative Study of Operational Limits for Urban and Regional Passenger-Carrying Missions across Metropolitans B. Sells, N. Gunady, E. Wright, K. Iyengar, S. Patel, D. DeLaurentis, Purdue University, West Lafayette, IN; et al.	AIAA-2023-3411 Insights from Data Analysis of Strategic Conflict Management Simulations for Urban Air Mobility Operations K. Moolchandani, H. Lee, H. Arneson, A. Cheng, C. Seah, NASA Ames Research Center, Moffett Field, CA	AIAA-2023-3412 VAMOS! A Regional Modeling and Simulation System for Vertiport Location Assessment K. Sheth, NASA Ames Research Center, Moffett Field, CA	
Monday, 12 June 2023					
ATS-4	Airlines and Airports				Harbor I
Chaired by: D. TRUONG, Embry-Riddle Aeronautical University					
1300 hrs AIAA-2023-3404 Airline Efficiency Evaluation Based on Employment for Airlines in the United States D. Truong, Embry-Riddle Aeronautical University, Daytona Beach, FL	1320 hrs AIAA-2023-3405 Aircraft ground operations automation. The turnaround 2.0 D. Alonso Tabares, Airbus SAS, Blagnac, France	1340 hrs AIAA-2023-3406 Global Costs and Infrastructure Requirements for LH ₂ Airport Refueling J. Abel, F. Allroggen, Massachusetts Institute of Technology, Cambridge, MA	1400 hrs AIAA-2023-3407 Revealing the effects of increased workload and distraction on the pilot's situation awareness neurobehavioral activities Q. Li, K. Ng, S. Chu, T. Lau, C. Leung, The Hong Kong Polytechnic University, Hong Kong, Hong Kong		
Monday, 12 June 2023					
CFD-4	Algorithms and Applications of Reduced Order Modeling II				Solana Beach A
Chaired by: D. FRIEDLANDER, NASA Glenn Research Center					
1300 hrs AIAA-2023-3413 Data-Driven Unsteady Aerodynamic Modeling for Studying Subsonic Fluid-Structure Interaction D. Fellows, D. Bodony, University of Illinois Urbana-Champaign, Urbana, IL	1320 hrs AIAA-2023-3414 Three-dimensional Stability and Resolvent Analysis of External Flows Over Spanwise-homogeneous Immersed Bodies W. Hou, T. Colonius, California Institute of Technology Division of Engineering and Applied Science, Pasadena, CA	1340 hrs AIAA-2023-3415 On the Dynamic Mode Decomposition of the Flow Over an Idealized Ground Vehicle at High Reynolds Number A. Misar, S. Nichols, M. Uddin, UNC Charlotte, Charlotte, NC	1400 hrs AIAA-2023-3416 A Projection-based Reduced Order Modeling Approach with SU2 J. Lauzon, J. Alonso, Stanford University, Stanford, CA		
Monday, 12 June 2023					
CFD-5	Boundary Layer Transition II				Ocean Beach
Chaired by: X. ZHONG, University of California Los Angeles					

1300 hrs AIAA-2023-3417 Application of Wray-Agarwal Algebraic Transition Model for Transitional Flow over 2D NLF-0416 Airfoil D. Ryan-Simmons, R. Agarwal, Washington University in St Louis, St Louis, MO	1320 hrs AIAA-2023-3418 Local Transition Model for Crossflow Instability in High-Speed Boundary-Layers B. Barraza, A. Gross, New Mexico State University, Las Cruces, NM; M. Leinemann, C. Hader, H. Fasel, The University of Arizona, Tucson, AZ	1340 hrs AIAA-2023-3419 Hypersonic Boundary-Layer Stability Over a Cone with Combined Local Cooling and Local Metasurface Treatment F. Oz, K. Kara, Oklahoma State University, Stillwater, OK	1400 hrs AIAA-2023-3420 Nonlinear Nonmodal Analysis of Hypersonic Flow over Blunt Cones A. Scholten, NC State University, Raleigh, NC; P. Paredes, National Institute of Aerospace, Hampton, VA; M. Choudhari, F. Li, M. Carpenter, NASA Langley Research Center, Hampton, VA; M. Bailey, The University of Arizona, Tucson, AZ		
Monday, 12 June 2023					
CFD-6	Hybrid RANS/LES				Torrey Hills B
Chaired by: M. VYAS, NASA Glenn Research Center and K. THOMPSON, NASA Langley Research Center					
1300 hrs AIAA-2023-3421 Critical Assessment of a Transitional Delayed Detached-Eddy Simulation Model for the Prediction of the Linear Compressor Cascade V103 F. Möller, German Aerospace Center (DLR), Koln, Germany; P. Tucker, University of Cambridge, Cambridge, United Kingdom; Z. Wang, University of Birmingham, Birmingham, United Kingdom; C. Morsbach, German Aerospace Center (DLR), Koln, Germany	1320 hrs AIAA-2023-3422 A Wall-Modeled RANS-SA Approach for Unstructured Grids C. Ursachi, S. Allmaras, M. Galbraith, D. Darmofal, Massachusetts Institute of Technology, Cambridge, MA	1340 hrs AIAA-2023-3423 Scale Resolving Simulation of Vortex Generator Flows over a Three-Elemental Airfoil Flap Y. Kojima, Uchu Koku Kenkyu Kaihatsu Kiko, Chofu, Japan; Y. Ichikawa, Tokyo Rika Daigaku, Katsushika, Japan; S. Koike, Uchu Koku Kenkyu Kaihatsu Kiko, Chofu, Japan	1400 hrs AIAA-2023-3424 Computations of Axisymmetric Base Flow with Detached-Eddy Simulation M. Jeong, Y. Yun, S. Heo, S. Jee, Gwangju Institute of Science and Technology Institute of Integrated Technology, Gwangju, South Korea	1420 hrs AIAA-2023-3425 Building-Block-Flow Model for Large-Eddy Simulation: Application to NASA CRM-HL A. Lozano-Duran, G. Arranz, Y. Ling, Massachusetts Institute of Technology, Cambridge, MA	
Monday, 12 June 2023					
CFD-7	Numerical Algorithms and Analysis				Pier
Chaired by: M. ZAHM, University of Notre Dame and P. KUMAR, Corning Incorporated					
1300 hrs AIAA-2023-3430 Numerical Investigation of Rayleigh-Taylor and Richtmyer-Meshkov Instabilities D. Feng, F. Ferguson, Y. Gao, North Carolina Agricultural	1320 hrs AIAA-2023-3431 A Space-Time framework for compressible flow simulations using Finite Volume Method A. Barman, A. Sharma, Iowa State University, Ames, IA	1340 hrs AIAA-2023-3432 Kinetic-energy and entropy preserving (KEEP) scheme for compressible flows on moving grids	1400 hrs AIAA-2023-3433 A hybrid lattice Boltzmann - Navier-Stokes method on overset grids A. Suss, I. Mary, T. Le Garrec, Office National d'Etudes et de Recherches Aerospatiales,	1420 hrs AIAA-2023-3434 FELiCS: A Versatile Linearized Solver Addressing Dynamics in Multi-Physics Flows T. Kaiser, S. Demange, J. Müller, K. Oberleithner,	1440 hrs AIAA-2023-3435 Modeling of Pulsed – Electrochemical Machining using CFD under large grid deformations

and Technical State University, Greensboro, NC		H. Sashida, Y. Kuya, S. Kawai, Tohoku Daigaku, Sendai, Japan	Chatillon, France; S. Marié, Laboratoire de Dynamique des Fluides, Paris, France	Technische Universität Berlin Fakultät V Verkehrs- und Maschinensysteme, Berlin, Germany	J. Mendez, S. Palani, A. Rose, Corredsa, Tyrone, GA
Monday, 12 June 2023					
CFD-8	Parallel Algorithm				Cove
Chaired by: H. KOLLA, Sandia National Laboratories and D. GARMANN, Air Force Research Laboratory					
1300 hrs AIAA-2023-3426 Automatic Runtime Scheduling Via Directed Acyclic Graphs for CFD Applications H. Torres, S. Murman, NASA Ames Research Center, Moffett Field, CA	1320 hrs AIAA-2023-3427 Development of a Performance Portable Massively Parallel Unstructured Compressible Flow Solver S. Hosseinverdi, NASA Ames Research Center, Moffett Field, CA; J. Sitaraman, US Army Combat Capabilities Development Command, Moffett Field, CA; G. Zagaris, Air Force Research Laboratory, Wright-Patterson AFB, OH; V. Lakshminarayan, Whisper Aero Inc, Crossville, TN; K. Holst, The University of Tennessee, Knoxville, TN	1340 hrs AIAA-2023-3428 A GPU-accelerated algorithm for solving Navier-Stokes equations D. Botezelli, E. dos Santos Magalhães, D. dos Santos, Instituto Tecnológico de Aeronautica, São Jose dos Campos, Brazil; A. Kassab, University of Central Florida, Orlando, FL; W. Malalasekera, Loughborough University, Loughborough, United Kingdom	1400 hrs AIAA-2023-3429 On the GPU-accelerated Preconditioners for Pressure Poisson Equation M. Raju, J. Hasbestan, N. Attal, A. Mittal, Convergent Science Inc, Madison, WI		
Monday, 12 June 2023					
DGE-1/DE-1	Digital Modeling & Simulation with ML/AI and/or HPC				Gaslamp A
Chaired by: M. LORANG, Boeing					
1300 hrs AIAA-2023-3436 Aviation-BERT: A Preliminary Aviation-Specific Natural Language Model C. Chandra, X. Jing, M. Bendarkar, K. Sawant, L. Elias, M. Kirby, Georgia Institute of Technology, Atlanta, GA; et al.	1320 hrs AIAA-2023-3437 SafeAeroBERT: Towards a Safety-Informed Aerospace-Specific Language Model S. Andrade, HX5, LLC, Moffett Field, CA; H. Walsh, NASA Ames Research Center, Moffett Field, CA	1340 hrs AIAA-2023-3438 BERT for Aviation Text Classification X. Jing, A. Chennakesavan, C. Chandra, M. Bendarkar, M. Kirby, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1400 hrs AIAA-2023-3439 Data-driven Synthetic Air Data Estimation System Development for a Fighter Aircraft H. Karali, M. Uzun, B. Yuksek, G. Inalhan, Cranfield University, Cranfield, United Kingdom		
Monday, 12 June 2023					
EATS-1	Rolling Recap I				Gaslamp B
Chaired by: H. SCHLICKENMAIER, HS Advanced Concepts					
Monday, 12 June 2023					

FD-5	Flow Control Devices and Applications: Characterization					Mission Beach A
Chaired by: A. GOPALARATHNAM, North Carolina State University and M. KOKLU, NASA Langley Research Center						
1300 hrs AIAA-2023-3446 Structured Input-Output Analysis of Turbulent Flows over Riblets T. Mushtaq, University of Minnesota College of Science and Engineering, Minneapolis, MN; M. Luhar, University of Southern California, Los Angeles, CA; M. Hemati, University of Minnesota College of Science and Engineering, Minneapolis, MN	1320 hrs AIAA-2023-3447 Experimental Study on Visualization of Important Pressure Sensor Locations for Feedback-loop Flow Control Using Attention Branch Network A. Watanabe, N. Takada, S. Shimomura, S. Sekimoto, Tokyo University of Agriculture and Technology, Koganei, Japan; A. Oyama, Japan Aerospace Exploration Agency, Sagamihara, Japan; H. Nishida, Tokyo University of Agriculture and Technology, Koganei, Japan	1340 hrs AIAA-2023-3448 Characterization of Periodic Lattice Anisotropic Porous Materials for Passive Flow Control S. Pinto, Illinois Institute of Technology Armour College of Engineering, Chicago, IL; Y. Zhang, Florida State University, Tallahassee, FL; L. Cattafesta, Illinois Institute of Technology Armour College of Engineering, Chicago, IL; R. Mittal, C. Meneveau, Johns Hopkins University Whiting School of Engineering, Baltimore, MD; M. Luhar, University of Southern California, Los Angeles, CA; et al.				
Monday, 12 June 2023						
FD-6	Stability and Transition: BOLT, Delta Wing, and Roughness				Mission Beach C	
Chaired by: M. PANESI, University of Illinois at Urbana Champaign and D. ARAYA, The Johns Hopkins University - Applied Physics Laboratory (JHU/APL) and M. DI STEFANO, Sandia National Laboratories						
1300 hrs AIAA-2023-3440 Boundary Layer Turbulence Flight Experiment in Memory of Mike Holden: Side A Flight Data 2 J. Wirth, B. Morreale, R. Bowersox, Texas A&M University System, College Station, TX; B. Wheaton, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1320 hrs AIAA-2023-3441 Effect of Roughness on BOLT-1a Geometry Transition in Supersonic Flow J. Davami, University of Notre Dame, Notre Dame, IN; A. Chou, A. Leidy, NASA Langley Research Center, Hampton, VA; T. Juliano, University of Notre Dame, Notre Dame, IN	1340 hrs AIAA-2023-3442 Flat-BOLT Surrogates for Investigating Second-Mode and Crossflow Instabilities S. Wernz, Raytheon Missiles & Defense, Tucson, AZ	1400 hrs AIAA-2023-3443 Numerical Investigations of hypersonic boundary-layer stability for a flat delta wing A. Hartman, A. Haas, C. Hader, H. Fasel, The University of Arizona, Tucson, AZ	1420 hrs AIAA-2023-3444 Impact of Geometric Parameters of Discrete Roughness Elements on Hypersonic Boundary Layer Instability H. Lee, D. Park, Pusan National University, Kumjeong-ku, South Korea	1440 hrs AIAA-2023-3445 Hypersonic Boundary-Layer Receptivity to Oblique Vorticity Waves A. Varma, University of California Los Angeles, Los Angeles, CA; C. Knisely, Lawrence Livermore National Laboratory, Livermore, CA; X. Zhong, University of California Los Angeles, Los Angeles, CA	
Monday, 12 June 2023						
FT-3	Flight Test Data Modeling and Review				La Jolla B	
Chaired by: R. THOMPSON, NASA Armstrong Flight Research Center						
1300 hrs	1320 hrs	1340 hrs				

AIAA-2023-3451 CFD Modelling and flight test of a Slingsby T67 Firefly with flaps C. Bennett, Embry-Riddle Aeronautical University, Prescott, AZ; N. Lawson, University of Sydney - Camperdown and Darlington Campus Burkitt-Ford Library, Sydney, Australia	AIAA-2023-3452 A Summary of AFOSR BOLT II Direct Wall Shear Stress Measurements R. Meritt, N. Molinaro, Ahmic Aerospace, Dayton, OH; A. Dufrene, CUBRC, Buffalo, NY; R. Bowersox, Texas A&M University System, College Station, TX	AIAA-2023-3453 Model-based actuator fault detection and isolation of Fleasy's innovative VTOL prototype with flight experimental validation D. Bou Saba, Ecole Centrale de Lyon, Ecully, France			
Monday, 12 June 2023					
GA-2/TF-4	Concepts for Advanced Regional Air Mobility				Harbor E
Chaired by: C. JUSTIN, Georgia Institute of Technology and C. JOUANNET, Saab Aeronautics					
1300 hrs AIAA-2023-3454 Design and evaluation of novel general aviation aircraft concepts with a fully integrated power train for regional air mobility F. Will, F. Ladwein, T. Zill, Deutsches Zentrum fur Luft- und Raumfahrt eV, Koln, Germany	1320 hrs AIAA-2023-3455 Distributed Electric Propulsion and Vehicle Integration with Ducted Fans D. Jedamski, V. Ahuja, E. Alvarez, V. Lakshminarayan, M. Moore, Whisper Aero Inc., Crossville, TN	1340 hrs AIAA-2023-3456 Unlocking Low-Cost Regional Air Mobility through Whisper Aero-Propulsive Coupling M. Moore, X. Fei, D. Jedamski, A. Perry, L. Morejon Ramirez, I. Villa, Whisper Aero Inc., Crossville, TN; et al.	1400 hrs AIAA-2023-3323 Distributed Sensing and Reasoning for Advanced Air Mobility Health Management and Mission Assurance G. Gorospe, C. Ippolito, K. Hashemi, NASA Ames Research Center, Moffett Field, CA	1420 hrs AIAA-2023-3324 Network Level Performance of In-Flight Recharge for Hybrid-Electric Regional Aircraft M. Fredricks, C. Justin, D. Mavris, Georgia Institute of Technology College of Engineering, Atlanta, GA	
Monday, 12 June 2023					
GT-2	Miscellaneous Topics In Ground Testing				Promenade A
Chaired by: E. SCHUCH, Calspan Corporation and B. CHYNOWETH, Purdue University					
1300 hrs AIAA-2023-3457 Estimation of Modal Characteristics of an Aircraft Through Control Surface Excitation in Lieu of Ground Vibration Test C. Kocan, Turkish Aerospace Industries, Inc., Ankara, Turkey	1320 hrs AIAA-2023-3458 Design and Characterization of a Prototype Helicopter Rotor Model for Wind Tunnel Tests Experiments. R. Bardera, Instituto Nacional de Tecnica Aeroespacial, Torrejon de Ardoz, Spain; Á. Rodriguez-Sevillano, Universidad Politecnica de Madrid, Madrid, Spain; J. Matias-Garcia, E. Barderas, Instituto Nacional de Tecnica Aeroespacial, Torrejon de Ardoz, Spain	1340 hrs AIAA-2023-3459 Recent Experience Utilizing 3-D Printing Techniques to Support Turbine Engine Ground Test Research S. Arnold, P. McCormack, Arnold Engineering Development Complex, Arnold AFB, TN; M. Knauf, US Air Force Academy, USAF Academy, CO; T. Heffernan, Z. Wallace, Core Parts, LLC, Plainfield, IN; J. Sears, Arnold Engineering Development Complex, Arnold AFB, TN; et al.	1400 hrs AIAA-2023-3460 Local and Global Structural Health Monitoring via Stochastic Functional Time Series Methods: A Critical Assessment and Comparison S. Ahmed, P. Zhou, S. Zager, F. Kopsaftopoulos, Rensselaer Polytechnic Institute, Troy, NY		

Monday, 12 June 2023					
HSABP-2	High-Speed Combustion Modeling, Simulation, and Experimentation				Gaslamp D
Chaired by: L. ZHANG, University of Texas at Arlington and G. ANDREWS, MIT Lincoln Laboratory					
1300 hrs AIAA-2023-3461 An Analysis of Lean Premixed Ethylene-Air Flame Stabilization over a Backward Facing Step P. Dash, K. Aditya, Indian Institute of Science, Bengaluru, India; H. Kolla, J. Chen, Sandia National Laboratories California, Livermore, CA	1320 hrs AIAA-2023-3462 Modeling High-Speed Turbulent Combustion Effects with the Evolution-Variable Manifold Method N. Ribeiro, C. Thomas, S. Cooper, G. Candler, University of Minnesota Twin Cities, Minneapolis, MN	1340 hrs AIAA-2023-3463 Local statistics in a premixed turbulent Bunsen flame Y. Weng, A. Potnis, V. Unni, A. Saha, University of California San Diego, La Jolla, CA			
Monday, 12 June 2023					
INPSI-3	Performance and Assessment of Unique Inlets, Nozzles, and Propulsion Systems				Bankers Hill
Chaired by: J. LITT, NASA Glenn Research Center and A. KHIDEKEL, Collins Aerospace					
1300 hrs AIAA-2023-3464 Thrust-Drag and Power Balance Accounting Methods for a Boundary Layer Ingesting Propulsion Configuration D. Hall, M. Ibasitas, The Pennsylvania State University, University Park, PA	1320 hrs AIAA-2023-3465 Brayton Cycle Analysis of the Effect of Wake Ingestion on Aircraft Range P. Bevilaqua, Self, Palmdale, CA	1340 hrs AIAA-2023-3466 Coupled propulsive and aerodynamic analysis of an installed ultra-high bypass ratio powerplant at high-speed and high-lift conditions J. Matesanz García, D. MacManus, F. Tejero, I. Goulos, J. Hueso-Rebassa, A. Swarthout, Cranfield University, Cranfield, United Kingdom; et al.	1400 hrs AIAA-2023-3467 Design considerations of non-axisymmetric exhausts for large civil aero-engines J. Hueso-Rebassa, D. MacManus, I. Goulos, F. Tejero , Cranfield University, Cranfield, United Kingdom	1420 hrs AIAA-2023-3468 Powered Low-speed Experimental Aerodynamic Investigation of an Over-wing Mounted Nacelle Configuration V. Silva, Chalmers tekniska hogskola AB, Goteborg, Sweden; A. Lundblad, GKN Aerospace Engine Systems Sweden, Trollhattan, Sweden; C. Xisto, P. Miltén, I. Jonsson, Chalmers tekniska hogskola AB, Goteborg, Sweden	1440 hrs AIAA-2023-3469 Advanced Parametric Lobe Mixer Concepts for Internally Mixed Nozzles W. Banks, HX5, LLC, Brook Park, OH
Monday, 12 June 2023					
MDO-3	Aerodynamic Design and Shape Optimization II				Old Town A
Chaired by: S. RALLABHANDI, NASA Langley Research Center and J. HICKEN, Rensselaer Polytechnic Institute					
1300 hrs AIAA-2023-3470 Multi-fidelity Data-driven Aerodynamic Shape Optimization of Wings with Composite Neural Networks	1320 hrs AIAA-2023-3472 Minimum Trim Drag for a Three-Surface Supersonic Transport Aircraft S. Seraj, J. Martins, University of Michigan, Ann Arbor, MI	1340 hrs AIAA-2023-3473 Multiobjective Aerodynamic Topology Optimization using Quadtree Genetic Programming			

A. Yang, The Hong Kong University of Science and Technology Department of Mechanical and Aerospace Engineering, Hong Kong, Hong Kong; J. Li, Agency for Science Technology and Research, Singapore, Singapore; R. Liem, The Hong Kong University of Science and Technology Department of Mechanical and Aerospace Engineering, Hong Kong, Hong Kong		N. Nimura, University of Toyko, Sagamihara, Japan; A. Oyama, Japan Aerospace Exploration Agency, Sagamihara, Japan			
Monday, 12 June 2023					
MST-2	Human Factors Analysis using Flight Simulation				La Jolla A
Chaired by: P. ZAAL, NASA Ames Research Center and F. WIELAND, Mosaic ATM, Inc.					
1300 hrs AIAA-2023-3474 Simulator Study on a Spatially Separated Airline Crew in a Complex Decision-Making Scenario D. Niedermeier, A. Papenfuß, M. Wies, Deutsches Zentrum für Luft- und Raumfahrt eV, Köln, Germany	1320 hrs AIAA-2023-3475 Study of Aeronautical Decision Making in Simulated Non-Normal Flight Deck Environment Q. Li, K. Ng, H. Leung, M. Ho, K. Leung, The Hong Kong Polytechnic University Faculty of Engineering, Hong Kong, Hong Kong	1340 hrs AIAA-2023-3476 Analysis of Visualization Systems in Flight Simulators L. Barrio, W. Korek, M. Millidere, J. Whidborne, Cranfield University, Cranfield, United Kingdom			
Monday, 12 June 2023					
PDL-1	Laser, Plasma, Radiation, and Optical Physics				Promenade B
Chaired by: A. TROPINA, Texas A&M University					
1300 hrs AIAA-2023-3478 Refractive Index of Diatomic Species for Nonequilibrium Flows J. Anaya, A. Tropina, R. Miles, Texas A&M University, College Station, TX; M. Grover, University of Dayton Research Institute, Dayton, OH	1320 hrs AIAA-2023-3479 Investigation of Gas Flow Within a Laser Amplifier Head for Optimal Cooling E. Lowell, O. Schmidt, University of California San Diego, La Jolla, CA; F. Batysta, T. Spinka, Lawrence Livermore National Laboratory, Livermore, CA	1340 hrs AIAA-2023-3480 A numerical investigation of the micronozzle geometry effect on the performance of microwave electrothermal thrusters J. Lee, L. Raja, The University of Texas at Austin, Austin, TX	1400 hrs AIAA-2023-3481 Magnetized High-Frequency Excited Plasmas for Rarefied Air Ionization in Air-Breathing Electric Propulsion M. Baghirzade, L. Raja, The University of Texas at Austin, Austin, TX	1420 hrs AIAA-2023-3322 Numerical study of radiative heat effects in inductively coupled plasma discharges S. Kumar, S. Jo, A. Munafò, D. Bodony, M. Panesi, University of Illinois Urbana-Champaign, Urbana, IL	
Monday, 12 June 2023					
TF-3	Transformational Aircraft Systems and Concepts				Harbor F
Chaired by: A. LINN, Boston University and J. VERBERNE, residential Address					
1300 hrs	1320 hrs	1340 hrs	1400 hrs		

AIAA-2023-3482 Modular Advanced Aerial Mobility Systems (MAAMS) W. Loh, J. Jacob, Oklahoma State Regents for Higher Education, Stillwater, OK; M. Hartman, Choctaw Nation, Durant, OK; D. Zahn, NASA, Oklahoma City, OK	AIAA-2023-3483 Solid-State Electroaerodynamic Uncrewed Aircraft for Near-Silent Package Delivery A. Brown, N. Gomez-Vega, S. Barrett, Massachusetts Institute of Technology, Cambridge, MA	AIAA-2023-3484 Flight Performance Evaluation of the Flying-V G. de Zoeten, C. Varriale, R. Vos, Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek, Delft, The Netherlands	AIAA-2023-3485 Impact of Control Allocation Methods on the Design of Control Surface Layouts for Box-Wing Aircraft under Flying Qualities Constraints N. Wahler, University of Southampton Faculty of Engineering and Physical Sciences, Southampton, United Kingdom; C. Varriale, G. La Rocca, Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek, Delft, The Netherlands		
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Monday, 12 June 2023

TP-3	Nonequilibrium Flow Physics (joint FD/TP) II	Golden Hill B
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Chaired by: J. RABINOVITCH, Stevens Institute of Technology and S. POOVATHINGAL, University of Kentucky

1300 hrs AIAA-2023-3488 Development of Physical and Numerical Nonequilibrium Modeling Capabilities within the SU2-NEMO Code W. Maier, J. Needels, J. Alonso, Stanford University, Stanford, CA; F. Morgado, C. Garbacz, M. Fossati, University of Strathclyde, Glasgow, United Kingdom; et al.	1320 hrs AIAA-2023-3489 Implementation of new multi-temperature nonequilibrium air chemistry model for CFD based on first-principles calculations E. Torres, T. Gross, T. Schwartzenuber, University of Minnesota Twin Cities, Minneapolis, MN	1340 hrs AIAA-2023-3490 Plato: a high-fidelity tool for multi-component plasmas A. Munafò, M. Panesi, University of Illinois Urbana-Champaign, Urbana, IL	1400 hrs AIAA-2023-3491 An Assessment of Two-Temperature Dissociation Models for Vibrational Nonequilibrium Flows N. Adhikari, A. Alexeenko, Purdue University, West Lafayette, IN		
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Monday, 12 June 2023

F360-2 1330 - 1500 hrs	Executive Panel - Current and Future State of the Industry, part 2	Grand Hall A-C
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New technologies, customer demand for saving time, and the need to decarbonize aviation are about to bring a sea of change to the aerospace industry, leaving the current tube-and-wing designs behind for a new generation of aircraft that will be radically different. Come meet the leading-edge companies working on these new technologies and listen to their views and visions for the aircraft of the future.

Moderator: Sergio Cecutta, SMG Consulting

Dr. Sean Black, Spirit Aerosystems

Mike Caimona, Aurora Flight Sciences

Manal Habib, MightyFly

Ian Villa, Whisper Aero

Ben Murphy, Boom Supersonic

Monday, 12 June 2023

FL-1 1330 - 1430 hrs	Readiness of SAF, Electric and Hydrogen Infrastructure	Harbor H
When talking about sustainable aviation, we tend to focus on the development of the technology. Yet, we need to work out some level of infrastructure to support the aircraft when they enter the market. This discussion will look at infrastructure required to support sustainable aviation in the near term and how to prepare for the future. Speakers: Arturo García-Alonso, Avports Brett Oakleaf, NREL		
Monday, 12 June 2023		
NW-2 1500 - 1530 hrs	Networking Break	Foyers
Coffee breaks allow even more time for making new contacts, continuing discussions from sessions, visiting the Exposition Hall, or checking emails and voicemails to keep in touch with the office while you are at the forum.		
Monday, 12 June 2023		
AIAA-2 1530 - 1730 hrs	Meet the Employers	Grand Hall D
Students and young professionals—you are invited to network with AIAA Corporate members during Meet the Employers at the 2023 AIAA AVIATION Forum in San Diego, California. This is a can't-miss occasion where you can meet with AIAA Corporate Member recruiters, and ask questions about internships, full-time employment opportunities, organizational culture, fascinating company projects, and anything else you want to know. To ensure all students and young professionals have access to this rare and highly valuable networking opportunity, you don't have to register for the 2023 AIAA AVIATION Forum to attend. Join us on 12 June at the Manchester Grand Hyatt in San Diego. Space is limited to 400 participants.		
Monday, 12 June 2023		
F360-3 1530 - 1700 hrs	NASA's Year in Aviation	Grand Hall A-C
The NASA Aeronautics research portfolio is exploring and delivering on a number of impactful transformational innovations, and has begun several new systems technology demonstration initiatives with the promise of long-term value to aviation community. You will hear NASA executive leadership speak to its compelling research and development portfolio, and will also hear from technical leaders who are pushing the boundaries with some of NASA's newest activities and future workforce investments. MC: John Cavolowsky, NASA Bob Pearce, NASA Moderator: Barbara Esker, NASA Brent Cobleigh, NASA - Sustainable Flight Demo Marcus Johnson, NASA - Emergency Response Ops Mina Cappuccio, NASA - University Innovation		
Monday, 12 June 2023		
FL-2 1530 - 1700 hrs	Zero Emission Aviation — A Status Report on Global Efforts	Harbor H

In this session, panelists will discuss the latest advances and challenges in their work on zero emission aviation.

Panelists:

Phillip Ansell, University of Illinois Urbana-Champaign

Jay Kapat, University of Central Florida

Rory Roberts, Tennessee Tech University

Shashank Sripad, And Battery Aero

Roelof Vos, Delft Institute of Technology

Monday, 12 June 2023

APA-14	Special Session: 7th AIAA CFD Drag Prediction Workshop III	Harbor C
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Chaired by: B. RIDER, The Boeing Company Commercial Airplanes Everett and B. POMEROY, NASA Langley Research Center

1600 hrs 3891930 Kestrel Dual-Mesh Simulations for DPW-VII: Expanding the Envelope B. Pomeroy, NASA Langley Research Center, Hampton, VA	1620 hrs 3900614 DPW-7: Steady and Unsteady Computations of the CRM Aircraft at Different Reynolds Numbers D. Hue, Office National d'Etudes et de Recherches Aerospatiales, Chatillon, France	1640 hrs AIAA-2023-4091 Influence of turbulence modelling and grid resolution in computations of the DPW7 CRM configuration P. Eliasson, Saab AB, Stockholm, Sweden	1700 hrs AIAA-2023-4120 Summary of DLR Results for the Seventh AIAA Computational Fluid Dynamics Drag Prediction Workshop S. Keye, O. Brodersen, S. Melber-Wilkending, D. Friedewald, M. Fehrs, J. Jägersküpper, Deutsches Zentrum für Luft- und Raumfahrt eV, Braunschweig, Germany	1720 hrs AIAA-2023-3492 Summary Data from the Seventh AIAA CFD Drag Prediction Workshop E. Tinoco, Self, Kent, WA	
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Monday, 12 June 2023

GT-3/APA-13/CFD2030-1	Integration of Computations and Experimentation: Mutual Accountability and Validation Dialog	Harbor I
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Chaired by: S. DUNN, Jacobs Technology Inc. and K. BERGERON, U.S. Army DEVCOM Soldier Center

1600 hrs 1. Developing a New Focus Group; Building on Previous Work Dr. Steven Dunn, Jacobs/NASA Langley Research Center	1610 hrs 2. Mutual Accountability and Validation Dialog Dr. Nigel Taylor, MBDA UK	1620 hrs 3. Moderated Panel Session Moderator: Mr. Thomas Wayman, Gulfstream Panelists: Mr. Roman Paryz, NASA Langley Research Center Dr. Dmitri Mavriplis, University of Wyoming Dr. Neil Ashton, Amazon Web Services			
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Monday, 12 June 2023

AA-60 1730 - 1845 hrs	2023 CEAS Aeroacoustics Award Lecture	Harbor A-B
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Speaker: Damiano Casalino, TU Delft Title: "In Search of Lost Sources"					
The CEAS aeroacoustics award is presented to individuals or teams annually, who have made outstanding contributions in the field of aeroacoustics in Europe. The award also recognizes service to the aeroacoustics community through promoting the subject of aeroacoustics amongst governments, the aerospace community, the scientific community and the general public.					
Monday, 12 June 2023					
LECTURE-1 1730 - 1830 hrs	2023 AIAA Wright Brothers Lecture in Aeronautics				Grand Hall A-C
Larry A. Young NASA Ames Research Center AIAA Citation: "NASA Aeronautics Contributions to the Ingenuity Mars Helicopter"					
Tuesday					
Tuesday, 13 June 2023					
SP-2 0730 - 0800 hrs	Technical Papers Session Prep				Session Rooms
Authors who are presenting papers will meet with session chairs and co-chairs in their session rooms for a short 30-minute prep on the day of their sessions to exchange bios and review final details prior to the session. Please attend on the day of your session(s).					
Tuesday, 13 June 2023					
PLNRY-2 0800 - 0900 hrs	Opening Keynote: Airships Provide a Sustainable Path to Decarbonizing Transportation and Complementing Humanitarian Aid				Grand Hall A-C
Twenty-first-century next-generation airships will create a new, clean highway in the sky with zero-carbon transportation for cargo and passengers to support humanitarian assistance and a multitude of other applications. Currently, modern transportation is carbon-intensive, including aviation, which emits nearly 1 billion metric tons of CO2 annually. LTA is forging a new path to zero-carbon air transportation that helps shape a cleaner world and complements other green aviation, land, and maritime initiatives. Dr. Alan Weston, CEO, LTA Research					
Tuesday, 13 June 2023					
NW-3 0900 - 0930 hrs	Networking Break				Foyers
Coffee breaks allow even more time for making new contacts, continuing discussions from sessions, visiting the Exposition Hall, or checking emails and voicemails to keep in touch with the office while you are at the forum.					
Tuesday, 13 June 2023					
AA-13	Airframe / High-Lift Noise II				Cortez Hill B
Chaired by: F. AVALLONE, Delft University of Technology and D. MOREAU, UNSW					
0930 hrs AIAA-2023-3493 Effect of Deflection Angle on the Noise and Aerodynamic Loads	0950 hrs AIAA-2023-3494 Reduction of tonal noise of a NACA 0012 airfoil by roughness elements	1010 hrs AIAA-2023-3495 Study of the Inflow Turbulence Distortion for Airfoils and Cylinders	1030 hrs AIAA-2023-3496 Experimental Investigation of Tonal Noise Radiation from Trapezoidal Cylinders in Cross-Flow	1050 hrs AIAA-2023-3497 Interdependencies of Aerodynamic Test Conditions and High Lift	

Generated by a Wall-Mounted Flat Plate O. Parnis, D. Angland, University of Southampton, Southampton, United Kingdom	R. Alva, Instituto Tecnológico de Aeronautica, São Jose dos Campos, Brazil; Z. Yuan, Kungliga Tekniska Hogskolan, Stockholm, Sweden; T. Araujo, Instituto Tecnológico de Aeronautica, São Jose dos Campos, Brazil; F. Amaral, Universite de Poitiers, Poitiers, France; A. Hanifi, Kungliga Tekniska Hogskolan, Stockholm, Sweden; A. Cavaliere, Instituto Tecnológico de Aeronautica, São Jose dos Campos, Brazil	F. dos Santos, C. Venner, Universiteit Twente, Enschede, The Netherlands; L. de Santana, German-Dutch Wind Tunnels, Enschede, The Netherlands	T. Geyer, German Aerospace Center (DLR) Cottbus, Institute of Electrified Aero Engines, Cottbus, Germany; R. Velpula, S. Sharma, Brandenburgische Technische Universität Cottbus-Senftenberg, Cottbus, Germany	System Noise Generation and Measurement M. Jansen, M. Pott-Pollenske, Deutsches Zentrum für Luft- und Raumfahrt eV, Braunschweig, Germany	
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Tuesday, 13 June 2023

AA-14	Computational Aeroacoustics III	Cortez Hill C
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Chaired by: W. SCHROEDER, RWTH AACHEN UNIVERSITY, Institute of Aerodynamics

0930 hrs AIAA-2023-3498 A Computational and Experimental Investigation into Jet Aeroacoustics for Improved Ground Test Design S. Arnold, C. Romanoski, S. Guimond, Arnold Engineering Development Complex, Arnold AFB, TN	0950 hrs AIAA-2023-3499 Validation of the Fast Random Particle-Mesh Method for Broadband CAA of a Forward-Facing Step and its prediction sensitivity for geometrical modifications P. Uhl, A. Schell, Mercedes-Benz Group AG Group Research & MBC Development Sindelfingen, Sindelfingen, Germany; R. Ewert, J. Delfs, Deutsches Zentrum für Luft- und Raumfahrt eV, Braunschweig, Germany	1010 hrs AIAA-2023-3500 Reformulated Flow-Acoustics Splitting for RANS/CAA based Acoustic Metrics: Tip Leakage Flow Problem S. Proskurov, R. Ewert, Deutsches Zentrum für Luft- und Raumfahrt eV, Braunschweig, Germany			
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Tuesday, 13 June 2023

AA-15	Duct Acoustics III: Liners/Treatments	Torrey Hills A
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Chaired by: M. JACOB, Ecole Centrale de Lyon and S. REDONNET, Hong Kong University of Sciences and Technology

0930 hrs AIAA-2023-3501 Assessment of Acoustic Behavior for Perforate-Over-Large-Cell Liners M. Brown, C. Dodge, J. Kreitzman, M. Jones, NASA Langley Research Center, Hampton, VA	0950 hrs AIAA-2023-3502 Validation of Noise Propagation for Lined Inlets A. Svetgoff, D. Stephens, NASA Headquarters, Washington, D.C.	1010 hrs AIAA-2023-3503 Validation of High-Fidelity Numerical Simulations of Acoustic Liners Under Grazing Flow L. Pereira, L. Bonomo, N. Quintino, A. da Silva, J.	1030 hrs AIAA-2023-3504 Acoustic modelling of Over-the-Rotor liners R. Subramanyam, S. Palani, C. Paruchuri, S. Palreja-Cabre, University of Southampton, Southampton, United Kingdom		
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		Cordioli, Universidade Federal de Santa Catarina, Florianopolis, Brazil; F. Avallone, Politecnico di Torino, Torino, Italy			
Tuesday, 13 June 2023					
AA-16	General Acoustics I: Noise at Airfoils, Plates, and Planes				Cortez Hill A
Chaired by: D. STEPHENS, NASA Glenn Research Center and G. BENNETT, Trinity College Dublin					
0930 hrs AIAA-2023-3505 Controlled Diffusion airfoil self-noise, an acoustic far-field prediction A. Arroyo Ramo, S. Moreau, Universite de Sherbrooke Faculte de Genie, Sherbrooke, Canada; R. Sandberg, The University of Melbourne, Melbourne, Australia; M. Bauerheim, ISAE-SUPAERO, Toulouse, France; M. Jacob, Ecole Centrale de Lyon, Ecully, France	0950 hrs AIAA-2023-3506 The impact of airfoil thickness on airfoil stalling behavior and airfoil self-noise: an experimental investigation of two NACA series cambered airfoils J. Branch, B. Zang, M. Azarpeyvand, D. Jones, University of Bristol, Bristol, United Kingdom; M. Westin, Embraer SA, São Jose dos Campos, Brazil; N. Bown, Dowty Propellers, Gloucester, United Kingdom	1010 hrs AIAA-2023-3507 Noise generated from two flat plates in tandem configuration in turbulent mean flow S. Palreja-Cabre, C. Paruchuri, P. Joseph, University of Southampton, Southampton, United Kingdom	1030 hrs AIAA-2023-3508 Data-driven Empirical Wall pressure Spectrum Models for Fan Noise Prediction S. Shubham, The University of Melbourne, Melbourne, Australia; S. Pargal, S. Moreau, Universite de Sherbrooke Faculte de Genie, Sherbrooke, Canada; R. Sandberg, The University of Melbourne, Melbourne, Australia; J. Yuan, Michigan State University, East Lansing, MI; A. Kushari, Indian Institute of Technology Kanpur, Kanpur, India; et al.	1050 hrs AIAA-2023-3509 Acoustics of turbulent eddies impinging on a semi-infinite rigid wedge M. Spiropoulos, F. Margnat, V. Valeau, P. Jordan, Universite de Poitiers, Poitiers, France	
Tuesday, 13 June 2023					
AA-18	Propeller, Rotorcraft and V/STOL Noise III: Ducted Rotors				Harbor A
Chaired by: M. WANG, University of Notre Dame and D. CUPPOLETTI, University of Cincinnati					
0930 hrs AIAA-2023-3512 Aeroacoustic investigation of a ducted tail rotor P. Jaiswal, J. Rendon, Y. Pasco, Universite de Sherbrooke, Sherbrooke, Canada; M. Sanjosé, Ecole de technologie superieure, Montreal, Canada; S. Moreau, Universite de Sherbrooke, Sherbrooke, Canada	0950 hrs AIAA-2023-3513 Advances in Modeling of Aft-Emitted Tonal Noise from a Ducted Fan D. Papamoschou, University of California Irvine, Irvine, CA	1010 hrs AIAA-2023-3514 Investigation of the Near Acoustic Field of a Ducted Fan K. Miller, D. Morata, D. Papamoschou, University of California Irvine, Irvine, CA			
Tuesday, 13 June 2023					
ACD-5	Fixed Wing Subsystems Design				Balboa B
Chaired by: D. WELLS, NASA Langley Research Center and S. SWAINE, Purdue University					
0930 hrs	0950 hrs	1010 hrs	1030 hrs		

AIAA-2023-3520 Propulsion System Structural Response to Variation in Aircraft Architecture S. Colbert, D. Quinn, D. Nolan, Queen's University Belfast, Belfast, United Kingdom; J. Gaskell, R. Fox, Rolls-Royce plc, Derby, United Kingdom	AIAA-2023-3521 Hybrid Wing-Body Aircraft Landing Gear Design P. Richards, B. Tate, SDI Engineering Inc., Seattle, WA	AIAA-2023-3522 Scenario-based implications of liquid hydrogen storage tank insulation quality for a short-range aircraft concept T. Burschyk, D. Silberhorn, J. Wehrspohn, M. Kühlen, T. Zill, Deutsches Zentrum für Luft- und Raumfahrt eV, Hamburg, Germany	AIAA-2023-3523 A modeling approach for trailing edge flap forces and moments in the preliminary aircraft design stage R. Stephan, C. Heyen, E. Stumpf, Rheinisch- Westfälische Technische Hochschule Aachen, Aachen, Germany; J. Ruhland, C. Breitsamter, Technische Universität München, München, Germany		
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Tuesday, 13 June 2023

ACD-6	Military Aircraft Design	Balboa A
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Chaired by: T. TAKAHASHI, Arizona State University and R. BARRETT-GONZALEZ, The University of Kansas

0930 hrs AIAA-2023-3515 DLR Project Diabolo: An Approach for the Design and Technology Assessment for Future Fighter Configurations C. Liersch, A. Schuette, Deutsches Zentrum für Luft- und Raumfahrt eV, Braunschweig, Germany; E. Moerland, Deutsches Zentrum für Luft- und Raumfahrt eV, Hamburg, Germany; M. Kalanja, Airbus Defence and Space GmbH, Manching, Germany	0950 hrs AIAA-2023-3516 Tactical Electric Missile Design R. Barrett-Gonzalez, N. Wolf, J. Coldiron, University of Kansas School of Engineering, Lawrence, KS	1010 hrs AIAA-2023-3517 Conceptual Design and Analysis of a Combat Aircraft with Folding Vertical Tails D. Finger, J. Quitter, M. Strack, Airbus Defence and Space GmbH, Manching, Germany	1030 hrs AIAA-2023-3518 Flying with Eyes Wide Shut - A Reflection on the Hollywood View of Real World Aircraft Performance T. Takahashi, Arizona State University Ira A Fulton Schools of Engineering, Tempe, AZ	1050 hrs AIAA-2023-3519 Fighter Design and Fleet Effectiveness Evaluation via System of Systems Battlespace Simulation T. Dietl, P. Prakasha, M. Schmitz, T. Zill, B. Nagel, Deutsches Zentrum für Luft- und Raumfahrt DLR Standort Hamburg, Hamburg, Germany; N. Pinson, Battlespace Simulations, Inc., Boise, ID	
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Tuesday, 13 June 2023

APA-15 0930 - 1030 hrs	Aerodynamics Award Lecture I	Harbor I
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2022 AIAA Aerodynamics Award Lecture
Marilyn Smith, Georgia Institute of Technology
Award Citation: "For contributions to the computational and theoretical aerodynamic analysis of static and dynamic systems with separated flows, particularly for Vertical Takeoff and Landing Rotorcraft Vehicles."
Lecture: Reduced-Order Modeling for Aerodynamic-Dynamic Interactions
The rapid ability to accurately estimate air loads on a vehicle in flight, in particularly maneuvering flight, can provide accelerate design of maneuvering flight. In addition, such models can provide improved vehicle response for modeling and simulation applications, including pilot training and the development of control laws. A physics-based model, using unsteady aerodynamic theories, has been developed and validated with CFD, wind tunnel and flight test data for varied

applications for UAV and UAM vehicles. The approach, which permits extension to new vehicles, as well as an innovative model builder will be detailed along with potential extensions and applications beyond its current use.

Tuesday, 13 June 2023

APA-16	Aerodynamic Testing I	Hillcrest B
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Chaired by: C. WINSKI, NASA Langley Research Center and K. BERGERON, U.S. Army DEVCOM Soldier Center

0930 hrs AIAA-2023-3535 Six Degrees of Freedom Free-flight Measurement in the VKI Longshot Wind Tunnel D. Kovács, Von Karman Institute For Fluid Dynamics, Sint-Genesius-Rode, Belgium; G. Grossir, O. Chazot, Von Karman Institute for Fluid Dynamics Aeronautics and Aerospace Department, Rhode-Saint-Genese, Belgium	0950 hrs AIAA-2023-3536 Design and integration of an internal balance prototype for wind tunnel tests of a scaled helicopter model J. Matias-Garcia, R. Bardera, Instituto Nacional de Tecnica Aerospacial, Torrejon de Ardoz, Spain; S. Franchini, Universidad Politecnica de Madrid, Madrid, Spain; E. Barderas, S. Sor, Instituto Nacional de Tecnica Aerospacial, Torrejon de Ardoz, Spain	1010 hrs AIAA-2023-3537 DMD Analysis of Simultaneous Pressure and Deformation Data of a Deformed Wing Measured by Random-dot PSP M. Imai, Tokyo University of Agriculture and Technology, Koganei, Japan; K. Nakakita, Japan Aerospace Exploration Agency, Chofu, Japan; M. Kameda, Tokyo University of Agriculture and Technology, Koganei, Japan			
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Tuesday, 13 June 2023

APA-17	Aero-Propulsive Interactions II	Hillcrest D
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Chaired by: J. RAULEDER, Georgia Institute of Technology and T. CHAU, NASA Ames Research Center

0930 hrs AIAA-2023-3538 Comparison of Two Aerodynamic Mid-Fidelity Approaches on a Distributed Propulsion Wing N. Herzog, Rolls-Royce Deutschland Ltd und Co KG, Munich, Germany; D. Keller, Deutsches Zentrum fur Luft- und Raumfahrt eV, Brunswick, Germany; C. Breitsamter, Technische Universitat Munchen, Munchen, Germany	0950 hrs AIAA-2023-3539 Experimental Propeller Placement Analysis for a Distributed Propulsion Wing Section in High Lift Configuration T. Lindner, J. Oldeweme, P. Scholz, J. Friedrichs, Technische Universitat Braunschweig Institut fur Stromungsmechanik, Braunschweig, Germany	1010 hrs AIAA-2023-3540 Experimental Parameter Study of Distributed Electric Propulsion on a 2D Wing Model in High-Lift Configuration A. Gothow, J. Weiss, A. Bardenhagen, Technische Universitat Berlin, Berlin, Germany; D. Bergmann, J. Denzel, A. Strohmayer, Universitat Stuttgart, Stuttgart, Germany	1030 hrs AIAA-2023-3541 High-Fidelity Simulations of Propeller-Wing Interactions in High-Lift Conditions A. Ribeiro, Dassault Systemes Deutschland GmbH, Stuttgart, Germany; R. Duivenvoorden, Technische Universiteit Delft, Delft, The Netherlands; D. Martins, Dassault Systemes Deutschland GmbH, Stuttgart, Germany	1050 hrs AIAA-2023-3542 Wind Tunnel Measurements of Propeller-Wing Interactional Aerodynamics S. Srivathsan, J. Rauleder, Georgia Institute of Technology, Atlanta, GA	1110 hrs AIAA-2023-3543 Contribution of Swirl Recovery to the Induced Drag of a Propeller-Wing System – A Parametric Study R. Nederlof, R. Kooij, L. Veldhuis, T. Sinnige, Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek, Delft, The Netherlands
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Tuesday, 13 June 2023

APA-18	Boundary-Layer Transition for Aerodynamic Applications I	Torrey Hills B
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Chaired by: P. PAREDES and B. VENKATACHARI, National Institute of Aerospace

0930 hrs	0950 hrs	1010 hrs	1030 hrs		
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AIAA-2023-3530 Implementation and Verification of the SST- γ and SA-AFT Transition Models in FUN3D N. Hildebrand, M. Choudhari, NASA Langley Research Center, Hampton, VA; B. Venkatachari, National Institute of Aerospace, Hampton, VA	AIAA-2023-3531 Evaluation of Transport-Equation-Based Transition Models for High-Speed Boundary Layers Using OVERFLOW E. Vogel, B. Venkatachari, National Institute of Aerospace, Hampton, VA; M. Choudhari, NASA Langley Research Center, Hampton, VA	AIAA-2023-3533 Implementation and Assessment of Menter's Galilean-Invariant γ Transition Model in OVERFLOW B. Venkatachari, National Institute of Aerospace, Hampton, VA; S. Gosin, The Pennsylvania State University, University Park, PA; M. Choudhari, NASA Langley Research Center, Hampton, VA	AIAA-2023-3534 Airfoil Stall modeling via Roughness Amplification Model Coupled to Correlation-Based Transition Model C. Bilodeau-Bérubé, E. Laurendeau, Polytechnique Montreal, Montreal, Canada		
Tuesday, 13 June 2023					
APA-19	Wind Turbine Aerodynamics				Hillcrest A
Chaired by: B. RIDER, The Boeing Company Commercial Airplanes Everett and V. CHITTA, Luminary Cloud					
0930 hrs AIAA-2023-3524 An Experimental Study to Characterize the Effects of Ice Accretion on the Aerodynamic Performance of an Offshore Wind Turbine Blade Model H. Sista, J. Wang, H. Hu, H. Hu, Iowa State University, Ames, IA	0950 hrs AIAA-2023-3525 Aerodynamic Rotor Design for a 25 MW Offshore Downwind Turbine M. Jeong, E. Loth, University of Virginia, Charlottesville, VA; C. Qin, Washington State University, Pullman, WA; M. Selig, University of Illinois Urbana-Champaign, Urbana, IL; N. Johnson, Sandia National Laboratories, Albuquerque, NM	1010 hrs AIAA-2023-3526 Flow Control with Synthetic Jets on a Wind Turbine Airfoil A. Matiz-Chicacausa, S. Molano, O. Lopez, Universidad de los Andes, Bogota, Colombia			
Tuesday, 13 June 2023					
ASE-1	Observations and Modeling of the Atmospheric Environment				Cove
Chaired by: C. ZHENG, Utah State University and A. BROWN, National Research Council Canada					
0930 hrs AIAA-2023-3544 Stratospheric Turbulence Measurements with Payload FISH and Meteorological Balloons W. Zhu, S. Skinner, S. Laurence, University of Maryland at College Park, College Park, MD; S. Wharton, A. Hidy, T. Ehrmann,	0950 hrs AIAA-2023-3545 In-situ Measurements of SAF Emissions and Young Contrails A. Brown, National Research Council Canada, Gloucester, Canada	1010 hrs AIAA-2023-3546 Optical Flight Research of SAF Effects upon Contrail Generation A. Brown, National Research Council Canada, Gloucester, Canada			

Lawrence Livermore National Laboratory, Livermore, CA					
Tuesday, 13 June 2023					
ATS-5	AAM and UAM III				Harbor D
Chaired by: V. BULUSU, Crown Consulting Inc., NASA Ames					
0930 hrs AIAA-2023-3552 Contingency Planning Toolkit for Emerging Air Mobility Ecosystems A. Fernandes, S. Wilson, Mosaic ATM, Inc., Leesburg, VA; M. Ijtsma, A. Paladugu, The Ohio State University Department of Integrated Systems Engineering, Columbus, OH; T. Davis, J. Lichty, Aerial Vantage, Leesburg, VA	0950 hrs AIAA-2023-3553 Analysis of VFR traffic uncertainty and its impact on uncrewed aircraft operational capacity at regional airports V. Bulusu, H. Idris, G. Chatterji, NASA Ames Research Center, Moffett Field, CA	1010 hrs AIAA-2023-3554 Agent-Based Modeling of Uncrewed Aircraft System Flight Planning for Airspace Fairness R. Yang, S. Walker, M. Prebble, M. Lesko, G. Landry, S. Hales, CNA Corp, Arlington, VA			
Tuesday, 13 June 2023					
ATS-6	Safety and Reliability				Balboa C
Chaired by: J. CHEN, San Diego State University					
0930 hrs AIAA-2023-3547 Safe Trajectory Planning for Safety Critical Drone Delivery A. Almozal, E. Feron, S. Saber, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia; C. Cloiseau, Thales SA, La Defense, France; K. Vanderventer, Thales Underwater Systems Neuilly-sur-Seine, Neuilly-sur-Seine, France	0950 hrs AIAA-2023-3548 Capturing Multivariate Time Series Interactions to Detect High-Risk Instability During Approach E. Juarez Garcia, M. Mulvihill, M. Kharab, University of Florida, Gainesville, FL; C. Stephens, NASA Langley Research Center, Hampton, VA; N. Napoli, University of Florida, Gainesville, FL	1010 hrs AIAA-2023-3549 Comparison of Subset Simulation Samplers for Estimating the Risk of Mid-Air Collisions M. Pfahler, F. Holzapfel, Technische Universitat Munchen, Munchen, Germany	1030 hrs AIAA-2023-3550 Investigation of Degradation Modeling for Aircraft Structures: A Systematic Literature Review L. Jilke, F. Raddatz, G. Wende, Deutsches Zentrum fur Luft- und Raumfahrt eV, Hamburg, Germany	1050 hrs AIAA-2023-3551 Impacts and Mitigations of Convective Weather on Trajectory Based Operation Automation G. Enea, M. McPartland, S. DePascale, D. Johnson, D. Eberle, Massachusetts Institute of Technology Lincoln Laboratory, Lexington, MA	
Tuesday, 13 June 2023					
CFD-9	Boundary Layer Transition III				Ocean Beach
Chaired by: P. IYER, Analytical Mechanics Associates, Inc.					
0930 hrs AIAA-2023-3555 Direct Numerical Simulation of Acoustically-	0950 hrs AIAA-2023-3556 Extending One-Equation Local Correlation-Based Transition Model for	1010 hrs AIAA-2023-3557 Direct Numerical Simulations of the Nonlinear Boundary Layer			

Driven Transition in a Hypersonic Wind Tunnel G. Andrews, Massachusetts Institute of Technology, Lincoln Laboratory, Lexington, MA; J. Poggie, Purdue University, West Lafayette, IN	Spalart-Allmaras Turbulence Model S. Vallinayagam Pillai, S. Lardeau, Siemens AG, London, United Kingdom	Transition Regime on a Blunt Swept Flat Plate at Mach 6 M. Leinemann, The University of Arizona, Tucson, AZ; A. Haas, Los Alamos National Laboratory, Los Alamos, NM; C. Hader, H. Fasel, The University of Arizona, Tucson, AZ			
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Tuesday, 13 June 2023

DGE-2/DE-2	Digital Ecosystem, Digital Thread and Digital Twin	Gaslamp A
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Chaired by: O. PINON-FISCHER, Georgia Institute of Technology and M. LORANG, Boeing

0930 hrs AIAA-2023-3558 Toward an Aircraft Design and Supply Chain Co-optimization Using Multi-commodity Network Flow Analysis E. Sirieys, D. Gochenaur, C. Gump, O. De Weck, Massachusetts Institute of Technology, Cambridge, MA	0950 hrs AIAA-2023-3559 On the Use of Resilience Models as Digital Twins for Operational Support and In-time Decision Making L. Irshad, KBR Inc, Houston, TX; D. Hulse, NASA Ames Research Center, Moffett Field, CA	1010 hrs AIAA-2023-3560 Extended Kalman Filter for State Estimation in Microsoft AirSim S. Subedi, L. Höhndorf, Industrienanlagen-Betriebsgesellschaft mbH, Ottobrunn, Germany; J. Shi, X. Fang, Technische Universität München, München, Germany; Z. Hodaie, Industrienanlagen-Betriebsgesellschaft mbH, Ottobrunn, Germany; F. Holzapfel, Technische Universität München, München, Germany	1030 hrs AIAA-2023-3561 Sensor Fusion using Probabilistic Object Detection for State Estimation S. Subedi, L. Höhndorf, R. Kulaga, Z. Hodaie, Industrienanlagen-Betriebsgesellschaft mbH, Ottobrunn, Germany; J. Shi, X. Fang, Technische Universität München, München, Germany; et al.		
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Tuesday, 13 June 2023

EATS-2	Spotlight on Sustainable Aviation Research at the National Research Council of Canada	La Jolla B
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Chaired by: N. MACRAE, National Research Council Canada

Tuesday, 13 June 2023

F360-4 0930 - 1130 hrs	Navigating the Future of Aviation Sustainability: Decarbonizing the Skies	Grand Hall A-C
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The aviation industry plays a significant role in the global economy, connecting people and businesses around the world. However, aviation is responsible for a growing percentage of greenhouse gas emissions, contributing to climate change. To address this challenge and meet the net-zero 2050 goals, the industry is focusing on decarbonization efforts now, including alternative fuels, electric and hybrid-electric aircraft, and other innovative technologies. The session will explore the latest developments in sustainable aviation fuel (SAF), including production, supply chain, and infrastructure considerations. They will also examine the potential of new technologies such as electric and hybrid-electric aircraft, exploring the technological and regulatory hurdles that must be overcome to bring these innovations to market. Finally, the session will highlight the role of partnerships and collaboration in driving progress towards a more sustainable aviation industry. Panelists will share best practices and success stories from collaborations between airlines, airports, and other stakeholders in the industry. Moderator: Cat Hofacker, Aerospace America Roberto Guerrero, US Air Force Andreas Aks, Wideroe Kolin Schunck, Lufthansa Jim Hileman, Boeing Neil Dickson, ICAO (video)

Tuesday, 13 June 2023					
FD-7	Flow Control Devices and Applications: Devices				Mission Beach A
Chaired by: N. SHUMWAY, US Air Force Academy, HQ USAFA/DFAN					
0930 hrs AIAA-2023-3881 Application of Neural Network Surrogate Models for Flow Control T. Oliveira, W. Wolf, Universidade Estadual de Campinas, Campinas, Brazil; S. Dawson, Illinois Institute of Technology, Chicago, IL	0950 hrs AIAA-2023-3564 Design and testing of an acoustic-to-flow energy conversion device K. Figueroa-Ibrahim, University of Notre Dame, Notre Dame, IN; E. Ross, G. Bennett, The University of Dublin Trinity College, Dublin, Ireland; S. Morris, University of Notre Dame, Notre Dame, IN; D. Sutliff, NASA John H Glenn Research Center, Cleveland, OH	1010 hrs AIAA-2023-3565 Estimating Coanda Valve Control Authority Using a Tailless Subscale UCAS Aircraft S. Simon, D. Williams, Illinois Institute of Technology, Chicago, IL; S. Brandt, R. Osteros, M. Munson, US Air Force Academy, USAF Academy, CO	1030 hrs AIAA-2023-3566 Investigations of Switched Vortex Valves with Ideal Gases J. Proudfoot, B. Tang, C. Nicholls, University of Oxford, Oxford, United Kingdom; M. Basic, Rolls-Royce plc, London, United Kingdom	1050 hrs AIAA-2023-3880 Wiener-Hopf approach applied for the control of forced turbulent jets D. Bonkowski Sierra Audiffred, A. Cavalieri, Instituto Tecnologico de Aeronautica, São Jose dos Campos, Brazil; P. Jordan, E. Martini, F. Amaral, National Center for Scientific Research (CNRS), Nouvelle-Aquitaine, France; I. Maia, ISAE-SUPAERO, Toulouse, France	
Tuesday, 13 June 2023					
FD-8	Shock-Boundary Layer Interactions: Experimental Studies II				Mission Beach B
Chaired by: C. TINNEY, Applied Research Laboratories					
0930 hrs AIAA-2023-3573 Unsteadiness of Mach 5 Ramp-Induced Shock-Wave/Boundary-Layer Interaction using high-speed PIV and fast-response PSP Y. Ahn, M. Eitner, J. Sirohi, N. Clemens, The University of Texas at Austin, Austin, TX	0950 hrs AIAA-2023-3574 Wall-pressure measurements in a Mach 2 Turbulent SBLI by Means of a PVDF Piezo-Film Sensor Array. C. Corsi, J. Weiss, Technische Universität Berlin, Berlin, Germany; B. Wang, H. Ngo, Hochschule für Technik und Wirtschaft Berlin, Berlin, Germany	1010 hrs AIAA-2023-3575 Three-Dimensional Flow Characterization of Double-Fin SBLI S. Seckin, M. Song, Florida State University, Tallahassee, FL; F. Zigunov, Los Alamos National Laboratory, Los Alamos, NM; F. Alvi, Florida State University, Tallahassee, FL			
Tuesday, 13 June 2023					
FD-9	Stability and Transition: Stability and Resolvent Analyses				Mission Beach C
Chaired by: K. GROOT, Texas A&M University and S. CRAIG, University of Arizona					
0930 hrs AIAA-2023-3567 RBF-FD-based global resolvent analysis: the Blasius boundary layer T. Chu, O. Schmidt, University of California San Diego, La Jolla, CA	0950 hrs AIAA-2023-3568 Linear and non-linear mechanisms of streak growth in a Blasius boundary layer D. Blanco, A. Cavalieri, Instituto Tecnologico de	1010 hrs AIAA-2023-3569 Local stability analysis of annular swirling jets B. Vasconcellos, E. Martini, V. Jaunet, E. Foucault, P. Jordan, National Center for Scientific Research, Poitiers, France	1030 hrs AIAA-2023-3570 Receptivity analysis of transversal and oblique modes in unstably stratified horizontal boundary layers under mixed convection	1050 hrs AIAA-2023-3571 Using Linear-Stability Theory to Build Transition Models A. Haas, D. Israel, Los Alamos National Laboratory, Los Alamos, NM	1110 hrs AIAA-2023-3572 Resolvent Analysis of Laminar Separation Bubble on Eppler 387 Airfoil A. Gross, New Mexico State University, Las Cruces, NM; C.

	Aeronautica, São Jose dos Campos, Brazil; D. Henningson, A. Hanifi, Kungliga Tekniska Hogskolan, Stockholm, Sweden		G. Hamada, W. Wolf, Universidade Estadual de Campinas, Campinas, Brazil; D. Pitz, Universidade Federal do Parana, Curitiba, Brazil; L. Alves, Fluminense Federal University, Niteroi, Brazil		Marks, R. Sondergaard, Air Force Research Laboratory, Wright-Patterson AFB, OH
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Tuesday, 13 June 2023

FD-10	Supersonic and Hypersonic Flows: Boundary Layers	Solana Beach B
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Chaired by: N. KIANVASHRAD, Rutgers University

0930 hrs AIAA-2023-3562 Direct Numerical Simulation of High-Speed Boundary-Layer Separation due to Backward Facing Curvature G. Nicholson, L. Szajnecki, L. Duan, The Ohio State University, Columbus, OH; N. Bisek, Air Force Research Laboratory, Wright-Patterson AFB, OH	0950 hrs AIAA-2023-3563 A Model for Particle-Induced Transition for Hypersonic Boundary Layer Flows S. Abdullah Al Hasnine, University of Maryland at College Park, College Park, MD; V. Russo, University of Kentucky, Lexington, KY; B. Saikia, C. Brehm, University of Maryland at College Park, College Park, MD	1010 hrs AIAA-2023-3450 Exploratory Schlieren Imaging of Simulated Surface Roughness and Damage Effects on a Laminar Mach 4 Boundary Layer C. Smith, C. Pheng, The University of Tennessee Space Institute, Tullahoma, TN	1030 hrs AIAA-2023-3449 Wall normal focused laser differential interferometry for measurements of flow disturbances on flat-plate models J. Lunte, E. Schüle, Deutsches Zentrum für Luft- und Raumfahrt eV, Göttingen, Germany		
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Tuesday, 13 June 2023

FL-3 0930 - 1030 hrs	Comeback of Riblet Surfaces in Aviation — Hype or Hope?	Harbor H
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Much research has been done on riblets in aviation in the last century, but there was never a real usage or business case. In recent years industry has invested in more research, but there are still questions about the economical benefit. We'll discuss whether riblets are just another hype or if they are here to stay.

Moderator: Andreas Flanschger, CEO, bionic surface technologies GmbH

Panelists:

Aaron Altman, Aerodynamic Technologies Branch Technical Advisor, USAF Research Laboratory
David Gonzalez, Program Officer for Aerodynamics, Naval Air Warfare & Weapons Dept, Office of Naval Research
Timothy J. Hebrink, Senior Staff Scientist, 3M Corporate Research Laboratory
Jonathan W. Naughton, Professor of Mechanical Engineering, and Director, Wind Energy Research Center, University of Wyoming
Brian Smith, Lockheed Martin

Tuesday, 13 June 2023

GA-3/TF-7	Advanced Air Mobility Operations	Harbor E
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Chaired by: N. FALA, Oklahoma State University and L. MOREJON RAMIREZ, Whisper Aero

0930 hrs AIAA-2023-3576	0950 hrs AIAA-2023-3577	1010 hrs AIAA-2023-3578	1030 hrs AIAA-2023-3579		
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MROPort for Airworthiness Checks of VTOLs in a Future-Proof Environment J. Eltgen, T. Schüppstuhl, Technische Universität Hamburg, Hamburg, Germany	Optimized capacity allocation in a UAM vertiport network utilizing efficient ride matching M. Swaid, J. Pertz, M. Niklaß, F. Linke, Deutsches Zentrum für Luft- und Raumfahrt DLR Standort Hamburg, Hamburg, Germany	Rotorcraft takeoff analysis and classification to detect outlier operations that could present a safety risk G. Achour, R. Silva, A. Payan, Georgia Institute of Technology, Atlanta, GA; C. Johnson, Federal Aviation Administration, Washington, D.C.; D. Mavis, Georgia Institute of Technology, Atlanta, GA	Ranking Model for Identifying Critical Blockage of Airspace Leading to Significant Airfield Inefficiency H. Feng, Y. Zhang, University of South Florida, Tampa, FL		
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Tuesday, 13 June 2023

GT-4	Novel Sensors for Testing: Characterization and Measurements	Promenade A
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Chaired by: C. NYKAMP, National Full-Scale Aerodynamics Complex - AEDC and Z. CARR, CUBRC, Inc.

0930 hrs AIAA-2023-3580 Development of Compact LWIR Borescope Sensor for Non-contact 2D Engine Component Surface Temperature Measurement A. Roy, Miami Valley School, Dayton, OH; P. Hsu, A. Zhang, T. Chen, Spectral Energies, Beavercreek, OH; B. Oleksandr, S. Adhikari, Georgia Institute of Technology, Atlanta, GA; et al.	0950 hrs AIAA-2023-3581 A Field-Deployable Wireless Data Acquisition System for Ground-Test Arrays C. Patterson, J. Underbrink, R. Collins, A. Kee, A. Gurlaskie, D. D'Andrea, Interdisciplinary Consulting Corporation (IC2), Gainesville, FL; et al.	1010 hrs AIAA-2023-3582 Characterizing Jet Impingement with Wall Shear Sensors D. Simmons, R. Meritt, N. Molinaro, Ahmic Aerospace, Dayton, OH			
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Tuesday, 13 June 2023

INPSI-4	Topics in Inlets, Nozzles, and Propulsion System Integration	Bankers Hill
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Chaired by: K. ACHESON, Boeing and F. TEJERO, Cranfield University

0930 hrs AIAA-2023-3583 Evaluation of a subsonic fluidic thrust vectoring concept - Part I: Numerical investigation of the steady and transient behaviour N. Schwagerus, J. Remiger, M. Stöbel, D. Kozulovic, Universität der Bundeswehr München Fakultät für Luft-	0950 hrs AIAA-2023-3584 Evaluation of a subsonic fluidic thrust vectoring concept - Part II: Impact on Propulsion System and Mission Performance J. Remiger, N. Schwagerus, M. Stöbel, D. Kozulovic, Universität der Bundeswehr München, Neubiberg, Germany; M. Krummenauer,	1010 hrs AIAA-2023-3585 Influence of the Engine Exhaust on the Wing Pressure Distribution, Computed with an Integrated Simulation of Airframe and Running Engine J. Mueller, K. Chiba, Denki Tsushin Daigaku, Chofu,	1030 hrs AIAA-2023-3586 Traversing Nozzle Probe in Small Gas Turbine Engines K. Brendlinger, M. Stocke, J. Taylor, Innovative Scientific Solutions, Inc., Dayton, OH; N. Grannan, M. Fernelius, Air Force Research Laboratory, Wright-Patterson AFB, OH	1050 hrs AIAA-2023-3587 Numerical Optimization of High Convolved Serpentine Air Inlet Duct Using Response Surface Methodology O. Yahsi, M. Yilmaz, E. Gunaydinoglu, Tusas-Türk Havacılık ve Uzay Sanayii AS, Ankara, Turkey; Y. Ozyoruk,	
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und Raumfahrttechnik, Neubiberg, Germany; M. Krummenauer, Bundeswehr Technical Center for Aircraft and Aeronautical Equipment, Manching, Germany	Bundeswehr Technical Center for Aircraft and Aeronautical Equipment, Manching, Germany	Japan; Y. Oba, Kabushiki Kaisha IHI, Akishima, Japan		Orta Dogu Teknik Universitesi, Ankara, Turkey	
Tuesday, 13 June 2023					
INPSI-5/ACD-7/TF-8/GTE-2/PC-1	Spotlight Session on Electrified Aircraft Technology: Hybrid-Electric and Hydrogen Innovations at DLR				Harbor C
Chaired by: R. VOS, Delft University of Technology (TU Delft)					
Tuesday, 13 June 2023					
MDO-4	Aerodynamic Design and Shape Optimization III				Old Town A
Chaired by: G. CATALDO, NASA Goddard Space Flight Center and C. LUPP, Air Force Research Laboratory					
0930 hrs AIAA-2023-3588 RANS-Based Multipoint Aeropropulsive Design Optimization of an Over-Wing Nacelle Configuration M. Abdul-Kaiyoom, A. Yildirim, J. Martins, University of Michigan, Ann Arbor, MI	0950 hrs AIAA-2023-3589 Combined systems packaging and aerodynamic shape optimization of a full aircraft configuration H. Hajdik, B. Pacini, A. Yildirim, University of Michigan College of Engineering, Ann Arbor, MI; B. Brelje, Self, Ann Arbor, MI; J. Martins, University of Michigan College of Engineering, Ann Arbor, MI	1010 hrs AIAA-2023-3590 Multi-fidelity Multi-Objective Optimization of a High-Altitude Propeller N. Mourousias, A. Malim, B. Marinus, Ecole Royale Militaire, Bruxelles, Belgium; M. Runacres, Vrije Universiteit Brussel, Brussel, Belgium	1030 hrs AIAA-2023-3591 Advancements in Coupled Aeropropulsive Design Optimization for High-Bypass Turbofan Engines A. Lamkin, A. Yildirim, J. Martins, University of Michigan, Ann Arbor, MI; N. Wukie, Air Force Research Laboratory, Wright-Patterson AFB, OH		
Tuesday, 13 June 2023					
MDO-5	Metamodeling, Reduced-Order Models, and Approximation Methods I				Old Town B
Chaired by: N. BARTOLI, ONERA and A. RENGANATHAN, Pennsylvania State University					
0930 hrs AIAA-2023-3592 Design Space Reduction using Multi-Fidelity Model-Based Active Subspaces B. Muffi, C. Perron, R. Gautier, D. Mavris, Georgia Institute of Technology, Atlanta, GA	0950 hrs AIAA-2023-3593 Inverse Machine Learning Prediction for Optimal Tilt-Wing eVTOL Takeoff Trajectory S. Yeh, University of Michigan, Ann Arbor, MI; G. Yan, X. Du, Missouri University of Science and Technology, Rolla, MO	1010 hrs AIAA-2023-3594 Surrogate-based Optimal Multidisciplinary Takeoff Trajectory Design for Electric Drones S. Sisk, G. Yan, X. Du, Missouri University of Science and Technology, Rolla, MO			
Tuesday, 13 June 2023					
MST-3	System Reliability and Certification				La Jolla A
Chaired by: F. WIELAND, Mosaic ATM, Inc. and P. ZAAL, NASA Ames Research Center					

0930 hrs AIAA-2023-3595 A Strategy for Efficient and Automated Validation and Verification of Maneuverability Requirements M. Wechner, M. Marb, F. Holzapfel, Technische Universität München, München, Germany	0950 hrs AIAA-2023-3596 Bayesian Safety Validation for Black-Box Systems R. Moss, M. Kochenderfer, Stanford University, Stanford, CA; M. Gariel, A. Dubois, Xwing, San Francisco, CA	1010 hrs AIAA-2023-3597 An integrated heterogeneous computing framework for ensemble simulations of laser-induced ignition K. Maeda, T. Teixeira, J. Wang, Stanford University School of Engineering, Stanford, CA; J. Hokanson, University of Colorado Boulder, Boulder, CO; C. Melone, Stanford University School of Engineering, Stanford, CA; M. Di Renzo, CERFACS, Toulouse, France; et al.	1030 hrs AIAA-2023-3598 Development of an AFCS SIL Twin for Autopilot Software Design and Integration S. Demirer, Tusas-Türk Havacılık ve Uzay Sanayii AS, Ankara, Turkey		
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Tuesday, 13 June 2023

MVCE-1	Geometry, Meshing, and Computational Environments	Pier
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Chaired by: J. DANNENHOFFER, Syracuse University and N. BHAGAT, University of Dayton

0930 hrs AIAA-2023-3599 On Managing Geometric Models for Multi-component, Multi-disciplinary Analysis and Design J. Dannenhover, Syracuse University, Syracuse University, Syracuse, NY, US, academic, Syracuse, NY; N. Bhagat, University of Dayton Research Institute, Dayton, OH	0950 hrs AIAA-2023-3600 CAPS and M4 Structures Studio Interfacing and Integration T. Nascenti, T. Cuatt, S. Sabeti, T. Winter, M4 Engineering Inc, Long Beach, CA; R. Durscher, J. Deaton, Air Force Research Laboratory, Wright-Patterson AFB, OH	1010 hrs AIAA-2023-3601 Free-Form Deformation of Parametric CAD Geometry via B-Spline Transformations M. Gomez, M. Galbraith, R. Haimes, Massachusetts Institute of Technology, Cambridge, MA	1030 hrs AIAA-2023-3602 Aerodynamic Simulations for Complex Geometries Using Automatically Generated Structured Overlaid Meshes A. Chuen, S. Hosseini, J. Jensen, W. Chan, NASA Ames Research Center, Moffett Field, CA		
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Tuesday, 13 June 2023

PDL-2	Plasma-Assisted Combustion and Ignition	Promenade B
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Chaired by: L. MASSA, Virginia Tech

0930 hrs AIAA-2023-3603 Simultaneous Laser Ignition and Laser-Induced Breakdown Spectroscopy of a Hydrocarbon Spray Flame P. Lokini, C. Dumitrache, B. Windom, A. Yalin, Colorado	0950 hrs AIAA-2023-3604 Towards Plasma-Assisted Combustion Using a Continuous Optical Discharge M. Hooshyar, A. Yalin, C. Dumitrache, Colorado State University, Fort Collins, CO				
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State University, Fort Collins, CO					
Tuesday, 13 June 2023					
SPSN-1	Supersonic Experimental Studies and Technologies				Gaslamp C
Chaired by: S. RALLABHANDI, NASA Langley Research Center and T. MAGEE, Boeing Research and Technology					
0930 hrs AIAA-2023-3605 Measuring fluid structure interaction in a cantilevered panel using optical fiber Bragg Gratings L. Pollock, H. Kleine, A. Neely, G. Wild, Australian Defence Force Academy, Campbell, Australia	0950 hrs AIAA-2023-3606 Enhancing Supersonic Rudder Control Surface Using Co-flow Jet Active Flow Control Z. Lei, G. Zha, University of Miami, Coral Gables, FL	1010 hrs AIAA-2023-3607 Computational Thermal-Structural Characterization of Three High Speed Acreage Panels J. Clough, A. Zakrajsek, Air Force Research Laboratory, Wright-Patterson AFB, OH			
Tuesday, 13 June 2023					
TF-6/GA-4	Improved Certification and Safety Assurance Approaches for Existing or New Concepts				Harbor F
Chaired by: N. BLAESSER, NASA Langley Research Center and N. BORER, NASA Langley Research Center					
0930 hrs AIAA-2023-3608 Revisiting "Critical-Engine-Inoperative" Conditions for Distributed Hybrid-Electric Aircraft J. Xie, M. Bendarkar, Y. Cai, D. Mavris, Georgia Institute of Technology, Atlanta, GA	0950 hrs AIAA-2023-3609 Investigation of Energy Reserve Requirements for eCTOL Aircraft using a Trajectory Energy Management Simulation J. Verberne, Y. Lee, C. Justin, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1010 hrs AIAA-2023-3610 Automated Identification of Phase of Flight via Probabilistic Clustering for General Aviation Operations G. Georgalis, Tufts University, Medford, MA; N. Fala, Oklahoma State University, Stillwater, OK	1030 hrs AIAA-2023-3611 An Extended MBSE Framework for Regulatory Analysis of Aircraft Architectures M. Bendarkar, E. Harrison, T. Fields, S. Glinski, E. Garcia, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1050 hrs AIAA-2023-3612 Designing eVTOL and UAM Aircraft for Flight Safety, EMP, EMI and HIRF Resistance, FAA Certification, Insurability, Ground Safety and Community Acceptance R. Barrett-Gonzalez, M. Denneler, Z. Schwab, M. Crispin, University of Kansas School of Engineering, Lawrence, KS	1110 hrs AIAA-2023-3613 Safety Implications of Pilot Incapacitation Occurrences for Future Single Pilot Operations A. Somerville, T. Lynar, G. Wild, Australian Defence Force Academy, Campbell, Australia
Tuesday, 13 June 2023					
TP-4	Ablation: Modeling, Experiments, and Applications II				Golden Hill A
Chaired by: A. MARTIN, University of Kentucky and A. NAGLE, Ball Aerospace					
0930 hrs AIAA-2023-3614 On the Fluid Dynamics Boundary Condition in Ablating or Blowing Flows B. Cruden, Analytical Mechanics Associates, Inc., Moffett Field, CA	0950 hrs AIAA-2023-3615 Microstructure and Oxidation Behavior of Fibers and Binders in Charring Ablators S. Chen, V. Arias, K. Stephani, F. Panerai, University of Illinois	1010 hrs AIAA-2023-3616 In-situ imaging of RTV silicone pyrolysis C. Foster, S. Oruganti, F. Panerai, University of Illinois Urbana-Champaign, Urbana, IL	1030 hrs AIAA-2023-3617 Chemical Kinetics and Thermal Properties of Ablator Pyrolysis Products during Atmospheric Entry M. Gosma, University of Illinois Urbana-Champaign, Urbana,	1050 hrs AIAA-2023-3618 Development of a custom supervised learning network to model ablation of TPS materials.	

	Urbana-Champaign, Urbana, IL; B. Bessire, NASA Ames Research Center, Moffett Field, CA		IL; C. Harper, L. Collins, Sandia National Laboratories, Albuquerque, NM; K. Stephani, University of Illinois Urbana-Champaign, Urbana, IL; J. Engerer, Sandia National Laboratories, Albuquerque, NM	V. Mohan Ramu, Q. Cheng, S. Poovathingal, University of Kentucky, Lexington, KY	
Tuesday, 13 June 2023					
TP-5	Nonequilibrium Flow Physics (joint FD/TP) III				Golden Hill B
Chaired by: W. TSAI, California State University, Maritime Academy					
0930 hrs AIAA-2023-3619 Modeling of Electronic Excitation in Weakly Ionized Nitrogen Mixtures T. Aiken, I. Boyd, University of Colorado Boulder, Boulder, CO	0950 hrs AIAA-2023-3620 Collisional Radiative Model to Estimate Nitric Oxide Vibrational Level Populations in High Mach Number Flows S. Thirani, I. Karpuzcu, D. Levin, University of Illinois Urbana-Champaign, Urbana, IL	1010 hrs AIAA-2023-3621 Parametric Comparison of the Park and MMT Chemical Kinetics Models with Multiple Freestream Speeds R. Chaudhry, I. Boyd, University of Colorado Boulder, Boulder, CO			
Tuesday, 13 June 2023					
UAS-2	Autonomy for Advanced Air Mobility Systems				Gaslamp B
Chaired by: A. LACHER, NASA and M. MCCRINK, The Ohio State University					
0930 hrs AIAA-2023-3623 Real-Time Optimal Route Planning by Deep Reinforcement Learning and Validation with Flight Test J. Shim, J. Park, N. Song, J. Jang, Gwangju Institute of Science and Technology, Gwangju, South Korea; J. Choi, Virginia Polytechnic Institute and State University, Blacksburg, VA; G. Lee, Gwangju Institute of Science and Technology, Gwangju, South Korea; et al.	0950 hrs AIAA-2023-3624 Heuristic Approach for Aircraft Assignment and Maintenance Scheduling of On-demand Urban Air Mobility Vehicles P. Sieb, R. Meissner, K. Wicke, G. Wende, Deutsches Zentrum für Luft- und Raumfahrt DLR Standort Hamburg, Hamburg, Germany	1010 hrs AIAA-2023-3625 Research and Design of Precision-Landing Drone in an Underground GPS-Denied Environment J. Racette, C. Dunaway, M. Escarcega, J. Montoya, C. Dinelli, V. Androulakis, New Mexico Institute of Mining and Technology, Socorro, NM; et al.	1030 hrs AIAA-2023-3626 Autonomous UAV navigation in GPS denied environments using Lidar Point Clouds M. Briggs, L. Castano, E. Morgan, Axient LLC, Huntsville, AL	1050 hrs AIAA-2023-3627 Non-Communicative Negotiation-Free Collision Avoidance A. Jain, J. Clarke, The University of Texas at Austin Cockrell School of Engineering, Austin, TX; F. Zeng, Georgia Institute of Technology College of Engineering, Atlanta, GA	
Tuesday, 13 June 2023					
APA-20 1030 - 1130 hrs	Aerodynamics Award Lecture II				Harbor I

2023 AIAA Aerodynamics Award Lecture Roy Hartfield, Auburn University Citation: "For development of fast and practical predictive approaches to the problem of aerodynamic analysis of air vehicles at both conceptual and preliminary design stages." Lecture: Potential and Related Methods for Efficient Aerodynamic Analysis					
Tuesday, 13 June 2023					
FL-4 1030 - 1130 hrs	Aerial Suppression of Wildfires: Present and Future Technologies and Their Implications for the Climate Crisis				Harbor H
Presenters will discuss all aspects of aerial suppression of wildfires, including aircraft types, optimized designs, effectiveness, challenges, concepts of operation, coordinated air traffic command and control, use of drones and electrically-powered aircraft, costs, benefits, detection systems, integration with existing systems, fuel concerns, environmental impacts, maintenance, piloting, robotic vehicles, and needs of air attack bases.					
Panelists: Marcus Johnson, Project Manager, Advanced Capabilities for Emergency Response Operations (ACERO), NASA Ames Research Center Jasenka Rakas, Founder, Airport Design Studio and Aviation Futures Lab, and Faculty, Civil and Environmental Engineering Department, University of California Berkeley Brien Seeley, President, Sustainable Aviation Foundation, Inc.					
Tuesday, 13 June 2023					
AA-19	Acoustic / Fluid Dynamics Interactions II				Cortez Hill B
Chaired by: K. OBERLEITHNER and L. ENGHARDT, DLR - German Aerospace Center					
1300 hrs AIAA-2023-3628 Turbulence-distortion analysis for leading-edge noise-prediction enhancement A. Piccolo, R. Zamponi, Technische Universiteit Delft, Delft, The Netherlands; F. Avallone, Politecnico di Torino, Torino, Italy; D. Ragni, Technische Universiteit Delft, Delft, The Netherlands	1320 hrs AIAA-2023-3629 A Revisit of Amiet's Trailing-edge Noise Theory through Large-Eddy Simulations D. Kang, S. Lee, University of California Davis, Davis, CA	1340 hrs AIAA-2023-3630 Wall-modelled LES of a high subsonic cavity flow at large Reynolds number I. Maia, R. Gojon, M. Bauerheim, M. Fiore, ISAE-SUPAERO, Toulouse, France; T. Node-Langlois, Airbus SAS, Blagnac, France	1400 hrs AIAA-2023-3631 Comparison of Linearized Navier-Stokes Formulations Applied to a Whistling Helmholtz Resonator L. Criscuolo, H. Denayer, W. De Roeck, W. Desmet, Katholieke Universiteit Leuven, Leuven, Belgium	1420 hrs AIAA-2023-3925 Mitigation of Flow-Induced Cylinder Noise Through the Control of Sound Diffraction R. Zamponi, F. Avallone, D. Ragni, S. van der Zwaag, Politecnico di Torino, Torino, Italy	1440 hrs AIAA-2023-3926 Structured Porous Coated Cylinder Modifications Based on Internal Flow Field Data M. Scholz, Brunel University London College of Engineering Design and Physical Sciences, London, United Kingdom; E. Arcondoulis, Southern University of Science and Technology, Shenzhen, China; P. Woodhead, T. Chong, E. Smith, Brunel University London College of Engineering Design and Physical Sciences, London, United Kingdom
Tuesday, 13 June 2023					
AA-20	Computational Aeroacoustics IV				Cortez Hill C
Chaired by: M. TERRACOL, ONERA and A. WILSON, University of Southampton					
1300 hrs AIAA-2023-3632	1320 hrs AIAA-2023-3633	1340 hrs AIAA-2023-3634	1400 hrs AIAA-2023-3635		

Development of URANS and Fast Multipole Boundary Element Method Workflow for Installed Propeller Noise S. Proskurov, R. Ewert, J. Dierke, J. Delfs, A. Stuermer, R. Chellam, Deutsches Zentrum für Luft- und Raumfahrt eV, Braunschweig, Germany	Numerical Simulation of Grid-Generated Turbulence Interaction with a NACA0012 Airfoil L. Trascinelli, L. Bowen, University of Bristol, Bristol, United Kingdom; A. Piccolo, Technische Universiteit Delft, Delft, The Netherlands; F. Avallone, Politecnico di Torino, Torino, Italy; R. Zamponi, D. Ragni, Technische Universiteit Delft, Delft, The Netherlands; et al.	Computational Aeroacoustic Predictions of the 30P30N High-Lift Airfoil D. Geneau, M. Okoronkwo, P. Lavoie, University of Toronto, Toronto, Canada; O. Stalnov, Technion Israel Institute of Technology, Haifa, Israel; S. Moreau, Université de Sherbrooke, Sherbrooke, Canada	Broadband Noise of the Transonic RAE 2822 Airfoil A. Alguacil, L. Becherucci, Université de Sherbrooke, Sherbrooke, Canada; M. Sanjosé, Ecole de technologie supérieure, Montreal, Canada; S. Moreau, Université de Sherbrooke, Sherbrooke, Canada		
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Tuesday, 13 June 2023

AA-21	Duct Acoustics IV: Liners/Treatments	Torrey Hills A
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Chaired by: M. JACOB, Ecole Centrale de Lyon and S. REDONNET, Hong Kong University of Sciences and Technology

1300 hrs AIAA-2023-3636 Performance Analysis of Acoustic Liner with Fine-Perforated-Film by Numerical Simulation Using Impulse Response Method S. Enomoto, H. Oinuma, K. Nagai, J. Oki, G. Kubo, T. Ishii, Uchu Koku Kenkyu Kaihatsu Kiko Honsha Chofu Kuko Uchu Center, Chofu, Japan; et al.	1320 hrs AIAA-2023-3637 Comparisons of Impedance Prediction Models for Perforate-over-Honeycomb Liners M. Jones, D. Nark, NASA Langley Research Center Structural Acoustics Branch, Hampton, VA	1340 hrs AIAA-2023-3638 Preliminary Design of a Distributed Facesheet Acoustic Liner for Broadband Acoustic Attenuation M. Brown, D. Nark, M. Jones, NASA Langley Research Center, Hampton, VA	1400 hrs AIAA-2023-3639 Modeling of a 3D Plate Resonator Liner and Comparison to Numerical and Experimental Investigations V. Radmann, F. Kohlenberg, E. Sarraj, Technische Universität Berlin, Berlin, Germany	1420 hrs AIAA-2023-3640 Effects of Layer Spacing for a Multilayered Facesheet Acoustic Liner C. Dodge, B. Howerton, M. Jones, NASA Langley Research Center, Hampton, VA	
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Tuesday, 13 June 2023

AA-22	General Acoustics II: Wind Turbine Noise	Cortez Hill A
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Chaired by: C. DOOLAN, The University of New South Wales and A. SHARMA, Iowa State University

1300 hrs AIAA-2023-3641 Numerical investigation of aerodynamics and aeroacoustics of helical Darrieus wind turbines K. Venkatraman, Von Karman Institute For Fluid Dynamics, Sint-Genesius-Rode, Belgium; S. Moreau, Université de Sherbrooke Faculte de Genie, Sherbrooke, Canada; J. Christophe, C. Schram, Von	1320 hrs AIAA-2023-3643 Wind turbine noise synthesis from numerical simulations A. Bresciani, J. Maillard, Centre scientifique et technique du batiment Grenoble, Saint Martin d'Herès, France; S. Le Bras, Siemens Industry Software SAS, Châtillon, France; L. de Santana, German-Dutch	1340 hrs AIAA-2023-3644 Semi-empirical framework for predicting the noise from wind-turbine blades with serrated trailing edges L. Lima Pereira, Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek, Delft, The Netherlands; F. Avallone, Politecnico di Torino, Torino,	1400 hrs AIAA-2023-3645 Far-field propagation of wind turbine noise using the Harmonoise model L. Bouma, Universiteit Twente, Enschede, The Netherlands; M. Malbois, Institut National des Sciences Appliquées de Rouen, Saint-Etienne-du-Rouvray, France; A. Bresciani, J. Maillard, Centre scientifique et technique du	1420 hrs AIAA-2023-3646 Darrieus wind turbine noise propagation in urban environments using ray tracing K. Venkatraman, Université de Sherbrooke Faculte de Genie, Sherbrooke, Canada; A. Bresciani, J. Maillard, Centre Scientifique et Technique du Batiment, Grenoble, France; S. Moreau,	
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Karman Institute For Fluid Dynamics, Sint-Genesius-Rode, Belgium	Wind Tunnels, Marknesse, The Netherlands	Italy; D. Ragni, Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek, Delft, The Netherlands; S. Buck, Siemens Gamesa Renewable Energy AS, Boulder, CO; S. Oerlemans, Siemens Gamesa Renewable Energy AS, Brande, Denmark	batiment Grenoble, Saint Martin d'Heres, France; S. Moreau, Universite de Sherbrooke, Sherbrooke, Canada; L. de Santana, German-Dutch Wind Tunnels, Marknesse, The Netherlands	Universite de Sherbrooke Faculte de Genie, Sherbrooke, Canada; J. Christophe, C. Schram, Von Karman Institute For Fluid Dynamics, Sint-Genesius-Rode, Belgium	
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Tuesday, 13 June 2023

AA-23	Jet Aeroacoustics IV: Modes and Guided Waves	Harbor B
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Chaired by: J. LIU, NRL and D. GELY, ONERA

1300 hrs AIAA-2023-3647 The guided-jet mode in compressible jets D. Edgington-Mitchell, P. Nogueira, Monash University, Clayton, Australia	1320 hrs AIAA-2023-3648 Study of the cut-on frequency of the guided jet mode in round twin jets M. Stavropoulos, Monash University, Clayton, Australia; E. Martini, National Center for Scientific Research (CNRS), Poitiers, France; D. Edgington-Mitchell, Monash University, Clayton, Australia; P. Jordan, National Center for Scientific Research (CNRS), Poitiers, France; P. Nogueira, Monash University, Clayton, Australia	1340 hrs AIAA-2023-3649 Pressure fluctuation spectral peaks due to 'guided waves' in the upstream direction of a jet K. Zaman, A. Fagan, P. Upadhyay, NASA John H Glenn Research Center, Cleveland, OH	1400 hrs AIAA-2023-3650 Quasi-self-similarity of resolvent modes of a turbulent jet B. Lyu, Peking University, Beijing, China	1420 hrs AIAA-2023-3651 Bispectral mode decomposition of axisymmetrically and non-axisymmetrically forced turbulent jets A. Nekkanti, O. Schmidt, University of California San Diego, La Jolla, CA; I. Maia, P. Jordan, National Center for Scientific Research (CNRS), Poitiers, France; L. Heidt, T. Colonius, California Institute of Technology, Pasadena, CA	1440 hrs AIAA-2023-3652 Cyclostationary analysis of forced turbulent jets L. Heidt, T. Colonius, California Institute of Technology, Pasadena, CA; A. Nekkanti, O. Schmidt, University of California San Diego, La Jolla, CA; I. Maia, P. Jordan, National Center for Scientific Research (CNRS), Poitiers, France
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Tuesday, 13 June 2023

AA-24	Propeller, Rotorcraft and V/STOL Noise IV: Rotor Vortex/Turbulence Interactions	Harbor A
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Chaired by: W. BAARS, Delft University of Technology and C. TINNEY, Applied Research Laboratories

1300 hrs AIAA-2023-3653 Ingestion of Transient Disturbances into an Open Rotor Immersed in a Boundary Layer J. Banks, S. Huang, S. Palanganda, D. Chen, W. Alexander, W. Devenport, Virginia Polytechnic Institute and State University, Blacksburg, VA	1320 hrs AIAA-2023-3654 Prediction of Ground Noise Footprint using Reduced Order Model K. Soonmoung, Y. Hong, K. Yee, Seoul National University, Gwanak-gu, South Korea	1340 hrs AIAA-2023-3655 Experimental Investigation and Predictive Analysis of Propeller Tip Vortex Characteristics and its Interaction Noise A. Karimian, C. Paruchuri, P. Joseph, University of Southampton Institute of Sound and Vibration Research, Southampton, United Kingdom	1400 hrs AIAA-2023-3656 Interactions of Propellers in Edgewise Flight with Turbulence L. Hanson, L. Bowen, B. Zang, M. Azarpeyvand, University of Bristol, Bristol, United Kingdom	1420 hrs AIAA-2023-3657 Effects of Rotor Blade Wavy Leading Edge Wavelength on Turbulence Ingestion Sound J. Anderson, C. Hickling, F. Manar, Naval Surface Warfare Center Carderock Division, West Bethesda, MD	1440 hrs AIAA-2023-3658 Computational Analysis of Sound from a Rotor Ingesting a Non-Axisymmetric Turbulent Boundary Layer D. Zhou, California Institute of Technology, Pasadena, CA; M. Wang, University of Notre Dame, Notre Dame, IN
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Tuesday, 13 June 2023

ACD-8	Developing an Entrepreneurial Mindset Among Future Aircraft Designers (INVITED)				Balboa A
Chaired by: S. FOUSE, Fouse Consulting Services and J. WILLIAMS, Rose Hulman Institute of Technology					
1300 hrs 3805132 Aerospace Engineering and the Entrepreneurial Mindset: Educating Students to Create Value for Clients and Communities Through Curiosity and Connections J. Williams, Rose Hulman Institute of Technology, Terre Haute, IN; T. Takahashi, Arizona State University Ira A Fulton Schools of Engineering, Tempe, AZ	1320 hrs AIAA-2023-3659 Integration of EML Curriculum Changes - From First-Year to Capstone K. Kecskemety, B. Rhoads, The Ohio State University, Columbus, OH	1340 hrs AIAA-2023-3660 Adapting the Aerospace Engineering Curriculum to Cultivate the Whole Engineer C. DiLeo, K. Griendling, K. Morgan, M. Patil, J. Seitzman, Georgia Institute of Technology, Atlanta, GA	1400 hrs AIAA-2023-3661 Introducing the "Entrepreneurial Mindset" into Arizona State University's Aerospace Engineering Capstone Design T. Takahashi, Arizona State University Ira A Fulton Schools of Engineering, Tempe, AZ; G. Lichtenstein, Quality Evaluation Designs, Bluff, UT		
Tuesday, 13 June 2023					
ACD-9	eVTOL ToolChains				Balboa B
Chaired by: M. LOGAN, NASA Langley Research Center and A. BERNHARD, Lockheed Martin Rotary and Mission Systems					
1300 hrs AIAA-2023-3662 Sizing and Optimization of an Urban Air Mobility Aircraft Using Parametric Aero-Propulsive Model B. Kunwar , R. Bhandari, I. Chakraborty, Auburn University, Auburn, AL	1320 hrs AIAA-2023-3663 Physics-Based Lifting Surface Weight Estimation for Conceptual Design of Vertical Takeoff and Landing Aircraft N. Zafi, I. Chakraborty, Auburn University, Auburn, AL	1340 hrs AIAA-2023-3664 Integrated Vehicle and Subsystems Sizing for Electrified Urban Air Mobility Aircraft S. Putra, I. Chakraborty, Auburn University, Auburn, AL	1400 hrs AIAA-2023-3665 Electric Aircraft Performance Analysis Utilizing Simplified Approaches for Airfoil and Propulsion Chain Design S. Diecke, Universitat der Bundeswehr Munchen, Neubiberg, Germany		
Tuesday, 13 June 2023					
APA-21	Aerodynamic Testing II				Hillcrest B
Chaired by: K. BERGERON, U.S. Army DEVCOM Soldier Center and D. DURSTON, NASA Ames Research Center					
1300 hrs AIAA-2023-3675 In-flight measurements on the Influence of Freestream Turbulence on a NLF Airfoil U. Deck, W. Würz, Universität Stuttgart Fakultät 6 Luft- und Raumfahrttechnik und Geodasie, Stuttgart, Germany	1320 hrs AIAA-2023-3676 Effect of dynamic wind direction changes on aerodynamics of a square inclined flat plate in ground effect S. Pieris, S. Yarusevych, S. Peterson, University of Waterloo Faculty of Engineering, Waterloo, Canada	1340 hrs AIAA-2023-3677 Surface Pressure Measurements on an Axisymmetric Body with Fins Using Pressure Sensitive Paint R. Pokela, J. Gustavsson, R. Kumar, Florida State University Florida Center for Advanced Aero Propulsion, Tallahassee, FL	1400 hrs AIAA-2023-3678 The Development of Pressure Gloves for Unsteady Pressure Measurements on Varying Airfoil Geometry B. Vandervoort, J. Naughton, University of Wyoming, Laramie, WY; P. Nikoueeeyan, Resono Pressure Systems, Inc., Laramie, WY		

Tuesday, 13 June 2023					
APA-22	Boundary-Layer Transition for Aerodynamic Applications II				Torrey Hills B
Chaired by: C. BADRYA, University of california Davis and M. BANCHY, NASA Langley Research Center					
1300 hrs AIAA-2023-3672 Flight Performance Modeling of the Boundary Layer Transition 1B (BOLT-1B) Experiment P. Kutty, C. Butler, B. Wheaton, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1320 hrs AIAA-2023-3673 Effects of Transpiration Cooling on Hypersonic Boundary-Layer Receptivity and Stability for Blunt Cones B. Saikia, C. Brehm, University of Maryland at College Park, College Park, MD	1340 hrs AIAA-2023-3674 Numerical and Experimental Study of Laminar-Turbulent Transition on a Laminar Airfoil at Low Reynolds Number M. Avirovic, C. Brunelli, B. Marinus, Ecole Royale Militaire, Bruxelles, Belgium; J. Degroote, Universiteit Gent, Gent, Belgium; J. Van Beeck, Von Karman Institute For Fluid Dynamics, Sint-Genesius-Rode, Belgium	1400 hrs AIAA-2023-3532 Transition Modeling based on the Dual N-factor Method for the CRM-NLF Wind Tunnel Configuration P. Paredes, B. Venkatachari, National Institute of Aerospace, Hampton, VA; M. Choudhari, F. Li, NASA Langley Research Center, Hampton, VA		
Tuesday, 13 June 2023					
APA-23	Rotorcraft and Propeller Aerodynamic III				Hillcrest A
Chaired by: N. HALL, Lockheed Martin Aeronautics and J. RAULEDER, Georgia Institute of Technology					
1300 hrs AIAA-2023-3666 Twist Optimization of a Helicopter Rotor Blade Using Support Vector Regression E. Ozyilmaz, M. Kaya, Ankara Yildirim Beyazit Universitesi, Ankara, Turkey; M. Elfarra, Abu Dhabi Polytechnic, Al Ain, United Arab Emirates	1320 hrs AIAA-2023-3667 Computations of Multicopter Aerodynamics in Vertical Flight with Overset Grids in OpenFOAM Y. Park, S. Jee, Gwangju Institute of Science and Technology, Gwangju, South Korea	1340 hrs AIAA-2023-3668 Assessment of a RANS/BET Body Force Method for Propeller Modeling H. Pantel, F. Falissard, ONERA Mecanique des fluides et energetique, Palaiseau, France; G. Dufour, Universite Federale Toulouse Midi-Pyrenees, Toulouse, France	1400 hrs AIAA-2023-3669 Multi-Fidelity Computational Analysis of a Quiet Single-Main Rotor Helicopter for Air Taxi Operations P. Ventura Diaz, D. Garcia Perez, S. Yoon, NASA Ames Research Center, Moffett Field, CA	1420 hrs AIAA-2023-3670 Comparison of Aircraft Loads Using URANS and Actuator Disk Modelling of Propellers at High Incidence C. Wales, D. Jones, A. Gaitonde, University of Bristol, Bristol, United Kingdom; P. Risley-Settle, A. Peace, Aircraft Research Association Ltd, Bedford, United Kingdom	1440 hrs AIAA-2023-3671 High-fidelity Analysis of Lift+Cruise VTOL Urban Air Mobility Concept Aircraft Y. Liu, National Institute of Aerospace, Hampton, VA; C. Druyor, L. Wang, NASA Langley Research Center, Hampton, VA
Tuesday, 13 June 2023					
ASE-2	Wake Turbulence and Other Atmospheric Hazard to Aviation Operations				Cove
Chaired by: C. ZHENG, Utah State University and E. JOHNSON, FAA					
1300 hrs AIAA-2023-3679 Investigating Errors of Wake Vortex Retrievals Using High Fidelity Lidar Simulations	1320 hrs AIAA-2023-3680 Civil Aviation Wake Turbulence Infrasound Sensing Flight Research	1340 hrs AIAA-2023-3681 Further flight data on jet transport cruising flight wake vortex characteristics.	1400 hrs AIAA-2023-3682 Artificial Neural Networks for Individual Tracking and Characterization of Wake Vortices in LIDAR Measurements		

N. Wartha, A. Stephan, F. Holzäpfel, G. Rothsteyn, Deutsches Zentrum für Luft- und Raumfahrt DLR Institut für Physik der Atmosphäre, Oberpfaffenhofen-Wessling, Germany	A. Brown, National Research Council Canada, Ottawa, Canada	A. Brown, National Research Council Canada, Gloucester, Canada	A. Stephan, N. Wartha, F. Holzäpfel, L. Stietz, Deutsches Zentrum für Luft- und Raumfahrt eV, Oberpfaffenhofen, Germany		
Tuesday, 13 June 2023					
ATM-2	Enabling Improved Separation Assurance and Self-Separation				Balboa C
Chaired by: L. REN, Raytheon Technologies					
1300 hrs AIAA-2023-3683 Helicopter Pilot Assessments of the Airborne Collision Avoidance System X _R with Automated Maneuvering C. Smith, R. Rorie, M. Chandarana, T. Tyson, J. Keeler, NASA Ames Research Center, Moffett Field, CA; V. Tran, California State University Long Beach, Long Beach, CA	1320 hrs AIAA-2023-3684 Visual Approach and Separation: Measurement of Use and Impact D. Howell, L. Tran, J. King, Regulus Group LLC, Woodstock, VA	1340 hrs AIAA-2023-3685 Implementation of a Kinetic Trajectory Model for an Operational Air Traffic Control System S. Torres, E. Griffin, Leidos Inc, Reston, VA			
Tuesday, 13 June 2023					
ATS-7	AAM and UAM IV				Harbor D
Chaired by: N. GUNADY, Purdue University					
1300 hrs AIAA-2023-3686 Distributed Decision Contextualization via Machine Learning based Reverse Parametrization S. Hicks, A. Das, H. Idris, NASA Ames Research Center, Moffett Field, CA	1320 hrs AIAA-2023-3687 Comprehensive Risk Assessment and Utilization for Contingency Management of Future AAM System A. Altun, Y. Xu, G. Inalhan, Cranfield University, Cranfield, United Kingdom; M. Hardt, Boeing Research & Technology - Europe, Madrid, Spain				
Tuesday, 13 June 2023					
CFD-10	CFD-APA I				Solana Beach A
Chaired by: B. VENKATACHARI, National Institute of Aerospace					
1300 hrs AIAA-2023-3692	1320 hrs AIAA-2023-3693	1340 hrs AIAA-2023-3694	1400 hrs AIAA-2023-3695		

Assessment of Numerical Methods for Ship Airwake Simulations with Unsteady Atmospheric Boundary-Layer Effects D. Major, S. Schmitz, The Pennsylvania State University, University Park, PA; J. Shipman, J. Bin, Combustion Research and Flow Technology Inc, Pipersville, PA; S. Polsky, Naval Air Systems Command, Patuxent River, MD	High-Fidelity Simulations of Human-Scale Mars Lander Descent Trajectories J. Carlson, S. Dutta, Z. Ernst, K. Jacobson, W. Jones, A. Korzun, NASA Langley Research Center, Hampton, VA; et al.	Dust Erosion Correlation for Mars Entry Vehicles and Hypersonic Cruise Vehicle Leading-Edges A. Boland, A. Hinkle, S. Hosder, Missouri University of Science and Technology, Rolla, MO; T. West, NASA Langley Research Center, Hampton, VA	Exploring the Accuracy of RANS Simulations for Mars Entry Vehicles C. Pederson, M. Schoenenberger, NASA Langley Research Center, Hampton, VA		
Tuesday, 13 June 2023					
CFD-11	High-Order Numerical Methods I			Ocean Beach	
Chaired by: P. KUMAR, Corning Incorporated and R. RANJAN, University of Tennessee at Chattanooga					
1300 hrs AIAA-2023-3688 Application of Modal Representation for Instantaneous Statistical Analysis of Flows Simulated with Spectral Element Method M. Ranjbar, D. Belknap Fernandez, F. Mashayek, The University of Arizona, Tucson, AZ; J. Komperda, University of Illinois Chicago College of Engineering, Chicago, IL	1320 hrs AIAA-2023-3689 A Stabilised Face-Upwinded High-Order Method for Incompressible Flows Y. Pan, P. Persson, University of California Berkeley, Berkeley, CA	1340 hrs AIAA-2023-3690 Conservative and Robust Compact Finite Difference Approach for Simulations of Dense Gas Flows H. Song, A. Ghate, S. Dai, A. Chandra, S. Lele, Stanford University, Stanford, CA	1400 hrs AIAA-2023-3691 Performance and Efficiency of HPC by High Accuracy Compact Scheme: Direct Numerical Simulation of Rayleigh-Taylor Instability P. Sundaram, Indian Institute of Technology Kanpur, Kanpur, India; J. Mendez, Corredsa, Tyrone, GA; A. Sengupta, T. Sengupta, Indian Institute of Technology, Dhanbad, India		
Tuesday, 13 June 2023					
DE-3	Innovative & Creative Designs in Aerospace and Other Areas			Gaslamp A	
Chaired by: M. CALVERT, U. S. Army Combat Capabilities Development Command – Aviation and Missile Center and O. PINON-FISCHER, Georgia Institute of Technology					
1300 hrs AIAA-2023-3696 Assessment of Techniques for Global Sensitivity Analyses in Conceptual Aircraft Design M. Alder, T. Ahmed, B. Fröhler, Deutsches Zentrum für Luft- und Raumfahrt DLR Standort Hamburg, Hamburg, Germany; A. Skopnik,	1320 hrs AIAA-2023-3277 Approaching Complex Societal Problems Tied to Aviation E. Rieken, E. Brubaker, T. Simpson, NASA Langley Research Center, Hampton, VA				

Technische Universität Chemnitz, Chemnitz, Germany					
Tuesday, 13 June 2023					
FD-11	Shock-Boundary Layer Interactions: Instabilities/Unsteadiness				Mission Beach B
Chaired by: C. TINNEY, Applied Research Laboratories and D. ARAYA, The Johns Hopkins University - Applied Physics Laboratory (JHU/APL)					
1300 hrs AIAA-2023-3697 Thermal boundary condition effects on shock boundary layer interactions of a supersonic turbine cascade G. Hamada, H. Lui, W. Wolf, Universidade Estadual de Campinas, Campinas, Brazil; T. Ricciardi, University of Illinois Urbana-Champaign, Urbana, IL; C. Junqueira-Junior, Ecole Nationale Supérieure d'Arts et Metiers, Paris, France	1320 hrs AIAA-2023-3698 Analysis of Streamwise Vortex Streaks in Shockwave-Boundary Layer Interactions on a Hollow Cylinder-Flare at $M_\infty = 4$ S. Ledbetter, L. Lester, A. Garner, H. Goldston, C. Smith, M. Gragston, The University of Tennessee Space Institute, Tullahoma, TN; et al.	1340 hrs AIAA-2023-3699 Effect of Inlet Mach Number on Shock- Boundary Layer Interactions in a Supersonic Turbine Cascade H. Lui, Universidade Estadual de Campinas, Campinas, Brazil; T. Ricciardi, University of Illinois Urbana-Champaign, Urbana, IL; W. Wolf, Universidade Estadual de Campinas, Campinas, Brazil; D. Gaitonde, The Ohio State University, Columbus, OH	1400 hrs AIAA-2023-3700 Laminar/Transitional Fin- Induced Shock Boundary Layer Interactions on a Hollow Cylinder at Mach 5 A. Plummer, S. Padmanabhan, A. Singh, J. Threadgill, J. Little, The University of Arizona, Tucson, AZ		
Tuesday, 13 June 2023					
FD-12	Special Session: Prof. Anatoli Tumin Memorial Session II				Promenade B
Chaired by: H. FASEL, University of Arizona and I. WYGNANSKI, University of Arizona					
Tuesday, 13 June 2023					
FD-13	Stability and Transition: Experimental Studies				Mission Beach C
Chaired by: K. GROOT, Texas A&M University and N. TICHENOR, Texas A&M University					
1300 hrs AIAA-2023-3701 Wall-Cooling Effect on Boundary-Layer Instability Growth and Transition in the AFRL Mach-6 Ludwig Tube J. Clingenpeel, University of Dayton, Dayton, OH; E. Benitez, J. Hill, M. Tufts, M. Borg, Air Force Research Laboratory Aerospace Systems Directorate, Wright- Patterson AFB, OH; C. Running, University of Dayton, Dayton, OH	1320 hrs AIAA-2023-3702 Transition Onset Downstream of an Axisymmetric Separation Bubble under Mach-6 Quiet Flow E. Benitez, M. Borg, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH; J. Hill, Air Force Institute of Technology, Wright-Patterson AFB, OH; Z. McDaniel, J. Jewell, Purdue University, West Lafayette, IN	1340 hrs AIAA-2023-3703 Study of Bluntness- Induced Elongated Structures using Variable Beam Separation FLDI A. Berger, M. Borg, Air Force Research Laboratory, Wright- Patterson AFB, OH	1400 hrs AIAA-2023-3704 Hypersonic Boundary Layer Transition Measurements using Wall Shear Sensors N. Molinaro, D. Simmons, R. Meritt, Ahmic Aerospace, Dayton, OH; J. White, N. Tichenor, Texas A&M University System, College Station, TX	1420 hrs AIAA-2023-3705 Stability Analysis of Hypervelocity Ballistic- Range Data A. Hameed, J. Chen, N. Parziale, Stevens Institute of Technology, Hoboken, NJ; S. Dungan, B. Saikia, C. Brehm, University of Maryland at College Park, College Park, MD	1440 hrs AIAA-2023-3706 Effect of Porosity on the Ability of Silicon-Carbide Foams to Attenuate Second-Mode Boundary- Layer Instability B. Bemis, University of Dayton, Dayton, OH; J. Hill, Air Force Institute of Technology, Wright-Patterson AFB, OH; M. Borg, Air Force Research Laboratory, Wright-Patterson AFB, OH; J. Redmond, Purdue University, West Lafayette, IN; K. Jantze, C. Scalo, Hysonic

					Technologies LLC, West Lafayette, IN; et al.
Tuesday, 13 June 2023					
FD-14	Supersonic and Hypersonic Flows: Maneuverability, Control, and Stability				Solana Beach B
Chaired by: N. KIANVASHRAD, Rutgers University and A. MAGSTADT, Sierra Nevada Corporation					
1300 hrs AIAA-2023-3707 On the Unsteadiness of a Hypersonic Flow and Pulsed Side Jet Interaction I. Karpuzcu, D. Levin, University of Illinois Urbana-Champaign, Urbana, IL	1320 hrs AIAA-2023-3708 Effect of geometric and thermal parameters on sensitivity and stability of ogive-cylinder forebody flows K. Kanawade, U. Sasidharan, Florida State University, Tallahassee, FL; D. Gaitonde, The Ohio State University, Columbus, OH	1340 hrs AIAA-2023-3709 Noise amplification in hypersonic blunt body flows A. Dwivedi, M. Jovanovic, University of Southern California, Los Angeles, CA			
Tuesday, 13 June 2023					
FT-4 1300 - 1400 hrs	2022 RVL T VMS Degraded/Failed Powertrain Effect on Handling/Flying Qualities of the Lift + Cruise				Harbor C
Continued discussions of the results from the Revolutionary Vertical Lift Technology Project's 4 Week eVTOL aircraft handling qualities at the NASA Ames Vertical Motion Simulator.					
Tuesday, 13 June 2023					
GT-5	Optical Diagnostics and Measurements in Hypersonic Flows				Promenade A
Chaired by: A. CHOU, NASA Langley Research Center and M. RHODE, NASA-Langley Research Center					
1300 hrs AIAA-2023-3710 Application of Regularization Methods for Recovering Unsteady Forces and Moments from Free-Flight Optical Measurements in Hypersonic Impulse Facilities W. Zhu, S. Laurence, University of Maryland at College Park, College Park, MD	1320 hrs AIAA-2023-3711 Numerical and experimental investigations of flow features over a wedge exposed to M=3.5 supersonic flow conditions B. Cakir, G. Grossir, B. Saracoglu, Von Karman Institute For Fluid Dynamics, Sint-Genesius-Rode, Belgium; C. Fureby, Lunds Universitet, Lund, Sweden	1340 hrs AIAA-2023-3712 Free-Flight Optical Tracking using Artificial Image Generation R. de Silva, T. Whalen, S. Laurence, University of Maryland at College Park, College Park, MD	1400 hrs AIAA-2023-3713 Hypersonic Aerodynamics from Mach 7 Free-Flight Tests: Initial Experiments and Simulations with Rotating and Non-Rotating Cubes A. Lock, F. Hack, University of Southern Queensland, Springfield, Australia; G. Armstrong, University of Southern Queensland, Toowoomba, Australia; I. Jahn, University of Southern Queensland, Springfield, Australia; F. Zander, D. Buttsworth, University of Southern Queensland, Toowoomba, Australia	1420 hrs AIAA-2023-3714 Investigation of the Impact of the Sabot-Discard on the Trajectory of a Kinetic Energy Projectile D. Kharlamov, A. Zeiner, B. Martinez, French-German Research Institute of Saint-Louis, Saint-Louis, France	

Tuesday, 13 June 2023					
GTE-1/INPSI-6/HSABP-3		AIAA Engine Design Competition for Undergraduate Teams: Round 2			Harbor F
Chaired by: I. HALLIWELL, Northwind Propulsion Inc. and S. WATSEK, Rolls-Royce Liberty Works					
Tuesday, 13 June 2023					
MDO-6		Metamodeling, Reduced-Order Models, and Approximation Methods II			Old Town B
Chaired by: A. RENGANATHAN, Pennsylvania State University and A. CARRERE, Boeing					
1300 hrs AIAA-2023-3715 Reduced Order Model for Steady Aerodynamics Applications Based on Navier-Stokes Residual Vector Minimization C. Fallet, A. Garbo, A. Kiener, P. Bekemeyer, Deutsches Zentrum für Luft- und Raumfahrt DLR Standort Braunschweig, Braunschweig, Germany	1320 hrs AIAA-2023-3716 Optimal Experimental Design-based Reduced Order Modeling for Learning Optimal Aerodynamic Designs L. Wang, Johns Hopkins University, Baltimore, MD; J. Martins, University of Michigan, Ann Arbor, MI; X. Du, Missouri University of Science and Technology, Rolla, MO	1340 hrs AIAA-2023-3717 Model reduction for hypersonic flows in thermochemical non-equilibrium. S. Joshi, Virginia Polytechnic Institute and State University, Blacksburg, VA; W. Hwang, S. Choi, Gwangju Institute of Science and Technology, Gwangju, South Korea	1400 hrs AIAA-2023-3718 Efficient Global Optimization for Multidisciplinary Conceptual Design of Hypersonic Vehicles J. Needels, J. Alonso, Stanford University, Stanford, CA	1420 hrs AIAA-2023-3719 Deep-Learning Methods for Non-Linear Transonic Flow-Field Prediction S. Sureshbabu, F. Tejero , F. Sanchez-Moreno, D. MacManus, Cranfield University Cranfield School of Aerospace Transport and Manufacturing, Cranfield, United Kingdom; C. Sheaf, Rolls-Royce plc, Derby, United Kingdom	
Tuesday, 13 June 2023					
MDO-7		NASA ULI: Urban air mobility vehicle design using large-scale MDAO			Old Town A
Chaired by: J. HWANG, University of California San Diego and D. SAROJINI, University of California San Diego					
1300 hrs AIAA-2023-3720 Model Reduction of Isogeometric Shell Structures For Large-Scale Design Optimization S. van Schie, J. Hwang, University of California San Diego, La Jolla, CA	1320 hrs AIAA-2023-3721 Automatic adjoint sensitivity analysis of models for large-scale multidisciplinary design optimization M. Sperry, University of California San Diego, La Jolla, CA; K. Kondap, Francis Parker School, San Diego, CA; J. Hwang, University of California San Diego, La Jolla, CA	1340 hrs AIAA-2023-3722 Airfoil shape parameterization using reconstruction-error-minimizing generative adversarial networks M. Ruh, University of California San Diego, La Jolla, CA; X. Liu, Dartmouth College, Hanover, NH; R. Yu, J. Hwang, University of California San Diego, La Jolla, CA			
Tuesday, 13 June 2023					
MST-4		Modeling and Simulation of Dynamic Systems			La Jolla A
Chaired by: C. TAYLOR, The MITRE Corporation and G. CHATTERJI, Crown Consulting, Inc.					
1300 hrs AIAA-2023-3723	1320 hrs AIAA-2023-3724				

Modeling and Simulation of Real-Time Rotorcraft Brownout for a Flight Simulator C. Cordell, O. Pierson, D. Hope, J. Stewart, Georgia Tech Research Institute, Atlanta, GA; J. Gaston, E. Grigorian, Georgia Tech Research Institute, Huntsville, AL	An Aerodynamic Reinvestigation of the Hydroplaning Phenomenon T. Wan, Tamkang University, Taipei, Taiwan				
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Tuesday, 13 June 2023

SPSN-2/APA-24	Supersonic Method Developments	Gaslamp C
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Chaired by: D. LAZZARA, The Boeing Company and R. DECKER, US Air Force Academy

1300 hrs AIAA-2023-3725 A reduced-order model for supersonic transport take-off noise scaling with cruise Mach number L. Voet, R. Speth, J. Sabnis, C. Tan, S. Barrett, Massachusetts Institute of Technology, Cambridge, MA	1320 hrs AIAA-2023-3726 Development of an aerodynamic surrogate model for conceptual supersonic aircraft design based on DLR TAU simulations S. Schnell, Deutsches Zentrum für Luft- und Raumfahrt eV, Braunschweig, Germany	1340 hrs AIAA-2023-3727 Recent Enhancements to Modeling Sonic Boom Propagation using Augmented Burgers' Equation S. Rallabhandi, NASA Langley Research Center, Hampton, VA; M. Nemec, M. Aftosmis, NASA Ames Research Center, Moffett Field, CA			
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Tuesday, 13 June 2023

TP-6	Aerothermodynamics and Thermal Protection Systems I	Golden Hill A
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Chaired by: K. WEED, Ball Aerospace and H. KLINE, Virgin Galactic

1300 hrs AIAA-2023-3728 Kinetic and Transport Modeling for Entry Flows in Hydrogen-Helium Atmospheres A. Carroll, G. Blanquart, California Institute of Technology, Pasadena, CA; A. Brandis, NASA Ames Research Center, Moffett Field, CA; B. Cruden, AMA Inc at NASA Ames Research Center, Moffett Field, CA	1320 hrs AIAA-2023-3729 Materials Response Modeling of Pyrolysis Gases Flow Through Material with Thin Layers H. Gur, C. Settlers, R. Fu, A. Martin, University of Kentucky, Lexington, KY	1340 hrs AIAA-2023-3730 Dragonfly backshell radiation measurements in the EAST facility A. Tibère-Inglesse, Oak Ridge Associated Universities, Oak Ridge, TN; C. Johnston, NASA Langley Research Center, Hampton, VA; A. Brandis, NASA Ames Research Center, Moffett Field, CA; B. Cruden, Analytical Mechanics Associates, Inc., Mountain View, CA	1400 hrs AIAA-2023-3731 Shock Tube Study of CO Dissociation at Entry Conditions via MHz Rate Laser Absorption Spectroscopy N. Minesi, L. Lai, M. Richmond, C. Jelloian, R. Spearrin, University of California Los Angeles, Los Angeles, CA	1420 hrs AIAA-2023-3732 Radiation Interaction with Particulates in Planetary Entry Flows A. Hinkle, C. Johnston, NASA Langley Research Center, Hampton, VA; S. Hosder, Missouri University of Science and Technology, Rolla, MO	1440 hrs AIAA-2023-3733 Inverse estimation of the Kentucky Re-entry Universal Payload System (KRUPS) flight trajectory B. Tacchi, A. Martin, S. Poovathingal, University of Kentucky, Lexington, KY
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Tuesday, 13 June 2023

TP-7	CFD of Nonequilibrium Flow Physics (joint FD/TP)	Golden Hill B
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Chaired by: D. PYTEL, Lockheed Martin Space Systems and A. MARTIN, University of Kentucky					
1300 hrs AIAA-2023-3734 Modeling of Unsteady 1D Shocks Using the DSMC Approach to Estimate Emission Spectra S. Thirani, I. Karpuzcu, D. Levin, University of Illinois Urbana-Champaign, Urbana, IL	1320 hrs AIAA-2023-3735 First principle simulation of CUBRC double cone experiments M. Grover, P. Valentini, N. Bisek, A. Verhoff, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH	1340 hrs AIAA-2023-3736 Nonequilibrium Effects on Aero-Optics in Hypersonic Flows M. Liza, O. Tumuklu, K. Hanquist, The University of Arizona, Tucson, AZ			
Tuesday, 13 June 2023					
VSTOL-1 1300 - 1500 hrs	International Powered Lift Conference (IPLC): Looking Back to the Future: V/STOL Evolution and Its Current Revolution				Harbor I
This presentation will review the major successes and failures in the field of V/STOL aviation, and compiles specific lessons learned that have endured the test of time. In addition, the past will be tied to the future by looking at the evolution of V/STOL aircraft and how current advances have pushed the V/STOL engineering discipline to the forefront of aeronautical innovation and entrepreneurship in the US and around the world.					
Host: Geoffrey Jeram, U.S. Army Combat Capabilities Command Speaker: Erasmo Piñero - Airborne Tactical Advantage Company (ATAC)					
Tuesday, 13 June 2023					
F360-5 1330 - 1500 hrs	Sustainable Aviation Fuel & Certification				Grand Hall A-C
Sustainable Aviation Fuel (SAF) is the most promising near- and mid-term solution to reducing carbon emissions and put AVIATION on a path towards achieving net-zero emissions by 2050. SAF can be made with a variety of technologies, which use physical, biological, and chemical reactions to break down biomass and waste resources and recombine them into energy-dense hydrocarbons. This session will explore these various technologies. SAF Grand Challenge - Anna Oldani, FAA Moderator: Curt Epstein, AIN Joseph Ran, World Energy Jim Anderson, LanzaJet Staff Sheehan, Air Company					
Tuesday, 13 June 2023					
FL-5 1330 - 1500 hrs	Toward Routine Operations of More Aircraft (m) Than Remote Pilots (n)				Harbor H
The AAM ecosystem is expected to advance from current state-of-the-art operations to a ubiquitous capability. There are numerous challenges associated with autonomous aircraft and their technical/operational, safety and security, societal acceptance, and regulatory. The path from existing m:n operations on small UAS in isolated areas to larger aircraft, such as air taxis and cargo aircraft, operating in a more integrated NAS is not clear. The panel will discuss key gaps in aviation and research community activities that need to be addressed and accelerated to enable routine m:n operations in civil airspace.					
Moderator: Kelley Hashemi, NASA Panelists: Michael Francis, Consultant Maxime Gariel, Chief Technical Officer, XWing Andrew Lacher, Chief Technologist for Future Airspace Operations, NASA Langley Research Center Mark Shikerman, Human Engineering Manager, Wisk Aero					
Tuesday, 13 June 2023					

HUB-1 1330 - 1400 hrs	General Atomics: SUAS/ALE Aerial Recovery			the HUB in Seaport Ballroom	
SUAS/ALEs have become valuable military assets but have limitations on their endurance and range. Further, most currently are recovered via belly or skid landing, which is not possible for operations over blue water. Even when recovering on land, the ALE's airframes and payloads are jeopardized. To remain affordable, they must utilize inexpensive sensors with limited performance. ALE Aerial Recovery will be a game changer: ALEs can be recovered over blue water and no longer will airframes and payloads be jeopardized. ALEs will be able to carry high performance sensors that will dramatically improve the ALE's effectiveness. This presentation will show GA-ASI's concept for SUAS/ALE aerial recovery, the mission cost benefit of SUAS/ALE aerial recovery, and our technical roadmap.					
Speaker: Mike Allwein, Technical Director, General Atomics Aeronautical Systems					
Tuesday, 13 June 2023					
AIAA-3 1400 - 1600 hrs	Rising Leaders in Aerospace: Speed Mentoring			Grand Hall D	
Leaders in the aerospace industry will take time to meet with the Rising Leaders participants and share their experiences. This event is a great way to get insight and make new contacts.					
Tuesday, 13 June 2023					
HUB-2 1400 - 1430 hrs	Concurrent Real-Time			the HUB in Seaport Ballroom	
Sponsored by Concurrent Real-Time					
Tuesday, 13 June 2023					
NW-4 1500 - 1530 hrs	Networking Break			Seaport Ballroom	
Coffee breaks allow even more time for making new contacts, continuing discussions from sessions, visiting the Exposition Hall, or checking emails and voicemails to keep in touch with the office while you are at the forum.					
Tuesday, 13 June 2023					
AA-25	Aeroacoustics Virtual I: Aero-engine Noise Topics			Virtual	
Chaired by: L. KOCH, NASA Glenn Research Center and F. ASFOOR, NASA Glenn Research Center					
1530 hrs AIAA-2023-3737 Effect of Stator Stagger Angle on Rotor-stator Interaction Noise W. Shu, R. Yan, L. Du, F. Ning, X. Sun, Beihang University, Beijing, China	1530 hrs AIAA-2023-3738 Optimum acoustic impedance for a finite-length nacelle liner of turbofan engine J. Zhang, Beihang University Research Institute of Aero-Engine, Beijing, China; W. Shu, R. Yan, Beihang University School of Energy and Power Engineering, Beijing, China; L. Du, Beihang University Research Institute of Aero-Engine, Beijing, China; X. Sun, Beihang University School of	1530 hrs AIAA-2023-3739 CAA based noise prediction for wind energy turbines C. Appel, Deutsches Zentrum für Luft- und Raumfahrt eV, Braunschweig, Germany	1530 hrs AIAA-2023-3642 Aerodynamic and aeroacoustic investigation of vertical axis wind turbines with different number of blades using mid-fidelity and high-fidelity methods S. Shubham, Nottingham Trent University, Nottingham, United Kingdom; N. Wright, University of Birmingham, Birmingham, United Kingdom; F. Avallone, Politecnico di Torino, Torino, Italy; A.		

	Energy and Power Engineering, Beijing, China		Ianakiev, Nottingham Trent University, Nottingham, United Kingdom		
Tuesday, 13 June 2023					
AA-26	Aeroacoustics Virtual II: Jet Noise, Airfoil Noise, and/or Noise from Cylinders				Virtual
Chaired by: H. BODEN, KTH and C. BOGEY, Ecole Centrale de Lyon					
1530 hrs AIAA-2023-3740 Comparison of Lighthill's and Lilley's Acoustic Analogies for Jet Noise Modelling S. N. P., A. Sinha, Indian Institute of Technology Bombay, Mumbai, India	1530 hrs AIAA-2023-3741 Aeroacoustic investigation of active base blowing applied to a structured porous cylinder R. Maryami, E. Arcondoulis, Y. Liu, Southern University of Science and Technology, Shenzhen, China	1530 hrs AIAA-2023-3742 Experimental investigation of local blowing for noise and flow control of a circular cylinder R. Maryami, E. Arcondoulis, Y. Liu, Southern University of Science and Technology, Shenzhen, China	1530 hrs AIAA-2023-3743 Experimental investigation of coherent and turbulent fluid flow interactions with a circular cylinder R. Maryami, Southern University of Science and Technology, Shenzhen, China; S. Showkat Ali, Universiti Malaysia Perlis, Arau, Malaysia; M. Azarpeyvand, University of Bristol, Bristol, United Kingdom	1530 hrs AIAA-2023-3744 Effect of flexible trailing-edge modifications on three-dimensional airfoil noise at large Reynolds numbers R. Singh, A. Mimani, Indian Institute of Technology Kanpur, Kanpur, India	1530 hrs AIAA-2023-3745 Tone generation in impinging jets with laminar and highly-disturbed nozzle-exit boundary layers M. Varé, C. Bogey, Laboratoire de Mecanique des Fluides et d'Acoustique, Ecully, France
Tuesday, 13 June 2023					
APA-25	Aerodynamic Flow Control I				Virtual
Chaired by: S. SINGH, Embry-Riddle Aeronautical University					
1530 hrs AIAA-2023-3746 Aerodynamic Flow Control using a Dynamically Morphing Leading Edge (DMLE) for the UAS-S45 Airfoil M. Bashir, M. Negahban, R. Botez, T. Wong, Ecole de technologie superieure, Montreal, Canada	1530 hrs AIAA-2023-3747 Aerodynamic effects of a tube-type AC-DBD plasma actuator J. Zhao, H. Zhang, X. Meng, A. Shi, Northwestern Polytechnical University, Xi'an, China	1530 hrs AIAA-2023-3748 Analysis of riblets modeling for aeronautical applications B. Mele, E. Saetta, R. Tognaccini, Universita degli Studi di Napoli Federico II, Napoli, Italy	1530 hrs AIAA-2023-3749 Control of Flow Separation using Fluidic Oscillators on a NACA 0015 Aerofoil A. Chaudhary, K. Poddar, Indian Institute of Technology Kanpur, Kanpur, India	1530 hrs AIAA-2023-3750 Flow Sensing of a Slender Nose Forebody at High Angle of Attack Based on Finite Surface Pressure Information L. Li, Z. Wang, Y. Gu, Z. Zhang, Y. Lei, Z. Peng, Nanjing University of Aeronautics and Astronautics, Nanjing, China	
Tuesday, 13 June 2023					
APA-26	Airfoil/Wing/Configuration Aerodynamics				Virtual
Chaired by: G. HALILA, University of Michigan and H. BEN-GIDA, University of Toronto					
1530 hrs AIAA-2023-3751 A Cross Flow Vortex Model of Delta Wings S. Lee, Self, Studio City, CA	1530 hrs AIAA-2023-3752 Design and Testing of a Wing with a Morphing Trailing Edge J. Pinho, Universidade da Beira Interior, Covilha, Portugal; E. Camacho,	1530 hrs AIAA-2023-3753 Aeroelasticity of Telescopic Morphing UAV Wing D. Singha, S. Murugan, Indian Institute of Technology Madras, Chennai, India	1530 hrs AIAA-2023-3754 Coherent Explanation of Aerodynamic Lift and Threshold Condition of Drag Divergence Using	1530 hrs AIAA-2023-3755 Investigation of Streamtube Flow Choking and Unchoking on the Aerodynamic	1530 hrs AIAA-2023-3756 Aerodynamic performance of a Quadcopter in Hover Flight with the Unsteady Vortex Lattice Method

	Universidade de Sao Paulo, São Carlos, Brazil; A. Silva, Universidade da Beira Interior, Covilha, Portugal		the Concept of Sanal Flow Choking V. Sanal Kumar, Vikram Sarabhai Space Centre, Thiruvananthapuram, India; V. Rajendran, The University of New South Wales, Canberra, Australia; S. Sharma, R. Sharma, V. Dekkala, Y. Raj, Amity University, Noida, India; et al.	Performance of Transonic Aircraft S. Shrivastava, Y. Raj, Amity University, Noida, India; V. Sanal Kumar, Vikram Sarabhai Space Centre, Thiruvananthapuram, India; V. Rajendran, University of New South Wales Canberra at ADFA, Canberra, Australia; V. Dekkala, S. Sharma, Amity University, Noida, India; et al.	A. Perez Gordillo, Universidad del Rosario, Bogota, Colombia; J. Escobar, Advecton, Chia, Colombia; S. Poroseva, The University of New Mexico, Albuquerque, NM; O. Lopez, Universidad de los Andes, Bogota, Colombia
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Tuesday, 13 June 2023

ATM-3	Enabling Growth Within Aerospace Traffic Management Operations	Virtual
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Chaired by: M. VELEV, Aries Design Automation, LLC

1530 hrs AIAA-2023-3757 Comparison Study between PoW and PoS Blockchains for Unmanned Aircraft System Traffic Management S. Hashemi, R. Botez, G. Ghazi, Ecole de technologie superieure, Montreal, Canada	1530 hrs AIAA-2023-3758 Development of a Map-Matching Algorithm for the Analysis of Aircraft Ground Trajectories using ADS-B Data M. Szymanski, G. Ghazi, R. Botez, Ecole de technologie superieure, Montreal, Canada	1530 hrs AIAA-2023-3759 Adapting an air traffic conflict resolution algorithm to meet real-world requirements, including the use of conflict probability to take account of uncertain trajectories R. Irvine, C. Barret, EUROCONTROL Innovation Hub, Bretigny-sur-Orge, France			
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Tuesday, 13 June 2023

CFD-12	Large Eddy Simulations I	Virtual
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Chaired by: P. IYER, Analytical Mechanics Associates, Inc. and P. BRADY, Los Alamos National Laboratory

1530 hrs AIAA-2023-3760 Influence of aspect ratio on wake structure evolution and wake profiles behind a heaving wing V. V K, D. Patel, Vellore Institute of Technology, Vellore, India	1530 hrs AIAA-2023-3761 Large eddy simulation of supersonic turbulent pipe flow at moderate Reynolds number M. Babbar, S. Ghosh, Indian Institute of Technology Kharagpur, Kharagpur, India	1530 hrs AIAA-2023-3762 High Fidelity CFD Simulation of sub-scale Race Car Wing and Wheel Configurations J. Pangerl, Hochschule Esslingen, Esslingen, Germany	1530 hrs AIAA-2023-3763 <i>Numerical investigation of a bluff-body stabilized flame in a curved channel</i> Y. Yalcinkaya, B. Sukuroglu, A. Gungor, Istanbul Teknik Universitesi Ucak ve Uzay Bilimleri Fakultesi, Istanbul, Turkey	1530 hrs AIAA-2023-3764 Modeling of Spray-Induced Wall Stress on a Hot Surface of Ignition Assistance Device S. Kim, New York University - Abu Dhabi Campus Engineering Division, Abu Dhabi, United Arab Emirates; R. Torelli, S. Oruganti, Argonne National Laboratory, Lemont, IL; J. Ryu, New York University - Abu Dhabi Campus Engineering Division, Abu	1530 hrs AIAA-2023-3765 A Hybrid RANS-LES Transient Study of Propeller-Airframe Interaction for Electric UAV O. Walvekar, S. Chakravarthy, Indian Institute of Technology Madras, Chennai, India
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				Dhabi, United Arab Emirates; T. Lee, University of Illinois Urbana-Champaign, Urbana, IL; K. Kim, Army Research Laboratory Aberdeen Proving Ground, Aberdeen Proving Ground, MD; et al.	
Tuesday, 13 June 2023					
CFD-13	Numerical Algorithms I				Virtual
Chaired by: L. RILEY, Air Force Research Laboratory					
1530 hrs AIAA-2023-3766 High-Dimensional Uncertainty Propagation in Aerodynamics using Polynomial Chaos-Kriging N. Iyengar, D. Mavris, Georgia Institute of Technology College of Engineering, Atlanta, GA	1530 hrs AIAA-2023-3767 Resolvent Analysis using Subspace Algorithms for Aerodynamic Applications U. Vevek, S. Timme, University of Liverpool, Liverpool, United Kingdom	1530 hrs AIAA-2023-3768 Performance Investigation of a Jump Indicator Driver for P-adaptation in Incompressible Navier-Stokes Simulations of a Flat Plate E. de Oliveira Carvalho, R. Costa Moura, A. de Castro da Silva, Instituto Tecnológico de Aeronautica, São Jose dos Campos, Brazil			
Tuesday, 13 June 2023					
DGE-3	Digital Engineering Virtual Session				Virtual
Chaired by: O. PINON-FISCHER, Georgia Institute of Technology					
1530 hrs AIAA-2023-3769 Utilizing Computer Vision Algorithms to Detect Contrails K. Sharma, Homestead High School, Cupertino, CA; S. Jain, Saratoga High School, Saratoga, CA; E. Wu, Pittsford Sutherland High School, Pittsford, NY; Z. Fattah, STEM High School for Boys, 6th of October City, Egypt; C. Sarin, Bellarmine College Preparatory, San Jose, CA; D. Maeshiro, Oxford Academy, Cypress, CA; et al.	1530 hrs AIAA-2023-3770 The Application of Digital Engineering at a Tier 1 Supplier and the Challenges of Integrating throughout the Supply Chain (OEM to Tier 1 Supplier and below) C. Reinhart, J. Huffman, Spirit AeroSystems Inc, Wichita, KS	1530 hrs AIAA-2023-3771 Formalizing the Decomposition Process Between Elements in the RFLP Framework Using Axiomatic Design Theory E. Omoarebun, S. Cimtalay, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1530 hrs AIAA-2023-3772 Digital Engineering is too important to be left alone to MBSE Practitioners R. Mannepalli, Leidos Inc, Reston, VA	1530 hrs AIAA-2023-3773 Uncertainty Propagation in Orbital Mechanics Using Stochastic Expansion Methods I. Nakulugamuwa, Mississippi State University, Mississippi State, MS	
Tuesday, 13 June 2023					
F360-6 1530 - 1700 hrs	Hydrogen: Fuel of the Future				Grand Hall A-C

The industry commitment to net zero 2050 comes with many challenges, not least of which is finding fuels that provide energy density comparable to current aviation fuels. Hydrogen has many of the characteristics required but comes with another set of challenges and benefits. Leading industry advocates will address the challenges and their vision of hydrogen as a fuel for the next generation of AVIATION. CHEETA - Using H2 to Drive Efficiency, Phil Ansell, Univ. of Illinois Moderator: Scott Cary, NREL Val Miftakhov, ZeroAvia Chris Gilmore, Universal Hydrogen Naomi Allen, ATI Josef Kallo, H2Fly

Tuesday, 13 June 2023

FD-15	Multiphase Flows	Virtual
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Chaired by: P. UPADHYAY, NASA Glenn Research Center

1530 hrs AIAA-2023-3774 Two-phase wake-mixing layer flow past a splitter plate: an experimental investigation A. Della Pia, Universita degli Studi di Napoli Federico II, Napoli, Italy; T. Michelis, Technische Universiteit Delft, Delft, The Netherlands; M. Chiatto, Universita degli Studi di Napoli Federico II, Napoli, Italy; M. Kotsonis, Technische Universiteit Delft, Delft, The Netherlands; L. de Luca, Universita degli Studi di Napoli Federico II, Napoli, Italy	1530 hrs AIAA-2023-3775 Computation of liquid jets BiGlobal spectrum via randomly perturbed numerical data A. Colanera, A. Della Pia, M. Chiatto, L. de Luca, Universita degli Studi di Napoli Federico II, Napoli, Italy	1530 hrs AIAA-2023-3776 Numerical investigation of hole propagation in a three-dimensional liquid curtain M. Acquaviva, A. Della Pia, A. Colanera, M. Chiatto, L. de Luca, Universita degli Studi di Napoli Federico II, Napoli, Italy	1530 hrs AIAA-2023-3777 Dynamics of Water Drop Driven by Plasma Actuation Base on Digital Image Projection Technique W. Hui, Z. Zhou, X. Meng, Northwestern Polytechnical University School of Aeronautics, Xi'an, China; H. Gu, D. Zhu, Shenyang Key Laboratory of Aircraft Icing and Ice Protection, Shenyang, China	1530 hrs AIAA-2023-3778 Coalesce property of the liquid droplet V. Mathaiyan, S. S. Jeju National University, Jeju, South Korea; V. Raja, S. Madasamy, A. Raji, R. G. Kumaraguru College of Technology, Coimbatore, India; et al.	
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Tuesday, 13 June 2023

FD-16 1530 - 1830 hrs	Transition Open Forum	Harbor D
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The Transition Open Forum involves multi-length but generally short presentations that are intended to report on timely research activities related to fluid instabilities and transition to turbulence.

Tuesday, 13 June 2023

FL-6 1530 - 1700 hrs	Development of eVTOL Market	Harbor H
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This panel will discuss how the industry can ensure the safety of eVTOL vehicles and what advancements are being made in battery technology to increase their range and reliability. We'll also look at the regulatory environment for eVTOLs. The outlook for the future of eVTOL market, including investment, growth potential, and challenges to commercialization, also will be examined.

Moderator: Paul Brinkman, Aerospace America

Panelists:

Chris Gee, Future Aviation Technologist, Connected Places Catapult

Gopinath Mallipatna, Global Director at IMA, and Co-Founder & Investor, Startup Basket

Carlotta Manca, Propulsion Systems Engineer, General Electric

Matthew Clark, Assistant Professor, University of Illinois

Dr.-Ing. Peter Wagner, Senior Manager Technology, ISOVOLTA AG

Sachin Ramesh, Director and CEO, Volador FlyTech

Tuesday, 13 June 2023					
FT-5	Other Topics in Flight Testing				Virtual
Chaired by: O. DANTSKER, University of Illinois at Urbana-Champaign and H. RAMACHANDRA MURTHY, The Boeing Company					
1530 hrs AIAA-2023-3779 Airborne Separation Inertial System (ASIS) and Trajectory Computation of Aircraft Launched Stores – A Solution to Store Separation in Flight Testing S. Ailneni, S. Kashyap, National Aerospace Laboratories CSIR, Bengaluru, India; A. Saraf, D. Livingstone, K. A. Aeronautical Development Agency, Bengaluru, India	1530 hrs AIAA-2023-3780 Flight Testing of Tailless Subscale HAPS Aircraft O. Dantsker, Aerovironment Inc, Simi Valley, CA; S. Haviland, optimAero, Tehachapi, CA; R. Allford, D. Daley, B. Danowsky, D. Haplin, Aerovironment Inc, Simi Valley, CA; et al.	1530 hrs AIAA-2023-3781 Stall Model Identification Using Flight Path Reconstruction of Multiple Maneuvers J. Dias, Flight Test and Research Institute, São Jose dos Campos, Brazil	1530 hrs AIAA-2023-3782 A Dynamic Mode Decomposition Based Approach for Rapid Detection of Aeroelastic Modes from Flutter Flight Test Data A. Das, P. Marzocca, RMIT University, Melbourne, Australia; O. Levinski, Defence Science and Technology Group Melbourne, Fishermans Bend, Australia		
Tuesday, 13 June 2023					
GA-5	Analyses for Increased Aviation Safety and/or Throughput				Virtual
Chaired by: J. XIE, Georgia Institute of Technology					
1530 hrs AIAA-2023-3783 Exploration of General Aviation Aircraft Ride Comfort Related to Turbulence L. Kliment, K. Rokhsaz, Wichita State University, Wichita, KS; M. Rafi, University of Colorado Boulder, Boulder, CO	1530 hrs AIAA-2023-3784 Integration of Drones with 5G Connectivity to Airfields for Enhancing Mission Readiness and Structural Health Monitoring B. Herkenhoff, M. Hassanalian, New Mexico Institute of Mining and Technology, Socorro, NM	1530 hrs AIAA-2023-3785 Physics-based Modeling for Autonomous Operation of Unmanned Aerial Systems in Extreme Gusts B. Davoudi, K. Duraisamy, E. Atkins, P. Gaskell, M. Krogius, University of Michigan, Ann Arbor, MI			
Tuesday, 13 June 2023					
HSABP-4	High-Speed Combustion Experimentation and Modeling				Virtual
Chaired by: R. ACHARYA, University of Tennessee Space Institute and C. JOHNSON, Aerojet Rocketdyne					
1530 hrs AIAA-2023-3786 Flame Propagation Characteristic of Cyclohexene/Air Mixtures H. Peng, T. Yang, Sun Yat-Sen University, Guangzhou, China	1530 hrs AIAA-2023-3787 Dynamic Mode Decomposition of the Combustion Flow Field in a Scramjet Combustor with a Cavity Flameholder	1530 hrs AIAA-2023-3788 Effect of Cavity Offset Ratio on the Combustion Characteristics of Strut-Cavity Flame Holder S. Pranaykumar, R. Kumar, N. Kumar, R. C. A. Ghosh, Indian	1530 hrs AIAA-2023-3789 ReaxFF Molecular Dynamics Simulations on Supercritical Pyrolysis of JP-10 with the Suspension of Nanoengineered Fuel Additives	1530 hrs AIAA-2023-3790 Automated Unstructured Grid Adaptation on a Strut Fuel Injector at Hypervelocity Flow Conditions P. Drummond, NC State University, Raleigh, NC; T.	

	S. Ogawa, Osaka Metropolitan University, Sakai, Japan	Institute of Technology Kharagpur, Kharagpur, India	E. Choi, Sejong University, Gwangjin-gu, South Korea; S. Hong, California State University Bakersfield, Bakersfield, CA; C. Yoon, Hanbat National University, Daejeon, South Korea; H. Lee, Pukyong National University, Busan, South Korea; H. Sim, Sejong University, Gwangjin-gu, South Korea	Drozda, R. Baurle, M. O'Connell, NASA Langley Research Center, Hampton, VA	
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Tuesday, 13 June 2023

LTA-1	Lighter-Than-Air-Systems II: Winged Hybrids Virtual Session	Virtual
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Chaired by: K. CRAWFORD, Self

1530 hrs AIAA-2023-3791 Conceptual Design of a Solar Powered Winged Hybrid Airship for Agricultural purposes R. Nambiar, P. Gupta, Indian Institute of Technology Bombay, Mumbai, India; M. M, Manipal Institute of Technology, Manipal, India	1530 hrs AIAA-2023-3792 Methodology for Conceptual sizing of a Turbine Aerostat for Electrical power generation R. Nambiar, M. Dixit, R. Pant, Indian Institute of Technology Bombay, Mumbai, India	1530 hrs AIAA-2023-3793 A Demonstration Model of Solar Powered Long-Endurance Stratospheric Hybrid LTA Vehicles K. Iwata, National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan; A. Okumoto, Toyohashi Gijutsu Kagaku Daigaku, Toyohashi, Japan; M. Onda, Tokiwa LLC, Funabashi, Japan			
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Tuesday, 13 June 2023

MDO-8	Multidisciplinary Design Optimization Virtual Session	Virtual
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Chaired by: A. DE LA GARZA, Lockheed Martin Aeronautics and A. FELDSTEIN, Aurora Flight Sciences, A Boeing Company

1530 hrs AIAA-2023-3794 Acceleration of Three-Dimensional Navier-Stokes Solver Using Deep Neural Network for Aerodynamic Design Optimization Y. Tsunoda, Fujitsu Ltd., Kawasaki, Japan; A. Oyama, Japan Aerospace Exploration Agency, Sagamihara, Japan	1530 hrs AIAA-2023-3795 Multi-objective Optimization of Electric Pumps for Hybrid Rocket Engines A. Ferrero, G. Gedda, F. Masseni, D. Pastrone, Politecnico di Torino, Torino, Italy	1530 hrs AIAA-2023-3796 Aerostructural Wing Optimization Using a Surrogate Model of the Structure in a Coupled-Adjoint Formulation J. Fontana, P. Piperni, Clarkson University, Potsdam, NY; Z. Yang, D. Mavriplis, University of Wyoming, Laramie, WY	1530 hrs AIAA-2023-3471 Automatic Parameterization for Aerodynamic Shape Optimization via Deep Geometric Learning Z. Wei, P. Fua, Ecole Polytechnique Federale de Lausanne, Lausanne, Switzerland; M. Bauerheim, ISAE-SUPAERO, Toulouse, France	1530 hrs AIAA-2023-3313 Centrifugal blower optimization using gradient-free approaches and RANS simulation R. Lavimi, A. Benchikh Le Hocine, S. Poncet, B. Marcos, Universite de Sherbrooke Faculte de Genie, Sherbrooke, Canada; R. Panneton, Universite de Sherbrooke, Sherbrooke, Canada	
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Tuesday, 13 June 2023

MST-5	Estimation, Control, and Optimization					Virtual
Chaired by: D. SAROJINI, University of California San Diego and M. MADDEN, NASA-Langley Research Center						
1530 hrs AIAA-2023-3797 Model-referenced Adaptive Flight Controller based on Recurrent Neural Network for the Longitudinal Motion of the Cessna Citation X S. Hosseini, C. Inga, G. Ghazi, R. Botez, Ecole de technologie superieure, Montreal, Canada	1530 hrs AIAA-2023-3798 Neural network adaptive controller with approximate dynamic inversion for pitch control of the Cessna Citation X R. Andrianantara, G. Ghazi, R. Botez, Ecole de technologie superieure, Montreal, Canada	1530 hrs AIAA-2023-3799 Arbitrary Prescribed-Time Disturbance Observer-Based Neural Backstepping using Time-Varying Asymmetric BLF P. Singh, D. Giri, A. Ghosh, Indian Institute of Technology Kanpur, Kanpur, India	1530 hrs AIAA-2023-3800 Neuro-Backstepping Sliding Mode Flight Control using Asymmetric Barrier Lyapunov Function P. Singh, D. Giri, A. Ghosh, Indian Institute of Technology Kanpur, Kanpur, India	1530 hrs AIAA-2023-3801 Application of Type One Adaptive Fuzzy Sliding Mode Control System for the Longitudinal Motion of the Cessna Citation X S. Hosseini, G. Ghazi, R. Botez, Ecole de technologie superieure, Montreal, Canada	1530 hrs AIAA-2023-3802 Design of a Type Two Fuzzy-based system to Control the Pitch Rate of the Cessna Citation X S. Hosseini, G. Ghazi, R. Botez, Ecole de technologie superieure, Montreal, Canada	
Tuesday, 13 June 2023						
TES-1	Topics in Terrestrial Energy Systems Virtual Session				Virtual	
Chaired by: T. ABDEL-SALAM, East Carolina University						
1530 hrs AIAA-2023-3803 Insulation Design for Liquid Cryogenic Hydrogen Fuel Tanks for Hydrogen Powered Aircraft K. Shank, B. Thomas, R. Agarwal, Washington University in St Louis, St Louis, MO	1530 hrs AIAA-2023-3804 Performance Study of N+3 Turbofan Engine Model for Several Types of Fuels Using NPSS A. Solomon, R. Agarwal, Washington University in St Louis, St Louis, MO	1530 hrs AIAA-2023-3805 Extinction-Strain-Driven Combustion Dynamics in Swirl-Stabilized, Lean-Premixed CH ₄ /NH ₃ Combustion A. Abd El-Rahman, S. Shanbhogue, T. Boushaki, A. Ghoniem, Massachusetts Institute of Technology, Cambridge, MA				
Tuesday, 13 June 2023						
TP-8	Thermophysics General -Virtual				Virtual	
Chaired by: F. PANERAI, University of Illinois at Urbana Champaign and R. GOSSE, University of Florida						
1530 hrs AIAA-2023-3806 Simulation of in-flight Anti-Icing based AC-SDBD plasma actuation Z. Ran, X. Meng, Northwestern Polytechnical University, Xi'an, China; X. Yi, S. Liu, China Aerodynamics Research and Development Center Key Laboratory of Icing and Anti/De-icing of Aircraft, Mianyang, China	1530 hrs AIAA-2023-3807 A study of flow and heat transfer characteristics in real and ideal anisotropic foams X. Kong, H. Zhang, X. Wang, Xi'an Jiaotong University, Xi'an, China	1530 hrs AIAA-2023-3808 Experimental Results of the Electron Transpiration Cooling Effect in the X2 Expansion Tunnel O. Paxton, The University of Queensland School of Mechanical & Mining Engineering, Saint Lucia, Australia; H. Porat, Defence Science and Technology Group, Brisbane, Australia; I. Jahn, University of Southern	1530 hrs AIAA-2023-3809 Evaluation of a kinetic-theory approach for chemical-reaction rates in upper-atmosphere hypersonic flows C. Civrais, C. White, R. Steijl, University of Glasgow, Glasgow, United Kingdom			

		Queensland, Toowoomba, Australia			
Tuesday, 13 June 2023					
UAS-3	Autonomous Mission Management Concepts & Technologies II				Virtual
Chaired by: O. ARIFF, University of Salford and P. GHASSEMI, Caterpillar Inc.					
1530 hrs AIAA-2023-3810 Formalized Reasoning of Operational Volumes for Wildland Fire Fighting T. Slagel, NASA Langley Research Center, Hampton, VA; M. Davis, NC State University, Raleigh, NC; N. Neogi, NASA Langley Research Center, Hampton, VA	1530 hrs AIAA-2023-3811 A Robotic Solution for Autonomous Battery Swapping of Unmanned Aerial Vehicles K. Mirza, Indian Institute of Technology Bombay, Mumbai, India; A. Bohrey, Somaiya Vidyavihar University K J Somaiya College of Engineering, Mumbai, India; S. Banger, Mukesh Patel School of Technology Management and Engineering, Mumbai, India; H. Agrawal, D. Shukla, R. Pant, Indian Institute of Technology Bombay, Mumbai, India	1530 hrs AIAA-2023-3813 Partially-Observable Monocular Autonomous Navigation for UAV through Deep Reinforcement Learning Y. Zhang, K. Low, C. Lyu, Nanyang Technological University, Singapore, Singapore	1530 hrs AIAA-2023-3814 Design and Implementation of an Attitude Determination and Control Subsystem testbed for up to 12-U CubeSat E. Alnaqbi, S. Alghaiithi, H. Alkaabi, F. Alhassani, N. Alameri, M. Atallah, United Arab Emirates University, Al Ain, United Arab Emirates; et al.		
Tuesday, 13 June 2023					
WATCH1 1530 - 1700 hrs	Tuesday Virtual Session Watch Rooms				Virtual Session Watch Rooms
Please visit the following rooms if you would like to utilize space to watch virtual technical paper sessions. This space will be open to anyone who would like to use it, so you will need your own computer and headphones to watch the session of your choice. Balboa A Balboa B Balboa C La Jolla A La Jolla B Old Town A Old Town B					
Tuesday, 13 June 2023					
NW-5 1730 - 1900 hrs	Welcome Happy Hour in the Exposition Hall				Seaport Ballroom
Take this opportunity to engage new contacts and refresh old ones. Proof of purchase required for the reception and included in the registration fee where indicated. Admission for guests may be purchased upon registration or on site, as space is available.					
Tuesday, 13 June 2023					
EATS-SOCIAL 1800 - 1900 hrs	EATS Social Hour				Bayview Room - 32nd Floor
If you are interested in Electric Aircraft Technology, come learn more about EATS and talk with the organizers about how you can get involved.					
Tuesday, 13 June 2023					

FD-17 1900 - 2000 hrs	Fluid Dynamics Award Lecture	Harbor B
Title: Role of Computational Fluid Dynamics in the Era of Industrial LES- From 50 years of CFD study Recipient: Dr. Kozo Fujii Affiliation: Professor, Faculty of Engineering, Tokyo University of Science and Technology Citation: For many pioneering contributions to robust and efficient computational algorithms and their application to solve major industrial challenges using leading-edge supercomputers.		
Wednesday		
Wednesday, 14 June 2023		
SP-3 0730 - 0800 hrs	Technical Papers Session Prep	Session Rooms
Authors who are presenting papers will meet with session chairs and co-chairs in their session rooms for a short 30-minute prep on the day of their sessions to exchange bios and review final details prior to the session. Please attend on the day of your session(s).		
Wednesday, 14 June 2023		
PLNRY-3 0800 - 0900 hrs	Opening Keynote: Opportunities in the Challenging Dynamics of AAM	Grand Hall A-C
Advanced Air Mobility is an exciting, evolving dynamic landscape that is a complex interplay between technical, financial, and policy/regulatory factors. This talk will primarily focus on those three factors and summarize the current state of affairs and highlight some of the key challenges and opportunities. On the technical side, there is no shortage of challenging issues to address in the areas of power and propulsion, autonomous operations, and integration of diverse vehicles into airspace systems around the world. On the financial side, market dynamics, rationales for sound business cases, and private sector funding continue to advance. Lastly, the policy and regulatory communities continue to respond to the rapid pace of change in the other two sectors. While challenges are significant, there are great opportunities that will contribute revolutionary leaps towards a new age of aviation – and the AIAA community will continue to play a significant role in solving them. Robie Samanta Roy, Managing Director, Cerberus Capital Management; Former COO/Federal Strategy, Electra.aero		
Wednesday, 14 June 2023		
NW-6 0900 - 0930 hrs	Networking Break	Seaport Ballroom
Coffee breaks allow even more time for making new contacts, continuing discussions from sessions, visiting the Exposition Hall, or checking emails and voicemails to keep in touch with the office while you are at the forum.		
Wednesday, 14 June 2023		
HUB-5 0915 - 0945 hrs	PEGASAS Center of Excellence for General Aviation	the HUB in Seaport Ballroom
The Partnership to Enhance General Aviation Safety, Accessibility and Sustainability (PEGASAS) is an FAA Center of Excellence for General Aviation. The mission of PEGASAS is to enhance general aviation safety, accessibility, and sustainability by partnering the FAA with a national network of world-class researchers, educators, and industry leaders. This discussion will focus on how the PEGASAS Center of Excellence for General Aviation can answer research questions for advanced air mobility.		

Speakers:
 William Crossley J. William Uhrig and Anastasia Vournas Head of Aeronautics and Astronautics, Purdue University; Director, FAA Center for General Aviation Research (PEGASAS)
 Keith Hoffler President, Senior Research & Development Engineer, Adaptive Aerospace Group; Advisory Board Member, FAA Center for General Aviation Research (PEGASAS)
 John Valasek Aerospace Engineering, Texas A&M University; Site Director, FAA Center for General Aviation Research (PEGASAS)

Wednesday, 14 June 2023

AA-27	Advanced Testing Techniques I: Phased Arrays	Cortez Hill C
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Chaired by: C. BROWN, NASA Glenn and W. HUMPHREYS, NASA Langley Research Center

0930 hrs AIAA-2023-3815 Development of an Economical 2-DOF Continuous-Scan Acoustic Beamforming Array K. Lieb, S. Kinney, Texas A&M University, College Station, TX; P. Shah, D. Hensley, L. Schweizer, ATA Engineering, Inc., San Diego, CA; D. Hartl, Texas A&M University, College Station, TX	0950 hrs AIAA-2023-3816 Generalized microphone array geometries for source separation in engine intra-stages R. Venkateswaran, P. Joseph, C. Paruchuri, University of Southampton Institute of Sound and Vibration Research, Southampton, United Kingdom	1010 hrs AIAA-2023-3817 Development of In-Flow Phased Microphone Array Windscreen Corrections for Small and Large Arrays N. Burnside, W. Horne, NASA Ames Research Center, Moffett Field, CA	1030 hrs AIAA-2023-3818 Microphone Array Based Trajectory Reconstruction for Small UAV Fly-by Measurements G. Herold, E. Sarraj, Technische Universität Berlin, Berlin, Germany	1050 hrs AIAA-2023-3819 Enhancement of array processing techniques for CAA-based acoustic imaging S. Bouley, J. Chambon, O. Minck, MicrodB, Écully, France	
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Wednesday, 14 June 2023

AA-28	Airframe / High-Lift Noise III	Cortez Hill B
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Chaired by: M. POTT-POLLENSKE, DLR - German Aerospace Center and I. CLARK, NASA Langley Research Center

0930 hrs AIAA-2023-3820 Active Control of Trailing Edge Noise: Analysis of Prototype System Experimental Data S. Buck, Siemens Gamesa Renewable Energy AS, Brande, Denmark; P. Joseph, University of Southampton, Southampton, United Kingdom; S. Oerlemans, Siemens Gamesa Renewable Energy AS, Brande, Denmark; O. Hernandez, Siemens Gamesa Renewable Energy SA, Madrid, Spain	0950 hrs AIAA-2023-3821 Adapting a Trailing-Edge Noise Model to an Impedance Boundary Condition A. Hales, L. Ayton, University of Cambridge, Cambridge, United Kingdom	1010 hrs AIAA-2023-3822 An experimental investigation of turbulent-boundary-layer trailing-edge noise from an aerofoil equipped with a flexible trailing edge Q. Liu, Y. Liu, Southern University of Science and Technology, Shenzhen, China	1030 hrs AIAA-2023-3823 Prediction of Poro-Serrated Trailing-Edge Noise at Non-Zero Angle of Attack S. Satcunanathan, A. Niemöller, M. Meinke, W. Schroeder, Rheinisch-Westfälische Technische Hochschule Aachen, Aachen, Germany	1050 hrs AIAA-2023-3824 The impact of non-frozen turbulence on the noise prediction for serrated trailing edges H. Tian, B. Lyu, Peking University, Beijing, China	
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Wednesday, 14 June 2023

AA-29	Interior Noise / Structural Acoustics and Metamaterials	Cortez Hill A
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Chaired by: J. MENDOZA and M. JONES, NASA-Langley Research Center

0930 hrs AIAA-2023-3825 Aeroacoustic simulations of full-scale sedan vehicle towards interior noise predictions G. Brès, C. Ivey, D. Philips, S. Bose, Cadence Design Systems Inc, San Jose, CA; M. Miyazawa, K. Morishita, Kabushiki Kaisha Honda Gijutsu Kenkyujo, Wako, Japan; et al.	0950 hrs AIAA-2023-3826 Validation of an advanced Turbulent Boundary Layer noise model using low speed wind tunnel tests on a Falcon fuselage. V. Bonneau, S. Lemaire, V. Fleury, Y. Revalor, Dassault Aviation, Saint-Cloud, France	1010 hrs AIAA-2023-3827 Evaluation of an Additive-Manufactured Acoustic Metamaterial as an Nacelle Liner using the Active Noise Control Fan E. Ross, The University of Dublin Trinity College, Dublin, Ireland; K. Figueroa-Ibrahim, University of Notre Dame, Notre Dame, IN; D. Sutliff, NASA John H Glenn Research Center, Cleveland, OH; S. Morris, University of Notre Dame, Notre Dame, IN; G. Bennett, The University of Dublin Trinity College, Dublin, Ireland	1030 hrs AIAA-2023-3828 Directionally Sensitive Sensor Based on Acoustic Metamaterials E. Braaten, S. Damani, W. Alexander, W. Devenport, Virginia Polytechnic Institute and State University, Blacksburg, VA; T. Starkey, J. Sambles, University of Exeter, Exeter, United Kingdom; et al.	1050 hrs AIAA-2023-3829 Low-frequency Broadband Noise Absorption of Multi-chamber Micro-perforated Pane Absorbers in Normal and Grazing Acoustic Incidence J. Wang, G. Bennett, The University of Dublin Trinity College, Dublin, Ireland; T. Humbert, Y. Auregan, Laboratoire d'Acoustique de l'Universite du Mans, Le Mans, France; M. Åbom, H. Boden, Kungliga Tekniska Hogskolan, Stockholm, Sweden	
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Wednesday, 14 June 2023

AA-30	Jet Aeroacoustics V: Models and Analogies, and Installation Effects	Harbor B
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Chaired by: J. BRIDGES, NASA Glenn Research Center and S. MILLER, University of Florida

0930 hrs AIAA-2023-3830 Experiments on installed jet noise F. Amaral, A. Lebedev, P. Jordan, National Center for Scientific Research (CNRS), Poitiers, France	0950 hrs AIAA-2023-3831 Aeroacoustic Analysis of a Closely Installed Chevron Nozzle Jet using the High-Order Discontinuous Galerkin Method D. Lindblad, S. Sherwin, C. Cantwell, Imperial College London, London, United Kingdom; J. Lawrence, University of Southampton, Southampton, United Kingdom; A. Proenca, Cranfield University, Cranfield, United Kingdom; M. Moragues Ginard, Centro Vasco de Matematicas Aplicadas, Bilbao, Spain	1010 hrs AIAA-2023-3832 Subsonic installed Jet noise scattering prediction using BEM and near-field-data-optimized Wave-Packet model G. Palma, Universita degli Studi Roma Tre Centro di Ateneo per lo Studio di Roma, Roma, Italy; S. Meloni, Universita degli Studi della Tuscia, Viterbo, Italy; R. Camussi, U. Iemma, Universita degli Studi Roma Tre Centro di Ateneo per lo Studio di Roma, Roma, Italy	1030 hrs AIAA-2023-3510 Linear Interaction Approximation for the Prediction of Noise Generated by Turbulence/Shock Interaction S. Leib, HX5, LLC, Cleveland, OH	1050 hrs AIAA-2023-3511 Prediction of wavepackets in elliptical jets using 3D one-way Navier-Stokes equations P. Nogueira, J. Weightman, D. Edgington-Mitchell, Monash University, Clayton, Australia	
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Wednesday, 14 June 2023

AA-31	Propeller, Rotorcraft and V/STOL Noise V: Design, Optimization, Noise Reduction	Harbor A
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Chaired by: C. TINNEY, Applied Research Laboratories and W. BAARS, Delft University of Technology

0930 hrs AIAA-2023-3833	0950 hrs AIAA-2023-3834	1010 hrs AIAA-2023-3835	1030 hrs AIAA-2023-3836	1050 hrs AIAA-2023-3937	1110 hrs AIAA-2023-3938
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An energy-based trim procedure for VTOL noise reduction C. Poggi, G. Bernardini, M. Gennaretti, Università degli Studi Roma Tre, Roma, Italy	Rapid Optimisation of Propellers with Tonal and Broadband Aeroacoustic Constraints S. Pullin, A. Ghiglini, B. Zhou, M. Azarpeyvand, University of Bristol, Bristol, United Kingdom	Numerical and experimental investigation of propeller noise with trailing-edge serrations B. Zang, L. Hanson, University of Bristol, Bristol, United Kingdom; A. Stoltz, W. Ho, University of the Witwatersrand Johannesburg, Johannesburg, South Africa; X. Liu, M. Azarpeyvand, University of Bristol, Bristol, United Kingdom	Adjoint-Based Aeroacoustic Optimization of Propeller Blades in Rotating Reference Frame L. Abergo, M. Morelli, Politecnico di Milano, Milano, Italy; S. Pullin, B. Zhou, University of Bristol, Bristol, United Kingdom; A. Guardone, Politecnico di Milano, Milano, Italy	Quadrupole-Enhanced Overset Noise Predictions for Counter-Rotating Open Rotors E. Fabiano, A. Kirby, Z. Yang, D. Mavriplis, Scientific Simulations LLC, Laramie, WY	Large-eddy simulations of multi-bladed VTOL rotors for air vehicle aeroacoustic predictions G. Brès, C. Ivey, D. Philips, S. Bose, Cadence Design Systems Inc, San Jose, CA; M. Teramura, T. Moriya, Honda Corporation, Wako, Japan; et al.
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Wednesday, 14 June 2023

AA-32	Turbomachinery and Core Noise	Torrey Hills A
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Chaired by: A. Ali, Pratt & Whitney and R. DOUGHERTY, OptiNav Inc

0930 hrs AIAA-2023-3837 Numerical Validation of an Aeroacoustic Scaling Approach S. Lohse, Leibniz Universität Hannover, Hannover, Germany; S. Moreau, Université de Sherbrooke, Sherbrooke, Canada; J. Seume, Leibniz Universität Hannover, Hannover, Germany	0950 hrs AIAA-2023-3838 Influence of non-dimensional parameters on the tip leakage noise I. Saraceno, S. Palles Cabre, C. Paruchuri, B. Ganapathisubramani, University of Southampton, Southampton, United Kingdom	1010 hrs AIAA-2023-3839 Using CLEAN-SC for determining the directivity of engine noise sources P. Sijtsma, Pieter Sijtsma Advanced AeroAcoustics (PSA3), De Punt, The Netherlands	1030 hrs AIAA-2023-3840 Beamforming in an annular duct with swirling flow P. Sijtsma, Pieter Sijtsma Advanced AeroAcoustics (PSA3), De Punt, The Netherlands; H. Brouwer, Koninkrijk Nederlands Lucht-en Ruimtevaartcentrum, Amsterdam, The Netherlands; M. Snellen, Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek, Delft, The Netherlands	1050 hrs AIAA-2023-3939 On the noise analysis of a N+3 next-generation combustor through LES D. Brouzet, M. Ihme, Stanford University, Stanford, CA; D. McCormick, C. Reimann, J. Mendoza, Raytheon Technologies Research Center, East Hartford, CT	1110 hrs AIAA-2023-3940 Combustion composition noise mechanism analysis Y. Gentil, G. Daviller, CERFACS, Toulouse, France; S. Moreau, Université de Sherbrooke, Sherbrooke, Canada; T. Poinso, CERFACS, Toulouse, France
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Wednesday, 14 June 2023

ACD-10/TF-9	eVTOL Technologies	Balboa B
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Chaired by: R. LOVE, General Atomics Aeronautical Systems, Inc. and G. MARTINEZ RODRIGUEZ, NASA Langley Research Center

0930 hrs AIAA-2023-3841 A preliminary acoustic prediction approach for ducted coaxial rotors of eVTOL in UAM L. Babetto, J. Goetz, E. Stumpf, Rheinisch-Westfälische Technische Hochschule Aachen, Aachen, Germany	0950 hrs AIAA-2023-3842 An Investigation into the Electrification of an Advanced Tiltrotor Concept G. Chen, J. Vegh, A. Milligan, US Army Combat Capabilities Development Command Aviation & Missile Center	1010 hrs AIAA-2023-3843 Weight Fraction Estimation for EVTOL Vehicle Sizing S. Shim, C. Ahn, Y. Chang, W. Cha, m. hwang, S. Park, Seoul National University, Gwanak-gu, South Korea; et al.			
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	Aeroflightdynamics Directorate, Moffett Field, CA				
Wednesday, 14 June 2023					
APA-27	Applied Aeroelasticity and Aerodynamic-Structural Dynamics Interaction I				Torrey Hills B
Chaired by: R. BARTELS, NASA-Langley Research Center and D. FRIEDLANDER, NASA Glenn Research Center					
0930 hrs AIAA-2023-3851 Hypersonic Fluid-Thermal-Structural Interactions on a Compression Ramp with an Embedded Compliant Panel A. Schoneich, S. Laurence, University of Maryland at College Park, College Park, MD; F. Dettenrieder, D. Bodony, University of Illinois Urbana-Champaign, Urbana, IL; G. Buck, J. Weisberger, NASA Langley Research Center, Hampton, VA; et al.	0950 hrs AIAA-2023-3852 Effect of Panel Compliance on Shockwave Boundary Layer Interaction at Mach 2 A. Tripathi, M. Sheehan, J. Gustavsson, K. Shoele, R. Kumar, Florida State University, Tallahassee, FL	1010 hrs AIAA-2023-3853 One-Way Response of a Flexible Panel to Shock Wave Boundary Layer Interaction V. Shinde, J. McNamara, D. Gaitonde, The Ohio State University, Columbus, OH	1030 hrs AIAA-2023-3854 Parametric Analysis of Structural Response in the Presence of Shock Boundary Layer Interaction R. Deshmukh, V. Shinde, J. McNamara, The Ohio State University, Columbus, OH		
Wednesday, 14 June 2023					
APA-28	Hypersonic Aerodynamics I				Hillcrest C
Chaired by: V. BHAGWANDIN, U. S. Army Research Laboratory (APG) and T. MAGEE, Boeing Research and Technology					
0930 hrs AIAA-2023-3847 Computational Analysis of Laminar Steady Hypersonic Flow past Blottner Sphere Using ANSYS Fluent A. Murphy, R. Agarwal, Washington University in St Louis, St Louis, MO	0950 hrs AIAA-2023-3848 Wall-Resolved LES of Mach 6 BoLT-2 Hypersonic Vehicle V. Bhagwandin, P. Martin, University of Maryland at College Park, College Park, MD	1010 hrs AIAA-2023-3849 Numerical investigation of the influence of the rarefaction degree on a waverider aerodynamic performances in super-/hypersonic regimes D. Toussaint, J. Braeunig, C. Baranger, CEA-Cesta, Le Barp, France; H. Noubel, V. Lago, CNRS/ICARE, Orléans, France	1030 hrs AIAA-2023-3850 CFD Validation of a Hypersonic Cone-Slice-Flap Variable Geometry Configuration L. White, T. West, M. Rhode, E. Rieken, NASA Langley Research Center, Hampton, VA; J. Lampenfield, D. Rodriguez, Analytical Mechanics Associates, Inc., Hampton, VA		
Wednesday, 14 June 2023					
APA-29	Reduced Order Aerodynamics I				Hillcrest A
Chaired by: K. BERGERON, U.S. Army DEVCOM Soldier Center and R. DECKER, US Air Force Academy					
0930 hrs AIAA-2023-3844 Assessment of Multi-Fidelity Surrogate Approaches for Expedient Loads	0950 hrs AIAA-2023-3845 Recurrent Multi-Mesh Convolutional Autoencoder Framework	1010 hrs AIAA-2023-3846 Deep-learning framework for aircraft aerodynamics prediction	1030 hrs AIAA-2023-3948 Including Steady State Information in Reduced Order Modelling for		

Prediction in High-Speed Flows T. Korenyi-Both, J. McNamara, J. Willems, The Ohio State University, Columbus, OH; D. Reasor, Air Force Research Laboratory, Wright-Patterson AFB, OH	for Spatio-Temporal Aerodynamic Modelling. D. Masegur Sampietro, A. Da Ronch, University of Southampton Faculty of Engineering and Physical Sciences, Southampton, United Kingdom	G. Immordino, A. Da Ronch, University of Southampton, Southampton, United Kingdom; M. Righi, Zurcher Hochschule fur Angewandte Wissenschaften, Winterthur, Switzerland	Tiltrotor Aircraft Stability Analysis P. Bath, A. Gaitonde, D. Jones, University of Bristol, Bristol, United Kingdom		
Wednesday, 14 June 2023					
ATS-8	AAM and UAM V				Harbor D
Chaired by: P. BANERJEE, [KBR] NASA Ames Research Center					
0930 hrs AIAA-2023-3856 Towards an Annotated All-Weather Dataset of Flight Logs for Small Uncrewed Aerial System M. Islam, M. Chowdhury, P. Alarcon, J. Cleland-Huang, University of Notre Dame College of Engineering, Notre Dame, IN; L. Spirkovska, NASA Ames Research Center, Moffett Field, CA	0950 hrs AIAA-2023-3857 Comparison of Surrogate Modeling Techniques for Life Cycle Models of Advanced Air Mobility A. Pohya, G. Wende, Deutsches Zentrum fur Luft- und Raumfahrt eV, Koln, Germany; M. Corbetta, C. Kulkarni, NASA Ames Research Center, Moffett Field, CA	1010 hrs AIAA-2023-3858 Evaluating the Impact of Onboard and Offboard Computing on UAS Traffic Management D. Essick, L. Bautista, J. Xie, San Diego State University, San Diego, CA; Y. Wan, The University of Texas at Arlington, Arlington, TX; J. Chen, San Diego State University, San Diego, CA	1030 hrs AIAA-2023-3859 Space Efficient Airspace Geofence Volume Sizing C. Barkey, J. Kim, University of Michigan, Ann Arbor, MI; E. Atkins, Virginia Polytechnic Institute and State University, Blacksburg, VA	1050 hrs AIAA-2023-3860 Vibration Anomaly Indicator in UAVs in presence of Wind P. Banerjee, KBR Inc, Moffett Field, CA; E. Hale, G. Gorospe, NASA Ames Research Center, Moffett Field, CA	1110 hrs AIAA-2023-3861 Hybrid Modeling of Unmanned Aerial Vehicle Electric Powertrain for Fault Detection and Diagnostics M. Corbetta, K. Jarvis, S. Schuet, NASA Ames Research Center, Moffett Field, CA
Wednesday, 14 June 2023					
CFD-14	High-Order Numerical Methods II				Ocean Beach
Chaired by: N. WUKIE, Air Force Research Laboratory and D. LIVESCU, Los Alamos National Laboratory					
0930 hrs AIAA-2023-3862 Bandwidth-Optimized Summation-by-Parts Operators for High-Resolution Turbulent Flow Simulations J. Coder, The Pennsylvania State University, University Park, PA	0950 hrs AIAA-2023-3863 High-Order Implicit Shock Tracking for Finite-Source Spherical Blast Waves C. Naudet, University of Notre Dame, Notre Dame, IN; B. Taylor, Air Force Research Laboratory, Eglin AFB, FL; M. Zahr, University of Notre Dame, Notre Dame, IN	1010 hrs AIAA-2023-3864 Development of a local time step for high-order flux reconstruction scheme based on subcell finite volume discretization J. Pueblas, F. Gisbert, ITP, Alcobendas, Spain	1030 hrs AIAA-2023-3865 From RANS to LES : Comparison of Simulation Methodologies for the Imperial Front Wing A. O'Sullivan, K. Puri, Cadence Design Systems Inc, Brussels, Belgium; E. Ferrer, Universidad Politecnica de Madrid, Madrid, Spain		
Wednesday, 14 June 2023					
DE-4	Design Engineering				Gaslamp A
Chaired by: C. DAVIES, Virgin Galactic and I. MARKS, Virgin Galactic					
0930 hrs AIAA-2023-3866 New conceptual design of connecting metallic	0950 hrs AIAA-2023-3867 Fusion Insights from Ultrasonic and	1010 hrs AIAA-2023-4223	1030 hrs AIAA-2023-4222 Design and numerical-experimental validation of		

flanges for space composite grid structures D. Cristillo, F. Di Caprio, G. Totaro, Centro Italiano Ricerche Aerospaziali, Capua, Italy	Thermographic Inspections for Impact Damage Analysis M. Torbali, M. Alhammad, A. Zolotas, N. Avdelidis, Cranfield University, Cranfield, United Kingdom; C. Ibarra-Castanedo, X. Maldague, Universite Laval, Quebec, Canada	Counter Optimization-Based Validation of Flight Control System Monitoring H. Hofsäb, D. Braun, F. Holzapfel, Technische Universität München, München, Germany	supports' equipment for VEGA-C launcher D. Cristillo, F. Di Caprio, Centro Italiano Ricerche Aerospaziali, Capua, Italy; G. Petrone, Università degli Studi di Napoli Federico II, Napoli, Italy; A. Zallo, Avio SpA, Colleferro, Italy		
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Wednesday, 14 June 2023

EATS-3	Electrified Aircraft Design & Mission Operation I	Gaslamp B
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Chaired by: R. DE VRIES, Delft University of Technology and W. DURGIN, SUNY Polytechnic Institute

0930 hrs AIAA-2023-3868 Operational Analysis for Hybrid Electric Aircraft Fleets: A feasibility study for the short- and medium-haul markets Y. Deng, A. Kryuchkov, P. Mokotoff, M. Li, G. Cinar, University of Michigan, Ann Arbor, MI	0950 hrs AIAA-2023-3869 Coupled Hybrid & Electric Aircraft Design and Strategic Airline Planning M. Hoogreef, N. Zijderwijk, E. Scheers, P. Proesmans, B. Santos, Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek, Delft, The Netherlands	1010 hrs AIAA-2023-3870 Advanced Turboprop Transport Aircraft Modeling for the Electrified Powertrain Flight Demonstration Project D. Pham, J. Bowles, C. Recine, S. Go, NASA Ames Research Center, Moffett Field, CA	1030 hrs AIAA-2023-3871 Fleet Wide Impacts of the Electrified Powertrain Technology Portfolio H. Pfaender, T. Mazeman, A. Shaver, J. Wen, Georgia Institute of Technology, Atlanta, GA	1050 hrs AIAA-2023-3872 Simulator-based Mission Optimization for Conceptual Aircraft Design with Turboelectric Propulsion H. Hu, Purdue University, West Lafayette, IN; M. Menner, Y. Wang, Mitsubishi Electric Research Laboratories, Cambridge, MA; H. Fang, University of Kansas School of Engineering, Lawrence, KS; D. Sun, Purdue University, West Lafayette, IN; T. Takegami, Mitsubishi Denki Kabushiki Kaisha Sentan Gijutsu Sogo Kenkyujo, Amagasaki, Japan	
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Wednesday, 14 June 2023

EATS-4	Electrified Aircraft Propulsion, Architectures & Systems Integration I	Gaslamp C
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Chaired by: D. HALL, The Pennsylvania State University

0930 hrs AIAA-2023-3873 Hybridization Impact on Emissions for Hydrogen Fuel-Cell/Turbo-Electric Aircraft E. Waddington, H. Jois, M. Lauer, Y. Patel, P. Ansell, University of Illinois Urbana-Champaign, Urbana, IL	0950 hrs AIAA-2023-3874 H2GEAR Hydrogen Electric Powertrain – System Architecture M. Hales, N. Wood, S. Harrison, S. Taylor, M. Husband, J. Stonham, GKN Aerospace, Bristol, United Kingdom; et al.	1010 hrs AIAA-2023-3875 Conceptual Design of Air and Thermal Management in a Nacelle-Integrated Fuel Cell System for an Electric Regional Aircraft C. Sain, J. Hänsel, S. Kazula, Deutsches Zentrum für Luft- und Raumfahrt eV, Köln, Germany	1030 hrs AIAA-2023-3876 Analysis of hybridization for the use of hydrogen for aircraft propulsion in an existing platform V. de Frutos, J. Parra, S. Esteban, C. Bordons, Universidad de Sevilla Escuela Técnica Superior de Ingeniería de Sevilla, Sevilla, Spain	1050 hrs AIAA-2023-4546 Preliminary design and simulation of a hydrogen-powered regional aircraft S. Mouvand, Q. Noharet, Siemens AG, München, Germany	
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Wednesday, 14 June 2023					
EATS-6	Thermal Management				Harbor E
Chaired by: M. BENDARKAR, Georgia Institute of Technology and H. PANGBORN, Pennsylvania State University					
0930 hrs AIAA-2023-3877 Assessment of Metal Hydride Reactors as Thermal Management Enhancement of Hydrogen Fuel Cells in Electric Aircraft F. Franke, A. Link, S. Kazula, Deutsches Zentrum für Luft- und Raumfahrt eV, Cottbus, Germany	0950 hrs AIAA-2023-3878 Experimental Demonstration and Characterization of a Ceramic Sintered Wick Heat Pipe Evaporator W. Sixel, NASA John H Glenn Research Center, Cleveland, OH; M. Kaviany, University of Michigan, Ann Arbor, MI; G. Hwang, Wichita State University, Wichita, KS	1010 hrs AIAA-2023-3879 Functional Approach to a Fuel Cell Thermal Management System in Safety-Critical Applications V. Voth, S. Lübke, M. Schäfer, A. Berres, O. Bertram, Deutsches Zentrum für Luft- und Raumfahrt eV, Braunschweig, Germany			
Wednesday, 14 June 2023					
F360-7 0930 - 1130 hrs	AAM Cadence of Operations				Grand Hall A-C
The Advanced Air Mobility (AAM) industry is rapidly evolving with new vehicles and technologies that are changing the way we think about transportation. As AAM evolves, a cadence of operations for economic success is becoming increasingly important. We will explore key components needed to establish a standard framework for AAM operations. We will delve into the best practices for planning, executing, and monitoring AAM flights, as well as the roles and responsibilities of stakeholders in the AAM ecosystem. Moderator: Ms. Shivanjli Sharma, NASA Kristin White, ITS America Scot Campbell, Acubed Craig Teasdale, Ferrovial Khin Paing, SkyGrid Jimmy Smith, NATCA Skye Carapetyan, BETA					
Wednesday, 14 June 2023					
FD-18	Shock-Boundary Layer Interactions: Structural and Thermal Response				Hillcrest D
Chaired by: I. BERMEJO-MORENO, University of Southern California, Viterbi School of Engineering					
0930 hrs AIAA-2023-3882 Fluid-Structure Interactions of a Hemispherically Rounded Blunt Fin over a Compliant Panel in Mach 2 Flow J. Mills, C. Dutton, D. Ehrhardt, G. Elliott, University of Illinois Urbana-Champaign, Urbana, IL	0950 hrs AIAA-2023-3883 The Effects of Dynamic Surface Motion on Flow Separation in Laminar Shock - Boundary Layer Interactions J. Fields, J. McNamara, The Ohio State University, Columbus, OH; C. Barnes, Air Force Research Laboratory, Wright-Patterson AFB, OH; D.	1010 hrs AIAA-2023-3884 Shock-wave/turbulent boundary-layer interaction over a flexible panel L. Laguarda, S. Hickel, F. Schrijer, B. van Oudheusden, Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek, Delft, The Netherlands	1030 hrs AIAA-2023-3885 Investigation of Fully-Coupled Conjugate Heat Transfer and Shock-Wave/Boundary-Layer Interactions using LES J. Muller, C. Johnson, J. Oefelein, Georgia Institute of Technology Daniel Guggenheim School of		

	Gaitonde, The Ohio State University, Columbus, OH		Aerospace Engineering, Atlanta, GA		
Wednesday, 14 June 2023					
FD-19	Turbulent Flows: Modification and Control				Mission Beach B
Chaired by: P. IYER, Analytical Mechanics Associates, Inc.					
0930 hrs AIAA-2023-3886 Combined Effects of Pressure Gradient Tailoring and Free-Stream Turbulence on Bluff Body Stabilized Flames K. Souders, S. Whitman, M. Meehan, P. Hamlington, University of Colorado Boulder, Boulder, CO	0950 hrs AIAA-2023-3887 Direct Numerical Simulation of a Turbulent Boundary Layer over Acoustic Liners H. Shahzad, S. Hickel, D. Modesti, Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek, Delft, The Netherlands	1010 hrs AIAA-2023-3888 Modifying One-Dimensional Energy Spectrum Model for Wall-Bounded Flow N. Gustenyov, S. Bailey, University of Kentucky, Lexington, KY			
Wednesday, 14 June 2023					
FD-20	Vortex Dynamics and Rotating Flows I				Pier
Chaired by: Y. ZHANG, Illinois Institute of Technology and C. HADER and A. SESCOU, Mississippi State University					
0930 hrs AIAA-2023-3889 Simulation of vortex pair instabilities behind a split wing P. Saulgeot, V. Brion, ONERA Meudon, Meudon, France; N. Navrose, Indian Institute of Technology Kanpur, Kanpur, India; N. Bonne, ONERA Palaiseau, Palaiseau, France; E. Dormy, Ecole Normale Supérieure, Paris, France; L. Jacquin, ONERA Palaiseau, Palaiseau, France	0950 hrs AIAA-2023-3890 Reattaching jet response to transverse acoustic excitation C. Nicholls, K. Chakravarthy, B. Tang, B. Williams, M. Bacic, University of Oxford, Oxford, United Kingdom	1010 hrs AIAA-2023-3891 The Formation and Evolution of a Ground Vortex in a Nacelle Inlet Flow Field D. Nichols, B. Vukasinovic, A. Glezer, Georgia Institute of Technology, Atlanta, GA	1030 hrs AIAA-2023-3892 Numerical Investigation of the Effect of Trailing-Edge Morphing on Dynamic Stall using Delayed Detached Eddy Simulations J. Shum, S. Lee, University of California Davis, Davis, CA		
Wednesday, 14 June 2023					
FL-12 0930 - 1030 hrs	The Future of Mobility Transport: Blended Wing Body Aircraft				Harbor H
The revolutionary Blended Wing Body (BWB) aircraft design, which promises to provide over 30% more aerodynamic efficiency than today's tube-and-wing designs, is at an inflection point in its history. NASA, the Defense Innovation Unit, and the Department of the Air Force are teaming up with industry to accelerate its development and flight-test a full-scale demonstration aircraft by 2027.					
Moderator: Roberto Guerrero, Deputy Assistant Secretary of the U.S. Air Force for Operational Energy					
Panelists:					

Fayette Collier Associate Director for Flight Strategy, Integrated Aviation Systems Program, NASA Aeronautics Daniel Pike, Chief of Future Technologies & Acquisition Manager, U.S. Air Force Operational Energy Lee Robinson, Head of Partnerships - Energy Portfolio, Defense Innovation Unit					
Wednesday, 14 June 2023					
FT-6 0930 - 1030 hrs	Advanced Air Mobility Operations & Automation Part I				Harbor C
NASA's Advanced Air Mobility Project will share results from flight simulation and flight testing towards vertical flight in an Urban environment.					
Wednesday, 14 June 2023					
FVS-1 0930 - 1230 hrs	Flow Visualization Showcase				Harbor G
The Annual Flow Visualization Showcase provides an opportunity to display computational and/or experimental fluid-dynamics visualizations that support a technical concept and enhance the understanding of the flow. Come to see this year's submissions and hear from the creators of the visualizations. Awards for the Most Artistic Flow Visualization, Most Pedagogical Flow Visualization (the visualization that best facilitates new understanding of the flow phenomena), and Most Comprehensive Flow Visualization will be presented at the end of the showcase.					
Wednesday, 14 June 2023					
GT-6	NPAT Wind Tunnel Community Forum – “Mid-Size Facilities and their role in supporting the Mission”				Solana Beach B
Chaired by: S. HELLAND, NASA Headquarters					
Wednesday, 14 June 2023					
GT-7	Special Session: 65 Years of TASK Wind Tunnel Balances - Past, Present, Future (Part 1)				Promenade A
Chaired by: D. BOOTH, Calspan Force Measurement Systems and N. ULBRICH, Jacobs Technology Inc.					
0930 hrs AIAA-2023-3893 The ongoing history of the Task-type Wind Tunnel Balance F. Snyder, Aerophysics Research Instruments, Corona, CA	1010 hrs 3849267 Machine Loading of TASK Multipiece Balances T. Ryan, R. Kew, Calspan Corp, San Diego, CA	1030 hrs AIAA-2023-3894 The enduring role of TASK balances in wind tunnel testing at the National Research Council Canada H. Clark, J. Sink, M. MacMaster, National Research Council Canada, Ottawa, Canada	1050 hrs Q&A Placeholder		
Wednesday, 14 June 2023					
HSABP-6/INPSI-7	High-Speed Inlets, Isolators, and Nozzles I				Gaslamp D
Chaired by: T. SMITH, Boeing Engineering Operations & Technology					
0930 hrs AIAA-2023-3895 Computational Study of an Internal Osculating Waverider Intake	0950 hrs AIAA-2023-3896 Experimental Investigations of the Hypersonic Streamtraced Performance Inlet at Sub-	1010 hrs AIAA-2023-3897 Investigation of an Inward Turning Intake in a Mach 6 Quiet Tunnel at Off-Design Conditions	1030 hrs AIAA-2023-3898 Fast Pressure-Sensitive Paint Measurements of an Internal Osculating		

A. Shuck, M. Nofzt, J. Jewell, J. Poggie, Purdue University, West Lafayette, IN; A. Bustard, T. Juliano, University of Notre Dame, Notre Dame, IN; et al.	Design Mach Number and Varying Angles of Attack M. Schram, W. Stramecky, V. Narayanaswamy, NC State University, Raleigh, NC	M. Nofzt, A. Shuck, J. Jewell, J. Poggie, Purdue University, West Lafayette, IN; A. Bustard, T. Juliano, University of Notre Dame, Notre Dame, IN; et al.	Waverider Inlet Under Quiet and Noisy Flow A. Bustard, M. Hasegawa, H. Sakaue, T. Juliano, University of Notre Dame, Notre Dame, IN; M. Nofzt, A. Shuck, Purdue University, West Lafayette, IN; et al.		
Wednesday, 14 June 2023					
LTA-2	Lighter-Than-Air-Systems I				Promenade B
Chaired by: K. CRAWFORD, Self					
0930 hrs AIAA-2023-3899 Modular Open Architecture UAS Test Platform System of Systems J. White, Galaxy Unmanned Systems LLC, Arlington, TX	0950 hrs AIAA-2023-3900 Methodology for conceptual sizing of an aerostat C. Bansal, Amity International School, Gurugram, India; R. Pant, Indian Institute of Technology Bombay, Mumbai, India	1010 hrs AIAA-2023-3901 Dynamic Modeling on Descending of a Small Lighter Than Air Vehicle L. Tran, H. Wan, University of Colorado Colorado Springs, Colorado Springs, CO; A. Palazotto, Air Force Institute of Technology, Wright-Patterson AFB, OH			
Wednesday, 14 June 2023					
MDO-9	Aircraft Design Optimization I				Old Town B
Chaired by: C. LUPP, Air Force Research Laboratory and S. CHOI, Gwangju Institute of Science and Technology					
0930 hrs AIAA-2023-3902 Assessment of Closed Loop Dynamics in the Multidisciplinary Design and Optimization of Small UAVs L. Fernandez, ONERA Traitement de l'information et systemes, Toulouse, France; M. Bronz, Ecole Nationale de l'Aviation Civile, Toulouse, France; T. Lefebvre, N. Bartoli, ONERA Traitement de l'information et systemes, Toulouse, France	0950 hrs AIAA-2023-3903 Operational and Aircraft System Modeling Utilizing Model-Based Multidisciplinary Optimization Methods A. Moodie, J. Vegh, R. Scott, E. Keen, L. Battey, US Army Combat Capabilities Development Command, Hampton, VA	1010 hrs AIAA-2023-3904 Effect of Typical Aircraft Design Requirements on the Structural Efficiency of Topology Optimization Inspired Designs J. Tumpak, M. Leonard, US Air Force, Wright-Patterson AFB, OH	1030 hrs AIAA-2023-3905 Towards Mixed-Fidelity Aero-Structural-Acoustic Optimization for Urban Air Mobility Vehicle Design B. Pacini, M. Prajapati, K. Duraisamy, J. Martins, University of Michigan, Ann Arbor, MI; P. He, Iowa State University, Ames, IA		
Wednesday, 14 June 2023					
MDO-10	Model Based Systems Engineering Integration with MDO				Old Town A
Chaired by: S. CHOWDHURY, University at Buffalo and A. THELEN, Air Force Research Laboratory					
0930 hrs	0950 hrs	1010 hrs			

AIAA-2023-3906 Representing Cost as an Independent Variable in Model Based Systems Engineering R. Chipman, J. Knox, Leidos Inc, Reston, VA	AIAA-2023-3907 Multidisciplinary Design and Mission Analysis of an Electric Amphibious Flying Vehicle J. Shihua, Y. Lyu, R. Liem, The Hong Kong University of Science and Technology School of Engineering, Kowloon, Hong Kong	AIAA-2023-3908 Integrating MBSE and MDO through an Extended Requirements-Functional-Logical-Physical (RFLP) Framework R. Swaminathan, D. Sarojini, J. Hwang, University of California San Diego, La Jolla, CA			
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Wednesday, 14 June 2023

MST-6	Control System Design and Simulation	La Jolla A
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Chaired by: S. SIMON, Air Force Research Laboratory and G. CHATTERJI, Crown Consulting, Inc.

0930 hrs AIAA-2023-3909 Evaluation of Novel V/STOL Aircraft Control for Expected AAM Operations M. Feary, J. Kaneshige, NASA Ames Research Center, Moffett Field, CA; L. Haworth, San Jose State University, San Jose, CA; T. Lombaerts, KBR Inc, Moffett Field, CA; K. Shish, NASA Ames Research Center, Moffett Field, CA; N. Iwai, Arctic Slope Regional Corporation, Moffett Field, CA; et al.	0950 hrs AIAA-2023-3910 Command and Control Concepts for a Lift Plus Cruise Electric Vertical Takeoff and Landing Vehicle J. Kaneshige, T. Lombaerts, K. Shish, M. Feary, NASA Ames Research Center, Moffett Field, CA	1010 hrs AIAA-2023-3911 An Investigation of Control Allocation Methods for the ADMIRE Simulation Model N. Gulcan, H. Kurt, A. Karaman, Tusas-Turk Havacilik ve Uzay Sanayii AS, Ankara, Turkey; M. Millidere, Cranfield University, Cranfield, United Kingdom	1030 hrs AIAA-2023-3912 Using Uniform Trigonometrization Method for Aviation Based Optimal Control Problems K. Mall, S. Nolan, W. Levin, L. Risany, D. DeLaurentis, Purdue University, West Lafayette, IN		
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Wednesday, 14 June 2023

PGC-1/HSABP-5	Applications of Rotating Detonation Combustion for Propulsion and Power	Balboa A
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Chaired by: D. PAXSON, NASA Glenn Research Center

Wednesday, 14 June 2023

TP-9	General Thermophysics I	Golden Hill B
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Chaired by: K. WEED, Ball Aerospace and R. FU, University of Kentucky

0930 hrs AIAA-2023-3913 Projection-based Reduced-Order Models with Hyperreduction for Finite Element Simulations of Thermal Protection Systems	0950 hrs AIAA-2023-3914 Two-Phase Refrigerant R134a Void Fraction Pulse Power Study Z. Camer, M. Wolff, Wright State University College of Engineering and Computer Science, Dayton, OH; A.	1010 hrs AIAA-2023-3915 Thermal design of heat pipe cooling systems: conceptual design and numerical development R. Scigliano, V. De Simone, Centro Italiano Ricerche Aerospaziali, Capua, Italy; R.	1030 hrs AIAA-2023-3916 Numerical Analysis of Oscillating Heat Pipes for High Heat Flux Applications R. Tadepalli, S. Kumar, Georgia Institute of Technology, Atlanta, GA	1050 hrs AIAA-2023-3917 Numerical modelling of solid state combustion in novel pyrolants used as heat and energy sources for space missions	
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P. Blonigan, Sandia National Laboratories California, Livermore, CA; J. Tencer, Sandia National Laboratories, Albuquerque, NM; F. Rizzi, NexGen Analytics, Sheridan, WY	Roman, Air Force Research Laboratory, Wright-Patterson AFB, OH	Fusaro, D. Ferretto, N. Viola, Politecnico di Torino, Torino, Italy		S. Kesharwani, C. Kinney, S. Vasu, University of Central Florida, Orlando, FL	
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Wednesday, 14 June 2023

UAS-4	Systems Design and Optimization for Unmanned/Autonomous Systems I	La Jolla B
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Chaired by: R. FONTANELLA, Leonardo S.p.A. and M. LOGAN, NASA Langley Research Center

0930 hrs AIAA-2023-3918 Test and Modeling of an Aquatic sUAS Propulsion System V. Lenze, S. Miller, J. Cole, The Pennsylvania State University, University Park, PA	0950 hrs AIAA-2023-3919 Reactive Pilot Model Design for Automatic Mission Simulation of a Transition Vehicle D. Surmann, N. Sauert, L. Hein, S. Myschik, Universität der Bundeswehr München, Fakultät Maschinenbau, Neubiberg, Germany	1010 hrs AIAA-2023-3920 Learning Constrained Corner Node Trajectories of a Tether Net System for Space Debris Capture F. Liu, A. Boonrath, S. Guadagna, E. Botta, S. Chowdhury, University at Buffalo, Buffalo, NY	1030 hrs AIAA-2023-3812 Hybrid UGV and Drone System for Mine Rescue Assistance J. Racette, C. Dinelli, M. Escarcega, J. Montoya, C. Dunaway, S. Lotero, New Mexico Institute of Mining and Technology, Socorro, NM; et al.		
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Wednesday, 14 June 2023

VSTOL-2/EATS-5	International Powered Lift Conference (IPLC): Enabling Electric V/STOL Technologies	Harbor I
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Chaired by: M. CLARKE, Massachusetts Institute of Technology and S. WHITESIDE, NASA Langley Research Center

0930 hrs AIAA-2023-3921 E-VTOL Concept Design with a New Underwing 'FanFoil' Ducted Fan Concept to Improve Aerodynamic Efficiency J. Hicks, C. Reynolds, N. Shapiro, Z. Lee, D. Gould, M. Carnegie, Texas Tech University System, Lubbock, TX; et al.	0950 hrs AIAA-2023-3922 Estimating Mission-Based Energy and System Dynamics of e-VTOL Aircraft N. Prabhakar, F. Salucci, D. Karbowski, Argonne National Laboratory, Lemont, IL	1010 hrs AIAA-2023-3923 Energy-Based Preliminary Sizing and Hover Performance Assessment of Hybrid-Electric VTOL Aircraft D. Lampl, S. Armanini, Technische Universität München, München, Germany	1030 hrs AIAA-2023-3924 Design and Programmatic Overview of the Research Aircraft for eVTOL Enabling technologies (RAVEN) Activity B. German, A. Jha, Georgia Institute of Technology, Atlanta, GA; J. Welstead, S. Whiteside, N. Blaesser, NASA Langley Research Center, Hampton, VA		
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Wednesday, 14 June 2023

FL-7 1030 - 1130 hrs	Infrastructural Requirements for Airport Hydrogen Hubs	Harbor H
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Airports are natural nodes for hydrogen hubs. They host multiple end users, with short- and long-term energy supply requirements.

Moderator: Jeff Bechdel, FTI Consulting and Hydrogen Forward
Nick Connell, Interim Executive Director, Green Hydrogen Coalition
Eric Guter, Vice President Mobility, Air Products

Amanda Simpson, Airbus Keith Wipke, Laboratory Program Manager, Fuel Cell and Hydrogen Technologies Program, NREL					
Wednesday, 14 June 2023					
EATS-KN1 1115 - 1215 hrs	EATS Keynote Presentation: The Electric Aircraft EcoSystem: Performance Potential, Economics and Societal Impact in the Age of Sustainable Air Travel				Harbor E
Gaudy Bezos-O'Connor, NASA					
Wednesday, 14 June 2023					
AIAA-4 1200 - 1330 hrs	Rising Leaders in Aerospace: Planning for the Long Term: Setting Yourself Up for a Long-term Career				Grand Hall D
For those of us early in our career in the Aerospace industry it is hard to see how the choices that we're making could influence our careers in the long-term. This discussion will focus on helping us better understand how we can be setting ourselves up for a successful career in Aerospace, and how we can navigate the opportunities and challenges along the way.					
Boxed lunch will be provided to the first 120 attendees.					
Wednesday, 14 June 2023					
AA-34	Community Noise, Sonic Boom and Metrics I				Cortez Hill A
Chaired by: S. RIZZI, NASA Langley Research Center and S. MILLER, University of Florida					
1300 hrs AIAA-2023-3927 Noise Prediction for Aircraft during Approach by Neural Network Using Sound Source Data Obtained from Microphone Array Measurement Y. Ikuta, T. Imamura, Tokyo Daigaku, Bunkyo-ku, Japan; T. Takaishi, Uchu Koku Kenkyu Kaihatsu Kiko, Chofu, Japan; T. Kobayashi, Ippan Zaidan Hojin Kobayashi Rigaku Kenkyujo, Kokubunji, Japan	1320 hrs AIAA-2023-3928 Low-noise retrofit measures for mid-range transport aircraft: simulation benchmark with flyover noise measurements and assessment along different flight procedures L. Bertsch, M. Pott-Pollenske, F. Wienke, J. Kurz, J. Delfs, Deutsches Zentrum fur Luft- und Raumfahrt eV, Göttingen, Germany	1340 hrs AIAA-2023-3929 Computational and Experimental Characterization of the Noise Impact from Aircraft Operations around Hong Kong International Airport C. Wu, S. Redonnet, The Hong Kong University of Science and Technology School of Engineering, Hong Kong, Hong Kong	1400 hrs AIAA-2023-3930 Validation of the Aircraft Noise and Performance Database Source Spectra R. van der Griff, M. Snellen, D. Simons, Technische Universiteit Delft, Delft, The Netherlands		
Wednesday, 14 June 2023					
AA-35	Jet Aeroacoustics VI: Nozzle Effects				Harbor B
Chaired by: R. CAMUSSI and R. POWERS, Naval Air Warfare Center					
1300 hrs AIAA-2023-3931 Flow Fields of Internally Mixed Exhaust Systems With External Plug For	1320 hrs AIAA-2023-3932 Howling in a Model-Scale Internally Mixed Confluent Nozzle Related to Excited Core-Jet Instability	1340 hrs AIAA-2023-3933 Howling in a Model-Scale Nozzle Related to Shock-Induced Boundary-Layer	1400 hrs AIAA-2023-3934 Numerical Investigation of Jet Installation Noise for Chevron Nozzles	1420 hrs AIAA-2023-3935 Effects of nozzle-lip thickness on the tones in the near-field pressure	1440 hrs AIAA-2023-3936 Receptivity of a supersonic jet due to acoustic excitations near the nozzle lip

Supersonic Transport Applications J. Bridges, M. Wernet, NASA John H Glenn Research Center, Cleveland, OH; P. Upadhyay, H. Reising, HX5, LLC, Brook Park, OH	D. Ramsey, R. Mayo, K. Ahuja, Georgia Institute of Technology, Atlanta, GA	Separation at the Nozzle Exit D. Ramsey, K. Ahuja, Georgia Institute of Technology, Atlanta, GA; J. Gavin, Gulfstream Aerospace Corp, Savannah, GA	H. Abid, A. Markestijn, S. Karabasov, Queen Mary University of London, London, United Kingdom; H. Kamliya Jawahar, M. Azarpeyvand, University of Bristol, Bristol, United Kingdom	spectra and on the initial instability waves of jets C. Bogey, Ecole Centrale de Lyon, Ecully, France	B. Li, B. Lyu, Peking University, Beijing, China
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Wednesday, 14 June 2023

ACD-11/MDO-11	MDO Applications for Aircraft Design	Balboa A
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Chaired by: I. CHAKRABORTY, Auburn University and M. DRAKE, Boeing Commercial Airplanes

1300 hrs AIAA-2023-3941 A method to select failure conditions for further human factors scrutiny based on the prediction of human errors using a Bayesian network and elicited error probabilities B. Fontes, Honeywell Aerospace, Phoenix, AZ; E. Chiou, Arizona State University Ira A Fulton Schools of Engineering, Mesa, AZ; G. Konrad, Honeywell Aerospace, Phoenix, AZ	1320 hrs AIAA-2023-3942 Probabilistic Damage Tolerance Assessment of Titanium Alloy Disks Considering Residual Stress Induced by Grinding Process G. Li, Y. Yue, H. Zhou, J. Liu, S. Ding, Beihang University, Beijing, China	1340 hrs AIAA-2023-3943 Computationally Efficient Analysis and Sizing of the PEGASUS and Truss-Braced Wing Structures Subjected to Dynamic Loads H. Solano, Georgia Institute of Technology College of Engineering, Atlanta, GA; D. Sarojini, University of California San Diego, La Jolla, CA; D. Mavris, Georgia Institute of Technology College of Engineering, Atlanta, GA	1400 hrs AIAA-2023-3944 Deep Learning Based Transonic Flutter Prediction Model for Multidisciplinary Design Optimization of Medium Range Truss Braced Wing Aircraft K. Khan, R. Kapania, J. Schetz, Virginia Polytechnic Institute and State University, Blacksburg, VA		
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Wednesday, 14 June 2023

APA-30	Aerodynamic Flow Control II	Hillcrest B
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Chaired by: M. MUNSON, U.S. Air Force Academy and C. BADRYA, University of California Davis

1300 hrs AIAA-2023-3954 Asymmetric Control of Subsonic Axisymmetric Jet Aerodynamics using Plasma Actuators D. Mills, E. Cartwright, N. Webb, The Ohio State University, Columbus, OH	1320 hrs AIAA-2023-3955 Effects of Boundary Layer Suction on a Laminar Separation Bubble on a HLFC Wing M. Corelli Grappadelli, P. Olivucci, C. Badrya, Technische Universität Braunschweig, Braunschweig, Germany	1340 hrs AIAA-2023-3956 LES exploration of alternative coflow jet flow control application on a NACA 6421 wing P. Morgan, Ohio Aerospace Institute, Dayton, OH; D. Garmann, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH	1400 hrs AIAA-2023-3957 Experimental Investigation of an Airfoil with Spanwise Wavy Trailing Edge P. Ferreira, R. Costa Moura, A. Agrico de Paula, Instituto Tecnológico de Aeronautica, São Jose dos Campos, Brazil	1420 hrs 3811784 Analysis of Bomb Projectile Trajectory Released from Fighter Aircraft Weapons Bay H. Teng, Z. Yu,	
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Wednesday, 14 June 2023

APA-31	Applied Aeroelasticity and Aerodynamic-Structural Dynamics Interaction II	Torrey Hills B
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Chaired by: V. MALDONADO, Texas Tech University and M. BOZEMAN, NASA Langley Research Center

1300 hrs AIAA-2023-3950 Uncovering the Aeroelastic Behavior of Light Aircraft Structures with SlenderWings under Extreme Flow Turbulence Intensity W. Ayele, V. Maldonado, Texas Tech University, Lubbock, TX	1320 hrs AIAA-2023-3951 Tailorons for Aeroelastic Stability and Control of Flexible Wings P. Sharpe, A. Dewald, M. Drela, Massachusetts Institute of Technology, Cambridge, MA	1340 hrs AIAA-2023-3952 Vibration Attenuation of Rotating Blades Using a Non-Linear Energy Sink I. Wall, M. Amoozgar, A. Popov, University of Nottingham, Nottingham, United Kingdom	1400 hrs AIAA-2023-3953 Fluid-Structure Coupled Analysis of Maneuver Load Alleviation on a Large Transport Aircraft C. Breitenstein, Technische Universität Braunschweig Institut für Strömungsmechanik, Braunschweig, Germany; J. Müller, M. Hillebrand, Universität Stuttgart Institut für Aerodynamik und Gasdynamik, Stuttgart, Germany; M. Woidt, M. Haupt, Technische Universität Braunschweig Institut für Flugzeugbau und Leichtbau, Braunschweig, Germany; R. Radespiel, Technische Universität Braunschweig Institut für Strömungsmechanik, Braunschweig, Germany		
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Wednesday, 14 June 2023

APA-32	Reduced Order Aerodynamics II	Hillcrest A
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Chaired by: B. POMEROY, NASA Langley Research Center and Y. LIU, NASA Langley Research Center

1300 hrs AIAA-2023-3945 Frequency Domain Method for Dynamic Control Derivative Estimation with Application to Transonic Truss-Braced Wing N. Nguyen, NASA Ames Research Center, Moffett Field, CA; J. Xiong, KBR Inc, Moffett Field, CA	1320 hrs AIAA-2023-3946 Analysis of Flow Past an Aircraft at High Angle of Attack based on Mode Decomposition H. Wan, University of Colorado Colorado Springs, Colorado Springs, CO; M. Ghoreyshi, J. Seidel, US Air Force Academy, USAF Academy, CO	1340 hrs AIAA-2023-3947 Nonlinear Low-Dimensional Model Order Reduction with Subspace Interpolation for Gust Applications with the Linear Frequency Domain Approach M. Widhalm, P. Bekemeyer, Deutsches Zentrum für Luft- und Raumfahrt eV, Braunschweig, Germany	1400 hrs AIAA-2023-3949 Aerodynamic Influence Coefficients from the Unsteady Transonic Small Disturbance Equation for Aeroelastic Analysis E. Szwabowski, M. Baker, M4 Engineering Inc, Long Beach, CA		
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Wednesday, 14 June 2023

ATM-4	Overcoming Barriers Plus International Approaches to New Entrants into the Aerospace Traffic Management System	Balboa C
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Chaired by: A. LACHER, NASA

1300 hrs AIAA-2023-3958	1320 hrs AIAA-2023-3959	1340 hrs AIAA-2023-3960	1400 hrs AIAA-2023-3961	1420 hrs AIAA-2023-3962	
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Flying high: Comparing the concepts for higher airspace operations in the U.S. and Europe R. Stilwell, Aerospace Policy Solutions, LLC, Lauderdale-by-the-Sea, FL	Operational Safety Areas Explored for Supersonic Transport Aircraft in one-engine inoperative Situations K. Garzon Galindo, San Jose State University Research Foundation, San Jose, CA; M. Xue, NASA Ames Research Center, Moffett Field, CA; A. Ishihara, KBR Inc, Houston, TX	High Altitude Platform Station Market Potential Enabled by Upper Class E Traffic Management R. Stilwell, Aerospace Policy Solutions, LLC, Lauderdale-by-the-Sea, FL; W. Spitz, GRA, Incorporated, Alexandria, VA; G. Price, Crown Consulting, Inc., Arlington, VA; J. Homola, NASA Ames Research Center, Moffett Field, CA	Simulating the use of Dynamic Airspace Reconfiguration to Support Integrated Crewed and Uncrewed Aircraft Operations Á. Sainz Carreño, A. Pariente Concejo, J. Tena Diaz, J. Chornique Sanchez, Airbus Group SE, Getafe, Spain; A. Evans, A. Anand, Acubed by Airbus, Sunnyvale, CA	The Impact of STA Conformance Error and Variation of Target TRACON Delay on Arrival Throughput during TBFM Metering S. Lent, Mosaic ATM, Inc., Leesburg, VA	
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Wednesday, 14 June 2023

ATS-9	NASA SWS	Balboa B
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Chaired by: M. BRITAIN, MIT Lincoln Laboratory

1300 hrs AIAA-2023-3963 In-time Safety Management Capabilities for Wildland Fire Management Aircraft Operations - A Gap Assessment P. Revolinsky, E. Dill, S. Young, E. Ancel, NASA Langley Research Center, Hampton, VA	1320 hrs AIAA-2023-3964 Probabilistic Evaluation for Flight Mission Feasibility of A Small Octocopter in the Presence of Wind A. Taye, E. Thompson, P. Wei, The George Washington University School of Engineering and Applied Science, Washington, D.C.; T. Bonin, J. Jones, Massachusetts Institute of Technology Lincoln Laboratory, Lexington, MA	1340 hrs AIAA-2023-3965 An In-time Aviation Safety Management System (IASMS) Concept of Operations for Vertiport Design and Operations K. Ellis, L. Prinzel, NASA Langley Research Center, Hampton, VA; M. Davies, J. Homola, NASA Ames Research Center, Moffett Field, CA; L. Glaab, NASA Langley Research Center, Hampton, VA; P. Krois, Crown Consulting, Inc., Arlington, VA; et al.	1400 hrs AIAA-2023-3966 Developing and testing two interfaces for Supplemental Data Service Provider (SDSP) tools to support UAS Traffic Management (UTM) J. Feldman, L. Martin, NASA Ames Research Center, Moffett Field, CA; V. Gujral, San Jose State University, San Jose, CA; C. Walter, ASRC Aerospace Corporation, Moffett Field, CA; D. Billman, NASA Ames Research Center, Moffett Field, CA; P. Revolinsky, NASA Langley Research Center, Hampton, VA; et al.	1420 hrs AIAA-2023-3967 Wind Tunnel Testing of Static Aerodynamic and Power Consumption Characteristics of an Octocopter G. Altamirano, J. Matt, R. Busan, J. Foster, NASA Langley Research Center, Hampton, VA	
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Wednesday, 14 June 2023

ATS-10	Simulation, Modeling and Analysis	Harbor D
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Chaired by: A. ANDREEVA-MORI, JAXA

1300 hrs AIAA-2023-3968 Identifying, Visualizing and Communicating Constraints in PBN Flight Procedure Design S. Salgueiro, R. Hansman, Massachusetts Institute of Technology, Cambridge, MA	1320 hrs AIAA-2023-3969 A Comparative Analysis of Terminal Area Navigation and Conventional Standard Arrival Routes with Cellular Automata I. Ogedengbe, The Hong Kong University of Science	1340 hrs AIAA-2023-3970 Initial Analysis of Reduced Vectoring Through Metering at Tokyo International Airport A. Andreeva-Mori, Japan Aerospace Exploration Agency, Tokyo, Japan	1400 hrs AIAA-2023-3971 New Insight Towards Characterization of the Terminal Areas T. Polishchuk, L. Smetanová, Linköpings universitet, Linköping, Sweden		
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	and Technology Interdisciplinary Programs Office, Hong Kong, Hong Kong; M. Wong, The Hong Kong University of Science and Technology School of Science, Hong Kong, Hong Kong; R. Liem, The Hong Kong University of Science and Technology School of Engineering, Hong Kong, Hong Kong				
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Wednesday, 14 June 2023

CFD-15	CFD-APA II	Solana Beach A
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Chaired by: L. RILEY, Air Force Research Laboratory

1300 hrs AIAA-2023-3978 Extension of a Viscous Cartesian Cut-Cell Solver to the Compressible RANS Equations A. Kleb, K. Fidkowski, J. Martins, University of Michigan, Ann Arbor, MI	1320 hrs AIAA-2023-3979 Does Drone Airflow Compromise Atmospheric Measurements using on- board Sensors: A Simulation and Generalized Scaling Approach H. Hedworth, T. Saad, The University of Utah, Salt Lake City, UT	1340 hrs AIAA-2023-3980 Numerical modeling and tunnel specific considerations for CFD model development of low-speed wind tunnels M. Szoke , A. Borgoltz, N. Intaratep, J. Lim, W. Devenport, Virginia Polytechnic Institute and State University, Blacksburg, VA	1400 hrs AIAA-2023-4221 Aerodynamic Interactions in Formation Flight for Wake Vortex Surfing J. Chan, University of Glasgow, Singapore, Singapore; P. Wang, Singapore Institute of Technology, Singapore, Singapore; H. Hesse, University of Glasgow, Singapore, Singapore		
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Wednesday, 14 June 2023

CFD-16	Large-Eddy Simulations II	Ocean Beach
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Chaired by: M. VYAS, NASA Glenn Research Center and M. GALBRAITH, Massachusetts Institute of Technology

1300 hrs AIAA-2023-3972 Wall modeled large-eddy simulations of flow over the Sandia transonic hump R. Agrawal, A. Elnahas, P. Moin, Stanford University, Stanford, CA	1320 hrs AIAA-2023-3973 Subgrid modeling using deep neural networks for simulation of smooth and rough turbulent channel flows A. Amiri, E. Durant, R. Ranjan, The University of Tennessee at Chattanooga, Chattanooga, TN	1340 hrs AIAA-2023-3974 Simulated Acoustics of a Solid Fuel Ramjet C. Arnold, H. Pace, L. Massa, Virginia Polytechnic Institute and State University, Blacksburg, VA	1400 hrs AIAA-2023-3975 Combustor-Turbine Interactions by Using the Open National Combustion Code (OpenNCC) and the Glenn-HT Code K. Miki, A. Ameri, T. Wey, J. Moder, M. Celestina, NASA John H Glenn Research Center, Cleveland, OH	1420 hrs AIAA-2023-3976 Accurate High-Order Wall- Modeled Large Eddy Simulation of the High-Lift Common Research Model Z. Wang, University of Kansas School of Engineering, Lawrence, KS	1440 hrs AIAA-2023-3977 Effect of Swirl Strength on Supercritical Jet Flows S. Tupkari, H. Gadgil, V. Nair, Indian Institute of Technology Bombay, Mumbai, India
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Wednesday, 14 June 2023

CFD2030-2	CFD Simulation of the Smooth Body Separation Experiment	Cove
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Chaired by: M. MALIK, NASA-Langley Research Center and A. KHODADOUST, The Boeing Company

1300 hrs AIAA-2023-3981 Experimental and Computational Evaluation of Smooth-Body Separated Flow over Boeing Bump P. Gray, University of Notre Dame, Notre Dame, IN; M. Lakebrink, The Boeing Company, Chicago, IL; F. Thomas, T. Corke, University of Notre Dame, Notre Dame, IN; I. Gluzman, Technion Israel Institute of Technology, Haifa, Israel; J. Straccia, The Boeing Company, Chicago, IL	1320 hrs AIAA-2023-3982 Assessing Reynolds Number Effects for flow over a Gaussian bump using Wall-modeled LES P. Iyer, National Institute of Aerospace, Hampton, VA; M. Malik, NASA Langley Research Center, Hampton, VA	1340 hrs AIAA-2023-3983 Wall-Resolved Large-Eddy Simulation of Flow over a Parametric Set of Gaussian Bumps D. Rizzetta, D. Garmann, Air Force Research Laboratory, Wright-Patterson AFB, OH	1400 hrs AIAA-2023-3984 Wall-modeled LES based on building-block flows: Application to the Gaussian Bump G. Arranz, Y. Ling, A. Lozano-Duran, Massachusetts Institute of Technology, Cambridge, MA	1420 hrs AIAA-2023-3985 Large-Eddy Simulation of Flow over Boeing Gaussian Bump Using Multi-Agent Reinforcement Learning Wall Model D. Zhou, California Institute of Technology, Pasadena, CA; M. Whitmore, K. Griffin, Stanford University, Stanford, CA; H. Bae, California Institute of Technology, Pasadena, CA	1440 hrs AIAA-2023-3986 A Blind Validation CFD Challenge Case for 3D Smooth-Body Turbulent Separation C. Roy, T. Lowe, W. Devenport, A. Borgoltz, A. Grzyb, A. Patil, Virginia Polytechnic Institute and State University, Blacksburg, VA; et al.
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Wednesday, 14 June 2023

EATS-7	EATS Workshop - Aircraft Electrification: Benefitting from the Automotive Experience	Golden Hill A
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Chaired by: E. GANEV, EMPS Consulting and A. SALAM, Honeywell

Wednesday, 14 June 2023

EATS-8	Electrical Energy Generation, Storage, & Management I	Gaslamp B
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Chaired by: J. FELDER, NASA Glenn Research Center and D. SIMON, NASA Glenn Research Center

1300 hrs AIAA-2023-3987 True Zero Emission Electric Aircraft Propulsion Transport Technology R. Dyson, NASA Headquarters, Washington, D.C.	1320 hrs AIAA-2023-3988 Experimental Validation of a Module-Level Battery Safety System for Thermal Runaway Containment P. Zdunich, A. Crain, E. Gibney, M. Hernandez, S. Recoskie, N. MacRae, National Research Council Canada, Ottawa, Canada; et al.	1340 hrs AIAA-2023-3989 Experimental Study on SOFC/GT Hybrid Engine for Liquid Hydrogen Fueled Electric Propulsion System T. Kojima, K. Okai, T. Tagashira, Y. Fukuyama, Uchu Koku Kenkyu Kaihatsu Kiko Koku Gijutsu Bumon, Chofu, Japan	1400 hrs AIAA-2023-3990 Electro-Thermal Modeling of Fuel Cells and Batteries for CHEETA Aircraft M. Podlaski, Rensselaer Polytechnic Institute, Troy, NY; A. Khare, General Electric Company, Boston, MA; L. Vanfretti, Rensselaer Polytechnic Institute, Troy, NY		
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Wednesday, 14 June 2023

EATS-9	NASA Spotlight Session on Electrified Powertrain Flight Demonstrations with Industry	Gaslamp C
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Chaired by: H. SCHLICKENMAIER, HS Advanced Concepts

Wednesday, 14 June 2023

EATS-10	Testing, Validation, Safety, & Certification	Gaslamp A
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Chaired by: M. PRIOR, The Boeing Company and T. DEVER, NASA Glenn Research Center

1300 hrs AIAA-2023-3991	1320 hrs AIAA-2023-3992	1340 hrs AIAA-2023-3993	1400 hrs AIAA-2023-3994		
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NASA Advanced Reconfigurable Electrified Aircraft Laboratory (AREAL) D. Sadey, L. Taylor, P. Hanlon, K. Hunker, C. Theman, X. Collazo-Fernandez, NASA John H Glenn Research Center, Cleveland, OH; et al.	Real-Time Verification of A Battery Slave Controller Developed Using a DO-178C/DO-331 Based Process-Oriented Build Tool P. Panchal, W. Bliemetsrieder, N. Sorokina, S. Myschik, Universität der Bundeswehr Munchen, Munchen, Germany	Applications of an MBSE Regulatory Framework to Electrified Aircraft T. Fields, S. Glinski, E. Harrison, M. Bendarkar, E. Garcia, D. Mavris, Georgia Institute of Technology, Atlanta, GA	Fiber Optic Sensor Measurements on High Power Electric Propulsion Unit for Aerospace Applications G. Roggia, magniX, Everett, WA; C. Westcott, Luna Innovations Inc, Blacksburg, VA		
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Wednesday, 14 June 2023

FD-21	Special Session: Advances in Aerodynamics from AIAA-KSAS	Mission Beach A
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Chaired by: S. CHOI, Gwangju Institute of Science and Technology

1300 hrs AIAA-2023-4004 A new coarsening strategy of multicloud convergence acceleration for cell finite volume schemes J. Rhee, J. Oh, K. Kim, Seoul National University, Gwanak-gu, South Korea	1320 hrs AIAA-2023-4005 Natural Transition in High-Speed Boundary-Layer Flow – an overview R. Lin, S. Jee, Gwangju Institute of Science and Technology, Gwangju, South Korea	1340 hrs AIAA-2023-4006 Simulation-driven design optimization for a submersible float with wings S. Joshi, Virginia Polytechnic Institute and State University, Blacksburg, VA; H. Park, S. Choi, Gwangju Institute of Science and Technology, Gwangju, South Korea			
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Wednesday, 14 June 2023

FD-22	Stability and Transition: Roughness	Mission Beach C
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Chaired by: J. EPPINK, NASA Langley Research Center

1300 hrs AIAA-2023-3995 Transients of Shear-layer Oscillation in Cavity Flow in Response to Unsteady Actuation M. Islam, Y. Sun, Syracuse University, Syracuse, NY	1320 hrs AIAA-2023-3996 Effect of Small Rectangular Bumps on the Amplification of Tollmien-Schlichting Waves F. Himeno, A. Basilio de Carvalho, M. Medeiros, Universidade de Sao Paulo Escola de Engenharia de Sao Carlos, São Carlos, Brazil	1340 hrs AIAA-2023-3997 Gap induced boundary layer transition V. Victorino, F. Aguirre, M. Medeiros, Universidade de Sao Paulo Escola de Engenharia de Sao Carlos, São Carlos, Brazil	1400 hrs AIAA-2023-3998 Mitigation of Airfoil Boundary-Layer Transition due to Leading-Edge Roughness Using Shielding Strips E. Justiniano, L. Brown, E. White, Texas A&M University, College Station, TX; S. Suryanarayanan, University of Akron, Akron, OH; D. Goldstein, The University of Texas at Austin, Austin, TX	1420 hrs AIAA-2023-3999 Effects of Random Micron-Sized Roughness on Swept-Wing Transition J. Eppink, NASA Langley Research Center, Hampton, VA	
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Wednesday, 14 June 2023

FD-23	Turbulent Flows: Complex Geometry	Mission Beach B
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Chaired by: T. SAXTON-FOX, University of Illinois at Urbana-Champaign					
1300 hrs AIAA-2023-4007 Analysis of adverse pressure gradient effects in the boundary layer of a NACA0012 airfoil at high angles of attack L. Silva, W. Wolf, Universidade Estadual de Campinas, Campinas, Brazil	1320 hrs AIAA-2023-4008 Investigation of Low Frequency Unsteadiness in the Turbulent Separation Bubble Produced by a Wall Mounted Hump K. Dau, D. Borgmann, J. Little, The University of Arizona, Tucson, AZ; J. Weiss, Technische Universitat Berlin, Berlin, Germany	1340 hrs AIAA-2023-4009 Simulation of High-Speed Flows over an Expansion-Compression Corner Using Large Eddy Simulation N. Kianvashrad, D. Knight, Rutgers The State University of New Jersey, New Brunswick, NJ			
Wednesday, 14 June 2023					
FD-24	Unsteady Aerodynamics and Massively Separated Flows: Compressible Flows and Swept Wings				Solana Beach B
Chaired by: Y. SUN, Syracuse University					
1300 hrs AIAA-2023-4000 Compressibility Effects on Aerodynamic Characteristics and Flow Fields of Mars Helicopter Rotor K. Yoshikawa, Y. Buto, M. Sato, Kogakuin Daigaku, Shinjuku-ku, Japan; A. Oyama, Uchu Koku Kenkyu Kaihatsu Kiko Uchu Kagaku Kenkyujo, Sagamihara, Japan; M. Sugiura, Y. Tanabe, Uchu Koku Kenkyu Kaihatsu Kiko, Chofu, Japan; et al.	1320 hrs AIAA-2023-4001 Towards Resolving Natural Shock Oscillation and Mitigation of Altitude Excitation in a Transonic Fan P. Nel, Rolls-Royce Deutschland Ltd und Co KG, Blankenfelde-Mahlow, Germany; S. Pirozzoli, Universita degli Studi di Roma La Sapienza, Rome, Italy; M. Swoboda, P. Grothe, Rolls-Royce Deutschland Ltd und Co KG, Blankenfelde-Mahlow, Germany; J. Weiss, Technische Universitat Berlin, Berlin, Germany	1340 hrs AIAA-2023-4002 Computational Analysis of Swept Wing Dynamic Response to Step Increases in Angle of Attack P. Brandt, J. Bons, The Ohio State University, Columbus, OH	1400 hrs AIAA-2023-4003 Wake-Structure of the Prandtl-D P. Hammer, D. Garmann, Air Force Research Laboratory, Wright-Patterson AFB, OH		
Wednesday, 14 June 2023					
FD-25	Vortex Dynamics and Rotating Flows II				Pier
Chaired by: N. SHUMWAY, US Air Force Academy, HQ USAFA/DFAN and M. ILIE, Georgia Southern University					
1300 hrs AIAA-2023-4010 Data Driven Methodology for Decoupled Aircraft Wake Vortex Propagation Using Proper Orthogonal Decomposition	1320 hrs AIAA-2023-4011 Comparison of Wind Tunnel Vortex Survey Results with the <i>n</i> -Vortex Model A. Kuenn, L. Kliment, Wichita State University, Wichita, KS	1340 hrs AIAA-2023-4012 Combined Theoretical and Experimental Investigation of Airfoil Encountering Transverse Gust			

S. Bennie, P. Nagy, M. Fossati, University of Strathclyde, Glasgow, United Kingdom		Y. Lee, NC State University, Raleigh, NC; A. Gementzopoulos, The University of Maryland, College Park, MD; N. Chitralla, NC State University, Raleigh, NC; A. Suresh Babu, UNC Charlotte, Charlotte, NC; A. Jones, The University of Maryland, College Park, MD; A. Gopalathnam, NC State University, Raleigh, NC			
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Wednesday, 14 June 2023

FT-7 1300 - 1400 hrs	Advanced Air Mobility Operations & Automation Part II	Harbor C
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NASA's Advanced Air Mobility Project will share results from flight simulation and flight testing towards vertical flight in an Urban environment.

Wednesday, 14 June 2023

GT-8	Special Session: 65 Years of TASK Wind Tunnel Balances - Past, Present, Future (Part 2)	Promenade A
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Chaired by: H. QUIX, European Transonic Windtunnel and F. SNYDER, Aerophysics Research Instruments

1300 hrs Q&A	1300 hrs AIAA-2023-4013 A good choice: Why the National Aerospace Laboratory NLR in The Netherlands purchased 18 Task balances in the late 50-ies. B. Elsenaar, Netherlands Aerospace Center (NLR), Amsterdam, The Netherlands	1320 hrs 3849684 Six-Component TASK Balance Measurements for Projectile Aerodynamics Validation and Complementary Methods F. Leopold, S. Michalski, B. Dutschke, A. Mielke, D. Klatt, R. Hruschka, French-German Research Institute of Saint- Louis, Saint-Louis, France	1340 hrs AIAA-2023-4014 Analysis and Evaluation of NASA's MK40B Six- Component TASK Balance N. Ulbrich, Jacobs Technology Inc, Moffett Field, CA		
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Wednesday, 14 June 2023

HSABP-7/INPSI-8	High-Speed Inlets, Isolators, and Nozzles II	Gaslamp D
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Chaired by: D. CROWE, Air Force Institute of Technology and L. ZHANG, University of Texas at Arlington

1300 hrs AIAA-2023-4015 Flow Separation Measurements in Regions of SBLI using Wall Shear Sensors N. Molinaro, D. Simmons, R. Meritt, Ahmic Aerospace, Dayton, OH	1320 hrs AIAA-2023-4016 Supersonic External- Compression Inlets for Mach 1.4 to 2.0 J. Slater, NASA Headquarters, Washington, D.C.	1340 hrs AIAA-2023-4017 Design and Analysis of a Jet Stretcher for High- Altitude Supersonic Free Jet Testing B. Heberling, M. Liou, NASA Headquarters, Washington, D.C.; H. Reising, HX5, LLC, Cleveland, OH			
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Wednesday, 14 June 2023					
MDO-12	Aircraft Design Optimization II				Old Town B
Chaired by: A. CARRERE, Boeing and C. LUPP, Air Force Research Laboratory					
1300 hrs AIAA-2023-4018 Comparing Hydrogen and Jet-A for a Ultra High-Bypass Turbofan with Water Recirculation. P. Atma, A. Lamkin, J. Martins, University of Michigan, Ann Arbor, MI	1320 hrs AIAA-2023-4019 Gradient-based sizing optimization of power-beaming-enabled aircraft N. Orndorff, B. Wang, M. Ruh, A. Fletcher, J. Hwang, University of California San Diego, La Jolla, CA	1340 hrs AIAA-2023-4020 Blended wing body configuration for hydrogen-powered aviation E. Adler, J. Martins, University of Michigan, Ann Arbor, MI			
Wednesday, 14 June 2023					
MDO-13	Multi-Fidelity Methods for Vehicle Applications				Old Town A
Chaired by: S. CHOI, Gwangju Institute of Science and Technology and N. BARTOLI, ONERA					
1300 hrs AIAA-2023-4021 Large-scale multidisciplinary design optimization of a virtual-telescope CubeSat swarm V. Gandarillas, J. Hwang, University of California San Diego, La Jolla, CA	1320 hrs AIAA-2023-4022 Simplified Modeling of Topology-Optimized Compliant Mechanism for Multi-Fidelity Integration in Morphing Wings F. Sturm, Technische Universität Munchen, Garching, Germany; E. Wehrle, Free University of Bozen-Bolzano, Bolzano, Italy; M. Hornung, Technische Universität Munchen, Garching, Germany	1340 hrs AIAA-2023-4023 Evaluation of Multi-Fidelity Approaches with Active Learning for Automated Database Generation K. Quinlan, J. Movva, Lawrence Livermore National Laboratory, Livermore, CA; B. Burchett, J. Vasile, U.S. Army Combat Capabilities Development Command - Army Research Laboratory, Aberdeen Proving Ground, MD; D. Driver, J. Acton, Lawrence Livermore National Laboratory, Livermore, CA			
Wednesday, 14 June 2023					
PDL-3	Plasma Flow Control				Promenade B
Chaired by: L. MASSA, Virginia Tech					
1300 hrs AIAA-2023-4024 Characteristics of Radiative Heating in Mars Entry Flight with Magnetohydrodynamic Flow Control K. Tabuchi, T. Fujino, Tsukuba Daigaku, Tsukuba, Japan	1320 hrs AIAA-2023-4025 Extended Control of Shock Wave Reflection by Long Q-DC Electrical Discharge P. Andrews, P. Lax, S. Leonov, University of Notre Dame College of Engineering, Notre Dame, IN	1340 hrs AIAA-2023-4026 Trichel-like Pulses in Negative Corona Discharge Under a Supersonic Flow G. Dufour, ONERA Traitement de l'information et systemes, Toulouse, France; K. Kourtzanidis, Ethniko Kentro	1400 hrs AIAA-2023-4027 Combined and simultaneous electro-optical diagnostics for oscillatory plasma discharges S. Pasch, Karlsruher Institut fur Technologie, Karlsruhe, Germany; T. Fridlender,		

		Ereunas & Technologikes Anaptyxes, Thessaloniki, Greece; F. Rogier, ONERA Traitement de l'information et systemes, Toulouse, France	Universite de Poitiers, Poitiers, France; M. Hehner, Karlsruher Institut fur Technologie, Karlsruhe, Germany; N. Benard, Universite de Poitiers, Poitiers, France; J. Kriegseis, Karlsruher Institut fur Technologie, Karlsruhe, Germany		
Wednesday, 14 June 2023					
PGC-2/HSABP-8	Progress on Operability and Performance Evaluation of RDEs/RDREs				La Jolla A
Chaired by: M. GAMBA, University of Michigan					
Wednesday, 14 June 2023					
SR-1	Topics in Solid Rockets				Bankers Hill
Chaired by: T. GALLAGHER, Northrop Grumman and C. CARR, Northrop Grumman Space Systems					
1300 hrs AIAA-2023-4028 The Stepped Helix Hybrid Rocket Engine C. Glaser, J. Hijlkema, J. Lestrade, ONERA Le Fauga- Mauzac, Mauzac, France; J. Anthoine, ONERA Toulouse, Toulouse, France	1320 hrs AIAA-2023-4029 Dual-Zone Temperature and Multi-Species Measurements in Solid- Propellant Flames via Broadband Mid-Infrared Laser Absorption Spectroscopy V. Radhakrishna, K. Uhlenhake, S. Son, C. Goldenstein, Purdue University, West Lafayette, IN	1340 hrs AIAA-2023-4030 Simulation of Liquefying Propellants with Swirl B. Maicke, Penn State Harrisburg, Middletown, PA	1400 hrs AIAA-2023-4031 Rapidly Deployable, Low- Cost Hypersonic Rocket Optimization and Design J. Reddington, M. Young, N. Miseli, J. Gibson, J. Galante, J. Corsaro, United States Military Academy at West Point, West Point, NY; et al.	1420 hrs AIAA-2023-4032 Solid Rocket Motor Internal Ballistics Using a Vortex Particle Method G. DiMaggio, R. Hartfield, Auburn University, Auburn, AL; V. Ahuja, Research in Flight, Austin, TX	1440 hrs AIAA-2023-4033 A Survey of Machine Learning in Rocket Propulsion Applications B. Maicke, Penn State Harrisburg, Middletown, PA
Wednesday, 14 June 2023					
TF-11/EATS-11/GA-6	X-57 Maxwell Lessons Learned				Harbor E
Chaired by: C. JUSTIN, Georgia Institute of Technology					
1300 hrs AIAA-2023-4034 Development of the Mod II X-57 Piloted Simulator and Flying Qualities Predictions R. Wallace, J. Reynolds, J. Mcminn, M. Frederick, N. Borer, D. Cox, NASA Armstrong Flight Research Center, Edwards, CA	1320 hrs AIAA-2023-4035 X-57 Cockpit Display System Development and Features S. Clarke, A. Curry, A. Samuel, NASA Armstrong Flight Research Center, Edwards, CA	1340 hrs 3872260 X-57 Electromagnetic Interference Design, Integration, and Test Considerations S. Clarke, NASA Armstrong Flight Research Center, Edwards, CA; D. Avanesian, M. Garrett, M. Granger, NASA John H Glenn Research Center, Cleveland, OH; P. Hamory, A. Curry, NASA			

		Armstrong Flight Research Center, Edwards, CA			
Wednesday, 14 June 2023					
TP-10	Thermal Properties Measurements and Computations				Golden Hill B
Chaired by: A. NAGLE, Ball Aerospace and D. PYTEL, Lockheed Martin Space Systems					
1300 hrs AIAA-2023-4036 Flash Diffusivity Measurement of Semi-Porous Insulation Material Intended for Radioisotope Thermoelectric Generators R. McMasters, L. Baarlaer, Virginia Military Institute, Lexington, VA; H. Wang, Oak Ridge National Laboratory, Oak Ridge, TN	1320 hrs AIAA-2023-4037 Development of an Optical Model for the MEDLI2 Radiometer J. Scoggins, A. Mazaheri, C. Johnston, NASA Langley Research Center, Hampton, VA	1340 hrs AIAA-2023-4038 Uncertainty Analysis of Slug Calorimeters in the Hypersonic Material Environmental Test System Arc-Jet Facility A. Brune, NASA Langley Research Center, Hampton, VA; C. Morrow, North Dakota State University, Fargo, ND	1400 hrs AIAA-2023-4039 Paradigm and Data Reduction Shift for Estimating Heat Flux in Short-Time Hypersonics Ground Tests J. Frankel, F. Shu, A. Gross, New Mexico State University, Las Cruces, NM		
Wednesday, 14 June 2023					
UAS-5	Machine Intelligence and SW defined HW & Systems Design				Cortez Hill C
Chaired by: M. FRANCIS and M. LOGAN, NASA Langley Research Center					
1300 hrs AIAA-2023-4040 Fuzzy Logic and Mahalanobis Distance Algorithms for Fault Detection in Fixed Wing UAVs R. Gomez Quezada, University of Maryland at College Park, College Park, MD; L. Castano, Axient Corporation, Huntsville, AL; H. Xu, University of Maryland at College Park, College Park, MD	1320 hrs AIAA-2023-4041 Robust trajectory planning for multi-rotor aerial vehicles subject to saturation faults and wind disturbances M. Quinones-Grueiro, I. Ahmed, G. Biswas, Vanderbilt University, Nashville, TN	1340 hrs AIAA-2023-4042 A Rotorcraft Validation Framework using an EKF-based Parameter Estimation Approach M. Jesse, Purdue University, West Lafayette, IN; N. Prabhakar, D. Karbowski, Argonne National Laboratory, Lemont, IL	1400 hrs AIAA-2023-4043 Real Time Optimal Trajectory Synthesis for an Unmanned Aerial Vehicle in Urban Air Mobility Applications B. Kacmaz, R. Vepa, Queen Mary University of London, London, United Kingdom		
Wednesday, 14 June 2023					
UAS-6	Systems Design and Optimization for Unmanned/Autonomous Systems II				La Jolla B
Chaired by: K. HOFFLER, Adaptive Aerospace Group, Inc.					
1300 hrs AIAA-2023-4044 Unmanned Aerial Vehicles: A 21st Century	1320 hrs AIAA-2023-4045 Increasing the Aerodynamic Performance of a Small	1340 hrs AIAA-2023-4046 A Framework for Developing Robust, Autonomous, Power			

Review of Advanced Air Mobility Platforms O. Olanipekun, C. Montalvo, University of South Alabama, Mobile, AL; T. Salau, E. Simolowo, University of Ibadan, Ibadan, Nigeria	Flying Wing UAV Using Passive Bio-inspired Microfibers D. Dos Santos, Texas Tech University, Lubbock, TX; A. Doosttalab, Flow Raider LLC, Lubbock, TX; V. Maldonado, Texas Tech University, Lubbock, TX	Managed Dynamic Soaring Flight Controllers Using Deep Reinforcement Learning M. DiPaola, T. Barkin, Massachusetts Emergency Management Agency (MEMA), Revere, MA			
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Wednesday, 14 June 2023

VSTOL-3/TF-10	International Powered Lift Conference (IPLC): Distributed Propulsion Architectures	Harbor I
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Chaired by: P. PRAKASHA, German Aerospace Center and P. BEVILAQUA

1300 hrs AIAA-2023-4047 An Experimental Study of the Performance of Ducted Fan Arrays for Distributed Electric Propulsion J. Dorfling, L. Traub, Embry Riddle Aeronautical University - Prescott, Prescott, AZ	1320 hrs AIAA-2023-4049 Design optimization for improved HQ and performance of a DEP aircraft D. Planas, ISAE-SUPAERO, Toulouse, France; C. Döll, ONERA Traitement de l'information et systemes, Toulouse, France; P. Pastor, ISAE-SUPAERO, Toulouse, France	1340 hrs AIAA-2023-4050 Feasibility Analysis of a Flying Car with In-Wheel Electric Ducted Fans M. Sailer, D. Lampl, S. Armanini, Technische Universität München, München, Germany	1400 hrs Technical Lecture: Vertical Landing for SpaceX's Rockets SpaceX is developing fully-reusable rockets that take off and land vertically, before refueling and reflight. The 2023 F.E. Newbold Awardee, Dr. Lars Blackmore, discusses the unique challenges of vertical landing for space launch vehicles and how SpaceX is overcoming these challenges with both vehicle-level design choices and new hardware/software technologies. Host: Geoffrey Jeram, U.S. Army Combat Capabilities Command Speaker: Lars Blackmore - Space Exploration Technologies Corporation		
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Wednesday, 14 June 2023

F360-8 1330 - 1500 hrs	Airspace Management of Evolving AAM	Grand Hall A-C
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Air Traffic Management (ATM) proposals for Advanced Air Mobility (AAM) recognize the need for strategic and tactical airspace deconfliction, where the need for coordination appears in different forms and nuances. From using pre-defined corridors to the evolving to 4D trajectory-based operations, limitations applying ATM principles to very dense and potentially more complex operations must be considered.
Moderator: Nick Lappos, Sikorsky
Chris Baur, Hughes Aerospace
Jeanne Yu, NASA
Warren Zelaya, General Atomics

Dan Sloat, AAM Institute Lisa Peterson, AURA Networks					
Wednesday, 14 June 2023					
FL-8 1330 - 1430 hrs	Preventing Aviation Accidents with Safety Technology				Harbor H
While major U.S. commercial air carriers have a strong safety record, more must be done to make aviation safer. Recent studies have concluded that general aviation operations are between 8 and 15 times more dangerous than driving, but that 68% of fatal accidents could potentially have been prevented with safety-enhancing technology. During this session, we'll discuss recent data and studies that analyze general aviation accidents and identify how safety technology could have prevented the incidents, along with specific safety technologies that are under development to prevent these accidents and how these technologies also apply to AAM. We'll also examine regulatory and public policy focus and changes that are necessary to deploy aviation safety technologies.					
Moderator: John Koelling, Chief Operations Officer, NASA					
Panelists: Juerg Frefel, Co-founder and CTO, Reliable Robotics Loyd R. Hook, Dept. of Elec. and Comp. Engr, University of Tulsa Paul Johnson, Chief Engineer, Cirrus Aircraft					
Wednesday, 14 June 2023					
NW-7 1500 - 1530 hrs	Networking Break				Seaport Ballroom
Coffee breaks allow even more time for making new contacts, continuing discussions from sessions, visiting the Exposition Hall, or checking emails and voicemails to keep in touch with the office while you are at the forum.					
Wednesday, 14 June 2023					
AA-38	Aeroacoustics Virtual III: Airfoil and Propeller Noise Topics				Virtual
Chaired by: L. KOCH, NASA Glenn Research Center and F. ASFOOR, NASA Glenn Research Center					
1530 hrs AIAA-2023-4051 Influence of Base Jets on Trailing Edge Bluntness Noise Generation J. Guo, Y. Liu, R. Maryami, Southern University of Science and Technology, Shenzhen, China; C. Yang, Hefei University of Technology, Hefei, China	1530 hrs AIAA-2023-4053 Numerical Analysis of Aerodynamics and Acoustics of a Variable Pitch Propeller M. Lattari, V. Rosa, C. Deschamps, Universidade Federal de Santa Catarina, Florianopolis, Brazil	1530 hrs AIAA-2023-4054 Experimental Parametric Investigation of the Haystacking Phenomenon for Propeller Boundary Layer Ingestion I. Zaman, University of Bristol, Bristol, United Kingdom; M. Falsi, Università degli Studi Roma Tre Dipartimento di Ingegneria, Roma, Italy; B. Zang, M. Azarpeyvand, University of Bristol, Bristol, United Kingdom; R. Camussi, Università degli Studi Roma Tre Dipartimento di Ingegneria, Roma, Italy	1530 hrs AIAA-2023-4055 Effect of Tip Gap on Nearfield and Farfield Acoustics of Propeller Boundary Layer Ingestion I. Zaman, University of Bristol, Bristol, United Kingdom; M. Falsi, Università degli Studi Roma Tre Dipartimento di Ingegneria, Roma, Italy; B. Zang, M. Azarpeyvand, University of Bristol, Bristol, United Kingdom; R. Camussi, Università degli Studi Roma Tre Dipartimento di Ingegneria, Roma, Italy	1530 hrs AIAA-2023-4056 Numerical Investigation of Tonal Noise Emissions from Propeller-Wing Aerodynamic and Acoustic Interactions J. Barker, A. Zarri, J. Christophe, C. Schram, Von Karman Institute For Fluid Dynamics, Sint-Genesius-Rode, Belgium	
Wednesday, 14 June 2023					

AA-39	Aeroacoustics Virtual IV: Computational Methods and Techniques in Aeroacoustics				Virtual
Chaired by: D. ZHAO, University of Canterbury					
1530 hrs AIAA-2023-4057 On the Efficiency of Higher-Order Implicit Solvers for Compressible Flow Z. Sabri, D. Hixon, J. Severino, The University of Toledo, Toledo, OH	1530 hrs AIAA-2023-4058 Steady-State Low-Order Explicit (LOE) Runge-Kutta Schemes with Improved Convergence Z. Sabri, D. Hixon, The University of Toledo, Toledo, OH	1530 hrs AIAA-2023-4059 Development of a Model-Driven Calibration Method for Remote Microphone Probes Using Bayesian Inference O. Moriaux, R. Zamponi, C. Schram, Von Karman Institute For Fluid Dynamics, Sint-Genesius-Rode, Belgium	1530 hrs AIAA-2023-4060 Assessment of the convective correction defect of metacontinua using spurious sources in the aeroacoustic spacetime G. Colombo, G. Palma, L. Burghignoli, U. Iemma, Universita degli Studi Roma Tre Dipartimento di Ingegneria, Roma, Italy	1530 hrs AIAA-2023-4061 Non-linear Dimensionality Reduction Techniques for Model Order Reduction of Aviation Noise Metrics J. Bhanpato, A. Behere, D. Mavris, Georgia Institute of Technology, Atlanta, GA	
Wednesday, 14 June 2023					
ACD-12	Multi-Media & Unique Vehicles				Virtual
Chaired by: C. REYNOLDS, Lockheed Martin Space Systems and W. LIU, Darcorp					
1530 hrs AIAA-2023-4062 Integrated Approaches to Trans-Media Vehicle Design K. Han, W. Song, R. Cao, Y. Yu, Y. Cheng, Shanghai Jiao Tong University, Shanghai, China	1530 hrs AIAA-2023-4063 Design of a Variable Wing Configuration for a Trans-Media Vehicle y. yu, W. Song, K. Han, Shanghai Jiao Tong University, Shanghai, China	1530 hrs AIAA-2023-4064 Fast Prototyping of Trans-Medium Vehicle Fuselage with a T-splines Based Parametric Method R. Cao, W. Song, K. Han, Shanghai Jiao Tong University, Shanghai, China	1530 hrs AIAA-2023-4065 Analysis and Testing of Distributed Electric Fan on Air-water Vehicle Y. Cheng, W. Song, K. Han, Shanghai Jiao Tong University School of Aeronautics and Astronautics, Shanghai, China	1530 hrs AIAA-2023-4066 Conceptual Design of Fixed Wing Electrical VTOL Air Transport Vehicle S. Çelik, TOBB Ekonomi ve Teknoloji Üniversitesi, Ankara, Turkey; Ü. Kaynak, Ankara Yıldırım Beyazıt Üniversitesi, Ankara, Turkey; M. Aktas, TOBB Ekonomi ve Teknoloji Üniversitesi, Ankara, Turkey	
Wednesday, 14 June 2023					
ACD-13	Vehicle Design Studies				Virtual
Chaired by: I. CHAKRABORTY, Auburn University and G. ROTH, Air Force Research Laboratory					
1530 hrs AIAA-2023-4067 Airliner conceptual designs for the application of alternative fuels J. Chan, Y. Sun, H. Smith, Cranfield University, Cranfield, United Kingdom	1530 hrs AIAA-2023-4068 A Probabilistic Methodology for Analysis of Secondary Cracks in Riveted Structures C. Paes Lemes, Embraer SA, São Jose dos Campos, Brazil; M. Andrés Arbelo, Instituto Tecnológico de Aeronautica, São Jose dos Campos, Brazil; A. Barbosa, C. Chaves,	1530 hrs AIAA-2023-4069 Aerodynamic Design Space Exploration of a Fuselage Boundary Layer Ingesting Aircraft M. Sluis, B. Della Corte, A. Gangoli Rao, Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek, Delft, The Netherlands	1530 hrs AIAA-2023-4070 Conceptual Design and Sizing of a Solar Powered Tilt-Rotor Hybrid UAV for exploration over Mars P. Gupta, Indian Institute of Technology Bombay, Mumbai, India; A. Poojary, Manipal Institute of Technology, Manipal, India; R. Pant, Indian Institute of		

	Embraer SA, São Jose dos Campos, Brazil		Technology Bombay, Mumbai, India		
Wednesday, 14 June 2023					
APA-33	Aerodynamic Design & Testing				Virtual
Chaired by: S. VIKEN, NASA Langley Research Center and S. SINGH, Embry-Riddle Aeronautical University					
1530 hrs AIAA-2023-4077 Experimental Study of Rotorcraft Ground Effect over Inclined Surfaces in Headwind Conditions J. Palacios Santos, R. Bardera, J. Matias-Garcia, Instituto Nacional de Tecnica Aeroespacial, Torrejon de Ardoz, Spain	1530 hrs AIAA-2023-4078 Stratospheric Balloon Experiments by a New Prototype of Inertial Impactor as Atmospheric Sampler R. Bardera, S. Sor, A. Garcia-Magariño, J. Matias-Garcia, E. Barderas, G. Martinez, Instituto Nacional de Tecnica Aeroespacial, Madrid, Spain; et al.	1530 hrs AIAA-2023-4079 Aero-whisker for the Measurement of Aircraft Flight Speed and Angle of Attack in Compressible Flow Conditions M. Debiassi, Cranfield University Cranfield Defence and Security, Shrivenham, United Kingdom; K. Atkinson, Royal Navy, London, United Kingdom; A. Saddington, M. Finnis, Cranfield University Cranfield Defence and Security, Shrivenham, United Kingdom	1530 hrs AIAA-2023-4080 Aerodynamic Interaction and Analysis of Nose-Mounted Propeller Aircraft A. Anand, S. MV, Indian Institute of Science, Bengaluru, India; C. V. N. VVS, Hindustan Aeronautics Limited, Bengaluru, India; B. Narayanarao, Indian Institute of Science, Bengaluru, India	1530 hrs AIAA-2023-4081 Rapid Prediction Method for Extreme Aerodynamics: Jet and Propeller Acoustics D. Nixon, AYCEN, Los Altos, CA	1530 hrs AIAA-2023-4082 Numerical Simulation of Transonic Buffet in an Axial-flow Fan J. Majhi, K. Venkatraman, Indian Institute of Science, Bengaluru, India
Wednesday, 14 June 2023					
APA-34	Applied Computational Fluid Dynamics III				Virtual
Chaired by: A. LOFTHOUSE, US Air Force and K. ZORE, Ansys					
1530 hrs AIAA-2023-4087 RANS Computations of 3D Flow past AIAA CRM SHL with Various Active Flow Control Actuators K. Hendrickson, R. Agarwal, Washington University in St Louis, St Louis, MO	1530 hrs AIAA-2023-4088 Numerical Investigation of the Trailing Edge Morphing using Corrugated Skin at a High Reynolds Number for NACA 0012 & NACA 64(1)-612 Airfoils R. Kumar, S. Ghosh, Indian Institute of Technology Madras, Chennai, India	1530 hrs AIAA-2023-4089 Aeroelasticity of supersonic ONERA M6 wing; parametric studies using a fully-coupled computational approach M. Ilie, J. Havenar, Georgia Southern University, Statesboro, GA	1530 hrs AIAA-2023-4090 Aerodynamic Force and Vortex Force on Flapping Wings E. Sticchi, Universita degli Studi di Napoli Federico II, Napoli, Italy; M. Minervino, Centro Italiano Ricerche Aerospaziali, Capua, Italy; R. Tognaccini, Universita degli Studi di Napoli Federico II, Napoli, Italy	1530 hrs AIAA-2023-4092 Uncertainty Quantification in Flows with Discontinuities: A Probabilistic Approach on Nonlinear Manifolds N. Iyengar, D. Rajaram, D. Mavris, Georgia Institute of Technology College of Engineering, Atlanta, GA	
Wednesday, 14 June 2023					
APA-35/INPSI-9	Design and Analysis of Inlet and Exhaust Systems				Virtual
Chaired by: S. HIRT, NASA Glenn Research Center and M. CARROLL, Lockheed Martin Aeronautics					
1530 hrs AIAA-2023-4083 Selection of a Scale Resolving Simulation	1530 hrs AIAA-2023-4084 Parametric Study on the Thrust Vectoring of a	1530 hrs AIAA-2023-4085 Design Optimization of a Novel Boundary Layer	1530 hrs AIAA-2023-4086 Effect of Small Step on Aerodynamic		

Technique for Flow Field Analysis of a High-Speed Air Intake B. Muffi, Georgia Institute of Technology, Atlanta, GA; T. Irfan, Khalifa University, Abu Dhabi, United Arab Emirates; Z. Toor, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia; J. Masud, Air University, Islamabad, Pakistan	Supersonic Jet Manipulated by Fluidic Injection A. Yadav, V. R. A. Perumal, Indian Institute of Technology Kanpur, Kanpur, India	Diverter for Semi-Submerged Inlets U. Kucuk, I. Tuncer, Orta Dogu Teknik Universitesi, Ankara, Turkey	Performance in the Transonic Inlet E. Ju, F. Nawaz, X. Meng, Northwestern Polytechnical University, Xi'an, China; X. Ma, T. Chen, Aerodynamics Research Institute, Shenyang, China		
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Wednesday, 14 June 2023

APA-36	Topics in Applied Aerodynamics	Virtual
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Chaired by: G. HALILA, University of Michigan and F. TURBEVILLE, NASA Langley Research Center

1530 hrs AIAA-2023-4071 Aerodynamic and Aeroacoustic Impact of the Axial Distance upon Contra-rotating Rotors During Hovering Condition P. Li, Southern University of Science and Technology, Shenzhen, China; Y. Yang, South China University of Technology, Guangzhou, China; H. Zhang, Y. Liu, Southern University of Science and Technology, Shenzhen, China; Q. Li, Aviation Industry Corporation of China, Zhuhai, China; B. Noack, Harbin Institute of Technology, Shenzhen, Shenzhen, China	1530 hrs AIAA-2023-4072 Composite Adaptive Aeroelastic System Control and Multifold Regressor Integrals-based Identification K. Lee, Catholic Kwandong University, Gangneung, South Korea; K. Raj, S. Singh, University of Nevada Las Vegas, Las Vegas, NV	1530 hrs AIAA-2023-4073 CRJ 700 Longitudinal Aerodynamic Coefficients Identification using Support Vector Machine Y. Tondji, G. Ghazi, R. Botez, Ecole de technologie superieure, Montreal, Canada	1530 hrs AIAA-2023-4074 Experimental Design of Dynamic and Thermal Soaring for an Unmanned Aerial Vehicle on Titan M. Gammill, B. Herkenhoff, M. Hassanalian, New Mexico Institute of Mining and Technology, Socorro, NM	1530 hrs AIAA-2023-4075 Influence of the Tilt Angle over the Flow around the Mars Rover J. Muñoz-Campillejo, R. Bardera, Instituto Nacional de Tecnica Aeroespacial, Torrejon de Ardoz, Spain; Á. Rodriguez-Sevillano, Escuela Tecnica Superior de Ingenieria Aeronautica y del Espacio, Madrid, Spain; J. Matias-Garcia, Instituto Nacional de Tecnica Aeroespacial, Torrejon de Ardoz, Spain	1530 hrs AIAA-2023-4076 Validation of a Mid-Fidelity Approach for Aircraft Stability and Control Characterization B. Simmons, S. Geuther, NASA Langley Research Center, Hampton, VA; V. Ahuja, Research in Flight, Austin, TX
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Wednesday, 14 June 2023

ASE-3	Atmospheric and Space Environments Virtual Session	Virtual
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Chaired by: C. ZHENG, Utah State University

1530 hrs AIAA-2023-4093 A Study of the Influence of the Acceleration Number in Droplet Trajectory Model in the Vicinity of Airfoils A. Garcia-Magariño, Instituto Nacional de Tecnica	1530 hrs AIAA-2023-4094 Space Debris Removal Trajectory Design using Lambert's Problem H. Shukla, A. Gupta, Y. Vashisht, University of Petroleum and Energy Studies, Dehradun, India	1530 hrs AIAA-2023-4095 Mission Optimized Weather Nowcasting for Flight Planning M. Veillette, V. Goodwin, Massachusetts Institute of Technology Lincoln Laboratory, Lexington, MA	1530 hrs AIAA-2023-4096 Simulation of Wind Field in a Building Complex for Evaluation of the Wind Effect Along UAS Flight Path J. Nathanael, C. Wang, Nanyang Technological	1530 hrs AIAA-2023-4097 A Stixel-Based Obstacle Avoidance System for Multi-Rover System N. K, Universite du Luxembourg, Esch-sur-Alzette, Luxembourg	
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Aerospacial, Madrid, Spain; S. Sor, Instituto Nacional de Tecnica Aeroespacial, Torrejon de Ardoz, Spain; P. Lopez-Gavilan, Universidad Politecnica de Madrid, Madrid, Spain			University Air Traffic Management Research Institute, Singapore, Singapore; K. Low, Nanyang Technological University, Singapore, Singapore		
Wednesday, 14 June 2023					
ATM-5	Scientific and Technical Advancements in UAP Understanding (Virtual)				Virtual
Chaired by: P. DONOVAN, AIAA UAPCOI and P. OBERLIN, The Boeing Company					
1530 hrs AIAA-2023-4098 System Study Of Constraints For The Creation Of UAP Electromagnetic Signature Optimal Detection Systems P. Reali, Scientific Coalition for UAP Studies, Fort Myers, FL	1530 hrs AIAA-2023-4099 FAA Unmanned Aircraft Systems (UAS) Sighting Reports: A Preliminary Survey R. Howard, Scientific Coalition for UAP Studies, Fort Myers, FL	1530 hrs AIAA-2023-4100 Research on Unidentified Aerial Phenomena at the Julius-Maximilians-University of Würzburg H. Kayal, T. Greiner, T. Kaiser, S. Oehme, Julius-Maximilians-Universitat Wurzburg, Wurzburg, Germany	1530 hrs AIAA-2023-4101 Reconstruction of potential flight paths for the January 2015 "Gimbal" UAP Y. Peings, University of California Irvine, Irvine, CA; M. von Rennenkampff, Stanford University, Stanford, CA		
Wednesday, 14 June 2023					
ATS-11	Topics in Air Transportation Systems I				Virtual
Chaired by: J. JONES, MIT Lincoln Laboratory					
1530 hrs AIAA-2023-4102 Rapid Multi-Objective UAS Mission Planning for Operational Risk Management N. Richards, A. Reed, Barron Associates, Inc., Charlottesville, VA; L. Hook, The University of Tulsa College of Engineering and Natural Sciences, Tulsa, OK	1530 hrs AIAA-2023-4103 Study of Pairwise Deconfliction Metrics to Analyze Air Traffic Complexity in Upper Class E Airspace P. Pradeep, Universities Space Research Association, Columbia, MD; M. Xue, P. Lee, B. Sridhar, NASA Ames Research Center, Moffett Field, CA; J. Li, Universities Space Research Association, Columbia, MD; P. Huynh, NASA Langley Research Center, Hampton, VA	1530 hrs AIAA-2023-4104 Evaluating Wind Hazards for Advanced Air Mobility Operations J. Jones, T. Bonin, E. Mitchell, Massachusetts Institute of Technology Lincoln Laboratory, Lexington, MA	1530 hrs AIAA-2023-4105 Modelling Urban Air Mobility Demand: the Example of the île-de-France Region M. Vale de Almeida Norte, M. Fulton, A. Harvey, C. Plevier, L. Oosterholt, M. Mendez Garcia, Technische Universiteit Delft, Delft, The Netherlands; et al.		
Wednesday, 14 June 2023					
ATS-12	Air Transportation Systems Virtual Session				Virtual
Chaired by: J. JONES, MIT Lincoln Laboratory					
1530 hrs AIAA-2023-4106	1530 hrs AIAA-2023-4107	1530 hrs AIAA-2023-4108	1530 hrs AIAA-2023-4109	1530 hrs AIAA-2023-4110	1530 hrs AIAA-2023-4111

Evaluating Benefits of Reduced Separation Minima for North Atlantic Traffic Through Computer Simulations A. Zolfaghari, N. Hinze, A. Trani, Virginia Polytechnic Institute and State University, Blacksburg, VA; J. Post, Federal Aviation Administration, Washington, D.C.	Machine Learning Models for Online Anomaly Detection in Flight Operations L. Coelho e Silva, M. Murça, Instituto Tecnológico de Aeronautica, São Jose dos Campos, Brazil	Generalizable Aircraft Takeoff Weight Estimation from Trajectory Data using Machine Learning R. Ayzit, M. Cengiz, Istanbul Teknik Universitesi, Istanbul, Turkey; M. Uzun, M. Demirezen, ALTAY Aeronautics and Space Technologies, Istanbul, Turkey; J. Lopez Leones, Boeing Research & Technology - Europe, Madrid, Spain; G. Inalhan, ALTAY Aeronautics and Space Technologies, Istanbul, Turkey; et al.	Mitigating Air Risk of Drone Operations in Low-level Airspace with a 4D Trajectory U-space Framework T. Dubot, A. Joulia, ONERA Traitement de l'information et systemes, Palaiseau, France	An Integrated Model to Estimate Supersonic Market Share Worldwide and Fleet Analysis Z. Wang, N. Hinze, A. Trani, Virginia Polytechnic Institute and State University, Blacksburg, VA	A Method for the Parametric Representation of Take-off Time-Series Trajectory Data for Environmental Impact Assessment A. Behere, D. Mavris, Georgia Institute of Technology, Atlanta, GA
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Wednesday, 14 June 2023

CFD-17	Modeling, Verification, and Application Studies I				Virtual
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Chaired by: H. NISHIKAWA, National Institute of Aerospace and A. PANCHAL, School of Aerospace Engineering, Georgia Tech

1530 hrs AIAA-2023-4115 Application of Error Transport Equations for Steady and Unsteady Problems with Shock Discontinuities M. Ganotaki, W. Jordan, C. Roy, Virginia Polytechnic Institute and State University, Blacksburg, VA	1530 hrs AIAA-2023-4116 Cluster-based network reduced order modeling for flow fields around airfoil profiles E. Di Costanzo, A. Colanera, M. Chiatto, L. de Luca, Universita degli Studi di Napoli Federico II, Napoli, Italy	1530 hrs AIAA-2023-4117 Reduced-Order Modeling of Hypersonic Turbulent Boundary Layers M. Brockhaus, A. Sescu, E. Luke, Mississippi State University, Mississippi State, MS; I. Dettwiller, US Army Engineer Research and Development Center, Vicksburg, MS	1530 hrs AIAA-2023-4118 Effect of Horizontal and Vertical Overlap on the performance of two-bladed Vertical Axis Wind turbine R. Nambiar, M. Tripathi, R. Pant, Indian Institute of Technology Bombay, Mumbai, India	1530 hrs AIAA-2023-4119 Investigation of the Sweep and Lean Curves Effects on the Performance of Rotor 37 A. Koksai, M. Elfarra, Ankara Yildirim Beyazit Universitesi, Ankara, Turkey	
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Wednesday, 14 June 2023

DE-5	Design Engineering Virtual Session				Virtual
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Chaired by: M. VELEV, Aries Design Automation, LLC

1530 hrs AIAA-2023-4121 Energy Absorbing Additive Structures for Crashworthy Aircraft Seats S. Koti Ananda Rao, P. Acharya, M. Hosmani, Collins Aerospace, Bengaluru, India	1530 hrs AIAA-2023-4122 Advanced Quality Planning for Low Production Volume with QRL (Quality Readiness Level) prioritization and optimization of Quality resources G. Rosa, G. Loureiro, Instituto Nacional de Pesquisas	1530 hrs AIAA-2023-4123 Sprallift Mechanism Based Drill for Deep Subsurface Lunar Exploration A. Mukundan, National Chung Cheng University, Minhsiung, Taiwan; A. Patel, Lulea tekniska universitet, Lulea, Sweden; K. Saraswat, Universita degli studi di Pisa Scuola di Ingegneria, Pisa, Italy; A. Tomar, Indian Institute	1530 hrs AIAA-2023-4124 Novel Design of a Sweeping 6-Degree of Freedom Lunar Penetrating Radar A. Mukundan, National Chung Cheng University, Minhsiung, Taiwan; A. Patel, Lulea tekniska universitet, Lulea, Sweden; K. Saraswat, Universita degli Studi di Pisa,	1530 hrs AIAA-2023-4125 Modeling and Theoretical Design of Missile Launch System Utilizing Electromagnetism C. Chhavi, Georgia Institute of Technology, Atlanta, GA; V. Ramanan, Indian Institute of Technology Madras, Chennai, India	
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	Espaciais, São Jose dos Campos, Brazil	of Space Science and Technology, Thiruvananthapuram, India; H. Wang, National Chung Cheng University, Minhsiung, Taiwan	Pisa, Italy; A. Tomar, Indian Institute of Space Science and Technology, Thiruvananthapuram, India; H. Wang, National Chung Cheng University, Minhsiung, Taiwan		
Wednesday, 14 June 2023					
EATS-12	EATS Virtual Session I				Virtual
Chaired by: D. BENCHERGUI, Bombardier Inc. and M. BOS-PAVEL, Delft Technical University of Technology					
1530 hrs AIAA-2023-4126 Hybrid SOFC-powered Mid-range Commercial Aircraft Concept D. Daggett, University of Louisiana at Lafayette, Lafayette, LA	1530 hrs AIAA-2023-4127 Comparing compact liquid and air-cooling thermal management systems using the Heat Transport System Simulation (HeatSSPy) J. Chapman, H. Hasseeb, S. Schnulo, NASA Headquarters, Washington, D.C.	1530 hrs AIAA-2023-4128 Deep Cryogenic Characterization of GaN HEMT at 4K M. Hossain, K. Shein, A. Hasan, Y. Wei, H. Mantooth, University of Arkansas Fayetteville, Fayetteville, AR	1530 hrs AIAA-2023-4129 Superconducting stators for higher power density aero propulsion motors operating at > 30K temperatures A. Otto, L. Saraco, Solid Material Solutions LLC, North Chelmsford, MA	1530 hrs AIAA-2023-4130 Data Driven Modeling of Electric Tilt-Rotor Aircraft Dynamics S. Murugan, S. LM, Indian Institute of Technology Madras, Chennai, India	1530 hrs AIAA-2023-4131 IMOTHEP* European project : an investigation of hybrid electric propulsion for commercial aircraft P. Novelli, Office National d'Etudes et de Recherches Aérospatiales, Palaiseau, France
Wednesday, 14 June 2023					
EATS-13	Electrified Aircraft Design & Mission Operation II				Gaslamp B
Chaired by: M. HOOGREEF, Delft University of Technology and G. CINAR, University of Michigan					
1530 hrs AIAA-2023-4151 MOTIVATION (Mdao for susTainable aViATION) - Framework development for the design and optimization of H2 powered aircraft R. Quibén Figueroa, R. Cavallaro, A. Cini, M. Soler Arnedo, Universidad Carlos III de Madrid, Getafe, Spain	1550 hrs AIAA-2023-4152 A Feasibility Calculation Framework for Beam Powered Aircraft E. Wright, D. DeLaurentis, Purdue University, West Lafayette, IN	1610 hrs AIAA-2023-4153 Landing Gear Drive System for All-Electric and High-Efficiency Ground Operations of Aircraft J. Deja, I. Dayyani, M. Skote, Cranfield University Cranfield School of Aerospace Transport and Manufacturing, Cranfield, United Kingdom			
Wednesday, 14 June 2023					
EATS-14	Failure/Fault Mode Protection, Solid State Control, Diagnostics & Modeling				Gaslamp C
Chaired by: S. LIU, The Boeing Company and A. DORSEY, Boeing					
1530 hrs AIAA-2023-4154 Modelling surface discharge inception field as an innovative tool to	1550 hrs AIAA-2023-4155 A solid state circuit breaker for hybrid electric propulsion	1610 hrs AIAA-2023-4156 Flight Simulator Demonstration of Powertrain Failure			

design insulation system for electrical aircrafts G. Montanari, Q. Yang, P. Cambareri, D. Nath, Florida State University, Tallahassee, FL	D. Zhang, Y. Xu, Naval Postgraduate School, Monterey, CA; Z. Zhang, Clemson University, Clemson, SC; D. Dong, Virginia Polytechnic Institute and State University, Blacksburg, VA; Y. Cao, University of Connecticut, Storrs, CT; P. McGinnis, Naval Sea Systems Command, Washington Navy Yard, D.C.; et al.	Mitigation in a Partial Turboelectric Aircraft J. Litt, J. Sachs-Wetstone, D. Simon, NASA John H Glenn Research Center, Cleveland, OH; T. Sowers, A. Owen, M. Bell, HX5, LLC, Brook Park, OH; et al.			
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Wednesday, 14 June 2023

EATS-15	Special Session - Massachusetts Institute of Technology Megawatt Machine	Harbor E
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Chaired by: Z. SPAKOVSKY and E. GREITZER and N. MADAVAN, NASA-Ames Research Center

1530 hrs AIAA-2023-4157 Technology Demonstration of a Megawatt-Class Integrated Motor Drive for Aircraft Propulsion Y. Chen, Z. Spakovszky, E. Greitzer, Z. Cordero, J. Lang, J. Kirtley, Massachusetts Institute of Technology, Munchen, Germany; et al.	1550 hrs AIAA-2023-4158 High Specific Power Permanent Magnet Synchronous Machine for a Megawatt-Class Integrated Motor Drive Technology Demonstrator H. Andersen, Z. Spakovszky, E. Greitzer, J. Lang, J. Kirtley, Massachusetts Institute of Technology, Cambridge, MA	1610 hrs AIAA-2023-4159 Novel Channel-type Heat Exchanger for a Megawatt-Class Integrated Motor Drive Technology Demonstrator Y. Chen, Z. Spakovszky, E. Greitzer, Z. Cordero, D. Cuadrado, C. Gump, Massachusetts Institute of Technology, Cambridge, MA; et al.	1630 hrs AIAA-2023-4160 High Speed Rotor System for a Megawatt-Class Integrated Motor Drive Technology Demonstrator Y. Chen, Z. Spakovszky, E. Greitzer, Z. Cordero, D. Cuadrado, Massachusetts Institute of Technology, Cambridge, MA; M. Amato, Innova-Logic LLC, Saunderstown, RI	1650 hrs AIAA-2023-4161 Design and Optimization of an Inverter for a One-Megawatt Ultra-Light Motor Drive M. Qasim, D. Otten, Z. Spakovszky, J. Lang, J. Kirtley, D. Perreault, Massachusetts Institute of Technology, Cambridge, MA	
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Wednesday, 14 June 2023

EATSWATCH1 1530 - 1700 hrs	EATS Virtual Session I Watch Room	Gaslamp A
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Virtual Watch Party room for the EATS virtual session.

Wednesday, 14 June 2023

F360-9 1530 - 1700 hrs	Distributed Electric Propulsion - Lessons Learned from the X-57	Grand Hall A-C
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As the long anticipated first manned flight of the X-57 Maxwell Project approaches, we reflect on the design approaches and highlight the challenges and lessons learned from developing and implementing distributed electric propulsion.

Moderator: Vince Schultz, NASA

Nick Borer, NASA

Sean Clarke, NASA

Dave Avenesian, NASA

Laura Kushner, NASA

Andy Gibson, ES Aero

Wednesday, 14 June 2023

FD-26 1530 - 1830 hrs	Flow Control Open Forum				Harbor D
Short presentations and open discussion on topics of interest to the aerodynamic flow control community.					
Wednesday, 14 June 2023					
FD-27	Supersonic and Hypersonic Flows				Virtual
Chaired by: N. TICHENOR, Texas A&M University					
1530 hrs AIAA-2023-4132 Numerical Experiments of Supersonic Cavity Flow Z. Robison, M. Schwartz, D. Garmann, Air Force Research Laboratory, Wright-Patterson AFB, OH	1530 hrs AIAA-2023-4133 Development of an Aerothermoelastic Framework for Resolving Hypersonic Flow around a Maneuverable Vehicle E. Hall, J. Foster, W. England, US Army Engineer Research and Development Center, Vicksburg, MS	1530 hrs AIAA-2023-4134 Surface Pressure Measurements and Predictions in Shock-Dominated Flows K. Brouwer, ARCTOS Technology Solutions, Beavercreek, OH; R. Perez, T. Bebernis, S. Spottswood, Air Force Research Laboratory, Wright-Patterson AFB, OH	1530 hrs AIAA-2023-3281 Study of Shock Boundary Layer Interaction using a Modified k-w Model Based on Estimated Shock Strength H. Rathi, K. Sinha, Indian Institute of Technology Bombay, Mumbai, India		
Wednesday, 14 June 2023					
FL-9 1530 - 1700 hrs	Stepping Stones Toward Increasingly Autonomous Flight				Harbor H
A panel of experts across industry, academia, and regulatory domains will discuss the most practical near-term approaches to achieving increasingly autonomous flights. The focus areas will include machine intelligence, operational paradigms, technology barriers, and regulatory approaches.					
Moderator: Michael Logan, NASA Langley Research Center					
Panelists: Mike Feary, NASA Keith Hoffler, Adaptive Aero Earl Lawrence, Xwing Ruth Stilwell, Aerospace Policy Solutions LLC					
Wednesday, 14 June 2023					
HSABP-9	Topics in High-Speed Air-Breathing Propulsion				Virtual
1530 hrs AIAA-2023-4135 Supersonic Combustion of Solid Fuels E. Schlusel, D. Gallegos, G. Young, Virginia Polytechnic Institute and State University, Blacksburg, VA	1530 hrs AIAA-2023-4136 Combustion instabilities of supersonic cavity flow; computational studies using LES M. Ilie, J. McAfee, V. Soloiu, M. Rahman, Georgia Southern University, Statesboro, GA	1530 hrs AIAA-2023-4137 Effect of Injection Method on the Pylon Placed Downstream of the Cavity P. Nair, V. Narayanan, Indian Institute of Technology Gandhinagar, Gandhinagar, India	1530 hrs AIAA-2023-4138 Mode Transition in Cavity Based Dual Mode Scramjet Combustor R. Kumar, S. Pranaykumar, N. Kumar, A. Ghosh, Indian Institute of Technology Kharagpur, Kharagpur, India	1530 hrs AIAA-2023-4139 Predicting the Functionality of a Scramjet Engine Using Quasi 1D Model A. Chakir, E. Collins, A. Zope, S. Bhushan, Mississippi State University James Worth Bagley College of	

				Engineering, Mississippi State, MS	
Wednesday, 14 June 2023					
LTA-3	Lighter-Than-Air-Systems III: Airships Aerostats Hot Air Balloon Virtual Session				Virtual
Chaired by: R. VAN TREUREN					
1530 hrs AIAA-2023-4140 Sizing of an Indoor Hot Air Balloon: An exercise in STEM education N. Uddin, R. Pant, Indian Institute of Technology Bombay, Mumbai, India	1530 hrs AIAA-2023-4141 Effect of Multi-lobed Envelope Geometries on Added Mass Computation M. Murugaiah, Manipal Institute of Technology, Manipal, India; R. Shah, Indian Institute of Technology Bombay, Mumbai, India; P. Shenwai, P. Priyan, Manipal Institute of Technology, Manipal, India; R. Pant, Indian Institute of Technology Bombay, Mumbai, India				
Wednesday, 14 June 2023					
MVCE-2/UAS-8	General Topics in Aviation I Virtual Session				Virtual
1530 hrs AIAA-2023-4112 Improvement of cache utilization in a parallel CFD code through mesh reordering by Hilbert curves G. Silva, J. Tomita, C. Bringhenti, Instituto Tecnológico de Aeronautica, São Jose dos Campos, Brazil	1530 hrs AIAA-2023-4113 Discretization Error Guided Optimal Mesh Adaptation in One-dimensional Steady Problems E. de Oliveira Carvalho, R. Costa Moura, A. de Castro da Silva, Instituto Tecnológico de Aeronautica, São Jose dos Campos, Brazil	1530 hrs AIAA-2023-4114 Momentum Thrust Enhancement of Liquid Rockets at Vacuum by Spraying High Heat Capacity Nano-Granules to the Subsonic Region of the Rocket Nozzle S. Sridhar, Y. Raj, Amity University, Noida, India; V. Sanal Kumar, Vikram Sarabhai Space Centre, Thiruvananthapuram, India			
Wednesday, 14 June 2023					
PGC-3/SR-2	Solid Rocket and Pressure Gain Propulsion				Virtual
Chaired by: E. TRIGGS, Auburn University and V. TANGIRALA, CPEC Technologies LLC					
1530 hrs AIAA-2023-4142 Effects of Increased RDC Injector Dioidicity K. Bischoff, S. Rehberg, P. Barnouin, E. Bach, C.	1530 hrs AIAA-2023-4143 Applications of soft-DTW for Time Series Data Averaging Inside a	1530 hrs AIAA-2023-4144 The Ignifion and Combustion of Aluminum in Composite Propellants	1530 hrs AIAA-2023-4145 Investigation on Flow Field and Operating Characteristics of Pintle Controlled Solid Rocket		

Paschereit, M. Bohon, Technische Universität Berlin, Berlin, Germany	Rotating Detonation Combustor M. Tagliaferri, Università degli Studi di Firenze, Firenze, Italy; P. Barnouin, H. Wei, E. Bach, C. Paschereit, M. Bohon, Technische Universität Berlin, Berlin, Germany	L. Mengying, Nanjing University of Aeronautics and Astronautics, Nanjing, China; Z. Liu, Science and Technology on Space Physics Laboratory, Beijing, China; W. Yu, Shenyang Ligong University, Shenyang, China; L. Shipeng, Beijing Institute of Technology, Beijing, China	Motor During Dynamic Regulation Process L. Zhang, D. Wang, L. Shipeng, Beijing Institute of Technology, Beijing, China		
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Wednesday, 14 June 2023

UAS-7	Autonomous Tasks/System Integration; Systems and Capabilities for Unmanned, Deep Space Missions II	Virtual
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Chaired by: O. ARIFF, University of Salford and P. GHASSEMI, Caterpillar Inc.

1530 hrs AIAA-2023-4146 Improved Fast Terminal Sliding Mode Control for an Extraterrestrial Lander M. Azadmanesh, J. Roshanian, K N Toosi University of Technology Faculty of Aerospace Engineering, Tehran, Iran; M. Hassanalian, New Mexico Institute of Mining and Technology, Socorro, NM	1530 hrs AIAA-2023-4147 Autonomous Flight Control for Drones using Instrumented Gloves Technology T. Dief, S. Almazrouei, S. Alshamsi, A. Alfalahi, M. Okasha, M. Kamra, United Arab Emirates University, Al Ain, United Arab Emirates; et al.	1530 hrs AIAA-2023-4148 Formation Flight of Multiple UAVs Using Artificial Potential Field Algorithm A. Favia, Leonardo SpA, Turin, Italy; A. Lerro, P. Gili, Politecnico di Torino, Torino, Italy; U. Papa, A. Chiesa, Leonardo SpA, Turin, Italy	1530 hrs AIAA-2023-4149 Practical Implementation of Autonomous Soaring Algorithm into Open- Source Autopilot for Unmanned Aerial Vehicle R. Langenscheidt, J. Rosales, A. Gross, New Mexico State University, Las Cruces, NM	1530 hrs AIAA-2023-4150 Twistor-Based Relative Navigation of Satellite Rendezvous in Close Proximity Operations Using Unscented Kalman Filter M. Atallah, M. Okasha, T. Dief, M. Kamra, United Arab Emirates University, Al Ain, United Arab Emirates	
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Wednesday, 14 June 2023

WATCH2 1530 - 1700 hrs	Wednesday Virtual Session Watch Rooms	Virtual Session Watch Rooms
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Please visit the following rooms if you would like to utilize space to watch virtual technical paper sessions. This space will be open to anyone who would like to use it, so you will need your own computer and headphones to watch the session of your choice.

Balboa A Balboa B Balboa C La Jolla A La Jolla B Old Town A Old Town B

Wednesday, 14 June 2023

EATS-16	EATS Student Design Competition	Gaslamp A
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Chaired by: A. RIVERA, Pratt & Whitney

Wednesday, 14 June 2023

AA-61 1730 - 1845 hrs	2023 AIAA Aeroacoustics Award Lecture	Grand Hall A-C
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Speaker: Yueping Guo, NASA Langley
Title: "Prediction of Aircraft Noise Scattering"

The award is presented for an outstanding technical or scientific achievement resulting from an individual's contribution to the field of aircraft community noise reduction.		
Wednesday, 14 June 2023		
ACD-14 1730 - 1930 hrs	CADWG - Jan Roskam Memorial	Harbor A
Please join us for an open-mic forum for the remembrance of Prof. Jan Roskam from the University of Kansas. Professor Roskam died last year at the age of 92. After a stint in industry, Jan Roskam joined KU in 1967. Over the years, he has taught aircraft design, performance, stability & control to thousands of engineers through KU short courses as well as the traditional University of Kansas academic program. Dr. Roskam was a Fellow in the American Institute of Aeronautics and Astronautics, the Society of Automotive Engineers and the Royal Aeronautical Society of England. He served on a wide variety of advisory committees for NASA and the USAF. He also received numerous awards including the AIAA Aircraft Design Award (2007). Dr. Roskam is the author of more than 155 publications including 16 textbooks on aeronautical engineering. He has worked on the design and development of more than 36 different airplane types.		
Wednesday, 14 June 2023		
TP-11 1730 - 1830 hrs	Thermophysics Award Lecture	Harbor B
Michael Wright, NASA Ames Research Center		
Wednesday, 14 June 2023		
AA-62 1845 - 2115 hrs	2023 AIAA Aeroacoustics Banquet	Coronado A-B
Attend a banquet held by the Aeroacoustics TC. Event will also celebrate the AIAA Aeroacoustics Award winner.		
Advance additional ticket purchase required.		
Thursday		
Thursday, 15 June 2023		
SP-4 0730 - 0800 hrs	Technical Papers Session Prep	Session Rooms
Authors who are presenting papers will meet with session chairs and co-chairs in their session rooms for a short 30-minute prep on the day of their sessions to exchange bios and review final details prior to the session. Please attend on the day of your session(s).		
Thursday, 15 June 2023		
PLNRY-4 0800 - 0900 hrs	Opening Keynote: How Whisper Aero Propels the Future of Aviation	Grand Hall A-C
Mark Moore, Whisper		
Thursday, 15 June 2023		
NW-8 0900 - 0930 hrs	Networking Break	Seaport Ballroom
Coffee breaks allow even more time for making new contacts, continuing discussions from sessions, visiting the Exposition Hall, or checking emails and voicemails to keep in touch with the office while you are at the forum.		
Thursday, 15 June 2023		

AA-40		Advanced Testing Techniques II: Wind Tunnels, Ducts and Sensors				Cortez Hill C		
Chaired by: T. SUZUKI, The Boeing Company and R. DOUGHERTY, OptiNav Inc								
0930 hrs AIAA-2023-4162 Wall treatments for aeroacoustic measurements in closed wind tunnel test sections H. Bento, C. Vandercreek, F. Avallone, D. Ragni, P. Sijtsma, M. Snellen, Technische Universiteit Delft, Delft, The Netherlands		0950 hrs AIAA-2023-4163 Experimental Visualization of the Acoustic Field Inside a Lined Duct Y. Murata, K. Izumi, K. Tanaka, H. Daiguji, Tokyo Daigaku, Bunkyo-ku, Japan; J. Oki, T. Ishii, Uchu Koku Kenkyu Kaihatsu Kiko, Chofu, Japan; et al.		1010 hrs AIAA-2023-4164 Evaluation of Silicon Carbide Pressure Sensor in Turbofan Engine Core Exhaust Nozzle R. Okojie, L. Hultgren, D. Boyle, B. Henderson, NASA John H Glenn Research Center, Cleveland, OH		1030 hrs AIAA-2023-4165 Aircraft Noise Measurement with Ground Microphones: Effects of Noise Propagation Around and Under the Reflective Plate Edges V. Blandeau, P. Bousquet, Airbus SAS, Toulouse, France; A. Bennani, B. Chaigne, T. Abboud, IMACS, Palaiseau, France		
Thursday, 15 June 2023								
AA-41 0930 - 1130 hrs		AIAA Hybrid Anechoic Wind Tunnel Workshop I					La Jolla B	
The Hybrid Anechoic Tunnel Workshop is a forum that brings together researchers interested in hybrid anechoic aeroacoustic wind tunnels and their application. The workshop serves as a forum for researchers to discuss updates, opportunities and issues related to hybrid anechoic tunnels and work on common test cases to cross validate hybrid anechoic wind tunnels and provide data on canonical test cases to the broader aeroacoustics community.								
Thursday, 15 June 2023								
AA-42		Airframe / High-Lift Noise IV					Cortez Hill B	
Chaired by: J. DELFS, DLR - German Aerospace Center and D. NARK, NASA Langley Research Center								
0930 hrs AIAA-2023-4172 An FW-H Based Prediction Model for the Landing Gear Wake-Flap Interaction Noise Y. Hou, D. Angland, University of Southampton, Southampton, United Kingdom		0950 hrs AIAA-2023-4173 Numerical Simulations of a Landing Gear with Flow Through Fairings for Noise Mitigation M. Terracol, Office National d'Etudes et de Recherches Aerospatiales, Meudon, France; E. Manoha, Office National d'Etudes et de Recherches Aerospatiales, Chatillon, France; L. Manueco, Office National d'Etudes et de Recherches Aerospatiales, Meudon, France; F. Avallone, D. Ragni, A. Rubio Carpo, Technische Universiteit Delft Faculteit Luchtvaart- en		1010 hrs AIAA-2023-4174 Study on Side-edge Geometry of Porous-Plate for Reduction of Airframe Noise from Landing Gear M. Murayama, K. Yamamoto, Y. Ito, T. Takaishi, Y. Yokokawa, Uchu Koku Kenkyu Kaihatsu Kiko Honsha Chofu Koku Uchu Center, Chofu, Japan; T. Hirai, Ryoyu Systems Company, Ltd., Nagoya, Japan; et al.		1030 hrs AIAA-2023-4175 Experimental Characterization of Flow Through Porous Fairings E. Gallo, R. Zamponi, A. Zarri, Y. Kucukosman, C. Schram, Von Karman Institute For Fluid Dynamics, Sint-Genesius- Rode, Belgium		

	Ruimtevaarttechniek, Delft, The Netherlands				
Thursday, 15 June 2023					
AA-43	Community Noise, Sonic Boom and Metrics II				Cortez Hill A
Chaired by: I. CLARK, NASA Langley Research Center and J. GALLMAN, Northrop Grumman Aeronautics Systems					
0930 hrs AIAA-2023-4166 The paper discusses the comparison between the results of a simplified method applicable in the Conceptual Design phase and CFD simulations for sonic boom analysis. S. Graziani, N. Viola, R. Fusaro, Politecnico di Torino, Torino, Italy	0950 hrs AIAA-2023-4167 Fully-Parabolized Prediction of Hypersonic Sonic Boom C. King, S. Skowron, S. Miller, University of Florida, Gainesville, FL	1010 hrs AIAA-2023-4168 Sonic Boom generation using open source CFD approach A. Glorioso, Universita degli Studi della Campania Luigi Vanvitelli Dipartimento di Ingegneria, Aversa, Italy; F. Petrosino, Centro Italiano Ricerche Aerospaziali, Capua, Italy; A. Arovitola, Universita degli Studi della Campania Luigi Vanvitelli Dipartimento di Ingegneria, Aversa, Italy; M. Barbarino, Centro Italiano Ricerche Aerospaziali, Capua, Italy; G. Pezzella, Universita degli Studi della Campania Luigi Vanvitelli Dipartimento di Ingegneria, Aversa, Italy	1030 hrs AIAA-2023-4169 Application and comparison of proposed SST noise certification regulations to a conceptual business aircraft M. Noeding, L. Bertsch, J. Kirz, R. Ewert, Deutsches Zentrum fur Luft- und Raumfahrt eV, Koln, Germany; J. Berton, NASA Headquarters, Washington, D.C.	1050 hrs AIAA-2023-4170 System noise assessment of conceptual tube-and-wing and blended-wing-body aircraft designs F. Wienke, L. Bertsch, Deutsches Zentrum fur Luft- und Raumfahrt DLR Standort Gottingen, Gottingen, Germany; M. Iwanitzki, P. Balack, J. Häßy, Deutsches Zentrum fur Luft- und Raumfahrt eV, Koln, Germany	1110 hrs AIAA-2023-4171 Noise and local pollutants of small aircraft: overview of simulation activities and of the first flight test within the DLR project L2INK A. Feldhusen-Hoffmann, L. Bertsch, M. Pott-Pollenske, V. Domogalla, M. Kreienfeld, N. Doerge, Deutsches Zentrum fur Luft- und Raumfahrt eV, Koln, Germany
Thursday, 15 June 2023					
AA-44	Jet Aeroacoustics VII: Rectangular Jets				Harbor B
Chaired by: M. SAMIMY, The Ohio State University and J. LIU, NRL					
0930 hrs AIAA-2023-4176 Experimental investigations of installed jet noise emitted by rectangular and slanted nozzles J. Christophe, J. de Decker, C. Schram, Von Karman Institute For Fluid Dynamics, Sint-Genesius-Rode, Belgium	0950 hrs AIAA-2023-4177 Plasma Actuation and Bispectral Mode Decomposition of Supersonic Twin-Rectangular Jet Flow B. Yeung, O. Schmidt, University of California San Diego, La Jolla, CA	1010 hrs AIAA-2023-4178 Flow-field and Acoustics of Azimuthally Forced Rectangular Jets A. Lakshmi Narasimha Prasad, U. Sasidharan, Florida State University, Tallahassee, FL	1030 hrs AIAA-2023-4179 Acoustic Radiation from an Integrated High Aspect Ratio Rectangular Nozzle with Co-Flow K. Rossignol, J. Delfs, Deutsches Zentrum fur Luft- und Raumfahrt eV, Braunschweig, Germany		
Thursday, 15 June 2023					
AA-45	Propeller, Rotorcraft and V/STOL Noise VII: Simulation and Prediction				Harbor A
Chaired by: S. MOREAU					
0930 hrs	0950 hrs	1010 hrs	1030 hrs	1050 hrs	1110 hrs

AIAA-2023-4180 Low-order acoustic prediction tool for estimating noise emissions from distributed propeller configurations F. Monteiro, D. Ragni, F. Avallone, T. Sinnige, Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek, Delft, The Netherlands	AIAA-2023-4181 Assessment of the Actuator Line Method for the Aeroacoustic Simulation of Distributed Electric Propulsion R. Wickersheim, M. Keßler, E. Krämer, Universität Stuttgart Institut für Aerodynamik und Gasdynamik, Stuttgart, Germany	AIAA-2023-4182 An Artificial Neural Network Approach to Predict Rotor-Airframe Acoustic Waveforms A. Wiedemann, C. Fuller, Virginia Polytechnic Institute and State University, Blacksburg, VA; K. Pascioni, NASA Langley Research Center Structural Acoustics Branch, Hampton, VA	AIAA-2023-4183 Broadband Predictions of Optimized Propellers in Axial Forward Flight J. Blake, C. Thurman, N. Zawodny, L. Lopes, NASA Langley Research Center, Hampton, VA	AIAA-2023-4184 Multi-Fidelity Propeller Noise Prediction using a Data-Driven Approach B. Zhou, L. Hanson, S. Pullin, B. Zang, University of Bristol, Bristol, United Kingdom; J. Hauth, X. Huan, University of Michigan, Ann Arbor, MI	AIAA-2023-4185 High-Fidelity Propeller Broadband Noise Prediction using SU2 F. Kunz, B. Zhou, S. Pullin, M. Azarpeyvand, University of Bristol, Bristol, United Kingdom; L. Galimberti, M. Morelli, Politecnico di Milano, Milano, Italy; et al.
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Thursday, 15 June 2023

AA-46	Turbomachinery and Core Noise III	Torrey Hills A
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Chaired by: T. LOWE and P. SIJTSMA, PSA3

0930 hrs AIAA-2023-4186 An Indirect Impedance Reduction Process for Liners with Arbitrarily Complex Geometry D. Cerizza, Dassault Systemes Americas Corp, Waltham, MA; D. Casalino, Dassault Systemes Deutschland GmbH, Stuttgart, Germany	0950 hrs AIAA-2023-4187 Microstructure Controlled Multi-Layer Porous Material Liner Tested On The Advanced Noise Control Fan B. Kenchappa, K. Shivakumar, North Carolina Agricultural and Technical State University, Greensboro, NC; D. Sutliff, NASA John H Glenn Research Center, Cleveland, OH	1010 hrs AIAA-2023-4188 Turbulence interaction noise from a rectilinear cascade of airfoils and effects of porous material inclusions V. Clair, E. Salze, P. Souchoffe, E. Jondeau, Laboratoire de Mecanique des Fluides et d'Acoustique, Ecully, France	1030 hrs AIAA-2023-4189 A Two-Dimensional Mode-Matching Technique for Wake-Interaction Tonal Noise Including Rotor-Stator Coupling L. Girier, M. Roger, Laboratoire de Mecanique des Fluides et d'Acoustique, Ecully, France; A. Lafitte, H. Posson, Safran Aircraft Engines, Evry, France		
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Thursday, 15 June 2023

ACD-15	Systems Design	Balboa B
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Chaired by: N. BLAESSER, NASA Langley Research Center and R. VOS, Delft University of Technology (TU Delft)

0930 hrs AIAA-2023-4194 Quantifying Impacts of Uncertainties on Certification-Driven Design J. Xie, E. Harrison, D. Mavris, Georgia Institute of Technology, Atlanta, GA	0950 hrs AIAA-2023-4195 Demonstration of a Procedure-Based Approach to Develop a Concept of Operations for Optionally Piloted Vehicles M. Maly, C. Krammer, M. Wechner, J. Jaisle, J. Hoffelner, F. Holzapfel, Technische Universität München, München, Germany	1010 hrs AIAA-2023-4196 Interconnections in Model-Based Safety Analysis and Systems Design on the Example of a Fuel Cell Thermal Management System for Commercial Aircraft S. Lübke, M. Schäfer, V. Voth, A. Berres, O. Bertram, Deutsches Zentrum für Luft- und Raumfahrt eV, Köln, Germany	1030 hrs AIAA-2023-4197 Zonal Safety and Particular Risk Analysis for Aircraft Conceptual Design P. Bamrah, S. Liscouet-Hanke, Concordia University, Montreal, Canada; A. Tfaily, A. Tamayo, Bombardier Inc, Montreal, Canada		
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Thursday, 15 June 2023					
ACD-16		Unique Missions			Balboa A
Chaired by: J. MERRET, University of Illinois at Urbana-Champaign and R. LOVE, General Atomics Aeronautical Systems, Inc.					
0930 hrs AIAA-2023-4190 Design and Fabrication of a Low-Cost, Deployable, Rogallo-Wing sUAS L. Formica, V. Lenze, A. Loughran, T. Jones, J. Cole, S. Miller, The Pennsylvania State University, University Park, PA	0950 hrs AIAA-2023-4191 Design Space of Aircraft Wings Made With Fused-Filament Fabrication J. Valenti, J. Bartolai, M. Yukish, The Pennsylvania State University, University Park, PA	1010 hrs AIAA-2023-4192 Energy Flow Modelling for Simulating Missions of Solar Electric High-Altitude Aircraft A. Bierig, D. Rothe, D. Ackermann, V. Voth, Deutsches Zentrum für Luft- und Raumfahrt eV, Köln, Germany	1030 hrs AIAA-2023-4193 Concept Evaluation of a Bi-Modal Autonomous System C. Bil, RMIT University, Melbourne, Australia		
Thursday, 15 June 2023					
APA-37		Aerodynamic Flow Control III			Hillcrest B
Chaired by: R. CAMPBELL, NASA-Langley Research Center and M. CONWAY, The Aerospace Corporation					
0930 hrs AIAA-2023-4205 Injection Duct Height Distribution Control for Co-Flow Jet Airfoil Y. Ren, G. Zha, Coflow Jet, Miami, FL	0950 hrs AIAA-2023-4206 Aerodynamic Characteristics of a NACA-0010 Airfoil with Rotating Micro-Cylinders A. Carrizales, The University of Texas Rio Grande Valley, Edinburg, TX; C. Leos, University of Nebraska-Lincoln, Lincoln, NE; S. Crown, R. Freeman, I. Choutapalli, The University of Texas Rio Grande Valley, Edinburg, TX	1010 hrs AIAA-2023-4207 Experimental Comparison of Flow Control techniques on Helicopter flight deck of Frigates J. Matias-Garcia, R. Bardera, Instituto Nacional de Técnica Aeroespacial, Torrejon de Ardoz, Spain; S. Franchini, Universidad Politecnica de Madrid, Madrid, Spain; E. Barderas, Instituto Nacional de Técnica Aeroespacial, Torrejon de Ardoz, Spain	1030 hrs AIAA-2023-4208 Simulation of 3D Co-Flow Jet Airfoil Control with Micro-Compressor Actuator at High Angles of Attack P. Barrios, Y. Ren, G. Zha, University of Miami, Coral Gables, FL		
Thursday, 15 June 2023					
APA-38		Hypersonic Aerodynamics II			Hillcrest C
Chaired by: Y. LIU, NASA Langley Research Center and D. LAZZARA, The Boeing Company					
0930 hrs AIAA-2023-4201 Coupled Fluid-Thermal Response in the Gap Region of a High-Speed Control Surface J. Willems, J. McNamara, The Ohio State University, Columbus, OH; D. Reasor, Air Force Research Laboratory	0950 hrs AIAA-2023-4202 Data-Driven Modelling of Aerothermodynamic Loads during Atmospheric Re-entry J. Graham, F. Morgado, M. Fossati, University of Strathclyde, Glasgow, United Kingdom	1010 hrs AIAA-2023-4203 Investigation of Second-Mode Instability Attenuation Over Silicon-Carbide Coated Carbon Foam S. Miller, K. Jantze, J. Redmond, C. Scalo, J. Jewell,	1030 hrs AIAA-2023-4204 A Study on the Impact of Mesh Resolution and Diffusion Terms on Thermochemical Non-Equilibrium Flows F. Moreira, Instituto Tecnológico de Aeronautica, São Jose dos Campos, Brazil;		

Munitions Directorate, Eglin AFB, FL		Purdue University, West Lafayette, IN	W. Wolf, Universidade Estadual de Campinas, Campinas, Brazil; J. Azevedo, Instituto de Aeronautica e Espaco, São Jose dos Campos, Brazil		
Thursday, 15 June 2023					
APA-39	Special Session: North Atlantic Treaty Organization				Hillcrest D
Chaired by: M. GHOREYSHI, United States Air Force Academy and M. WIDHALM, DLR					
0930 hrs AIAA-2023-4198 Modeling and Simulation of Shipboard Launch and Recovery of Helicopters - An Overview of AVT-315 I. Owen, N. Fernandez, University of Liverpool, Liverpool, United Kingdom; R. Lee, A. Wall, National Research Council Canada, Ottawa, Canada; J. Butler, Naval Air Systems Command, Patuxent River, MD	0950 hrs AIAA-2023-4199 Comparison of Reduced Order Models for Evaluating Stability Derivatives for the DLR-F22 ONERA model M. Widhalm, M. Stradtner, A. Schuette, Deutsches Zentrum für Luft- und Raumfahrt eV, Braunschweig, Germany; M. Ghoreyshi, A. Jirasek, J. Seidel, US Air Force Academy, USAF Academy, CO	1010 hrs AIAA-2023-4200 Abstract: Lattice Boltzmann based simulation around the NATO Generic Destroyer with immersed boundary method J. Jacob, Aix-Marseille Universite, Marseille, France; S. Verley, A. Taghizad, ONERA Salon-de-Provence, Salon-de-Provence, France; J. Favier, P. Sagaut, Aix-Marseille Universite, Marseille, France			
Thursday, 15 June 2023					
ATS-13	Aviation Economics, Policy and Social				Balboa C
Chaired by: O. ALSALOUS, CSSI, Inc.					
0930 hrs AIAA-2023-4209 Influence of Airport Capacity Limitation Mitigation on Air Traffic Networks and Fuel Consumption J. Michelmann, M. Mateo Guarch, M. Hornung, Technische Universität München, München, Germany	0950 hrs AIAA-2023-4210 Potential UAM demand forecast and analysis: application to Seoul metropolitan area H. Kim, K. Yee, Seoul National University, Gwanak-gu, South Korea	1010 hrs AIAA-2023-4211 Methods to Improve Community Noise Complaints and Overflight Event Correlation Z. Wang, K. Zimmer, R. Hansman, Massachusetts Institute of Technology, Cambridge, MA	1030 hrs AIAA-2023-4212 Airport Scheduling and Operational Performance: A Clustering Analysis of Airport Response to COVID-19 O. Alsalous, CSSI, Inc., Washington, D.C.; S. Hotle, Virginia Polytechnic Institute and State University, Blacksburg, VA		
Thursday, 15 June 2023					
ATS-14	Machine Learning and AI I				Harbor D
Chaired by: L. ALVAREZ, MIT Lincoln Laboratory					
0930 hrs AIAA-2023-4213	0950 hrs AIAA-2023-4214	1010 hrs AIAA-2023-4215			

Operationalizing Machine Learning Models for Strategic Planning C. Lloyd, K. Shetty, M. Albert, J. Meekma, Federal Aviation Administration, Washington, D.C.; P. Chahande, GRA, Incorporated, Alexandria, VA	A new approach to aircraft categorization using machine learning to analyze aircraft behaviour N. Vincent-Boulay, C. Marsden, Royal Military College of Canada, Kingston, Canada	Noise- and Fuel-Minimal Departure Trajectory Optimization with Reinforcement Learning C. Nguyen, J. Shihua, K. Hui, R. Liem, The Hong Kong University of Science and Technology, Hong Kong, Hong Kong			
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Thursday, 15 June 2023

ATS-15	Sustainable Aviation I	Harbor C
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Chaired by: M. Li, University of Michigan, Ann Arbor

0930 hrs AIAA-2023-4216 Exploring Analytical Methods for Expanding the AEDT Aircraft Fleet Database for Environmental Modeling M. Bendarkar, M. Kirby, S. Kampezidou, C. Puebla-Menne, D. Mavris, Georgia Institute of Technology, Atlanta, GA	0950 hrs AIAA-2023-4217 Environmental Impacts of Aircraft Reroutes from Long-Term Airspace Closures C. An, University of Michigan, Ann Arbor, MI; B. Chan, University of Pennsylvania, Philadelphia, PA; M. Li, University of Michigan, Ann Arbor, MI	1010 hrs AIAA-2023-4218 Historical Domestic Flights from 2016-2020 with Estimations of Greenhouse Gas Emissions by Aircraft Type S. Go, J. Melton, NASA Ames Research Center, Moffett Field, CA; X. Jiang, Science and Technology Corporation, Mountain View, CA	1030 hrs AIAA-2023-4219 Electric Taxiing with Disruption Management: Assignment of Electric Towing Vehicles to Aircraft M. Zoutendijk, S. van Oosterom, Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek, Delft, The Netherlands; M. Mitici, Universiteit Utrecht, Utrecht, The Netherlands	1050 hrs AIAA-2023-4220 Trajectory-related measures to mitigate the climate impact of aviation: A comparative study Z. Zengerling, F. Linke, B. Lührs, C. Weder, Deutsches Zentrum für Luft- und Raumfahrt eV, Hamburg, Germany; V. Gollnick, Technische Universität Hamburg, Hamburg, Germany	
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Thursday, 15 June 2023

EATS-17	Electrified Aircraft Design & Mission Operation III	Gaslamp B
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Chaired by: M. BRADLEY, Self-Employed and M. HOOGREEF, Delft University of Technology

0930 hrs AIAA-2023-4224 Optimal Energy Management Strategies and Mission Profiles for a generic Hybrid Aircraft F. Oliviero, K. Swannet, Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek, Delft, The Netherlands	0950 hrs AIAA-2023-4225 Design Space Exploration of Battery Pack and Mission Profiles for Parallel Hybrid Gas-Electric Aircraft Applications A. Miskey, The Ohio State University, Columbus, OH; C. Call, R. Mattikalli, H. Wong, The Boeing Company, Chicago, IL	1010 hrs AIAA-2023-4226 Design Exploration of a Mild Hybrid Electrified Aircraft Propulsion Concept Z. Frederick, NASA Langley Research Center, Hampton, VA; T. Hallock, T. Ozoroski, Analytical Mechanics Associates, Inc., Hampton, VA; J. Chapman, C. Kuhnle, NASA John H Glenn Research Center, Cleveland, OH; P. Frederic, Tecolote Research Inc., Santa Barbara, CA	1030 hrs AIAA-2023-4227 Simulation of sustainable powerplants for a commuter aircraft using forward-looking dynamic models F. Salucci, N. Prabhakar, D. Karbowski, Argonne National Laboratory, Lemont, IL		
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Thursday, 15 June 2023

EATS-18	Electromagnetic Compatibility (EMC) Panel				La Jolla A
Chaired by: C. LI, GE Global Research Center					
Thursday, 15 June 2023					
EATS-19	Special Session - NASA Electrified Aircraft Propulsion Hardware-in-the-Loop Testing				Gaslamp D
Chaired by: S. BIANCO, NASA Glenn Research Center and J. CONNOLLY, NASA Glenn Research Center					
0930 hrs AIAA-2023-4231 Electrified Aircraft Propulsion Controls Hardware Testing J. Connolly, D. Simon, D. Culley, J. Sachs-Wetstone, K. Hunker, S. Bianco, NASA John H Glenn Research Center, Cleveland, OH; et al.	0950 hrs AIAA-2023-4232 Control and Scaling Approach for the Emulation of Dynamic Subscale Torque Loads S. Bianco, D. Simon, NASA John H Glenn Research Center, Cleveland, OH	1010 hrs AIAA-2023-4233 Hybrid-Electric Aero-Propulsion Controls Testbed Results J. Sachs-Wetstone, S. Bianco, J. Kratz, M. Horning, A. Amthor, J. Connolly, NASA John H Glenn Research Center, Cleveland, OH	1030 hrs AIAA-2023-4234 Hybrid-Electric Aero-Propulsion Controls Testbed Results with Energy Storage S. Bianco, J. Kratz, D. Culley, NASA John H Glenn Research Center, Cleveland, OH; M. Horning, HX5, LLC, Brook Park, OH; J. Sachs-Wetstone, J. Connolly, NASA John H Glenn Research Center, Cleveland, OH	1050 hrs AIAA-2023-4235 Real-time Hardware-in-the-Loop Evaluation of a Partially Turboelectric Propulsion Control Design D. Simon, S. Bianco, M. Horning, J. Saus, A. Amthor, J. Sachs-Wetstone, NASA Headquarters, Washington, D.C.	
Thursday, 15 June 2023					
EATS-20	Superconducting, Cryogenic Components, and Systems I				Gaslamp C
Chaired by: P. DE BOCK, Advanced Research Projects Agency - Energy and T. HAUGAN, U.S. Air Force Research Laboratory					
0930 hrs AIAA-2023-4228 Implications of Parallel Faults in Superconducting Power Distribution Systems of Electric Aircraft P. Mensah, P. Cheetham, S. Pamidi, FAMU-FSU College of Engineering, Tallahassee, FL	0950 hrs AIAA-2023-4229 Development of Superconducting Cable topologies for IZEA Aircraft P. Cheetham, M. Niazi, C. Kim, S. Pamidi, J. Bruce, N. Guvvala, Florida State University, Tallahassee, FL	1010 hrs AIAA-2023-4230 Development of Electric Propulsion System for Aircraft using Superconducting Technologies M. Iwakuma, Kyushu Daigaku, Fukuoka, Japan; T. Izumi, Sangyo Gijutsu Sogo Kenkyujo Tsukuba Higashi, Tsukuba, Japan			
Thursday, 15 June 2023					
F360-10 0930 - 1130 hrs	Current and Future State of Aircraft Certification				Grand Hall A-C
The current aircraft certification standards and processes are adequate for certifying our current understanding of aircraft – airplanes are airplanes, helicopters are helicopters and so on. Future aircraft will blur the lines – airplanes the take off like helicopters, helicopters will cruise like airplanes, uncrewed systems, automated/autonomous systems will test the limits of the current understanding of certification standards and processes. Further, the latest technological advancements in aircraft design and manufacturing, including composite materials, additive manufacturing, and electric propulsion systems present challenges for regulators and manufacturers. The panel will look towards the future of aircraft certification and explore emerging trends and technologies, such as supersonic and hypersonic flight, urban air mobility, and autonomous aircraft. They will discuss the unique challenges these new technologies present for certification and the regulatory approaches needed to ensure their safe operation.					

Moderator: Paul Brinkmann, Aerospace America Bruce DeCleene, FAA David Alexander, SAE International Carie Mullins, BryceTech Tony Mumford, Overair Jia Xu, Honeywell John Deruchie, Transport Canada					
Thursday, 15 June 2023					
FD-28		Flow Control Devices and Applications: Supersonic			Mission Beach A
Chaired by: T. NONOMURA, Tohoku University					
0930 hrs AIAA-2023-4236 Control Surfaces for Supersonic Airfoil Using Co-flow Jet Active Flow Control Z. Lei, G. Zha, University of Miami, Coral Gables, FL	0950 hrs AIAA-2023-4237 Supersonic Cavity-Flow Control Using High-Frequency Flapping Jets Discharged from Fluidic-Oscillator Device Y. Oka, Y. Ozawa, Tohoku Daigaku, Sendai, Japan; T. Handa, Toyota Kogyo Daigaku, Nagoya, Japan; T. Nonomura, Tohoku Daigaku, Sendai, Japan	1010 hrs AIAA-2023-4238 Forced Control of SWBLI in a 24deg Compression Ramp Flow with Air-jet Vortex-generator R. Sebastian, A. Schreyer, Rheinisch-Westfälische Technische Hochschule Aachen, Aachen, Germany	1030 hrs AIAA-2023-4239 Velocity and Vorticity Fields of a High-frequency Pulsed Supersonic Co-Axial Injector J. Solomon, N. Hackworth, R. Lockyer, U. Philip, Tuskegee University, Tuskegee, AL; P. Kreth, The University of Tennessee Space Institute, Tullahoma, TN	1050 hrs AIAA-2023-4240 Experimental Investigation of a High-Frequency Pulsed Supersonic Co-Axial Injector using Optical Diagnostics J. Jenkins, F. Siddiqui, M. Gragston, P. Kreth, The University of Tennessee Space Institute, Tullahoma, TN; J. Solomon, Tuskegee University, Tuskegee, AL	
Thursday, 15 June 2023					
FD-29		Instrumentation and Diagnostic Techniques: High Speed and Multi-Physics Systems			Hillcrest A
Chaired by: J. FARNSWORTH, University of Colorado Boulder					
0930 hrs AIAA-2023-4252 Time-Frequency Analysis of Traveling Crossflow for the HIFIRE-5 Elliptic Cone C. Kardas, CUBRC, Buffalo, NY	0950 hrs AIAA-2023-4253 Hypersonic Transitional Boundary-Layer Profile using a Linear-Array FLDI E. Benitez, T. Leger, M. Tufts, M. Borg, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH; J. Hill, Air Force Institute of Technology, Wright-Patterson AFB, OH	1010 hrs AIAA-2023-4254 Calibrated, MHz-Bandwidth, Dynamic Pressure Sensors for Quantitative Measurements in High-Speed Flows D. Mills, C. Patterson, P. Fournier, A. Gurlaskie, J. Underbrink, Interdisciplinary Consulting Corporation (IC2), Gainesville, FL; M. Sheplak, University of Florida, Gainesville, FL			
Thursday, 15 June 2023					
FD-30		Low-Reynolds-Number and Bio-Inspired Flows: Bio-Inspired Flows			Pier
Chaired by: P. PAREDES					

0930 hrs AIAA-2023-4241 Unsteady Aerodynamics and Wake Structures of Butterfly in Forward Flight Z. Lou, C. Li, Villanova University, Villanova, PA	0950 hrs AIAA-2023-4242 Numerical investigation of olfactory performance in upwind surging hawkmoth flight S. Lionetti, Villanova University, Villanova, PA; T. Hedrick, The University of North Carolina at Chapel Hill, Chapel Hill, NC; C. Li, Villanova University, Villanova, PA	1010 hrs AIAA-2023-4243 Leading Edge Vortex Formation on a Flapping Wing Robotic Bird L. Groot Koerkamp, H. Hoeijmakers, C. Venner, S. Stramigioli, Universiteit Twente, Enschede, The Netherlands			
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Thursday, 15 June 2023

FD-31	Multiphase Flows: Applications	Mission Beach B
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Chaired by: X. AN, San Jose State University

0930 hrs AIAA-2023-4247 Theoretical Analyses of Drop Size in Impinging and Effervescent Liquid Jets J. Park, T. Lee, Arizona State University, Tempe, AZ; J. Jedelsky, Vysoke uceni technicke v Brne, Brno, Czechia	0950 hrs AIAA-2023-4248 High-Speed Imaging of Interaction of Liquid Drops with Hypersonic Projectiles A. Dworzanczyk, N. Parziale, Stevens Institute of Technology, Hoboken, NJ; C. Croft, D. Wise, M. Libeau, Naval Surface Warfare Center Dahlgren Division, Dahlgren, VA	1010 hrs AIAA-2023-4249 Numerical Modeling of Shock Induced Aerobreakup of a Droplet at High Reynolds and Weber Number A. Sayad, J. Rabinovitch, A. Dworzanczyk, N. Parziale, Stevens Institute of Technology, Hoboken, NJ	1030 hrs AIAA-2023-4250 Application of a Diffuse Interface Multiphase Method for High Temperature and Hypersonic Flows with Phase Change T. Stoffel, University of Kentucky, Lexington, KY; M. Viqueira-Moreira, C. Brehm, University of Maryland at College Park, College Park, MD; S. Poovathingal, University of Kentucky, Lexington, KY	1050 hrs AIAA-2023-4251 Numerical Investigation of Droplet Aerobreakup and Impingement Experiments at Mach 5 M. Viqueira-Moreira, University of Maryland at College Park, College Park, MD; A. Dworzanczyk, N. Parziale, Stevens Institute of Technology, Hoboken, NJ; C. Brehm, University of Maryland at College Park, College Park, MD	
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Thursday, 15 June 2023

FD-32	Reduced-Complexity Modeling and Machine Learning I	Bankers Hill
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Chaired by: A. MOHAN, Los Alamos National Laboratory

0930 hrs AIAA-2023-4255 Comparing SPOD and POD for Wake Flow of Tandem Oscillating Cylinders H. Zhou, C. Zheng, Utah State University, Logan, UT	0950 hrs AIAA-2023-4256 Data-Driven Mori-Zwanzig: Reduced Order Modeling of Sparse Sensors Measurements for Boundary Layer Transition M. Woodward, The University of Arizona, Tucson, AZ; Y. Tian, Y. Lin, A. Mohan, Los Alamos National Laboratory, Los Alamos, NM; C. Hader, H.	1010 hrs AIAA-2023-4257 A Comparison between Neural Networks and Gappy POD for Urban Wind Field Estimation C. Ebert, J. Weiss, Technische Universität Berlin, Berlin, Germany	1030 hrs AIAA-2023-4258 An optimization framework for analyzing nonlinear stability due to sparse finite-amplitude perturbations A. Heide, M. Hemati, University of Minnesota Twin Cities, Minneapolis, MN	1050 hrs AIAA-2023-4259 Reconstruction of Large-Scale Coherent Structures in Turbulent Separation Bubbles Using Phase-Consistent DMD A. Le Floch, G. Di Labbio, L. Dufresne, Ecole de technologie superieure, Montreal, Canada	
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	Fasel, The University of Arizona, Tucson, AZ; et al.				
Thursday, 15 June 2023					
FD-33	Unsteady Aerodynamics and Massively Separated Flows: Fluid-Structure Interactions and Control				Solana Beach B
Chaired by: A. GOZA, University of Illinois at Urbana-Champaign					
0930 hrs AIAA-2023-4244 Measurement of Aerodynamic Loads on a Passive Morphing Wing Under Unsteady Motion K. Namdeo, University of Illinois Urbana-Champaign, Urbana, IL; A. Bhattacharyya, Palo Alto Research Center Incorporated, Palo Alto, CA; W. Zheng, University of Illinois Urbana-Champaign, Urbana, IL; K. James, Georgia Institute of Technology, Atlanta, GA; T. Saxton-Fox, University of Illinois Urbana-Champaign, Urbana, IL	0950 hrs AIAA-2023-4245 Aeroelastic Response of a Cantilever Plate in a High-Speed, Separating Turbulent Flow: Effect of Model Fidelity J. Thayer, J. McNamara, The Ohio State University, Columbus, OH	1010 hrs AIAA-2023-4246 Comparative Numerical and Experimental Studies of Flow Energy Extraction from Controlled Viscous Limit-Cycle Oscillations in Modified Glauert Airfoil V. Golubev, E. Vataker, D. de la Pena Jimenez, L. Nguyen, W. MacKunis, Embry-Riddle Aeronautical University, Daytona Beach, FL; R. Efrati, Technion Israel Institute of Technology, Haifa, Israel; et al.			
Thursday, 15 June 2023					
MDO-14	Emerging Methods, Algorithms and Software Development in MAO				Old Town A
Chaired by: A. THELEN, Air Force Research Laboratory and N. BARTOLI, ONERA					
0930 hrs AIAA-2023-4260 Semi-Autonomous Problem Formulation Space Search for High Dimensional Multiobjective Optimization J. Wagner, D. Khatamsaz, D. Allaire, Texas A&M University, College Station, TX	0950 hrs AIAA-2023-4261 Efficient Acquisition Functions for Bayesian Optimization in the Presence of Hidden Constraints A. Tfaily, M. Kokkolaras, McGill University, Montreal, Canada; N. Bartoli, Office National d'Etudes et de Recherches Aerospatiales, Chatillon, France; Y. Diouane, Polytechnique Montreal, Montreal, Canada	1010 hrs AIAA-2023-4262 An evolutionary variant of Q-learning applied to derivative-free optimization I. Vulpio, L. Burghignoli, G. Palma, U. Iemma, Universita degli Studi Roma Tre, Roma, Italy; A. Serani, M. Diez, National Research Council-Institute of Marine Engineering, Rome, Italy	1030 hrs AIAA-2023-4263 An SQP algorithm based on a hybrid architecture for accelerating optimization of large-scale systems A. Joshy, R. Dunn, M. Sperry, V. Gandarillas, J. Hwang, University of California San Diego Jacobs School of Engineering, La Jolla, CA		
Thursday, 15 June 2023					
MDO-15	Non-deterministic Design Methods and Applications				Old Town B
Chaired by: J. HICKEN, Rensselaer Polytechnic Institute and S. CHOWDHURY, University at Buffalo					
0930 hrs	0950 hrs	1010 hrs			

AIAA-2023-4264 High-dimensional uncertainty quantification using graph-accelerated non-intrusive polynomial chaos and active subspace methods B. Wang, N. Orndorff, M. Sperry, J. Hwang, University of California San Diego, La Jolla, CA	AIAA-2023-4265 Sizing for Advanced Air Mobility under Uncertainty Environment D. Lim, K. Yee, Seoul National University, Gwanak-gu, South Korea	AIAA-2023-4266 Development of a Parametric Drag Polar Approximation for Conceptual Design B. Sampaio Felix, C. Perron, J. Ahuja, D. Mavris, Georgia Institute of Technology, Atlanta, GA			
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Thursday, 15 June 2023

PDL-4	Plasma and Laser Diagnostics I	Promenade B
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Chaired by: A. TROPINA, Texas A&M University

0930 hrs AIAA-2023-4267 A Quantum-Cascade-Laser-Absorption-Spectroscopy Diagnostic for Measuring Temperature and Nitric Oxide at 1 MHz in Shock-Heated Air J. Gilvey, C. Goldenstein, Purdue University, West Lafayette, IN	0950 hrs AIAA-2023-4268 Temperature and Velocity Measurement in a Shock Tube with Homodyne and Heterodyne Grating Spectroscopy L. Jakobs, T. Sander, C. Mundt, Universitat der Bundeswehr Munchen Fakultat fur Luft- und Raumfahrttechnik, Neubiberg, Germany	1010 hrs AIAA-2023-4269 Spatially Resolved Measurements of Krypton by Two-photon Absorption Laser Induced Fluorescence (TALIF) in a Barium Oxide Hollow Cathode Plasma S. Antozzi, J. Gottfried, J. Williams, A. Yalin, Colorado State University Walter Scott Jr College of Engineering, Fort Collins, CO			
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Thursday, 15 June 2023

PDL-5 0930 - 1030 hrs	Plasma Kinetics Discussion Group	Mission Beach C
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Discussion on the mechanisms of fast heating in nonequilibrium plasma. Focus on the collisional quenching of electronically-excited states and mechanisms of plasma recombination with a significant energy release to translational degrees of freedom and the dependence of these mechanisms on the reduced electric field value in the discharge and the plasma density.

Thursday, 15 June 2023

TF-12	Collaborative AAM Design and Operations	Golden Hill A
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Chaired by: P. PRAKASHA, German Aerospace Center

Thursday, 15 June 2023

TF-14/EATS-21/GA-7	X-57 Maxwell Propulsion System	Harbor F
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Chaired by: V. SCHULTZ, NASA Langley Research Center and E. HARRISON, Georgia Institute of Technology

0930 hrs AIAA-2023-4272	0950 hrs AIAA-2023-4273	1010 hrs 3870860	1030 hrs AIAA-2023-4274	1050 hrs 3872258	
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Test Campaign of X-57 Maxwell's 80kW Electric Propulsion System C. Green, B. Conn, M. Shemenski, Empirical Systems Aerospace, Inc., San Luis Obispo, CA	Cruise Propulsion System Thermal Analysis for NASA's X-57 "Maxwell" Mod II Configuration N. Borer, T. Bui, A. Smith, NASA Headquarters, Washington, D.C.	X-57 Cruise Motor Controller Design and Testing S. Clarke, NASA Armstrong Flight Research Center, Edwards, CA; D. Avanesian, NASA John H Glenn Research Center, Cleveland, OH; J. Terry, NASA Armstrong Flight Research Center, Edwards, CA; S. Kowalewski, NASA John H Glenn Research Center, Cleveland, OH	Utilizing Code Generation from Models for Electric Aircraft Motor Controller Flight Software J. Maroli, B. Morris, J. Blystone, NASA John H Glenn Research Center, Cleveland, OH; A. Oconnor, HX5, LLC, Brook Park, OH	X-57 High Lift Motor Controller Design and Testing S. Clarke, NASA Armstrong Flight Research Center, Edwards, CA; D. Avanesian, S. Kowalewski, NASA John H Glenn Research Center, Cleveland, OH; J. Terry, NASA Armstrong Flight Research Center, Edwards, CA	
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Thursday, 15 June 2023

TP-12	Fundamentals of Ice Formation and Advanced Thermal Management Technology	Golden Hill B
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Chaired by: E. SILK, NASA and R. GOSSE, University of Florida

0930 hrs AIAA-2023-4275 An Experimental Study to Compare the Effectiveness of Superhydrophobic Coating and Icephobic Coating for Aircraft Icing Mitigation H. Hu, L. Tian, C. Eluchie, H. Sista, H. Hu, Iowa State University, Ames, IA	0950 hrs AIAA-2023-4276 Utilization of Pulsed Electrothermal Heating for Aircraft Icing Mitigation K. Digavalli, C. Eluchie, H. Hu, H. Hu, Iowa State University, Ames, IA	1010 hrs AIAA-2023-4277 An Experimental Study to Explore the Feasibility of Using Graphene for Aircraft Anti-/De-icing C. Eluchie, H. Hu, Z. Johnson, C. Gomes, J. Claussen, H. Hu, Iowa State University, Ames, IA	1030 hrs AIAA-2023-4278 Thermal Performance of Additively Manufactured Aircraft Structure Material with Geometric Voids R. McMasters, Virginia Military Institute, Lexington, VA; E. Schluskel, Virginia Polytechnic Institute and State University, Blacksburg, VA	1050 hrs AIAA-2023-3855 A Methodology for Sizing Rotorcraft De-icing Systems Based on Ice Adhesion Strength N. Tepylo, Carleton University Faculty of Engineering and Design, Ottawa, Canada; M. Budinger, Institut Clement Ader, Toulouse, France; V. Pommier-Budinger, ISAE-SUPAERO, Toulouse, France	
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Thursday, 15 June 2023

VSTOL-4/TF-13	International Powered Lift Conference (IPLC): V/STOL Design and Aerodynamics	Harbor I
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Chaired by: M. CALVERT, U. S. Army Combat Capabilities Development Command – Aviation and Missile Center and D. FINGER, Airbus Defence and Space

0930 hrs AIAA-2023-4279 Deflected Slipstream Airfoil for VTOL Hover Enabled by CoFlow Jet, Part I: Design and Simulation G. Zha, Y. Ren, Coflow Jet, Miami, FL	0950 hrs AIAA-2023-4280 Generating Structural Weight Estimation Equations for a Category of UAM Aircraft S. Sabeti, T. Nascenzi, T. Cuatt, T. Winter, M4 Engineering Inc, Long Beach, CA; M. Ruh, D. Sarojini, University of California San Diego, La Jolla, CA; et al.	1010 hrs AIAA-2023-4281 Simulation of a Quadrotor Urban Air Taxi Hovering Above a Rooftop Edge D. Caprace, P. Ventura Diaz, S. Yoon, NASA Ames Research Center, Moffett Field, CA	1030 hrs AIAA-2023-4282 Control Stability Study of a Tailless High-Speed Tandem-Wing VTOL Vehicle Using CoFlow Jet B. McBreen, J. Boling, Y. Ren, G. Zha, University of Miami, Coral Gables, FL	1050 hrs AIAA-2023-4283 Flettner-rotor-powered VTOL's theoretical performances S. Shimamune, University of Cambridge, Cambridge, United Kingdom; D. Ignatyev, Cranfield University, Cranfield, United Kingdom	
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Thursday, 15 June 2023

SD Section 1000 - 1045 hrs	Aerospace Industry in California			Harbor G	
Engineering Panel					
Moderator: Ming Chang Panelist: Rich Gunderson, GA Michelle Kosick, Mitre Valerie Dobrowoski, Navy Juerg Frefel, Reliable Robotics					
Thursday, 15 June 2023					
EATS-KN2 1115 - 1215 hrs	EATS Keynote Presentation: Beyond battery-range: How does electric propulsion change how we travel?				Harbor E
As the aviation industry, we've connected the globe at incredibly affordable cost. However, we have not been able to effectively serve short-haul routes 95% of trips. With electric propulsion, we have the opportunity to change that - by flying people quietly, much closer to and from their point of origin and destination. There's been a lot of focus on all-battery powered designs. However, comparatively low battery-specific energy limits the range and payload, an all-electric aircraft can achieve. Using a hybrid-electric, blown-lift design, Electra's hybrid eSTOL operates from very small spaces independent of traditional runway infrastructure, without sacrificing on payload and range. The energy required to transport one passenger over one mile is significantly lower than for an aircraft employing vertical lift; a key consideration in a future where the transportation industry is under pressure to reduce emissions. Electra will reveal its 2-seat technology demonstrator, which will showcase this technology at scale. Electra's product aircraft is designed for 9 passengers. While small aircraft currently present only a lesser fraction of aviation's emissions, building and certifying aircraft that integrate aerodynamic and propulsive effects, such as Electra's eSTOL, at Part 23 scale, might just help us pave the way to larger, lower emissions transport aircraft in the future. Diana Siegel, Electra.aero					
Thursday, 15 June 2023					
LUNCH-2 1130 - 1300 hrs	Luncheon in Exposition Hall				Seaport Ballroom
Proof of purchase is required and included in the registration fee where indicated.					
Thursday, 15 June 2023					
AA-47	Acoustic / Fluid Dynamics Interactions IV				Cortez Hill B
Chaired by: D. RAGNI, Delft University of Technology and T. SUZUKI, The Boeing Company					
1300 hrs AIAA-2023-4284 Experimental study of trailing-edge bluntness noise reduction by porous plates J. Kershner, J. Jaworski, Lehigh University, Bethlehem, PA; T. Geyer, Deutsches Zentrum für Luft- und Raumfahrt eV, Köln, Germany	1320 hrs AIAA-2023-4285 On the Single Mono Porous Line Trailing Edge P. Woodhead, M. Scholz, T. Chong, Brunel University London College of Engineering Design and Physical Sciences, London, United Kingdom; P. Joseph, C. Paruchuri, S. Palleja Cabre, University of Southampton Institute of Sound and Vibration Research, Southampton, United Kingdom	1340 hrs AIAA-2023-4286 The Effect of Pressure Gradient on the Unsteady Surface Pressure and Wake Dynamics of a Finite Wall-Mounted Square Cylinder C. Jiang, C. de Silva, C. Doolan, D. Moreau, University of New South Wales, Sydney, Australia	1400 hrs AIAA-2023-4287 Experimental Evaluation of the Turbulence Interaction Noise Reduction by Flat Plates with Perforated Leading Edges T. Geyer, L. Enghardt, Deutsches Zentrum für Luft- und Raumfahrt eV, Cottbus, Germany		

Thursday, 15 June 2023					
AA-48 1300 - 1500 hrs		AIAA Hybrid Anechoic Wind Tunnel Workshop II			La Jolla B
The Hybrid Anechoic Tunnel Workshop is a forum that brings together researchers interested in hybrid anechoic aeroacoustic wind tunnels and their application. The workshop serves as a forum for researchers to discuss updates, opportunities and issues related to hybrid anechoic tunnels and work on common test cases to cross validate hybrid anechoic wind tunnels and provide data on canonical test cases to the broader aeroacoustics community.					
Thursday, 15 June 2023					
AA-49		Jet Aeroacoustics VIII: Subsonic Jets			Harbor B
Chaired by: D. EDGINGTON-MITCHELL, Monash University and A. LYRINTZIS, Embry Riddle Aeronautical University					
1300 hrs AIAA-2023-4288 Measurements of subsonic elliptical jets and their sound F. Amaral, A. Lebedev, D. Eysseric, P. Jordan, National Center for Scientific Research (CNRS), Poitiers, France	1320 hrs AIAA-2023-4289 A parametric analysis of the effect of the jet initial conditions on the wavelet-decomposed near-field acoustic pressure S. Meloni, Universita degli Studi della Tuscia, Viterbo, Italy; R. Camussi, M. Mancinelli, Universita degli Studi Roma Tre, Roma, Italy; C. Bogey, Universite de Lyon, Lyon, France	1340 hrs AIAA-2023-4290 Two-point measurements on the acoustic field of subsonic turbulent jets B. Gramiscelli Hasparyk, P. Jordan, A. Lebedev, National Center for Scientific Research (CNRS), Poitiers, France; L. Lesshafft, National Center for Scientific Research (CNRS), Palaiseau, France; E. Pickering, Massachusetts Institute of Technology, Cambridge, MA; T. Colonius, California Institute of Technology, Pasadena, CA	1400 hrs AIAA-2023-4291 Jet Noise Flyover and Scale Model Tests B. Henderson, L. Hultgren, NASA John H Glenn Research Center, Cleveland, OH		
Thursday, 15 June 2023					
AA-50/TF-16		Propeller, Rotorcraft and V/STOL Noise VIII: Multirotor (joint AA/TF)			Harbor A
Chaired by: V. SCHULTZ, NASA Langley Research Center and V. GOLUBEV, Embry-Riddle Aeronautical University (ERAU)					
1300 hrs AIAA-2023-4292 Effects of Varying Separation Distance on the Acoustics and Performance of Counter-Rotating Coaxial Rotors. E. McThane, R. Raja Zahirudin, A. Hafner, E. Greenwood, J. Palacios, The Pennsylvania State University, University Park, PA	1320 hrs AIAA-2023-4293 Aerofoil geometry effects on the interaction noise of co-axial contra-rotating rotors S. Palreja-Cabre, C. Paruchuri, P. Joseph, University of Southampton, Southampton, United Kingdom	1340 hrs AIAA-2023-4294 Aeroacoustic characteristics of distributed electric propulsion configuration with turbulent flows L. Bowen, B. Turhan, H. Kamliya Jawahar, D. Rezgui, M. Azarpeyvand, University of Bristol, Bristol, United Kingdom	1400 hrs AIAA-2023-4489 Aerodynamic and Acoustic Interaction Effects of Adjacent Propellers in Forward Flight A. Zarri, Von Karman Institute For Fluid Dynamics, Sint-Genesius-Rode, Belgium; A. Koutsoukos, F. Avallone, Technische Universiteit Delft, Delft, The Netherlands	1420 hrs AIAA-2023-4490 Aeroacoustic characteristics of distributed electric propulsion system in forward flight B. Turhan, H. Kamliya Jawahar, L. Bowen, D. Rezgui, M. Azarpeyvand, University of Bristol, Bristol, United Kingdom	
Thursday, 15 June 2023					
AA-51		Turbomachinery and Core Noise IV			Torrey Hills A
Chaired by: D. ALVORD, GTRI					

1300 hrs AIAA-2023-4295 Direct noise predictions of a 360° full fan stage using LES J. Al Am, V. Clair, A. Giauque, J. Boudet, Ecole Centrale de Lyon, Ecully, France; F. Gea-Aguilera, Safran Aircraft Engines, Moissy-Cramayel, France	1320 hrs AIAA-2023-4296 Multiple Pure Tone Noise Predictions of a Propulsion Engine Fan with PowerFLOW S. Sinha, Honeywell International Inc, Phoenix, AZ; D. Cerizza, Dassault Systemes Americas Corp, Waltham, MA; W. Schuster, Honeywell International Inc, Phoenix, AZ	1340 hrs AIAA-2023-4297 Machine Learning Aided Fan Broadband Interaction Noise Prediction for Leaned and Swept Fans N. Li, Boston University, Boston, MA; J. Winkler, C. Reimann, D. Voytovych, M. Joly, K. Lore, Raytheon Technologies Research Center, East Hartford, CT; et al.	1400 hrs AIAA-2023-4298 Modal analysis of in-duct tonal fan noise at varying shaft speed with an iterative Bayesian inverse approach J. Miranda, A. Pereira, M. Jacob, Ecole Centrale de Lyon, Ecully, France; J. Thisse, Airbus SAS, Blagnac, France	1420 hrs AIAA-2023-4299 GPU-accelerated large-eddy simulations of the NASA fan noise source diagnostic test benchmark G. Brès, K. Wang, M. Emory, C. Ivey, S. Bose, Cadence Design Systems Inc, San Jose, CA	
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Thursday, 15 June 2023

ACD-17	Aircraft Operations Studies	Balboa A
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Chaired by: S. SWAINE, Purdue University and R. PEREZ, Royal Military College of Canada

1300 hrs AIAA-2023-4300 Aircraft Design Optimization Considering Network Demand and Future Aviation Fuels P. Proesmans, F. Morlupo, B. Santos, R. Vos, Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek, Delft, The Netherlands	1320 hrs AIAA-2023-4301 Energy Analysis of Fleet Operations Using Green Liquid Hydrogen and Synthetic Kerosene C. Gallagher, C. Stuart, S. Spence, The University of Dublin Trinity College, Dublin, Ireland	1340 hrs AIAA-2023-4302 Whither Gander? A Business Case to Revive a Northern Hub Airport to Reduce Transatlantic Emissions T. Takahashi, Arizona State University Ira A Fulton Schools of Engineering, Tempe, AZ			
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Thursday, 15 June 2023

ACD-18	Novel Propulsion Systems	Balboa B
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Chaired by: S. SARTORIUS, Boeing and C. BIL, RMIT University

1300 hrs AIAA-2023-4303 Thermal Management System Modeling for Preliminary Design of Fuel Cell-Based Aircraft V. Habrard, V. Pommier-Budinger, ISAE-SUPAERO, Toulouse, France; I. Hazyuk, Institut Clement Ader, Toulouse, France; J. Jézégou, E. Benard, ISAE-SUPAERO, Toulouse, France	1320 hrs AIAA-2023-4304 The Virtual Propulsion Expert: Application of a Hybrid Surrogate-Based Rubber Engine Model in Aircraft Design J. Häßy, Deutsches Zentrum für Luft- und Raumfahrt eV, Köln, Germany	1340 hrs AIAA-2023-4305 Accelerating Aerodynamic Design of Rotors using a Multi-Fidelity Approach in TORC: Tool for Optimization of Rotorcraft Concepts A. Sridharan, J. Sinsay, Science and Technology Corporation, Moffett Field, CA			
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Thursday, 15 June 2023

APA-40	Aerodynamic Flow Control IV	Hillcrest B
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Chaired by: B. MCGRATH, The Johns Hopkins University - Applied Physics Laboratory (JHU/APL) and R. DJEDDI, Cadence Design Systems, Inc.					
1300 hrs AIAA-2023-4306 Mini UAV with DBD-Plasma-Based Flow Control M. Garcia, D. Polonsky, Y. Gichon, D. Greenblatt, Technion Israel Institute of Technology, Haifa, Israel	1320 hrs AIAA-2023-4307 Microjet Angle Sensitivity for Active Flow Control on Multi-Element High-Lift Systems J. Koch, J. Housman, S. Hosseini, NASA Ames Research Center, Moffett Field, CA	1340 hrs AIAA-2023-4308 Battery-Powered Helicopter Hover Performance Enhancement using DBD Plasma Actuator D. Polonsky, S. Oksana, D. Greenblatt, Technion Israel Institute of Technology, Haifa, Israel	1400 hrs AIAA-2023-4309 Computational Simulation of Swept Wing Dynamic Response to Active Flow Control via Vortex Generating Jets P. Brandt, J. Bons, The Ohio State University, Columbus, OH	1420 hrs AIAA-2023-4310 Steady versus Unsteady Pneumatic Flow Control and Aspects of Practical Integration A. Shmilovich, A. Khodadoust, The Boeing Company, Huntington Beach, CA; C. Colletti, P. Ansell, University of Illinois Urbana-Champaign, Urbana, IL	
Thursday, 15 June 2023					
APA-41	Airfoil/Wing/Configuration Aerodynamics I				Hillcrest C
Chaired by: B. RIDER, The Boeing Company Commercial Airplanes Everett and J. CODER, Pennsylvania State University					
1300 hrs AIAA-2023-4311 Low Aspect Ratio High-Lift Wing Design for Automotive Racing Applications S. Ratnayake, T. Takahashi, Arizona State University Ira A Fulton Schools of Engineering, Tempe, AZ	1320 hrs AIAA-2023-4312 Practical Implications of Conical Flow Assumption in NLF and HLFC Wing Design A. Sudhi, C. Badrya, Technische Universitat Braunschweig Fakultat fur Maschinenbau, Braunschweig, Germany	1340 hrs AIAA-2023-4313 Exploration of a Low-Speed, Flapped, Slotted, Natural-Laminar-Flow Airfoil M. Maughmer, L. Metkowski, C. Axten, The Pennsylvania State University, University Park, PA; D. Somers, Airfoils Inc, Port Matilda, PA	1400 hrs AIAA-2023-4314 Experimental validation of Integral Boundary layer coupled with a surface vorticity solver S. Sathe, V. Ahuja, R. Hartfield, Research In Flight, Austin, TX	1420 hrs AIAA-2023-4315 Numerical Investigation on Flow Field and Aerodynamic Characteristics of Box Wing for New Convertible eVTOL S. Honda, M. Sato, N. Ryoma, Kogakuin Daigaku, Shinjuku-ku, Japan; E. Shima, Uchu Koku Kenkyu Kaihatsu Kiko, Chofu, Japan	1440 hrs AIAA-2023-4316 On the Numerical Simulation of Rapid Spoiler Deflections S. Geisbauer, Deutsches Zentrum fur Luft- und Raumfahrt eV, Koln, Germany
Thursday, 15 June 2023					
APA-42/SPSN-3	Special Session: CFD Predictions & Validation for X-59 Wind Tunnel Model				Hillcrest D
Chaired by: L. OZOROSKI, NASA LARC and M. CARTER, NASA-Langley Research Center					
1300 hrs AIAA-2023-4317 X-59 Sonic Boom Test Results from the NASA Glenn 8- by 6-Foot Supersonic Wind Tunnel D. Durston, NASA Ames Research Center, Moffett Field, CA; J. Wolter, NASA John H Glenn Research Center, Cleveland, OH; P. Shea, C. Winski, A. Elmiligui, M. Carter, NASA Langley	1320 hrs AIAA-2023-4318 Near-Field Pressure Signature Measurements of NASA X-59 in JAXA 1 m x 1 m Supersonic Wind Tunnel J. Akatsuka, S. Koganezawa, Japan Aerospace Exploration Agency, Mitaka, Japan; S. Kondoh, Ryoyu Systems Company, Ltd., Minato-ku, Japan; H. Ishikawa, Y. Makino, S. Nagai, Japan	1340 hrs AIAA-2023-4319 Near-Field Pressure Signature Prediction of NASA X-59 using JAXA's Unstructured Grid Solver FaSTAR S. Koganezawa, H. Ishikawa, Japan Aerospace Exploration Agency, Tokyo, Japan; S. Kondoh, Ryoyu Systems Company, Ltd., Tokyo, Japan; J. Akatsuka, Y. Makino, Japan Aerospace	1400 hrs 3824603 Experimental and Computational Study of the X-59 Wind Tunnel Model at Glenn Research Center 8- by 6-foot Supersonic Wind Tunnel M. Carter, A. Elmiligui, M. Park, P. Shea, C. Winski, NASA Langley Research Center, Hampton, VA; D. Durston, NASA Ames Research Center, Moffett Field, CA; et al.	1420 hrs AIAA-2023-4320 X-59 CFD and Wind Tunnel Data Comparisons T. Magee, L. Serrano, R. Mendoza, A. Gonzalez, D. Muscalus, The Boeing Company, Chicago, IL; A. Jones, The Boeing Company Commercial Airplanes Everett, Everett, WA; et al.	

Research Center, Hampton, VA; et al.	Aerospace Exploration Agency, Mitaka, Japan	Exploration Agency, Tokyo, Japan			
Thursday, 15 June 2023					
ATM-6	Scientific and Technical Advancements in UAP Understanding				Balboa C
Chaired by: D. HEIMERDINGER, ENSCO and J. KAREL					
1300 hrs AIAA-2023-4321 Expedition to W-72 J. Platte, Self, Clearwater, FL	1320 hrs AIAA-2023-4322 Defection, Characterization, and Evaluation of Unidentified Anomalous Phenomena M. Lembeck, University of Illinois Urbana-Champaign, Urbana, IL; D. Heimerdinger, Self, Rochester, NY; R. Graves, ATMIOC, Hollis, NH; M. Snow, Self, Rochester, NY; P. Reali, Scientific Coalition for UAP Studies, Fort Myers, FL	1340 hrs AIAA-2023-4323 Recommendations to Improve Acquisition and Management of Aviation-Related UAP Data R. Graves, American Institute of Aeronautics and Astronautics, Reston, VA; M. Snow, Self, Rochester, NY; J. Platte, Self, Clearwater, FL; J. Gutierrez, US Navy, FPO, ; T. Roe, National Aviation Reporting Center on Anamolous Phenomena (NARCAP), Anchorage, AK	1400 hrs AIAA-2023-4324 Aerodynamic Interactions and Turbulence Mitigation by Unidentified Aerospace-undersea Phenomena T. Oliver, Scientific Coalition for UAP Studies, Fort Myers, FL		
Thursday, 15 June 2023					
ATS-16	Machine Learning and AI II				Harbor D
Chaired by: G. WILD, University of New South Wales					
1300 hrs AIAA-2023-4325 Sequential Classification of Aviation Safety Occurrences with Natural Language Processing A. Nanyonga, H. Wasswa, U. Turhan, O. Molloy, G. Wild, Australian Defence Force Academy, Campbell, Australia	1320 hrs AIAA-2023-4326 A Hybrid Ensemble Machine Learning Approach For Arrival Flight Delay Classification Prediction Using Voting Aggregation Technique D. Bisandu, I. Moulitsas, Cranfield University Cranfield School of Aerospace Transport and Manufacturing, Cranfield, United Kingdom	1340 hrs AIAA-2023-4327 AI for Real-time Tolerance to Critical Flight Data Errors in Large Aircraft C. Koopman, D. Zammit-Mangion, University of Malta, Msida, Malta			
Thursday, 15 June 2023					
ATS-17	Sustainable Aviation II				Harbor C
Chaired by: P. ROLING, Delft Technical University of Technology					
1300 hrs AIAA-2023-4328 Cost benefit and environmental impact	1320 hrs AIAA-2023-4329 Cost benefit and environmental impact				

assessment of operational towing P. Roling, M. Segeren, Technische Universiteit Delft, Delft, The Netherlands	assessment of autonomous eTaxi P. Roling, Technische Universiteit Delft, Delft, The Netherlands				
Thursday, 15 June 2023					
CFD-18	Adaptive Meshing				Solana Beach A
Chaired by: A. ASHLEY, Lockheed Martin Aeronautics					
1300 hrs AIAA-2023-4330 Assessment of Implicit and Adaptive Mesh-free CFD Modelling T. Zhang, University of Leicester, Leicester, United Kingdom; G. Barakos, University of Glasgow, Glasgow, United Kingdom	1320 hrs AIAA-2023-4331 In-Situ Adaptive Mesh Refinement for High Fidelity Simulations of Compressible Turbulence J. Shafner, P. Martin, University of Maryland at College Park, College Park, MD	1340 hrs AIAA-2023-4332 Improvements to the LAURA Mesh Adaptation Algorithm K. Thompson, A. Wise, B. Hollis, NASA Langley Research Center, Hampton, VA	1400 hrs AIAA-2023-4333 Anisotropic Mach Cone Aligned Mesh Adaptation for Low Boom Simulations C. Ashby, J. Housman, J. Duensing, NASA Ames Research Center, Moffett Field, CA		
Thursday, 15 June 2023					
CFD-19	Large-Eddy Simulations III				Ocean Beach
Chaired by: N. WUKIE, Air Force Research Laboratory and A. URANGA					
1300 hrs AIAA-2023-4335 A Wall-Modeling Approach for Immersed Boundaries Based on Momentum Forcing J. Colmenares, M. Kostuk, F. Halpern, General Atomics, San Diego, CA	1320 hrs AIAA-2023-4336 Numerical Simulation of Turbulent Boundary Layer with Free Stream Turbulence M. Hoque, A. Gross, New Mexico State University, Las Cruces, NM	1340 hrs AIAA-2023-4337 Compact wall-model for high-order spectral difference numerical schemes T. Arnould, M. Bauerheim, R. Gojon, J. Gressier, ISAE-SUPAERO, Toulouse, France	1400 hrs AIAA-2023-4338 Studies of transonic aircraft flows and prediction of initial buffet onset using large-eddy simulations K. Goc, R. Agrawal, P. Moin, Stanford University, Stanford, CA; S. Bose, Cascade Technologies Inc, Palo Alto, CA		
Thursday, 15 June 2023					
DGE-4	Digital Airworthiness and Certification (DAC)				Gaslamp A
Thursday, 15 June 2023					
EATS-22	Best Practices and Lessons from Ground-Testing EAP Systems				Harbor E
Chaired by: H. SCHLICKENMAIER, HS Advanced Concepts					
Thursday, 15 June 2023					
EATS-23	Power Electronics, Electric Machines and Drives I				Gaslamp C
Chaired by: K. YOST, Air Force Research Laboratory					

1300 hrs AIAA-2023-4340 Partial Discharge in Silicon Carbide Driven Random Wound Motor Windings for Aviation Applications P. Fu, Z. Wei, H. You, J. Wang, The Ohio State University, Columbus, OH	1320 hrs AIAA-2023-4341 Projecting Key Performance Parameters for Electric Powertrain Components through 2050 for Aerospace Applications C. Pastra, N. Ganzarski, J. Gladin, D. Mavis, Georgia Institute of Technology, Atlanta, GA	1340 hrs AIAA-2023-4342 Multi-Disciplinary Design Optimization of an Electric Motor Considering Thermal Constraints T. Babcock, B. McKeever, J. Hicken, Rensselaer Polytechnic Institute, Troy, NY	1400 hrs AIAA-2023-4343 Constant Torque and Maximum Torque per Ampere Curves with Quadratic Curve Fitting in Consideration of Interior Permanent Magnet Electric Machine Technology for Aircraft D. Gross, R. Howard, PC Krause and Associates, Indianapolis, IN; C. Kitzmiller, UES, Inc., Dayton, OH; W. Perdikakis, PC Krause and Associates, Indianapolis, IN; K. Yost, Air Force Research Laboratory, Wright-Patterson AFB, OH		
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Thursday, 15 June 2023

EATS-24	Special Session - Center for High-Efficiency Electrical Technologies for Aircraft I	Gaslamp B
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Chaired by: P. ANSELL, University of Illinois at Urbana-Champaign and D. HALL, The Pennsylvania State University

1300 hrs 3897168 Hydrogen-Electric Technologies for Future Zero-Emissions Aviation: Activities of the Center for High-Efficiency Electrical Technologies for Aircraft (CHEETA) P. Ansell, University of Illinois Urbana-Champaign, Urbana, IL	1320 hrs AIAA-2023-4344 Preliminary Design and Optimization of a Hydrogen-Electric Aircraft Concept P. Ranjan, University of Illinois System, Urbana, IL; G. Das, Georgia Institute of Technology, Atlanta, GA; E. Waddington, M. Lauer, P. Ansell, University of Illinois System, Urbana, IL; K. James, Georgia Institute of Technology, Atlanta, GA	1340 hrs AIAA-2023-4345 Trade-Space Assessment of Liquid Hydrogen Propulsion Systems for Electrified Aircraft A. White, Massachusetts Institute of Technology, Cambridge, MA; E. Waddington, University of Illinois Urbana-Champaign, Urbana, IL; E. Greitzer, Massachusetts Institute of Technology, Cambridge, MA; J. Merret, P. Ansell, University of Illinois Urbana-Champaign, Urbana, IL; D. Hall, The Pennsylvania State University, University Park, PA	1400 hrs AIAA-2023-4346 Aerodynamic Analysis of Lifting-Fuselage Configurations K. Mahesh, P. Ansell, University of Illinois Urbana-Champaign, Urbana, IL		
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Thursday, 15 June 2023

FD-35	Flow Control Devices and Applications: Wings and Airfoils	Mission Beach A
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Chaired by: U. SASIDHARAN, Florida State University

1300 hrs AIAA-2023-4347	1320 hrs AIAA-2023-4348	1340 hrs AIAA-2023-4349			
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Active Gust Alleviation on a High Aspect Ratio Wing Based on High Fidelity CFD Simulations M. Hillebrand, Universitat Stuttgart Institut für Aerodynamik und Gasdynamik, Stuttgart, Germany	Aerodynamic Flow Control of a Channel Wing B. Vukasinovic, M. DeSalvo, A. Glezer, Georgia Institute of Technology, Atlanta, GA; R. Funk, Georgia Tech Research Institute Cobb County Research Facility, Smyrna, GA	Flow Physics Study of Sweeping Jet Actuation on a NACA 0015 Swept Wing Configuration L. Pack Melton, D. Neuhart, M. Koklu, NASA Langley Research Center, Hampton, VA			
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Thursday, 15 June 2023

FD-36	Instrumentation and Diagnostic Techniques: Optical Methods	Hillcrest A
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Chaired by: J. FARNSWORTH, University of Colorado Boulder and J. RHOADS, Lockheed Martin Aeronautics

1300 hrs AIAA-2023-4357 A Novel Deep Learning Based Approach for Particle Image Velocimetry with Global Motion Aggregation J. Wang, H. Sista, H. Hu, P. He, H. Hu, Iowa State University, Ames, IA	1320 hrs AIAA-2023-4358 A Method for Obtaining Surface Flow Vectors and Its Implementation in Interferometric Skin Friction Measurement M. Koklu, D. Neuhart, L. Pack Melton, NASA Headquarters, Washington, D.C.; J. Naughton, University of Wyoming, Laramie, WY	1340 hrs AIAA-2023-4359 Single-camera Three-dimensional Deformation Measurement using Data-driven Reduced Order Model Y. Ozawa, K. Akama, T. Nonomura, K. Asai, Tohoku Daigaku, Sendai, Japan	1400 hrs AIAA-2023-4360 Particle Seeding System Upgrades in the NASA GRC 1'x1' Supersonic Wind Tunnel H. Reising, P. Upadhyay, HX5, LLC, Brook Park, OH; M. Wernet, NASA John H Glenn Research Center, Cleveland, OH		
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Thursday, 15 June 2023

FD-37	Low-Reynolds-Number and Bio-Inspired Flows: Low-Reynolds-Number Flows	Pier
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Chaired by: A. GOZA, University of Illinois at Urbana-Champaign

1300 hrs AIAA-2023-4353 Spontaneous Laminar Separation Bubble Bursting on an Airfoil C. Toppings, S. Yarusevych, University of Waterloo, Waterloo, Canada	1320 hrs AIAA-2023-4354 Resolvent-based analysis of low-Reynolds-number separated flows around tapered wings J. Ribeiro, K. Taira, University of California Los Angeles, Los Angeles, CA	1340 hrs AIAA-2023-4355 Numerical Study on Hypersonic Flow over a Spherically Blunt Nose with Counter-flow Jet at Various Pressure Ratio in Low Reynolds Number Regime H. Yoon, K. Suzuki, Tokyo Daigaku, Kashiwanoha, Japan	1400 hrs AIAA-2023-4356 Wavy Trailing Edge Effects on Truncated Thick Airfoil P. Ferreira, R. Costa Moura, A. Agrico de Paula, Instituto Tecnológico de Aeronautica, São Jose dos Campos, Brazil		
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Thursday, 15 June 2023

FD-38	Reduced-Complexity Modeling and Machine Learning II	Solana Beach B
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Chaired by: D. LIVESCU, Los Alamos National Laboratory

1300 hrs AIAA-2023-4362	1320 hrs AIAA-2023-4363	1340 hrs AIAA-2023-4364	1400 hrs AIAA-2023-4365		
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Prediction of airfoil dynamic stall response using convolutional neural networks R. Miotto, W. Wolf, Universidade Estadual de Campinas, Campinas, Brazil	Assimilating Velocity Fields from BOS Measurements in Supersonic Flows Using Physics Informed Neural Networks L. Rohlf, J. Weiss, Technische Universität Berlin, Berlin, Germany	AbbottAE: An Autoencoder for Airfoil Aerodynamics E. Saetta, R. Tognaccini, Università degli Studi di Napoli Federico II, Napoli, Italy; G. Iaccarino, Stanford University, Stanford, CA	A Data-Driven Approach to Study Nonlinear Dynamics of Wind-Driven Water Runback Flows Pertinent to Aircraft Icing Phenomena J. Wang, H. Hu, P. He, H. Hu, Iowa State University, Ames, IA		
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Thursday, 15 June 2023

FD-39	Reduced-Complexity Modeling and Machine Learning III	Bankers Hill
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Chaired by: M. WOODWARD, The University of Arizona and A. TOWNE, University of Michigan, Ann Arbor

1300 hrs AIAA-2023-4350 Modal Analysis of Spatiotemporal Data via Multi-fidelity Multi-variate Gaussian Processes J. Song, D. Huang, The Pennsylvania State University, University Park, PA	1320 hrs AIAA-2023-4351 Self-consistent closure modeling for linearized mean field methods J. von Saldern, J. Reumschüssel, T. Kaiser, Technische Universität Berlin, Berlin, Germany; O. Schmidt, University of California San Diego, La Jolla, CA; P. Jordan, National Center for Scientific Research (CNRS), Poitiers, France; K. Oberleithner, Technische Universität Berlin, Berlin, Germany	1340 hrs AIAA-2023-4352 Data-driven closures for the dynamic mode decomposition using quadratic manifolds R. Geelen, A. Kalur, K. Willcox, The University of Texas at Austin, Austin, TX			
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Thursday, 15 June 2023

FT-8 1300 - 1400 hrs	ePowertrain the Right Ground Test Apparatus for the Right Job	Golden Hill A
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Learn about ground testing options for distributed electric propulsion systems prior to aircraft integration from Empirical Systems Aerospace Inc.

Thursday, 15 June 2023

FT-9 1300 - 1400 hrs	Flight Test Lessons Learned	Cortez Hill C
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Mr. Andy Freeborn will discuss lessons learned in flight test over the past several years.

Thursday, 15 June 2023

GT-9	Wind Tunnel Characterization and Improvements	Promenade A
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Chaired by: R. PARYZ, NASA Langley Research Center and E. HUBBARD, NASA Glenn Research Center

1300 hrs AIAA-2023-4366	1320 hrs AIAA-2023-4367	1340 hrs AIAA-2023-4368	1400 hrs AIAA-2023-4369	1420 hrs AIAA-2023-4370	
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Nucleation in Non-Equilibrium Supersonic Flow: Theory and CARS Measurements P. Lax, S. Leonov, University of Notre Dame, Notre Dame, IN	Uncertainty Improvement in the NASA Glenn Research Center 8- by 6-Foot Supersonic Wind Tunnel A. Johnson, N. Kelsey, P. Poljak, Jacobs Engineering Group Inc, Cleveland, OH; D. Rinehart, HX5, LLC, Cleveland, OH	Modal Decomposition of Wind-Tunnel Fluctuations G. Fahland, F. Elsner, K. Weber, F. Kauffmann, M. Wickberg, D. Achzehnter, Karlsruher Institut für Technologie, Karlsruhe, Germany; et al.	Absorption Laser Differential Interferometry for Simultaneous Colinear Flow Property and Fluctuation Measurements J. Weisberger, B. Bathel, G. Herring, A. Chou, NASA Langley Research Center, Hampton, VA	Applying P4T3 Methodology to Test Facility Maintenance - An Army Aviation Perspective D. Curriston, L. Brown, E. White, Texas A&M University System, College Station, TX	
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Thursday, 15 June 2023

MDO-16	Physics-informed Machine Learning	Old Town A
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Chaired by: S. CHOWDHURY, University at Buffalo and J. HWANG, University of California San Diego

1300 hrs AIAA-2023-4371 Towards an adaptive trailing-edge noise model using a data-driven approach A. Ghiglini, S. Pullin, B. Zhou, University of Bristol, Bristol, United Kingdom; H. Abid, S. Karabasov, Queen Mary University of London, London, United Kingdom	1320 hrs AIAA-2023-4372 Adaptive Selection of Decomposed Function Emulators for Rapid Neural Networks A. Beachy, H. Bae, Wright State University, Dayton, OH; J. Camberos, Air Force Research Laboratory, Wright-Patterson AFB, OH; R. Grandhi, Air Force Institute of Technology, Wright-Patterson AFB, OH	1340 hrs AIAA-2023-4373 Surrogate Model Based Aerodynamic Shape Optimization of a Hydrogen Powered Aircraft M. Kiely, R. Agarwal, Washington University in St Louis, St Louis, MO	1400 hrs AIAA-2023-4374 Physics-Informed Machine Learning for Inverse Airfoil Shape Design B. Wong, M. Damodaran, B. Khoo, National University of Singapore, Singapore, Singapore	1420 hrs AIAA-2023-4375 Machine Learning Surrogates for Optimal 2D Spatial Packaging of Interconnected Systems with Physics Interactions (SPI2) C. Parrott, S. Peddada, J. Allison, University of Illinois Urbana-Champaign, Urbana, IL; K. James, Georgia Institute of Technology, Atlanta, GA	1440 hrs AIAA-2023-4376 Physics Infused Machine Learning Based Prediction of VTOL Aerodynamics with Sparse Datasets M. Oddiraju, University at Buffalo, Buffalo, NY; D. Amin, M. Piedmonte, Bechamo LLC, Buffalo, NY; S. Chowdhury, University at Buffalo, Buffalo, NY
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Thursday, 15 June 2023

MDO-17	Topology Optimization for High-Performance Structures	Old Town B
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Chaired by: S. RALLABHANDI, NASA Langley Research Center and A. CARRERE, Boeing

1300 hrs AIAA-2023-4378 Topology Optimization for Design of Resilient Structures using Smart Materials A. Bhattacharyya, A. M. Mirzendehtel, Palo Alto Research Center Incorporated, Palo Alto, CA	1320 hrs AIAA-2023-4379 Topology optimization of crash-tolerant aircraft structures G. Das, J. Gloyd, G. Kennedy, K. James, Georgia Institute of Technology, Atlanta, GA	1340 hrs AIAA-2023-4380 Buckling Load Maximization of Stiffened Plates using Level Set Topology Optimization and Inverse Isoparametric Mapping Algorithm W. Zhao, M. Mahdi, Oklahoma State University, Stillwater, OK			
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Thursday, 15 June 2023

PDL-6	Plasma and Laser Diagnostics II	Promenade B
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Chaired by: C. DUMITRACHE, Colorado State University and J. ZIMMERMAN, CU Aerospace

1300 hrs	1320 hrs	1340 hrs			
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AIAA-2023-4381 Ultraviolet (UV) Laser Implementation and Measurement Sensitivities in Filtered Rayleigh Scattering for Aerodynamic Flows G. Pitt, T. Lowe, Virginia Polytechnic Institute and State University, Blacksburg, VA	AIAA-2023-4382 Burst-mode Nitric Oxide PLIF for Visualization and Mode Spectral Analysis of Hypersonic Shear Layers B. Leonov, T. Dean, D. McGruder, R. Bowersox, Texas A&M University System, College Station, TX; C. Limbach, University of Michigan, Ann Arbor, MI; R. Miles, Texas A&M University System, College Station, TX	AIAA-2023-4383 A 100 kHz TDLAS Diagnostic for Characterizing Non-Equilibrium CN Formed Behind Shock Waves in N ₂ -CH ₄ Mixtures J. Vera, V. Radhakrishna, C. Schwartz, C. Goldenstein, Purdue University, West Lafayette, IN			
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Thursday, 15 June 2023

PGC-4	Experimental evaluation of RDEs	Cove
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Chaired by: D. PAXSON, NASA Glenn Research Center and F. LADEINDE, TTC Technologies Inc

1300 hrs AIAA-2023-4384 High-speed laser absorption measurements of temperature and carbon oxides in linear detonation channels K. Fetter, B. Steavenson, B. Donald, A. Andrade, C. Combs, D. Pineda, The University of Texas at San Antonio, San Antonio, TX; et al.	1320 hrs AIAA-2023-4385 Annular chamber geometry effects on a hypergolic liquid rotating detonation rocket engine A. Keller, A. Nair, N. Kuenning, N. Minesi, R. Spearrin, University of California Los Angeles, Los Angeles, CA	1340 hrs AIAA-2023-4386 Base Drag Considerations to Determine Equivalent Available Pressure in the Rotating Detonation Rocket Engine A. Abdala, A. Burden, R. Burke, K. Ahmed, University of Central Florida, Orlando, FL	1400 hrs AIAA-2023-4387 Comparison of 2D and 3D Supersonic Combustion Simulation Results in a Rotating Detonation Engine F. Ladeinde, H. Oh, Stony Brook University, Stony Brook, NY	1420 hrs AIAA-2023-4271 Large-Eddy Simulation of a Hydrogen-Air Non-Premixed Rotating Detonation Combustor Coupled with a Downstream Nozzle P. Pal, Argonne National Laboratory, Lemont, IL; J. Braun, G. Paniagua, V. Athmanathan, T. Meyer, Purdue University, West Lafayette, IN	1440 hrs AIAA-2023-4270 Detonation Propagation in Mixtures Undergoing Autoignition and Deflagration M. Stocke, J. Hoke, Innovative Scientific Solutions, Inc., Dayton, OH; A. Feleo, University of Michigan, Ann Arbor, MI; R. Fievisohn, Air Force Research Laboratory, Wright-Patterson AFB, OH
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Thursday, 15 June 2023

TF-17	Transformational Flight Towards Zero Emission, An Impact Assessment Framework	Golden Hill B
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Chaired by: P. PRAKASHA, German Aerospace Center

Thursday, 15 June 2023

VSTOL-5/TF-15	International Powered Lift Conference (IPLC): V/STOL Control Authority and Safety	Harbor I
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Chaired by: G. JERAM, United States Army and R. MANGE, Lockheed Martin Aeronautics

1300 hrs AIAA-2023-4388 The Stopped Rotor Concept – A New Look At An Old Idea G. Brown, S. Sathe, V. Ahuja, American Institute of Aeronautics and Astronautics, Reston, VA	1320 hrs AIAA-2023-4048 Cascaded nonlinear dynamic inversion applied to a fixed-wing distributed electric propulsion aircraft J. Soikkeli, Pipistrel Vertical Solutions, Ajdovščina, Slovenia; D. Matko, Univerza v	1340 hrs Technical Panel			
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	Ljubljani, Ljubljana, Slovenia; T. Koopman, Pipistrel Vertical Solutions, Ajdovščina, Slovenia				
Thursday, 15 June 2023					
F360-11 1330 - 1500 hrs	AAM Autonomy Certification				Grand Hall A-C
All AAM transformational missions need certifiable automation to lower operating costs, in order to reduce pilot training or remove the pilot from the aircraft. Some of the industry is proposing a crawl, walk, run with regulatory agencies from slowly removing pilot functions that are verifiable in software before they remove the pilot from the cockpit. This panel will discuss challenges to prove software can make multiple decisions in a contingency better than a pilot. Moderator: Starr Ginn, NASA Jonathan Lovegren, Wisk Juerg Frefel, Reliable Robotics Maxime Gariel, Xwing Igor Cherepinsky, Sikorsky Kathy Abbott, FAA Loyd Hook, the University of Tulsa					
Thursday, 15 June 2023					
NW-9 1500 - 1530 hrs	Networking Break				Foyers
Coffee breaks allow even more time for making new contacts, continuing discussions from sessions, visiting the Exposition Hall, or checking emails and voicemails to keep in touch with the office while you are at the forum.					
Thursday, 15 June 2023					
AA-52	Aeroacoustics Virtual V: Jet Noise and Flow and/or Acoustic Test Topics				Virtual
Chaired by: K. GEE, Brigham Young University					
1530 hrs AIAA-2023-4389 Numerical Prediction of Generation of Axisymmetric Mode Jet Screech Tones at Different Mach numbers R. Nambiar, Indian Institute of Technology Bombay, Mumbai, India; K. K. M. M, Manipal Institute of Technology, Manipal, India; M. Nair, Indian Institute of Space Science and Technology, Thiruvananthapuram, India	1530 hrs AIAA-2023-4390 Flow and Acoustic Characteristics of Turbulence Grids at Wind Tunnel Nozzle Exit L. Li, H. Zhu, X. Zhang, Y. Liu, Southern University of Science and Technology, Shenzhen, China	1530 hrs AIAA-2023-4391 Dual-frequency piezoelectric MEMS microphones based on AlSc _{30%} N thin films for aeroacoustic measurements L. Wu, Y. Zhai, O. Lokesh, C. Bourquard, J. Abbaszadeh, N. Andrianov, Silicon Austria Labs GmbH, Graz, Austria; et al.			
Thursday, 15 June 2023					
ACD-19	Aerodynamic Design Tools and Processes				Virtual

Chaired by: R. BARRETT-GONZALEZ, The University of Kansas and D. LEVY, Sierra Nevada Corporation					
1530 hrs AIAA-2023-4392 Dynamics of UAV Wing with Smart Metamaterial Resonators S. Sunny, S. Murugan, Indian Institute of Technology Madras, Chennai, India	1530 hrs AIAA-2023-4393 Multi-fidelity Optimization of Ducted Fan for eVTOL Aircraft Y. Liu, Zhejiang University, Hangzhou, China	1530 hrs AIAA-2023-4394 Interactive Graphical User Interface for Performance and Flight Dynamics Analysis of Battery-Powered Unmanned Aerial Vehicles M. Alneyadi, S. Alaryani, R. Asifewe, I. Hemdoui, A. Aasim, M. Okasha, United Arab Emirates University, Al Ain, United Arab Emirates; et al.	1530 hrs AIAA-2023-4395 Evaluation of a time-varying mass nonlinear energy sink on the helicopter ground resonance problem T. Morais, C. Reis, Universidade Federal de Uberlandia, Uberlandia, Brazil; L. Sanches, G. Michon, ISAE-SUPAERO, Toulouse, France	1530 hrs AIAA-2023-4396 Object-Oriented Multi Fidelity Aircraft Design Tool for Fixed Wing eVTOL UAVs T. Seren, M. Hornung, Technische Universitat Munchen, Munchen, Germany	
Thursday, 15 June 2023					
APA-43	Applied Computational Fluid Dynamics IV				Virtual
Chaired by: K. ZORE, Ansys and M. PARK, Luminary Cloud					
1530 hrs AIAA-2023-4401 Effects of Blowing Ratios on the Near-wall Flow Transition and Heat Transfer in Coupled-domain Transpiration Cooling Z. Zhang, X. Wang, Xi'an Jiaotong University, Xi'an, China	1530 hrs AIAA-2023-4402 Analysis of coherent structures in dynamic stall via empirical mode decomposition and dynamic mode decomposition L. Souza, R. Miotto, W. Wolf, Universidade Estadual de Campinas, Campinas, Brazil	1530 hrs AIAA-2023-4403 HEMLAB Algorithm Applied to HIOCFD Delta Wing and OTC1 Missile H. Akgün, I. Asar, M. Sahin, Istanbul Teknik Universitesi, Istanbul, Turkey	1530 hrs AIAA-2023-4404 Analysis of Triangular Cross-Section Slender Bodies in Supersonic Regime using RANS simulations Q. Bourny, A. Proenca, D. Di Pasquale, S. Prince, Cranfield University Cranfield School of Aerospace Transport and Manufacturing, Cranfield, United Kingdom	1530 hrs AIAA-2023-4405 Evaluation of Limiter Functions for Supersonic Applications N. Ahmad, M. Park, NASA Langley Research Center, Hampton, VA; H. Nishikawa, National Institute of Aerospace, Hampton, VA; L. Wang, A. Elmilgui, NASA Langley Research Center, Hampton, VA	1530 hrs AIAA-2023-4406 Aerodynamics of Close-coupled Stationary/Flapping Tandem NACA 0012 Airfoils B. Anilir, D. Kurtulus, Orta Dogu Teknik Universitesi, Ankara, Turkey; M. Platzer, University of California Davis, Davis, CA
Thursday, 15 June 2023					
APA-44	Special Session: Stability & Control Prediction Workshop Interim 1.5 (S&CPW 1.5): 2D CRM Wing and Tail Section				Virtual
Chaired by: A. LOFTHOUSE, US Air Force and R. SEIDLER, DLR-Braunschweig					
1530 hrs AIAA-2023-4397 DLR Results for the 1.5 AIAA Stability and Control Prediction Workshop Investigating a Wing and Wing-Tail Section of the Common Research Model R. Seidler, A. Huebner, B. Ernst, M. Widhalm, Deutsches Zentrum fur Luft- und	1530 hrs AIAA-2023-4398 A Comparison of CFD Approaches for Tail Downwash Prediction using a NASA Common Research Model (CRM) 2D Benchmark M. Prior, A. Rozinka, N. Princen, The Boeing	1530 hrs AIAA-2023-4399 CRM 2D Wing and Tail Section – Mesh Impact on Longitudinal Stability (Invited) S. Klausmeyer, K. Laflin, Textron Aviation, Wichita, KS	1530 hrs AIAA-2023-4400 CFD Study of 2D Wing and Tail Section Using KCFD and FUN3D A. Lofthouse, Air Force Life Cycle Management Center, Wright-Patterson AFB, OH		

Raumfahrt eV, Braunschweig, Germany	Company, Huntington Beach, CA				
Thursday, 15 June 2023					
ATS-18	Topics in Air Transportation Systems II				Virtual
Chaired by: J. RAKAS, University of California Berkeley					
1530 hrs AIAA-2023-4407 Vertical Flight Profile Optimization Using Ensemble Weather Forecasting and Statistical Aircraft Performance Model Y. Matsuno, H. Matsuda, Uchu Koku Kenkyu Kaihatsu Kiko, Chofu, Japan	1530 hrs AIAA-2023-4408 Unmanned Aerial Vehicle Routing Problem for Integrated Manned and Unmanned Aircraft Operations Y. Matsuno, A. Andreeva-Mori, Uchu Koku Kenkyu Kaihatsu Kiko, Chofu, Japan	1530 hrs AIAA-2023-4409 Predicting Collision Risk among Air Route Segments using Spatio-Temporal Graph Neural Network W. Shi, X. Zhu, Beihang University, Beijing, China	1530 hrs AIAA-2023-4410 Deep Speech Pattern Analysis of Controller-Pilot Voice Communications for Enhancing Future Aviation Systems Safety J. Rakas, S. Sohn, L. Keslerwest, University of California Berkeley, Berkeley, CA; J. Krozel, The Innovation Laboratory, Inc., Portland, OR	1530 hrs AIAA-2023-4411 Improved Delay Propagation Causality Modeling and Analysis for Airport Networks via the Second Modified Transfer Entropy Method M. Sun, Y. Tian, X. Huang, J. Li, X. Dong, Q. Li, Nanjing University of Aeronautics and Astronautics College of Civil Aviation, Nanjing, China	1530 hrs AIAA-2023-4412 Resilience against disruptions in passenger processing at international airports: a simulation study I. de Lima, Rheinisch-Westfälische Technische Hochschule Aachen, Aachen, Germany
Thursday, 15 June 2023					
CFD-20	Modeling, Verification and Application Studies II				Virtual
Chaired by: L. RILEY, Air Force Research Laboratory					
1530 hrs AIAA-2023-4423 Coupling Algebraic Transition Formula with Spalart-Allmaras Turbulence Model M. Rahman, B. Li, K. Hasan, S. Chen, Hangzhou Dianzi University, Hangzhou, China	1530 hrs AIAA-2023-4424 Numerical modelling of unsteady fluid transients due to sudden valve closure in flow networks A. Garva, Indian Institute of Technology Kharagpur, Kharagpur, India; S. Ravindran, The University of Alabama in Huntsville, Huntsville, AL; P. Ghosh, Indian Institute of Technology Kharagpur, Kharagpur, India; A. Majumdar, NASA Marshall Space Flight Center, Huntsville, AL	1530 hrs AIAA-2023-4425 A fluid dynamics technique for modelling inflatable shield for re-entry or aerocapture missions R. Paciorri, A. Assonitis, F. Saltari, Università degli Studi di Roma La Sapienza, Rome, Italy; A. Bonfiglioli, Università degli Studi della Basilicata, Potenza, Italy	1530 hrs AIAA-2023-4426 Comparison of Ghost Cell and one-sided Interpolation method for moving bodies in Immersed Boundary Method M. Ali, R. Sousa, M. Awad, R. Camarero, J. Trépanier, Polytechnique Montreal, Montreal, Canada	1530 hrs AIAA-2023-4427 Simulating CMAS Infiltration of an EB-PVD Thermal Barrier Coating Using the Volume-of-Fluid Method B. Cavainolo, M. Kinzel, University of Central Florida, Orlando, FL; R. Naraparaju, M. Kabir, Deutsches Zentrum für Luft- und Raumfahrt eV, Köln, Germany	
Thursday, 15 June 2023					
CFD-21	Numerical Algorithms II				Virtual
Chaired by: Z. WANG, University of Kansas and P. MAKSIMOVIC, ANSYS Inc.					
1530 hrs AIAA-2023-4418 Toward a Third-Order Accurate, Second-	1530 hrs AIAA-2023-4419 A Time-Slab Approach to Adaptive Space-Time	1530 hrs AIAA-2023-4420	1530 hrs AIAA-2023-4421 Disturbance Flow Tracking Simulations for the	1530 hrs AIAA-2023-4422 Bayesian calibration of a low order aerodynamic	

Derivative-Free, Shock-Capturing Finite-Volume Method for Hypersonic Flows on Tetrahedral Grids H. Nishikawa, National Institute of Aerospace, Hampton, VA; J. White, M. O'Connell, NASA Langley Research Center, Hampton, VA	Hyperbolic Navier-Stokes Solver H. Nishikawa, National Institute of Aerospace, Hampton, VA	On a Class of Structure-Preserving Discretizations in Compressible Flows C. De Michele, G. Coppola, Universita degli Studi di Napoli Federico II, Napoli, Italy	Boundary Layer Transition (BOLT) Experiment V. Russo, University of Kentucky, Lexington, KY; C. Brehm, University System of Maryland, College Park, MD	model for the design of unconventional tail empennages G. Gori, T. Davoli, A. Rausa, A. Zanotti, F. Auteri, A. Guardone, Politecnico di Milano, Milano, Italy	
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Thursday, 15 June 2023

EATS-25	EATS Virtual Session II	Virtual
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Chaired by: E. ANDREWS, Boeing Commercial Airplanes

1530 hrs AIAA-2023-4428 Conceptual Design and Optimization of a Strut-braced Wing Full Electric Regional Aircraft with Distributed Propulsion A. Gilbrook, University of Southampton, Southampton, United Kingdom; Y. Ma, Technische Universitat Braunschweig, Braunschweig, Germany; A. Elham, University of Southampton, Southampton, United Kingdom	1530 hrs AIAA-2023-4429 A Review of Distributed Electric Aircraft Propulsion Architecture Progression A. Siddavatam, K. Rajashekara, H. Huang, University of Houston, Houston, TX; F. Wang, The University of Tennessee Knoxville Tickle College of Engineering, Knoxville, TN	1530 hrs AIAA-2023-4430 Dual-Use e-VTOL System Development Challenge Applying Mission Engineering Y. Otani, Boeisho Jieitai, Shinjuku-ku, Japan; Y. Ohkami, Keio Gijuku Daigaku Daigakuin System Design Management Kenkyuka, Yokohama, Japan	1530 hrs AIAA-2023-4431 Design of PM/Reluctance Synchronous Machines Based on Additively Manufactured Hilbert Structures M. Broumand, Z. Hong, National Research Council Canada, Ottawa, Canada	1530 hrs AIAA-2023-4432 Aerodynamic design of a propeller-heat exchanger setup for distributed electric propulsion L. Benjamin, S. Lueck, Technische Universitat Braunschweig, Braunschweig, Germany	
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Thursday, 15 June 2023

EATS-26	Power Management, Distribution & High Voltage Considerations	Gaslamp C
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Chaired by: A. JANKOVSKY, NASA Glenn Research Center and D. CULLEY, NASA Glenn Research Center

1530 hrs AIAA-2023-4465 Risk assessment related to PD activity in electrical insulation systems of machines in flammable environment R. Acheen, T. Lebey, Safran Group, Blagnac, France; B. Masson, T. Vozy, Safran Group, Roche la Molière, France; P. Bottein, Safran Group, Plaisir, France; X. Choeur, Safran Group, Auzerres, France; et al.	1550 hrs AIAA-2023-4466 Analysis of space charge in dielectric materials for aeronautics and off-shore DC applications M. Jebli, Université de Montpellier, Montpellier, France; J. Rivenc, Radial SA, Voreppe, France; J. Laurentie, S. Agnel, J. Castellon, Université de Montpellier, Montpellier, France; C. Thomas, Institut de Recherche Technologique	1610 hrs AIAA-2023-4467 Impedance Measurements of Motor Drives and Supplies in NASA NEAT Facility T. Dever, D. Sadey, K. Hunker, X. Collazo-Fernandez, P. Hanlon, P. Kascak, NASA John H Glenn Research Center, Cleveland, OH; et al.	1630 hrs AIAA-2023-4468 NASA Scaled Power Electrified Drivetrain P. Hanlon, D. Sadey, L. Taylor, C. Theman, K. Hunker, H. Fain, NASA John H Glenn Research Center, Cleveland, OH; et al.	1650 hrs AIAA-2023-4469 Impedance Measurements of Motor Drive and Supply in SPEED Testbed T. Dever, X. Collazo-Fernandez, P. Hanlon, K. Hunker, D. Sadey, C. Theman, NASA John H Glenn Research Center, Cleveland, OH; et al.	
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	Antoine de Saint-Exupery, Toulouse, France; et al.				
Thursday, 15 June 2023					
EATS-27	Special Session - Center for High-Efficiency Electrical Technologies for Aircraft II				Gaslamp D
Chaired by: P. ANSELL, University of Illinois at Urbana-Champaign and D. HALL, The Pennsylvania State University					
1530 hrs 3851184 Design of a 40-MW-Class Electric Wire Interconnect System for Liquid-H2 Fuel- Cell Propulsion T. Haugan, Air Force Research Laboratory, Wright- Patterson AFB, OH; M. Sebastian, University of Dayton, Dayton, OH; C. Kovacs, Scintillating Solutions LLC, Columbus, OH	1550 hrs AIAA-2023-4473 AC Loss of Superconducting Strands at High frequencies, and the impact for Harmonic Contributions M. Sumption, The Ohio State University, Columbus, OH	1610 hrs AIAA-2023-4474 Design of a Fully Superconducting Aircraft Propulsion Motor J. Feldman, J. Xiao, T. Balachandran, K. Haran, University of Illinois Urbana- Champaign, Urbana, IL	1630 hrs AIAA-2023-4475 Thermal Challenges and Solutions for Hydrogen Fuel Cell Aircraft M. Stoia, M. Shi, The Boeing Company, Huntington Beach, CA	1650 hrs AIAA-2023-4476 Required Developments for Integration of Sustainable Hydrogen in Aviation P. Ansell, University of Illinois Urbana-Champaign, Urbana, IL	
Thursday, 15 June 2023					
EATS-28	System Dynamics, Modeling, & Control I				Gaslamp B
Chaired by: J. LITT, NASA Glenn Research Center					
1530 hrs AIAA-2023-4470 Comparison of the Electrical Modeling and Thermal Analysis Toolbox Physics Based Model Blocks to Electrified Aircraft Propulsion Motor Test Hardware M. Bell, HX5, LLC, Cleveland, OH; S. Bianco, J. Litt, NASA John H Glenn Research Center, Cleveland, OH	1550 hrs AIAA-2023-4471 Exploring Middle Mile Cargo Operations with Urban Air Mobility Across Metro Areas N. Gunady, S. Vashi, B. Kim, H. Chao, D. DeLaurentis, W. Crossley, Purdue University, West Lafayette, IN	1610 hrs AIAA-2023-4472 Performance Analysis of an electrically powered General Aviation Aircraft using parallelized automated Mission Simulations L. Hein, P. Panchal, D. Surmann, S. Myschik, Universitat der Bundeswehr Munchen, Neubiberg, Germany			
Thursday, 15 June 2023					
EATSWATCH2 1530 - 1700 hrs	EATS Virtual Session II Watch Room				Gaslamp A
Virtual Watch Party room for the EATS virtual session.					
Thursday, 15 June 2023					
F360-12 1530 - 1700 hrs	Flight Testing in the Age of Electric Propulsion: Lessons from the Flight Test Pioneers				Grand Hall A-C
A panel of pioneering professional flight test pilots and flight test engineers shares their lessons learned from testing novel and innovative electrically-propelled aircraft. As professional flight testers, they bring their flight test experiences from conventionally-powered aircraft to the new world of electric aviation and share					

their hard-learned lessons with the community. Understanding how to plan for electric energy storage systems compared with fuel systems, electric powerplants compared to reciprocating or turbine engines, and displaying and interpreting the state of the electric powerplant compared to traditional ones are but a few of the topics that the panel may discuss. A question-and-answer session will allow the community to learn from these flight test pioneers.

Moderator: Herb Schlickemaier, HS Advanced Concepts

Peter Schmidt, Transcend Air Corporation

Erika Holtz, Harbour Air

Jen Uchida, AeroTEC

Pat Anderson, VerdeGo

Alex Kroll, Universal Hydrogen

Thursday, 15 June 2023

FD-40	Flow Control Devices and Applications	Virtual
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Chaired by: P. UPADHYAY, NASA Glenn Research Center

1530 hrs AIAA-2023-4433 Study on the Influence of Vortex Generator on Aerodynamic and Stealth Characteristics of Serpentine Inlet H. Xiang, Q. Yang, X. Wang, J. Fan, Northwestern Polytechnical University, Xi'an, China	1530 hrs AIAA-2023-4434 Dynamics Simulation of Water Droplet with Plasma Actuation Based on OpenFoam Z. Chen, X. Meng, W. Hui, Northwestern Polytechnical University School of Aeronautics, Xi'an, China; H. Gu, D. Zhu, Shenyang Key Laboratory of Aircraft Icing and Ice Protection, Shenyang, China	1530 hrs AIAA-2023-4435 Experimental and Numerical Investigation of Subsonic Free Jet Controlled by Air Tabs N. Kumar, Indian Institute of Technology Kharagpur, Kharagpur, India; V. Pannerselvam, Indian Institute of Technology Madras, Chennai, India; S. Thanigaarasu, Madras Institute of Technology, Chennai, India; K. Sinhamahapatra, Indian Institute of Technology Kharagpur, Kharagpur, India	1530 hrs AIAA-2023-4436 Study of 3D Flapped Coflow Jet Wings for Ultra-High Cruise Lift Coefficient J. Jeon, B. McBreen, Y. Ren, G. Zha, University of Miami, Coral Gables, FL	1530 hrs AIAA-2023-4437 Evolution of a Synthetic Jet with Triangular Orifice Geometry at Varying Skew Angles in a Laminar Boundary Layer T. Guha, Indian Institute of Technology Kanpur, Kanpur, India; M. Amitay, Rensselaer Polytechnic Institute, Troy, NY	
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Thursday, 15 June 2023

FD-41	Wings and Airfoils	Virtual
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Chaired by: C. YEH, North Carolina State University

1530 hrs AIAA-2023-4438 Dynamics of a strake vortex interaction with the turbulent boundary layer of a two-element airfoil N. Rathje, Technische Universität Braunschweig, Braunschweig, Germany; P. Ströer, Deutsches Zentrum für Luft- und Raumfahrt DLR Standort Göttingen, Göttingen, Germany; A. Weiner, Technische	1530 hrs AIAA-2023-4439 Optimal Operation of the NACA0012-IK30 Airfoil E. Camacho, Universidade de São Paulo, São Carlos, Brazil; A. Silva, Universidade da Beira Interior, Covilhã, Portugal; F. Marques, Universidade de São Paulo, São Carlos, Brazil	1530 hrs AIAA-2023-4440 Aerodynamics and aeroacoustics studies of VAWT; computational studies using LES M. Ilie, J. Havenar, Georgia Southern University, Statesboro, GA	1530 hrs AIAA-2023-4441 Evaluation of Turbulence Models with Quadratic Constitutive Relation for Prediction of Wing-Body Junction Flow B. Thomas, R. Agarwal, Washington University in St Louis, St Louis, MO		
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Universität Braunschweig, Braunschweig, Germany; T. Knopp, Deutsches Zentrum für Luft- und Raumfahrt DLR Standort Gottingen, Gottingen, Germany; R. Radespiel, Technische Universität Braunschweig, Braunschweig, Germany					
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Thursday, 15 June 2023

HSABP-10/INPSI-10	High-Speed Inlets, Isolators, and Nozzles III	Virtual
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Chaired by: S. BENTON, Air Force Research Laboratory and F. STRAUSS, DLR - German Aerospace Center

1530 hrs AIAA-2023-4442 Effects of non-uniform inflow to side- and central- spillage bump inlets Y. Zonghan, North China University of Technology, Beijing, China; H. Huang, Y. Yuan, China Academy of Launch Vehicle Technology, Beijing, China	1530 hrs AIAA-2023-4443 A geometrical-irregular boundary layer suction method for hypersonic flow distortion suppression Y. Lei, G. Huang, X. Yan, R. Wang, Z. Yu, Nanjing University of Aeronautics and Astronautics College of Energy and Power Engineering, Nanjing, China	1530 hrs AIAA-2023-4444 Comprehensive assessments of hypersonic inlet restart using active jet Y. Jin, W. Yao, Chinese Academy of Sciences, Beijing, China	1530 hrs AIAA-2023-4445 Multi-Objective Optimization of Arbitrary Supersonic Intake Based on Axiomatic Design Theory using Kriging/MOGA J. Singh Sandhu, M. Bhardwaj, A. Sharma, N. Ananthkrishnan, Yanxiki Tech, Pune, India; I. Park, Agency for Defense Development, Daejeon, South Korea	1530 hrs AIAA-2023-4446 Diagnostic Investigation of Fluid Flow Characteristics of Aerospoke Nozzles During Streamtube Compression and Shock Wave Generation at Various Pressure Ratios S. Sundaria, A. Bhagat, M. Reza, Amity University, Noida, India; V. Sanal Kumar, Vikram Sarabhai Space Centre, Thiruvananthapuram, India	1530 hrs AIAA-2023-4447 Experimental Investigation of Surface Roughness on the Flowfield and Aero- acoustics of Converging Nozzles M. Chen, H. Power, E. Stults, A. Mohan, R. Baby, NC State University, Raleigh, NC
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Thursday, 15 June 2023

MDO-18	Topics in Multidisciplinary Design Optimization	Virtual
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Chaired by: A. FELDSTEIN, Aurora Flight Sciences, A Boeing Company and A. DE LA GARZA, Lockheed Martin Aeronautics

1530 hrs AIAA-2023-4448 High-dimensional efficient global optimization using both random and supervised embeddings R. Priem, Direction Générale de l'Armement Maitrise de l'Information, Bruz, France; N. Bartoli, ONERA Traitement de l'information et systemes, Toulouse, France; Y. Diouane, Polytechnique Montreal Departement de Mathematiques et de Genie Industriel, Montreal, Canada; S. Dubreuil, P. Saves, ONERA	1530 hrs AIAA-2023-4449 Multifidelity Framework for the Efficient Identification of Damages in Complex Aerospace Systems F. Di Fiore, P. Berri, L. Mainini, Politecnico di Torino, Torino, Italy	1530 hrs AIAA-2023-4450 Model-based Multidisciplinary Systems Design Optimization of a Novel Solar Multi-Purpose Drone Helicopter (SMPCOPTER) A. Bataleblu, Libera Universita di Bolzano, Bolzano, Italy; A. Abedini, KN Toosi University of Technology, Tehran, Iran	1530 hrs AIAA-2023-4451 Shape Optimization of Hypersonic Lifting Vehicles Via Convex Relaxation D. Berkenstock, J. Alonso, L. Lessard, Stanford University, Stanford, CA		
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Traitement de l'information et systemes, Toulouse, France					
Thursday, 15 June 2023					
MST-7	Modeling and Simulation, Reliability, and Certification				Virtual
Chaired by: A. ELMILIGUI, NASA Langley Research Center and G. CHATTERJI, Crown Consulting, Inc.					
1530 hrs AIAA-2023-4452 An Aeroelastic Flight Dynamics Model for Gust Load Alleviation of Energy-Efficient Passenger Airplanes Y. Beyer, Technische Universität Braunschweig Institut für Flugführung, Braunschweig, Germany; D. Cavaliere, Deutsches Zentrum für Luft- und Raumfahrt DLR Institut für Flugsystemtechnik, Braunschweig, Germany; K. Bramsiepe, K. Khalil, A. Bauknecht, Technische Universität Braunschweig Institut für Strömungsmechanik, Braunschweig, Germany; N. Fezans, Deutsches Zentrum für Luft- und Raumfahrt DLR Institut für Flugsystemtechnik, Braunschweig, Germany; et al.	1530 hrs AIAA-2023-4453 Simulator Based mission optimization for swarm UAVs with Minimum Safety Distance Between Neighbors X. Xu, Purdue University, West Lafayette, IN; J. Sun, West Lafayette High School, West Lafayette, India; H. Hu, Purdue University, West Lafayette, IN	1530 hrs AIAA-2023-4454 Impact of Various Spacecraft Mass Fractions Over Spacecraft Reliability M. Biswal M, Grahaa Space, Bengaluru, India	1530 hrs AIAA-2023-4455 Towards Development of a Dynamic Soaring Capable UAV using Reinforcement Learning J. Adamski, V. Golubev, S. Gudmundsson, Embry-Riddle Aeronautical University, Daytona Beach, FL; F. Kuznetsov, Moskovskij aviacionnyj institut nacional'nyj issledovatel'skij universitet, Moskva, Russia	1530 hrs AIAA-2023-4456 Aircraft Flat-Spin Recovery with Noisy Feedback Using Robust Control S. Salahudden, J. Sanwale, D. Giri, A. Ghosh, Indian Institute of Technology Kanpur, Kanpur, India	1530 hrs AIAA-2023-4457 A Synthetic Airspeed Algorithm on Frequency Domain V. Veras, Embraer SA, São Jose dos Campos, Brazil; L. Goes, Instituto Tecnológico de Aeronautica, São Jose dos Campos, Brazil
Thursday, 15 June 2023					
TF-18/PDL-7/ASE-4/SR-3/SPSN-4	General Topics in Aviation II Virtual Session				Virtual
1530 hrs AIAA-2023-4413 Collision Severity Analysis of Quadrotors on Covered Linkways for Ground Risk Assessment in Urbanized Environments M. Che Man, A. Sivakumar, Nanyang Technological University Air Traffic Management Research Institute, Singapore, Singapore; N. Jingwei, K. Low,	1530 hrs AIAA-2023-4414 Simulation of laser induced breakdown and heating of oxygen gas K. Croft, G. Ashe, T. Moeller, The University of Tennessee Space Institute, Tullahoma, TN	1530 hrs AIAA-2023-4415 A Particle-Based Direct Numerical Simulation Model for Turbulence-Cloud-Aerosol Interactions A. Sharfuddin, F. Ladeinde, Stony Brook University, Stony Brook, NY	1530 hrs AIAA-2023-4416 Sanal Flow Choking and/or Sonic-fluid-throat Effect Reconfirms the Chapman–Jouguet Condition of Detonation Propagation and Ceases V. Sanal Kumar, Vikram Sarabhai Space Centre, Thiruvananthapuram, India; R. Sharma, V. Dekkala, S. Sharma, Amity University,	1530 hrs AIAA-2023-4417 Shock Standoff Distance in Viscous Hypersonic Flows around a Blunt Body H. Khatri, L. Zhang, The University of Texas at Arlington College of Engineering, Arlington, TX	

Nanyang Technological University School of Mechanical and Aerospace Engineering, Singapore, Singapore			Noida, India; V. Rajendran, University of New South Wales Canberra at ADFA, Canberra, Australia; V. Sankar, Indian Institute of Science, Bengaluru, India; et al.		
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Thursday, 15 June 2023

UAS-9	Autonomy for Advanced Air Mobility Systems & Systems Design	Virtual
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Chaired by: M. VELEV, Aries Design Automation, LLC

1530 hrs AIAA-2023-4458 Dynamic Modeling and Control of Cross-shaped Quadrotor UAV Under Wind Disturbance Z. Ningtai, M. Shan, Beijing Institute of Technology, Beijing, China	1530 hrs AIAA-2023-4459 Improving the Safety of Unmanned Aerial Systems for Commercial Operations O. Abouzahr, J. Jacob, Oklahoma State University College of Engineering Architecture and Technology, Stillwater, OK	1530 hrs AIAA-2023-4460 Dynamic Soaring Turbulence Rejection – A New Formulation B. Swaminathan, Indian Institute of Technology Madras, Chennai, India			
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Thursday, 15 June 2023

VSTOL-6	V/STOL Virtual Session	Virtual
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Chaired by: D. FINGER, Airbus Defence and Space and M. CALVERT, U. S. Army Combat Capabilities Development Command – Aviation and Missile Center

1530 hrs AIAA-2023-4461 Extended Sliding Mode Control Scheme for a VTOL UAV with Time-Varying Disturbances I. Imran, A. Memom, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia; D. Kurtulus, Orta Dogu Teknik Universitesi, Ankara, Turkey; S. Goli, L. Alhems, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia	1530 hrs AIAA-2023-4462 Optimizing Propeller Separation Distance to Enhance Multi-rotor UAV Aerodynamics S. Dougherty, C. Barr, T. Nankivell, Z. Goggin, N. Oo, D. Zhao, University of Canterbury, Christchurch, New Zealand	1530 hrs AIAA-2023-4463 Experimental and Numerical Studies of the Multirotor Overlapping Effect on Aerodynamic Performances of Small-size UAVs X. Liu, D. Zhao, N. Oo, University of Canterbury, Christchurch, New Zealand	1530 hrs AIAA-2023-4464 Model-Based Control Reconfiguration of a Multirotor UAV using Online System Identification by Sparse Regression (SINDYc) B. Kelm, S. Myschik, Universitat der Bundeswehr Munchen, Neubiberg, Germany		
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Thursday, 15 June 2023

WATCH3 1530 - 1700 hrs	Thursday Virtual Session Watch Rooms	Virtual Session Watch Rooms
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Please visit the following rooms if you would like to utilize space to watch virtual technical paper sessions. This space will be open to anyone who would like to use it, so you will need your own computer and headphones to watch the session of your choice.

Balboa A Balboa B Balboa C La Jolla A La Jolla B Old Town A Old Town B

Thursday, 15 June 2023		
AA-63 1730 - 1830 hrs	2023 AIAA Aeroacoustics Keynote Lecture	Grand Hall A-C
Speaker: Barbara Esker, NASA HQ Title: "NASA Aeronautics Vision for Transforming Aviation – Aeroacoustics Challenges and Opportunities" The Hybrid Anechoic Tunnel Workshop is a forum that brings together researchers interested in hybrid anechoic aeroacoustic wind tunnels and their application. A major goal is to develop common test cases that can be used to cross validate hybrid anechoic wind tunnels as well as provide data on canonical test cases to the broader aeroacoustics community.		
Thursday, 15 June 2023		
FT-10 1730 - 1830 hrs	Chanute Flight Test Award Lecture	Harbor B
The 2023 Winner of the Chanute Flight Test Lifetime Achievement award will be giving a presentation on his career. Presenter: Forger (Mark) Stucky Title: "Separating the Real Risks From the Imagined -- a Test Astronaut's Odyssey"		
Friday		
Friday, 16 June 2023		
SP-5 0730 - 0800 hrs	Technical Papers Session Prep	Session Rooms
Authors who are presenting papers will meet with session chairs and co-chairs in their session rooms for a short 30-minute prep on the day of their sessions to exchange bios and review final details prior to the session. Please attend on the day of your session(s).		
Friday, 16 June 2023		
PLNRY-5 0800 - 0900 hrs	Opening Keynote: To a Faster Future	Grand Hall A-C
Lt. Col. Joshua Burger, Air Vehicle Program Manager for the Next Air Force One and former Vector Initiative Director, will reflect on military and commercial aviation requirements, opportunities, synergy, partnerships, and accelerants. Aviation is the number one U.S. export and provides the U.S. military with a decisive advantage in any conflict. Our nation's leadership in this sector will continue to be underwritten by the synergy between commercial and military endeavors. Our path "To A Faster Future" will require trust, partnership, and a unified vision. Lt Col Joshua Burger, VC-25B Air Vehicle Program Manager, US Air Force		
Friday, 16 June 2023		
NW-10 0900 - 0930 hrs	Networking Break	Foyers
Coffee breaks allow even more time for making new contacts, continuing discussions from sessions, visiting the Exposition Hall, or checking emails and voicemails to keep in touch with the office while you are at the forum.		
Friday, 16 June 2023		
AA-53	Airframe / High-Lift Noise V	Cortez Hill B
Chaired by: M. KHORRAMI, NASA Langley Research Center and W. HUMPHREYS, NASA Langley Research Center		

0930 hrs AIAA-2023-4477 Evaluation of the Noise Reduction Potential of a Krueger Flap High-Lift device via the Lattice Boltzmann Method M. Soni, R. Ewert, J. Dierke, J. Delfs, Deutsches Zentrum für Luft- und Raumfahrt eV, Braunschweig, Germany	0950 hrs AIAA-2023-4478 A Numerical Study on Noise Generation Caused by Slat Tracks K. Yamamoto, Japan Aerospace Exploration Agency, Chofu, Japan; K. Tanaka, T. Hirai, Ryoyu Systems Company, Ltd., Nagoya, Japan; M. Murayama, Japan Aerospace Exploration Agency, Chofu, Japan	1010 hrs AIAA-2023-4479 Aircraft Noise Reduction Study on Inboard Slat-Tip Region M. Murayama, K. Yamamoto, M. Kohzai, Uchu Koku Kenkyu Kaihatsu Kiko Honsha Chofu Kuko Uchu Center, Chofu, Japan; T. Hirai, Ryoyu Systems Company, Ltd., Nagoya, Japan; Y. Ueno, K. Isotani, Kawasaki Jukogyo Kabushiki Kaisha, Kakamigahara, Japan; et al.	1030 hrs AIAA-2023-4480 Krueger Noise Generation and its Comparison to Slat Noise M. Pott-Pollenske, J. Delfs, Deutsches Zentrum für Luft- und Raumfahrt eV, Braunschweig, Germany	1050 hrs AIAA-2023-4481 Experimental and Computational Characterization of Canonical Side-Edge Noise S. Baba, G. Deng, P. Lavoie, University of Toronto Institute for Aerospace Studies, North York, Canada; S. Moreau, Université de Sherbrooke, Sherbrooke, Canada; O. Stalnov, Technion Israel Institute of Technology, Haifa, Israel	1110 hrs AIAA-2023-4482 Experimental study on the oscillation of the shear layer of the slat cavity for 30P30N Multi-Element High-Lift Airfoil R. Wei, Y. Liu, Southern University of Science and Technology, Shenzhen, China; X. Li, Beihang University, Beijing, China; H. Zhang, Southern University of Science and Technology, Shenzhen, China
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Friday, 16 June 2023

AA-54	Jet Aeroacoustics IX: Numerical Prediction	Harbor B
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Chaired by: D. ALVORD, GTRI

0930 hrs AIAA-2023-4483 Non-linear Galerkin reduced-order models of a mixing layer A. Cavaleri, Instituto Tecnológico de Aeronautica, São Jose dos Campos, Brazil	0950 hrs AIAA-2023-4484 ZDES of jets aeroacoustics: recent progress with unstructured grids and challenges F. Gand, Office National d'Etudes et de Recherches Aérospatiales, Meudon, France; M. Huet, Office National d'Etudes et de Recherches Aérospatiales, Châtillon, France; T. Renaud, F. Sartor, Office National d'Etudes et de Recherches Aérospatiales, Meudon, France	1010 hrs AIAA-2023-4485 Assessment of Jet Flap Interaction using Wall Modelled LES A. Barnes, H. Xia, G. Page, Loughborough University, Loughborough, United Kingdom; A. Au, Aircraft Research Association Ltd, Bedford, United Kingdom			
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Friday, 16 June 2023

AA-55	Jet Aeroacoustics X: Screech and Impingement Tones	Harbor C
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Chaired by: D. GELY, ONERA

0930 hrs AIAA-2023-4486 Screech and Coupling in Heated Supersonic Rectangular Twin Jets - Active Control R. Leahy, K. Katterle, A. Yarlagadda, N. Webb, M.	0950 hrs AIAA-2023-4487 The phenomenon of amplitude modulation of screech tones C. Tam, M. AbuShoshah, Florida State University, Tallahassee, FL; B. Malla, E.	1010 hrs AIAA-2023-4488 On the waves underpinning screech in rectangular jets P. Nogueira, J. Beekman, J. Weightman, D. Edgington-			
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Samimy, The Ohio State University, Columbus, OH	Gutmark, University of Cincinnati, Cincinnati, OH	Mitchell, Monash University, Clayton, Australia			
Friday, 16 June 2023					
APA-45	Missile/Projectile/Munition Aerodynamics				Torrey Hills B
Chaired by: M. GHOREYSHI, United States Air Force Academy and M. CONWAY, The Aerospace Corporation					
0930 hrs AIAA-2023-4493 Flight Control of the Kinzhal Missile Using Energy Deposition D. Knight, Rutgers The State University of New Jersey, New Brunswick, NJ	0950 hrs AIAA-2023-4494 Aerodynamic Characterization and Trajectory Simulations for a Store Separating from a Cavity E. Smith, R. Kumar, Florida State University, Tallahassee, FL; T. Eymann, Air Force Research Laboratory, Wright-Patterson AFB, OH	1010 hrs AIAA-2023-4495 Effects of Threadlike Roughness on a High-Slenderness Finned Projectile at Supersonic Speeds S. Michalski, R. Hruschka, French-German Research Institute of Saint-Louis, Saint-Louis, France; M. Breuer, Helmut-Schmidt-Universität Hamburg, Hamburg, Germany; D. Klatt, M. Bastide, French-German Research Institute of Saint-Louis, Saint-Louis, France	1030 hrs AIAA-2023-4496 Aerodynamic Identification of Noncircular Cross-Section Missile Configurations M. Ghoreyshi, J. Metzler, N. Shumway, J. Seidel, US Air Force Academy, USAF Academy, CO	1050 hrs AIAA-2023-4497 Experimental Study of an Air-to-Ground Store Release from a Jet-Fighter Weapons Bay in Transonic Flow Conditions H. Ben-Gida, Israeli Air Force, Tel Aviv, Israel	
Friday, 16 June 2023					
APA-46	Special Session: X-59 Probe Calibration				Hillcrest D
Chaired by: J. FLAMM, NASA Langley Research Center and C. WINSKI, NASA Langley Research Center					
0930 hrs 3851116 Overview of the X-59 Quesst Phase I Mission and Air Data Probe Calibration Efforts J. Flamm, C. Winski, A. Elmilgui, M. Bozeman, L. Mears, NASA Langley Research Center, Hampton, VA; K. Long, NASA Ames Research Center, Moffett Field, CA; et al.	0950 hrs AIAA-2023-4491 X-59 Air Data Probe Calibration Wind Tunnel Test C. Winski, M. Bozeman, A. Elmilgui, J. Flamm, L. Mears, NASA Langley Research Center, Hampton, VA; K. Long, NASA Ames Research Center, Moffett Field, CA; et al.	1010 hrs AIAA-2023-4492 Measurement Accuracy and Uncertainty Analysis of the X-59 Air Data Probe Calibration Test Entry One D. Friedlander, M. Bozeman, A. Elmilgui, J. Flamm, L. Mears, C. Winski, NASA Headquarters, Washington, D.C.; et al.	1030 hrs 3839838 FUN3D and USM3D Analyses in Support of the X-59 Pitot Probe Wind Tunnel Test M. Bozeman, A. Elmilgui, J. Flamm, L. Mears, C. Winski, NASA Langley Research Center, Hampton, VA	1050 hrs 3899337 This paper documents the development of neural net algorithms used to calibrate the X-59 air data system nose probe, using wind tunnel data K. Long, C. Guy, NASA Armstrong Flight Research Center, Edwards, CA; C. Winski, A. Elmilgui, M. Bozeman, NASA Langley Research Center, Hampton, VA; D. Friedlander, NASA John H Glenn Research Center, Cleveland, OH; et al.	
Friday, 16 June 2023					
ATS-19	Machine Learning and AI III				Harbor D
Chaired by: Z. WANG, University of Tennessee and S. AYYALASOMAYAJULA, BueHalo					

0930 hrs AIAA-2023-4498 QAR Data-Driven Calibration of Physics-based Aircraft Performance Models using a Machine-Learning Approach M. del Pozo Dominguez, MCA Groupe, Madrid, Spain; J. Lopez Leones, Boeing Research & Technology - Europe, Madrid, Spain; P. Roling, Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek, Delft, The Netherlands	0950 hrs AIAA-2023-4499 Autonomous Landing of eVTOL Vehicles via Deep Q-Networks S. Deniz, Y. Wu, Y. Shi, Z. Wang, The University of Tennessee Knoxville Tickle College of Engineering, Knoxville, TN	1010 hrs AIAA-2023-4500 UAM Demand Capacity Modeling through Ensemble Learning S. Ayyalasomayajula, S. Lavenstein, K. Vlachou, D. Miller, S. Kozak, BlueHalo, Rockville, MD			
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Friday, 16 June 2023

EATS-29	Electrified Aircraft Propulsion, Architectures & Systems Integration II	Gaslamp C
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Chaired by: G. CINAR, University of Michigan

0930 hrs AIAA-2023-4501 Impact of Technological Uncertainty on Design Parameter Selection of the NASA Parallel Hybrid-Electric Propulsion EPFD Vehicle R. Gautier, L. Teta, J. Uzodinma, T. Pattanayak, M. Walter, T. Zaidi, Georgia Institute of Technology, Atlanta, GA; et al.	0950 hrs AIAA-2023-4502 A Comparison of Hybrid Electric Propulsion Architectures for Civil Aircraft J. Gladin, J. Kenny, J. Decroix, E. Aydin, A. Burrell, N. Ganzarski, Georgia Institute of Technology, Atlanta, GA; et al.	1010 hrs AIAA-2023-4503 System-Level Design Space Exploration of a Parallel Hybrid Propulsion System for a Regional Short Takeoff and Landing Turboprop Aircraft Y. Cai, J. Xie, J. Brooks, J. Gladin, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1030 hrs AIAA-2023-4504 Sensitivity Analysis within the Benefit Region of the NASA Parallel Hybrid-Electric Propulsion EPFD Vehicle M. Walter, J. Uzodinma, T. Zaidi, R. Gautier, L. Teta, D. Mavris, Georgia Institute of Technology, Atlanta, GA		
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Friday, 16 June 2023

EATS-30	Power Electronics, Electric Machines and Drives II	Gaslamp D
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Chaired by: P. DE BOCK, Advanced Research Projects Agency - Energy and A. PROVENZA, NASA Glenn Research Center

0930 hrs AIAA-2023-4505 Concept Design of a 5 MW Partially Superconducting Generator T. Tallerico, A. Anderson, J. Scheidler, R. Jansen, W. Sixel, NASA Headquarters, Washington, D.C.	0950 hrs AIAA-2023-4506 Design Studies on Mechanically Geared, Magnetically Geared, and Direct Drive Drivetrains for UAM Applications	1010 hrs AIAA-2023-4507 Scaling Electric Machines to a Megawatt and Material Options A. Woodworth, W. Sixel, T. Williams, W. Fuchs, M. Kelly, D. Santiago, NASA John H Glenn Research Center, Cleveland, OH; et al.			
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	T. Tallerico, J. Chapman, A. Smith, NASA Headquarters, Washington, D.C.				
Friday, 16 June 2023					
EATS-31	System Dynamics, Modeling, & Control II				Golden Hill A
Chaired by: J. GLADIN, Georgia Tech (ASDL)					
0930 hrs AIAA-2023-4508 Optimal Route Planning and Power Management for Hybrid UAV Using A* Algorithm J. Jadischke, M. Wolff, Wright State University, Dayton, OH; J. Zumberge, B. Hencsey, A. Ngo, Air Force Research Laboratory, Wright-Patterson AFB, OH	0950 hrs AIAA-2023-4509 Graph-based Hierarchical Control of Electrified Aircraft Systems with Automated Timescale Decomposition Y. Yu, S. Park, D. Huang, H. Pangborn, The Pennsylvania State University, University Park, PA	1010 hrs AIAA-2023-4510 Total Energy Flight Control Architecture Optimization for a Tilt-Wing Aircraft A. Comer, I. Chakraborty, Auburn University, Auburn, AL	1030 hrs AIAA-2023-4511 A Generalized Full-Envelope Outer-Loop Feedback Linearization Control Strategy for Transition VTOL Aircraft L. Panish, M. Bacic, University of Oxford, Oxford, United Kingdom		
Friday, 16 June 2023					
F360-13 0930 - 1130 hrs	Toward the Next-Gen Military Aviation Fleet				Grand Hall A-C
Military aviation is a critical component of modern military operations, providing strategic and tactical advantages for defense and security. With the rapid advancements in technology and the increasing complexity of military operations, the need for a next-generation military aviation fleet is becoming increasingly important. In this session, we will explore the latest trends and developments in military aviation and the roadmap towards the next-generation military aviation fleet. Our expert panelists will discuss the emerging technologies and innovations, such as advanced materials, propulsion systems, avionics, and unmanned aerial vehicles, and their potential impact on military aviation. We will also discuss the challenges and opportunities associated with the integration of new technologies into the military aviation fleet, including the importance of ensuring interoperability and maintaining a balance between capability and affordability. Moderator: Laurette Lahey, Senior Director of Flight and Vehicle Technology, Boeing Research and Technology Dr. Greg Addington – Chief Strategist, Air Vehicles Division, AFRL Larry Branthoover, PEO(T) APEO Science and Technology, NAVAIR Mr. Joseph Kendall, Deputy to the Air Combat Command Chief Scientist, United States Air Force Dr. Mahendra Bhagwat, Senior Research Scientist, Airvehicle Aerodynamics and Preliminary Design, Technology Development Directorate, U.S. Army Combat Capabilities Development Command Aviation & Missile Center Dr. Venke Sankaran, Chief Scientist of Aerospace Systems Directorate, AFRL CAPT Loren Jacobi, CNAF N8 / Force Requirements Officer, US Navy					
Friday, 16 June 2023					
EATS-KN3 1115 - 1215 hrs	EATS Keynote Presentation: ASCEND Main Results and Perspectives				Harbor E
Cooling at cryogenic temperature conventional electric components and using high temperature superconducting technologies are promising to significantly increase performance of electric propulsion systems especially with liquid hydrogen on board. With ASCEND (Advanced Superconducting and Cryogenic Experimental powertrain Demonstrator), AIRBUS UpNext intends to demonstrate the feasibility and the potential of a cryogenic and superconducting powertrain to breakthrough aircraft electric propulsion. Started in 2021, 6 main components have been developed and are currently being tested: a superconducting DC distribution with protection, a cryogenic power electronics, a superconducting AC cable, a superconducting motor, a cryo-cooling system and a powertrain monitoring & control. All these components are currently step by step integrated and tested in a specific test bench in Airbus Ottobrunn, Germany from January					

2022. The results and tests will support decision making-process for the type of propulsion system for future aircraft. This talk will be focused on the progress of the project by presenting the different components of the demonstrator and the first test results. Ludovic Ybanez, Airbus UpNext

Friday, 16 June 2023

AA-57	Acoustic / Fluid Dynamics Interactions V	Cortez Hill B
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Chaired by: R. ZAMPONI, Delft University of Technology and B. HENDERSON, NASA Glenn Research Center

1300 hrs AIAA-2023-4512 Direct Numerical Simulation of Installation Effects on Control Diffusion Airfoil Noise Z. Ziyang, S. Moreau, Universite de Sherbrooke, Sherbrooke, Canada; M. Sanjosé, Ecole de technologie superieure Departement de genie mecanique, Montreal, Canada	1320 hrs AIAA-2023-4513 Comparison of Leading Edge Noise Measurements of an Airfoil in Two Wind Tunnel Facilities R. Kisler, C. Jiang, University of New South Wales, Sydney, Australia; V. Valeau, Universite de Poitiers, Poitiers, France; D. Moreau, C. de Silva, C. Doolan, University of New South Wales, Sydney, Australia	1340 hrs AIAA-2023-4514 Investigation of the far field pressure pulse generated by vortex- wedge interaction using Howe's acoustic analogy M. Spiropoulos, F. Margnat, V. Valeau, P. Jordan, Universite de Poitiers, Poitiers, France			
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Friday, 16 June 2023

AA-58	Jet Aeroacoustics XI: Noise Reduction	Harbor B
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Chaired by: D. PAPAMOSCHOU, University of California Irvine

1300 hrs AIAA-2023-4515 Noise Reduction by Lowering the Jet Mach Number at Fixed Thrust and Mass Flow J. Liu, US Naval Research Laboratory, Washington, D.C.	1320 hrs AIAA-2023-4516 Jet-noise reduction by streak-generating tabs F. Amaral, B. Hasparyk, A. Lebedev, D. Eysseric, National Center for Scientific Research (CNRS), Poitiers, France; A. Cavalieri, I. Maia, Instituto Tecnologico de Aeronautica, São Jose dos Campos, Brazil; et al.	1340 hrs AIAA-2023-4517 Comparative High-Fidelity Studies of Supersonic Rectangular and Round Jet Nozzle Flow M. Marques Goncalves, Embry-Riddle Aeronautical University, Daytona Beach, FL; S. Salehian, Tuskegee University, Tuskegee, AL; S. Singh, V. Golubev, A. Lyrantzis, R. Mankbadi, Embry-Riddle Aeronautical University, Daytona Beach, FL	1400 hrs AIAA-2023-4518 Resolvent analysis based jet-noise-reduction of a biconical tactical jet nozzle. S. Murthy, D. Bodony, University of Illinois Urbana- Champaign, Urbana, IL	1420 hrs AIAA-2023-4519 Jet Noise Reduction: A Fresh Start C. Tam, Florida State University, Tallahassee, FL; F. Hu, Old Dominion University, Norfolk, VA	
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Friday, 16 June 2023

AA-59/TF-20	Propeller, Rotorcraft and V/STOL Noise X: UAM/AAM (joint AA/TF)	Harbor A
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Chaired by: L. ENGHARDT, DLR - German Aerospace Center and S. RIZZI, NASA Langley Research Center

1300 hrs AIAA-2023-4520 Hovering Medium Sized UAM Rotor Noise	1320 hrs AIAA-2023-4521 Acoustic Liners Integrated in Rotor Blades of Unmanned Air Vehicles	1340 hrs AIAA-2023-4522 Acoustic Predictions for Side-by-Side Air Taxi in Full Configuration	1400 hrs AIAA-2023-4523 Aerodynamic and Sound- Scattering Effects in Rotor-	1420 hrs AIAA-2023-4524 Aeroacoustics of drones J. Lauzon, J. Vincent, Y. Pasco, F. Grondin, S. Moreau,	
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Experiments and Multifidelity Predictions A. Truong, Bell Textron Inc, Hurst, TX; C. Johnson, J. Sirohi, The University of Texas at Austin Cockrell School of Engineering, Austin, TX	S. Montoya-Ospina, ISAE-SUPAERO, Toulouse, France; F. Simon, Office National d'Etudes et de Recherches Aeronautiques, Toulouse, France; R. Gojon, H. Parisot-Dupuis, ISAE-SUPAERO, Toulouse, France	J. Sagaga, S. Lee, University of California Davis, Davis, CA	Strut Interaction Noise of Small-Size Drones M. Roger, Ecole Centrale de Lyon, Ecully, France; E. Vella, Institut National des Sciences Appliquees de Lyon, Villeurbanne, France; J. Rendon, S. Moreau, Universite de Sherbrooke, Sherbrooke, Canada	Universite de Sherbrooke Faculte de Genie, Sherbrooke, Canada	
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Friday, 16 June 2023

APA-47	Airfoil/Wing/Configuration Aerodynamics II			Hillcrest C	
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Chaired by: A. ASHLEY, Lockheed Martin Aeronautics and T. CHAU, NASA Ames Research Center

1300 hrs AIAA-2023-4525 Numerical Simulation of An Aspect Ratio 13.5 Common Research Model with Trailing Edge Mini-Flaps J. Xiong, KBR Inc, Moffett Field, CA; N. Nguyen, NASA Ames Research Center, Moffett Field, CA; R. Bartels, NASA Langley Research Center, Hampton, VA	1320 hrs AIAA-2023-4526 Wingtip Vortices Characterization with Perspective Upright Correction J. Chan, H. Hesse, University of Glasgow, Singapore; P. Wang, Singapore Institute of Technology, Singapore, Singapore	1340 hrs AIAA-2023-4527 Aerodynamics Flapping-Flight Robotic Bird using Unsteady Lifting-Line Method H. Hoeijmakers, Universiteit Twente, Enschede, The Netherlands	1400 hrs AIAA-2023-4528 Simulations of Mach 0.8 Transonic Truss-Braced Wing Aircraft Aerodynamics at High Angles of Attack J. Xiong, KBR Inc, Moffett Field, CA; N. Nguyen, NASA Ames Research Center, Moffett Field, CA		
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Friday, 16 June 2023

ATS-20	Machine Learning and AI IV			Harbor D	
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Chaired by: J. LI, NASA Langley Research Center

1300 hrs AIAA-2023-4529 A Comprehensive Analysis of Machine Learning and Deep Learning Models for Identifying Pilots' Mental States from Imbalanced Physiological Data I. Alreshidi, S. Yadav, I. Moulitsas, K. Jenkins, Cranfield University, Cranfield, United Kingdom	1320 hrs AIAA-2023-4530 Search for Under-Utilized Airspace for eXtensible Traffic Management (xTM) Operations Based on Air Traffic Patterns J. Li, Universities Space Research Association, Moffett Field, CA; M. Xue, P. Lee, NASA Ames Research Center, Moffett Field, CA; P. Pradeep, Universities Space Research Association, Moffett Field, CA	1340 hrs AIAA-2023-4531 Bird Movement Prediction Using Long Short-Term Memory Networks to Prevent Bird Strikes with Low Altitude Aircraft E. Sabziyan Varnousfaderani, S. Shihab, Kent State University, Kent, OH	1400 hrs AIAA-2023-4532 Preliminary Exploration of Clustering Algorithms to Categorize U.S. Airports by Air Cargo Operations D. Thipphavong, Western Governors University, Salt Lake City, UT		
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Friday, 16 June 2023

EATS-32	Electrical Energy Generation, Storage, & Management II			Gaslamp B	
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Chaired by: N. MACRAE, National Research Council Canada					
1300 hrs AIAA-2023-4533 HIL testing of a Real-Time Propulsion, Thermal and Flight Controller for Hybrid-Electric Regional Aircraft Applications A. Misley, M. D'Arpino, P. Ramesh, The Ohio State University, Columbus, OH	1320 hrs AIAA-2023-4534 Surface Heat Exchanger Assessment for Battery Powered Aircrafts P. König, K. Höschler, V. Haridasu, Brandenburgische Technische Universität Cottbus-Senftenberg, Cottbus, Germany	1340 hrs AIAA-2023-4535 Control logic for a direct hybrid-electric powertrain on a integrated modular avionics device R. Fonk, T. Graf, S. Paessler, C. Bauer, C. Willich, Universität Ulm, Ulm, Germany	1400 hrs AIAA-2023-4536 Dimensioning of a direct fuel cell battery hybrid system for an all-electric aircraft T. Graf, R. Fonk, C. Bauer, C. Willich, Universität Ulm, Ulm, Germany		
Friday, 16 June 2023					
EATS-33	Rolling Recap II				Harbor E
Chaired by: H. SCHLICKENMAIER, HS Advanced Concepts					
Friday, 16 June 2023					
EATS-34	Superconducting, Cryogenic Components, and Systems II				Gaslamp D
Chaired by: M. STOIA, The Boeing Company					
1300 hrs AIAA-2023-4537 Static testing of a conductively-cooled, high temperature superconducting rotor for a 1.4 MW electric machine in a thermal vacuum chamber J. Scheidler, E. Stalcup, T. Tallerico, NASA John H Glenn Research Center, Cleveland, OH; T. Mulder, Blue Origin LLC, Kent, WA; W. Torres, Wolf Creek Federal Services, Cleveland, OH; K. Duffy, The University of Toledo, Toledo, OH	1320 hrs AIAA-2023-4538 Evaluation of Switching Characteristics of High Breakdown Voltage GaN-PSJ Transistors at Liquid Nitrogen Temperature M. Deki, H. Kawarabayashi, Y. Honda, H. Amano, Nagoya Daigaku, Nagoya, Japan	1340 hrs AIAA-2023-4539 High Purity Aluminum in Cryogenic Motors for Electric Aircraft H. Kwon, M. Sumption, The Ohio State University, Columbus, OH; T. Haugan, Air Force Research Laboratory, Wright-Patterson AFB, OH; E. Collings, The Ohio State University, Columbus, OH			
Friday, 16 June 2023					
F360-14 1330 - 1415 hrs	Hypersonics				Grand Hall A-C
Hypersonics are currently in the realm of the defense industry and space applications. When we look at supersonic travel, we are at the precipice of commercial supersonic travel if the airframe and engine technologies become available on the market. However, commercial hypersonics face additional challenges and a longer time frame. To short-circuit this, the industry is looking at near-term military applications to help develop solutions that ultimately will address the challenges of hypersonic flight for both civil and military applications. The goal is to unlock the technology needed to develop a vehicle system that is efficient, eco-friendly, and easily integrated into the global air and launch traffic of the future. This panel will discuss the challenges of hypersonic flight, the technology available today for military applications, the technology needed to be developed for tomorrow's military applications and efficient, sustainable hypersonic commercial flight, and the					

policies and regulations needed to be addressed for the integration of hypersonic travel within the global air and launch traffic. Moderator: Natalya Bailey, Curated Innovation Kevin Bowcutt, Boeing Mike Brown, AFRL Dave Arenson, Lockheed Martin Pete Francis, Raytheon					
Friday, 16 June 2023					
F360-15 1415 - 1500 hrs	Supersonics				Grand Hall A-C
High-speed commercial travel has been in the making for the better part of 50 years, starting with the fielding of the Concord SST. In the 1970s, supersonic flight was only allowed over water (over the Atlantic or the Pacific) due to the unpleasant effects of the sonic boom. In addition, propulsion technology was not at a performance and efficiency level that was profitable for the operator or quite enough for airport communities during landing and takeoff. The current second wave of supersonic commercial ventures is banking on numerous innovations, including advancements in materials, aerodynamics, and, in some cases, low boom technology to enable overland flights and enable economic operations. The development of an efficient propulsion system remains both a challenge and a unique opportunity. Along with the innovations required, the policies and regulations of integrating high-speed flight into the commercial air traffic need to be revisited due to today's globally crowded airspace. This panel will discuss the nuances of integrating supersonic flight into commercial traffic as well as the technical challenges of developing efficient and sustainable aircraft and engines that are cost effective for the operator. Moderator: Robbie Cowart, RAC Consulting Peter Coen, NASA Ryan Snell, Boom Supersonic Tom Viars, FTT John Morgenstern, Exosonic					
Friday, 16 June 2023					
NW-11 1500 - 1530 hrs	Networking Break				Foyers
Coffee breaks allow even more time for making new contacts, continuing discussions from sessions, visiting the Exposition Hall, or checking emails and voicemails to keep in touch with the office while you are at the forum.					
Friday, 16 June 2023					
EATS-35	Electrified Aircraft Propulsion, Architectures & Systems Integration III				Gaslamp C
Chaired by: J. GLADIN, Georgia Tech (ASDL)					
1530 hrs AIAA-2023-4540 Evaluation of Technology Gravimetric Index Targets for Zero Emissions Regional Flight A. Kolisnichenko, R. Biga, F. Di Fede, Leonardo SpA, Turin, Italy	1550 hrs AIAA-2023-4541 Simulation of a hybrid electric propulsion used to reduce aircraft asymmetry following a failure. A. Truc-Hermel, C. Maury, Safran Group, Paris, France	1610 hrs AIAA-2023-4542 Benefit Reassessment of Parallel Hybrid Turboprops M. Sielemann, Modelon, Munich, Germany; J. Gohl, Modelon, Inc., Ann Arbor, MI; I. Torstensson, Modelon, Gothenburg, Sweden; D. Bermpers, K. Kyprianidis, Malardalens universitet, Vasteras, Sweden			
Friday, 16 June 2023					

EATS-36	Power Electronics, Electric Machines and Drives III				Gaslamp D
Chaired by: A. WOODWORTH, NASA Glenn Research Center and S. LIU, The Boeing Company					
1530 hrs AIAA-2023-4543 Development of Ultra High Power Density Liquid Metal Cooled Inverter J. Fan, Z. Zhang, S. Shah, J. Wang, A. Agarwal, The Ohio State University, Columbus, OH	1550 hrs AIAA-2023-4544 An AC Solid-State Relay Unit for Electric Machine Step-Load Testing C. Kitzmiller, UES, Inc., Dayton, OH; K. Yost, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH; W. Perdikakis, PC Krause and Associates, Indianapolis, IN	1610 hrs AIAA-2023-4545 Power electronics design for a 50 PAX hybrid-electric regional aircraft M. Meindl, M. Maerz, Friedrich-Alexander-Universitat Erlangen-Nurnberg, Erlangen, Germany; F. Hilpert, C. Bentheimer, Fraunhofer-Institut fur Integrierte Systeme und Bauelementetechnologie IISB, Erlangen, Germany			