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## Monday, 23 January

### 09:00 | International Student Conference Presentations

#### ISC-02 | In Person - Mezzanine 2

##### Use of Naphthalene Sublimation Technique to Study Solid Fuel Regression

Monday, 23 January 09:00 - 09:30 (UTC-5) | AIAA-2023-0008  
Grace A Hall (Virginia Tech Applied Research Corporation)



##### Optimization of Heat Release within a Dual-Mode Ramjet Using Ignition Delay Energy Source Terms

Monday, 23 January 09:30 - 10:00 (UTC-5) | AIAA-2023-0010  
Francis A Centlivre (Wright State University)



##### Thermodynamic analysis of nitric oxide in an optically accessible, temperature-controlled gas cell via laser absorption spectroscopy

Monday, 23 January 10:00 - 10:30 (UTC-5) | AIAA-2023-0011  
Benjamin Steavenson, Joseph Hernandez-McCloskey, Daniel I Pineda (The University of Texas at San Antonio)



##### A Multi-Agent UAS Path-finding Algorithm for UnmannedTraffic Management Operations

Monday, 23 January 10:30 - 11:00 (UTC-5) | AIAA-2023-0012  
Justin Nguyen, Mujahid Abdulrahim (University of Missouri System)



##### Modification of Supersonic to Hypersonic Wind Tunnel by Designing Heat Exchanger for High Enthalpy Reservoir Conditions

Monday, 23 January 11:00 - 11:30 (UTC-5) | AIAA-2023-0013  
Justin Slavick (California Polytechnic State University)



##### Reinforcement learning based Linear quadratic Regulator for the Control of a Quadcopter

Monday, 23 January 11:30 - 12:00 (UTC-5) | AIAA-2023-0014  
Vishal Kashyap, Ranjan Vepa (Queen Mary University of London)



#### ISC-03 | In Person - Mezzanine 1

##### Jovian Autonomous Sailplane for Persistent Exploration and Research (JASPER)

Monday, 23 January 09:00 - 09:30 (UTC-5) | AIAA-2023-0015  
Edward Luthartio, Haley Parker, Joseph Malach, Sydney Kwitowski, Aiman Alobahi, Alexander Hertz, Sayed Asif, Javid Bayandor (University at Buffalo)



(continued) ISC-03 | In Person - Mezzanine 1

Lunar Lava Tube Exploration with CubeRover: Wandering Observer of Lunar Features (WOLF) Rover

Monday, 23 January 09:30 - 10:00 (UTC-5) | AIAA-2023-0016  
Bennett Meyer, Brigid Donohue, Alina Creamer, Manuel Puyana, Felix Ewere (NC State University)



Optimization of Lenz-Type VAWT Geometries with Computational Fluid Dynamics

Monday, 23 January 10:00 - 10:30 (UTC-5) | AIAA-2023-0017  
Dylan M Habig, Timothy Mayer, Trevor Ransbury, Brandon Frymire, Luke McClung, Jamie Canino (Trine University)



Design of the UTSA High-Enthalpy Shock Tube Facility

Monday, 23 January 10:30 - 11:00 (UTC-5) | AIAA-2023-0018  
Joseph Hernandez-McCloskey, Connor Goodman, Daniel I Pineda (The University of Texas at San Antonio)



Design of Large-Scale 3D Printed Components for UAV Cargo Transport

Monday, 23 January 11:00 - 11:30 (UTC-5) | AIAA-2023-0019  
Cody Watson, Caroline Dixon, Nathan Kuczun, Jade Morton (University of Colorado Boulder)



Design of a Lunar Architecture for Tree Traversal in Service of Cabled Exploration

Monday, 23 January 11:30 - 12:00 (UTC-5) | AIAA-2023-0020  
Kaila Coimbra, Calle Junker, Lucas Pabarcus, Malcolm G. A. Tisdale, Sravani Boggaram, Robert Daigle, Nathan Ng, Parul Singh, Tomas Wexler, Soon-Jo Chung (California Institute of Technology)



ISC-01 | In Person - Mezzanine 3

Estimation of UAS Relative Position and Orientation Using Multiple Pairwise Range Measurements

Monday, 23 January 09:00 - 09:30 (UTC-5) | AIAA-2023-0001  
Ezra Bregin (University of Maryland at College Park)



Design, Analysis, and Manufacture of a Vacuum Pump Sound-Dampening Enclosure

Monday, 23 January 09:30 - 10:00 (UTC-5) | AIAA-2023-0003  
Connor Goodman, Joseph Hernandez-McCloskey, Daniel I Pineda (The University of Texas at San Antonio)



Design of an All-Terrain Aerial Robotic Interface (ATARI) as a Collaborative Platform for UAVs

Monday, 23 January 10:00 - 10:30 (UTC-5) | AIAA-2023-0002  
Rebecca Gilligan (University of Cincinnati)



Development and Fabrication of an Ultrasonic MEMS Anemometer for Use in Low-Pressure Environments

Monday, 23 January 10:30 - 11:00 (UTC-5) | AIAA-2023-0006  
Alexander Reilly, Mark Sheplak (University of Florida)







<b>(continued) ISC-01   In Person - Mezzanine 3</b>	
<b>Experimental Verification of the USAFA 1-DOF Dynamic Stability Characterization Capability and Future 3-DOF Cross Coupling Enhancements</b>	
Monday, 23 January 11:00 - 11:30 (UTC-5)   AIAA-2023-0004 Molly Ellinger, Jacob J Szymanski, Casey Fagley (US Air Force Academy)	
<b>Thermal Analysis of Boron/PVDF and Boron Carbide/PVDF Mixtures</b>	
Monday, 23 January 11:30 - 12:00 (UTC-5)   AIAA-2023-0005 Moussa Coulibaly, Joseph Kalman (California State University Long Beach)	
<b>Symmetry-Enforced Coherent Structure Background Oriented Schlieren</b>	
Monday, 23 January 12:00 - 12:30 (UTC-5)   AIAA-2023-0007 Daniel Smith (Monash University)	

09:30 | Technical Panel

<b>SD-05   In Person - Chesapeake B</b>
<b>TF-01/EAT-01   In Person - Woodrow Wilson D</b>
<b>PC-01   In Person - National Harbor 13</b>
<b>MST-01   In Person - Baltimore 3</b>

09:30 | Technical Paper Session

<b>ACD-01   In Person - Woodrow Wilson A</b>	
<b>Aerodynamic Characterization of Wing-Wing Interactions for Distributed Lift Applications</b>	
Monday, 23 January 09:30 - 09:50 (UTC-5)   AIAA-2023-0030 Nevin Jestus, Sidaard Gunasekaran (University of Dayton), Michael P Mongin, Aaron Altman (Air Force Research Laboratory)	
<b>Extended High Lift Characteristics of Distributed Lift Configurations</b>	
Monday, 23 January 09:50 - 10:10 (UTC-5)   AIAA-2023-0031 Michael P Mongin, Aaron Altman (Air Force Research Laboratory), Sidaard Gunasekaran (University of Dayton School of Engineering)	
<b>Drag Reduction Techniques for eVTOL Configuration with Shrouded Rotors</b>	
Monday, 23 January 10:10 - 10:30 (UTC-5)   AIAA-2023-0032 Wanzheng Zheng, Jason M Merret (University of Illinois Urbana-Champaign)	
<b>Multhopp’s Method for the Pitching Moment of Bodies Revisited</b>	
Monday, 23 January 10:30 - 10:50 (UTC-5)   AIAA-2023-0033 Bruno Moorthamers, Willem A Anemaat (DARcorporation)	

**AFM-01 | In Person - Magnolia 2****Bandwidth Modulating Structured Compensators for Aviation Safety**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0034  
 Chimpalthradi R Ashokkumar (Smartools, LLC)

**Flight Simulator Study Results on Landing Approaches with Automatic and Continuously Moving High-Lift Devices**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0035  
 Pia Eichhorn, Flávio J. Silvestre (Technische Universität Berlin)

**Modeling, simulation, and control of an aircraft with adjustable wing dihedral**

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0036  
 Ryan D. Fisher, Mohamed A Zakaria, Craig A Woolsey (Virginia Polytechnic Institute and State University)

**Maximum Travel Speed of Dynamic Soaring Considering Atmospheric Stability Condition**

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0037  
 Haichao Hong (Technische Universität München), Luoqin Liu (University of Science and Technology of China), Alexander Zwenig, Gottfried Sachs (Technische Universität München)

**Effects of Active Wing-Morphing on Aircraft Fuel Burn along Fuel-Optimal Trajectories**

Monday, 23 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0038  
 Jeffrey D Taylor, Douglas F Hunsaker (Utah State University)

**GNC-01 | In Person - Annapolis 2****Development and Experimental Testing of Flight Path Control using Total Energy Control and SISO Control Loops**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0104  
 Henrik Spark, Pedro José González Ramirez, Christopher Ruwisch, Wolfram Meyer-Brügel, Flávio J. Silvestre (Technische Universität Berlin)

**Handling Quality Improvements for the Flying-V Aircraft using Incremental Nonlinear Dynamic Inversion**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0105  
 Simon van Overeem, Xuerui Wang, Erik-Jan Van Kampen (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek)

**Attitude Control for High Altitude Long Endurance Aircraft Considering Structural Load Limits**

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0106  
 Christian Weiser, Simon Schulz (Deutsches Zentrum für Luft- und Raumfahrt DLR Standort Oberpfaffenhofen), Arne Voß (Deutsches Zentrum für Luft- und Raumfahrt DLR Standort Göttingen), Daniel Ossmann (Hochschule München)



**SEN-01 | In Person - Chesapeake C****GlareNet: A Deep Learning Approach To Removing Glare From Images Taken in Proximity Operations**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0191

Sournav Sekhar S Bhattacharya, Aaron David Su, Gregory Errol Chamitoff (Texas A&amp;M University System)

**Transference of Training for a DNN to Complete the Aerial Refueling Task**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0192

Donald H Costello, Mwaffo Violet, Dillon Miller (US Naval Academy)

**Uncertainty-based Sensor Fusion Architecture using Bayesian-LSTM Neural Network**

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0193

Patrick Geragersian, Ivan Petrunin, Weisi Guo (Cranfield University), Raphael Grech (Spirent Communications plc)

**Reinforcement Learning for Pan-Tilt-Zoom Camera Control, with Focus on Drone Tracking**

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0194

Mariusz Wisniewski, Zeeshan A. Rana, Ivan Petrunin (Cranfield University Cranfield School of Aerospace Transport and Manufacturing)

**Evaluation of Machine-Learning Data Fusion Classifier Performance for Ship-Wake Detection with Modified Data Sets**

Monday, 23 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0195

Daniel Sobien, Justin A Kauffman, Erik Higgins, Laura Freeman, Jonathan S Pitt (Virginia Polytechnic Institute and State University)

**HIS-01 | In Person - Chesapeake 10****A Break from Tradition: The "New" 14 C.F.R. Part 23 and Consensus Standards**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0116

Jack A Griffin, Timothy T Takahashi (Arizona State University Ira A Fulton Schools of Engineering)

**Developments in the Federal Regulation of Personal Air Vehicles**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0117

Connor S Hoopes, Timothy T Takahashi (Arizona State University Ira A Fulton Schools of Engineering)

**PGC-02 | In Person - National Harbor 2****Flow Characterization of a Rotating Detonation Combustor Integrated with Various Convergent Nozzles**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1295

Ajay K Agrawal, Shaon Talukdar, Dalton Langner, Apurav Gupta (The University of Alabama)



**(continued) PGC-02 | In Person - National Harbor 2**

**Experimental Research on Internal Flow Structure of Cylindrical Rotating Detonation Engine Using Ethanol**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2563  
 Tomoki Sato, Kazuki Ishihara, Shiro Ito, Noboru Itouyama, Akira Kawasaki, Ken Matsuoka, Jiro Kasahara (Nagoya Daigaku), Akiko Matsuo (Keio University), Ikkoh Funaki (Japan Aerospace Exploration Agency (JAXA))



**Simulations of an Experimental Centerbody-less Rotating Detonation Combustor**

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2564  
 Douglas A Schwer, Ryan F Johnson (US Naval Research Laboratory), Ephraim Gutmark (University of Cincinnati)



**Effects of Injection Pressure on Rotating Detonation Engine Operation**

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0174  
 Osman Kocaaslan (Selcuk University), Bayindir H Saracoglu (Von Karman Institute For Fluid Dynamics), Kursad Guleren (Istanbul Aydin Universitesi), Tolga Yasa (Eskisehir Teknik Universitesi)



**Experimental Study of the Invariance of Pressure Gain with Respect to the Dynamics of Multiple Competing Waves in a Rotating Detonation Combustor**

Monday, 23 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1296  
 Alexander Feleo, Joshua Shepard, Mirko Gamba (University of Michigan)



**PGC-01 | In Person - National Harbor 3**

**Ideal Analysis of an Unsteady Detonation Based Combustion Cycle**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0169  
 Robert T Fievisohn (Air Force Research Laboratory)



**Validation of a Density Base Navier-Stokes solver simulating the startup deflagration to detonation process of Rotating Detonation Engine (RDE)**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0171  
 Bruce G Crawford, Ishan Verma, Stefano Orsino, Jean-Sébastien Cagnone (ANSYS Inc)



**Parametric non-intrusive reduced-order models via operator inference for large-scale rotating detonation engine simulations**

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0172  
 Ionut Farcas (The University of Texas at Austin Oden Institute for Computational Engineering and Sciences), Rayomand Gundevia, Ramakanth Munipalli (Edwards Air Force Base), Karen E Willcox (The University of Texas at Austin Oden Institute for Computational Engineering and Sciences)



**Investigation of Three RDE Architectures for Propulsion Applications**

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0173  
 Venkat E Tangirala, Anthony J Dean (Self)



**SD-04 | In Person - Baltimore 5****Roll Maneuvers of Very Flexible Aircraft with Flared Folding Wingtips**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0186

Divya Sanghi, Carlos E Cesnik (University of Michigan), Cristina Riso (Georgia Institute of Technology)

**Study of geometrical effects on slosh induced damping**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0187

Marco Pizzoli, Francesco Saltari, Giuliano Coppotelli, Franco Mastroddi (Universita degli Studi di Roma La Sapienza)

**Wing nonlinear aerostatic stability analysis using an efficient modal-based approach**

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0188

Miguel Rodriguez-Segade Alonso (Universidade da Coruna Escuela Tecnica Superior de Ingenieros de Caminos Canales y Puertos), Miguel Cid Montoya (Texas A&amp;M University), Santiago Hernández (Universidade da Coruna Escuela Tecnica Superior de Ingenieros de Caminos Canales y Puertos)

**Generation of Generalised Aerodynamic Forces Through CFD Based Methods for Aeroelastic Stability Analysis**

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0189

Errol Hale, Vincenzo Muscarello, Pier Marzocca (RMIT University), Oleg Levinski (Defence Science and Technology Group)

**An Approach for Nonlinear Aeroelastic and Flight Dynamic Analyses for Very Flexible Aircraft at Trim States of Large Deformations**

Monday, 23 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0190

Jonathan Hilger, Markus Ritter (Deutsches Zentrum fur Luft- und Raumfahrt eV)

**EP-01 | In Person - Chesapeake 11****Array-scale Modeling of Electrospray Ion Plumes within AFRL Plume Simulation Tool TURF**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0063

Adler Smith, Elaine Petro (Cornell University)

**The Dispersion of Lower-Hybrid Instabilities and Comparisons with Measurements Near the Front Pole of a Magnetically Shielded Hall Thruster**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0064

Ioannis G Mikellides, Alejandro Lopez Ortega, Robert B Lobbia, Vernon H Chaplin (Jet Propulsion Laboratory)

**Numerical Investigation of Carbon Sputtering and Transport for the Ion Thruster Testing in the Ground Facility**

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0065

Keita Nishii, Deborah A Levin (University of Illinois Urbana-Champaign)



(continued) EP-01 | In Person - Chesapeake 11

Optimal experimental design to learn reduced-fidelity models for porous electrosprays

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0066  
Joshua Eckels, Collin B Whittaker, Benjamin Jorns, Alex Gorodetsky (University of Michigan)



Evaluation of Hall thruster anomalous transport models obtained via data-driven discovery

Monday, 23 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0067  
Thomas A Marks, Benjamin Jorns (University of Michigan)



AS-01 | In Person - Chesapeake 1

Exploring Geometric and Material Property Model Limitations of Magnetorheological Sandwich Beams

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0058  
Christian G Vazquez, Jeffrey L Kauffman (University of Central Florida College of Engineering and Computer Science)



Transparent Piezoelectric LiNbO3-based Surface Acoustic Wave for Dust Mitigation in Space Environment

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0059  
Alexander C Hatfield, Tian-Bing Xu (Old Dominion University)



Towards Mistuning Characterization of Blisk Components Through use of Piezoelectric Elements

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0060  
Andres M. Rodriguez (University of Central Florida)



Fatigue damage detection in self-healing composites using macro fiber composite sensors

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0061  
Nilesh J Vishe, Sankha Subhra Aditya, Sameer B Mulani, Samit Roy (The University of Alabama)



SD-03 | In Person - Chesapeake 8

Hybrid-fidelity Thermal Modeling with Domain Decomposition for Path-dependent Hypersonic Flight

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0183  
Christopher S Weston, Carlos E Cesnik (University of Michigan)



Performance Analysis of Kriging and Neural Network Modelling of Hypersonic Vehicle Properties

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0184  
Michael Jones, Carlos E Cesnik (University of Michigan)





**(continued) SD-03 | In Person - Chesapeake 8****Development of a High-Order Fluid-Structure Interaction Solver for Flexible Wings**

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0185

Braden E Frigoletto, Vivek Ojha, Krzysztof Fidkowski, Carlos E Cesnik (University of Michigan)

**AFM-02 | In Person - Camellia 2****Excitation Monitoring for Online Parameter Estimation**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0039

Simon F Hafner, Seyedbarzin Hosseini, Florian Holzapfel (Technische Universität München)

**Nonlinear Dynamic Model Identification for Aircraft with Unknown Mass Properties Using Flight Data**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0040

Benjamin M Simmons, James L Gresham, Craig A Woolsey (Virginia Polytechnic Institute and State University)

**System Identification of Pneumatic Dynamics for Active Flow Control Aircraft**

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0041

Christian M. Griffith, Imraan Faruque (Oklahoma State University)

**APA-04 | In Person - Potomac 6****Application of Active Flow Control Technologies for Improving the Stability Pitch Break Characteristics of a Generic Delta-Wing Configuration**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0052

John R Hooker (Helden Aerospace Corporation)

**Feasibility of a Spinning Cylinder on the Leading and Trailing Edges of a Flap for High Lift**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0053

Antoine Francannet, Simon Prince, Davide Di Pasquale, Anderson Proenca (Cranfield University Cranfield School of Aerospace Transport and Manufacturing)

**Computational Study of Passive Flow Control for a MAV-Scale Eppler E423 Airfoil**

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0054

Salman K Rahmani, Zhi Jian Wang (University of Kansas School of Engineering)

**FD-02 | In Person - Chesapeake F****Surrogate-Based Exploration of Active Separation Control Parameters: An Experimental Study**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0076

Stephan Löffler, Ben Steinfurth, Julien Weiss (Technische Universität Berlin Fakultät V Verkehrs- und Maschinensysteme)



(continued) FD-02 | In Person - Chesapeake F

Resolvent-based estimation of laminar flow around an airfoil

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0077  
Junoh Jung, Rutvij Bhagwat, Aaron Towne (University of Michigan)



Characterizing Boundary Layer Mechanisms and Recovery Following Viscous Drag Reduction

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0078  
Andrew Myers, Thomas C Corke, Flint O Thomas (University of Notre Dame College of Engineering)



Low Frequency Characteristics of a Pressure-Gradient Induced Turbulent Separation Bubble

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0079  
Ross Richardson, Yang Zhang, Louis N Cattafesta (Florida State University)



INPSI-01 | In Person - National Harbor 12

Variable Busemann Inlet Geometries for Hypersonic Vehicles

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0122  
Laurel K Clemence, Zachary P White, Adam R Kotler, Mason Redman Thornton, Kareem A Ahmed (University of Central Florida)



Heat Transfer Augmentation with Pin Fins in the Entry Region of Circular Channels

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0123  
Evan C Lundburg, Stephen P Lynch (The Pennsylvania State University), Michael Eric Lyall (Air Force Research Laboratory)



FD-03 | In Person - Chesapeake G

Characterization of Downstream Effects from a WavyWall on a Hollow Cylinder at Mach 4

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0080  
James R Chism, Phillip A Kreth, John D Schmisser (The University of Tennessee Space Institute)



Effect of Ramp-Induced Shock/Boundary Layer Interaction on the Vibration of a Compliant Panel at Mach 5

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0081  
Marc A Eitner, Yoo-Jin Ahn, Mustafa Nail Musta, Jayant Sirohi, Noel Clemens (The University of Texas at Austin)



Computational Study of Planar Shock Bubble Interactions

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0082  
Frederick Ferguson, Dehua Feng, Yang Gao (North Carolina Agricultural and Technical State University)



**(continued) FD-03 | In Person - Chesapeake G**

**Analysis of the Flow Physics of Transonic Flutter Using Energy Maps**

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0083  
Jacob Turner, Jung Hee Seo, Rajat Mittal (Johns Hopkins University)



**FD-01 | In Person - Chesapeake E**

**Validation of a Hypersonic-Flow Solver within scFLOW, a Comprehensive Polyhedral-Grid CFD Package**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0072  
Yusuke Higo, Yoshitaka Nakashima (Hexagon AB), Hiroaki Nishikawa (National Institute of Aerospace)



**Development of a hybrid particle-continuum solver for studying plume expansion into rarefied flows**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0073  
Ozgur Tumuklu (The University of Arizona), Josette R Bellan (Jet Propulsion Laboratory), Kyle M. Hanquist (The University of Arizona)



**Development of a Thermodynamic Nonequilibrium and Weakly Ionized Plasma Flow Modeling Capability in Loci/CHEM**

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0074  
Michael R Nucci (ATA Engineering, Inc.), Matthew G MacLean (CUBRC), Eric Blades (ATA Engineering, Inc.)



**Linear Theory of Hypersonic Shocks Interacting with Turbulence in Air**

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0075  
Alberto Cuadra Lara, Marcos Vera Coello (Universidad Carlos III de Madrid - Campus de Leganes), Mario Di Renzo (Universita del Salento Dipartimento di Ingegneria), César Huete Ruiz de Lira (Universidad Carlos III de Madrid - Campus de Leganes)



**FD-07 | In Person - Chesapeake K**

**Ultrasonically Absorptive Silicon-Carbide Foam for Boundary-Layer Control**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0096  
Benjamin L Bemis, John L Brun, C. Taber Wanstall (University of Dayton), Jonathan L Hill (Air Force Institute of Technology), Matthew P Borg (Air Force Research Laboratory Aerospace Systems Directorate), Joel J Redmond, Matteo Ruggeri (Purdue University), Karl Jantze, Carlo Scalo (HySonic Technologies LLC), Carson L Running (University of Dayton)



**Application of Miniature Vortex Generators for Boundary Layer Transition Delay**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0097  
Andre Weingaertner, Santhosh Babu Mamidala, Jens H.M. Fransson (Kungliga Tekniska Hogskolan Skolan for Teknikvetenskap)



**Leading-Edge Curvature Influence on Hypersonic Boundary Layer Transition**

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0098  
Jonathan L Hill (Air Force Institute of Technology), Matthew P Borg, Matthew W Tufts, Elizabeth Katherine Benitez (Air Force Research Laboratory), Mark F Reeder (Air Force Institute of Technology)



(continued) FD-07 | In Person - Chesapeake K

Experiments on Streamwise Vortex Mitigation Using Two-Dimensional Shielding Strips

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0099  
Eleazar Herrera Hernandez, William Matthews, Ezequiel Justiniano, Edward B White (Texas A&M University System), David B Goldstein, Saikishan Suryanarayanan (The University of Texas at Austin)



HSABP-01 | In Person - National Harbor 4

Investigation of a High Speed Inlet/Isolator with Global Surface Measurements and Background Oriented Schlieren

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0119  
Andrew Bustard, Tatsunori Hayashi, Hannah Gillespie, Jonathan Davami, Thomas J Juliano (University of Notre Dame)



Dual-Mode Scramjet Control Using Optical Emission Sensors

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0120  
Laurie A Elkowitz, Andrew J Wanchek, Robert D. Rockwell, Christopher P Goyne, Chloe E Dedic (University of Virginia), Qiang Le, Janett Walter-Williams, Darrien Hunt (Hampton University School of Science)



Development of a Swirl-Stabilized Hydrogen Vitiator

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0121  
Nicholas L Strahan, Reed Geiger, Charlie H Black, Carson D Slabaugh (Purdue University)



IS-03 | In Person - Magnolia 3

Data-driven Health Management System for Multi-Spacecraft Formation Flying

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0129  
Tatiana Gutierrez, Nolan Coulter, Hever Moncayo (Embry-Riddle Aeronautical University), Yashwanth Kumar Nakka, Changrak Choi, Amir Rahmani (Jet Propulsion Laboratory), Akshita Gupta (Purdue University)



Adaptive Control of a Flexible Wing for Flutter Suppression and Disturbance Rejection

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0130  
Patrick S Downs, Richard J Prazenica (Embry-Riddle Aeronautical University)



A Modular Approach to Verification of Learning Components in Cyber-Physical Systems

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0131  
Lijing Zhai, Aris Kanellopoulos, Filippos Fotiadis, Kyriakos G Vamvoudakis (Georgia Institute of Technology), Jérôme Hugues (Carnegie Mellon University)



Towards an Architecting Framework for the Design of Self-healing Resilient Systems, enabled by Reinforcement Learning-based Reconfiguration

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0132  
Michael G Balchanos, Matthew R Rines, Olivia J Pinon-Fischer, Dimitri N Mavris (Georgia Institute of Technology)



**GNC-02/IS-01 | In Person - Annapolis 4****Drone-based Automated Exterior Inspection of an Aircraft using Reinforcement Learning Technique**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0107  
 Yufeng Sun, Ou Ma (University of Cincinnati)

**Planning Visual Inspection Tours for a 3D Dubins Airplane Model in an Urban Environment**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0108  
 Collin Hague, Andrew Willis, Dipankar Maity, Artur Wolek (UNC Charlotte)

**Artificial Neural Network Cooperative Localization for Autonomous Systems**

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0109  
 Robert J Geng, Travis W Moleski, Jay Wilhelm (Ohio University)

**Multi-Sensor Fusion for Decentralized GPS-Denied Robotic Swarm Cooperative Navigation**

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0110  
 Vincent Hill, Jordan Larson (The University of Alabama)

**Body-Fixed Laser Range-Finder Based Multirotor Recovery**

Monday, 23 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0688  
 Stanislav Shougaev, Moshe Idan (Technion Israel Institute of Technology)

**AA-01 | In Person - Baltimore 1****A study of Mach wave coalescence using spark sources and large-eddy simulation**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0021  
 William A Willis, John A Valdez (The University of Texas at Austin Applied Research Laboratories), Pierre Pineau, Christophe Bogey (Ecole Centrale de Lyon), Charles E Tinney, Mark F Hamilton (The University of Texas at Austin Applied Research Laboratories)

**Single-Stream Empirical Jet-Noise Models Based on Scale-Model Data**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0022  
 Brenda S Henderson (NASA Glenn Research Center)

**3D Nonlinear Integral Technique Based on Linearized Euler Equations for the Prediction of Supersonic Rectangular Jet Noise Sources**

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0023  
 Benjamin J Malczewski, Reda R Mankbadi (Embry-Riddle Aeronautical University)



**(continued) AA-01 | In Person - Baltimore 1**

**Effect of Nozzle Geometry on Near-Field Modal Content of a Screeching Jet**

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0024  
 Kyle Miller, David Morata, Dimitri Papamoschou (University of California Irvine)



**High Fidelity Simulations of Active Control of Coherent Structures in Axisymmetric Jet**

Monday, 23 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0025  
 Michael Marques Goncalves, Vladimir V Golubev (Embry-Riddle Aeronautical University), Sam Salehian (Tuskegee University), Reda R Mankbadi (Embry-Riddle Aeronautical University)



**IS-02 | In Person - Annapolis 3**

**An iterative scheme to learn system dynamics of space objects from partial state information**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0124  
 Sriram Narayanan, Indranil Nayak, Mrinal Kumar (The Ohio State University)



**Peeking into the Black-box: Prediction Intervals Give Insight into Data-driven Quadrotor Model Reliability**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0125  
 Jasper J van Beers, Coen C de Visser (Technische Universiteit Delft)



**Vision-based Perception with Safety Awareness for UAS Autonomous Landing**

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0126  
 Zhenhao Zhao, Jonathan Lee, Zongyao Li, Chung Hyuk Park, Peng Wei (The George Washington University School of Engineering and Applied Science)



**Landing Trajectory Prediction for UAS Based on Generative Adversarial Network**

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0127  
 Jun Xiang, Junfei Xie, Jun Chen (San Diego State University)



**Deep Reinforcement Learning Controller for Autonomous Tracking of Evasive Ground Target**

Monday, 23 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0128  
 David van Wijk, Kameron J Eves, John Valasek (Texas A&M University)



**EXPL-01 | In Person - Annapolis 1**

**3D Printed Lunar Landing Pad Design Iteration and Analysis**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0068  
 Peter J Albrecht, Helen Carson (University of Washington), Alyssa Bulatek (University of Florida, Gainesville), Andres I Campbell (Minnesota State University Mankato), Luke Martin, Michael Oswald (Arizona State University), Vincent Murai (University of Hawai'i at Manoa), Kayla Schang, Alexander Nicola (University of Central Florida), Ethan Romo (University of California Santa Cruz), Kaveon Smith (Venesco LLC)



(continued) EXPL-01 | In Person - Annapolis 1

Magnetic Subsystem Design and Testing for the NASA Magnetic Latching Cryogenic Coupler

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0069  
Paul S Bean, Nic Heersema, Andrew Holguin, Jonathan Lopez-zepeda, Scott L Stebbins (NASA Armstrong Flight Research Center)



Effect of Pressure on Liquid Nitrogen Flow Boiling in Additively Manufactured Rocket Engine Cooling Channels

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0070  
Debra Ortega, Alejandro Amador, Alejandro Silva, Ahsan R Choudhuri, Md Mahamudur Rahman (The University of Texas at El Paso)



MDO-01 | In Person - Chesapeake A

Toward Gradient-Based Optimization of Vehicle Shape and Operational Effectiveness

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0145  
Christopher A. Lupp (Air Force Research Laboratory)



Low-Noise Propeller Design with the Vortex Lattice Method and Gradient-Based Optimization

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2039  
Daniel Ingraham (NASA Glenn Research Center)



Design of an Aeroelastically Scaled Model in a Compressible Air Wind Tunnel Facility Using Multifidelity Multi-Objective Bayesian Optimization

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2040  
Daning Huang (The Pennsylvania State University - University Park Campus), Ashwin Renganathan (The University of Utah), Mark A Miller (The Pennsylvania State University - University Park Campus)



Large-Scale Multidisciplinary Design Optimization of an eVTOL Aircraft using Comprehensive Analysis

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0146  
Darshan Sarojini, Marius L Ruh, Anugrah Jo Joshy, Jiayao Yan, Alexander K Ivanov, Luca Scotzniovsky (University of California San Diego), Andrew H Fletcher (University of Illinois Urbana-Champaign), Nicholas C Orndorff, Mark Sperry, Victor Evan Gandarillas (University of California San Diego), Issac Asher, Jeffrey T Chambers (Aurora Flight Sciences), Hyunjune Gill, Seongkyu Lee (University of California Davis), Zeyu Cheng, Gabriel Rodriguez, Shuofeng Zhao, Chris Mi (San Diego State University), Thomas Nascenzi, Timothy Cuatt, Tyler F Winter (M4 Engineering), Alexandre Thomas Guibert, Ashley Cronk, Hyunsun A Kim, Shirley Meng, John T Hwang (University of California San Diego)



PDL-01/AMT-01 | In Person - Azalea 3

Wavefront Retrieval from Irradiance Measurements using Inverse Design Methods

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0164  
Christopher Limbach (Texas A&M University)



Assessment of classical theory of laser propagation through turbulence using well-resolved direct numerical simulations

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0165  
Dillon Motley, Komal Kumari, Diego A Donzis (Texas A&M University)





**(continued) PDL-01/AMT-01 | In Person - Azalea 3****Evaluating the role of product gas composition in vibrational relaxation in pulsed microwave plasma-enhanced flames**

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0166

Fynn Reinbacher, Sarang Bidwai, James B Michael (Iowa State University), Ryan J Thompson, Chloe E Dedic (University of Virginia School of Engineering and Applied Science)

**CARS in an Inductively Coupled Plasma Torch, Part 1: High Temperature Nitrogen Thermometry**

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0167

Dan Fries, John S Murray, Spenser Stark, Noel Clemens, Philip L. Varghese (The University of Texas at Austin), Rajkumar Bhakta, Elijah Jans, Sean P Kearney (Sandia National Laboratories)

**CARS in an Inductively Coupled Plasma Torch, Part 2: Temperature and Carbon-Monoxide Measurements in the Reaction Layer of a Graphite Ablator**

Monday, 23 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0168

Sean P Kearney, Rajkumar Bhakta (Sandia National Laboratories), Dan Fries, John S Murray, Spenser Stark, Noel Clemens, Philip L. Varghese (The University of Texas at Austin Cockrell School of Engineering)

**APA-05 | In Person - Potomac 2****Experimental and numerical comparison of different missile body cross sectional shapes**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0055

Nathan Shumway, Mehdi Ghoreyshi (US Air Force Academy)

**Dynamic Pressure Measurements in a Rectangular Cavity with Multiple Stores**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0056

Eric D Smith, Rajan Kumar (Florida A&amp;M University-Florida State University College of Engineering), Timothy A Eymann (Air Force Research Laboratory)

**Very-Large Eddy Simulations of Transonic Flows within a Jet-Fighter Weapon Bay with Internal Store**

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0057

Ignacio Gonzalez-Martino (Dassault Systemes SE), Netanel Viner (ADCOM Consulting), Hadar Ben-Gida (Israeli Air Force)

**LP-01 | In Person - National Harbor 14****CFD Design and Analysis of a Perforated Plate for the Control of Cryogenic Flow under Reduced Gravity**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0133

Jason W Hartwig (NASA Glenn Research Center), Narottama Esser (University of Florida), Shreykumar Jain (Georgia Institute of Technology), David Souders (Flow Sciences), Allen Varghese, Angelo Tafuni (New Jersey Institute of Technology)

**Conjugate Heat Transfer Analysis of the Wall Heat Flux in a Liquid Rocket Engine using Wall Models**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0134

Matthew Evan Harvazinski, Tomas Houba (Air Force Research Laboratory Aerospace Systems Directorate)





(continued) LP-01 | In Person - National Harbor 14

Rechargeable RCS Tank Operations Using Cryocoolers

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0135  
Tony Skaff, Ama R Carney, Lauren Gronich (Sierra Lobo, Inc.)



Effects of Varying Characteristic Injection Parameters and Geometric Configurations on the Cyclonic Flowfield in a Bidirectional Vortex Chamber Using Velocity Inlet Conditions

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0136  
Gaurav Sharma, Joseph Majdalani (Auburn University)



Intelligent Rocket Engine Control with Reinforcement Learning: Experimental Results of the LUMEN LNG Turbopump Test Campaign

Monday, 23 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0137  
Kai Dresia, Antonius Adler, Günther Waxenegger-Wilfing, Tobias Traudt, Jan Deeken (Deutsches Zentrum für Luft- und Raumfahrt eV), Michael Oswald (Rheinisch-Westfälische Technische Hochschule Aachen)



MST-02 | In Person - Baltimore 4

Physics-based recurrent neural network model for flight path trajectory prediction under high-altitude stall

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0147  
Mohamed Hamza, Venkatasatyanand Mutnur (Arizona State University), Hwa-Young Kim (Dongguk University), Aditi Chat-topadhyay (Arizona State University)



Enabling Thread Safety and Parallelism in the Program to Optimize Simulated Trajectories II

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0148  
Robert A Williams, Rafael A Lugo (NASA Langley Research Center), Steven M Marsh, James A Hoffman, Jeremy D Shidner, John T Aguirre (Analytical Mechanics Associates, Inc.)



pyaerso: A Rust-backed Python Module for Accessible Flight Dynamics Modelling for Machine Learning

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0149  
Robert J Clarke, Liam J Fletcher, Thomas S Richardson (University of Bristol)



Development of Flight Control Software Framework for X-Plane 11 and ROS-based Flight Simulation Environment

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0150  
Sungwook Cho (Cheongju University), Yeondeuk Jung (Korea Aerospace Industries Ltd)



Open Source Toolbox for Generalized Polynomial Chaos Expansion-based Uncertainty Quantification for sUAS Traffic Operations

Monday, 23 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0151  
Aakarshan Khanal, Rajnish Bhusal, Kamesh Subbarao, Animesh Chakravarthy (The University of Texas at Arlington), Wendy Okolo (NASA Ames Research Center)



MAT-01 | In Person - Chesapeake 2

Multiscale Modeling of Composite Materials under Volumetric and Interfacial Damage: Achieving Adaptive Model Order Reduction

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0138  
Min Lin (University of Wyoming), David Brandyberry (University of Illinois Urbana-Champaign), Xiang Zhang (University of Wyoming)



Multiscale Modeling of Carbon Fiber Reinforced Composites with a Cohesive Interface Model

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0139  
Neslihan Genckal, Gary Don Seidel, Shengfeng Cheng (Virginia Polytechnic Institute and State University)



Multiscale Modeling of Thermoplastics Using Atomistic-informed Micromechanics

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0140  
Evan J Pineda (NASA Glenn Research Center), Jamal Hussein (University of Massachusetts Lowell), Joshua Kempainen, Gregory M Odegard (Michigan Technological University), Brett A Bednarczyk (NASA Glenn Research Center), William Pisani (U.S. Army Engineer Research and Development Center), Scott E Stapleton (University of Massachusetts Lowell)



In-Situ Micro-scale Characterization of Parachute Textiles with Micro-Tomography and Machine Learning

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0141  
Cutler Phillippe, Marco Mattei, Francesco Panerai, Laura Villafañe Roca (University of Illinois Urbana-Champaign)



2D Materials Guided Self-assembly of Polymer: Molecular Dynamics Simulation Study

Monday, 23 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0142  
Akash Singh, Yumeng Li (University of Illinois Urbana-Champaign)



NFFP-01 | In Person - Chesapeake 12

Considerations for Radiator Design in Multi-Megawatt Nuclear Electric Propulsion Applications

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0152  
William S Machemer, Matthew Ernest Duchek, Dennis Nikitaev (Analytical Mechanics Associates, Inc.)



Mission Design Analysis with Centrifugal Nuclear Thermal Propulsion

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0153  
William Ziehm, Lawrence Thomas (The University of Alabama in Huntsville College of Engineering)



OPS-01 | In Person - National Harbor 15

A Comparison of Control Strategies for Contact Force Manipulation During Simulated On-Orbit Contact Events

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0154  
Thomas A. Battista, Michael Andonian, Jake Singh, Ashtin K Cheng, Kevin Chow (The Aerospace Corporation)



**(continued) OPS-01 | In Person - National Harbor 15**

**Robot Guided Emergency Evacuation from a Simulated Space Station**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0156  
Brett Sheeran, Alan R. Wagner (The Pennsylvania State University - University Park Campus), Colin Holbrook, Daniel Holman (University of California Merced)



**Adaptive Detumbling of Uncontrolled Planar Spacecraft using Finite Module Deposition**

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0158  
Ian Down, Manoranjan Majji (Texas A&M University)



**Using Small Satellites to Construct an In-Space Test Platform for Risk Reduction**

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2214  
Elozor Plotke, Peter C Lai (LinQuest Corp), Roberta M Ewart (United States Space Force)



**AA-02 | In Person - Baltimore 2**

**getPROP - A MATLAB Suite for Low-Signature Propeller Design, Analysis, and Optimization**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0026  
Aleksandra Kvurt, Dor Ruf, Ofek Hertzman (Israeli Air Force), Oksana Stalnov (Technion Israel Institute of Technology), Hadar Ben-Gida (Israeli Air Force)



**Comparison of Prediction Modeling Methodologies for Aeroacoustic Characterization of Hovering sUAS Rotors**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0027  
Christopher Thurman, David Douglas Boyd, Benjamin M Simmons (NASA Langley Research Center)



**Unsteady RANS and Scale Resolving Simulations of Open Rotor Noise**

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0028  
Ercan Dumlupinar, Jeffrey Allen Housman, Gaetan K. Kenway, Cetin C Kiris (NASA Ames Research Center)



**Application of Data Reduction Methodologies To Prediction of Rotor Noise**

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0029  
Samuel Afari, Reda R Mankbadi (Embry-Riddle Aeronautical University)



**PC-03 | In Person - National Harbor 8**

**The Influence of Chemical Reaction Models on Combustion Dynamics in an Opposed-Flow Solid Fuel Burner**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0161  
Ryan D DeBoskey (Syntek Technologies Maryland Office), David A Kessler, Brian T Bojko, Ryan F Johnson, Gabriel B Goodwin (US Naval Research Laboratory)



(continued) PC-03 | In Person - National Harbor 8

HTPB Combustion Temperature Measurements

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0162  
Clayton Matthias Geipel, Christopher J Pfutzner, Brian T Fisher (US Naval Research Laboratory)



Radiative Heat Transfer in a Counterflow Diffusion Flame Containing Reacting Metal Particles

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0163  
Trushant K Patel, David A Kessler, Brian T Bojko (US Naval Research Laboratory)



APA-02 | In Person - Potomac 5

Airbrake CFD Analysis for Land Speed Record Vehicles

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0045  
Antoine Gilles (Ecole de l'air), Ioan I Feier (US Air Force Academy)



Multi-track, Multi-rider Human Powered Land Speed Vehicle Aerodynamic CFD Analysis

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0046  
Julius Roger (Ecole de l'air), Ioan I Feier (US Air Force Academy)



Wheel Rotation Modeling Effects on the Flowfield Around DrivAer Notchback Model Variants

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0047  
Matthew T Aultman, Lian Duan (The Ohio State University)



Evaluation of CFD methodologies for Predicting Wind Noise Sources over the Front Side Window of a Sport Utility Vehicle

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0048  
Hang Li, Lian Duan (The Ohio State University), Rodrigo Auza-Gutierrez, Austin Kimbrell (Honda R&D Americas, Inc.)



Boundary Layer Turbulence Flight Experiment in Memory of Dr. Michael Holden: Project Definition (Invited Talk)

Monday, 23 January 09:30 - 09:50 (UTC-5)



FD-04 | In Person - Chesapeake D

Hypersonic Boundary Layer Transition of the BoLT-2 Flowfield at Flight Conditions, BOLT II Flight Test

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0084  
Zachary M Johnston, Graham V Candler (University of Minnesota Twin Cities)



(continued) FD-04 | In Person - Chesapeake D

Hypersonic Stability and Breakdown Measurements on the AFRL/AFOSR BOLT II Geometry

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0085  
Heather Emily Kostak-Teplicek, Rodney D Bowersox (Texas A&M University)



Recent BOLT Discrete-Roughness Trip Results from the 20-Inch Mach 6 Tunnel

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0086  
Scott A Berry, Carey F. Scott (NASA Langley Research Center)



Heat Transfer Measurements of the BOLT II Flight Experiment Model within the T4 Reflected Shock Tunnel

Monday, 23 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0087  
Will O Landsberg, Jacob Sandral, David Mee, Anand Veeraragavan (The University of Queensland Centre for Hypersonics)



SD-02 | In Person - Chesapeake 3

Shock tube investigation of aerospace fuels for zero-carbon future: A US-Germany collaboration

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0178  
Rosa Olivera, Ramees Rahman, Seetha Raghavan (University of Central Florida), Clemens Naumann, Marina Braun-Unkhoff (Deutsches Zentrum fur Luft- und Raumfahrt eV), Subith Vasu (University of Central Florida)



CMAS Infiltration and Mitigation Strategies for Minimizing Premature Degradation Failure of High Temperature Ceramic Coatings in Turbine Engines

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0179  
Zachary Stein, Brendon Cavainolo, Laurene Tetard, Michael P Kinzel, Seetha Raghavan (University of Central Florida)



Residual Strains in an Additively Processed Ni-based Superalloy Transpiration-Cooled Aerodynamic Leading Edge Structure using Neutron Diffraction

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0180  
Quentin Fouliard, Jose Mayi-Rivas, Oneilia Swaby (University of Central Florida), Marion Bartsch (German Aerospace Center (DLR), Cologne, Germany), Jeffrey R. Bunn (Oak Ridge National Laboratory), Jayanta Kapat, Seetha Raghavan (University of Central Florida)



Influence of Experimental Parameters on Rare-earth Doped Yttria-stabilized Zirconia Thermal Barrier Coatings for Phosphor Thermometry Measurements

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0181  
Quentin Fouliard, Ranajay Ghosh, Seetha Raghavan (University of Central Florida)



Investigation of Stress Corrosion Cracking via in-situ Measurements


Monday, 23 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0182  
Remelisa Esteves, Quentin Fouliard, Ranajay Ghosh, Seetha Raghavan (University of Central Florida)



SD-01 | In Person - Chesapeake 5


Model Based Automatic Control Design for the T-FLEX Demonstrator Using RCE Environment

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0175  
Béla Takarics, Bálint Patartics, Tamás Luspay, Balint Vanek (Eotvos Lorand Kutatasi Halozat Szamitastechnikai es Autom-  
atizalasi Kutatointezet), Charles Poussot-Vassal, Pierre Vuillemin (Office National d'Etudes et de Recherches Aerospatiales),  
Matthias Wuestenhagen (Deutsches Zentrum fur Luft- und Raumfahrt eV)



Aeroservoelastic induced drag modelling and minimization for the T-FLEX demonstrator

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0176  
Yasser Muhammad Meddaikar, Thiemo M Kier (Deutsches Zentrum fur Luft- und Raumfahrt DLR), Julius Bartasevicius,  
Fanglin Yu (Technische Universitat Munchen), Balint Vanek, Abel Olgyay, Béla Takarics (SZTAKI)



Comparing Different Potential Flow Methods for Unsteady Aerodynamic Modelling of a Flutter Demonstrator Aircraft

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0177  
Thiemo M Kier (Deutsches Zentrum fur Luft- und Raumfahrt eV)



APA-01 | In Person - Potomac 1


Recent and Upcoming Advancements in HPCMP CREATE<sup>TM</sup>-AV Kestrel

Monday, 23 January 09:30 - 09:50 (UTC-5) | 3766920  
Steven E Lamberson (CREATE-AV Kestrel)




Development of GPGPU Capable Multi-solver Overset Methods

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0042  
Jay Sitaraman, Dylan Jude (US Army Combat Capabilities Development Command Aviation & Missile Center)



Advancements in HPCMP CREATE-AV<sup>TM</sup> ADAPT as an MDAO Front-End

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0043  
Andrew J Field, Madeline Lickenbrock, Joseph Maclean, William McGough, Paul Syfrett, William Zuber (CREATE AV Team)



Responding Body Motion Simulation with Collision in the Kestrel Framework

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0044  
Andrew G Denny (Arnold Engineering Development Complex), Robert Patrick McNally (US Army Corps of Engineers)



APA-06 | In Person - Potomac 3

Quesst Mission Overview and Standards Development Status

Monday, 23 January 09:30 - 09:50 (UTC-5) | 3797655  
Peter G Coen (NASA Headquarters)



(continued) APA-06 | In Person - Potomac 3

X-59 Aircraft Overview and Status

Monday, 23 January 09:50 - 10:10 (UTC-5) | 3796676</stron  
David M Richwine (NASA Headquarters)



X-59 Sonic Boom Wind Tunnel Testing

Monday, 23 January 10:10 - 10:30 (UTC-5) | 3796506</stron  
Melissa B Carter (NASA Langley Research Center)



Preparations for Quesst Acoustic Validation

Monday, 23 January 10:30 - 10:50 (UTC-5) | 3796555</stron  
Larry J Cliatt (NASA Armstrong Flight Research Center)



Preparations for Quesst Mission Community Response Testing – Overview and Status

Monday, 23 January 10:50 - 11:10 (UTC-5) | 3796518</stron  
Gautam H Shah, Jonathan Rathsam, Alexandra Loubeau (NASA Langley Research Center)



FD-05 | In Person - Chesapeake I

X-Ray Phase Contrast Imaging and Radiography of Pressure-swirl Atomizing Sprays in a Crossflow

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0088  
Chi Young Moon, Qian Peng, Brandon Sforzo, Alan Kastengren, Christopher F. Powell (Argonne National Laboratory)



Investigation of Droplet Aerobreakup Using Non-Intrusive Diagnostics and Numerical Simulations

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0089  
James Leung, Mohana Gurunadhan, Shyam K Menon (Louisiana State University)



Measuring Agricultural Spray Droplet Distirbutions in Propeller Wake: A Cautionary Tale

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0090  
Ian M Tierney, Sidaard Gunasekaran (University of Dayton), Kyle Butz (Spray Analytics Inc.), Timothy Anderson (BASF Corp Cincinnati), C. Taber Wanstall (University of Dayton)



STR-01/MAT-02 | In Person - Chesapeake 7

Hybrid Discontinuous Galerkin Process Zone Models for Thermal Induced Fractures and Fracture Reduced Heat Transfer

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0196  
Daniel N Pickard, Christopher Terrence Quinn, Raul Radovitzky (Massachusetts Institute of Technology)



(continued) STR-01/MAT-02 | In Person - Chesapeake 7

A Discontinuous-Galerkin, Lagrangian Thermo-chemo-mechanical Material Response Solver for the Analysis of Ablative Thermal Protection Systems

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0197  
Christopher Terrence Quinn, Daniel N Pickard, Raul Radovitzky (Massachusetts Institute of Technology)



Novel Test and Analysis Methodology for the Assessment of Joint under Re-entry Environment

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0198  
Pavel Babuska, Waihong Tai, Vinay K Goyal (The Aerospace Corporation), Alvaro Rodriguez (NASA Johnson Space Center)



Enhanced Manufacturing of Complex Shape Composites with Nano-Porous Networks

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0199  
Carina Xiaochen Li, Carlos Catalano, Carolina Furtado (Massachusetts Institute of Technology), Estelle Kalfon-Cohen (Metis Design Corporation), Shannon Cassady, Jeonyoon Lee (Massachusetts Institute of Technology), Seth Kessler (Metis Design Corporation), Brian L Wardle (Massachusetts Institute of Technology)



TES-01 | In Person - National Harbor 5

Laminar Burning Velocity Measurement of NH<sub>3</sub>/H<sub>2</sub>/CH<sub>4</sub> Fuel Blends at Elevated Temperature and Pressure

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0201  
Pragya Berwal, Sudarshan Kumar (Indian Institute of Technology Bombay), Bhupendra Khandelwal (The University of Alabama College of Engineering)



Reverse Convection Power Generation

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0202  
Joseph R Herdy (CFD Research Corporation)



Investigation of Bluff-body Stabilized Methane, Propane and Ammonia Flames with Flowfield Dilution

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0203  
Rishi Roy, Eliza Melia, Ashwani K Gupta (University of Maryland at College Park)



TP-02 | In Person - Azalea 1

Kentucky Re-entry Universal Payload System (KRUPS): Overview of hypersonic re-entry flight

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0206  
John D Schmidt, Matthew P Ruffner, James T Nichols, Isaac S Rowe, Ryan D Nolin, Kirsten F Ford, William T Smith, Alexandre Martin (University of Kentucky)



Aerothermal Analysis of a Space Rocket during its Hypersonic Ascent Phase

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0207  
Luan NM Dinh, Eduardo Trifoni (Australian National University)





(continued) TP-02 | In Person - Azalea 1

Stagnation Point Convective Heating Correlations for Entry into H<sub>2</sub>/He Atmospheres

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0208  
Alex T Carroll (California Institute of Technology), Aaron Michael Brandis (NASA Ames Research Center)



TP-01 | In Person - Azalea 2

On Computationally Efficient Radiative Transfer Calculations for Three-dimensional Entry Problems

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0204  
Amal Sahai (Analytical Mechanics Associates, Inc.), Christopher O Johnston (NASA Langley Research Center)



Characterization of particle-surface impacts on a sphere-cone at hypersonic flight conditions

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0205  
Joseph B Habeck, Michael D Kroells, Thomas E Schwartzentruber, Graham V Candler (University of Minnesota Twin Cities)



Numerical investigation of flow development and thermal boundary condition effects on local sCO2 heat transfer trends in circular tubes

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0604  
Yang Chao, Nicholas C Lopes, Sandra Boetcher, Mark A Ricklick (Embry-Riddle Aeronautical University)



GTE-01 | In Person - National Harbor 11

Enhanced Internal Cooling Performance with Protruded Rib Turbulators in Turbine Blade Cooling

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0111  
Yueyang, Symus Say, Yi Yu, Adamya Singh Dhaker, Wai Tuck Chow (Nanyang Technological University)



Characterization of an Active Turbulence Grid in a Linear Cascade

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0112  
Molly H Donovan, Markus P Rumpfkeil (University of Dayton), Christopher R Marks (Air Force Research Laboratory Aerospace Systems Directorate)



High-Lift High-Work LPT Blades and Separation: A Machine-Learning-Based Approach to Separation Identification

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0113  
Jared N Kerestes, Christopher R Marks, John P. Clark (Air Force Research Laboratory), Mitch Wolff (Wright State University), Ron-Ho Ni (AeroDynamic Solutions Inc), Nathan Fletcher (Innovative Science Solutions LLC)



Aerothermal Investigation of Seal Teeth Cavity Leakage Flow in Supercritical CO2 Compressor

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0114  
Saugat Ghimire, Adam Ringheisen, Mark G Turner (University of Cincinnati)



**(continued) GTE-01 | In Person - National Harbor 11****A comparison of gradient-free and gradient-enhanced optimization methods for the robust design of a compressor rotor**

Monday, 23 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0115  
 Marcus Meyer, Robin Schmidt (Rolls-Royce Deutschland Ltd und Co KG)

**PC-02 | In Person - National Harbor 10****Hybrid LES-FDF Simulations of Reactive Flows With Dynamic AMR and detailed Chemistry**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0159  
 Rodrigo Cavalcanti Ribeiro Lima, Joao M Vedovoto (Universidade Federal de Uberlandia)

**Large Eddy Simulation of Diesel Spray Flames using the Unsteady Flamelet Progress Variable Approach with Soot Prediction**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0160  
 Islam Kabil, Chao Xu (Argonne National Laboratory)

**FT-01 | In Person - Camellia 1****UAS Flight Testing in Support of Research for Academia: Getting Started and Experiences from the Fields**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0100  
 Matthew Anderson (California Institute of Technology), Kai Lehmkueller (The University of Sydney School of Aerospace Mechanical and Mechatronic Engineering), Jeremy Randle (The University of Sydney Australian Centre for Field Robotics), KC Wong (The University of Sydney School of Aerospace Mechanical and Mechatronic Engineering), Soon-Jo Chung (California Institute of Technology)

**Robust Control and Flight Test of a Coaxial Helicopter UAV**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0101  
 Hoijo Jeong, Jinyoung Suk, Seungkeun Kim (Chungnam National University)

**Flight Testing of a Flying-Wing UAV**

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0102  
 Noureldein Ahmed Ibrahim, Ashraf Kamal, Mohamed Yehia Zakaria (Military Technical College)

**APA-03 | In Person - Potomac 4****A Computational and Experimental Analysis of Vortex Shedding from Complex Turning Vanes**

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0049  
 Andrew P Hayden, Cole Hefner, John Gillespie, Alexandrina Untaroiu, Todd Lowe (Virginia Polytechnic Institute and State University)

**Experimental Generation and Characterization of Isolated Vortical Gusts**

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0050  
 Paras Vadher, Holger Babinsky (University of Cambridge)



(continued) APA-03 | In Person - Potomac 4

Interaction of a Small Unmanned Aerial System with a Moving Vehicle

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0051  
David Lee, Keith W. Moored (Lehigh University), John T Hrynuk (US Army Research Laboratory)



FD-06 | In Person - Chesapeake H

Numerical Study of Turbulent Characteristics behind Novel Vortex Generating Structures

Monday, 23 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0091  
Benjamin S Savino, Taiho Yeom, Wen Wu (University of Mississippi)



Three-dimensional Pressure–Rate-of-Strain, Pressure Diffusion, and Velocity–Pressure-Gradient Tensor Measurements in a Cavity Flow by Time-resolved Tomo-PIV

Monday, 23 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0092  
Jose R Moreto, Xiaofeng Liu (San Diego State University)



Effects of Shock-Induced Separation on Boundary Layer Transitional Mechanisms

Monday, 23 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0093  
Nikhil Mahalingesh, Sébastien Piponniau, Pierre Dupont (Aix-Marseille Universite)



Sensitivity of Shock-Wave Boundary-Layer Interactions to Inflow Turbulence Characteristics using the Synthetic Eddy Method

Monday, 23 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0094  
Chelsea Johnson, Preethi V. Mysore, Kyle A Schau, Joseph Oefelein (Georgia Institute of Technology College of Engineering)



Medium-Frequency Unsteadiness in a Turbulent Separation Bubble

Monday, 23 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0095  
Carolina Cura (Technische Universitat Berlin), Ardeshir Hanifi (Kungliga Tekniska Hogskolan), Julien Weiss (Technische Universitat Berlin)



14:00 | Technical Panel

INPSI-03/ACD-05/EAT-02/TF-02/GTE-04/PC-06 | In Person - Woodrow Wilson A

DGE-02 | In Person - Woodrow Wilson B

AS-02/ACD-04/INPSI-02/GTE-02/PC-05/STR-02 | In Person - Woodrow Wilson D

AMT-02/PC-04 | In Person - Baltimore 1

MAT-04/NDA-02 | In Person - Chesapeake 2

14:00 | Technical Paper Session

**GTE-03 | In Person - National Harbor 11****Design and Optimization of Primary/Core Heat Exchangers for Turbofan Engine Waste Heat Recovery**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0307

Michael F Stoia, Arun Muley, Sho Sato (The Boeing Company), Claire-Phonie Bury, Ladislav Vesely, Jayanta Kapat, Marcel Otto (University of Central Florida)

**A Study on Variable Geometries and Component Matching of Variable Cycle Engine for Aircraft with Supercruise Capability**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0308

Saravanan Karupiah (DRDO Gas Turbine Research Establishment), Pericles Pilidis, Suresh Sampath (Cranfield University), Muthuveerappan N (DRDO Gas Turbine Research Establishment)

**Development of an Open Rotor Propulsion System Model and Power Management Strategy**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0309

Robert A Clark, Christian Perron, Jimmy C Tai, Benjamin J Airdo, Dimitri N Mavris (Georgia Institute of Technology)

**Considering Turbofan Operability in Hybrid Electric Aircraft Propulsion System Design**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2178

Jeffryes W Chapman (NASA Headquarters)

**AMT-04 | In Person - Camellia 2****Further Refinement and Validation of the Spatially Filtered Wavefront Sensor as a Novel Aero-Optical Measurement Technique**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0224

Luke N Butler, Stanislav Gordeyev (University of Notre Dame)

**High Temperature Gladstone-Dale Coefficient Measurements in a Free-Piston Shock Tube**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0225

Gwendolyn Wang (Georgia Institute of Technology), Kyle Daniel, Kyle P Lynch, Daniel R Guildenbecher (Sandia National Laboratories), Yi Chen Mazumdar (Georgia Institute of Technology)

**Window Selection for Synchrotron-based Energetic Material and Propulsion Measurements**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0226

Preston David Silverstein (California State University Long Beach College of Engineering), Alan Kastengren (Argonne National Laboratory), Joseph Kalman (California State University Long Beach College of Engineering)

**Reducing Photodegradation of Dual-Luminophore Pressure-Sensitive Paint by Adding Antioxidants**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0227

Kazuki Uchida, Yuta Ozawa, Keisuke Asai, Taku Nonomura (Tohoku Daigaku)



**AFM-03 | In Person - Magnolia 2****Static Wind Tunnel Testing of a Generic T-Tail Transport Airplane at High Angle of Attack**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0217  
 Daniel Pusztai, Mark H Lowenberg, Simon A Neild (University of Bristol)

**Design of Longitudinal Control for Reduced-Gravity Atmospheric Flights**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0218  
 Yi-Hsuan Chen, Eric Feron (King Abdullah University of Science and Technology)

**Wing aerodynamic loading asymmetry in engine failure condition for multi-propeller driven airplanes**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0219  
 Geovana F S Neves, Rodrigo Felix de Souza, Chiara Cotta Tilton, Gabriel Espedito Marqueze Messias, Lucas Rubiano de Souza Cruz (Embraer SA)

**GNC-04 | In Person - Annapolis 2****Dynamics and Stability Analysis of a Tethered Unmanned Rotorcraft**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0296  
 Alexander Donkels, Johann Christoph Dauer (Deutsches Zentrum für Luft- und Raumfahrt DLR), Derek A Paley (University of Maryland at College Park)

**VTOL Trajectory Coordination Around Vertiports with Collision Avoidance**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0297  
 Marc Welsch, Walter Fichter (Universität Stuttgart)

**Using Forward Slipping for Maximum Descend Authority in an Incremental Control Approach**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0298  
 Andreas Steinleitner, Walter Fichter (Universität Stuttgart)

**Manipulation of a Rigid Object in 3-D Space by a Pair of UAVs using Sliding Modes**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0687  
 Sachit Rao (International Institute of Information Technology), Animesh Chakravarthy (The University of Texas at Arlington), Debasish Ghose (Indian Institute of Science)

**Active Flutter Suppression  $H_\infty$  Synthesis using Multiple Models with Imposed Aeroelastic Poles**

Monday, 23 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0686  
 Hugo Fournier, Robin Vernay (Airbus SAS), Paolo Massioni, Minh Tu Pham (Institut National des Sciences Appliquées de Lyon), Laurent Bako (Ecole Centrale de Lyon)



<b>MDO-03   In Person - Chesapeake 6</b>	
<b>Air-taxi transition trajectory optimization with physics-based models</b>	
Monday, 23 January 14:00 - 14:20 (UTC-5)   AIAA-2023-0324 Nicholas C Orndorff, Darshan Sarojini, Luca Scotzniovsky (University of California San Diego), Hyunjune Gill, Seongkyu Lee (University of California Davis), Zeyu Cheng, Shuofeng Zhao, Chris Mi (San Diego State University), John T Hwang (University of California San Diego)	
<b>Low-fidelity design optimization and parameter sensitivity analysis of tilt-rotor eVTOL electric propulsion systems</b>	
Monday, 23 January 14:20 - 14:40 (UTC-5)   AIAA-2023-0325 Tyler Critchfield, Andrew Ning (Brigham Young University)	
<b>Coupled Aeropropulsive Design Optimization of an Over-Wing Nacelle Configuration</b>	
Monday, 23 January 14:40 - 15:00 (UTC-5)   AIAA-2023-0327 Mohamed Arshath Saja Abdul Kaiyoom, Anil Yildirim, Joaquim R. R. A. Martins (University of Michigan)	
<b>Multipoint Aerostructural Optimization for Urban Air Mobility Vehicle Design</b>	
Monday, 23 January 15:00 - 15:20 (UTC-5)   AIAA-2023-0326 Bernardo Pacini, Malhar Prajapati, Karthikeyan Duraisamy, Joaquim R. R. A. Martins (University of Michigan), Ping He (Iowa State University)	
<b>UAS-01   In Person - Chesapeake C</b>	
<b>Real-Time Path Optimization for 3D UAS Line Survey Operations</b>	
Monday, 23 January 14:00 - 14:20 (UTC-5)   AIAA-2023-0395 Aaron Thomas Blevins (Naval Surface Warfare Center Panama City Division)	
<b>Onboard path planning for unmanned aircraft automated taxi using a virtual line-graph</b>	
Monday, 23 January 14:20 - 14:40 (UTC-5)   AIAA-2023-0396 Sebastian Benders, Sven Lorenz, Martin Laubner, Lukas Goormann (Deutsches Zentrum für Luft- und Raumfahrt eV)	
<b>Adaptable Cooperative Unmanned Communications Relay Placement Algorithm</b>	
Monday, 23 January 14:40 - 15:00 (UTC-5)   AIAA-2023-0397 Mary Martin (Georgia Tech Research Institute)	
<b>PC-08   In Person - National Harbor 15</b>	
<b>Numerical modeling of plasma assisted deflagration to detonation transition of a <math>H_2/O_2</math> mixture in a microscale channel</b>	
Monday, 23 January 14:00 - 14:20 (UTC-5)   AIAA-2023-0346 Zhiyu Shi, Xingqian Mao, Yiguang Ju (Princeton University)	

(continued) PC-08 | In Person - National Harbor 15

Computational studies of the interaction of a detonation and a bow shock

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0347  
Ashwath Sethu Venkataraman, Elaine S Oran (Texas A&M University)



Detonation Propagation in Mixtures Containing Exhaust Gases

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0348  
Mason Stocke, Brian Sell, John Hoke (Innovative Scientific Solutions, Inc.), Robert T Fievisohn (Air Force Research Laboratory)



Spectral Analysis of Unstable Detonation

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0349  
Ramachandran Suryanarayan, Navneeth Srinivasan, Shufan Zou, Suo Yang (University of Minnesota Twin Cities)



DGE-01 | In Person - Chesapeake 12

Advancing Model-based Engineering through Improved Integration of Domain-Specific Simulation and Analysis using SysML-based Models for Unmanned Aerial Vehicles

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0256  
Daniel R Herber (Colorado State University), Dominic Dierker (PC Kraus and Associates), Soumya S Patnaik (Air Force Research Laboratory Aerospace Systems Directorate)



Leveraging a Digital Engineering Testbed to Explore Mission Resilience for New Observing Strategies

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0257  
Matthew Jason LeVine, Brian Chell, Paul T Grogan (Stevens Institute of Technology)



A Feasibility Study for the Development of Air Mobility Operations within an Airport City (Aerotropolis)

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0258  
Xi Wang, Michael G Balchanos, Dimitri N Mavris (Georgia Institute of Technology)



Model-Based Validation of U.S. Military Mission Scenarios with Digital Threads

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0259  
Jeff Newcamp (US Air Force Academy), Christopher Oravetz (Infinity Systems Engineering), McKenzie Steiner, Wesley Park, Andrew Hancock, John Cook (US Air Force Academy)



Overview of NASA EDL Technology Strategy and EDL Session Organization

Monday, 23 January 14:00 - 14:20 EDT (UTC-5)



GNC-05/AFM-04 | In Person - Annapolis 3

Navigation Doppler Lidar Signal Processing Architecture and Algorithms

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0299  
Glenn D Hines, Farzin Amzajerdian, Mitchell Jordan Davis, Aram Gragossain, Gregory H Crowther (NASA Langley Research Center)



High-Accuracy 3-DoF Hypersonic Reentry Guidance via Sequential Convex Programming

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0300  
Skye Mceowen, Abhinav G Kamath, Purnanand Elango, Taewan Kim, Samuel C Buckner, Behcet Acikmese (University of Washington)



Robust Entry Guidance with Atmospheric Adaptation

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0301  
Kevin S Tracy, Giusy Falcone, Zachary Manchester (Carnegie Mellon University)



Feature-based Learning for Optimal Abort Guidance

Monday, 23 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0302  
Vinay Kenny, Samuel Godfrey Hendrix, Sixiong You, Ran Dai (Purdue University), Jeremy R Rea (NASA Johnson Space Center)



FT-02 | In Person - Camellia 1

Combat Aircraft Maneuvers in Stability Regions

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0293  
Chimpalthradi R Ashokkumar (Smartools, LLC)



Verification of YP689 Flow Field Models for Dynamic Interface Flight Test

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0294  
Nicholas Bostock, Adrien Richez, Donald H Costello, Allison Webster-Giddings (US Naval Academy), Manessha Wickramasuriya (The George Washington University)



Real-Time Analysis and Model Comparison during Flight Test

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0295  
Jessica M Peterson (U.S. Air Force Test Pilot School)



APA-12 | In Person - Potomac 6

Experimental investigation of pressure fluctuations around protuberances of varying shapes

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0248  
Nishanth Menakath, Gareth A Vio, Nicholas J Lawson (The University of Sydney Faculty of Engineering and Information Technologies), Nicholas F Giannelis (The University of Newcastle College of Engineering Science and Environment)





**(continued) APA-12 | In Person - Potomac 6****Validation of CFD Analysis of Steady Blowing for Control of the Unstable Pitch Break on a FlyingWing**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0249

John Parks, Michael Amitay (Rensselaer Polytech Institute School of Engineering), Rick Hooker, Andrew Wick (Helden Aerospace Corporation)

**Optimization of Synthetic jet to enhance the aerodynamic performance of a VTOL aircraft at real flight conditions**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0250

Hung D Truong, Abderahmane Marouf, Yannick Hoarau (Universite de Strasbourg), Jan B Vos, Alain Gehri (CFS Engineering)

**FD-09 | In Person - Chesapeake F****GPU-Accelerated High-Fidelity Implicit Large Eddy Simulations of Coanda Cylinder Flow Instabilities**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0272

Tom Regev (Technion Israel Institute of Technology), Jonathan Nestmann (Technische Universitat Dresden), Anan Garzuzi, David Greenblatt, Steven Frankel (Technion Israel Institute of Technology)

**Modeling and Numerical investigation of thermal management using wing fence, Hydrogen Fuel Cell UAV test case**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0273

Jean-Denis Parisse (Ecole de l'air), Gilles Bouchet (Institut Universitaire des Systemes Thermiques Industriels)

**Performance Analysis of High Frequency Oscillating Circulation Control**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0274

James Henry, David R Williams (Illinois Institute of Technology)

**Learning-based Adaptive Gust Mitigation with Oscillating Wings**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0275

Naresh Poudel, Arjun Trivedi, Parham Oveissi, Meilin Yu, Ankit Goel (University of Maryland Baltimore County College of Engineering and Information Technology), John T Hrynuk (US Army Combat Capabilities Development Command)

**FD-10 | In Person - Chesapeake G****Time-resolved volumetric flow measurements around a flexible airfoil undergoing flow-induced vibration**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0276

Hadi Samsamkhayani, Sarah Dulac, Mostafa Khazaei Kuhpar, Banafsheh Seyed-Aghazadeh (University of Massachusetts Dartmouth)

**Computational Fluid Dynamics and Flow Testing of Corrugated Metal Flexhoses to Evaluate Flow-Induced Vibration and Pressure Drop**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0277

Patrick K Tran, Jared F Congiardo, Craig R Fortier (NASA John F Kennedy Space Center), Erik Fernandez, Jayanta Kapat (University of Central Florida)



**(continued) FD-10 | In Person - Chesapeake G**

**A Data-Driven Experimental Approach for Modeling Aeroelastic Instabilities of Pitching Wings**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0278  
Yuanhang Zhu, Kenneth Breuer (Brown University)



**SD-08 | In Person - Baltimore 5**

**Multiple-Input, Multiple-Output Linear and Nonlinear Active Control of a Flexible Wing**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0375  
James D Ellis, Davide Balatti, Hamed Haddad Khodaparast, Shakir Jiffri, Micheal Ian Friswell (Swansea University), Sebastiano Fichera (University of Liverpool Faculty of Science and Engineering)



**Experimental Effect of Sideslip Angle on the Dynamic Behaviour of Flared Folding Wingtips**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0376  
Fintan Healy, Djamel Rezgui, Jonathan E Cooper (University of Bristol)



**Frequency Domain Quasi Maximum Likelihood Identification of Low Order Aeroservoelastic Models from Flight-Test Data**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0377  
Jeffrey A Ouellette, Chris Miller, Matthew J. Boucher (NASA Armstrong Flight Research Center)



**Nonlinear Low-Fidelity Numerical Model of the Flared Folding Wingtip**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0378  
Xavier Carrillo, Roeland De Breuker, Jurij Sodja (Technische Universiteit Delft)



**Safe Flutter Determination for Wings Undergoing Large Deflections**

Monday, 23 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0379  
Stefan de Boer (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek), Moti Karpel (Technion Israel Institute of Technology), Jurij Sodja (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek)



**SCS-01 | In Person - Woodrow Wilson C**

**Modeling of Damage in Coilable Composite Shell Structures**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0364  
Armanj D Hasanyan, Sergio Pellegrino (California Institute of Technology Division of Engineering and Applied Science)



**Nonlinear global/local stress and free-edge analysis of ultra-thin composite deployable booms**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0365  
Riccardo Augello, Erasmo Carrera, Alfonso Pagani (Politecnico di Torino)



**(continued) SCS-01 | In Person - Woodrow Wilson C****Prediction of Snap-Through Buckle Formation and Peak Buckle Curvatures in TRAC Booms**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0366  
 Wen Luo, Sergio Pellegrino (California Institute of Technology)

**EXPL-03 | In Person - Chesapeake L****Creating Human Experience through Food in Space (C.H.E.F.)**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0264  
 Carla Uyeda, Madhu Thangavelu (University of Southern California)

**Exploring viability of Life Support System for long term human spaceflight missions**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0265  
 Leon Chen, Michael G Balchanos, Dimitri N Mavris (Georgia Institute of Technology)

**Microgravity Test of Autonomous Multiple Cycle Farming System**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0266  
 Trupti Mahendrakar, Markus Wilde (Florida Institute of Technology)

**A Historical Analysis of Earth-Independence in Human Spaceflight Missions**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0267  
 Annika E Rollock, David Klaus (University of Colorado Boulder)

**MST-03 | In Person - Baltimore 3****Modeling and Simulation of a High-Fidelity Air Refueling System (HiFARS)**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0335  
 Hung Q Tran (CAE Inc.)

**Modeling of Passive Pilot, Pilot Seat, and Inceptor for Aircraft-Pilot-Coupling (APC) Induced Oscillation Investigations**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0337  
 Mohammad A Shams, Fidel Khouli (Carleton University), Sylvain Therien (Bombardier Inc)

**FD-08 | In Person - Chesapeake E****Effects of distributed roughness on shock-wave/boundary-layer interactions at Mach 7.2**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0268  
 Eugene N. Hoffman, David M. Kendhammer, Elijah J LaLonde, Angelina Andrade, Christopher S Combs (The University of Texas at San Antonio)



**(continued) FD-08 | In Person - Chesapeake E**

**Relaminarization Effects on a Three-Dimensional Cone-Slice-Ramp Geometry at Mach 8**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0269  
 Anshuman Pandey (Sandia National Laboratories), Adam Jirasek (US Air Force Academy), Ashley J Saltzman, Katya M Casper, Steven J Beresh, Rajkumar Bhakta, Brian Denk, Marie De Zetter, Russell Spillers (Sandia National Laboratories)



**Index of Refraction Fluctuation Spectra in Aerothermochemical Non-equilibrium Shock Layers**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0270  
 Tyler Dean (Texas A&M University), Farhan Siddiqui, Mark T Gragston (The University of Tennessee Space Institute), Rodney D Bowersox (Texas A&M University)



**Measurements of Hypersonic Double Cone Flows with Shock Wave/Boundary Layer Interactions in the X3 Expansion Tunnel**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0271  
 Aaron Kennedy, Rowland T Penty Geraets (University of Oxford), Christopher M James, Matthew Thompson, Richard G Morgan (The University of Queensland), Joanna M Austin (California Institute of Technology), Fabian Zander (University of Southern Queensland), Matthew McGilvray (University of Oxford)



**FD-13 | In Person - Chesapeake K**

**Numerical investigation of the laminar-turbulent boundary-layer transition for a circular cone at Mach 5: wind tunnel and flight conditions**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0287  
 Christoph Hader, Hermann F Fasel (The University of Arizona)



**Characterization of Transitional, High-Enthalpy Boundary Layers on a Slightly-Blunted Cone. Part I: Schlieren Imaging**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0289  
 Laura A Paquin, Stuart J Laurence (US Naval Research Laboratory), Ahsan Hameed, Nick J Parziale (Stevens Institute of Technology), Wesley M Yu, Joanna M Austin (California Institute of Technology)



**Characterization of Transitional, High-Enthalpy Boundary Layers on a Blunted Cone. Part II: FLDI and Higher Order Spectral Analysis**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0288  
 Ahsan Hameed, Nick J Parziale (Stevens Institute of Technology), Laura A Paquin, Stuart J Laurence (University of Maryland at College Park), Wesley M Yu, Joanna M Austin (California Institute of Technology)



**Study of Bluntness-Induced Elongated Structures in Hypersonic Flow over a 7 degree Circular Cone**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0290  
 Alexandre R Berger, Matthew P Borg (Air Force Research Laboratory)



**GNC-06/IS-04 | In Person - Annapolis 4**

**Energy-Minimization Path Planning and Control of Unmanned Aerial Systems for Advanced Air Mobility**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0303  
 Trevor Karpinski (New Mexico State University), Alexander Blakesley, Jakub Krol, Bani Anvari (University College London), George E. Gorospe (NASA Ames Research Center), Liang Sun (New Mexico State University)



**(continued) GNC-06/IS-04 | In Person - Annapolis 4**

**On-board implementation using Julia precompiler for rendezvous path planning**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0304  
Colin Taylor (Parallax Advanced Research Corporation), Satyanarayana G Manyam (Infoscitex), David Casbeer (Air Force Research Laboratory)



**Fixed-Wing Glider Guidance for Plume Localization and Tracking Missions**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0305  
Derrick W Yeo, Elena Shrestha (University of Michigan), Jason M Cho (Johns Hopkins University Applied Physics Laboratory)



**Quantitative Conflict Detection in an Airspace of Heterogeneous Unmanned Aerial Vehicles Subject to Wind Uncertainties**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0306  
Rajnish Bhusal, Aakarshan Khanal, Kamesh Subbarao, Animesh Chakravarthy (The University of Texas at Arlington), Wendy Okolo (NASA Ames Research Center)



**SD-06 | In Person - Chesapeake 3**

**Sparse Identification of Nonlinear Gust Response in Laminar Flow**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0367  
Zahra Sotoudeh, Ziyin Yuan (California State Polytechnic University, Pomona), Caleb J Barnes (Air Force Research Laboratory)



**Development of AI-powered Predictive Model via Convolutional Recurrent Network for Mobility Application**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0368  
Hyejin Kim, Inho Jeong, Hojin Jeong, Haeseong Cho (Jeonbuk National University), Joong-Kwan Kim (Hanseu University)



**Automatic Adaptive Refinement Sampling Method for Data-Driven Predictive Models**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0369  
Zahra Sotoudeh, Makus Eger (California State Polytechnic University Pomona)



**Optimal sensor location and stress prediction on a plate using machine learning**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0370  
Sam Choppala (San Jose State University), Todd W Kelmar (San Jose State University Charles W Davidson College of Engineering), Maria Chierichetti, Fatemeh Davoudi, Daniel Huang (San Jose State University)



**MAT-03 | In Person - Chesapeake 8**

**Non-Oxide Ceramic Additive Manufacturing Processes for Aerospace Applications**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0315  
Giancarlo D'Orazio, Grace Emma Falanga, Zachariah Chazen (Cornell University), Jason Jones (Moog Inc), Sadaf Sobhani (Cornell University)



**(continued) MAT-03 | In Person - Chesapeake 8**

**Rapid thermal analysis of the Fused Filament Fabrication process**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0316  
Manish Nagaraj, Christopher J Hansen, Marianna Maiaru (University of Massachusetts Lowell)



**Multiphysics Modeling of Frontal Polymerization-Assisted Layer-by-Layer Additive Manufacturing of Thermoset Polymer Components**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0317  
Zhuoting Chen (University of Wyoming), Morteza Ziaee, Mostafa Yourdkhani (Colorado State University), Xiang Zhang (University of Wyoming)



**Embedded Piezoresistive Sensors Printed by FFF for Aerospace Applications**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0318  
Merve Karabal (Istanbul Teknik Universitesi), Ramazan Yuksel (Aerospace Research Center, Istanbul Technical University), Fulden Kayginok (Advanced Materials Technologies Research Division, ASELSAN Inc), Alptekin Yildiz, Hulya Cebeci (Istanbul Teknik Universitesi)



**MDO-04 | In Person - Chesapeake B**

**Understanding Distributed Propulsion on the NASA Tiltwing Concept Vehicle with Aerodynamic Shape Optimization**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0143  
Bernardo Pacini, Malhar Prajapati, Karthikeyan Duraisamy, Joaquim R. R. A. Martins (University of Michigan), Ping He (Iowa State University)



**A Generalized Methodology for a Highly Parallelizable Uncoupled Method for Static Aeroelastic Analysis in Support of Design Optimization**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0328  
William D Scholten, Nicolas Reveles, Eric Blades (ATA Engineering, Inc.)



**High-Fidelity Aerothermoelastic Optimization with Differentiable CAD Geometry**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0329  
Sean P Engelstad, Brian Burke, Rohan N Patel, Graeme Kennedy, Sejal Sahu (Georgia Institute of Technology)



**Implementation and Verification of an Exergy Functional in FUN3D**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0144  
Neal Novotny, Markus P Rumpfkeil (University of Dayton), Jose A Camberos (Air Force Research Laboratory)



**PGC-04 | In Person - National Harbor 2**

**Detonation Flow Characterization Using Megahertz Rate Particle Image Velocimetry**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0359  
Joshua Berson, Rachel Hytovick, Kareem A Ahmed (University of Central Florida)



**(continued) PGC-04 | In Person - National Harbor 2****Visualization and Velocimetry Techniques for Supersonic Reacting Flows**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0360  
 Rachel Hytovick, Kareem A Ahmed (University of Central Florida)

**Investigating quantitative ion probe measurements in a rotating detonation engine**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0361  
 Clinton Bedick, Justin Weber, Donald H Ferguson (National Energy Technology Laboratory)

**Dependence of premixture jet height on detonation wave propagation inside a pressure gain combustion channel**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0362  
 Faming Wang, Taichi Kitaori, Ryunosuke Shimizu, Toshiharu Mizukaki (Tokai Daigaku)

**Experimental Studies of the Interaction of Liquid Rocket Fuel Droplets with Detonation Waves**

Monday, 23 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0363  
 Nicolas Berube, Sydney M Briggs, Daniel R Dyson, Anthony Aguilera, Artem Arakelyan, Subith Vasu (University of Central Florida)

**MDO-05 | In Person - Chesapeake A****Data-driven Model Reduction via Operator Inference for Coupled Aeroelastic Flutter**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0330  
 Benjamin G Zastrow (The University of Texas at Austin Cockrell School of Engineering), Anirban Chaudhuri, Karen E Willcox (The University of Texas at Austin Oden Institute for Computational Engineering and Sciences), Anthony S Ashley, Michael C Henson (Lockheed Martin Aeronautics Company)

**Determination of Kriging Model Parameters for Modeling of Computational Aerodynamic Euler Responses for a Generic Hypersonic Vehicle**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0331  
 Christopher C Fischer, Jacob R. Johanik, Ramana V Grandhi (Air Force Institute of Technology), Logan P Riley, Jose A Camberos (Air Force Research Laboratory)

**Shapley Additive Explanations for Knowledge Discovery via Surrogate Models**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0332  
 Pramudita Satria Palar, Lavi Rizki Zuhail (Institut Teknologi Bandung), Koji Shimoyama (Tohoku Daigaku), Yohanes Bimo Dwianto (Institut Teknologi Bandung), Joseph Morlier (ISAE-SUPAERO)

**Hull Form Design Optimization using ROM with Machine Learning and Active Subspace Methods**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0333  
 Wontae Hwang (Gwangju Institute of Science and Technology), Jewon Kim (Pusan National University), Seongim Choi (Gwangju Institute of Science and Technology), Febriani Rohma Dhanan, Jongcheon Park (Pusan National University)





<b>(continued) MDO-05   In Person - Chesapeake A</b>	
<b>Learning Optimal Aerodynamic Designs through Multi-Fidelity Reduced-Dimensional Neural Networks</b>	
Monday, 23 January 15:20 - 15:40 (UTC-5)   AIAA-2023-0334 Xiaosong Du, Joaquim R. R. A. Martins (University of Michigan), Thomas O'Leary-Roseberry, Anirban Chaudhuri, Omar Ghattas, Karen E Willcox (The University of Texas at Austin)	
<b>EP-02   In Person - Chesapeake 11</b>	
<b>Electrospray Emitter Geometry Characterization through Surface Profilometry and Parameter Estimation</b>	
Monday, 23 January 14:00 - 14:20 (UTC-5)   AIAA-2023-0260 Collin B Whittaker, Benjamin Jorns (University of Michigan)	
<b>Additive Manufacturing and Characterization of Porous Ceramic Electrospray Emitters</b>	
Monday, 23 January 14:20 - 14:40 (UTC-5)   AIAA-2023-0261 Suhail Chamieh, Elaine Petro, Sadaf Sobhani (Cornell University)	
<b>Designing and Commercialization of Porous Emitter Electrospray Thruster for Space Applications</b>	
Monday, 23 January 14:40 - 15:00 (UTC-5)   AIAA-2023-0262 Arsad Quraishi, Szymon Dworski, Chengyu Ma, Charles N Ryan (University of Southampton), Alessandro Ferreri, Guillaume Vincent, Hugo Larsen, Emmanuelle Rosati Azevedo, Emily Dingle, Alberto Garbayo (AVS UK), Maria Vozarova, Erich Neubauer (RHP Technology)	
<b>A Brief Review of Diagnostics for Electrospray Propulsion</b>	
Monday, 23 January 15:00 - 15:20 (UTC-5)   AIAA-2023-0263 Christopher T Lyne, Miron F Liu, Joshua Rovey (University of Illinois Urbana-Champaign)	
<b>MST-04   In Person - Baltimore 4</b>	
<b>Modeling, Simulation and Control of a Tailsitter Tiltrotor MAV</b>	
Monday, 23 January 14:00 - 14:20 (UTC-5)   AIAA-2023-0338 Ilja Pricker, Sophie F Armanini (Technische Universitat Munchen School of Engineering and Design)	
<b>Computer Based Modeling for Tilt-Wing e-VTOL Propeller Performance</b>	
Monday, 23 January 14:20 - 14:40 (UTC-5)   AIAA-2023-0339 Ege Konuk, Drew Landman (Old Dominion University Frank Batten College of Engineering and Technology)	
<b>Drag model for extremely fast estimation of pressure and friction drag for AI driven design of non-structured VTOL aircraft</b>	
Monday, 23 January 14:40 - 15:00 (UTC-5)   AIAA-2023-0340 Frederick Michael Heim, Pablo C Bueno, Sidney Chocron, James D. Walker, Alexander Carpenter, Jon T Cutshall, Brian Swenson (Southwest Research Institute), Theodore Bapty (Vanderbilt University), Sydney Whittington (Southwest Research Institute)	



**(continued) MST-04 | In Person - Baltimore 4****Development of a Shipboard Skid-equipped Rotary-wing Aircraft Manoeuvring and Securing Simulation Package**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0341

Alexander R Schock, Robert Langlois (Carleton University Faculty of Engineering and Design)

**FD-11 | In Person - Chesapeake I****A Scalable Multiphase Flow Solver for Simulation of Hybrid Rocket Motors**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0279

Mae L Sementilli, Matthew McGurn, James M Chen (University at Buffalo School of Engineering and Applied Sciences)

**Predicting Particle Acceleration Using Flow Feature Extraction in a Louver Particle Separator**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0280

Travis Bowman, Cairen Joel Miranda, John Palmore (Virginia Polytechnic Institute and State University)

**Study of shock interaction with a particle curtain using the Multiphase Particle in Cell (MP-PIC) approach**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0281

Akhil Marayikkottu Vijayan, Deborah A Levin (University of Illinois Urbana-Champaign)

**A Phase Transition Model for Cavitating Flows**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0282

Lingquan Li, Facundo Nicolas Airaud, Rainald Lohner (George Mason University)

**Verification of the Eulerian-Eulerian Two-Fluid Model in Loci/GGFS**

Monday, 23 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0283

Manuel Gale (CFD Research Corporation)

**MAT-05/ICME-01/MDO-02/STR-03 | In Person - Chesapeake 1****Machine-Learning-Assisted Characterization of Interfacial Failure in Solid-State Batteries**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0319

Juner Zhu (Northeastern University), Wei Li, Avtar Singh (Massachusetts Institute of Technology), Donal Finegan, Trevor Martin (National Renewable Energy Laboratory)

**Mixed-domain Charge Transport in the S-Se System from First Principles**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0320

Junsoo Park, Zhigang Wu, John Lawson (NASA Ames Research Center)



**(continued) MAT-05/ICME-01/MDO-02/STR-03 | In Person - Chesapeake 1**

**Modelling and experiments to guide the manufacture of fast-charging and long-life Li-ion electrode architectures**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0321  
Donal Finegan (National Renewable Energy Laboratory)



**Characterization of microscopic deformation of materials using computer vision**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0322  
Kavindu Wijesinghe, Janith C Wann, Natasha Banerjee, Sean Banerjee, Ajit Achuthan (Clarkson University)



**Development of a Methodology for Analysis of Bonded Interface in Polymeric Matrix Composites in Presence of Manufacturing Defects**

Monday, 23 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0323  
Guillaume Seon, Andrew V Makeev (The University of Texas at Arlington)



**CFD2030-01 | In Person - National Harbor 13**

**Wall-Modeled Large Eddy Simulation Method for Unstructured-Grid Navier-Stokes Solvers**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0251  
Li Wang, William K Anderson, Eric J Nielsen (NASA Langley Research Center), Prahladh Satyanarayanan Iyer, Boris Diskin (National Institute of Aerospace)



**Numerical Study on the Aerodynamics of an Iced Airfoil with Scale-Resolving Simulations**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0252  
Man Long Wong, Aditya S Ghat, Gaetan KW Kenway, Gerrit-Daniel Stich, Cetin C Kirs (NASA Ames Research Center)



**Evaluation of Voronoi Meshes for Large Eddy Simulations of High Lift Aerodynamics**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0255  
Emre Sozer (NASA Ames Research Center), Aditya S Ghat, Gaetan KW Kenway (Science and Technology Corporation), Michael F Barad (NASA Ames Research Center), Victor C. B. Sousa (Science and Technology Corporation), Cetin C Kirs (NASA Ames Research Center)



**Turbulence Simulations of Transonic Flows over an NACA-0012 Airfoil (Invited)**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0254  
Ponnampalam Balakumar (NASA Langley Research Center), Prahladh Satyanarayanan Iyer (National Institute of Aerospace), Mujeeb R Malik (NASA Langley Research Center)



**Wall-modeled LES of the Three-dimensional Speed Bump Experiment**

Monday, 23 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0253  
Prahladh Satyanarayanan Iyer (National Institute of Aerospace), Mujeeb R Malik (NASA Langley Research Center)



**AMT-03 | In Person - Magnolia 3****Wall-normal FLEET Velocimetry in a Canonical Hypersonic Inlet**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0220

John C Pehrson, Boris S Leonov, Richard B Miles (Texas A&amp;M University), Matthew T Lakebrink (The Boeing Company St Louis), Christopher Limbach (Texas A&amp;M University)

**Joint Temperature and Velocity Statistics in High-speed Flows Using Simultaneous CARS Thermometry and FLEET Velocimetry**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0221

Erik Braun, Jonathan Crosmer, David Ritchie, Nathaniel Kiefer, James Braun, Guillermo Paniagua, Mikhail Slipchenko, Terrence R Meyer (Purdue University)

**1D Temperature Measurement of a Supersonic Air Jet with N2 Resonantly Ionized Photoemission Thermometry**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0222

Aleksander Madison Clark, Walker McCord, Kyle Pride, Zhili Zhang (The University of Tennessee Knoxville)

**Non-Intrusive Velocimetry in a Supersonic Reacting Flow using Two-Point Focused Laser Differential Interferometry**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0223

Andrew Ceruzzi, Mithuun Kanapathipillai, Kenneth H Yu, Christopher P Cadou (University of Maryland at College Park)

**ACD-02 | In Person - National Harbor 12****A Conceptual Sizing Tool for Regional and Commuter Aircraft with Hybrid-Electric Propulsion**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0213

Gala Licheva, Susan Liscouet-Hanke (Concordia University)

**Conceptual investigation on performance of short-medium range aircraft with liquid hydrogen propulsion and different airframe architectures**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0214

Vittorio Cipolla (Universita degli Studi di Pisa), Davide Zanetti (SkyBox Engineering), Karim Abu Salem (Universita degli Studi di Pisa), Vincenzo Binante (SkyBox Engineering), Giuseppe Palaia (Universita degli Studi di Pisa)

**Conceptual Design of a Next Generation Supersonic Airliner for Low Noise and Emissions**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0215

Cristina Villena Munoz, Giordana Bonavolontà, Craig Lawson, Atif Riaz (Cranfield University Cranfield School of Aerospace Transport and Manufacturing)

**Aerothermodynamic Assessment of Conceptual and Detail Configuration Changes to a Rocket Propelled Aircraft**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0216

Jack A Griffin, Timothy T Takahashi (Arizona State University Ira A Fulton Schools of Engineering), Patrick E Rodi (Rice University)



PDL-02/AMT-05 | In Person - Azalea 3

Angle Optimized Filtered Rayleigh Scattering for the Imaging of Pressure Waves from Laser Generated Surface Sparks at 250,000 Frames per Second

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0350  
James R Creel, Boris S Leonov, Richard Miles (Texas A&M University System)



Quantitative femtosecond two-photon absorption laser induced fluorescence measurements of hydrogen and nitrogen atoms in an AC dielectric barrier discharge

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0351  
Ning Liu (Princeton University), Timothy Chen (Sandia National Laboratories California), Hongtao Zhong, Christopher Kondratowicz, Yiguang Ju (Princeton University)



Beam Shaping for the Laser Energy Deposition in Air

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0352  
Sagar Pokharel, Junhwi Bak, Albina Tropina, Richard B Miles (Texas A&M University)



On the effect of high-frequency plasma actuator forcing for prevention of dynamic stall

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0353  
Alexander J Lilley, Subrata Roy (University of Florida), Miguel R Visbal (Air Force Research Laboratory)



AA-03 | In Person - Baltimore 2

Aeroacoustic Optimization of VTOL Rotor Blades

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0209  
Matthew A Clarke (Massachusetts Institute of Technology), Emilio Botero (Stanford University)



On the influence of elasticity on swept propeller noise

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0210  
Ole Bergmann, Felix Möhren, Carsten Braun, Frank Janser (FH Aachen)



Prediction of Sound Exposure caused by a Landing Motor Glider with Recuperating Propellers

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0211  
Sebastian Hille, Eike Stumpf (Rheinisch-Westfälische Technische Hochschule Aachen), Joscha Mayntz, Peter Dahmann (FH Aachen)



Acoustics of an Open Rotor Ingesting a Planar Turbulent Boundary Layer With Pressure Gradient Effects

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0212  
Szu-Fu Huang, Shaheen Thimmaiah Palanganda, Jarrod T Banks, William N Alexander, William J Devenport (Virginia Polytechnic Institute and State University)



**HIS-02 | In Person - Chesapeake 10**

**History of the NRC 1.5m Trisonic Wind Tunnel**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0310  
Stuart McIlwain, Melissa Richardson (National Research Council Canada)



**The Path to Mars Runs through the National Full-Scale Aerodynamics Complex**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0311  
Patrick W Goulding, Christopher M Nykamp (National Full-Scale Aerodynamics Complex)



**Edgar Lineberry, Pioneer of Orbital Rendezvous**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0312  
John Goodman (Odyssey Space Research, LLC)



**George Cherry and Apollo Lunar Module Guidance**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0313  
John Goodman (Odyssey Space Research, LLC)



**STR-05 | In Person - Chesapeake 4**

**Sizing and Design Tool for Tall Lunar Tower**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0382  
Kyongchan Song (NASA Langley Research Center), Martin Mikulas (National Institute of Aerospace), Matthew K Mahlin, Jacob T Cassidy (NASA Langley Research Center)



**Towers: Critical Initial Infrastructure for the Moon**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0383  
William R Doggett, Jacob Hepler, Matthew K Mahlin, Richard S Pappa, John Teter, Kyongchan Song, Brace White, Iok Wong (NASA Langley Research Center), Martin Mikulas (National Institute of Aerospace)



**Mechanical Properties of Hierarchical Beams for Large-Scale Space Structures**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0384  
Fakhreddin Emami, Andrew J Gross (University of South Carolina)



**Theoretical and Experimental Analyses of Inflatable Structures**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0385  
Jitish Miglani, Wei Zhao, Rakesh K Kapania (Virginia Polytechnic Institute and State University), Shardul Singh Panwar, Rikin Gupta, Azwan Aris (Toyota Research Institute North America)



**Design, Manufacturing, and Evaluation of Functionally Graded Adhesive Lap Joints Using Radiation Sensitive Adhesives**

Monday, 23 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0386  
Sam B Hurvitz, Scott E Stapleton (University of Massachusetts System)



FD-14 | In Person - Chesapeake D

Boundary Layer Turbulence Flight Experiment, Memories of Mike Holden

Monday, 23 January 14:00 - 14:20 (UTC-5) | 3776685</stron  
Tim P Wadhams (CUBRC), Rodney D Bowersox (Texas A&M University), Aaron T Dufrene, Michael S. Holden (CUBRC)



Basic State Computations and Streamline Analysis for Selected BOLT-II Flight Conditions

Monday, 23 January 14:20 - 14:40 (UTC-5) | 3771639</stron  
Fei Li, Scott A Berry, Meelan M Choudhari (NASA Langley Research Center), Pedro Paredes (National Institute of Aerospace)



Initial BiGlobal Stability Analysis of the BOLT II Flight Experiment

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0291  
Cameron Butler, Gregory McKiernan, Bradley M Wheaton (Johns Hopkins University Applied Physics Laboratory)



Trajectory-Based Conjugate Heat Transfer Simulation of the BoLT-II Flight Experiment

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0292  
Kyle A Damm, Rowan Gollan, Anand Veeraragavan (The University of Queensland Centre for Hypersonics)



SD-07 | In Person - Chesapeake 5

Gust Load Alleviation Control of Aircraft with Varying Mass Distribution

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0371  
Matthias Wuestenhagen (Deutsches Zentrum fur Luft- und Raumfahrt eV)



In-flight drag measurement and validation for a medium-sized UAV

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0372  
Julius Bartasevicius, Mirko Hornung (Technische Universitat Munchen)



Flight Vibration Testing of the T-FLEX UAV using Online Modal Analysis

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0373  
Keith Soal, Robin Volkmar, Carsten Thiem, Julian Sinske, Yasser Muhammad Meddaikar, Yves Govers, Marc Böswald (Deutsches Zentrum fur Luft- und Raumfahrt eV), Daniel Teubl, Julius Bartasevicius (Technische Universitat Munchen), Mihaly Nagy, Balint Vanek (Eotvos Lorand Kutatasi Halozat Szamitastechnikai es Automatizalasi Kutatointezet)



Application and Validation of a Model Updating Approach for Linearized State-Space Models of Flexible Aircrafts Using Multiple Flight Test Data

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0374  
Özge Sülözgen (Deutsches Zentrum fur Luft- und Raumfahrt eV)



APA-08 | In Person - Potomac 1

Towards True Digital Transformation with HPCMP CREATE<sup>TM</sup>-AV Simulation Tools

Monday, 23 January 14:00 - 14:20 (UTC-5) | 3775153  
David R McDaniel, Andrew M Wissink (CREATE AV Team)



Machine Learning-Based Surrogate Modeling for Aerodynamic Loads Predictions

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0232  
Jennifer Abras, Todd Tuckey, David R McDaniel, Nathan S Hariharan (CREATE AV Team)



A Data-Driven Modeling Approach for Rotorcraft Store Separation

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0233  
Nicholas Peters, John A Ekaterinaris (Embry-Riddle Aeronautical University), Andrew M Wissink (US Army Combat Capabilities Development Command Aviation & Missile Center)



Data-Driven Modeling of Aerodynamic Loadings for Tiltrotor Pylon using Multi-Fidelity CFD Data

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0234  
Phuriwat Anusonti-Inthra (Army Research Laboratory Aberdeen Proving Ground)



A Computational Environment for Aircraft Design and Acquisition Engineering

Monday, 23 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0235  
Robert B Haehnel, Deanna L Hardin, Jordan T Bates, Scott D Christensen, Thomas L Arnold, Marvin S Brown, Andrew C Bauer, Quyen T Brannon, Joshua Q Church, Amanda R Catlett, Theresa R Coumbe, Dallon C Schofield (US Army Engineer Research and Development Center), Beatrice F Roget (US Army Combat Capabilities Development Command)



APA-09 | In Person - Potomac 5

An Overview of NASA Langley Low-Speed CFD Contributions to the Space Launch System Program

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0236  
Brent W Pomeroy (NASA Langley Research Center)



Launch Vehicle Ascent CFD for the Space Launch System

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0237  
Derek Jordan Dalle, Stuart E Rogers, Jamie Meeroff, Aaron C Burkhead (NASA Ames Research Center), Daniel G Schauerhamer, Joshua F Diaz (Science and Technology Corporation)



Advances in Space Launch System Booster Separation CFD

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0238  
Jamie Meeroff, Derek J Dalle, Stuart E Rogers, Aaron C Burkhead (NASA Ames Research Center), Daniel G Schauerhamer, Joshua F Diaz (Science and Technology Corporation)



A Computational Study of Plume Modeling For Space Launch System Abort Scenarios

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0239  
Jonathan Boustani, Michael Applebaum, William Eppard (Mclaurin Aerospace), Thomas Steva (NASA Marshall Space Flight Center), Leslie H Hall (Mclaurin Aerospace)



**(continued) APA-09 | In Person - Potomac 5**

**Ground Wind Loads on the Space Launch System Mobile Launcher Crew Access Arm**

Monday, 23 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0240  
Thomas J Wignall, Jesse G Collins, Brent W Pomeroy, Jeremy Pinier (NASA Langley Research Center)



**APA-07 | In Person - Potomac 3**

**Supersonic Configurations at Low Speeds (SCALOS): Configuration Comparison of SCALOS to Existing Designs**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0228  
Eli Livne (University of Washington)



**Supersonic Configurations at Low Speeds (SCALOS): The Aerodynamic Effects of Control Surfaces**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0229  
Eli Livne (University of Washington)



**Supersonic Configurations at Low Speeds (SCALOS): The Incremental Effects of Configuration Variations and Model Regression Studies**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0230  
Eli Livne (University of Washington)



**Supersonic Configurations at Low Speeds (SCALOS): CFD Aided Wind Tunnel Data Corrections**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0231  
Eli Livne (University of Washington)



**STR-04 | In Person - Chesapeake 7**

**A Complex Potential Methodology for Bolted Repair Analysis of Composite Laminates**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0380  
Steven G Russell (Russell Aerostructures Consulting LLC)



**Linear Viscoelastic Model of an Adhesively Bonded, Single Lap Shear Joint**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0381  
Cole T Cappon, Craig G Merrett (Clarkson University)



**PGC-03 | In Person - National Harbor 3**

**Experimental Results for Geometrically Scaled Rotating Detonation Rocket Engines**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0354  
Carl Knowlen, Tyler J Mundt, Mitsuru Kurosaka (University of Washington)





(continued) PGC-03 | In Person - National Harbor 3

Design and analysis of an additively manufactured rotating detonation rocket engine chamber for calorimetry and thermal management assessment

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0355  
Joseph Hernandez-McCloskey, Daniel I Pineda (The University of Texas at San Antonio), John W Bennewitz (The University of Alabama in Huntsville), Blaine R Bigler (Jacobs Technology Inc.), Jason R Burr, Stephen A. Danczyk, Eric J. Paulson, William A Hargus (Air Force Research Laboratory)



Liquid Jet Response to Detonation Waves in a Linear Detonation Combustor

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0356  
Charlie H Black, Timothy R Winter, Deborah Renae Jackson, Mark Frederick, Rohan Gejji, Carson D Slabaugh (Purdue University), H. Douglas Perkins (NASA Glenn Research Center), Christopher Allen Fugger (Spectral Energies)



Development of a High Pressure, Cold Flow Test Facility for Characterizing Novel, Ultra High Performance, Additively Manufactured Injector Elements for Pressure Gain Engines

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0357  
Ari D Goldman, Murphy Mitchell (Auburn University), Thomas W Teasley (NASA Marshall Space Flight Center), David E. Scarborough (Auburn University)



Scaling Effects of Increased Annular Diameter in a Rotating Detonation Rocket Engine

Monday, 23 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0358  
Blaine R Bigler (Jacobs Technology Inc), Jason R Burr (Exquadrum), John W Bennewitz, Stephen A. Danczyk, Eric J. Paulson (Air Force Research Laboratory Aerospace Systems Directorate)



TES-02 | In Person - National Harbor 6

Predicting CO and NO<sub>x</sub> Emissions from a Gas Turbine Using Machine Learning Techniques

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0387  
Muhammad Rubayat Bin Shahadat, Michael S. Murillo, Farhad Jaber (Michigan State University)



Plug and Abandonment of Oil Wells by an Innovative Thermal Technology: A contribution to the shift from a Carbon-based to a Carbon-free economy

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0388  
Anatole Hordiene, Marcelo JS de Lemos (Instituto Tecnológico de Aeronáutica - ITA)



TP-04 | In Person - Azalea 1

Role of Multiphase Modeling on Nozzle Thermochemical Erosion in Solid Rocket Motors

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0392  
Marco Rotondi, Marco Grossi, Mario Tindaro Migliorino, Daniele Bianchi (Universita degli Studi di Roma La Sapienza)



The Effect of Drag Model on Heatshield Recession due to Particle Impacts for Martian Spacecraft

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0393  
Grant E Palmer, Amal Sahai (Analytical Mechanics Associates, Inc.)



**(continued) TP-04 | In Person - Azalea 1****Characterization of Surface Erosion from High Speed Single Micrometer Impacts on Al-6061 T6**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0394

Austin Andrews, Devin McGee, Ioannis Pothos, Nathan Bellefeuille, Christopher J Hogan, Thomas E Schwartzentruber (University of Minnesota Twin Cities)

**TP-03 | In Person - Azalea 2****Aerodynamics and Heat Transfer Investigation of Supercritical Carbon Dioxide Multi Jet Impingement Cooling for a Leading Edge at Hypersonic Speeds**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0389

Manoj Prabakar Sargunraj, Marcel Otto, Ladislav Vesely, Erik Fernandez, Jayanta Kapat (University of Central Florida), Valerio Viti, Swati Saxena (ANSYS Inc)

**Impact of Data Representation on Artificial Neural Network Performance in sCO<sub>2</sub> Cooling Applications**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0390

Vinusha Dasarla Giri Babu, Yang Chao, Nicholas C Lopes, Mark Ricklick, Prashant Shekhar, Sandra Boetcher (Embry-Riddle Aeronautical University)

**Numerical Evaluation of Entry System Trajectory Control via Active Porosity Control of Transpiration Cooled Thermal Protection System**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0391

Caroline Anderson, Michael P Kinzel (University of Central Florida College of Engineering and Computer Science)

**APA-10 | In Person - Potomac 2****Aerodynamic Effects of Surface Protuberance Sizes on Slender-Bodied Supersonic Vehicle**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0241

Kazuki Nimura, Fumiya Tsutsui, Keiichi Ktamura (Yokohama National Univeristy), Satoshi Nonaka (Japan Aerospace Exploration Agency)

**Unsteadiness in Curved Shock-Induced Separation due to Protuberances**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0242

Ramachandra K, Sourabh Bhardwaj, Sriram Rengarajan (Indian Institute of Technology Madras)

**Low Speed Characteristics Study of Various Supersonic Airfoils Using Co-Flow Jet Active Flow Control**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0243

Zhijin Lei, Gecheng Zha (University of Miami)

**Analysis of the flow development towards shock buffet on an OAT15A profile**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0244

Alessandro Accorinti, Tim Korthäuer, Sven Scharnowski, Christian Kähler (Universitat der Bundeswehr Munchen Institut für Strömungsmechanik und Aerodynamik)



**PC-07 | In Person - National Harbor 10****Premixed flames subjected to actively generated turbulence: Flame structure and burning velocity**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0342

Sajjad Mohammadnejad, Sina Kheirkhah (The University of British Columbia Okanagan)

**Large eddy simulations of  $\text{NH}_3\text{-H}_2$  jet flame at elevated pressure using PCA with inclusion of  $\text{NH}_3/\text{H}_2$  ratio variation**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0343

Suliman Abdelwahid, Mohammad Rafi Malik (King Abdullah University of Science and Technology Clean Combustion Research Center), Hasan Abed Al Kader Hammoud (King Abdullah University of Science and Technology), Francisco E. Hernandez P'erez (King Abdullah University of Science and Technology Clean Combustion Research Center), Bernard Ghanem (King Abdullah University of Science and Technology), Hong G Im (King Abdullah University of Science and Technology Clean Combustion Research Center)

**Influence of Mixture Composition and Radial Flame Location on Counter-rotating Vortex Pair Evolution in a reacting jet in crossflow**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0344

Vedanth Nair, Abin Krishnan, Subodh Adhikari, Vishal S Acharya, Tim C Lieuwen (Georgia Institute of Technology)

**Evaluation of Deconvolution Methods to Estimate Energy Dynamics from Filtered Velocity Measurements**

Monday, 23 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0345

Askar Kazbekov, Andrew Shi, Adam M Steinberg (Georgia Institute of Technology), Ryan Andrew Darragh, Peter E Hamlington (University of Colorado Boulder)

**APA-11 | In Person - Potomac 4****Numerical 6DOF simulation of a perching wing deforming UAV**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0245

Wee Beng Tay, Woei-leong Chan (National University of Singapore)

**Embedded WMLES of transonic buffet on a nacelle-aircraft configuration**

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0246

Marius Herr (Technische Universität Braunschweig), Sebastian Spinner, Axel Probst (Deutsches Zentrum für Luft- und Raumfahrt eV), Rolf Radespiel (Technische Universität Braunschweig), Ralf Rudnik (Deutsches Zentrum für Luft- und Raumfahrt eV)

**Spectral model of wall-pressure fluctuations applied to the transonic flow around a generic space launcher**

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0247

Simon Lecler, Pierre-Elie Weiss, Sébastien Deck (Office National d'Etudes et de Recherches Aérospatiales)

**FD-12 | In Person - Chesapeake H****Modelling Errors in Wall-Modelled Large-Eddy Simulations of High-Speed Channel Flows**

Monday, 23 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0284

William van Noordt (University of Oxford Mathematical Physical and Life Sciences Division), Sparsh Ganju (University of Maryland at College Park), Luca di Mare (University of Oxford Mathematical Physical and Life Sciences Division), Christoph Brehm (University of Maryland at College Park)



(continued) FD-12 | In Person - Chesapeake H

A New Wall-Stress Model for Large-Eddy Simulations

Monday, 23 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0285  
Matthew Subrahmanyam, Zan Xu, Brian Cantwell, Juan J Alonso (Stanford University)



Wall-Resolved Large-Eddy Simulation of Flow over a Three-Dimensional Gaussian Bump

Monday, 23 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0286  
Donald P Rizzetta, Daniel J Garmann (Air Force Research Laboratory)



14:00 | Technical Workshop

- GNC-03 | In Person - Annapolis 1
- GT-01/APA-13 | In Person - Chesapeake 9
- LP-02 | In Person - National Harbor 5

16:00 | Technical Panel

- EXPL-04 | In Person - National Harbor 7
- INPSI-04/EAT-03/TF-03/GTE-06/PC-09 | In Person - Potomac 4
- IS-08 | In Person - Woodrow Wilson D
- MAT-08/NDA-03 | In Person - Chesapeake 1
- DGE-03 | In Person - National Harbor 6

16:00 | Technical Paper Session

AMT-08/FD-15 | In Person - Camellia 2

Quantifying fs/ps CARS measurement uncertainty for transient flows

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0411  
Ryan J Thompson, Laurie A Elkowitz, Mohamed Anwar Akkari, Chloe E Dedic (University of Virginia)



FluidNeRF: A Scalar-Field Reconstruction Technique for Flow Diagnostics using Neural Radiance Fields

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0412  
Dustin Lee Kelly, Brian S Thurow (Auburn University)



Data Assimilation for isotropic turbulent flow and Pressure Computation using Omnidirectional Integration

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0413  
Mohamed Amine Abassi, Qi Wang, Xiaofeng Liu (San Diego State University College of Engineering)



**(continued) AMT-08/FD-15 | In Person - Camellia 2**

**Pressure Reconstruction from the Measured Pressure Gradient Using Gaussian Process Regression**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0414  
Zejian You, Qi Wang, Xiaofeng Liu (San Diego State University College of Engineering)



**Analysis of Impact of Uncertainty in a Method for Determining Drag from Wake Velocity Profiles**

Monday, 23 January 17:20 - 17:40 (UTC-5) | AIAA-2023-0415  
David H Bridges (Texas A&M University)



**EP-03 | In Person - Chesapeake 11**

**A linear magnetic reconnection based plasma thruster for spacecraft propulsion**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0448  
Christopher N Everett, Charles N Ryan (University of Southampton)



**Performance Predictions for CW-Mode Operation of an RMF Thruster**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0449  
Christopher L Sercel, Tate Gill, Benjamin Jorns (University of Michigan)



**Research on Efficient Heat Transfer for Air Breathing Electric Propulsion**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0450  
Masanori Harada, Hideki Moriai (Kanazawa Kogyo Daigaku)



**Performance of a 5-kW class coaxial Rotating Magnetic Field Thruster**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0451  
Tate Gill, Christopher L Sercel, Benjamin Jorns (University of Michigan)



**Characterization of an Air-Breathing Deflagration Thruster**

Monday, 23 January 17:20 - 17:40 (UTC-5) | AIAA-2023-0452  
Keshav P Prathivadi, Jackson S Dye, Thomas C Underwood (The University of Texas System)



**PGC-06 | In Person - National Harbor 2**

**Second-Generation Development of a Radial Rotating Detonation Engine**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0576  
John T. Ursino, Marc D Polanka (Air Force Institute of Technology), Kavi Muraleetharan (Air Force Research Laboratory)



(continued) PGC-06 | In Person - National Harbor 2

3D Evaluation of Premixed Gas Injection Ports Number on Flow Field in Disk RDE

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0577  
Takumi Ito, Nobuyuki Tsuboi, Kohei Ozawa (Kyushu Kogyo Daigaku), A Koichi Hayashi (Aoyama Gakuin Daigaku)



Multi-wave Operation of a Radial Rotating Detonation Engine with Integrated Aerospike

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0578  
Dalton Langner, Apurav Gupta, Shaon Talukdar, Ajay K Agrawal (The University of Alabama)



Numerical Optimization of Disk RDE Integrated with an Aerospike Using Cross-Sectional Area Profiling

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0579  
Kayla Bell, Ajay K Agrawal (The University of Alabama)



Development of TDLAS-based Thermal Sensor for Measuring the Exhaust Gas Temperature of Shuttling Transverse Combustor

Monday, 23 January 17:20 - 17:40 (UTC-5) | AIAA-2023-2061  
Po-Hsiung Chang, Xin Huang, Zhen Wei Teo, Jiun-Ming Li, Chiang Juay Teo, Boo Cheong Khoo (National University of Singapore)



UAS-02 | In Person - Chesapeake C

An Autonomous System for the Rapid Airfield Damage Repair Mission

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0605  
Adam Broshkevitch, Andrew Hancock, August Peters, Matthew Kim, Michael L Anderson, Hugh Clark Briggs (US Air Force Academy), John Colombi (Air Force Institute of Technology), Matthew Hale, Kyle Volle, Prashant Ganesh, Jose H Ramos (University of Florida)



Airborne Collision Risk Prediction with Crewed Traffic using Heuristics

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0606  
Brandon J Daniel, Arezou Koochi, Huina Gao, Amy Tal Rose-Tejwani, Matthew Drew (The MITRE Corporation)



Analysis of Safety Performance of Tracking Services Based on Simulation of Unmitigated UAS Conflicts

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0607  
Zhi Hao Z Quek (Nanyang Technological University Air Traffic Management Research Institute), Wei Dai, Kin Huat Low (Nanyang Technological University)



WE-01 | In Person - Chesapeake 9

High Efficiency 2-Bladed Utility Wind Turbine Enhanced by CoFlow Jet Active Flow Control

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0608  
Yan Ren, Gecheng Zha (CoFlow Jet Wind Turbines, LLC), Nick Johnson, Ganesh Vijayakumar (National Renewable Energy Laboratory)



**(continued) WE-01 | In Person - Chesapeake 9**

**Assessment of a BEMT-based rotor aerodynamic model under uniform aligned steady inflow**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0609  
Umberto Boatto, Paul Bonnet (Siemens Digital Industries Software), Francesco Avallone, Daniele Ragni (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek)



**Computational Aeroacoustic Analysis of Airfoil Sections in Deep Stall**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0610  
Prakyath Pindi Nataraj (Universiteit Twente), Akshay Koodly Ravishankara (TNO), Huseyin Ozdemir, Cornelis H. Venner (Universiteit Twente)



**Correlation Between the Generated Noise and Effectiveness for a Vertical Axis Savonius Type Rotor**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0611  
Shivangi Sachar, Piotr Doerffer, Pawel Flaszynski (Instytut Maszyn Przeplywowych im Roberta Szwalskiego Polskiej Akademii Nauk), Jozef Kotus, Krzysztof Doerffer (Politechnika Gdanska)



**Assessment of Control Methods for Vertical Axis Wind Turbines: Start-up, Active Flow Control, and Overspeed Control**

Monday, 23 January 17:20 - 17:40 (UTC-5) | AIAA-2023-0612  
Juan Fernando Harmjan, Thor Westergaard, D. Todd Griffith (The University of Texas at Dallas Erik Jonsson School of Engineering and Computer Science)



**PC-11 | In Person - National Harbor 10**

**Suppression of Thermoacoustic Instabilities Using an Electric Field and Feedback Control**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0556  
Dustin L Cruise, Aman Satija, Galen King (Purdue University System)



**Parametric Modeling of Multi-Injector Rocket Combustors using Component-based Reduced-Order Modeling Framework**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0557  
Cheng Huang (University of Kansas School of Engineering)



**Hydroxyl Planar Laser-Induced Fluorescence Imaging in an Optically Accessible Solid Fuel Ramjet Combustor**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0558  
Tianyu Gai, Will C.B. Senior, Nicholas L Strahan, Rohan Gejji, Carson D Slabaugh (Purdue University System)



**Blowoff and bulk mode instability in a liquid-fueled ramjet combustor**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0559  
Haim Elya Brod, Dan Michaels (Technion Israel Institute of Technology)





**LP-03/PC-10 | In Person - National Harbor 14**

**Sensitivity of Methane Oxygen Flames to the Initial Methane Injection Temperature**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0511  
Mario Roa (Sierra Lobo, Inc.), Douglas G Talley, Ramakanth Munipalli (Edwards Air Force Base)



**Heat Transfer Characteristics of Liquid Film Formed on a Superheated Wall during Pulsed Injection of Liquid Jet**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0512  
Noritaka Sako, Kouhei Noda, Jun Hayashi (Kyoto Daigaku), Yu Daimon (Japan Aerospace Exploration Agency (JAXA)), Hiroshi Kawanabe (Kyoto Daigaku)



**Numerical Analysis of Film Cooling and Mixture Ratio Bias in Oxygen-Methane Liquid Rocket Engines**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0513  
Pierluigi Concio, Mario Tindaro Migliorino, Daniele Bianchi, Francesco Nasuti (Universita degli Studi di Roma La Sapienza)



**Propulsive and Thermal Aspects of Storable Propellants Combustion –  $H_2O_2$  and n-Dodecane**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0514  
Bastien Boust, Marc Bellenoue (National Center for Scientific Research (CNRS)), Miguel Martin-Benito, Lilian Prevost (CNES)



**Analyzing the potentialities of an electric pump-fed new generation kick stage powered by green propellants: a sensitivity analysis approach**

Monday, 23 January 17:20 - 17:40 (UTC-5) | AIAA-2023-0515  
Livia O Ordonez Valles, Uwe Apel (Hochschule Bremen), Angelo Pasini (Universita di Pisa), Martin Tajmar (Technische Universitat Dresden)



**PGC-05 | In Person - National Harbor 3**

**Characterization of Injection Mixing in The Rotating Detonation Rocket Engine**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0572  
Austin M Burden, Robert F Burke, Taha Rezzag, Jonathan O Jacobson, Samuel Schuetz, Kareem A Ahmed (University of Central Florida College of Engineering and Computer Science)



**Time resolved visualization of liquid jet interaction with  $H_2$ -air rotating detonations using MHz rate diesel PLIF**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0573  
Venkat Athmanathan, Matthew Hooper, Austin M. Webb, Robert B Wang (Purdue University), Sukesh Roy (Spectral Energies), H. Douglas Perkins (NASA John H Glenn Research Center), Christopher Allen Fugger (Spectral Energies), Terrence R Meyer (Purdue University)



**Mixing and Recovery Performance of Triplet Impinging Injectors with Varying Flow Areas for Detonative Combustion**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0574  
Michaela R. Hemming, Dian Ruth Hill, Garrett R Cobb, Jared Andrew Sauer, David M Lineberry, Kunning G Xu (The University of Alabama in Huntsville), Thomas W Teasley (NASA Marshall Space Flight Center)





**(continued) PGC-05 | In Person - National Harbor 3****Characterization of Liquid Fuel Droplet Breakup Interacting with Shock Waves and Detonations**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0575

Steven A Schroeder, Sheikh Salauddin, Vidhan Malik, Anthony J Morales, John Patten, Kareem A Ahmed (University of Central Florida)

**Synthetic Laser Measurements in Rotating Detonation Rocket Engine Simulations**

Monday, 23 January 17:20 - 17:40 (UTC-5) | AIAA-2023-2063

Mathias Ross, Anil P Nair, Ann Karagozian, Raymond Mitchell Spearrin (University of California Los Angeles), Christopher Lietz (Air Force Research Laboratory)

**GTE-05 | In Person - National Harbor 11****Characteristics of Premixed Ammonia/Hydrogen/Methane Blends as an Alternative Fuel in a Swirl Stabilized Gas Turbine Combustor with Sustained Pilot**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0494

Andrew Gantt, Meghna Chaudhury, Srinath Ekkad (NC State University)

**Global Combustion Characteristics of Glycerol and Methanol Blends Using a Novel Fuel-Flexible Injector**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0495

Lulin Jiang, Timothy Hall, Derek Williams, Rachel Swinney (Baylor University)

**Autoignition Delay Times of Hydrogen/Ammonia/Air Mixtures at Gas Turbine Relevant Conditions**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0496

Michael Pierro, Justin J Urso, Cory Kinney, Christopher W Dennis, Jonathan McGaunn, Ramees Khaleel Rahman, Subith Vasu (University of Central Florida)

**Numerical Simulation of Ammonia/Methane/Air blends in a Swirl-Stabilized Gas Turbine Combustor**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0497

Meghna Das Chaudhury, Srinath Ekkad (NC State University), Gaurav Kumar (Convergent Science Inc)

**Investigation of the Effect of Atomizing Air-to-Liquid Mass Ratio on Spray Dynamics for a Novel Injector Design**

Monday, 23 January 17:20 - 17:40 (UTC-5) | AIAA-2023-1058

Rachel Swinney, Lulin Jiang (Baylor University)

**STR-07 | In Person - Chesapeake 7****Characterization of meso-scale progressive failure model for fiber reinforced composites from high resolution experimental data**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0591

Jose F Rojas Sanchez, Anthony M Waas (University of Michigan)



**(continued) STR-07 | In Person - Chesapeake 7****Derivation of Best Theory Diagrams through the use of Failure Indexes**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0592

Marco Petrolo, Pierluigi Iannotti, Alfonso Pagani, Erasmo Carrera (Politecnico di Torino)

**A multi-mechanism framework for cure-informed probabilistic progressive failure analysis of composite structures**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0593

Minh Hoang Nguyen, Royan J D'Mello, Anthony M Waas (University of Michigan)

**PDL-03 | In Person - Azalea 3****Investigation of Hypersonic Radiative Signatures Through the Use of a Voxelized Photon Monte Carlo Radiation Model**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0567

Sara Swenson, Brian Argrow (University of Colorado Boulder)

**Semiclassical Analytic Model of Nonadiabatic Energy Transfer in Atomic Collisions**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0568

Igor V Adamovich, J. William Rich (Ohio State University)

**Effects of Multiple Pulses on Nanosecond Discharges**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0569

Alfredo J Duarte, Nicholas E Deak, Fabrizio Bisetti (The University of Texas at Austin Cockrell School of Engineering)

**State-to-State Analysis of a Nitrogen RF Inductively Coupled Plasma**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0570

Sanjeev Kumar, Alessandro Munafò, Sung Min Jo, Marco Panesi (University of Illinois Urbana-Champaign)

**Numerical modeling of NS discharge development in inhomogeneous magnetic field**

Monday, 23 January 17:20 - 17:40 (UTC-5) | AIAA-2023-0571

Andrey Starikovskiy (Princeton University), Nickolay Aleksandrov (Moskovskij fiziko-tehniceskij institut nacional'nyj issledovatel'skij universitet), Mikhail N Shneider (Princeton University)

**DE-01 | In Person - Chesapeake A****Novel Articulating Mechanism Design for a Movable-Nose Missile Concept**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0445

Aaron Drenth, Adam Moeller, Mark Humphries, Devin Schwindt (US Air Force)



**(continued) DE-01 | In Person - Chesapeake A**

**Aircraft Structures Projects Involving Aviation Museums Across Canada and the United States**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0447  
Craig G Merrett (Clarkson University)



**Capstone Design Case Study: Developing a System for Covert Payload Emplacement**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0446  
Jacob Echavarria, Katherine Fitzpatrick, Evan Pomfret, Abigail Price, Michael L Anderson (US Air Force Academy), Sarah Galyon-Dorman (SAFE, Inc)



**PC-12 | In Person - National Harbor 15**

**Exploration of Shock-Droplet Ignition and Combustion**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0560  
John Patten, Vidhan Malik, Sheikh Salauddin, Kareem A Ahmed (University of Central Florida College of Engineering and Computer Science)



**Investigations in Multiphase Detonations**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0561  
Calvin Young, Benjamin Musick, Jacob McFarland (Texas A&M University System)



**Numerical Investigation of a Kerosene Droplet-Detonation Interaction in a Gaseous Hydrogen-Oxygen Channel**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0562  
Armani Batista (Jacobs Engineering Group Inc), Mathias Ross (University of California Los Angeles), Christopher Lietz, Jason R Burr (Air Force Research Laboratory), John W Bennewitz (The University of Alabama in Huntsville)



**Experimental Study on Initiating Detonation Waves by Shock Focusing in Laser Ignition**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0563  
Tomoyuki Sato, Ken Matsuoka, Akira Kawasaki, Noboru Itouyama (Nagoya Daigaku Kogakubu Daigakuin Kogaku Kenkyuka), Hiroaki Watanabe (ISAE-ENSMA), Jiro Kasahara (Nagoya Daigaku Kogakubu Daigakuin Kogaku Kenkyuka)



**AMT-07 | In Person - Magnolia 3**

**Structure and Dynamics of Reacting Solid Ramjet Fuel Surfaces**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0407  
Joseph Kalman, Adrian Guerra, Jack Karapetian (California State University Long Beach), Alan Kastengren (Argonne National Laboratory)



**Towards In-Situ Measurements of Air-Carbon Ablation Products in a Shock Tunnel**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0408  
Joshua Hargis, Kyle Daniel, Christopher Murzyn, William Swain, Elijah Jans, Kyle P Lynch, Justin Lawrence Wagner (Sandia National Laboratories)



(continued) AMT-07 | In Person - Magnolia 3

Temperature-dependent x-ray diffraction of thermographic phosphors

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0409  
Linda E Hansen, John C Miers, Daniel Lowry, Eric R Westphal, Caroline Winters (Sandia National Laboratories)



Lifetime-based Phosphor Thermometry via X-ray Excitation

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0410  
Eric Westphal, Linda E Hansen (Sandia National Laboratories), Steven Son, Terrence R Meyer (Purdue University), Caroline Winters (Sandia National Laboratories)



GNC-07 | In Person - Annapolis 2

Leader-Follower Formation Control with Longitudinal Separation along Lateral and Vertical Shifted Follower Paths

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0484  
Niklas Pauli, Walter Fichter (Universitat Stuttgart)



Implicit Information Transfer via Streaker Bees in a Bio-Inspired Visual Feedback Swarm Framework

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0485  
Md Arif Billah, Imraan Faruque (Oklahoma State University)



Model Predictive Control for Cooperative Systems with Task Prioritization applied to Vehicle Rendezvous and Docking

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0486  
Baris Taner, Kamesh Subbarao (The University of Texas at Arlington)



TP-05 | In Person - Azalea 1

Dragonfly : Entry and Descent one Titan Year after Huygens

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0599  
Ralph D Lorenz (Johns Hopkins University Applied Physics Laboratory)



Dragonfly Entry and Descent Overview

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0600  
Michael Wright (NASA Ames Research Center), Karl T Edquist (NASA Langley Research Center)



Dragonfly Entry and Descent Flight Mechanics Modeling and Analysis

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0601  
Richard G Winski, Alejandro R Pensado (Analytical Mechanics Associates, Inc.)



(continued) TP-05 | In Person - Azalea 1

Dragonfly Aerothermal Environment and Aerosciences Instrumentation

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0602  
Aaron Michael Brandis (NASA Ames Research Center), Christopher Naughton, David Saunders (Analytical Mechanics Associates), Christopher O Johnston, Derek Liechty (NASA Langley Research Center), Helen Hwang (NASA Ames Research Center), Ali Guelhan (Deutsches Zentrum fur Luft- und Raumfahrt eV), Jose Santos, Eric Stern (NASA Ames Research Center), Chris Karlgaard (Analytical Mechanics Associates), Tomo Oishi (Jacobs Engineering Group Inc), Thomas Thiele, Frank Siebe, Niklas Wendel, Dominik Neeb, Armin Weiss (Deutsches Zentrum fur Luft- und Raumfahrt eV)



Dragonfly TPS Sizing and Analysis

Monday, 23 January 17:20 - 17:40 (UTC-5) | AIAA-2023-0603  
Eric Stern, Milad Mahzari (NASA Ames Research Center)



MDO-06 | In Person - Chesapeake 3

Gradient-Based Sub-Optimization in the MAUD Architecture without Post-Optimality Sensitivities

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0529  
Christopher A. Lupp (Air Force Research Laboratory)



Multiphysics Simulation and Optimization using High-Order Finite Elements with Structured Differentiation

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0530  
Aaron Fu, Bao Li, Graeme Kennedy (Georgia Institute of Technology)



High-fidelity aerodynamic and aerostructural optimization of UAV propellers using the adjoint method

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0531  
Ping He, Heyecan Koyuncuoglu (Iowa State University), Helen Hu (Johns Hopkins University), Anvesh Dhulipalla, Haiyang Hu, Hui Hu (Iowa State University)



Efficient Gradient-Based Optimization of Differential-Algebraic Equation Systems

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0532  
Zeyu Huang, Darshan Sarojini, John T Hwang (University of California San Diego)



ACD-03/AFM-05/MST-05 | In Person - Woodrow Wilson A

Genetic Algorithm Optimization of Lift-Plus-Cruise VTOL Aircraft with Electrified Propulsion

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0398  
Rajan Bhandari, Aashutosh Aman Mishra, Imon Chakraborty (Auburn University)



Flight Control System Architecture for Urban Air Mobility Simplified Vehicle Operations

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0399  
Anthony M Comer, Imon Chakraborty (Auburn University)




(continued) ACD-03/AFM-05/MST-05 | In Person - Woodrow Wilson A

Flight Simulation Based Assessment of Simplified Vehicle Operations for Urban Air Mobility

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0400


Imon Chakraborty, Anthony M Comer, Rajan Bhandari, Aashutosh Aman Mishra (Auburn University), Ross Schaller, David Sizoo (Federal Aviation Administration Central Region Regional Office), Robert McGuire (Federal Aviation Administration)



VTOL Freewing Design and Adaptive Controller Development

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0401


Rachel Marie Axten, Eric N Johnson (The Pennsylvania State University - University Park Campus)



Experimental Study of the Impact of Folding Wingtip Devices on Aircraft Flight Mechanics and Handling Qualities

Monday, 23 January 17:20 - 17:40 (UTC-5) | AIAA-2023-0402

Huaiyuan Gu, Ronald C M Cheung, Fintan Healy, Djamel Rezgui, Mark H Lowenberg, Jonathan E Cooper (University of Bristol)




FT-03 | In Person - Camellia 1

Measurement Results of the ACMU System in Various Research UAVs

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0481


Daniel Teubl, Sebastian Oberschwendtner, Mirko Hornung (Technische Universitat Munchen)



Development of a Flight Test Data Analyzer for Pixhawk Autopilots

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0482


Noureldein Ahmed Ibrahim, Mohamed Yehia Zakaria, Ashraf Kamal (Military Technical College)



A Limited Evaluation of a Model-Free Control Law System

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0483

Shawn S Stephens, Maximo Navarro, Kota Ban, Jacob Anthony Fischer, Marc-Antoine Pelletier, Timothy Sick, Marcus Trautschold, M Christopher Cotting (U.S. Air Force Test Pilot School), Agamemnom Crassidis (Rochester Institute of Technology Kate Gleason College of Engineering)



APA-18 | In Person - Potomac 6

Aerodynamic Control of an Axisymmetric Body at High Incidence using Forebody Fluidic Actuation

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0432


Edward Lee, Bojan Vukasinovic, Ari Glezer (Georgia Institute of Technology)



Aerodynamic Assessment of Surface-Normal Active Flow Control for Lift Enhancement on the High-Lift Common Research Model

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0433

Seyedeh Sheida Hosseini (NASA Ames Research Center), Case P Van Dam (University of California Davis), Shishir Pandya (NASA Ames Research Center)



**(continued) APA-18 | In Person - Potomac 6**

**Numerical Simulation of Discrete Co-Flow Jets NACA-6415 Airfoil**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0434  
Zhijin Lei, Gecheng Zha (University of Miami)



**Near Wake Evolution of a Flexible Aerodynamically-Adaptive Wing Controlled by Distributed Bleed Actuation**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0435  
Gabriel Peyredieu du Charlat (Georgia Institute of Technology), Luca De Beni, Massimo Ruzzene, Ari Glezer (University of Colorado Boulder)



**FD-17 | In Person - Chesapeake F**

**Flow Physics and Control of a Generic Tailless Chined Forebody-Delta Wing Configuration**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0456  
Tomas E Rojas Carvajal, Michael Amitay (Rensselaer Polytech Institute School of Engineering)



**Adjoint-Based Optimal Control on Flows with Multiple Moving Cylinders in Tandem**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0457  
Bolun Xu, Daniel Colgan, Mingjun Wei (Kansas State University), John T Hrynuk (Army Research Laboratory Aberdeen Proving Ground)



**3D Vortical Structure of Multiple Moving Spheroids under Adjoint-Based Optimal Control**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0458  
Daniel Colgan, Bolun Xu, Mingjun Wei (Kansas State University), John Hrynuk (Army Research Laboratory Aberdeen Proving Ground)



**Proportional Control of Aerodynamic Forces using an Active Gurney Flap on a Wind Turbine Blade Section**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0459  
Siyang Hao, Alexander Koh-Bell, Rehaan Irani, Jenya Kirsch-Posner, Kenneth Breuer (Brown University)



**Optimal surface morphing using adjoint optimization**

Monday, 23 January 17:20 - 17:40 (UTC-5) | AIAA-2023-0460  
Ernold Thompson, Andres Goza (University of Illinois Urbana-Champaign)



**FD-18 | In Person - Chesapeake G**

**Aerodynamic Forces and Wake Analysis of Wing Damaged Flapping Flight**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0463  
Alec Menzer, Haibo Dong (University of Virginia)



**(continued) FD-18 | In Person - Chesapeake G**

**Thin Surface Permeability Modeling for Mars Supersonic Parachute Inflations**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0461  
Seyed Danial Ghasimi, Jason Rabinovitch (Stevens Institute of Technology)



**Subscale Wind Tunnel Testing of Parachutes: Effects of Design Shape on Drag and Canopy Breathing**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0462  
Marco Mattei, Cutler Phillippe, Francesco Panerai, Laura Villafa e Roca (University of Illinois Urbana-Champaign)



**SD-10 | In Person - Baltimore 5**

**Utilization of Flutter Vector Strain Energy for Aeroelastic Sizing**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0588  
Darin Haudrich (The Boeing Company)



**Transonic Flutter Dips of the AGARD 445.6 Wing**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0589  
Bret Stanford, Kevin Jacobson (NASA Langley Research Center)



**Impact of Relaxing Assumptions of Theodorsen’s Unsteady Aerodynamic Theory and Edgewise Aerodynamics on Flutter Prediction of Floating Vertical Axis Wind Turbines**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0590  
Faraz Ahsan, D. Todd Griffith (The University of Texas at Dallas)



**NFFP-02 | In Person - Chesapeake 12**

**The Dynamics of Interstellar Laser Sails**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0552  
Brice N Cassenti (University of Connecticut), Laura Cassenti (ET Solutions)



**Warp Factory: A Numerical Toolkit for the Analysis and Optimization of Warp Drive Geometries**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0553  
Christopher Helmerich, Jared Fuchs (The University of Alabama in Huntsville), Alexey Bobrick, Luke Sellers, Sarah Dangelo, Gianni Martire (Advanced Propulsion Laboratory at Applied Physics), Joseph F.X. Agnew (The University of Alabama in Huntsville)



**Propulsion and Power from Cylindrical and Spherical Magneto-inertial Fusion Plasmas**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0554  
Jason T Cassibry, Nathan Schilling (The University of Alabama in Huntsville)





**(continued) NFFP-02 | In Person - Chesapeake 12****A Fusion-Propelled Transportation System to Produce Terrestrial Power Using Helium-3 From Uranus**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0555  
 Stephanie J Thomas, Michael A Paluszek (Princeton Satellite Systems)

**SCS-02 | In Person - Woodrow Wilson C****Nonlinear Behavior of IM7 Carbon Fibers in Compression Leads to Bending Nonlinearity of High-Strain Composites**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0580  
 Kanthasamy Ubamanyu, Sergio Pellegrino (California Institute of Technology)

**Design and Fabrication of a High Strain Composite Flexure for CubeSat Reflectarrays**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0581  
 B. Yasara Dharmadasa, Francisco Lopez Jimenez (University of Colorado Boulder), Manan Arya (Stanford University), Juan Mejia-Ariza, Jonathan F Sauder, Paolo Focardi, Samuel Case Bradford (Jet Propulsion Laboratory)

**A New MSG-based Design Framework for Tow-steered Composites**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0582  
 Su Tian, Yufei Long (Purdue University), Xin Liu (The University of Texas at Arlington), Frank A Leone (NASA Langley Research Center), Wenbin Yu (Purdue University)

**Advanced Interface Concepts for Rollable Composite Space Booms under Test in Artificial Weightlessness**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0583  
 Marco Straubel, Martin Hillebrandt (Deutsches Zentrum für Luft- und Raumfahrt eV)

**HSABP-02 | In Person - National Harbor 4****Numerical modelling of hydrogen combustion phenomena in a dual-mode ramjet engine with cavity flameholder**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0499  
 Karel Van den Borre, Bayindir H Saracoglu (Von Karman Institute For Fluid Dynamics), Axel Coussement (Universite Libre de Bruxelles)

**Multi-Resolution Analysis of Subgrid Turbulence / Chemistry Interactions in a Supersonic Hydrogen-Air Diffusion Flame**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0500  
 Paige Drummond, Jack R Edwards (NC State University)

**MST-07 | In Person - Baltimore 3****Using the Hess Adaptive Pilot Model for Modeling Human Operator's Control Adaptations in Pursuit Tracking**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0541  
 Nora Jakimovska, Daan M Pool, Marinus M van Paassen, Max Mulder (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek)



**(continued) MST-07 | In Person - Baltimore 3****Prediction Models for Individuals' Control Skill Development and Retention using XGBoost and SHAP**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0542

Barry A.A. van Leeuwen (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek), Armon Toubman, Jelke van der Pal (Koninklijk Nederlands Lucht- en Ruimtevaartcentrum), Daan M Pool (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek)

**Assessment of a Dynamic Motion Seat's Body Force Cueing in the Dynamic Interface Task**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0543

Amanda K Lampton, David H Klyde (Systems Technology Inc), Jared Cooper (Barron Associates, Inc.), Donald Gaublumme (Naval Air Warfare Center Aircraft Division)

**Development of a Simulator Training Framework for Flight Maneuvers Based on Augmented Reality**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0544

Michael Zintl, Moritz Speckmaier, Jerg Jaisle, Carsten Schmidt-Moll, Markus Maly, Maximilian A. J. Wechner, Florian Holzapfel (Technische Universitat Munchen)

**APA-19 | In Person - Chesapeake B****Wall-Modeled Large-Eddy Simulations of Mach 14 Turbulent Boundary Layer - Aero-Optical Distortions**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0436

Pedro Castillo Gomez, Andreas Gross (New Mexico State University), Daniel R Guildenbecher, Nathan E. Miller, Kyle P Lynch (Sandia National Laboratories)

**Aerodynamic Effects and Heat Flux Augmentation of a Transpiration Cooled Hypersonic Sharp Leading Edge**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0437

Raghul Ravichandran, Luke J Doherty, Matthew McGilvray (University of Oxford), Kyle Damm, Rowan Gollan (The University of Queensland)

**CFD Integrated Transition Modeling for High-Speed Flows via Coupled OVERFLOW-LASTRAC Analysis**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0438

Ethan Vogel, Balaji Shankar Venkatachari, Pedro Paredes (National Institute of Aerospace), Fei Li, Meelan M Choudhari (NASA Langley Research Center)

**Second-Mode Instability Investigation of a 7° Cone at Mach 6**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0439

Adelbert A Francis, Cassandra J Butler, Joseph S Jewell (Purdue University)

**FD-16 | In Person - Chesapeake E****Direct Numerical Simulation of High-Speed Boundary-Layer Separation due to Forward Facing Curvature**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0453

Gary Lloyd Nicholson, Lian Duan (The Ohio State University), Nicholas J Bisek (Air Force Research Laboratory)



**(continued) FD-16 | In Person - Chesapeake E****LES Simulation of Hypersonic Flow over Hollow Cylinder Flare**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0454  
 Sogol Pirbastami (University of Nevada Las Vegas)

**Hypersonic Multi-Fidelity Turbulence Modeling on a Mach 5 Blunt Ogive with Cool Walls**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0455  
 Bryan J Morreale, Jack Shine, Rodney D Bowersox (Texas A&M University), Neal Bitter (Johns Hopkins University Applied Physics Laboratory), Ross Wagnild (Sandia National Laboratories)

**INPSI-05 | In Person - National Harbor 12****FUN3D Analyses of the 5th AIAA Propulsion Aerodynamics Workshop Inlet Test Case**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0501  
 Michael D Bozeman (NASA Langley Research Center)

**Characterization of unsteady distortion events for S-duct intakes under non-uniform inlet conditions**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0502  
 Matteo Migliorini, Pavlos K Zachos, David MacManus (Cranfield University Cranfield School of Aerospace Transport and Manufacturing)

**Spectral Proper Orthogonal Decomposition Downstream of a Vortex Tube Separator Array**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2354  
 Adit Acharya, Jubel Kurian, Todd Lowe, Wing Ng (Virginia Polytechnic Institute and State University)

**FD-21 | In Person - Chesapeake K****On the Unsteadiness of a Hypersonic Flow over a Double Cone using Kinetic Methods**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0472  
 Irmak Taylan Karpuzcu, Deborah A Levin (University of Illinois Urbana-Champaign), Vassilios Theofilis (University of Liverpool Faculty of Science and Engineering)

**Co-linear FLDI/Schlieren and Surface Pressure Measurements of Bluntness Induced Elongated Structures in Hypersonic Flow**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0473  
 Alexandre R Berger, Matthew P Borg (Air Force Research Laboratory)

**Simulation of Multiple Instabilities in the Entropy Layer over a Hypersonic Blunt Cone**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0474  
 Lachlan S Whyborn, Rowan Gollan, Peter A Jacobs (The University of Queensland Centre for Hypersonics)



(continued) FD-21 | In Person - Chesapeake K

Reduced Order Model Predictions for Spherically Blunted Circular Cones

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0475  
Timothy J Leger, Matthew W Tufts, Nicholas J Bisek (Air Force Research Laboratory)



Numerical Investigation of Fluid-Ablation Interactions for a Mach 5.3 Transitional Boundary Layer Flow Over a 13 Degree Cone

Monday, 23 January 17:20 - 17:40 (UTC-5) | AIAA-2023-0476  
Sean D Dungan, Christoph Brehm, Joel A McQuaid (University of Maryland at College Park), Aleksander Lavi Zibitsker, Alexandre Martin (University of Kentucky)



IS-07 | In Person - Baltimore 2

Experimental Results on Composing Cooperative Behaviors in Networked Mobile Robots in the Presence of Unknown Control Effectiveness

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0508  
Eren Sarioglu, Atahan Kurttisi, Kadriye Merve Dogan (Embry-Riddle Aeronautical University)



An Efficient Algorithm to Determine Polynomial Trajectories and Adaptive Control of a Quadcopter

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0509  
Atahan Kurttisi, Sirani Perera, Kadriye Merve Dogan (Embry-Riddle Aeronautical University)



Intelligent Rover Slip Detection and Characterization

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0510  
Morgan J May, Philip A Ferguson (University of Manitoba)



GNC-08/IS-05 | In Person - Annapolis 4

Improving the Maneuver Automaton with Maneuver Interruption

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0487  
Kevin Choi, Zachary C Goddard, Samuel J Deal (Georgia Institute of Technology College of Engineering), Kyle Williams (Pathfinder Technologies), Anirban Mazumdar (Georgia Institute of Technology College of Engineering)



Precision Maritime Localization and Landing with Real-time Kinematic GNSS

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0488  
Alexander D Jordan, Matthew Rydalch, Tim McLain, Michael Williamson (Brigham Young University)



Maximum Uncertainty Distribution in a Traffic of Small Unmanned Aerial Vehicles For Collision-free Airspace operation

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0489  
Rajnish Bhusal, Aakarshan Khanal, Kamesh Subbarao, Animesh Chakravarthy (The University of Texas at Arlington), Wendy Okolo (NASA Ames Research Center)



**(continued) GNC-08/IS-05 | In Person - Annapolis 4**

**Model Uncertainty-aware Adaptive Controller Design with Online Parameter Identification**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0490  
Akin Catak, Ahmet Talha Cetin, Emre Koyuncu (Istanbul Teknik Universitesi)



**IS-06 | In Person - Baltimore 1**

**Airport Runway Configuration Management with Offline Model-Free Reinforcement Learning**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0504  
Milad Memarzadeh, Tejas G Puranik, Jarrett Battistini, Krishna M Kalyanam, Wes Ryan (NASA Ames Research Center)



**Value of Potential Field in Reward Specification for Robotic Control via Deep Reinforcement Learning**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0505  
Mingkang Wu (The University of Texas at San Antonio), Feng Tao (AB Volvo), Yongcan Cao (The University of Texas at San Antonio)



**Drone Navigation in Unreal Engine Using Generative Adversarial Imitation Learning**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0506  
Suraj Bandela, Yongcan Cao (The University of Texas at San Antonio)



**Tethered Multicopter Guidance in GPS-Denied Environments Through Reinforcement Learning**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0507  
Amer Al-Radaideh, Robert A Selje, Daniel Coraspe (New Mexico State University), Efe Camci, Rajdeep Dutta (Agency for Science, Technology and Research (A\*STAR)), Liang Sun (New Mexico State University), Senthilnath Jayavelu, Xiaoli Li (Agency for Science, Technology and Research (A\*STAR))



**FD-19 | In Person - Chesapeake I**

**Tomographic Measurements of Ejecta Cloud Concentrations in Plume-Surface Interactions using Millimeter Wave Interferometry**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0465  
Nicolas Rasmont, Hussein Al-Rashdan, Gregory S Elliott, Joshua Rovey, Laura Villafa e Roca (University of Illinois Urbana-Champaign)



**High-Speed Imaging of Droplet Impact on a Hypervelocity Projectile**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0464  
Alex Dworzanczyk, Nick J Parziale (Stevens Institute of Technology), Nicholas Mueschke, Donald Grosch, Pablo C Bueno (Southwest Research Institute)



**An Experimental Study on the Dynamics of Binder Drops Impacting on a Powder Surface in Binder Jetting Additive Manufacturing**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0466  
Zachary Pakulniewicz, Yang Liu (East Carolina University)



**MDO-07 | In Person - Chesapeake 4****Super Resolution Generative Adversarial Networks for Multi-Fidelity Pressure Distribution Prediction**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0533  
 Xiaosong Du, Joaquim R. R. A. Martins (University of Michigan)

**A Fully Automated Adaptive Sampling Strategy for Reduced-Order Modeling of Flow Fields**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0534  
 Xiaosong Du (University of Michigan), Jiachen Wang (Johns Hopkins University), Joaquim R. R. A. Martins (University of Michigan)

**Mitigating the Kolmogorov Barrier for the Reduction of Aerodynamic Models using Neural-Network-Augmented Reduced-Order Models**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0535  
 Joshua L Barnett, Charbel Farhat (Stanford University), Yvon Maday (Sorbonne Universite)

**GNC-09/MST-06 | In Person - Annapolis 1****Nonlinear Control of an Autonomous Airship with Collision Avoidance Capability**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0491  
 Uluhan C Kaya, Abhishek kashyap, Kamesh Subbarao, Animesh Chakravarthy (The University of Texas at Arlington)

**Dynamic Modeling and Trajectory Tracking of a Quadcopter via Linear and Backstepping Controller**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0492  
 Uygur Gunes, Artun Sel (TOBB Ekonomi ve Teknoloji Universitesi), Bilgehan Sel (Virginia Polytechnic Institute and State University), Cosku Kasnakoglu (TOBB Ekonomi ve Teknoloji Universitesi)

**Convex Trajectory Planning for Proximity Operations using Electric Propulsion with Quantized Thrust**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0493  
 Kazuya Echigo, Christopher R Hayner, Avi Mittal, Selahattin Burak Sarsilmaz (University of Washington), Matthew Harris (Utah State University), Behcet Acikmese (University of Washington)

**MAT-06 | In Person - Chesapeake 8****Out of Autoclave Manufacturing of Void-free Woven Aerospace-grade Carbon Fiber Reinforced Plastic Composite Laminates Using Capillary Effects of Aerogel Nanoporous Networks**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0516  
 Jingyao Dai, Alisa Webb, Jeonyoon Lee (Massachusetts Institute of Technology), Lauren Randaccio, Justin Griffin, Steven A Steiner (Aerogel Technologies LLC), Brian L Wardle (Massachusetts Institute of Technology)

**Multifunctional Polysiloxane Ablative Nanocomposites for Improved Weight Efficiency**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0517  
 William P Fahy (Texas State University System), Joseph H. Koo (KAI, LLC), Jitendra Tate, Bahram Asiabanpour (Texas State University System)



(continued) MAT-06 | In Person - Chesapeake 8

Reduced-Order Model for the Effective Electro-Mechanical Properties of CNT-Polymer Nanocomposites via Two-Point Correlation Functions

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0518  
Kavan Shah, Gary Don Seidel (Virginia Polytechnic Institute and State University)



Multiscale Modeling of Structured Ceramics Under Thermal Shock

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0519  
Li Ma, Keith S Caruso, Michael Hunt, Collin McClain, Dajie Zhang, Kenneth Kane, Gehn Ferguson (Johns Hopkins University Applied Physics Laboratory)



Experimental investigation of strain and damage sensing of polymer bonded energetics with MWCNTs and conductive grains under cyclic compressive loads

Monday, 23 January 17:20 - 17:40 (UTC-5) | AIAA-2023-0520  
Viswajit Talluru, Gary Don Seidel (Virginia Polytechnic Institute and State University College of Engineering)



CFD2030-02 | In Person - National Harbor 13

Measurements and Computations of the Turbulent Corner Flow on the NASA Juncture-Flow Model with a Symmetric Wing

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0440  
Michael A Kegerise, Andrew N Leidy, Judith Hannon, Christopher L Rumsey (NASA Langley Research Center), Thomas H Pulliam (NASA Ames Research Center)



Measurements and Computations of Natural Transition on the NASA Juncture-Flow Model with a Symmetric Wing

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0441  
Andrew Leidy, Michael A Kegerise, Judith Hannon, Meelan M Choudhari (NASA Langley Research Center), Balaji Shankar Venkatachari, Pedro Paredes (National Institute of Aerospace)



Summary of a Mach 2.5 Shock Wave Turbulent Boundary Layer Interaction Experiment in a Circular Test Section

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0442  
Jonathan Sasson (Case Western Reserve University), David O Davis (NASA Glenn Research Center), Paul Barnhart (Case Western Reserve University), Heath H Reising (HX5, LLC)



Instabilities in the Wake of a Pseudorandom Roughness on a Supersonic Flat Plate

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0443  
Amanda Chou, Michael A Kegerise, Rudolph A King (NASA Langley Research Center)



Direct Investigation of Nonlinear and Nonlocal Turbulent Constitutive Relations in a Three-Dimensional, Non-Equilibrium Boundary Layer

Monday, 23 January 17:20 - 17:40 (UTC-5) | AIAA-2023-0444  
Aldo Gargiulo, Julie E Duetsch-Patel, Christopher J Roy, Todd Lowe (Virginia Polytechnic Institute and State University)





AMT-06 | In Person - Magnolia 2

Burst-mode planar laser-induced fluorescence of Nitric Oxide in the Sandia Free-Piston Shock Tunnel

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0403  
Sean P Kearney, Kyle P Lynch, Kyle Daniel, Elijah Jans, Charley Downing, Justin Lawrence Wagner (Sandia National Laboratories), Austin M. Webb, Christopher Crabtree, Mikhail Slipchenko (Purdue University)



KTP Optical Parametric Oscillator for Extended Duration High Repetition Rate NO Planar Laser Induced Fluorescence

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0404  
Austin M. Webb, Christopher Crabtree, Venkat Athmanathan, Mikhail Slipchenko, Terrence R Meyer (Purdue University)



100 kHz High-Spectral-Resolution NO-PLIF Measurements for Compressible Flows

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0405  
Neil S Rodrigues, Paul M Danehy (NASA Langley Research Center), Naibo Jiang, Paul Hsu, Jason Leicht, Sukesh Roy (Spectral Energies)



One-Dimensional Nitrogen-based Resonantly Ionized Photoelectron Thermometry ( $N_2$  RIPT)

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0406  
Walker McCord, Aleksander Madison Clark, Zhili Zhang (The University of Tennessee Knoxville Tickle College of Engineering)



MDO-08/NDA-04 | In Person - Chesapeake 6

Quantifying Uncertainty in Li-ion Battery Aging due to Unknown Usage with Hybrid Physics-Informed Neural Networks

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0536  
Renato Giorgiani do Nascimento, Felipe Viana (University of Central Florida), Matteo Corbetta, Chetan Shrikant Kulkarni (NASA Ames Research Center)



Using Physics-Informed Neural Networks to Solve Inverse Heat Conduction Problems

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0537  
Pramudita Satria Palar, Muhamad Abdul Aziz, Lavi Rizki Zuhail, Poetro Lebdo Sambegoro (Institut Teknologi Bandung), Duong Viet Dung (Vietnam National University Hanoi)



Physics-Informed Proper Orthogonal Decomposition for Data Reconstruction

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0538  
Kemas Zakaria, Pramudita Satria Palar, Lavi Rizki Zuhail (Institut Teknologi Bandung), Joseph Morlier (ISAE-SUPAERO)



Microstructure-Sensitive Material Design with Physics-Informed Neural Networks

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0539  
Md Mahmudul Hasan, Zekeriya Ender Eger, Arulmurugan Senthilnathan, Pinar Acar (Virginia Polytechnic Institute and State University)



Development of a physics-informed neural network to complement experimental and computational aerospace design efforts

Monday, 23 January 17:20 - 17:40 (UTC-5) | AIAA-2023-0540  
Emile Oshima, Pablo Hermoso Moreno, Morteza Gharib (California Institute of Technology), Vincent Lee, Abdollah Khodadoust (Boeing Research and Technology)





**MAT-07 | In Person - Chesapeake 2**

**Integration of Physics-based Models and In-situ Process Monitoring for Predicting Variability Associated with Liquid Composites Molding**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0521  
Ryan S Enos, Dianyuan Zhang (Purdue University), Xuxiao Li, Jim Lua (Global Engineering and Materials, Inc.)



**A Novel Anisotropic Hyper-viscoelastic Model for Predicting Fabric Draping Responses**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0522  
Qingxuan Wei, Dianyuan Zhang (Purdue University)



**Process Modeling of a Multidirectional Laminate with Multiple Embedded Staggered Tow Gaps**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0523  
Von Clyde C. Jamora, Alex Kravchenko (Old Dominion University Frank Batten College of Engineering and Technology), Sergey Kravchenko (The University of British Columbia)



**A Multiphysics Coupling for Evaluation of Effects of Local Boundary Conditions on Autoclave-Cured Composite**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0524  
Jim Lua, Anand Karuppiiah, Xuxiao Li, Kalyan Shrestha (Global Engineering and Materials, Inc.), Jinhui Yan, Ze Zhao (University of Illinois), Dianyuan Zhang (Purdue University)



**MST-08 | In Person - Baltimore 4**

**Theoretical and Simulated Capacity of Urban Air Mobility Airspace Characteristics**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0546  
Casey L Denham, William G Cummings, Jeremy C Smith (NASA Langley Research Center)



**Effect of Airspace Characteristics on Urban Air Mobility Airspace Capacity**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0545  
William G Cummings, Casey L Denham, Jeremy C Smith (NASA Langley Research Center)



**Learning-Driven Airspace Congestion Pricing for Advanced Air Mobility**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0547  
Ben Wang, Zilong Deng, Xuan Ni, Kevin B Smith, Max Z Li, Romesh Saigal (University of Michigan)



**Performance Modeling of Urban Air Mobility Vehicles to Support Air Traffic Management Research**


Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0548  
David Hartman (NASA Langley Research Center), Christopher L. Hartman (Analytical Mechanics Associates, Inc.), John V. Foster (NASA Langley Research Center)



(continued) MST-08 | In Person - Baltimore 4

An Interface Specification for Urban Air Mobility Performance Models to Support Air Traffic Management Research


Monday, 23 January 17:20 - 17:40 (UTC-5) | AIAA-2023-0549  
David Hartman (NASA Langley Research Center), Christopher L. Hartman (Analytical Mechanics Associates, Inc.), John V. Foster (NASA Langley Research Center), Fabian Morscheck, Florian Linke (Deutsches Zentrum für Luft- und Raumfahrt DLR Standort Berlin)



PC-13 | In Person - National Harbor 8


Aluminum Ignition Imaging for Composite Solid Fuels

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0564  
Clayton Matthias Geipel, Christopher J Pfutzner, Matthew T Finn, Albert Epshteyn, Brian T Fisher (US Naval Research Laboratory)




Laser Absorption Spectroscopy Measurements of High Pressure and Temperature Aluminum Combustion in a Shock Tube

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0565  
Kyle Daniel, Elijah Jans, Christopher Murzyn, Daniel R Guildenbecher, William Swain, Charley Downing, David Allen, Kyle P Lynch, Justin Lawrence Wagner (Sandia National Laboratories)



Experimental Investigation of Solid Rocket Motor Slag


Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0566  
Yoshiki Matsuura (IHI Aerospace)



FD-22 | In Person - Chesapeake D


Boundary Layer Turbulence Flight Experiment in Memory of Mike Holden: Pre-Flight Mission Design

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0477  
Bryan J Morreale, Eric Swinny, Heather Emily Kostak-Teplicek, Rodney D Bowersox, Edward B White (Texas A&M University), Aaron T Dufrene, Tim P Wadhams (CUBRC)




Boundary Layer Turbulence Flight Experiment in Memory of Mike Holden: Vehicle Design, Instrumentation, and Ground Test Results

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0478  
Aaron T Dufrene, Phillip Portoni, Tim P Wadhams (CUBRC), Heather Emily Kostak-Teplicek, Rodney D Bowersox (Texas A&M University)




Atmospheric Measurements with the HALAS LiDAR System supporting the BOLT II Flight Test

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0479  
Thomas J Dobbins, Matthew D Wiebold, Jeffrey VanKerkhove, Matthew C ArchMiller, Lucas N Taylor, Erik H Horak (Honeywell Aerospace)



In-situ Turbulence and Particulate Measurements in Support of the BOLT II Flight Experiment

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0480  
Dale A Lawrence, Brian Argrow, Joseph L Pointer, Nicholas Kenny, Christopher A Roseman (University of Colorado Boulder), James Flaten, Graham V Candler (University of Minnesota Twin Cities), Aroh Barjatya, Julio Guardado (Embry-Riddle Aeronautical University)



**SD-09/STR-06 | In Person - Chesapeake 5**

**Flutter and Limit Cycle Oscillations of a Panel Using Unsteady Potential Flow Aerodynamics**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0584  
Luisa Piccolo Serafim, Maxim Freydin, Earl H Dowell (Duke University)



**Aeroelasticity of Very Flexible Aircraft: Prof. Dewey Hodges' Three-decade Contributions to the Field**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0585  
Carlos E Cesnik (University of Michigan College of Engineering)



**Gust Alleviation of Highly Flexible Aircraft with Model Predictive Control**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0586  
Tianyi He (Utah State University), Weihua Su (The University of Alabama)



**Constitutive and geometric effects on nonlinear aeroelastic trim and stability of the predator aircraft**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0587  
Mojtaba Moshtaghzadeh, Natalia Rangel, Pezhman Mardanpour (Florida International University)



**APA-15 | In Person - Potomac 1**

**Application of CREATE-AV Helios to XV-15 Tiltrotor**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0418  
Andrew M Wissink, Dylan Jude, Jay Sitaraman, Steven Tran (US Army Combat Capabilities Development Command Aviation & Missile Center Aeroflightdynamics Directorate)



**High-Fidelity Simulations of Flight Dynamics and Trajectory of a Parachute-Payload System Leaving the C-17 Aircraft**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0419  
Mehdi Ghoreyshi (US Air Force Academy), Keith Bergeron (US Army Combat Capabilities Development Command Soldier Center Product Optimization Team), Adam Jirasek, Jurgen Seidel (US Air Force Academy), Gregory Noetscher (US Army Combat Capabilities Development Command Soldier Center Product Optimization Team)



**Demonstration of an Integrated Multiphase Capability within Kestrel**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0420  
Stefen A Lindörfer, Chris L Robinson, Greg D Power (Arnold Engineering Development Complex)



**CFD Study of a Counter-Rotating Propeller eVTOL Concept**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0421  
James Lewis (Air Force Research Laboratory), Andrew J Lofthouse (Air Force Life Cycle Management Center), Ashish Bagai (AFWERX)



(continued) APA-15 | In Person - Potomac 1

Enabling HH-60G Predictive Maintenance via Computational Fluid Dynamics (CFD) Artificial Intelligence (AI) Rotorcraft Development and Modeling (CARD-M)

Monday, 23 January 17:20 - 17:40 (UTC-5) | AIAA-2023-0422  
Jesus Arias, Maia Gatlin, Alex Forbes, David A. Alvord (Georgia Tech Research Institute)



APA-16 | In Person - Potomac 5

Experimental Characterization of the Space Launch System Block 1B Liftoff and Transition Environment

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0423  
Lee Mears, Patrick R Shea, Jesse G Collins, Sarah Langston, Morgan A Walker, Jeremy Pinier (NASA Langley Research Center)



Improved Techniques for Measuring Static Ground Wind Loads on the NASA Space Launch System Mobile Launcher 2

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0424  
Jesse G Collins, Lee Mears, Patrick R Shea, Sarah Langston, Morgan A Walker, Jeremy Pinier (NASA Langley Research Center)



Overview of the High Reynolds Number Ascent Wind Tunnel Test of the Space Launch System at the National Transonic Facility

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0425  
David T Chan, Patrick R Shea, Scott Goodliff, Morgan A Walker, Jesse G Collins, Sarah Langston, Lee Mears, Elizabeth Rieken, Jeremy Pinier (NASA Langley Research Center)



Force and Moment Analysis for the High Reynolds Number Wind Tunnel Test of the Space Launch System at Ascent Conditions

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0426  
Patrick R Shea, David T Chan, Morgan A Walker, Sarah Langston, Jesse G Collins, Lee Mears, Elizabeth Rieken, Jeremy Pinier (NASA Langley Research Center)



Parametric Study of the Forward Attachment Geometry for the Space Launch System Next Generation Booster

Monday, 23 January 17:20 - 17:40 (UTC-5) | AIAA-2023-0427  
James M Ramey, Ian M Giles, Oleg Goushcha, Patrick S Heaney, David J Piatak, Martin K Sekula, Francesco Soranna (NASA Langley Research Center)



APA-14 | In Person - Potomac 3

Unsteady Vortex Lattice Linearization and Sensitivity Analyses for Control Models in Supersonic Aircraft Design

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0416  
Thiago Augusto Machado Guimarães, Carlos E Cesnik, Ilya Kolmanovsky (University of Michigan)



Flexibility Assessment of the Aeroelastic-flight-dynamic Behavior for Supersonic Aircraft

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0417  
Thiago Augusto Machado Guimarães, Carlos E Cesnik, Ilya Kolmanovsky (University of Michigan)



**(continued) APA-14 | In Person - Potomac 3****Panel Discussion**

Monday, 23 January 16:40 - 17:40 EDT (UTC-5)

**TES-03 | In Person - National Harbor 5****High Pressure Saturated Pool Boiling of Water on Engineered Cylindrical Tubes**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0594  
Omar Hernandez Rodriguez, Md Mahamudur Rahman (The University of Texas at El Paso)

**Assessment of Machine Learning Classification Based Models in Identifying Reaction Occurrence in Turbulence Shockwave Interaction (STI)**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0595  
Ibrahim Alshybani, Farhad Jaberi, Michael S. Murillo (Michigan State University), Yifeng Tian (Los Alamos National Laboratory)

**Effects of Aromatic Blends on Seal Swell Rates Using Novel Seals Compatibility Test Rig**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0596  
Jerry Hamilton, Bhupendra Khandelwal (The University of Alabama System)

**Experimental Investigation on Fuel Cell Reactor for SOFC/Gas Turbine Hybrid Propulsion**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0597  
Keiichi Okai, Takayuki Kojima (Uchu Koku Kenkyu Kaihatsu Kiko), Yusuke Suganuma, Hiroshi Nomura (Nihon Daigaku Seisan Kogakubu)

**Global Combustion Characteristics of a Viscous Alternative Jet Fuel Blend Using a Novel Twin-Fluid Injector**

Monday, 23 January 17:20 - 17:40 (UTC-5) | AIAA-2023-0598  
Lulin Jiang, Rachel Swinney, Dylan Van Horn (Baylor University), Edwin Corporan (Air Force Research Laboratory)

**APA-17 | In Person - Potomac 2****Comparison of URANS and Hybrid RANS/LES buffet response of the Benchmark Supercritical Wing**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0428  
Nicholas F Giannelis (The University of Newcastle), Gareth A Vio (The University of Sydney)

**Wall-modeled LES of transonic buffet over NASA-CRM using Cartesian-grid-based flow solver FVHC-ACE**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0429  
Yoshiharu Tamaki, Soshi Kawai (Tohoku Daigaku)



**(continued) APA-17 | In Person - Potomac 2**

**Simulating Buffet Aerodynamics of a Hammerhead Model Using Hybrid RANS-LES CFD Modeling**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0430  
Andrew P Voegelé, Matthew Sirignano (The Aerospace Corporation)



**Influence of Reynolds Number on Transonic Buffet Conditions on a Supercritical Airfoil**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0431  
Christopher J Schauerte, Anne-Marie Schreyer (Rheinisch-Westfälische Technische Hochschule Aachen Lehrstuhl für Strömungslehre und Aerodynamisches Institut)



**FD-20 | In Person - Chesapeake H**

**PIV Investigation of Turbulent Boundary Layer Response to Active Manipulation of Large-Scale Structures**

Monday, 23 January 16:00 - 16:20 (UTC-5) | AIAA-2023-0467  
Mitchell E Lozier, Flint O Thomas, Stanislav Gordeyev (University of Notre Dame College of Engineering)



**Mean and Unsteady Surface-Pressure Measurements on the BeVERLI Hill**

Monday, 23 January 16:20 - 16:40 (UTC-5) | AIAA-2023-0468  
Daniel A MacGregor (University of Toronto Institute for Aerospace Studies), Aldo Gargiulo, Julie E Duetsch-Patel (Virginia Polytechnic Institute and State University), Philippe Lavoie (University of Toronto Institute for Aerospace Studies), Todd Lowe (Virginia Polytechnic Institute and State University)



**Coupling between a Rectangular Jet and an Oscillating Transverse Flow**

Monday, 23 January 16:40 - 17:00 (UTC-5) | AIAA-2023-0469  
William Eagan, David J Forliti (University of Saint Thomas)



**Effects of a Simulated Atmospheric Boundary Layer on Ship Airwakes**

Monday, 23 January 17:00 - 17:20 (UTC-5) | AIAA-2023-0470  
Nicholas Zhu, Zheng Zhang, Ebenezer P Gnanamanickam, John Gordon Leishman (Embry-Riddle Aeronautical University)



**A Study of Extreme Vertical Flow Fluctuations of the Ship Airwake**

Monday, 23 January 17:20 - 17:40 (UTC-5) | AIAA-2023-0471  
Guillermo A Mazzilli, Nicholas Zhu, Ebenezer P Gnanamanickam, John Gordon Leishman, Zheng Zhang (Embry-Riddle Aeronautical University)



## Tuesday, 24 January

### 09:30 | Technical Lecture

AS-03/ACD-09/INPSI-06/GTE-07/PC-14/GRE-04/STR-08/DE-02   In Person - Woodrow Wilson A
WE-02   In Person - Chesapeake 9
AS-04   In Person - Woodrow Wilson D
STR-11/SD-16/MAT-12   In Person - Baltimore 5

### 09:30 | Technical Panel

DGE-04   In Person - Chesapeake 12
EXPL-05   In Person - National Harbor 7
EP-05   In Person - National Harbor 2
PGC-07   In Person - National Harbor 3
PDL-04   In Person - Azalea 3
FD-23   In Person - Chesapeake H
MAT-10/NDA-05   In Person - Woodrow Wilson B

### 09:30 | Technical Paper Session

CFD2030-03   In Person - National Harbor 13
Pseudo-time Stepping Strategies for Space-Time Discontinuous Galerkin Discretizations
Tuesday, 24 January 09:30 - 09:50 (UTC-5)   AIAA-2023-0662 Sung-Hwan Yoon, Andrew C Kirby, Dimitri J Mavriplis (University of Wyoming)
Fully Discrete Entropy-Stable Flux Reconstruction Scheme for Compressible Flows through the Relaxation Runge-Kutta Method
Tuesday, 24 January 09:50 - 10:10 (UTC-5)   AIAA-2023-0663 Carolyn M V Pethrick, Sivakumaran Nadarajah (McGill University)
Positivity-preserving and entropy-bounded discontinuous Galerkin method for the chemically reacting, compressible Navier-Stokes equations
Tuesday, 24 January 10:10 - 10:30 (UTC-5)   AIAA-2023-0664 Eric J Ching, Ryan F Johnson (US Naval Research Laboratory), Sarah Burrows (Rensselaer Polytechnic Institute), Jacklyn P Higgs (University of Central Florida), Andrew D Kercher (US Naval Research Laboratory)
Positivity-preserving Entropy Stable Schemes of Arbitrary Order of Accuracy for Navier-Stokes Equations
Tuesday, 24 January 10:30 - 10:50 (UTC-5)   AIAA-2023-0665 Nail K Yamaleev, Johnathon Upperman (Old Dominion University)

(continued) CFD2030-03 | In Person - National Harbor 13

Entropy Stable Weight-Adjusted Flux Reconstruction High-Order Method in Split Form for Compressible Flows on Curvilinear Grids

Tuesday, 24 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0666  
Alexander Cicchino, Sivakumaran Nadarajah (McGill University)



APA-23 | In Person - Potomac 4

A Convex Optimization Approach to Thin Airfoil Design Using Cubic Splines

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0651  
Daniel Berkenstock, Juan J Alonso (Stanford University), Laurent Lessard (Northeastern University)



Hybrid Fidelity Optimization of Efficient Airfoils and Rotors in Ultra-Low Reynolds Numbers Conditions

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0652  
Manuel Carreno Ruiz, Domenic D'Ambrosio (Politecnico di Torino)



Multi-Fidelity Probabilistic Aerodynamic Database Generation with the ProForMA Tool

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0653  
Michael Cunningham, Nikhil Nigam (BlueHalo), Jayant Mukhopadhaya, Juan J Alonso (Stanford University), Sricharan K Ayyalasomayajula (BlueHalo)



MST-10 | In Person - Baltimore 4

Mass Varying Lunar Lander Dynamics Model with Time Delay

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0730  
Andres Enriquez Fernandez (The University of Texas at El Paso)



Lidar Pose Estimation Performance Modeling for Satellite Rendezvous and Proximity Operations

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0731  
Tae W Lim (US Naval Academy)



Conceptual Development of a Simulation Environment for Missiles Under Damaged States

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0732  
James M Floyd, Mario Perhinschi, Jason N Gross, Wade Huebsch (West Virginia University)



STR-12/MAT-09 | In Person - Chesapeake A

A Multigrid Finite Element Neural Network for Efficient Material Response Prediction

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0770  
Changyu Meng, Yongming Liu (Arizona State University Ira A Fulton Schools of Engineering)





**(continued) STR-12/MAT-09 | In Person - Chesapeake A****CNN-Informed Genetic Algorithm for Optimizing Mechanical Performance of Carbon Nanotube Microscale Bundles**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0771

Karen DeMille (The University of Utah), Joshua Richard Leigh, Riley Hall, Ibrahim Guven (Virginia Commonwealth University), Ashley Spear (The University of Utah)

**Multiphysics Modeling on the Capacity Degradation of Silicon Anode**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0772

Parth Bansal, Zhuoyuan Zhang, Pingfeng Wang, Yumeng Li (University of Illinois Urbana-Champaign)

**Artificial Intelligence Assisted Residual Strength and Life Prediction of Fiber Reinforced Polymer Composites**

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0773

Partha Pratim Das (The University of Texas at Arlington), Muthu Elenchezian (Purdue University), Vamsee Vadlamudi, Rassel Raihan (The University of Texas at Arlington)

**UAS-03 | In Person - Chesapeake C****A Series of Macroscopic Models for Urban Air Mobility Traffic Flow**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0785

Alexandra Fedrigo (The University of Alabama in Huntsville College of Science)

**Real-time on-the-fly Motion planning via updating tree data of RRT\* using Neural network inference**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0786

Junlin Lou, Burak Yuksek, Gokhan Inalhan, Antonios Tzourdos (Cranfield University Cranfield School of Aerospace Transport and Manufacturing)

**Flight Testing an Onboard Turbulence Quantification System for Multicopter Vehicles**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0787

Alec J Bateman (Barron Associates, Inc.), Stephan De Wekker (University of Virginia), Adam Reed, Michael D DeVore, Neha Gandhi (Barron Associates, Inc.)

**Optimal Control of Precision Airdrop Trajectories Using Direct Collocation Methods**

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0788

Edward J Maxwell, Michael Zollars (Air Force Institute of Technology Graduate School of Engineering and Management), Filip Dziwulski (Farcast, Inc.)

**STR-13 | In Person - Chesapeake 7****Lengthscales as a Viable Tool for Investigating Damage in Composites**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0774

Jeffrey T Chambers (Aurora Flight Sciences)



**(continued) STR-13 | In Person - Chesapeake 7**

**4D X-ray CT for Evaluation of Progressive Damage Growth of Composites under Fatigue Loading**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0775  
Waruna p Seneviratne, John Tomblin (Wichita State University)



**Comparison of Uniaxial Spectrum Editing Method Performance**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0776  
Dominic Jarecki (Texas A&M University), Soonwook Kwon (Technical Data Analysis Inc), Anahita Imanian (The MITRE Corporation), Nagaraja Iyyer (Technical Data Analysis Inc)



**Fatigue Life Prediction Model Considering Surface Roughness for Additively Manufactured Metallic Components**

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0777  
Kaushik Kethamukkala, Yongming Liu (Arizona State University Ira A Fulton Schools of Engineering)



**STR-14 | In Person - Chesapeake 4**

**Improved Method for Increased-Rate Stitched Composites Manufacturing**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0778  
Andrew E Lovejoy (NASA Langley Research Center)



**Mechanical Cloaking of Cutouts in Laminated Plates**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0779  
Calum J McInnes, Alberto Pirrera, Byung Chul Kim, Rainer MJ Groh (University of Bristol)



**Stacking sequence optimization to improve volumetric heat generation for induction welding of thermoplastic composites**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0780  
Darun Barazanchy, Jaspreet Pandher, Michael J Van Tooren (University of South Carolina)



**Manufacturing Trials of Integrally-Stiffened Panels for Flight Applications**

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0781  
Alana Cardona, Dawn C Jegley, Andrew E Lovejoy (NASA Langley Research Center)



**NDA-06/MDO-11 | In Person - Chesapeake 3**

**Adaptive Sparse Polynomial Chaos Expansion based on a Classifier with Sequential Sampling**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0740  
Mishal Thapa, Sameer B Mulani, Achyut Paudel, Subham Gupta (The University of Alabama), Robert W Walters (Virginia Polytechnic Institute and State University)



(continued) NDA-06/MDO-11 | In Person - Chesapeake 3

Optimally tensor-structured quadrature rule for uncertainty quantification

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0741  
Bingran Wang, Nicholas C Orndorff, John T Hwang (University of California San Diego)



Evaluation of Designed Distributions for Stochastic Collocation Methods

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0742  
Edwin E Forster, Daniel L Clark, Philip Beran (Air Force Research Laboratory)



HIS-03 | In Person - Chesapeake 10

*A Trailblazing Flight for Portuguese Overseas Commercial Air Routes*

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0707  
Fernando P Neves, Jorge M Barata, Andre R Silva (Universidade da Beira Interior Faculdade de Engenharia)



Twenty-Five Years of Portuguese Aviation Events at Amadora

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0708  
Fernando P Neves, Jorge M Barata, Andre R Silva (Universidade da Beira Interior)



The Rome-Tokyo air raid in 1920

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0709  
Antonio di Biase (Politecnico di Milano)



EAT-04 | In Person - Camellia 1

Hybrid-Electric Aero-Propulsion Controls Testbed: Overview and Capability

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0671  
Halle E. Buescher (HX5, LLC), Dennis E Culley, Santino Bianco, Joseph W Connolly, Ariel Dimston, Joseph Saus, Casey Theman (NASA Headquarters), Marcus Horning (HX5, LLC), Nicholas Purpera (Peraton, Inc.)



Parametric Optimization and Performance Assessment of a Mild Hybrid Propulsion System for a Single-Aisle and Regional Aircraft

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0672  
Konstantinos Milios, Jonathan Conrad Gladin, Anusha Harish, James Kenny, Joshua Brooks, Haya Helmy, Jeremy Decroix, Dimitri N Mavris (Georgia Institute of Technology)



High Power Density Permanent Magnet Propulsion Motor Development for Urban Mobility Applications

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0673  
Ouyang Wen (Aurora Flight Sciences)



**MDO-10 | In Person - Chesapeake 6**

**Aerodynamic Shape Optimization with CAD-Based Geometric Parameterization**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0726  
Hannah Hajdik, Anil Yildirim, Joaquim R. R. A. Martins (University of Michigan)



**Solver-Independent Aeroelastic Coupling For Large-Scale Multidisciplinary Design Optimization**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0727  
Sebastiaan PC van Schie, Han Zhao, Jiayao Yan, Ru Xiang, John T Hwang, David Kamensky (University of California San Diego)



**Bi-level Multidisciplinary Design Optimization of a Wing Considering Maneuver Load Alleviation and Flutter**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0728  
Bernardo Bahia Monteiro, Alasdair C Gray, Carlos E Cesnik, Ilya Kolmanovsky (University of Michigan), Fabio Vetrano (Airbus SAS)



**Fuel burn Minimization Including Dynamic Aeroelastic Constraint for Free-flying Vehicle Under Geometrically Nonlinear Deformations**

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0729  
Patrizio Rosatelli, Carlos E Cesnik (University of Michigan), Christopher A. Lupp (Air Force Research Laboratory)



**GTE-08 | In Person - National Harbor 11**

**Dynamics and properties of ignition kernel generated by a helicopter sunken fire ignitor**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0702  
Alessandra Matino (Safran Helicopter Engines), Julien Sotton, Marc Bellenoue (National Center for Scientific Research (CNRS)), Christophe Viguier, Stéphane Richard (Safran Helicopter Engines)



**Transient Optimization of a Gas Turbine Engine**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0703  
Jonathan Lee Kratz (NASA Glenn Research Center)



**Transient Optimization for the Betterment of Turbine Electrified Energy Management**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0704  
Jonathan Lee Kratz, Dennis E Culley, Julian Lehan (NASA Glenn Research Center)



**Hot Corrosion Damage Modelling in Aero Engines based on Performance and Flight Mission Analysis**

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0705  
Evangelia Pontika, Panagiotis Laskaridis, Theoklis Nikolaidis (Cranfield University), Max Koster (Lufthansa Technik AG)



**(continued) GTE-08 | In Person - National Harbor 11**

**Mapping the Effect of Variable HPT Blade Cooling on Fuel Burn, Engine Life and Emissions for Fleet Optimization using Active Control**

Tuesday, 24 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0706  
Evangelia Pontika, Panagiotis Laskaridis (Cranfield University), Felipe Montana Gonzalez, Will Jacobs, Andrew Mills (The University of Sheffield)



**GNC-10/AFM-07 | In Person - Annapolis 3**

**Performance of a Crater Navigation Method for Lunar South Pole Landing**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0690  
Svenja Woicke, Hans Krüger (Deutsches Zentrum für Luft- und Raumfahrt eV)



**Hazard Boresight Relative Navigation for Safe Lunar Landing**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0691  
Stephen R Steffes, Paul DeTrempe (Charles Stark Draper Laboratory Inc), Gregory Barton, David Woffinden (NASA Johnson Space Center)



**Technology Maturation of Active Precision Navigation for Lunar Landing**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0692  
Bryan Friia, Aditya Mahajan, Michael Forrest, Stefan R Bieniawski (Blue Origin LLC)



**Verification and Validation of Signature-based Terrain Relative Navigation System for Precision Landing**

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0693  
Jeremy Hardy, Kori Hough, Chris Owens, Michael Bloom, Harry Kim, Hector Li Sanchez, Ebrahim Mohammadi, Holly Lindenfelter, Andrew Tennenbaum, Louis Moon, Rajesh Venkateswaran (Astrobotic Technology), Erik Bailey, Yang Cheng, Daniel Clouse, Carlos Y. Villalpando, Ashot Hambardzumyan, Andrew Johnson (Jet Propulsion Laboratory), Andrew D Horchler (Astrobotic Technology)



**INPSI-07 | In Person - National Harbor 12**

**Influence of Hot Flow Conditions on Nozzle Performances**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0714  
Emanuele Resta, Roberto Marsilio, Michele Ferlauto (Politecnico di Torino)



**PIV Measurements of Internal Flows through Nozzles with Curvature and Shape Transition**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0715  
Vincent Adah Onoja, Daniel R Cuppoletti (University of Cincinnati)



**Comparison and Analysis of Hypersonic Scramjet Nozzles**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0716  
Dustyn A Vianna Moizes, Adam R Kotler, Mason Redman Thornton, Kareem A Ahmed (University of Central Florida)



**APA-24 | In Person - Potomac 6**

**Effect of leading-edge tubercles on dynamic stall in pitching airfoils**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0654  
Cesar A Leos (University of Nebraska System), Alejandro Carrizales, Robert Freeman, Isaac Choutapalli (The University of Texas Rio Grande Valley)



**Flow Control for Enhanced Aileron Effectiveness on a Commercial Aircraft**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0655  
Arvin Shmilovich, Yoram Yadlin (Boeing Research and Technology), Paul M Vijgen (Boeing Commercial Airplanes), Rene Woszidlo (Boeing Research and Technology)



**Applications of Flow Control to Wing High-Lift Leading Edge Devices on a Commercial Aircraft**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0656  
Arvin Shmilovich, Yoram Yadlin (Boeing Research and Technology), Paul M Vijgen (Boeing Commercial Airplanes), Rene Woszidlo (Boeing Research and Technology)



**Conceptual Integration Studies of Localized Active Flow Control on the Wing of a Commercial Aircraft**

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0657  
Paul M Vijgen, Alex Ziebart (Boeing Commercial Airplanes), Arvin Shmilovich, Rene Woszidlo (Boeing Research and Technology)



**Separation Control and the Energy Expenditure Using Pulsed Co-Flow Jet**

Tuesday, 24 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0658  
Kewei Xu, Gecheng Zha (University of Miami)



**SD-12/APA-26 | In Person - Chesapeake B**

**Investigation of Geometrically Nonlinear Effects in the Aeroelastic Behavior of a Very Flexible Wing**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0759  
Cristina Riso (Georgia Institute of Technology), Carlos E Cesnik (University of Michigan)



**Stall Flutter of the Benchmark Supercritical Wing at High Angles of Attack**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0760  
Lior Poplingher, Daniella E Raveh (Technion Israel Institute of Technology)



**Uncertainties Quantification in the Prediction of the Aeroelastic Response of The PAZY Wing Tunnel Model**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0761  
Marcello Righi (Zurcher Hochschule fur Angewandte Wissenschaften)



**(continued) SD-12/APA-26 | In Person - Chesapeake B**

**Aerodynamic and Static Coupling Simulations of the Pazy Wing with Transitional CFD for the Third Aeroelastic Prediction Workshop**

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0762  
 Markus Ritter, Michael Fehrs (Deutsches Zentrum für Luft- und Raumfahrt eV), Christoph Mertens (Technische Universität Delft Faculteit Luchtvaart- en Ruimtevaarttechniek)



**MVCE-01 | In Person - Chesapeake L**

**Parameterising Discrete and Voxelised Geometries for use in Design**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0738  
 William N Dawes (University of Cambridge)



**Automated FE Analysis of a Stiffened Tank Pressure Vessel using Shell-Solid Multi-Fidelity Modeling**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0739  
 Manasi Palwankar, Rakesh K Kapania (Virginia Polytechnic Institute and State University), Daniel C Hammerand, Edward Szwabowski, Mohamed Jrad (M4 Engineering)



**An Integrated Design Environment for the Engineering Sketch Pad**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0550  
 John Dannenhoffer (Syracuse University), Robert Haimes (Massachusetts Institute of Technology)



**An Interactive Airfoil Analysis and Design Tool in Matlab**

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0551  
 Krzysztof Fidkowski (University of Michigan)



**GNC-11/IS-09 | In Person - Annapolis 4**

**Data-Driven Retrospective Cost Adaptive Control of a Quadrotor UAV**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0694  
 Brian Y Lai, Syed Aseem Ul Islam (University of Michigan), Scott Nivison (Air Force Research Laboratory Munitions Directorate), Dennis S. Bernstein (University of Michigan)



**The Open-Blimp: An Open-Source Blimp Platform for Lighter-Than-Air Research**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0695  
 Tony X Lin (Georgia Institute of Technology), Tristan K Schuler, Daniel M Lofaro, Donald Sofge (US Naval Research Laboratory), Fumin Zhang (Georgia Institute of Technology)



**Run-Time Assurance via Real-time Generation of Backup Trajectories and Transverse Dynamics Regulation Laws**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0696  
 Ibrahim A Alomar (King Abdulaziz City for Science And Technology), Fatema Alhani (King Abdullah University of Science and Technology), Abdulaziz Ahmed Alfaadehl (King Abdulaziz City for Science And Technology), Eric M Feron (King Abdullah University of Science and Technology), Hesham Shageer (King Abdulaziz City for Science And Technology), Mohamad T Shahab (King Abdullah University of Science and Technology)



**APA-25 | In Person - Potomac 3****Implicit Large eddy simulation of hypersonic boundary-layer transition for a flared cone**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0659

Cuong Nguyen, Sebastien Terrana, Jaime Peraire (Massachusetts Institute of Technology)

**3D-Printed Quasi-Random Distributed Roughness for Turbulent Boundary Layer Analysis on Hypersonic Ogive Nosecones**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0660

Jack Shine, Joel White, Rodney D Bowersox, Edward B White (Texas A&amp;M University), Mark T Gragston, Farhan Siddiqui (The University of Tennessee Space Institute)

**Visualization of Surface Heat Transfer around Sharp-Fin on Hypersonic Flat Plate at Various Angles of Attack**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0661

Masato Taguchi, Masashi Kashitani (National Defense Academy)

**PC-16 | In Person - National Harbor 10****A visualization of the ignition process of n-dodecane under multiple injections: An optical study in a heavy-duty diesel engine**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0743

Rajavasanth Rajasegar, Ales Srna (Sandia National Laboratories California)

**Comparison of End Wall and Sidewall Ignition Delay Times for Ethylene at Sub-atmospheric Pressures**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0744

Michael S Knadler, Mitchell D Hageman (US Air Force Academy), Ez Hassan (Air Force Research Laboratory)

**Design and Characterization of a Hot-Surface Ignition (HSI) Experiment**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0745

David Teitge, James C Thomas, Thomas E Sammet, Eric L Petersen (Texas A&amp;M University)

**On Hydrodynamic Regimes of Pulse Ignition in Methane-Air Flow**

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0746

Si Shen, Enrico Rempe, Joseph Lefkowitz (Technion Israel Institute of Technology)

**HSABP-03 | In Person - National Harbor 4****Numerical Evaluation of Hypersonic Inward-Turning Inlets at Off-Design Mach Number**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0710

Jacob Snider, William Engblom, Arjun J Vedam (Embry-Riddle Aeronautical University), John W Slater (NASA Glenn Research Center)





**(continued) HSABP-03 | In Person - National Harbor 4**

**A Comparison of Turbulence Models for Scramjet Isolator Unstart Estimation**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0711  
 Nicholas Harris, Timothy M Stokes, Ragini Acharya (The University of Tennessee Space Institute)



**Multi-fidelity Computational Investigations of Hypersonic Shock Wave-Boundary Layer Interactions in a Multi-compression Scramjet Inlet**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0712  
 Timothy M Stokes, Ragini Acharya (The University of Tennessee Knoxville Tickle College of Engineering), Mesbah Uddin (UNC Charlotte)



**High-Temperature Tungsten Liquid Metal Heat Pipes: Applications and Performance**

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0713  
 Marcel Otto, Quentin Pascal Fouliard, Jayanta Kapat, Seetha Raghavan (University of Central Florida), Zachariah Koyn (Energy Driven Technologies, LLC), Jean Paul Allain (The Pennsylvania State University)



**FD-25 | In Person - Chesapeake K**

**Linear and Nonlinear Stability Analysis of a Three-Dimensional Boundary Layer over a Hump**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0678  
 Sven Westerbeek (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek), Juan Alberto Franco Sumariva (Deutsches Zentrum fur Luft- und Raumfahrt eV), Theodoros Michelis (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek), Stefan Hein (Deutsches Zentrum fur Luft- und Raumfahrt eV), Marios Kotsonis (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek)



**On the Unsteadiness and Three Dimensionality of a Laminar Separation Bubble for a Supersonic Flow over a Compression Corner**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0679  
 Irmak Taylan Karpuzcu, Deborah A Levin (University of Illinois Urbana-Champaign), Nicolas Cerulus, Vassilios Theofilis (University of Liverpool Faculty of Science and Engineering)



**Analysis of Hypersonic Flow Behind an Isolated Roughness Element Using Kinetic Methods**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0680  
 Angelos Klothakis (Technical University of Crete), Kamil Dylewicz, Vassilios Theofilis (University of Liverpool), Deborah A Levin (University of Illinois Urbana-Champaign)



**Schlieren Visualization of Controlled Disturbances in Mach 5 Flow Over a Hollow Cylinder Flare**

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0681  
 Ashish Singh, Christoph Hader, James A S Threadgill, Hermann F Fasel, Jesse C Little (The University of Arizona)



**AA-05 | In Person - Baltimore 1**

**An OpenFoam-Based LEE Solver for Prediction of Noise Generated by a Supersonic Jet Issued from a Rectangular Nozzle**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0613  
 Sam Salehian (Tuskegee University), Patrick P Good, Vladimir V Golubev, Reda R Mankbadi (Embry-Riddle Aeronautical University)



(continued) AA-05 | In Person - Baltimore 1

Coherence of Screech Generation at the 2nd Harmonic for a Rectangular Jet

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0614  
Olivia Grace Martin, Gao Jun Wu, Sanjiva K Lele (Stanford University)

Influence of Nozzle Geometry on Jet mixing and Jet Installation Noise

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0615  
Hussain Ali Abid, Annabel P Markesteijn, Vasily Gryazev, Vassili Toropov, Sergey A Karabasov (Queen Mary University of London), Guangda Yang, Christian B Allen, Hasan Kamliya Jawahar, Mahdi Azarpeyvand (University of Bristol)

Effect of Flight on the Noise from Turbulent Jets in the Generalized Acoustic Analogy

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0616  
Stewart J Leib (HX5, LLC), James E Bridges (NASA Glenn Research Center)

LP-04 | In Person - National Harbor 14

Performance Characteristics of the Film-cooling System Applied to 200 N-class GCH<sub>4</sub>-LOx Small Rocket Engine

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0717  
Yun Hyeong Kang, Hyun Jong Ahn, Chang Han Bae, Jeong Soo Kim (Pukyong National University), Jae Won Lee, Jong Hyun Kim (Hanwha Corp)

Experimental analysis in Hydrogen Peroxide Monopropellant Thruster with Different Injector Pressure Drop

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0719  
Yehyun Kim, Sejin Kwon, Sang-Hyun Lee (Korea Advanced Institute of Science and Technology)

Validation of Transient Spacecraft Refueling Model with Gateway Breadboard Test Data

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0720  
Brian S Lusby (NASA Johnson Space Center), Brandie L Rhodes (The Aerospace Corporation), Adela D Han (Jacobs Technology Inc), Pooja S Desai (NASA Johnson Space Center), Matthew W Green (Jacobs Technology Inc), Christopher D Radke (NASA Johnson Space Center)

DE-03 | In Person - Chesapeake 5

Reduced Order Model for Standard Computer-aided Engineering Design Workflows

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0668  
José E Valenzuela del Río, Arun Ramamurthy, Hyunjee Jin (Siemens Corp Corporate Research)

Configuration Selection via Self-Supervised, Performance-Weighted Generative Neural Networks

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0669  
Jordan T Smart, Juan J Alonso (Stanford University)

(continued) DE-03 | In Person - Chesapeake 5

AI-Based Multifidelity Surrogate Models to Develop Next Generation Modular UCAVs

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0670  
Hasan Karali, Gokhan Inalhan, Antonios Tsourdos (Cranfield University)



GNC-12/MST-09 | In Person - Annapolis 2

Multi-Level Adaptation for Automatic Landing with Engine Failure under Turbulent Weather

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0697  
Haotian Gu, Hamidreza Jafarnejadsani (Stevens Institute of Technology)



Relative Spacecraft Position and Attitude in the Circular Restricted Three-Body Problem: TSE(3) vs. Dual Quaternions

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0698  
Brennan S McCann, Matthew M Wittal, Morad Nazari (Embry-Riddle Aeronautical University)



An Efficient Quintic Time Scaling End-Effector Trajectory Generation Algorithm for a Servicing Robotic Arm

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0699  
Aryslan Malik, Sirani Perera, Troy Henderson (Embry-Riddle Aeronautical University)



Discriminative Kalman Filtering in Special Euclidean Group SE(3) for Modeling Unknown Spacecraft Environments

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0700  
Matthew M Wittal, Brennan S McCann, Morad Nazari (Embry-Riddle Aeronautical University)



REEF Calibrator: An Open-Source Online IMU-Camera Calibration

Tuesday, 24 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0701  
Jose H Ramos (University of Florida), Kevin Brink (Air Force Research Laboratory Munitions Directorate), Prashant Ganesh (University of Florida)



MAT-11/ICME-02/MDO-09/STR-09 | In Person - Chesapeake 1

Molecular dynamics simulation of effects of solutes on dislocation propagation in Ni-based superalloys

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0721  
Mikhail I Mendelev, Valery Borovikov, Nikolai Zarkevich, John Lawson (NASA Ames Research Center), Timothy M Smith (NASA John H Glenn Research Center)



Towards Accurate and Efficient Predictions of Martensitic Transition Temperatures for Shape Memory Alloys from First Principles

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0722  
Zhigang Wu, Hessam Malmir, John Lawson (NASA Ames Research Center)



(continued) MAT-11/ICME-02/MDO-09/STR-09 | In Person - Chesapeake 1

Abstract Title: A Dislocation Mechanism-Based Constitutive Model for Hierarchical Anisotropic Materials: Ti6Al4V implementation

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0723  
Chamara Herath, Janith C Wann (Clarkson University), Steven M Arnold (NASA Headquarters), Ajit Achuthan (Clarkson University)



Effect of Damage Progression on the Thermal Conductivity of 3D Woven Composite Thermal Protection System Materials

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0724  
Brett A Bednarczyk (NASA Glenn Research Center), Peter A Gustafson (Western Michigan University), Trenton M Ricks, Evan J Pineda, Pappu L Murthy (NASA Glenn Research Center), Subodh Mital (The University of Toledo)



AMT-09 | In Person - Magnolia 3

10 kHz Acetone Molecular Tagging Velocimetry in a Mach 4 Ludwig Tube

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0630  
Cary Dean Smith, Lauren E Lester, Farhan Siddiqui (The University of Tennessee Space Institute), Mark Gragston (The University of Tennessee Knoxville Tickle College of Engineering)



Development and Assessment of a New Particle Image Velocimetry System in the NASA GRC 225 cm2 Wind Tunnel

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0631  
Heath H Reising (HX5, LLC), David O Davis (NASA Glenn Research Center)



Planar Doppler Velocimetry in a Full-Scale Aircraft Engine Exhaust

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0632  
Tom P Jenkins, Regis K. C. Morgan (MetroLaser Inc), David E. Mayo, Michael J. Smith (Naval Air Systems Command), Robert P. Howard, Bernard M Williamson, Bradley C. Winkleman, William B. Besheres (Arnold Engineering Development Complex)



Preliminary Development of Tomographic Wavelet-based Optical Flow Velocimetry (TwOFV)

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0633  
Wayne E Page, Jeffrey Alan Sutton (The Ohio State University)



Optimizing Dt for MP-STB in Particle Tracking Velocimetry

Tuesday, 24 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0634  
Michael R Fenelon, Yang Zhang, Louis N Cattafesta (Florida A&M University-Florida State University College of Engineering)



PDL-05/PC-17 | In Person - Azalea 2

Numerical model of the initiation and propagation of a radial flame front by NRP discharge

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0747  
Raphaël J Dijoud, Carmen Guerra-Garcia (Massachusetts Institute of Technology)



**(continued) PDL-05/PC-17 | In Person - Azalea 2**

**Ignition enhancement of NH<sub>3</sub>/air mixtures by non-equilibrium excitation in a nanosecond pulsed plasma discharge**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0748  
Xingqian Mao, Hongtao Zhong, Ning Liu, Yiguang Ju (Princeton University)



**Numerical Investigation of Ignition Kernel Development with Nanosecond Pulsed Plasma in Quiescent and Flowing Mixtures**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0749  
Taareh Sanjeev Taneja (University of Minnesota Twin Cities), Timothy Ombrello (Air Force Research Laboratory), Joseph Lefkowitz (Technion Israel Institute of Technology), Suo Yang (University of Minnesota Twin Cities)



**Laser Ignition and Laser-Induced Breakdown Spectroscopy of a Hydrocarbon Flame in an Annular Spray Burner**

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0750  
Parneeth Lokini, Ciprian Dumitrache, Bret C Windom, Azer P Yalin (Colorado State University)



**Ammonia Generation in Ns Pulse and Ns pulse / RF Discharges Over a Catalytic Surface**

Tuesday, 24 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0751  
Xin Yang, Caleb Richards, Igor V Adamovich (The Ohio State University)



**AA-06 | In Person - Baltimore 2**

**CFD-based Aerodynamic and Aeroacoustic Analysis of Large Payload Multi-Copter Rotors**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0617  
Naina Pisharoti, Jeremiah Whelchel, William N Alexander, Stefano Brizzolara (Virginia Polytechnic Institute and State University)



**Fast Broadband Noise Prediction of Serrated UAV Rotors in Hover**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0618  
Jorge Santamaria, Marlene Sanjose (Ecole de technologie superieure), Stephane Moreau (Universite de Sherbrooke)



**Investigation into Aeroacoustic Rotor Scaling Effects using Near-Field and Time-Resolved Particle Image Velocimetry Measurement Techniques**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0619  
Matthew Walker, Daniel R Cuppoletti (University of Cincinnati)



**Acoustics of a Rotary Wing with Passive Reduced Tip Vortex in a Static Configuration**

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0620  
Mateo Diaz, Daniel Yu, Phillip J Ansell, Theresa Saxton-Fox (University of Illinois Urbana-Champaign)



**MST-11 | In Person - Baltimore 3**

**Aggregate Network Model with Resilience Considerations for Air Traffic Flow Management**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0733  
Adam Frewin (The MITRE Corporation), Max Z Li (University of Michigan), Christine P Taylor, Lesley A Weitz (The MITRE Corporation)



**Optimal Cruise Airspeed in the Presence of Wind Uncertainty**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0734  
Hyunho Jung, John-Paul Clarke (The University of Texas at Austin)



**Improving Noise Predictions of the Aviation Environmental Design Tool (AEDT) Using Deep Neural Networks and Sound-level Monitor Data**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0735  
Juan J Alonso, Yasmine Alonso, Aditeya Shukla, Donald Jackson, Thomas Rindfleisch (Stanford University)



**Probabilistic Risk Estimation of sUAS Collisions with non-participating people**

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0736  
Nishanth Reddy Goli (EngeniusMicro), Chris Duling, David Arterburn (The University of Alabama in Huntsville)



**UAV Collision Risk Assessment in Terminal Restricted Area by Heatmap Representation**

Tuesday, 24 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0737  
Na Zhang (Nanyang Technological University), Hu Liu (Southwest Jiaotong University), Kin Huat Low (Nanyang Technological University)



**SATS-01 | In Person - National Harbor 5**

**Guardian Scout: Military Space from the Pad Up**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0752  
Matt A Bille, Kerri Westburg, Paul Kolodziejski, Mariah Lutz (Booz Allen Hamilton)



**Mission Planning for Stellar Occultation Measurements of Lower Thermospheric Nitric Oxide in the Polar Night**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0753  
Nicholas A Jones, Leon K Harding, Scott Bailey, Samantha Parry Kenyon (Virginia Polytechnic Institute and State University)



**SR-01 | In Person - National Harbor 15**

**Acoustic Pressure Mode Shapes and Frequencies in a Circular Tube for an Arbitrary Temperature Distribution**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0768  
Cody Shelton, Joseph Majdalani (Auburn University)



(continued) SR-01 | In Person - National Harbor 15

A Historical Review Sounding Rockets and their use in Hypersonics Research

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0769  
David J McDonell, Krishan K Ahuja (Georgia Institute of Technology)



SCS-03 | In Person - Woodrow Wilson C

Kilometer-Scale Parabolic Reflector for a Radio Telescope in a Lunar Crater

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0754  
Manan Arya, JT Herrscher (Stanford University), Dario Pisanti (Scuola Superiore Meridionale), Alessandro Verniani, Melanie Delapierre, Gaurangi Gupta, Ashish Goel, Joseph Lazio, Paul Goldsmith, Saptarshi Bandyopadhyay (Jet Propulsion Laboratory)



Design and Prototyping of an Origami-Based Rigid-Foldable Parabolic Reflector

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0755  
Tianshu Wang, Matthew J Santer (Imperial College London)



Demonstration of an Electrostatically Actuated Mesh Reflector Antenna with Bend-Forming

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0756  
Harsh G Bhundiya, John Z Zhang, Kaleb Overby, Fabien Royer, Jeffrey Lang, Zachary C Cordero (Massachusetts Institute of Technology), William Moulder, Sungeun K Jeon, Mark J Silver (Massachusetts Institute of Technology Lincoln Laboratory)



Multistable helical antenna with reconfigurable radiation pattern for spacecraft

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0757  
Maria Sakovsky, Phoenix Reivers (Stanford University), Rosette Maria Bichara, Fatima Asadallah, Youssef Tawk, Joseph Costantine (American University of Beirut)



Preliminary Study of Employing Space-Based Mirrors for Augmented Illumination of Cislunar Resident Space Objects

Tuesday, 24 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0758  
Alec Cook, Jacob Dahlke, Robert A. Bettinger (Air Force Institute of Technology)



FD-26 | In Person - Chesapeake D

Boundary Layer Turbulence Flight Experiment in Memory of Mike Holden: Side A Flight Data

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0682  
John Wirth, Bryan J Morreale, Heather Emily Kostak-Teplicek, Rodney D Bowersox (Texas A&M University System), Aaron T Dufrene, Phillip Portoni, Tim P Wadhams (CUBRC)



Boundary Layer Turbulence Flight Experiment in Memory of Mike Holden: Ground-to-Flight Comparisons

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0683  
Phillip Portoni, Aaron T Dufrene (CUBRC)



(continued) FD-26 | In Person - Chesapeake D

BOLT II Roughness-Side Flight Results

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0684  
Scott A Berry (NASA Langley Research Center)



Thermal and Structural Analysis of BOLT-2: The Holden Mission

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0685  
Bradley M Wheaton (Johns Hopkins Applied Physics Laboratory), Aaron T Dufrene (CUBRC)



SD-13/STR-10 | In Person - Chesapeake 8

In Memory of Prof. Dewey Hodges: A Review of Advanced Beam Theories and Applications

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0763  
Zahra Sotoudeh (California Polytechnic State University College of Engineering), Mayuresh Patil (Georgia Institute of Technology)



A Review of Modeling of Composite Structures

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0764  
Wenbin Yu (Purdue University)



Deployment of Beam Theories in Determining Subsystem Properties for Statistical Energy Analysis

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0765  
Anurag Rajagopal (Altair Engineering Inc)



Prof. Hodges Memorial Session: A New Approach to Beam Cross-sectional Analysis

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0766  
Mayuresh Patil (Georgia Institute of Technology)



Properties and Layerwise Modeling of the Harlequin Variational Theorem for Composite Structures

Tuesday, 24 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0767  
Luciano Demasi (San Diego State University)



APA-20 | In Person - Potomac 1

Computational Study of Ring-slot Parachute Dynamics in Turbulent Flow Fields

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0640  
Keith Bergeron (US Army Combat Capabilities Development Command), Mehdi Ghoreyshi, Adam Jirasek (US Air Force Academy)





(continued) APA-20 | In Person - Potomac 1

Transitional CFD Analysis of a Slotted, Natural-Laminar-Flow Tail Rotor

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0641  
Christopher J Axten (The Pennsylvania State University)



Roughness Wall Modeling for Naval Applications in CREATE<sup>TM</sup>-AV Kestrel as Modified by NSWCCD

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0642  
Theo Leasca, Andrew S DeJong (Naval Surface Warfare Center Carderock Division)



A Prototype Incompressible Pressure-Based Solver for Free-Surface Flows in CREATE<sup>TM</sup>-AV Kestrel

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0643  
Matthew B Jemison, Paul F White, Andrew S DeJong, Chandrasekhar Kannepalli, Wesley M Wilson, Jacob B Engel (Naval Surface Warfare Center Carderock Division), Robert Starr (CREATE-AV Kestrel)



APA-21 | In Person - Potomac 5

Space Launch System Core Stage Green Run Base Heating: Anomaly, Mitigation and Flight Redesign

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0644  
Manish Mehta, Christopher I Morris, Brandon L Mobley, Terry L Prickett (NASA Marshall Space Flight Center)



Predicting SLS Launch Environment using a Novel Multiphase Formulation

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0645  
Jordan B Angel, Scott Neuhoﬀ, Man Long Wong, Michael F Barad, Cetin C Kiris (NASA Ames Research Center)



Validation of Shadowgraph Spectral Analysis using an SLS Block 2 Wind-Tunnel Model

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0646  
Oleg Goushcha, Martin K Sekula (NASA Langley Research Center), Theodore J Garbeﬀ (NASA Ames Research Center)



Comparison of Corcos-based and experimentally-derived coherence factors for buffet forcing functions estimation

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0647  
Francesco Soranna, Patrick S Heaney, Martin K Sekula, David J Piatak, James M Ramey (NASA Langley Research Center)



Experimental and Computational Examination of the Coandă Effect on the Space Launch System at Liftoff Conditions

Tuesday, 24 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0648  
Thomas J Wignall, Morgan A Walker, Jesse G Collins (NASA Langley Research Center)



**ACD-06 | In Person - Chesapeake E**

**Linearized Rigid-Body Static and Dynamic Stability of an Aircraft with a Bio-Inspired Rotating Empennage**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0621  
Austin J Kohler, Christian R Bolander, Douglas F Hunsaker (Utah State University), James J Joo (Air Force Research Laboratory)



**Hybrid Wing Body Pitch Control with a Surface-Vorticity Solver**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0623  
Griffin A DiMaggio, Roy J. Hartfield (Auburn University), Vivek Ahuja (Research in Flight)



**Static Trim of a Bio-Inspired Rotating Empennage for a Fighter Aircraft**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0624  
Christian R Bolander, Austin J Kohler, Douglas F Hunsaker (Utah State University), David Myszkowski (University of Dayton), James J Joo (Air Force Research Laboratory)



**TES-04 | In Person - National Harbor 6**

**Comparison of F-76 and JP-8 Fuel Surrogates in a Low-Pressure Swirl Burner**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0782  
John E Fernandez, Oliver A Dyakov, John Hunter Mack, Noah E Van Dam (University of Massachusetts Lowell)



**On the Development of Coupled Radiative Flamelet Generated Manifolds to Predict Solid Fuel Flame Spread in Microgravity**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0783  
Kenneth L. Budzinski, Paul E. DesJardin (University at Buffalo)



**Hydrogen-Enriched Natural Gas Auto-Combustion Mapping at Elevated Pressures for Gas Turbines**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0784  
Christopher Loving, Garrett Mastantuono, Subith Vasu (University of Central Florida), Scott Cloyd, Angel Hernandez, Travis Pigon (Mitsubishi Group)



**TP-06 | In Person - Azalea 1**

**Decomposition and permeability of room temperature vulcanizing (RTV) silicone**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2716  
Luis Chacon, Ben Deaton, Savio James Poovathingal (University of Kentucky)



**Materials Response Modeling of Pyrolysis Gases Flow Through Material with Thin Layers**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2717  
Hilmi Berk Gur, Christen Setters, Rui Fu, Alexandre Martin (University of Kentucky)



**(continued) TP-06 | In Person - Azalea 1**


**Additively Manufactured Titanium Alloy Sandwich Structures for Thermal Protection**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2719  
 Philipp Nieke (The University of Auckland), Thorn Schleutker, Ali Guelhan (Deutsches Zentrum für Luft- und Raumfahrt eV),  
 Nicholas J. Rattenbury, John E. Cater (The University of Auckland)



**Quantification of Directionally Dependent Mechanical Properties and Damage Tolerance of FiberForm**

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2597  
 Robert N Quammen, Paul F. Rottmann (University of Kentucky)



**Crack Modeling in Charring Ablation Materials**


Tuesday, 24 January 10:50 - 11:10 (UTC-5) | AIAA-2023-2085  
 Rui Fu, Alexandre Martin (University of Kentucky)



**APA-22 | In Person - Potomac 2**


**Strip theory approach to corner effects in shock-wave boundary layer interactions**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0649  
 Rhys David Williams, Holger Babinsky (University of Cambridge)




**Corner effects on oblique shock wave boundary layer interactions in rectangular channels**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0650  
 Timothy Missing, Holger Babinsky (University of Cambridge)




**Vortex Interaction in Transonic Flow for Wing-Mounted UHBR Nacelles**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0810  
 Sebastian Spinner, Ralf Rudnik (Deutsches Zentrum für Luft- und Raumfahrt eV)



**Numerical Study on Suppression of Reentry Capsule Dynamic Instability in Transonic Flow**


Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0811  
 Yasuhito Okano, Shintaro Sato, Naofumi Ohnishi, Hiroki Nagai (Tohoku Daigaku)



**FD-24 | In Person - Chesapeake G**

**Spectral analysis of a turbulent boundary layer encountering steady and unsteady complex pressure gradients**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0674  
 Aadhy S Parthasarathy, Theresa Saxton-Fox (University of Illinois Urbana-Champaign)



**(continued) FD-24 | In Person - Chesapeake G****Wavelet-based resolvent analysis for statistically-stationary and temporally-evolving flows**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0676

Eric Ballouz (California Institute of Technology), Barbara Lopez-Doriga, Scott T M Dawson (Illinois Institute of Technology), Hyunji Jane Bae (California Institute of Technology)

**A sparsity-promoting resolvent analysis for the identification of spatiotemporally-localized amplification mechanisms**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0677

Barbara Lopez-Doriga (Illinois Institute of Technology), Eric Ballouz, Hyunji Jane Bae (California Institute of Technology), Scott T M Dawson (Illinois Institute of Technology)

**AFM-06 | In Person - Camellia 2****Simultaneous Wind Field Measurements with Doppler Lidar, Quadrotor and Fixed-Wing UAV**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0625

Murat Bronz (Ecole Nationale de l'Aviation Civile), Nikola Gavrilovic (ISAE-SUPAERO), Gautier Hattenberger (Ecole Nationale de l'Aviation Civile), Jean-Marc Moschetta (ISAE-SUPAERO)

**Flight path reconstruction filter extension for tracking flexible aircraft modal amplitudes and velocities**

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0626

Andres Jurisson (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek), Bart Eussen (Koninklijk Nederlands Lucht- en Ruimtevaartcentrum), Coen C de Visser, Roeland De Breuker (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek)

**System Identification and Flight Dynamics Analysis of a Quad-Biplane Tail-Sitter Aircraft in Hover**

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0627

Holman Torno, Brody Armstrong, Gary Munsell, Stephen Galindo, Ondrej Juhasz (US Naval Academy)

**Longitudinal System Identification for a Small Flying-wing UAS**

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0628

Justin Matt, Haiyang Chao, Mosarruf H. Shawon (University of Kansas School of Engineering), Steven G. Hagerott (Textron Aviation)

**Efficient Frequency Response Identification for Small Fixed-Wing UAS Using Closed-Loop Flight Data**

Tuesday, 24 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0629

Justin Matt, Haiyang Chao (University of Kansas School of Engineering)

**AMT-10/GT-13/SD-11 | In Person - Magnolia 2****NASA's Unsteady Pressure-Sensitive Paint Research and Operational Capability Developments**

Tuesday, 24 January 09:30 - 09:50 (UTC-5) | AIAA-2023-0636

Nettie Roozeboom, David Daisuke Murakami (NASA Ames Research Center), Jie Li (Metis Technology Solutions, Inc.), Marc Shaw-Lecerf, E. Lara Lash (NASA Ames Research Center), Nicholas Califano (Metis Technology Solutions, Inc.), Paul Stremel (Science and Technology Corporation), Kenneth Lyons, Jennifer Baerny, Chris Barreras (NASA Ames Research Center), Jack Ortega (Metis Technology Solutions, Inc.), Lawrence Hand (NASA Ames Research Center)



(continued) AMT-10/GT-13/SD-11 | In Person - Magnolia 2

Methodology for Validation of Unsteady Pressure-Sensitive Paint Measurements using Pressure Transducers

Tuesday, 24 January 09:50 - 10:10 (UTC-5) | AIAA-2023-0639  
Marc Shaw-Lecerf, E. Lara Lash, David Daisuke Murakami, Nettie Roozeboom (NASA Ames Research Center), Jie Li (Metis Technology Solutions, Inc.), Paul G Bremner (aerohydroPLUS)



Joint Acceptance Attenuation Factor of Integrated Pressure with Unsteady Pressure-Sensitive Paint Measurements

Tuesday, 24 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0637  
Jie Li (Metis Technology Solutions, Inc.), Marc Shaw-Lecerf, David Daisuke Murakami, E. Lara Lash, Nettie Roozeboom (NASA Ames Research Center), Paul G Bremner (aerohydroPLUS)



Implementation of the Lifetime Method in Unsteady Pressure-Sensitive Paint Measurements

Tuesday, 24 January 10:30 - 10:50 (UTC-5) | AIAA-2023-0635  
David Daisuke Murakami, Marc Shaw-Lecerf, E. Lara Lash, Kenneth Lyons, Nettie Roozeboom (NASA Ames Research Center)



Infrared Reflection Removal in Wind Tunnels Using Polarization Theory

Tuesday, 24 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0638  
Nicholas Califano (Metis Technology Solutions, Inc.), E. Lara Lash, Theodore J Garbeff, Nettie Roozeboom (NASA Ames Research Center)



14:00 | Technical Panel

- AS-09/ACD-11/INPSI-09 | In Person - Baltimore 5
- DGE-05 | In Person - National Harbor 6
- ACD-07 | In Person - National Harbor 12
- AMT-11 | In Person - Woodrow Wilson B
- HSABP-04 | In Person - National Harbor 4
- PDL-06 | In Person - Azalea 3
- FD-31 | In Person - Chesapeake H
- GT-02 | In Person - Baltimore 3
- INPSI-08/ACD-13/GTE-10/EAT-06/PC-18/TF-04 | In Person - Woodrow Wilson A

14:00 | Technical Paper Session

AMT-12 | In Person - Magnolia 3

Holographic Measurements of Particle Motion in a Resonant Acoustic Mixer

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0802  
Preston David Silverstein, Joseph Kalman (California State University Long Beach College of Engineering)



**(continued) AMT-12 | In Person - Magnolia 3****Analysis of Holography Techniques for Phase Distortion Removal in Extreme Environments**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0803

Andrew W Marsh, Zachary D'Ambra (Georgia Institute of Technology), Anthony McMaster, Daniel R Guildenbecher (Sandia National Laboratories), Yi C. Mazumdar (Georgia Institute of Technology)

**Digital Holography for Investigating Front-Edge Instabilities of Liquid Jets in Supersonic Crossflows**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0804

Joshua A Johnson, Suresh Menon, Yi Chen Mazumdar (Georgia Institute of Technology)

**Three-Dimensional Characterization of Hypervelocity Shock-Droplet Interactions Using Digital In-Line Holography**

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0805

Gavin Lukasik, Christian Schweizer, Jacob Rogers, Thomas E Lacy, Waruna D Kulatilaka (Texas A&amp;M University)

**3D measurement of ice crystal accretion using a plenoptic camera**

Tuesday, 24 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0806

Martin F. Eberhart, Stefan Loehle, Felix Grigat (Universitat Stuttgart), Jonathan Connolly, Matthew McGilvray, David Gillespie (University of Oxford)

**CFD2030-04 | In Person - National Harbor 13****Assessment of near-wall grid resolution for a h/p-adaptive high-order entropy stable solver**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0831

Irving Enrique Reyna Nolasco, Lisandro Dalcin, Matteo Parsani (King Abdullah University of Science and Technology)

**Extension of the Vertex-Centered Mixed-Element-Volume MUSCL scheme to mixed-element meshes**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0832

Cosimo Tarsia Morisco, Lucille-Marie Tenkes, Frederic Alauzet (National Institute for Research in Computer Science and Control (INRIA))

**Unsupervised Residual Vector Analysis for Mesh Optimization**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0833

Mohammad Zandsalimy, Carl F Ollivier Gooch (The University of British Columbia)

**AA-07 | In Person - Baltimore 1****Design and Characterization of a Phased Microphone Array**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0789

Zhe Lu, Raymond Alsaif, Alis Ekmekci (University of Toronto Institute for Aerospace Studies)



**(continued) AA-07 | In Person - Baltimore 1**

**A Microphone Phased Array for Launch Acoustics Application**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0790  
 Jayanta Panda (NASA Ames Research Center), Matthew Nguyen (Metis Technology Solutions, Inc.), David R. Keil (Jacobs Engineering Group Inc), Kenneth R Hamm (NASA Ames Research Center)



**Acoustics and forces from isolated and installed tandem eVTOL rotor configurations**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0791  
 James Goldschmidt, Henry Tingle, Peter Ifju, Steven A E Miller, Lawrence S Ukeiley (University of Florida), Ben Goldman, Giovanni Droandi, Kyuho Lee (Archer Aviation)



**Experimental and Numerical Investigation of Installed Ducted Propulsor Aeroacoustics**

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0792  
 Matthew D Langford, Jonathan Fleming, William Walton (Techsburg, Inc.), Kyle Schwartz, David Wisda (AVEC, Inc.)



**Fan Noise Predictions of the NASA Source Diagnostic Test using Unsteady Simulations with LAVA Part I: Near-Field Aerodynamics and Turbulence**

Tuesday, 24 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0793  
 Luis Santos Fernandes (Science and Technology Corporation), Jeffrey Allen Housman (NASA Ames Research Center), Gaetan KW Kenway, Gerrit-Daniel Stich (Science and Technology Corporation), Cetin C Kiris (NASA Ames Research Center)



**APA-28 | In Person - Potomac 4**

**Wind Tunnel Testing of an Aeroelastically Tailored Horizontal Stabilizer**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0815  
 Ronald C M Cheung, Djamel Rezgui, Jonathan E Cooper (University of Bristol), Richard Green (University of Glasgow), Raul Carlos Llamas-Sandin (Airbus)



**Real-Scale Atmospheric Wind and Turbulence Replication using a Fan-Array for Environmental Testing and UAV/AAM Validation**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0812  
 Aurélien Walpen, Guillaume Catry (WindShape), Flavio Noca (Haute Ecole Specialisee de la Suisse Occidentale)



**Off-Board Aerodynamic Measurements of Small-UAVs in Glide and Powered Flight Using Motion Tracking**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0813  
 Mohamed El Mehdi Ouhabi, Shreyas Narsipur, Jichul Kim (Mississippi State University James Worth Bagley College of Engineering)



**MST-12 | In Person - Baltimore 4**

**Simulator Assessment of the Lateral-Directional Handling Qualities of the Flying-V**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0906  
 Sjoerd Joosten, Olaf Stroosma, Roelof Vos, Max Mulder (Technische Universiteit Delft)



(continued) MST-12 | In Person - Baltimore 4

Piloted Simulator Evaluation of Low-Speed Handling Qualities of the Flying-V

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0907  
Riccardo Torelli, Olaf Stroosma, Roelof Vos, Max Mulder (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaart-techniek)



Modelling, Simulation, and Verification of the Saab 340B

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0908  
Jeet Makadia, Murat Millidere, Mushfiqul Alam, Simon Place, James Whidborne (Cranfield University)



Development of High-Fidelity Saab 340B Aerodynamic Model

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0909  
Murat Millidere, Mushfiqul Alam, Simon Place, James Whidborne (Cranfield University)



Modeling of the Blackbird Wind-Powered Ground Vehicle

Tuesday, 24 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0910  
Meyer Nahon, Zihao Zhuo, Shengan Yang, Inna Sharf (McGill University), Rick Cavallaro (SMT), Stephen Morris (Volansi)



AFM-08 | In Person - Magnolia 2

A Smart Data Approach to Determine an Aircraft Performance Model From an Operational Flight Data Base

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0797  
Christoph Deiler (Deutsches Zentrum für Luft- und Raumfahrt eV)



Sensitivity analysis of a minimum lateral control speed prediction system

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0798  
Frank Bouwman, Olaf Stroosma, Alexander C in't Veld, Max Mulder (Technische Universiteit Delft)



Experimental Investigation of the Static and Dynamic Stability Derivatives Using a Novel 3-DoF Mechanism

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0799  
Jacob J Szymanski, Casey P Fagley, Molly Ellinger, Thomas Yechout (US Air Force Academy)



Bio-Inspired Gust Alleviation Based on Center-of-Percussion

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0800  
Aidan C Ellisor, Casey P Fagley, Cale L Franklin, Samuel P Metzler, Samuel C Stanton (US Air Force Academy)



Simplified Wake Vortex Encounter Modeling and Inner Loop Controller Analysis for Small UAS

Tuesday, 24 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0801  
Justin Matt, Haiyang Chao, Zhenghao Lin (University of Kansas School of Engineering), Charlie Zheng (Utah State University)





**AA-08 | In Person - Baltimore 2**

**Principal Component Analysis of Aviation Noise Grids for Dimensionality Reduction**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0794  
Ameya Behere, Dimitri N Mavris (Georgia Institute of Technology)



**Takeoff Ground Roll Analysis of Real-World Operations for Improved Noise Modeling**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0795  
Jirat Bhanpato, Ameya Behere, Michelle Kirby, Dimitri N Mavris (Georgia Institute of Technology)



**Measurement of Acoustic Attenuation in Gas Mixtures at Elevated Temperatures**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0796  
Graeme Gillespie, Stuart J Laurence (University of Maryland at College Park)



**STR-15/MAT-13 | In Person - Chesapeake A**

**A Mechanics-Informed Neural Network Framework for Data-Driven Nonlinear Viscoelasticity**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0949  
Faisal As'ad, Charbel Farhat (Stanford University)



**Application of Machine Learning in Rapid Generation of Support-free, Topologically-optimised Structures**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0950  
Bohan Peng, Ajit Panesar (Imperial College London)



**Implementation of Machine Learning-based Lattice Generation Strategy for Elliptic-cavity Lattice Cell**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0951  
Jier Wang, Ajit Panesar (Imperial College London)



**HIS-04 | In Person - Chesapeake 10**

**The outset of the Portuguese Military Aeronautics (1912-1917)**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0886  
Fernando P Neves, Jorge M Barata, Andre R Silva (Universidade da Beira Interior)



**History of Aeronautics Engineering Course at UBI**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0887  
Fernando P Neves, Jorge M Barata, Andre R Silva (Universidade da Beira Interior)



**(continued) HIS-04 | In Person - Chesapeake 10****Founding of the AIAA Women of Aeronautics and Astronautics**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0889

Rosemary Davidson (Massachusetts Institute of Technology), Annika E Rollock (University of Colorado Boulder), Matthew Marcus (NASA Goddard Space Flight Center), Elaine Petro (Cornell University), Alexandra N Straub (Eglin Air Force Base Airman and Family Readiness Center), Emily R. Kusulas (Lockheed Martin)

**History of Aerospace Engineering at the University of Bristol**

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0888

Scott Eberhardt, Karen Aplin, Steve G Burrow, Jonathan E Cooper, Mark H Lowenberg, Sandy N.A. Mitchell (University of Bristol)

**AS-05 | In Person - Chesapeake 1****Aeroelastic Analysis of Actuated Adaptive Wingtips Based on Pressure-Actuated Cellular Structures**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0825

Patrick Meyer, Christian Hühne (Technische Universität Braunschweig), Kjell Bramsiepe, Wolf Krueger (Deutsches Zentrum für Luft- und Raumfahrt eV)

**Study of Dynamic Interaction Between Low Re Aerodynamic Load and Flexible-Biomimetic Wings with Tailorable Stiffness by FSI Modeling**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0826

Smail Boughou (Université Internationale de Rabat), Radouane Boukharfane (Université Mohammed VI Polytechnique), Daniel J Inman (University of Michigan Department of Aerospace Engineering), Ashraf A Omar, Omer Elsayed (Université Internationale de Rabat)

**A longitudinal linear parameter-varying model of a gliding gull during wing morphing**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0827

Christina Harvey (University of California Davis)

**Control of a Flapping Plate Shape with Fluidic Flexible Matrix Composites**

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0828

Christine Gilbert, Blake Armstrong, Oscar Johansson, Carson Squibb, Michael Philen (Virginia Polytechnic Institute and State University)

**Tailorable vibration of lightweight viscoelastic biomimetic scale-covered beam**

Tuesday, 24 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0829

Ranajay Ghosh, Hossein Ebrahimi (University of Central Florida), Hessein Ali (Union College), Milos Krsmanovic (University of Central Florida)

**WE-03 | In Person - Chesapeake 9****The impact of leading edge damage and repair on sectional aerodynamic performance**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0968

Alexander Meyer Forsting, Anders S Olsen, Niels N Sørensen, Christian Bak (Danmarks Tekniske Universitet Institut for Vindenergi)



**(continued) WE-03 | In Person - Chesapeake 9**

**Winglet Design for a Wind Turbine with an Additively Manufactured Blade Tip**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0969  
David C Maniaci, Daniel R Houck, James Cutler, Brent C Houchens (Sandia National Laboratories)



**Full-Scale Serrated Wind Turbine Trailing Edge Noise Certification Analysis Based on the Lattice-Boltzmann Method**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0970  
Wouter Cornelis Pieter van der Velden (Dassault Systemes), Damiano Casalino, Gianluca Romani (Dassault Systemes Deutschland GmbH)



**Considerations on vortex methods for aerodynamic analyses of wind turbines**

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0971  
Carlos R Santos, Øyvind Waage Hanssen-Bauer, Roy Stenbro (Institutt for energiteknikk)



**STR-16 | In Person - Chesapeake 4**

**Integration of Fatigue R-Curve Effects into VCCT for Durability Predictions, Part 1: Buckled Composite Single-Stringer Stiffened Panels**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0952  
Austin Pennington (Lockheed Martin Aeronautics Company), Vijay Goyal (Lockheed Martin Aeronautics Co Marietta)



**Integration of Fatigue R-Curve Effects into VCCT for Durability Predictions, Part 2: Buckled Composite Multi-Stringer Stiffened Panels**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0953  
Austin Pennington, Vijay Goyal (Lockheed Martin Aeronautics Company)



**Predicting Post-Buckling Response and Damage Initiation of Pristine Double Hat-Stiffened Laminated Composite Panels Utilizing Enhanced Schapery Theory**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0954  
Jacob N Gagliano, Shiyao Lin (University of Michigan), Vipul Ranatunga (Air Force Research Laboratory), Anthony M Waas (University of Michigan)



**Lessons Learned in the Buckling Assessments of Space Structures**

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0955  
Vinay K Goyal, James Tuck-Lee, Pavel Babuska, Emily Zeitunian (The Aerospace Corporation), Luis Aguirre (SpaceX)



**PC-19 | In Person - National Harbor 10**

**Autoignition Enhanced Turbulent Combustion in an Afterburner**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0919  
Tongxun Yi, Marc D Polanka (Air Force Institute of Technology)



(continued) PC-19 | In Person - National Harbor 10

Forced and Unforced Dynamics of a Lean Premixed Prevaporized Combustor for Civil Supersonic Transport

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0920  
Mitchell L Passarelli, Samuel E Wonfor, Andy X Zheng, Yi Chen Mazumdar, Jerry M Seitzman, Adam M Steinberg (Georgia Institute of Technology), Victor Salazar, Krishna Venkatesan (GE Global Research), Michael Benjamin (GE Aviation)



Limit Cycle Oscillation Dynamics in a MLDI Combustor

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0921  
Yuvi Nanda (University of Cincinnati), Aditya Saurabh (Indian Institute of Technology Kanpur), Lipika Kabiraj (Indian Institute of Technology Ropar), Rodrigo Villalva Gomez, Ephraim Gutmark (University of Cincinnati)



Study on Lean Premixed Flame Stability Enhancement by Altering Fuel-Air Mixture Homogeneity

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0922  
Radi A Alsulami (King Abdulaziz University)



Variation in Convective and Radiative Heat Transfer with Reynolds Number and Temperature in a Backward-Facing Step Combustor

Tuesday, 24 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0923  
Jennifer Colborn, Jacqueline A O'Connor (The Pennsylvania State University)



CASE-01 | In Person - Potomac 2

Monitoring Airspace Complexity and Determining Contributing Factors

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1197  
Daniel I Weckler, Bryan L Matthews, Shayan Monadjemi, Shawn Wolfe, Nikunj Oza (NASA Ames Research Center)



Self-organizing UAM Vehicles for Noise Mitigation in Urban Environments

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1198  
Sangeeth Saagar Ponnusamy, Söenke Klostermann, Carsten Strobel (Airbus Defence and Space GmbH), Stephen Rolston (Airbus UK)



Manifold Learning of Nonlinear Airfoil Aerodynamics with Dimensionality Reduction

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1199  
Srikanth Vasudevan, Roeland De Breuker, Xuerui Wang (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaart-techniek)



Demonstrating a semantic approach to clarifying regulatory ambiguity in aircraft design and development using process mapping, UML, and ontological modeling

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0830  
Andrea Cartile (Concordia University), Catharine Marsden (Royal Military College of Canada), Susan Liscouet-Hanke (Concordia University)



STR-17 | In Person - Chesapeake 7

Simulation of Fiber Pullout Tests using a Peridynamic Approach

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0956  
Riley Hall, Ibrahim Guven (Virginia Commonwealth University College of Engineering)



Manufacture of Hybrid Standard-Ply/Thin-Ply Carbon/Epoxy Panels for Notched Test Specimens

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0957  
Andrew E Lovejoy, Alana Cardona (NASA Langley Research Center)



Influence of Graphene Nanoplatelets on the Tensile Response of Stitched Composites with Thin Plies

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0958  
Radwa Alaziz, Shuvam Saha, Rani W Sullivan (Mississippi State University)



GNC-13 | In Person - Annapolis 1

Adaptive Control/Steering Design for Deorbiting Space Debris with Hybrid Actuators Configuration

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0872  
Takahiro Sasaki, Ryo Nakamura, Toru Yamamoto (Japan Aerospace Exploration Agency (JAXA))



A Koopman-Operator Control Optimization for Relative Motion in Space

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0873  
Simone Servadio (Massachusetts Institute of Technology), Roberto Armellin (The University of Auckland), Richard Linares (Massachusetts Institute of Technology)



Bayesian Active Sensing for Fault Estimation with Belief Space Tree Search

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0874  
James Ragan, Benjamin Riviere, Soon-Jo Chung (California Institute of Technology)



Overview Talk-Dr. Alok Majumdar

Tuesday, 24 January 14:00 - 14:20 EDT (UTC-5)



EXPL-06 | In Person - National Harbor 7

Analysis of Cryogenic Propellant Liquefaction Rates in Cooled Constant-Wall-Temperature Tanks

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0846  
Anson R Koch (NASA Marshall Space Flight Center)



**(continued) EXPL-06 | In Person - National Harbor 7**

**Nodal Numerical Modeling of Submerged Helium Injection in a Cryogenic Propellant Tank**

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0847  
Michael Baldwin (GeoControl Systems, Inc.), Alok K Majumdar, Andre LeClair (NASA Marshall Space Flight Center)



**Axisymmetric Two-Dimensional Modeling of No Vent Filling of a Cryogenic Tank using Generalized Fluid System Simulation Program**

Tuesday, 24 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0848  
Alok K Majumdar, Andre LeClair (NASA Marshall Space Flight Center), Jason W Hartwig (NASA John H Glenn Research Center)



**IS-11 | In Person - Potomac 6**

**Distributed Sensing and Advanced Perception Technologies to Enable Advanced Air Mobility**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0894  
Corey A Ippolito, Kelley E Hashemi, Evan Kawamura, George E. Gorospe, Wendy Holforty, Keerthana Kannan, Vahram Stepanyan, Thomas Lombaerts (NASA Ames Research Center), Nelson Brown, Alexander M. Jaffe (NASA Armstrong Flight Research Center), Chester Dolph (NASA Langley Research Center)



**A Simulation Architecture for Air Traffic Over Urban Environments Supporting Autonomy Research in Advanced Air Mobility**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0895  
Keerthana Kannan, Joshua E Baculi, Thomas Lombaerts, Evan Kawamura, George E. Gorospe, Wendy Holforty, Corey A Ippolito, Vahram Stepanyan (NASA Ames Research Center), Chester Dolph (NASA Langley Research Center), Nelson Brown (NASA Armstrong Flight Research Center)



**Distributed Ground Sensor Fusion Based Object Tracking for Autonomous Advanced Air Mobility Operations**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0896  
Thomas Lombaerts, Keerthana Kannan, Evan Kawamura (NASA Ames Research Center), Chester Dolph (NASA Langley Research Center), Vahram Stepanyan, George E. Gorospe, Corey A Ippolito (NASA Ames Research Center)



**Perception Testing in Fog for Autonomous Flight**

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0897  
George E. Gorospe (NASA Ames Research Center), Elihu Deneke (Sandia National Laboratories)



**Classifying Aircraft using Velocity Data with Support Vector Machines and Likelihood Ratio Tests**

Tuesday, 24 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0898  
Logan Dihel, Chester Dolph, Henry T Holbrook (NASA Langley Research Center), Sandip Roy (Washington State University)



**EAT-05 | In Person - Camellia 1**

**System-level Trade Study of Hybrid Parallel Propulsion Architectures on Future Regional and Thin Haul Turboprop Aircraft**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0838  
Yu Cai, Chrysoula L Pastra, Jiacheng Xie, Jasrayman K Thind, Matheus Medeiros Maciel Monjon, Jonathan Conrad Gladin, Dimitri N Mavris (Georgia Institute of Technology)



(continued) EAT-05 | In Person - Camellia 1

Uncertainty Quantification on a Parallel Hybrid-Electric Propulsion EPFD Vehicle

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0839  
Jaylon Uzodinma, Turab Zaidi, Miguel Walter, Raphael Gautier, Dimitri N Mavris (Georgia Institute of Technology)



Integrated Mission Performance Analysis of Novel Propulsion Systems: Analysis of a Fuel Cell Regional Aircraft Retrofit

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0840  
Evangelia Pontika, Bahareh Zaghari, Tianzhi Zhou, Hossein Balaghi Enalou, Panagiotis Laskaridis (Cranfield University)



GNC-14/AFM-09 | In Person - Annapolis 3

Vision-Based Terrain Relative Navigation on High Altitude Balloon and Sub-Orbital Rocket

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0875  
Dominic R Maggio (Massachusetts Institute of Technology), Courtney Mario, Brett Streetman, Ted Steiner (Charles Stark Draper Laboratory Inc), Luca Carlone (Massachusetts Institute of Technology)



Crater Navigation with Extended Features Utilizing Random Matrix Measurement Models

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0876  
James D Brouk, Kyle J DeMars (Texas A&M University)



Small Satellite Aerocapture Concepts for Future Interplanetary Missions

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0877  
Rohan Deshmukh (Analytical Mechanics Associates, Inc.), Angela Bowes, Soumyo Dutta (NASA Langley Research Center)



Performance Analysis of SmallSat Aerocapture at Venus

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0878  
Rafael A Lugo, Soumyo Dutta (NASA Langley Research Center), Daniel Matz, Breanna J Johnson (NASA Johnson Space Center), Alejandro R Pensado, Evan Roelke, John T Aguirre, Richard Powell (Analytical Mechanics Associates, Inc.)



SD-14/APA-32 | In Person - Chesapeake 8

Aeroelastic Experiments and Companion Computations Assessing the Impact of Impinging Shock Sweep

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0945  
Kirk R Brouwer (ARCTOS Technology Solutions), Ricardo Perez, Timothy J Beberniss, Stephen M Spottswood (Air Force Research Laboratory)



Boundary-Layer Measurements for FTSI Systems: Influence of Panel Flutter on a Mach 2 Turbulent Boundary-Layer

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0946  
Scott J Peltier (Air Force Research Laboratory Aerospace Systems Directorate), Kirk R Brouwer (ARCTOS Technology Solutions), Ricardo Perez, Stephen M Spottswood, Stephen Hammack (Air Force Research Laboratory Aerospace Systems Directorate)



**(continued) SD-14/APA-32 | In Person - Chesapeake 8****Combined Stereo Digital Image Correlation and Infrared Measurements of a Notional Mach 5 Aircraft Panel in the NASA 8-Foot High-Temperature Wind Tunnel**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0947

Timothy J Bebernis (Air Force Research Laboratory), David A Ehrhardt (University of Illinois Urbana-Champaign)

**Design of Aerothermoelastic Experiments in the AFRL Mach 6 High Reynolds Number Facility**

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0948

Zachary B Riley, Ricardo Perez (Air Force Research Laboratory), Kirk R Brouwer (ARCTOS, LLC)

**FD-30 | In Person - Chesapeake F****Micro-Cavity Actuation for Control of Dynamic Stall on Swept Wing Sections**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0861

Daniel J Garmann, Miguel R Visbal (Air Force Research Laboratory)

**Air Interactions of Magnetically Driven Plasma Discharges in Crossflow**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0862

Georgi Hristov, Phillip J Ansell (University of Illinois Urbana-Champaign Grainger College of Engineering), Joseph W. Zimmerman, David L Carroll (CU Aerospace LLC)

**Effect of Interference Between Two Facing Plasma Actuators on Discharge and Flow Field**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0863

Takafumi Saito, Hiroyuki Nishida, Yutaka Kaneko, Yusuke Kakuya (Tokyo Noko Daigaku - Koganei Campus)

**Identification of Important Flow Structures for Deep Reinforcement Learning-based Control of Flow Separation over an Airfoil**

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0864

Naoki Takada, Ayano Watanabe, Satoshi Shimomura, Tatsumasa Ishikawa, Hiroyuki Nishida (Tokyo Noko Daigaku Kogakubu Daigakuin Kogaku Kenkyuin)

**Numerical Study of Extreme Adverse Pressure Gradients Enabled by Co-Flow Wall Jet**

Tuesday, 24 January 15:20 - 15:40 (UTC-5) | AIAA-2023-1430

Brendan McBreen, Kewei Xu, Gecheng Zha (University of Miami)

**GNC-15/IS-10 | In Person - Annapolis 4****A ROS Package for UAV Run Time Assurance with In-the-Loop Reachability**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0879

Christian Llanes, Samuel Coogan (Georgia Institute of Technology)






(continued) GNC-15/IS-10 | In Person - Annapolis 4


Safe Optimal Control with Synthesized Waypoints as Guidance

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0880  
Lin Song, Neng Wan, Naira Hovakimyan (University of Illinois Urbana-Champaign)



Gust Load Alleviation Control and Gust Estimation for a High Aspect Ratio Wing Wind Tunnel Model


Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0881  
Christopher J Forte (KBR Wyle), Nhan T Nguyen (NASA Ames Research Center), Juntao Xiong (KBR Wyle)



EP-04 | In Person - Chesapeake B


Design of an Air-Core Circuit for a Hall Thruster

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0841  
William Hurley, Thomas A Marks, Benjamin Jorns (University of Michigan)




Operation and Performance of a Magnetically Shielded Hall Thruster at Ultrahigh Current Densities on Xenon and Krypton

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0842  
Leanne L Su, Parker J Roberts, Tate Gill, William Hurley, Thomas A Marks, Christopher L Sercel, Madison Allen, Collin B Whittaker, Matthew Byrne, Zachariah Brown, Eric Vigas, Benjamin Jorns (University of Michigan)




Characterization of Electron Mach Number in a Hollow Cathode with Thomson Scattering

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0843  
Parker J Roberts, Benjamin Jorns (University of Michigan)




Theory of RF Plasma Cathodes and Supporting Experiments for Electric Propulsion Applications

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0844  
Marcel P Georgin, Michael S McDonald, John W Brooks (US Naval Research Laboratory)



100 A-500 A High-Current Hollow Cathode Development


Tuesday, 24 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0845  
Wayne L Ohlinger (Self), Bernard Vancil (eBeam, Inc.)



APA-29 | In Person - Potomac 3

Rapid hypersonic sonic boom prediction using line-distributed energy impulse formulations with and without lift effect

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0816  
Shufan Zou, Zachary M Johnston, Graham V Candler, Suo Yang (University of Minnesota Twin Cities)



**(continued) APA-29 | In Person - Potomac 3****Assessment of Optical Propagation Models with Application to Hypersonic Entry**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0817

Anubhav Gupta, Pol Mesalles Ripoll, Nicholas S Campbell, Brian Argrow (University of Colorado Boulder)

**Hypersonic Boundary-Layer Stability with Local Cooling and Local Metasurface Treatment**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0818

Furkan Oz, Kursat Kara (Oklahoma State University)

**Elevon-Cove Pressure Fluctuations in a Quiet Mach-6 Flow**

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0819

Adam C Lay, Brandon Charles Chynoweth, Joseph S Jewell (Purdue University)

**FD-29 | In Person - Chesapeake E****An Assessment of the Laminar Hypersonic Double-Cone Experiments in the LENS-XX Tunnel**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0856

Jaideep Ray, Patrick Joseph Blonigan (Sandia National Laboratories California), Eric T Phipps, Kathryn Maupin (Sandia National Laboratories)

**A Study on Side Jet Interactions for a Hypersonic Flow using Kinetic and Experimental Methods**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0857

Irmak Taylan Karpuzcu, Deborah A Levin (University of Illinois Urbana-Champaign), Joseph S Jewell (Purdue University)

**Computational Simulations of Hypersonic Mach Stems at High Enthalpy**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0858

Caleb A Bryan, Tyler Dean, Bryan J Morreale, Rodney D Bowersox (Texas A&amp;M University)

**Comparative Studies on the Hypersonic Finned Cone**

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0859

Madeline McMillan Peck, Andrew K Riha, Helen L Reed (Texas A&amp;M University), Angelos Klothakis (Technical University of Crete), Kamil Dylewicz, Vassilios Theofilis (University of Liverpool)

**Unsteadiness of hypersonic flows over a double wedge**

Tuesday, 24 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0860

Ozgur Tumuklu, Kyle M. Hanquist (The University of Arizona)



**LP-05 | In Person - National Harbor 14****Thermal gradient stabilized supercritical droplets and bubbles**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0899

Nelson P. Longmire, Steven Showalter, Daniel T Banuti (University of New Mexico School of Engineering)

**An Experimental Characterization of a Pintle Injector Jet Spray Using High Speed Imaging**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0900

Evan Pruitt, Olivia DeCaro, Xiaofeng Liu (San Diego State University)

**Laminar Diffusion Flame-holding Characteristics in Cross-flow Formed at the Wake of the Injector Post**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0901

Yu Daimon (Uchu Koku Kenkyu Kaihatsu Kiko), Masaharu Nakajima, Noritaka Sako, Jun Hayashi, Hiroshi Kawanabe (Kyoto Daigaku), Himeko Yamamoto (Uchu Koku Kenkyu Kaihatsu Kiko)

**DE-04 | In Person - Chesapeake 5****Novel Kinetic Effects Warhead Design for Air-to-Ground Munitions**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0835

Luke Hardy, Trinity Good, Bradley Bitting, Anthony Neil (US Air Force Academy), Rusty A Powell, Ph.D. (Axient), Michael L Anderson (US Air Force Academy)

**Feasibility of Structural Strength of Multi-cell Stratospheric Tower**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0834

Kensuke Ishimoto, Tomoyuki Miyashita, Ken Higuchi (Waseda Daigaku Riko Gakujutsuin)

**Set-Based Design Space Exploration to Investigate the Effect of Energy Storage Durability on the Energy Management Strategy of a Hybrid-Electric Aircraft**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0837

Andrea Spinelli, Gustavo Pedro Krupa, Timoleon Kipourous (Cranfield University Cranfield School of Aerospace Transport and Manufacturing)

**FD-33 | In Person - Chesapeake K****Global Reconstruction of Hypersonic Boundary Layer Disturbance Modes**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0869

Jonathan L Hill (Air Force Institute of Technology), Elizabeth Katherine Benitez, Matthew P Borg (Air Force Research Laboratory), Mark F Reeder (Air Force Institute of Technology)

**On the dynamics of second mode modified first mode instability**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0870

Tony Liang, Arham Amin Khan, Joseph Kuehl (University of Delaware)



**(continued) FD-33 | In Person - Chesapeake K****Shock receptivity: characteristics of shock oscillation modes and induced boundary-layer disturbances**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0871

Adriano Cerminara (University of Wolverhampton), Deborah A Levin (University of Illinois Urbana-Champaign), Vassilios Theofilis (University of Liverpool)

**PC-20 | In Person - National Harbor 8****Assessment of LES Subfilter Model Accuracy in a Supercritical CO<sub>2</sub> Spatially Evolving Mixing Layer**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0924

Dhruv Purushotham, Joseph Oefelein (Georgia Institute of Technology Daniel Guggenheim School of Aerospace Engineering)

**Evaluation of Explicit Filtering Techniques for Large Eddy Simulation of Reacting Flows**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0925

Scott W Theuerkauf, Joseph Oefelein (Georgia Institute of Technology)

**Large Eddy Simulations of Solid Fuel Ramjet Combustion**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0926

Charles Arnold, Henry Pace, Dominic Gallegos, Luca Massa, Gregory Young (Virginia Polytechnic Institute and State University)

**Recirculation Zone Structure and Dynamics in Confined Bluff-Body Turbulent Premixed Flames**

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0927

Joseph N Squeo, Joshua Sykes (Innovative Scientific Solutions, Inc.), Brent A Rankin (Air Force Research Laboratory)

**MDO-12 | In Person - Chesapeake 6****Rapid Training of Emulator Embedded Neural Networks for Multi-Fidelity Conceptual Design Studies**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0902

Atticus J Beachy, Harok Bae (Wright State University), Jose A Camberos (Air Force Research Laboratory), Ramana V Grandhi (Air Force Institute of Technology)

**Domain Decomposed ROM with Grid Adaptation for Hypersonic Flows**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0903

Susmit S Joshi (Virginia Polytechnic Institute and State University), Seongim Choi (Gwangju Institute of Science and Technology)

**Shapley Additive Explanations for Knowledge Discovery in Aerodynamic Shape Optimization**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0904

Satoshi Takanashi, Shinsuke Nishimura, Kaoruko Eto, Keita Hatanaka (Mitsubishi Group)



**(continued) MDO-12 | In Person - Chesapeake 6****Gradient-Based Shape Optimization for Unsteady Turbulent Simulations Using Dynamic Closures**

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0905  
 Krzysztof Fidkowski (University of Michigan)

**PGC-08 | In Person - National Harbor 3****Detonation Wave Visualization in a Rocket RDE with Continuous Variation of Fuel Injection Location**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0928  
 Allyson Haynes, Ethan W Plaehn, Rohan Gejji, Carson D Slabaugh (Purdue University)

**Simultaneous in-chamber MHz sensing of CO, H<sub>2</sub>O, temperature, and pressure via mid-infrared laser absorption in a rotating detonation rocket engine**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2062  
 Nicholas Kuenning, Anil P Nair, Alex R. Keller, Nicolas Minesi, Raymond Mitchell Spearrin (University of California Los Angeles), Emre Ozen, Jason Kriesel (Opto-Knowledge Systems, Inc.), Blaine R Bigler (Jacobs Technology Inc), John W Bennewitz (University of Alabama at Huntsville), Jason R Burr (AFRL/RQRC, Combustion Devices Branch, Air Force Research Laboratory)

**Experimental Comparison of Different Pressure Gain Measurement Techniques for RDCs**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0929  
 Tim Kayser, Hongyi Wei, Eric Bach, Christian O Paschereit, Myles Bohon (Technische Universitat Berlin)

**Uncertainties and Limitations of Experimental Thrust and Pressure Gain Measurements in a Rotating Detonation Combustor**

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0930  
 Alexander Feleo, Joshua Shepard, Mirko Gamba (University of Michigan)

**Analysis of Quasi-steady, Transitional, and Short Timescale Galloping within Rotating Detonation Engines**

Tuesday, 24 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0931  
 Kristyn Johnson, Justin Weber, Donald H Ferguson (National Energy Technology Laboratory Morgantown), Andrew C Nix (West Virginia University)

**FD-28 | In Person - Chesapeake I****Shock capturing for discontinuous Galerkin approximations of hypersonic non-equilibrium flow**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0853  
 Robert L Van Heyningen, Cuong Nguyen, Jaime Peraire (Massachusetts Institute of Technology)

**Aeroheating Predictions of Hypersonic Flight Geometries with High-Order Discontinuous Galerkin Methods**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0854  
 Zubin J Lal, Graham V Candler, Bernardo J Cockburn (University of Minnesota Twin Cities)




(continued) FD-28 | In Person - Chesapeake I

A Moving Discontinuous Galerkin Method with Interface Conservation Enforcement for Reacting Hypersonic Flows

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0855

Hong Luo, Gianni Absillis (NC State University), Matthew Goodson, Giovanni Salazar, Cameron Brown, Kilian Cooley (Corvid Technologies), Alireza Mazaheri (NASA Langley Research Center)




NDA-07 | In Person - Chesapeake 3

Multi-Fidelity Kriging and Sparse Polynomial Chaos Surrogate Models for Uncertainty Quantification

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0915

Markus P Rumpfkeil (University of Dayton), Philip S Beran (Air Force Research Laboratory)



Projection-based multifidelity linear regression for data-poor applications

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0916


Vignesh Sella, Julie Pham, Anirban Chaudhuri, Karen E Willcox (The University of Texas at Austin)



Improving Bayesian networks multifidelity surrogate construction with basis adaptation

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0917


Xiaoshu Zeng (University of Southern California), Gianluca Geraci (Sandia National Laboratories), Alex Gorodetsky (University of Michigan), John Jakeman, Michael S Eldred (Sandia National Laboratories), Roger G. Ghanem (University of Southern California)



Multi-fidelity metamodeling in turbine blade airfoils via transfer learning on manifolds

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0918

Katiana Kontolati (Johns Hopkins University), Panagiotis Tsilifis, Sayan Ghosh, Valeria Andreoli (General Electric Research), Michael Shields (Johns Hopkins University), Liping Wang (General Electric Research)



TP-09 | In Person - Azalea 1

Examination of Mars2020 shock-layer conditions via infrared laser absorption spectroscopy of CO<sub>2</sub> and CO

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0959


Christopher Jelloian, Nicolas Minesi, Raymond Mitchell Spearrin (University of California Los Angeles), Augustin Tibère-Inglesse, Megan E. MacDonald, Brett A Cruden (NASA Ames Research Center)



Examination of Mars2020 shock-layer conditions via infrared emission spectroscopy of CO<sub>2</sub>

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0960


Augustin Claude Tibère-Inglesse (Oak Ridge Associated Universities), Brett A Cruden (Analytical Mechanics Associates, Inc.), Christopher Jelloian, Raymond Mitchell Spearrin (University of California Los Angeles)



Simulations of A Conceptual MSR-EES Shoulder Recession and Thermal Response

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0961

Prakash Shrestha (Analytical Mechanics Associates, Inc.), Olivia Schroeder (University of Minnesota Twin Cities), Christopher O Johnston (NASA Langley Research Center), Eric Stern (NASA Ames Research Center)



**(continued) TP-09 | In Person - Azalea 1****Assessment of Mars 2020 Forebody Heating Predictions with Coupled Material Response**

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0962  
 Thomas K West, Christopher O Johnston (NASA Langley Research Center)

**Coupling Heatshield Response and Aerothermal Environment for Mars Entry via Surface Gas Blowing**

Tuesday, 24 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0963  
 John M Thornton, Dinesh K Prabhu, Jeremie Bernard Erwin Meurisse, Arnaud Borner (Analytical Mechanics Associates, Inc.), Joshua D Monk (NASA Ames Research Center), Brett A Cruden (Analytical Mechanics Associates, Inc.)

**HR-01 | In Person - National Harbor 15****Demonstration of Axial-Injection End-Burning Hybrid Rocket using FDM 3D Printer**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0890  
 Shota Hirai, Landon T Kamps, Yuki Nobuhara, Harunori Nagata (Hokkaido Daigaku)

**Investigation of Hybrid Rocket Motor Regression Rate Doped with High Entropy Metallic Additives**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0891  
 Muhammad Hanafi Azami, Nur Arifah Mohamad Jamil, Mai Nurul Fareesya Mohamad Anuar, Norhuda Hidayah Nordin, Izham Izzat Ismail (International Islamic University Malaysia Kulliyah of Engineering)

**Demonstration of Composite Hypergolic Solid Fuel for Hydrogen Peroxide Hybrid Rocket**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0892  
 Junyeong Jeong, Seungho Lee, Sejin Kwon (Korea Advanced Institute of Science and Technology)

**Regression Rate End-Burning Hybrid Rocket Motor Doped with High Entropy Metallic Additives**

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0893  
 Muhammad Hanafi Azami, Muhammad Ezamuddin Ezzad Sabri, Mohammad Amirul Qayyum Roslan (International Islamic University Malaysia Kulliyah of Engineering), Zuraidah Salleh (University Technology MARA)

**TP-07 | In Person - Azalea 2****Validation of the reverse Monte Carlo ray-tracing method and coupling with material response**

Tuesday, 24 January 14:00 - 15:40 (UTC-5) | AIAA-2023-2086  
 Ahmed H S Yassin, Savio James Poovathingal (University of Kentucky)

**Multi-Fidelity Modeling Framework for Radiative Transfer in Hypersonic Atmospheric Entry**

Tuesday, 24 January 14:00 - 15:40 (UTC-5) | AIAA-2023-1730  
 Sung Min Jo, Sanjeev Kumar, Vincent Le Maout, Alessandro Munafò, Marco Panesi (University of Illinois Urbana-Champaign)



**(continued) TP-07 | In Person - Azalea 2****Shock Radiation Tests for Ice Giant Entry Probes Including CH<sub>4</sub> in the T6 Free-Piston Driven Wind Tunnel**

Tuesday, 24 January 14:00 - 15:40 (UTC-5) | AIAA-2023-1729

Joseph Steer, Peter L Collen, Alex Benjamin Glenn, Tamara Sopek, Christopher Hambidge, Luke J Doherty, Matthew McGilvray (University of Oxford), Stefan Loehle (Universitat Stuttgart Institut fur Raumfahrtsysteme), Louis Walpot (European Space Agency)

**SATS-02/GNC-16 | In Person - National Harbor 5****Reachability and Sensitivity Analysis of a CubeSat Autonomous Rendezvous and Docking MPC Algorithm**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0932

Andrew Fear, E Glenn Lightsey (Georgia Institute of Technology College of Engineering)

**On-Orbit Verification of Attitude Dynamics of Satellites with Variable Shape Mechanisms using Atmospheric Drag Torque and Gravity Gradient Torque**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0933

Kiyona Miyamoto, Toshihiro Chujo, Kei Watanabe, Saburo Matunaga (Tokyo Kogyo Daigaku Kogakuin)

**SGP4 versus Vinti6: A Comparative Study of Orbit Propagators for Very Low Altitude CubeSat Orbits**

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0934

Cian Anthony Branco, Ethan Senecal, Sharan Asundi (Old Dominion University)

**Attitude Control of a 3U CubeSat with Combination of Magnetorquers and Reaction Wheels**

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0935

Yufei Zhu, Richard Sutherland, Anouck Girard, Brian Gilchrist (University of Michigan)

**Performance Measure of the Novel Electropermanent Magnetorquer**

Tuesday, 24 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0936

Youngho Eun, Zihao Wang, Xiaofeng Wu (The University of Sydney)

**SCS-04/AS-06 | In Person - Woodrow Wilson C****Structural Architectures for Self-Erecting Lunar Towers**

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0937

Jacob G Daye, Andrew J Lee (NC State University), Juan M Fernandez (NASA Langley Research Center)

**Force Application of a Single Boom for a 500-m<sup>2</sup>-Class Solar Sail**

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0938

Martin Richter, Marco Straubel, Martin Eckhard Zander (Deutsches Zentrum fur Luft- und Raumfahrt DLR Institut fur Faserverbundleichtbau und Adaptronik), Joshua E Salazar, Matthew K Chamberlain, Juan M Fernandez (NASA Langley Research Center)





<b>(continued) SCS-04/AS-06   In Person - Woodrow Wilson C</b>	
<b>Effects of Ply-level Imperfections and Space Environment on Bistability of Ultrathin Composite Booms</b>	
Tuesday, 24 January 14:40 - 15:00 (UTC-5)   AIAA-2023-0939 Chloe Zarader, Xin Ning (The Pennsylvania State University)	
<b>Shearless Outrigger Booms with Improved Edge Registration</b>	
Tuesday, 24 January 15:00 - 15:20 (UTC-5)   AIAA-2023-0940 Alexi S Rakow, Isaac Lammers, Brian Potter, Andrew Haynes, Susan Tower, Christopher Worsdale (MMA Design, LLC)	
<b>Large Deformation Bending of Ultralight Deployable Structure For Nano-Micro-Class Satellites</b>	
Tuesday, 24 January 15:20 - 15:40 (UTC-5)   AIAA-2023-0941 Jimesh D. Bhagatji, Alex Kravchenko, Sharan Asundi (Old Dominion University)	
<b>SCS-05   In Person - Woodrow Wilson D</b>	
<b>Hermian Exploration Researching Mercury, Excavating Samples (HERMES) Mission Architecture</b>	
Tuesday, 24 January 14:00 - 14:20 (UTC-5)   AIAA-2023-0942 Hadley N Douglas, Islam Zakaria-Saleh, Javid Bayandor (University at Buffalo School of Engineering and Applied Sciences)	
<b>Origami Floor Structures for Extraterrestrial Habitats</b>	
Tuesday, 24 January 14:20 - 14:40 (UTC-5)   AIAA-2023-0943 Jackson G Schuler, Daewon Kim (Embry-Riddle Aeronautical University)	
<b>Thickness Accommodation for the Flasher Origami Deployable Array</b>	
Tuesday, 24 January 14:40 - 15:00 (UTC-5)   AIAA-2023-0944 Katie Varela, Lais Oliveira, Brandon Sargent, Larry L Howell, Spencer P Magleby (Brigham Young University)	
<b>FD-27   In Person - Chesapeake D</b>	
<b>Passive control of high-speed boundary layer transition using non-uniform surface temperature distributions</b>	
Tuesday, 24 January 14:00 - 14:20 (UTC-5)   AIAA-2023-0849 Kazuki Ozawa, Chengwei Xia, Georgios Rigas, Paul J Bruce (Imperial College London)	
<b>Controlling the Jet of Overexpanded Nozzle Using Coanda Effect</b>	
Tuesday, 24 January 14:20 - 14:40 (UTC-5)   AIAA-2023-0850 Syed Qasim Zaheer, Peter J. Disimile (University of Cincinnati), Norman Toy (Engineering & Scientific Innovations Inc)	

(continued) FD-27 | In Person - Chesapeake D

Active Control of a Multi-Stream Rectangular Supersonic Nozzle via Micro Jet Array

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0851  
Seth Kelly, Mark N Glauser (Syracuse University)



Mach 3.5 Compression Corner Control using Micro-Vortex Generators

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0852  
Daniel C Gochenaur, Rhys David Williams, Kshitij Sabnis, Holger Babinsky (University of Cambridge)



APA-31 | In Person - Annapolis 2

Test Summary of the Full-Span High-Lift Common Research Model at the ONERA F1 Pressurized Low-Speed Wind Tunnel

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0823  
Sylvain Mouton, Grégoire Charpentier (ONERA Le Fauga-Mauzac), Annabelle Lorenski (ONERA Lille)



The High Lift Common Research Model Wind Tunnel Testing at Kawasaki New Low-Speed Wind Tunnel

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | 3815336</stron  
Takahiro Hashioka, Takeo Kawamura, Yoshiki Murahashi, Hidemasa Yasuda, Yuta Sawaki, Wataru Suzuki (Kawasaki Jukogyo Kabushiki Kaisha Gifu Kojo)



Design of two NASA High Lift Common Research Models for the National Transonic Facility

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | 3836467</stron  
Courtney Spells Winski (NASA Langley Research Center)



Design of the 6% Boeing High-Lift Common Research Model (CRM-HL)

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0824  
Kolleen Hood (The Boeing Company Commercial Airplanes Everett)



Integration of CFD and Wind-Tunnel Testing at NASA

Tuesday, 24 January 15:20 - 15:40 (UTC-5) | 3835242</stron  
James C Ross (NASA Ames Research Center)



APA-27 | In Person - Potomac 1

Kestrel KCFD and FUN3D Results for the Fourth High Lift Prediction Workshop

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0807  
Andrew J Lofthouse (Air Force Life Cycle Management Center)



(continued) APA-27 | In Person - Potomac 1

Evaluation of the Turbulence Models in CREATE-AV Kestrel for High-Mach Flows

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0808  
Brian Burke (Georgia Institute of Technology), William C. Tyson (Naval Air Warfare Center Aircraft Division), Robert H Nichols (The University of Alabama at Birmingham School of Engineering)



Uncertainty Quantification of Tiltrotor Download Prediction

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0809  
Manas Khurana (Science and Technology Corporation), Buvana Jayaraman, Andrew M Wissink, Rohit Jain (U.S. Army Combat Capabilities Development Command)



APA-30 | In Person - Potomac 5

Introduction to AVT-351: Enhanced Computational Performance and Stability & Control Prediction for NATO Military Vehicles

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0820  
Mario Stradtner (Deutsches Zentrum für Luft- und Raumfahrt eV), David Drazen (Naval Surface Warfare Center Carderock Division), Michel van Rooij (Koninklijk Nederlands Lucht- en Ruimtevaartcentrum)



Ongoing Activities of the NATO Performance, Stability & Control, and Fluid Physics Technical Committee

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | 3776326</stron  
Stuart McIlwain (National Research Council Canada)



Reynolds Number Effects on Transonic Designed Multi-Swept Combat Wing at Subsonic & Supersonic Speeds

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0821  
Raj Nangia (University of Bristol), Mehdi Ghoreyshi (US Air Force Academy), Michel van Rooij (Royal Netherlands Aerospace Centre)



Assessment and reduction of propeller and rotor noise from unmanned aircraft systems (UAS) for military and civil operations

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | 3774627</stron  
Philip J Morris (The Pennsylvania State University - University Park Campus), Theo Van Veen (National Aerospace Laboratory), Benoit G Marinus (Ecole Royale Militaire)



Development of an Unsteady Indicial Response Model for Submarine Maneuvering

Tuesday, 24 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0822  
Craig J Marshall, Tiger Jeans, Andrew Gerber (University of New Brunswick Fredericton), Robert Doyle (Defence Research and Development Canada)



UAS-04 | In Person - Chesapeake C

Topological Optimization, Generative Design and Validation of Drone Structures

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0964  
Sofia Gutierrez (Universidad de Antioquia), Juan Ocampo (Saint Mary's University), Carlos Alberto Narváez (Universidad Nacional de Colombia)



(continued) UAS-04 | In Person - Chesapeake C

Safety Assessment of UTM Strategic Deconfliction

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0965  
Antony D Evans (Acubed by Airbus), Maxim Egorov (Actual Systems Inc.), Apurva Anand, Scot E Campbell (Acubed by Airbus), Sebastian Zanolongo, Tyler Young, Nick Sarfaraz (Johns Hopkins University)



Capabilities to Increase Access for Unmanned Surveillance Systems

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0966  
Grant Appel, Seth Konig, George Gardner, Shawn Mathis, John Olson, William Yates, Michael L Anderson, Hugh Clark Briggs (US Air Force Academy), Prashant Ganesh, Jose H Ramos (University of Florida)



Optimization of a Robust Reinforcement Learning Policy

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0967  
Bilkan Ince, Hyo-Sang Shin, Antonios Tsourdos (Cranfield University Cranfield School of Aerospace Transport and Manufacturing)



GTE-09 | In Person - National Harbor 11

Simulation of Hot Corrosion in Industrial Gas Turbines

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0882  
Maximillian Lewis, William N Dawes (University of Cambridge), Roger Wells, Omar Valero, Neil Chapman (Siemens Energy Industrial Turbomachinery Ltd)



Effects of Dusting Film Cooling Placement and Configuration on Surface Heat Transfer Characteristics of a Transonic Turbine Squealer Blade Tip

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0883  
Hallie Collopy, Phillip M Ligrani (The University of Alabama in Huntsville College of Engineering), Hongzhou Xu, Michael Fox (Solar Turbines Incorporated)



A new channel-based internal cooling design for turbine blade leading edge cooling using tangential crossover jets utilizing effects of rotation

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0884  
Madhusudan Pallikaranai Thirumalai, Het Padachh, Srinath Ekkad (NC State University)



Unpacking Test Dust Mineral Behaviors for Research in Gas Turbine Engine Deposition

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0885  
Nathanael J Wendel, Jeffrey P Bons (The Ohio State University)



TP-08 | In Person - Camellia 2

Big-data Efficient and Automated Science Transfer (BEAST): an open-source software architecture for arc jet data management, modeling, and automation

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2712  
Magnus A Haw (Analytical Mechanics Associates, Inc.), Megan E. MacDonald (NASA Ames Research Center), Sebastian V Colom (Analytical Mechanics Associates, Inc.)



(continued) TP-08 | In Person - Camellia 2

Laser Absorption Spectroscopy Measurements of Post-Shock Non-Equilibrium Species in the NASA Ames Electric Arc Shock Tube

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2713  
Efaine Chang, Jesse Streicher, Christopher Lyle Strand, Ronald K Hanson (Stanford University), Brett A Cruden (NASA Ames Research Center)



Radiative Heat Transfer in Thermal Protection Systems using a One-Way Coupled Fluid-Solid Framework

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2715  
Prathamesh R Sirmalla, Sung Min Jo (University of Illinois Urbana-Champaign), Robert Chiodi (Los Alamos National Laboratory), Marco Panesi, Daniel J Bodony (University of Illinois Urbana-Champaign)



Radiative Heat Transfer in Thermal Protection Systems using a One-Way Coupled Fluid-Solid Framework

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2715  
Prathamesh R Sirmalla, Sung Min Jo (University of Illinois Urbana-Champaign), Robert Chiodi (Los Alamos National Laboratory), Marco Panesi, Daniel J Bodony (University of Illinois Urbana-Champaign)



FD-32 | In Person - Chesapeake G

Direct-Numerical and Large-Eddy Simulations of Hypersonic Turbulent Couette Flow at Mach 6, 7 and 8

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0865  
Takahiko Toki, Victor C. B. Sousa, Yongkai Chen, Carlo Scalo (Purdue University)



DNS of a Mach 14 Flow Over a Sharp Cone in AEDC Tunnel 9

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0866  
Ross Wagnild (Sandia National Laboratories)



Probing Resolution Effects of Particle Image Velocimetry for Measuring High-Speed Turbulent Boundary Layers Using Lagrangian Particle Tracking

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0867  
Matthew T Aultman, Kevin J Disotell, Lian Duan (The Ohio State University)



Turbulent heat flux in supersonic flows for different thermal boundary conditions

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0868  
Akanksha Baranwal, Diego A Donzis, Rodney D Bowersox (Texas A&M University)



MVCE-02 | In Person - Chesapeake L

Optimized Implementation of Recursive Sub-Division Technique for Higher-Order Finite-Element Isosurface and Streamline Visualization

Tuesday, 24 January 14:00 - 14:20 (UTC-5) | AIAA-2023-0911  
Scott T Imlay, Yves-Marie Lefebvre, William Scott Fowler, Michael Saunders, John Goetz (Tecplot)



(continued) MVCE-02 | In Person - Chesapeake L

Fusion of Multimodal Aerodynamics Data and Enhanced Knowledge Capture

Tuesday, 24 January 14:20 - 14:40 (UTC-5) | AIAA-2023-0912  
Aljaz Kotnik, Thanassis Frank, Graham Pullan (University of Cambridge)



Interactive Visualisation of Multi-Fidelity Design Optimisation

Tuesday, 24 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0913  
Graham Pullan, Aljaz Kotnik (University of Cambridge), Marcus Meyer (Rolls-Royce Deutschland Ltd und Co KG)



Visualization of Diffuse Material in CNTF via Particle Methods

Tuesday, 24 January 15:00 - 15:20 (UTC-5) | AIAA-2023-0914  
John Seekins, Jason Cassibry (The University of Alabama in Huntsville)



16:00 | Technical Lecture

16:00 | Technical Panel

16:00 | Technical Paper Session

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## Wednesday, 25 January

### 09:30 | Technical Panel

INPSI-11/AS-12/ACD-23/EAT-07/GTE-17/PC-24/TF-05   In Person - Woodrow Wilson A
MST-15   In Person - Baltimore 3
HSABP-05/PC-23   In Person - National Harbor 4
PDL-07   In Person - Azalea 3
GT-03   In Person - Annapolis 1

### 09:30 | Technical Lecture

GNC-21   In Person - Woodrow Wilson B
EP-07   In Person - Baltimore 2

### 09:30 | Technical Paper Session

AMT-14   In Person - Magnolia 3
Broadband NIR water absorption thermometry of lab scale metalized explosives
Wednesday, 25 January 09:30 - 09:50 (UTC-5)   AIAA-2023-1173 Anthony C LoCurto, Michael Welch, James B Michael, Travis R Sippel (Iowa State University College of Engineering), Adam Sims, Michael Soo (Naval Surface Warfare Center)
Nitric Oxide Emission Spectroscopy of a Cylinder Stagnation Flow in a Shock Tunnel
Wednesday, 25 January 09:50 - 10:10 (UTC-5)   AIAA-2023-1174 Kyle Daniel, Elijah Jans, Kyle P Lynch, William Swain, Charley Downing, Justin Lawrence Wagner (Sandia National Laboratories)
Near-IR Laser Absorption Measurements of Atomic Nitrogen, Oxygen, and Carbon Concentrations in Shock-Heated Air
Wednesday, 25 January 10:10 - 10:30 (UTC-5)   AIAA-2023-1175 Elijah Jans, Christopher Murzyn, Kyle Daniel, Charley Downing, David Allen, Kyle P Lynch, Justin Lawrence Wagner (Sandia National Laboratories)
Temperature and H2O Measurements at 500 kHz in Post-Detonation Fireballs using Scanned-Wavelength-Modulation Spectroscopy
Wednesday, 25 January 10:30 - 10:50 (UTC-5)   AIAA-2023-1176 Charles J Schwartz, Joshua Stiborek, Christopher S Goldenstein (Purdue University), Austin Butler, Damon Chen, Nick Glumac (University of Illinois Urbana-Champaign)
A Mid-Infrared Laser Absorption Spectroscopy Diagnostic for Measuring Air Temperature, Pressure, and Mass Flux at 100 kHz via Ambient CO <sub>2</sub>
Wednesday, 25 January 10:50 - 11:10 (UTC-5)   AIAA-2023-1177 Dan J Londrico, Charles J Schwartz, Ryan J Tancin, Christopher S Goldenstein (Purdue University)

SCS-07/AS-13 | In Person - Woodrow Wilson C

Electrostatically Actuated Thin-Shell Space Structures

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1302  
Fabien Royer, John Z Zhang, Kaleb Overby, Elizabeth Y. Zhu, Harsh Bhundiya, Jeffrey Lang, Zachary C Cordero (Massachusetts Institute of Technology)



Technology Demonstration for System of Magnetically Aligning Reconfigurable Tiny Cube Satellites (SMARTCubeS)

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1303  
Ryan William Oroke, Garrett Schmitz, Grant Maclachlan, Johnathan Neptune, Holly Young, Jake Thames, Cole Smith, Brody Austin, Jared Baumert, Corey Schroeder (University of Colorado Boulder), Tom DiSarro, Mieszko Salamon (Jet Propulsion Laboratory)



Variable Curvature Composite Lattice for Space Applications

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1304  
Ciaran McHale, Paul Weaver (University of Limerick Faculty of Science and Engineering)



Origami-Inspired Deployable Electromagnetic Waveguides

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1305  
Nikhil Ashok, Sangwoo Suk, Sven G. Bilén, Xin Ning (The Pennsylvania State University)



EP-09 | In Person - Baltimore 5

Novel Methods to Detect Trace Quantities of 1-ethyl-3-methylimidazolium tetrafluoroborate

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1410  
Stefan Bell, Carl Geiger, Benjamin Inbar, Mark Pfeifer, Elaine Petro (Cornell University)



A two-stage  $\mu$ CAT-MPD thruster

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1213  
Denis B Zolotukhin, Michael Keidar (The George Washington University)



Physical Insight into Microwave Electrothermal Thruster Startup via Multi-Objective Design Optimization and Plasma Simulation

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1215  
Tsubasa Ozawa (Kyushu Daigaku), Suk Hyun Yeo (RMIT University), Hideaki Ogawa (Kyushu Daigaku)



Study on the laser induced plasma applying for laser propulsion

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1216  
Ryota Yasuda, Hideki Moriai (Kanazawa Kogyo Daigaku)





EDU-02 | In Person - Annapolis 3

How Students Situate Aerospace Project Teams to Coursework and Industry

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1211  
Jack B Perry, Chloe Kimberlin, Emily Buten, Aaron W Johnson (University of Michigan)



Impacts of the REU Site HYPER: Experience and Recruiting over Three Years

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1212  
Jeffrey L Kauffman, Ali Gordon (University of Central Florida)



System Dynamics Model on Retention of STEM Undergraduates

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0062  
Qian Shi, Cesare Guariniello, Christopher Debenham, Katharine Burn, Tram Thu Dang, Joyce Main, Daniel A DeLaurentis (Purdue University)



APA-40 | In Person - Potomac 4

Hypersonic Ground Tests of BOLT II Using Optical Diagnostics

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1190  
Jacob G Butera, Cary Dean Smith, John D Schmisser (The University of Tennessee Space Institute)



Experimental Characterization of the Base Flow of a Slender Cone at Supersonic Speeds

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1191  
Noah Moffeit, Rajan Kumar (Florida State University), Jonas Gustavsson (Florida State University Florida Center for Advanced Aero Propulsion)



APA-41 | In Person - Potomac 2

Shock Migration on an Oscillating Straked Delta Wing Using an Unsteady Euler Solver

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1192  
Alexander Brown, Donald L Kunz (Air Force Institute of Technology)



Aerostructural Predictions Combining FEniCS and a Viscous Vortex Particle Method

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1193  
Ryan Anderson, Andrew Ning (Brigham Young University), Ru Xiang, Sebastiaan P. C. van Schie, Mark Sperry, Darshan Sarojini, David Kamensky, John T Hwang (University of California San Diego Jacobs School of Engineering)



Bifurcation analysis of an aeroelastic system under flight varying conditions: A hybrid approach

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1194  
Jesús García Pérez, Amin Ghadami (University of Michigan), Leonardo Sanches, Guilhem Michon (ISAE-SUPAERO), Bogdan Epureanu (University of Michigan)



**(continued) APA-41 | In Person - Potomac 2**

**The effect of structural characteristics on transonic buffeting**

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1195  
 Tim Korthäuer, Alessandro Accorinti, Sven Scharnowski, Christian Kähler (Universität der Bundeswehr München Institut für Strömungsmechanik und Aerodynamik)



**Aeroelastic Analysis of Transonic Flutter with CFD-Based Reduced-Order Model**

Wednesday, 25 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1196  
 Ana N Carloni (Instituto Tecnológico de Aeronáutica), João Luiz F Azevedo (Instituto de Aeronáutica e Espaço)



**MST-16 | In Person - Baltimore 4**

**Aircraft Taxi Simulations with Detailed Aircraft and Landing Gear Modeling**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1277  
 Phillip W Richards, Boone M Tate (SDI Engineering Inc.), Isao Kuwayama, Mitsuhiro Kurino, Hitoshi Isshiki (Kabushiki Kaisha Bridgestone)



**Optimization-based Flight Control System Clearance Philosophy for Fighter Aircraft**

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1278  
 Pedro Miguel Dias, Patrick Pipek, David Schwalb (Airbus Defence and Space GmbH Manching)



**UAS Simulator for Modeling, Analysis and Control in Free Flight and Physical Interaction**

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1279  
 Azarakhsh Keipour (Amazon.com Inc), Mohammadreza Mousaei, Junyi Geng, Dongwei Bai, Sebastian Scherer (Carnegie Mellon University)



**Multi-Objective Optimization for Quadrotor Multibody Dynamic Simulations**

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1280  
 Marcus Gambatese, Daisaku Inoyama, Tom G Stoumbos (Northrop Grumman Space Systems), YiZhuang Garrard, Wenlong Zhang (Arizona State University Polytechnic School)



**Implementation of a Comprehensive Real-Time Flight Simulator for XV-15 Tilt-Rotor Aircraft**

Wednesday, 25 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0336  
 Stefano Primatesta, Federico Barra, Simone Godio, Giorgio Guglieri (Politecnico di Torino), Pierluigi Capone (Zurich University of Applied Sciences)



**ACD-14 | In Person - Woodrow Wilson D**

**Configuration Optimization of a Hydrogen-Kerosene Hybrid Combustion Aircraft Retrofit**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1161  
 Caleb Akhtar Martinez, Jerome Jarrett (University of Cambridge)



(continued) ACD-14 | In Person - Woodrow Wilson D

Configuration Optimisation of Aircraft with Electric Propulsion

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1160  
Fergus C Flanagan, Jerome Jarrett (University of Cambridge)



A Parametric Design Process based on Optimization-Guided Incremental Design Decisions

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1162  
Dongjoon Lee, Cody Karcher, Robert Haimes, Marshall C Galbraith (Massachusetts Institute of Technology), John Dannenhoffer (Syracuse University)



Evaluation of a Collaborative and Distributed Aircraft Design Environment, Enabled by Microservices and Cloud Computing

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1163  
Xin Chen, Adriano Isoldi, Atif Riaz, Christos Mourouzidis (Cranfield University Cranfield School of Aerospace Transport and Manufacturing), Akin Keskin (Rolls-Royce plc), Dale Smith, Marin D. Guenov, Vassilios Pachidis (Cranfield University Cranfield School of Aerospace Transport and Manufacturing)



Direct Software Coupling for Aeroplane Sizing and Integrated Aeroplane-Engine Mission Performance Simulations

Wednesday, 25 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1164  
Aleksandar Joksimovic, Spurthy Subramanya, Jean-Baptiste Chaudron, Xavier Carboneau (ISAE-SUPAERO)



IS-16 | In Person - Annapolis 4

A Methodology to Develop Survivability Maps for Autonomous Aerial Vehicles

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1256  
Fanruiqi Zeng (Georgia Institute of Technology), John-Paul Clarke (The University of Texas at Austin), Husni R Idris (NASA Ames Research Center)



Learning Stochastic Processes Using Gaussian Processes: An Application to Flight Delay Prediction

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1257  
Aakarshan Khanal, Rajnish Bhusal, Kamesh Subbarao, Animesh Chakravarthy (The University of Texas at Arlington), Wendy Okolo (NASA Ames Research Center)



Motion Primitive Path Planning Under Uncertainty for High-Speed Vehicles

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1258  
Geordan M Gutow (Carnegie Mellon University), Jonathan D Rogers (Georgia Institute of Technology College of Engineering), Kyle Williams (Sandia National Laboratories)



STR-23 | In Person - Chesapeake 4

Modal Test and Analysis Correlation of Wind Tunnel Blades for the National Transonic Facility


Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1321  
Brian H Mason, Carlos G Davila, Andrew E Lovejoy (NASA Headquarters)



**(continued) STR-23 | In Person - Chesapeake 4**


**Dynamic performance of hygro-thermal-mechanically preloaded variable stiffness composite fairing structures**

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1322  
 Giuseppe Sciascia, Vincenzo Oliveri, Paul Weaver (University of Limerick)




**WrapToR Truss Stiffeners: Lightweight Reinforcement for Composite Skin Panels**

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1323  
 Chris F Grace, Mark Schenk, Benjamin King Sutton Woods (University of Bristol)



**Automated Immersion Type Ultrasonic C-Scan Inspection of Triangular Thermoset Composite Grid Structures for Aerospace Applications**


Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1324  
 Tayfun Durmaz (University of Limerick Faculty of Science and Engineering), Robert Telford, Brendan Murray, Kelly Matthews (ATG Innovation), Ronan O'Higgins (University of Limerick Faculty of Science and Engineering)



**AA-11 | In Person - Baltimore 1**


**Acoustics on a Coarse Grid**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1156  
 Iman Samani, Philip L Roe (University of Michigan)




**Aero-Acoustic Noise Predictions Using Stochastic Noise Generation and Non-Boundary Conformal Refined Cartesian Meshes**

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1157  
 Mark R Allan, David W Standingford, Jamil Appa (Zenotech Ltd)




**Computational and Experimental Aeroacoustics of an Isolated Supercritical Wingtip Model**

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1158  
 Guang C Deng, Satoshi Baba, Philippe Lavoie (University of Toronto), Stephane Moreau (Universite de Sherbrooke)



**Optimization of turbulent time scales for jet noise prediction**


Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1159  
 Tejal K Shanbhag, Gao Jun Wu, Sanjiva K Lele, Juan J Alonso (Stanford University)



**PGC-10 | In Person - National Harbor 3**

**Computational Assessment of the Impact of Wave Count on Rotating Detonation Engine Performance**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1290  
 Daniel E Paxson (NASA John H Glenn Research Center)



**(continued) PGC-10 | In Person - National Harbor 3****Low-Order Model for Detonation Velocity Suppression in Rotating Detonation Combustors**

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1291

Provence Barnouin, Eric Bach (Technische Universität Berlin), Ephraim J Gutmark (University of Cincinnati), Christian O Paschereit, Myles Bohon (Technische Universität Berlin)

**Investigation of Geometric RDC Dependencies Using a Fast Reactive Euler Solver**

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1292

Roman Klopsch, Niclas Garan, Eric Bach, Christian O Paschereit, Myles Bohon (Technische Universität Berlin)

**Markov Chain Monte Carlo Parameter Estimation of Deflagration Losses in a Rotating Detonation Engine**

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1293

Riley Huff, Mirko Gamba (University of Michigan)

**Numerical simulations of mode transition in Rotating Detonation Engines**

Wednesday, 25 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1294

Prashant Tarey, Praveen Ramaprabhu (UNC Charlotte The William States Lee College of Engineering), Douglas A Schwer (Naval Research Laboratory Chemistry Division), Jacob McFarland (Texas A&amp;M University System)

**SD-21 | In Person - Chesapeake B****Genetic Algorithm-Guided Parametric Aeroelastic Reduced-Order Model with State-Consistence Enforcement**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1313

Jung I Shu, Yi Wang (University of South Carolina), William C Krolick, Kapil Pant (CFD Research Corporation)

**Parametric Aeroelastic Reduced-Order Modeling with Hyperparameter Optimization for Flutter Analysis**

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2701

Jung I Shu, Yi Wang (University of South Carolina), Alessandro Brown, Andrew L Kaminsky (CFD Research Corporation)

**Investigation of Experimental Response of Bladed Disk with Under-Platform Dampers Using Tip Timing and Strain Gauge Responses**

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2699

Troy C Krizak, Eric Kurstak, Kiran X DSouza (The Ohio State University)

**Reduced-Order Modeling and Parameter Identification of Wind Tunnel Measurement Systems**

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2700

Zachary T Jones, Nicholas A Vljic (The Pennsylvania State University Applied Research Laboratory), Peter A Parker, Devin E Burns (NASA Langley Research Center)



**GNC-20 | In Person - Chesapeake 5****Incremental Nonlinear Control Allocation for an Aircraft with Distributed Electric Propulsion**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1248

Pepijn de Heer (Technische Universiteit Delft Faculteit Werktuigbouwkunde Maritieme Techniek &amp; Technische Materiaalwetenschappen), Coen C de Visser (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek), Marijn L Hoogendoorn, Henk W Jentink (Koninklijk Nederlands Lucht- en Ruimtevaartcentrum)

**Multi-objective Design and Performance Analysis of Incremental Control Allocation-based Flight Control Laws**

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1249

Tijmen Pollack, Erik-Jan Van Kampen (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek)

**Gain Design of an INDI-based Controller for a Conceptual eVTOL in a Nonlinear Simulation Environment**

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1250

Denis Surmann, Stephan Myschik (Universitat der Bundeswehr Munchen)

**Invited talk with Dan Hauser**

Wednesday, 25 January 09:30 - 10:10 EDT (UTC-5)

**EXPL-07 | In Person - National Harbor 7****Operational Techniques in Microgravity for Cryogenic Fluid Management**

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1217

Bryan Hoffman (Jacobs Engineering Group Inc), Jacob Brodnick (NASA Marshall Space Flight Center)

**Development and Validation of Two-Phase CFD Models for Key Elements of Propellant Tank CFM Operations in 1G and Microgravity – An Overview**

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1218

Mohammad Kassemi (Case Western Reserve University), Daniel M Hauser (NASA Glenn Research Center), Olga V Kartuzova, Sonya I Hylton (Case Western Reserve University)

**PC-26 | In Person - National Harbor 10****Evaluation of Kinetic Energy and Entropy Preserving Schemes on the Simulation of Detonation Wave Dynamics**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1286

Kyle A Schau, Joseph Oefelein (Georgia Institute of Technology)

**Investigation of Modeling Approaches for a Sudden Release of a High-Pressure Hydrogen Jet into Low-Pressure Hydrogen**

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1287

Surya Kaundinya Oruganti, Marcel Martins Alves, Odai Nassar, Moran Ezra (Tel Aviv University), Sergey Kudriakov, Etienne Studer (Universite Paris-Saclay), Liel Ishay (Nuclear Research Centre Negev), Yoram Kozak (Tel Aviv University)



(continued) PC-26 | In Person - National Harbor 10

The Evolution of the Velocity-Curvature-Acceleration Relationship with Activation Energy for Unstable Gaseous Detonations

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1288  
David J Lont, Scott I. Jackson (Texas A&M University), Carlos Chiquete, Mark Short (Los Alamos National Laboratory)



The Role of Cell Size and Area Expansion on the Behavior of Geometric Detonation Amplification

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1289  
Benjamin Millard, Daniel R Cuppoletti (University of Cincinnati)



EAT-08 | In Person - Camellia 1

Fail Safe Hybrid-Electric Propulsion System Design

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1208  
Sunil Patil, Mazen El Houe, Nils Heuermann, Mike Slack (ANSYS Inc)



Power System Redundancy Design Trends for All-Electric eVTOL Quadrotors

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1209  
George L Thomas, Brian Malone (NASA Glenn Research Center)



Circular Flight-Path Optimization for a Solar-Powered UAV Flying in Horizontal Winds

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1210  
Maya Rahaman-Noronha, William Bissonnette, Goetz Bramesfeld (Toronto Metropolitan University)



AFM-11 | In Person - Potomac 6

DAVINCI Venus Entry, Descent, and Landing Modeling and Simulation

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1165  
Soumyo Dutta, Nelson Guecha-Ahumada (NASA Langley Research Center), Matthew Garrison, Kyle Hughes (NASA Goddard Space Flight Center), Mark Johnson (Lockheed Martin)



Construction of Entry Vehicle Aerodynamic Surrogates from CFD-in-the-loop Flight Simulations

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1166  
Zach Ernst, Bradford E Robertson, Dimitri N Mavris (Georgia Institute of Technology College of Engineering)



Demonstration of a coupled CFD-RBD-FCS framework on Mars Science Laboratory Vehicle

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1167  
Alexandra M Hickey, Zach Ernst, Bradford E Robertson, Dimitri N Mavris (Georgia Institute of Technology)





**(continued) AFM-11 | In Person - Potomac 6**

**Reusable Entry Vehicle Trajectory Optimization Using Multiple-Domain Radau Collocation**

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1168  
Cale A Byczkowski, Anil V. Rao (University of Florida)



**Multidisciplinary Modeling for Missionisation of Re-entry Vehicles**

Wednesday, 25 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1169  
Jacopo Guadagnini, Gabriele De Zaiacomo (Deimos Space SLU)



**STR-22 | In Person - Chesapeake 7**

**Fail-Safe Technologies for Bonded Unitized Composite Structures - Overview**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1316  
Stephen B Clay, Philip Knoth, Savannah Crampton, Michael Gran, Brian Smyers (Air Force Research Laboratory Aerospace Systems Directorate), Wesley Ault (Booz Allen Hamilton Inc)



**Demonstration Testing Approach on AFRL/NGC Fail-Safe Technologies for Bonded Unitized Composite Structures (FASTBUCS) Program**

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1317  
Jonathan D Bartley-Cho, Nav Muraliraj (Northrop Grumman Space Systems), Brian Smyers, Dustin Comer, Austin Land, Wesley Ault (Air Force Research Laboratory), James Finlay, Anthony M Waas (University of Michigan)



**Fail-Safe Prediction for Bonded Composite Structures Using Discrete Damage Modeling**

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1318  
Vijay Goyal (Lockheed Martin Aeronautics Co Marietta), Kevin H Hoos, Wei-Tsen Lu, Endel V larve (The University of Texas at Arlington)



**Weak Bond Study of Adhesively Bonded Composites for Laser Bond Inspection**

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1319  
Abel Barraza (Spirit AeroSystems Inc), Jason Action (Lockheed Martin Corporation Aerospace and Defense)



**Design and Experimental Validation of a bonded structure Fail Safe Damage Arrest Concept in Mode II (shear mode)**

Wednesday, 25 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1320  
Iddo Kressel, David Bardenstein, Alexander Lukatsky, Zvi Deutsch, Aviad Levi Sasson (Israel Aerospace Industries Ltd), Noam Shemesh (Israel Defense Forces), Stephen B Clay, Brian Smyers, Philip Knoth, Wesley Ault (Air Force Research Laboratory)



**MAT-15 | In Person - Chesapeake 8**

**Low Velocity Impact on Composite Energy Absorbers: Experimental Analysis**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1262  
Akhil Bhasin (Wichita State University National Institute for Aviation Research), Suresh Raju Keshavanarayana (Wichita State University), Tanat Maichan, Hooloomann Ramdial, Luis Manuel Gomez, Gerardo Olivares (Wichita State University National Institute for Aviation Research)





(continued) MAT-15 | In Person - Chesapeake 8

Combustion Chamber Fatigue Life Analysis for Reusable Liquid Rocket Engines (LREs)

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1263  
Mateusz Tomasz Gulczynski, Jörg R Riccius, Günther Waxenegger-Wilfing, Jan Deeken, Michael Oschwald (Deutsches Zentrum für Luft und Raumfahrt DLR Standort Lampoldshausen)



A Peridynamic Investigation of Ceramic Material Response Under High-Speed Solid Impact Loadings

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1264  
Ugur Can (Virginia Commonwealth University College of Engineering), Stewart Silling (Sandia National Laboratories), Ibrahim Guven (Virginia Commonwealth University College of Engineering)



EXPL-08 | In Person - Chesapeake L

Numerical Analysis of Flight Performance of Bioinspired Mars Flight Vehicles

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1219  
Michaela L Tarpley, Jeremy A Pohly, Chang-Kwon Kang (The University of Alabama in Huntsville College of Engineering), Taeyoung Lee (George Washington University), Hikaru Aono (Shinshu Daigaku)



Fast Transit Interstellar Probe Mission with Extreme Solar Sailing

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1220  
Artur Davoyan (University of California Los Angeles)



Space Shuttle Program Dual Docked Operations

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1221  
Joel Sills (NASA Johnson Space Center), Erica Bruno (MRI Technologies)



FD-43 | In Person - Chesapeake F

Crossflow Interactions of Inclined Fluidic Oscillator Jets

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1237  
Vanessa G Awate, Phillip J Ansell (University of Illinois Urbana-Champaign)



Active Flow Control of a Swept Wing using Unsteady Fluidic Fence Techniques

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1238  
Alex Spens, Evan J McFadden, Jeffrey P Bons (The Ohio State University)



Active Flow Control of a Swept Wing in Subsonic Compressible Flow via Streamwise Vortex Generating Jets

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1239  
Collin B Rambacher, Jeffrey P Bons (The Ohio State University)



**(continued) FD-43 | In Person - Chesapeake F**

**Scaling of the Momentum Coefficient from Fluidic Oscillators at Different Ambient and Supply Conditions**

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1240  
K. Venkateswara Reddy, Rene Wosidlo (The Boeing Company)



**Power Efficiency Analysis of a Co-Flow Jet Airfoil in Cruise Conditions**

Wednesday, 25 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1429  
Fernando Zigunov, Yang Zhang, Louis N Cattafesta (Florida State University)



**FD-39 | In Person - Chesapeake D**

**Automatic Code-Generation to Enable High-Fidelity Simulations of Multi-Block Airfoils on GPUs**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1222  
David J Lusher, Markus Zauner, Andrea Sansica, Atsushi Hashimoto (Japan Aerospace Exploration Agency (JAXA))



**Assessment of Edge-Based Viscous Method for Corner-Flow Solutions on Graphics Processing Units**

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1223  
Yi Liu, Boris Diskin, Hiroaki Nishikawa (National Institute of Aerospace), William K Anderson, Gabriel Nastac, Eric J Nielsen, Aaron Walden, Li Wang (NASA Langley Research Center)



**On the Use of Nonlinearly Stable Flux Reconstruction for Implicitly Filtered Large Eddy Simulation**

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1224  
Julien Brillon, Sivakumaran Nadarajah (McGill University)



**Python based API to post-process CFD data**

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1225  
Harpreet Singh Chhabra, Dilip Kalagotla, Paul D Orkwis (University of Cincinnati)



**A Multi-Architecture Approach for Implicit Computational Fluid Dynamics on Unstructured Grids**

Wednesday, 25 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1226  
Gabriel Nastac, Aaron Walden, Li Wang, Eric J Nielsen (NASA Langley Research Center), Yi Liu (National Institute of Aerospace), Matthew Opgenorth (Sierra Space), Jason Orender, Mohammad Zubair (Old Dominion University)



**LP-07 | In Person - National Harbor 14**

**Preliminary Demonstration of Concept for Fault Diagnosis in Resilient Redundant Spacecraft Propulsion**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1259  
Kaname Kawatsu, Go Fujii (Uchu Koku Kenkyu Kaihatsu Kiko), Taiichi Nagata (), Himeko Yamamoto, Yu Daimon (Uchu Koku Kenkyu Kaihatsu Kiko)



(continued) LP-07 | In Person - National Harbor 14

Development and Testing of Femto-Second Laser Surface Processing (FLSP)-Treated Guide Vanes for Application to Advanced Cryogenic Liquid Acquisition Devices

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1260  
Craig Zuhlke (University of Nebraska-Lincoln), Thomas Conboy (Creare LLC), Arthur Werkheiser (NASA Marshall Space Flight Center), Jason W Hartwig (NASA John H Glenn Research Center), Cody Gilliland (NASA Marshall Space Flight Center), Garrett Beard (University of Nebraska-Lincoln), Andrew Smith (NASA Marshall Space Flight Center), Jedediah Storey (NASA John F Kennedy Space Center)



Speed of Sound Characterization of Mixed Oxides of Nitrogen from Freezing Point to 50°C

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1261  
Catriona White, Schuyler T McNaughton, Jason Gabl, Timothee L Pourpoint (Purdue University)



FD-45 | In Person - Chesapeake K

Measurements on a Blunt Cone-Cylinder-Flare at Mach 6

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1245  
Elizabeth Katherine Benitez, Matthew P Borg (Air Force Research Laboratory), Jonathan L Hill (Air Force Institute of Technology), Anton Scholten (NC State University), Pedro Paredes (National Institute of Aerospace), Joseph S Jewell (Purdue University)



Boundary Layer Separation on a Hollow-Cylinder/Flare at Mach 5

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1246  
James A S Threadgill, Ashish Singh, Alejandro Roskelley Garcia, Jesse C Little (The University of Arizona College of Engineering)



Experimental measurements and numerical investigations of boundary-layer instabilities on a Mach 5 hollow cylinder

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1247  
John Thomas Flood, Christoph Hader, Hermann F Fasel, Stuart A. Craig (The University of Arizona)



Hypersonic Shock-Wave/Boundary-Layer Interactions on the ROTEX-T Cone/Flare

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1436  
Jonathan Davami, Thomas J Juliano (University of Notre Dame), Anton Scholten (NC State University), Pedro Paredes (National Institute of Aerospace)



Reduced Order Model of Boundary Layer Transition for HIFiRE-1

Wednesday, 25 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1437  
Timothy J Leger, Matthew W Tufts, Nicholas J Bisek (Air Force Research Laboratory)



FD-42 | In Person - Chesapeake E

Computation of Hypersonic Boundary Layer Transition behind Propagating Shock Wave

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1233  
Hiroki Sakamoto, Shintaro Sato, Naofumi Ohnishi (Tohoku Daigaku)



(continued) FD-42 | In Person - Chesapeake E

Laminar/Transitional Fin-induced Shock Wave Boundary-Layer Interactions at Mach 5

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1234  
Sathyan Padmanabhan, Lucas Jouannais, James A S Threadgill, Jesse C Little (The University of Arizona College of Engineering)



Enthalpy Effects on Disturbance Growth in high-enthalpy hypersonic flow

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1235  
Hideyuki Tanno, Katsuhiro Itoh, Hisaaki Arai, Keita Kanakubo, Joh Nagata (Uchu Koku Kenkyu Kaihatsu Kiko)



Numerical considerations of slow acoustic mode in high-velocity boundary layers

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1236  
Shaun Harris, Ross Wagnild (Sandia National Laboratories)



PC-25 | In Person - National Harbor 8

Development of Data Assimilation Methods for Combustion

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1281  
Tomas Houba (Sierra Lobo, Inc.), Matthew Evan Harvazinski, Ramakanth Munipalli (Air Force Research Laboratory)



Implementation of gradient based optimizers for reaction mechanism tuning

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1282  
Mandhapati P Raju, Tomasz Malewicki, Nitesh O Attal, Daniel Probst, Peter K Senecal (Convergent Science Inc)



Physics-integrated Segmented Gaussian Process (SegGP) learning for cost-efficient training of diesel engine control system with low cetane numbers

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1283  
Sai Ranjeet Narayanan (University of Minnesota Twin Cities), Yi Ji (Duke University), Harsh Darshan Sapra (University of Wisconsin-Madison), Suo Yang (University of Minnesota Twin Cities), Simon Mak (Duke University), Zongxuan Sun (University of Minnesota Twin Cities), Sage Kokjohn (University of Wisconsin-Madison), Kenneth Kim, Chol Bum Kweon (Army Research Laboratory Aberdeen Proving Ground)



Predictive Modeling of Complex Flows using Regularized Conditionally Parameterized Graph Neural Networks

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1284  
Elnaz Rezaian, Karthikeyan Duraisamy (University of Michigan)



An Ensemble-Based Deep Framework for Estimating Thermo-Chemical State Variables from Flamelet Generated Manifolds

Wednesday, 25 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1285  
Amol Salunkhe (University at Buffalo), Georgios Georgalis, Abani Patra (Tufts University), Varun Chandola (University at Buffalo)



DGE-06/MST-14 | In Person - Chesapeake 12

Digital Engineering: Recognizing and Honing Our 6<sup>th</sup> Sense with respect to Physical Modelling

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1204  
Nigel J Taylor (MBDA UK Ltd)



A Model-Based Framework for NASA Science Mission Formulation

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1205  
Matthew Marcus, Henock Legesse, David Richardson (NASA Goddard Space Flight Center)



Review on Reduced Order Modeling and Its Application in the Digital Twinning Industry

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1206  
Kazi Tanisha Zaman Angshu, Anika Tasnim, Md Habib Ullah Khan, Md Harun Or Rashid Molla, Md Ismail Hassan Uday, Mehrin Chowdhury, Ahsan R Choudhuri (The University of Texas at El Paso)



How Credible Model-Based Engineering Can Enable Risk-Informed Decision-Making

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1207  
Terril N Hurst, Kevin L Rotz, Addison K Dunn (Raytheon Missiles & Defense)



MAT-16/ICME-04/MDO-15/STR-21 | In Person - Chesapeake 1

Application Table: A Bridge Connecting the Designing “With-The-Material” and “The-Material” Paradigm’s

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1265  
Steven M Arnold, Brandon L Hearley (NASA John H Glenn Research Center), David Cebon (ANSYS, Inc)



A Robust Schema for Machine Learning Data and Models Within the Granta MI Information Management System

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1266  
Brandon L Hearley, Steven M Arnold, Joshua Stuckner (NASA John H Glenn Research Center)



Generation of 2-D Fiber Reinforced Composite Microstructures with Statistically Equivalent Features Using Machine Learning and Adaptive Data Generation

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1267  
Jamal Hussein, Farhad Pourkamali-Anaraki, Parisa Hajibabae, Scott E Stapleton (University of Massachusetts Lowell)



Predicting Fiber Breakage Failure Mode of Plain Weave Fabrics with Multiscale Recursive Micromechanics

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1268  
Brandon L Hearley, Evan J Pineda, Brett A Bednarczyk (NASA John H Glenn Research Center), Scott M Murman (NASA Ames Research Center), Mark Pankow (NC State University)



**(continued) MAT-16/ICME-04/MDO-15/STR-21 | In Person - Chesapeake 1**

**Computational Discovery of Complex Material Systems by Design Optimization**

Wednesday, 25 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1269  
Nicholas Boechler, Brianna Mcnider, Ryan Fancher, Jaeyub Hyun, Hyunsun A Kim (University of California San Diego Jacobs School of Engineering)



**TP-11 | In Person - Azalea 1**

**New Developments in NASA's Entry Systems Modeling Project**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1333  
Aaron Michael Brandis, Michael Barnhardt (NASA Ames Research Center), Thomas K West, Monica Hughes (NASA Langley Research Center)



**Overview of NASA Research Activities in Shock Layer Kinetics and Radiation**

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1334  
Brett A Cruden, E Papajak, Amal Sahai, Khalil Bensassi (Analytical Mechanics Associates, Inc.), Augustin Tibere-Inglesse (Oak Ridge Associated Universities), Aaron Michael Brandis, David Schwenke (NASA Ames Research Center), Christopher O Johnston (NASA Langley Research Center)



**Dynamic Stability Methodologies and Capabilities**

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1335  
Joseph Michael Brock, Cole D Kazemba (NASA Ames Research Center)



**Fluid-Structure Interaction Simulations of the ASPIRE SR03 Supersonic Parachute Flight Test**

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1336  
Francois Cadieux, Jordan B Angel, Michael F Barad, Cetin C Kiris (NASA Ames Research Center)



**An Overview of Experiments in The Entry Systems Modeling Project**

Wednesday, 25 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1337  
Brody K Bessire (NASA Ames Research Center), Alexandre Martin, Michael W. Renfro, Sean Bailey, Kristin Price (University of Kentucky College of Engineering), Francesco Panerai, Sam Chen (University of Illinois Urbana-Champaign)



**SATS-04/SCS-06 | In Person - National Harbor 5**

**Guided Net Intercept Vehicle for Active Debris Removal of Large Uncooperative Debris**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1297  
Alexandra M Hickey, Bradford E Robertson, Dimitri N Mavris (Georgia Institute of Technology), Aimee N. Williams (Georgia Tech Research Institute)



**Simulation of a Guided Active Debris Removal Interception**

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1298  
Mitchell Misbach, Arnaud M. Ballande, Bradford E Robertson, Dimitri N Mavris (Georgia Institute of Technology)



**(continued) SATS-04/SCS-06 | In Person - National Harbor 5****HexSat: Detachable Net Casting Spider-Inspired Space Debris Removal Device Concept Design**

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1299

James Montoya, John Racette, Eric Schroeder, Leonor Merino Osornio, Camden Case, Ramon Romero, Mostafa Hassanalain (New Mexico Institute of Mining and Technology)

**Viability of Electric Propulsion in Smallsats for Active Debris Removal (EPSADR)**

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1300

Yaw Tung Tan (Georgia Institute of Technology), Kelly Erin Irons (GE Aerospace), Elaine Petro (Cornell University College of Engineering)

**Free-Fall Dynamics and Dispersion Modeling of Gram-Scale Atmospheric Probes**

Wednesday, 25 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1301

Joshua S Umansky-Castro, Kimberly G Yap, Shane W Johnson, Mason A Peck (Cornell University), Vuthy Vey (Hobart and William Smith Colleges)

**CFD2030-05 | In Person - National Harbor 13****Summary of the CFD 2030 Integration Committee Invited Panel on Physics Based Model Improvement and Uncertainty Quantification for the Digital Engineering Transformation**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1200

Earl P Duque (Intelligent Light), Scott A Morton (US Army Corps of Engineers), Andrew M Wissink (US Army Combat Capabilities Development Command), Spencer W Stone (Lockheed Martin Corporation Aerospace and Defense), William Spatz (US Department of Energy Office of Science), Daniel J Caraway (Lockheed Martin Corporation Aerospace and Defense), Steve M Legensky (Intelligent Light)

**Detecting Missing Flow Separation using Supervised Machine Learning**

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1201

Amirpasha Hedayat, Carl F Ollivier Gooch (The University of British Columbia)

**Towards Efficient Simulations of Non-Equilibrium Chemistry in Hypersonic Flows: Neural Operator-Enhanced 1-D Shock Simulations**

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1202

Ivan Zanardi, Simone Venturi, Alessandro Munafò, Marco Panesi (University of Illinois Urbana-Champaign)

**Multi-GPU Approach for Training of Graph ML Models on large CFD Meshes**

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1203

Sebastian Strönisch, Maximilian Sander (Technische Universität Dresden), Marcus Meyer (Rolls-Royce Deutschland Ltd und Co KG), Andreas Knüpfer (Technische Universität Dresden)

**AMT-15 | In Person - Magnolia 2****Application of Pressure-Sensitive Paint to Investigate Hypersonic Shock-Wave/ Boundary-Layer Interactions**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1178

Angelina Andrade, Elijah J LaLonde, Eugene N. Hoffman, Sofia Gutierrez, Christopher S Combs (The University of Texas at San Antonio)





**(continued) AMT-15 | In Person - Magnolia 2****High-Speed Pressure Sensitive Paint Measurements of the Initial Concept 3.X Vehicle at Mach 7**

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1179

Abinayaa Dhanagopal, Chad Williamson, Elijah J LaLonde (The University of Texas at San Antonio), Sofia Gutierrez (), Angelina Andrade, Valeria Delgado, Christopher S Combs (The University of Texas at San Antonio)

**Dynamic Mode Decomposition of Simultaneous Dual-layer Focusing Schlieren and Unsteady Pressure-Sensitive Paint Measurements for Transonic Buffet on a Swept Wing**

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1180

Shota Fukumoto, Toshinori Kouchi (Okayama Daigaku), Yosuke Sugioka, Shunsuke Koike (Uchu Koku Kenkyu Kaihatsu Kiko)

**Development and Testing of High-Temperature Fast Response Pressure Sensitive Paint**

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1181

Sam J Wood, Shaan Stephen, Chase Jenquin, Ethan Johnson, Venkateswaran Narayanaswamy (NC State University Department of Mechanical and Aerospace Engineering)

**AFM-12 | In Person - Camellia 2****Dynamic Stability of Deployable Aeroshells at Supersonic Speeds**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1170

Pietro Innocenzi, Paul J Bruce, Salvador Navarro-Martinez (Imperial College London)

**Adaptive Control Validation Using a Matlab-Based CFD/RBD Coupled Simulation**

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1171

Jubaraj Sahu, Benjamin C Gruenwald, Bradley T Burchett (US Army Research Laboratory)

**Reachability Analysis of a Hypersonic Glide Vehicle using Particle Swarm Optimization**

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1172

Jens A Rataczak, Jay W McMahon, Iain D Boyd (University of Colorado Boulder College of Engineering and Applied Science)

**FD-40 | In Person - Chesapeake I****Compressible flow solver FFVHC-ACE for fully automated LES of aeronautical flows**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1227

Hiroyuki Asada, Yoshiharu Tamaki (Tohoku Daigaku), Ryoji Takaki (Uchu Koku Kenkyu Kaihatsu Kiko - Sagamihara Campus), Soshi Kawai (Tohoku Daigaku)

**Validation and Verification of reactingPimpleCentralFOAM for Ejector Ramjet Applications**

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1228

Tyson E Migadel, Derek Lastiwka, Artem Korobenko, Craig T Johansen (University of Calgary)





(continued) FD-40 | In Person - Chesapeake I

Numerical Simulation of Supersonic Turbulent Boundary Layers Subjected to Favorable Pressure Gradients

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1229  
Joseph Carlson, Rodney D Bowersox, Nathan R Tichenor (Texas A&M University)



Computational Simulation of Jet in Crossflow with RANS and Hybrid RANS/LES Methods

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1230  
Brian R Smith, Patrick Yagle (Lockheed Martin Aeronautics Company)



MDO-16 | In Person - Chesapeake 6

Topology optimization for stiffened panels, from linear buckling to postbuckling

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1270  
Sheng Chu, Carol Featherston, David Kennedy (Cardiff University), Hyunsun A Kim (University of California San Diego)



Feature-Mapping Topology Optimization of a Wing-box with Geometric Constraints

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1271  
Hollis A Smith, Julian A Norato (University of Connecticut), Joshua D Deaton (Air Force Research Laboratory)



Analysis-Oriented Moving Morphable Components for Topology Optimization

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1272  
Keisuke Otsuka (Tohoku Daigaku), Shuonan Dong, Ryo Kuzuno, Kanjuro Makihara ()



Efficient Shape Optimization via Parametric Model Embedding

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1273  
Andrea Serani, Matteo Diez (Consiglio Nazionale delle Ricerche), Domenico Quagliarella (Centro Italiano Ricerche Aerospaziali)



SR-03 | In Person - National Harbor 15

Role of Finite-Rate Kinetics on the Performance Predictions of Solid Rocket Motor Nozzles

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1314  
Marco Grossi, Alessio Sereno, Daniele Bianchi, Bernardo Favini (Universita degli Studi di Roma La Sapienza)



Statistical Analysis of Tapered Grain Solid Rocket Motor Performance

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1315  
Tyler Sheils, Noel Cervantes, Mark Carpenter, Roy J Hartfield (Auburn University)



**SD-19 | In Person - Chesapeake 2**

**Design of a Tiltrotor Semi-Span Wind Tunnel Model for Whirl Flutter Investigations**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1306  
 Stefan van 't Hoff, Jelmer van Vilsteren (Royal Netherlands Aerospace Centre (NLR)), Alessandro Cocco, Pierangelo Masarati (Politecnico di Milano)



**Influence of blade elasticity on propeller whirl flutter stability**

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1307  
 Christopher Koch, Benedikt Koert (Deutsches Zentrum fur Luft- und Raumfahrt eV)



**Predicting Whirl Flutter Bifurcations Using Pre-Flutter Output Data**

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1308  
 Sai Vishal Gali, Todd Goehmann, Cristina Riso (Georgia Institute of Technology)



**Optimal Tiltrotor Blade Twist to Extend Whirl-Flutter Stability Boundaries**

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1510  
 Vincenzo Muscarello (RMIT University STEM College), Giuseppe Quaranta (Politecnico di Milano)



**Multi-Propeller Whirl Flutter Stability Study Using Component Mode Synthesis Element**

Wednesday, 25 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1509  
 Kyle J. Nelson, Jinwei Shen (The University of Alabama System)



**SD-20 | In Person - Chesapeake 3**

**Improvements to Wind-Tunnel Flutter Prediction with Application to the Active Aeroelastic Aircraft Testbed Wind-Tunnel Model**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1309  
 Tomer Ben Asher, Daniella E Raveh (Technion Israel Institute of Technology)



**Dynamic Shape Sensing of the A3TB Wind Tunnel Model Using Fiber Optics Strain Data and the Kalman State Estimator**

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1310  
 Tsoof Joels, Daniella E Raveh (Technion Israel Institute of Technology)



**Flexible High Aspect Ratio Wing Wind Tunnel Tests**

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1311  
 Etienne Coetzee (Airbus SAS), Mark H Lowenberg, Simon A Neild (University of Bristol)



**TU-Flex: A Very-Flexible Flying Demonstrator with a Generic Transport Aircraft Configuration**

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1312  
 Pedro Gonzalez, Gerrit Starvorinus, Flavio J Silvestre (Technische Universitat Berlin), Arne Voß, Yasser Muhammad Meddaikar, Wolf Krueger (Deutsches Zentrum fur Luft- und Raumfahrt eV)



APA-38 | In Person - Potomac 5

AeroFusion: Data Fusion and Uncertainty Quantification for Entry Vehicles

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1182  
Steven Snyder, Thomas J Wignall, Justin S. Green, Satvik Kumar, Michael William Lee, Tenavi Nakamura-Zimmerer, James B. Scoggins, Robert A Williams (NASA Langley Research Center)



Comparisons of Performance Metrics and Machine Learning Methods on an Entry Descent and Landing Database

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1183  
Thomas J Wignall, Tenavi Nakamura-Zimmerer, James B. Scoggins, Steven Snyder, Satvik Kumar, Brendon K. Colbert (NASA Langley Research Center)



Structured Covariance Gaussian Networks for Orion Crew Module Aerodynamic Uncertainty Quantification

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1184  
Tenavi Nakamura-Zimmerer, Mary T. Stringer, Brendon K. Colbert, James B. Scoggins (NASA Langley Research Center)



Multihierarchy Gaussian Process Models for Probabilistic Aerodynamic Databases using Uncertain Nominal and Off-Nominal Configuration Data

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1185  
James B. Scoggins, Thomas J Wignall, Tenavi Nakamura-Zimmerer, Karen L Bibb (NASA Langley Research Center)



Construction of a Fluid Flow Field from Discrete Point Data using Machine Learning

Wednesday, 25 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1186  
Yury Lebedev (University of Florida), Michael William Lee (NASA Langley Research Center), Alina Zare (University of Florida)



FD-44 | In Person - Chesapeake G

High-fidelity CFD verification workshop 2024: wall-modeled large eddy simulation of smooth-body separation

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1241  
Johan Larsson (University of Maryland at College Park), Ivan Bermejo Moreno (University of Southern California), Robert A Baurle (NASA Langley Research Center), Daniel J Garmann, Donald P Rizzetta (Air Force Research Laboratory), Christoph Brehm (University of Maryland at College Park), Marshall C Galbraith (Massachusetts Institute of Technology), David R Gonzalez (Office of Naval Research)



High-Fidelity CFD Verification Workshop 2024: Shock-Dominated Flows

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1242  
Kevin R Holst (The University of Tennessee Knoxville Tickle College of Engineering), Chongam Kim (Seoul National University), Matthew Joseph Zahr (University of Notre Dame)



High-Fidelity CFD Verification Workshop 2024: Mesh Motion

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1243  
Nathan A Wukie (Air Force Research Laboratory Aerospace Systems Directorate), Krzysztof Fidkowski (University of Michigan), Per-Olof Persson (University of California Berkeley), Zhi Jian Wang (University of Kansas)



(continued) FD-44 | In Person - Chesapeake G

High-Fidelity CFD Verification Workshop 2024: Spalart-Allmaras QCR2000-R Turbulence Model

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1244  
Boris Diskin, Yi Liu (National Institute of Aerospace), Marshall C Galbraith (Massachusetts Institute of Technology)



MDO-17 | In Person - Chesapeake A

An overview of six decades of structural optimization and personal experience. A tribute to Garret N. Vanderplaats

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1274  
Santiago Hernandez (University of Coruña)



Second Generation Approximations: A Review of Efficient Structural Optimization and a Tribute to Dr. Garret N. Vanderplaats, Originator of These Approximations

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1275  
Juan P Leiva (OmniQuest)



An Improved What-if Post-Processing Utility – A Tribute to Dr. Garrett N. Vanderplaats

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1276  
Shubhamkar Kulkarni, Daniel Fust (OmniQuest)



APA-39 | In Person - Potomac 1

A Common Simulation for Hover Validation of a Helicopter near the Ground

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1187  
Robert P Narducci (The Boeing Company Defense Space and Security), Nathan S Hariharan (CREATE AV Team)



Model and Full-Scale Rotor Hover Performance Analysis using HELIOS/OVERFLOW

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1188  
Vera Klimchenko, Byung-Young Min, Brian Wake (Sikorsky Aircraft Corp)



Numerical Analysis of HVAB and STAR Rotor Blades Using HMB3

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1189  
Rinaldo Steininger, George N Barakos, Mark A Woodgate (University of Glasgow)



UAS-07 | In Person - Chesapeake C

Testbed for Cyber Attack Detection of Flight Control System Using Zynq FPGA+ARM SOC

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1342  
Matthew W Gelber, Peter Vaughan Truslow, Robert H Klenke (Virginia Commonwealth University College of Engineering)



**(continued) UAS-07 | In Person - Chesapeake C**

**Checkpoint based thread execution monitoring of an STM32 based flight control system using a Zynq FPGA+ARM SOC**

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1343  
Peter Vaughan Truslow, Matthew W Gelber, Robert H Klenke (Virginia Commonwealth University College of Engineering)



**Neural Network-based UAV System Identification from Sparse Flight Test Data**

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1344  
Eren Ertugrul, Emre Koyuncu (Istanbul Teknik Universitesi)



**Data-Driven and Robust Path-following Control of a Quadrotor Slung Load Transport System**

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1345  
Hei Shing Helson Go, Longhao Qian, Hugh H T Liu (University of Toronto)



**TES-05 | In Person - National Harbor 6**

**Investigation of Weight and Flight-Path Constraints on Liquid Hydrogen Fueled SOFC/GT Hybrid Propulsion System**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1325  
Takayuki Kojima, Keiichi Okai (Uchu Koku Kenkyu Kaihatsu Kiko)



**Evaluation of Emission during Simulated in-Flight Conditions Based on Experimental Data with an RQL Combustor Model**

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1326  
Keiichi Okai, Hitoshi Fujiwara, Takuya Mizuno (Uchu Koku Kenkyu Kaihatsu Kiko)



**Evaluation of thermal oxidative stability of sustainable aviation fuels using a novel thermal stability measurement method**

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1327  
Rahim Boylu, Bhupendra Khandelwal (The University of Alabama System)



**Characterization of A Swirl Flex Fuel Combustor in a CO<sub>2</sub> Diluted Environment**

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1328  
Md Habib Ullah Khan, Md Harun Or Rashid Molla, Kazi Tanisha Zaman Angshu, Md Ismail Hassan Udoy, Md Mohieminul Islam Khan, Md Nawshad Arslan Islam, Ahsan R Choudhuri (The University of Texas at El Paso)



**GTE-16 | In Person - National Harbor 11**

**High-Temperature Fuel Coking Mitigation Frangible Coatings for Jet Fuel Nozzles and Screens**

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1251  
Santiago Ruales, Samuel Schuetz, Vidhan Malik, Sheikh Salauddin, Kareem A Ahmed (University of Central Florida)



(continued) GTE-16 | In Person - National Harbor 11

High-Temperature Degradation and Coking of Aircraft Gas Turbine Engine Lubricants

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1252  
Raquel Juarez, Noble Gutierrez, Eric L Petersen (Texas A&M University System)



Latticework Airfoils for sCO2 Turbines: Characterization and Heat Transfer

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1253  
Marcel Otto, Parker O'Neal, Ryan Wardell, Ladislav Vesely, Kevin Bauer, Jayanta Kapat (University of Central Florida)



Development of a Machine Learning Wall Model for Large-Eddy Simulation of Gas Turbine Film Cooling Flows

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1254  
Tadbhagya Kumar, Pinaki Pal, Sicong Wu, A. Cody Nunno, Opeoluwa Owoyele (Argonne National Laboratory), Michael Joly, Dima Tretiak (Raytheon Technologies Research Center)



Large-Eddy Simulation of Film Hole Interaction with Rib Turbulators

Wednesday, 25 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1255  
Shinyoung Jeon, Changmin Son (Virginia Polytechnic Institute and State University)



TP-12 | In Person - Azalea 2

Aerothermal characterization of the Plasmatron X Wind Tunnel: Heat flux, Stagnation Pressure and Jet Unsteadiness

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1338  
Lorenzo Capponi, Trey Oldham, Matthew Konnik, Kelly Stephani, Daniel J Bodony, Marco Panesi, Gregory S Elliott, Francesco Panerai (University of Illinois Urbana-Champaign)



Experimental Study of a Galileo Sub-Scale Model at Ice Giant Entry Conditions in the T6 Free-Piston Driven Wind Tunnel

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1339  
Joseph Steer, Peter L Collen, Alex Benjamin Glenn (University of Oxford), Tamara Sopek (University of Southern Queensland), Christopher Hambidge, Luke J Doherty, Matthew McGilvray (University of Oxford), Stefan Loehle (Universitat Stuttgart Institut fur Raumfahrtssysteme), Louis Walpot (European Space Agency)



High Temperature Ablation of Vitreous Carbon in a Table-Top Shock Tunnel (TTST)

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1340  
Brian E. Riggs (University of Colorado Boulder), Eric C Geistfeld (University of Minnesota Twin Cities), Chenbiao Xu (University of Colorado Boulder), Irina Gouzman (Soreq Nuclear Research Center), Thomas E Schwartzentruber (University of Minnesota Twin Cities), Timothy K Minton (University of Colorado Boulder)



Characterization of the Table-Top Shock Tunnel Facility Using Kapton Erosion Experiments and Direct Simulation Monte Carlo

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1341  
Eric C Geistfeld, Thomas E Schwartzentruber (University of Minnesota Twin Cities), Brian E. Riggs, Chenbiao Xu, Irina Gouzman, Timothy K Minton (University of Colorado Boulder)



TF-06 | In Person - Annapolis 2

Investigation of Weather-Related Considerations for Electrified Regional Air Mobility Operations

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1329  
Sam Crawford, Michael Fredricks, Quentin Derville, Cedric Y Justin, Dimitri N Mavris (Georgia Institute of Technology College of Engineering)



Bioinspired Unmanned Aircraft System Nest Concepts for Urban Cities

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1330  
Chase Dunaway, James Montoya, Steven Lukow, Mostafa Hassanalian (New Mexico Institute of Mining and Technology)



Landing Framework and Control for EVTOL Aircraft in Urban Environments

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1331  
Taizo Meyer-Oehme, Kilian Ginnell, David E. Lampl, Sophie F Armanini (Technische Universitat Munchen)



Flight Trajectory Planning with Safe Landing Assurance under Contingent Event

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1332  
Hsun Chao, Sai Mudumba, Kshitij Mall, Daniel A DeLaurentis (Purdue University)



FD-41 | In Person - Chesapeake H

Aerodynamic Performance of Swept Wings in Unsteady Streamwise Flow

Wednesday, 25 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1231  
Dasha Gloutak, Kenneth E Jansen, John A Farnsworth (University of Colorado Boulder)



Analytical Gust Model to Inform Future Small UAS Studies

Wednesday, 25 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1232  
Colin Stutz, Douglas G Bohl (Clarkson University), John T Hrynuk (Army Research Laboratory Aberdeen Proving Ground)



High Amplitude Lift Tracking Using Closed-Loop Feedback and Control; A Flow Analysis

Wednesday, 25 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2476  
Michael P Mongin, Albert Medina (Air Force Research Laboratory), Andrew Killian, Sidaard Gunasekaran (University of Dayton School of Engineering)



Periodic Vortical Gust Encounter and Mitigation Using Closed Loop Control

Wednesday, 25 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2477  
Andrew Killian, Sidaard Gunasekaran (University of Dayton), Michael P Mongin, Albert Medina (Air Force Research Laboratory)



Simplified Iterative Maneuver Optimization in a Transverse Gust Encounter

Wednesday, 25 January 10:50 - 11:10 (UTC-5) | AIAA-2023-2478  
Xianzhang Xu (University at Buffalo), Francis D. Lagor (University at Buffalo School of Engineering and Applied Sciences)





14:00 | Technical Panel

AS-15/INPSI-12/ACD-21/APA-47/GTE-18/TF-08/DA-05/GNC-22/PC-28   In Person - Woodrow Wilson D
PDL-08   In Person - Azalea 3
FD-49   In Person - Chesapeake H
MAT-17/NDA-10   In Person - Chesapeake 2

14:00 | Technical Paper Session

WE-05/NDA-12   In Person - Chesapeake 9
Developing a vorticity-velocity-based off-body solver to perform multifidelity simulations of wind farms
Wednesday, 25 January 14:00 - 14:20 (UTC-5)   AIAA-2023-1542 Shahaboddin Alahyari Beig, Glen R Whitehouse, Alex Boschitsch (Continuum Dynamics Inc), Ashesh Sharma, Michael Brazell, Marc Henry de Frahan, Michael Sprague (National Renewable Energy Laboratory)
Sparsity for Gradient-based Optimization of Wind Farm Layouts
Wednesday, 25 January 14:20 - 14:40 (UTC-5)   AIAA-2023-1543 Benjamin T Varela, Andrew Ning (Brigham Young University)
AS-14   In Person - Chesapeake 1
Open-Cavity Fluid Flow as an Information Processing Medium
Wednesday, 25 January 14:00 - 14:20 (UTC-5)   AIAA-2023-1393 Timothy Vincent, Daniel Nelson, Benjamin Grossmann (UES, Inc.), Andrew Gillman, Alexander Pankonien, Philip Buskohl (Air Force Research Laboratory)
Homogenization Model for Multistable Honeycomb Metastructures Exhibiting Beam-like Behavior
Wednesday, 25 January 14:20 - 14:40 (UTC-5)   AIAA-2023-1394 David M Boston, Andres Felipe Arrieta (Purdue University)
ACD-16/TF-07   In Person - Potomac 6
Urban Air Vehicle Mission Sizing and Performance Estimation Using Pacelab APD <sup>TM</sup>
Wednesday, 25 January 14:00 - 14:20 (UTC-5)   AIAA-2023-1359 Anna Occhipinti (PACE Aerospace & IT GmbH), Aleksandar Joksimovic (ISAE-SUPAERO), Mathias Emeneth (PACE America Inc.)
Physics-based Surrogate Models for UAM Weight Prediction
Wednesday, 25 January 14:20 - 14:40 (UTC-5)   AIAA-2023-1360 Thomas Nascenzi, Timothy Cuatt, Tyler F Winter (M4 Engineering), Marius L Ruh, Darshan Sarojini, John T Hwang (University of California San Diego), Sarina Kiani (M4 Engineering)
Systems Integration Considerations for Hybrid-electric Commuter Aircraft: Case Study for the DO-228
Wednesday, 25 January 14:40 - 15:00 (UTC-5)   AIAA-2023-1361 Vijesh Mohan, Andrew Kingsley Jeyaraj, Susan Liscouet-Hanke (Concordia University)



**CFD2030-06 | In Person - National Harbor 13****Evaluation of heat transfer performance of a film-cooled turbine vane using metric-based anisotropic mesh adaptation**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1399

Frederic Alauzet (National Institute for Research in Computer Science and Control (INRIA)), Dimitrios Papadogiannis, Laure Billon (Safran Tech)

**Von Neumann Analyses of Recovery-based Discontinuous Galerkin on Semi-Unstructured Meshes**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1400

Mizuho Takayama, Loc H Khieu, Eric Johnsen (University of Michigan)

**Development of an Immersed Boundary Method for High-Speed Compressible Flows**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1401

Moran Ezra, Yoram Kozak (Tel Aviv University)

**On Enforcing Interface Conservation in Computational Fluid Dynamics**

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1402

Hong Luo, Gianni Absillis (NC State University)

**GTE-19 | In Person - National Harbor 11****Dynamic Modeling, Simulation, and Controls of a SOFC Combustor Hybrid Cycle for Commercial Electric Aviation**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1461

Trevor J Kramer, Rory A Roberts, Jeff Webster (Tennessee Tech University)

**Possible Effects of Turbine/Fuel Cell Integration on Combustor Operation Part II: Ignition Delay and Flame Temperatures**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1462

Lucas M Pratt, Christopher P Cadou (University of Maryland at College Park)

**Integration of 5-kW Turboelectric Powerplant into Small Multirotor Unmanned Aircraft**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1463

Rannock Thomas, Kurt P Rouser (Oklahoma State University College of Engineering Architecture and Technology)

**Development of a Parametric Variable Cycle Engine Model Using the Multiple Design Point Approach**

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1464

Robert A Clark, Jimmy C Tai, Dimitri N Mavris (Georgia Institute of Technology)

**Engine cycle design and Integration of Component Interfaces of a Micro Turbojet Engine for Additive Manufacturing**

Wednesday, 25 January 15:20 - 15:40 (UTC-5) | AIAA-2023-1465

Aaron Creese, Rohit K S S Vuppala, Scout D Hernandez, Kurt P Rouser (Oklahoma State University)



**ACD-15 | In Person - Woodrow Wilson A**

**Continued Exploration of the Electrified Aircraft Propulsion Design Space**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1354  
Jason Kirk, Zachary J Frederick, Mark D Guynn, Nathaniel J Blaesser, Ben D Phillips (NASA Langley Research Center), Kenneth Fisher, Steven J Schneider (NASA Glenn Research Center), Peter Frederic (Tecolote Research)



**Sky Cruiser – A Design Study in Space Tourism**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1355  
Joshua H Heinz, Kevin P O'Brien, Tyler L Hatch, Timothy T Takahashi (Arizona State University Ira A Fulton Schools of Engineering)



**Novel Approach for Wing Design in Conceptual Overall Aircraft Design**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1356  
Tim Effing, Florian Schueltke, Yves Heuschling, Paul Mauerer, Eike Stumpf (Rheinisch-Westfälische Technische Hochschule Aachen)



**Top Level Aircraft Requirements relaxation for a single-aisle aircraft: a case study on fleet-wide CO2 emissions and economic impacts**

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1357  
Antoine Salgas, Scott Delbecq, Thomas Planès (ISAE-SUPAERO), Gilles Lafforgue (TBS Education)



**Surrogate-Based Multi-Objective Optimization of Commercial Aircraft for the Minimization of Noise and Emissions**

Wednesday, 25 January 15:20 - 15:40 (UTC-5) | AIAA-2023-1358  
Cuyler Dull, Jimmy C Tai, Dimitri N Mavris (Georgia Institute of Technology)



**PGC-12 | In Person - National Harbor 2**

**The Effects of Aerogel Lining on a H2-Air Fueled Annular RDC Combustor**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1498  
Jorge J Betancourt, Tyler C Pritschau, Alec R Gaetano, Rachel Wiggins, Ephraim J Gutmark (University of Cincinnati)



**Thermoacoustic Suppression in a Rotating Detonation Combustion using Perforated Liner**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1499  
Tyler C Pritschau, Jorge J Betancourt, Alec R Gaetano, Rachel Wiggins, Ephraim J Gutmark (University of Cincinnati)



**Choked Flow in a Converging/Diverging Rotating Detonation Engine Exit**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1500  
Justin Weber, Clinton Bedick, Todd Sidwell, Charlotte Alburnio, Donald H Ferguson (National Energy Technology Laboratory)



FD-46 | In Person - Chesapeake D

Aerodynamic Shape Optimization with Hybridized Discontinuous Galerkin Schemes

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1422  
Joachim Balis, Frederik Jacobs, Georg May (Von Karman Institute For Fluid Dynamics)



A Globally Convergent Method to Accelerate PDE-constrained Optimization Using On-the-fly Model Hyperreduction

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1423  
Tianshu Wen, Matthew Joseph Zahr (University of Notre Dame)



Fully Parabolic Prediction of the Hypersonic Near-Field About Slender Axisymmetric Bodies

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1424  
Christian B King, Steven A E Miller (University of Florida)



GNC-23 | In Person - Annapolis 1

Recovery Spacecraft from Communication Loss Through Reinforcement Learning

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1438  
Hao Peng, Xiaoli Bai (Rutgers The State University of New Jersey)



Spacecraft Adaptive Deep Reinforcement Learning Guidance with Input State Uncertainties in Relative Motion Scenario

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1439  
Andrea Brandonisio, Lorenzo Capra, Michèle Lavagna (Politecnico di Milano)



Reward Function Design for Stand-Off Tracking of Reinforcement Learning

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1440  
Yeontaek Jung, Jinrae Kim, Seong-hun Kim, Youdan Kim (Seoul National University)



Neural Network-Based Orbit Control Method via Aerodynamic Force for Formation Flying with Variable Shape Function

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1441  
Shogo Kitamura, Saburo Matunaga (Tokyo Kogyo Daigaku)



Six-degree-of-freedom Optimal Feedback Control of Pinpoint Landing using Deep Neural Networks

Wednesday, 25 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0689  
Omkar Mulekar (University of Florida), Hancheol Cho, Riccardo Bevilacqua (Embry-Riddle Aeronautical University)



**STR-25 | In Person - Chesapeake 4**

**Comparison of Various Skin-Stringer Connection Approaches for Stiffened Structures with Curvilinear Stiffeners**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1522  
 Wei Zhao (Oklahoma State University), Junhyeon Seo, Rakesh K Kapania (Virginia Polytechnic Institute and State University)



**Ritz Method Using Orthogonal Jacobi Polynomials for Buckling Analysis of Curvilinearly Stiffened Functionally Graded Plate**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1523  
 Mayank Agarwal (Virginia Polytechnic Institute and State University), Wei Zhao (Oklahoma State University), Rakesh K Kapania (Virginia Polytechnic Institute and State University)



**Sensitivity Analysis of Geometric Imperfection Sources in Honeycomb Cores on Flatwise Compression Behavior**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1524  
 Adrian X Rivera, Satchi Venkataraman (San Diego State University), Evan J Pineda (NASA Glenn Research Center)



**Testing of a Composite Conical-Cylindrical Shell**

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1525  
 Michelle T Rudd (NASA Marshall Space Flight Center), Marc R Schultz, Nathaniel W Gardner, Cyrus J Kosztowny (NASA Langley Research Center), Chiara Bisagni (Technische Universiteit Delft)



**GNC-24 | In Person - Annapolis 2**

**Quadrotor Flight Envelope Protection while Following High-Speed Trajectories: a Reference Governor Approach**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1442  
 Rick Schieni, Chengwei Zhao, John Barreira (Rutgers The State University of New Jersey), Michael Malisoff (Louisiana State University), Laurent Burlion (Rutgers The State University of New Jersey)



**Robust Attitude Control for PAVs using DNN with Exponentially Stabilizing Control Lyapunov Functions**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1443  
 Minseok Jang, Jeongseok Hyun, Taeho Kwag, Chan Gwak, Tuan Anh Nguyen, Jae-Woo Lee (Konkuk University)



**Introduction to Adaptive Control for Multiple Time Scale Systems**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1444  
 Kameron J Eves, John Valasek (Texas A&M University System)



**EXPL-09 | In Person - National Harbor 7**

**Validation of Cryogenic Propellant Tank Self-Pressurization**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1411  
 Hong Q Yang (CFD Research Corporation), Chintan Patel, Brandon Williams (NASA Marshall Space Flight Center)



**(continued) EXPL-09 | In Person - National Harbor 7**

**CFD Model Development of a Cryogenic Storage Tank Self-Pressurization in Normal Gravity and Validation against SHIVER Experiment**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1412  
Olga V Kartuzova, Mohammad Kassemi, Daniel M Hauser (NASA Glenn Research Center)



**Validation of Ullage Collapse Due to Violent Lateral Slosh**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1413  
Hong Q Yang (CFD Research Corporation), Brandon Williams (NASA Marshall Space Flight Center)



**Modeling Autogenous Pressurization and Draining of a Cryogenic Storage Tank in Normal Gravity**

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1414  
Olga V Kartuzova, Mohammad Kassemi, Daniel M Hauser (NASA Glenn Research Center)



**ACD-17/DE-07 | In Person - Chesapeake 5**

**Estimation of Battery Pack Layout and Dimensions for the Conceptual Design of Hybrid-Electric Aircraft**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1362  
Zachary Heit, Susan Liscouet-Hanke (Concordia University)



**PoETS: A Proposed Powertrain Topology Encoding Scheme**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1363  
Laminn McLay, James Scanlan, Andras Sobester (University of Southampton)



**MDO Framework for DEP Aircraft Design Including Flight Controls**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1364  
Abhinav Sharma, Jeffrey D. Keller (Continuum Dynamics Inc), Joaquim R. R. A. Martins (University of Michigan)



**Optimization of the multi-bubble passenger cabin stiffening scheme of a hypersonic aircraft**

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1365  
Clara Cid Bengoa, Aitor Baldomir García, Miguel Rodríguez-Segade, Santiago Hernández (Universidade da Coruna Escuela Tecnica Superior de Ingenieros de Caminos Canales y Puertos)



**SATS-05 | In Person - National Harbor 5**

**Demonstration of a Utility-Based Priority Algorithm for Filtering Commercial Satellite Tasking Requests**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1501  
Leigha Capra, Matthew Jason LeVine, Paul T Grogan (Stevens Institute of Technology)



(continued) SATS-05 | In Person - National Harbor 5

Network Testbed for Small Satellites (NeTSat) - Distributed Space Adaptive Communications and Security for Multi-Constellation Networks

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1502  
Bruce Barbour, Richard Gibbons, Samantha Kenyon, James McClure, Devin Ridge, Jonathan Black (Virginia Polytechnic Institute and State University)



Satellite Orbit Selection for Regional Coverage Using a Response Surface Methodology

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1503  
Nathaniel Choo, Darryl Ahner (Air Force Institute of Technology)



Defining and Parameterizing the Design Space for Cislunar PNT Architectures

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1504  
Theresa E Bender, Austin S Gabhart, Michael J Steffens, Dimitri N Mavris (Georgia Institute of Technology)



GT-04 | In Person - Baltimore 3

Startup Loads in The Boeing/AFOSR Mach-6 Quiet Tunnel

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1454  
Nathaniel T Lavery, Brandon Charles Chynoweth, Joseph S Jewell (Purdue University)



LAVA CFD Analysis of the Check Standard Model within the Langley Unitary Plan Wind Tunnel

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1455  
James Robert Lee Koch, Jeffrey Allen Housman, Cetin C Kiris (NASA Ames Research Center)



Testing and Characterization of the University of Tennessee High-Enthalpy Tunnel

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1456  
Damiano Baccarella, Killian E Samuels (The University of Tennessee Knoxville Tickle College of Engineering)



Design and Initial Characterization of the UTSI Mach 7 Ludwig Tube

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1457  
Mark Gragston, Kirk Davenport, Farhan Siddiqui, Nicholas Webber, Cary Dean Smith, Phillip A Kreth, John D Schmisser (The University of Tennessee Space Institute)



Freestream Characterization and Condensation Detection in the AFOSR–Notre Dame Large Mach-6 Quiet Tunnel

Wednesday, 25 January 15:20 - 15:40 (UTC-5) | AIAA-2023-1458  
Erik M Hoberg, Thomas J Juliano (University of Notre Dame)



DGE-07 | In Person - Chesapeake 12

Assessing the Value of Digital Twins In a Multi-Agent Dynamic Decision-Making Context

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1403  
Ian Marks, Olivia J Pinon-Fischer, Dimitri N Mavris (Georgia Institute of Technology), Noah Fehrenbacher (Lockheed Martin Space Systems)



Authoritative Sources of Truth and Consistency in Digital Engineering

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1404  
Darcy L Allison, Matthew W Cribb, Thomas McCarthy (Raytheon Missiles & Defense), Richard LaRowe (Raytheon Missiles & Defense Tewksbury)



Implementing the Digital Thread - A Proof-of-Concept

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1405  
Juan Oroz, Zayn A Roohi, Sabastian Abelezele, Gabriel Fronk, Ruby Al Fawares, Olivia J Pinon-Fischer, Aroua Gharbi, Dimitri N Mavris (Georgia Institute of Technology), Melissa Petersen (Rolls-Royce North America Inc), Alexander Karl, John F Matlik, Bryan Schwering (Rolls-Royce Corp)



GNC-25/AFM-14 | In Person - Annapolis 3

Mixed-Input Learning for Multi-point Landing Guidance with Hazard Avoidance Part I: Offline Mission Planning based on Multi-Stage Optimization

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1445  
Chaoying Pei, Sixiong You, Ran Dai (Purdue University), Jeremy R Rea (NASA Johnson Space Center)



Mixed-Input Learning for Multi-point Landing Guidance with Hazard Avoidance Part II: Learning-based Guidance Algorithm

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1446  
Sixiong You, Chaoying Pei, Ran Dai (Purdue University), Jeremy R Rea (NASA Johnson Space Center)



Lunar Landing Site Hazard Assessment Approach

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1447  
David J Halaas, Stefan R Bieniawski, Brian Hannan (Blue Origin LLC)



Hazard Avoidance Algorithm for a 3-D Imaging Flash Lidar Utilizing Multi-Frame Super-Resolution Technique

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1448  
Alexander Bulyshev (Coherent Applications), Farzin Amzajerdian, Paul F Brewster (NASA Langley Research Center)



INPSI-13 | In Person - National Harbor 12

Design and Optimisation of a Mach 2.5 Wind Tunnel Nozzle

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1468  
Miguel Moreno, Matteo Migliorini, Pavlos K Zachos, Anthony Haslam, David MacManus (Cranfield University Cranfield School of Aerospace Transport and Manufacturing)





**(continued) INPSI-13 | In Person - National Harbor 12**

**Viscous Wake Effects on the Inviscid Wall-Bounded Jet Flow over an Aerospike Nozzle**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1469  
Zachary Pyle, Gustaaf B Jacobs (San Diego State University), Nils Sedano, Farhad Davoudzadeh (Air Force Research Laboratory)



**Multiobjective Aerodynamic Design Optimization of the Contour of Annular Aerospike Nozzles**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1470  
Kei Tokoh (University of Tokyo), Akira Oyama, Takeo Tomita, Hideyo Negishi (Japan Aerospace Exploration Agency (JAXA))



**STR-26 | In Person - Chesapeake 7**

**Validation of a Cohesive Fatigue Law to Account for Fiber Bridging Effects in Stitched Resin Infused Structures**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1526  
Brian Justusson, Bryan Lilley (The Boeing Company), Yuri Nikishkov, Gennadiy Nikishkov (The University of Texas at Arlington College of Engineering), Philip Knoth (Air Force Research Laboratory)



**Modelling Disbond in Stitched Resin Infused Structures under Combined Loading**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1527  
Brian Justusson, Bryan Lilley (The Boeing Company), Yuri Nikishkov (The University of Texas at Arlington), Philip Knoth (Air Force Research Laboratory)



**Progressive Failure Modeling of Z-Pin Reinforced Composite Pi Joints**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1528  
James Finlay, Anthony M Waas (University of Michigan), Paul Davidson (The University of Texas at Arlington), Jonathan D Bartley-Cho, Nav Muraliraj (Northrop Grumman Corp)



**AMT-17 | In Person - Magnolia 3**

**Sensitivity of External Emission Spectroscopy for Hypersonic Vehicle Control**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1370  
Max Chern, Chloe E Dedic, Christopher P Goyne (University of Virginia School of Engineering and Applied Science), Alexander D Plumadore, Robert P Lucht (Purdue University)



**CO2-Enhanced Filtered Rayleigh Scattering for Study of a Hypersonic Cone-Slice-Ramp Geometry**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1371  
Ashley J Saltzman, Anshuman Pandey, Steven J Beresh, Katya M Casper, Rajkumar Bhakta, Brian Denk, Marie De Zetter, Russell Spillers (Sandia National Laboratories)



**Seeding-free inlet flow distortion measurement by filtered Rayleigh scattering: diagnostic approach and verification**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1372  
Ulrich Doll, Ralf Kapulla (Paul Scherrer Institut PSI), Jonas Steinbock, Michael Dues (ILA R&D GmbH), Matteo Migliorini, Pavlos K Zachos (Cranfield University Cranfield School of Aerospace Transport and Manufacturing)





**(continued) AMT-17 | In Person - Magnolia 3****Machine-Learned Background Quantification for Filtered Rayleigh Scattering Measurement Processing**

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1373

Evan P Warner, Todd Lowe (Virginia Polytechnic Institute and State University)

**Development of a Flight-Ready Optical Emission Spectroscopy Sensor for Hypersonic Flow**

Wednesday, 25 January 15:20 - 15:40 (UTC-5) | AIAA-2023-1374

Alexander D Plumadore, Aman Satija, Vishnu Radhakrishna, Christopher S Goldenstein (Purdue University), Max Chern, Christopher P Goynes, Chloe E Dedic (University of Virginia), Robert P Lucht (Purdue University)

**PGC-11 | In Person - National Harbor 3****Numerical Investigation on the Deflagration-to-Detonation Run-up Distance of Hydrogen Flames at elevated Pressures**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1493

Robyn Cideme, Bernhard Stiehl, Kareem A Ahmed (University of Central Florida)

**Wave Propagation Phenomenon in Shuttling Transverse Combustion**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1494

Zhen Wei Teo, Ruiqin Shan, Xin Huang, Po-Hsiung Chang, Heng Kee Ngiam, Jiun-Ming Li, Chiang Juay Teo, Boo Cheong Khoo (National University of Singapore)

**Transient Evolution of Wedge Induced Dynamics in Supersonic Reacting Flow**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1495

Taylor R Brown, Rachel Hytovick, Kareem A Ahmed (University of Central Florida)

**Statistical Characterization of Hydrogen-Oxygen Detonations**

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1496

Joshua Berson, Robyn Cideme, Rachel Hytovick, Kareem A Ahmed (University of Central Florida)

**Experimental Study of Oblique Detonation Wave Stabilization on a Wedge**

Wednesday, 25 January 15:20 - 15:40 (UTC-5) | AIAA-2023-1497

Zachary P White, Mason Redman Thornton, Daniel A Rosato, Adam R Kotler, Kareem A Ahmed (University of Central Florida)

**GNC-26/IS-17 | In Person - Annapolis 4****Feedback Oscillatory Control of Roll Instability During Stall Using the LIBRA Mechanism**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1449

Mahmoud A. M. Abdelgalil, Haithem Ezzat Taha (University of California Irvine)



**(continued) GNC-26/IS-17 | In Person - Annapolis 4****Enabling Proliferated Space Sensor Awareness Constellations Through Topological Observability**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1450

Chris W Hays, Troy Henderson (Embry-Riddle Aeronautical University), Sean Phillips, Alexander A Soderlund (Air Force Research Laboratory Space Vehicles Directorate)

**Adaptive Algorithm for Multirotor Attitude Control in the Presence of Actuation Delay and Unknown Actuator Efficiency**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1451

Atahan Kurttisi, Kadriye Merve Dogan (Embry-Riddle Aeronautical University), Ahmet T Koru (The University of Texas Arlington College of Science)

**Geomagnetic Aided Navigation using Rao Blackwellized Particle Filter**

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1452

Andrei Cuenca, Hever Moncayo (Embry-Riddle Aeronautical University)

**Model-Based Systems Engineering (MBSE) in the Evaluation of Handling Qualities**

Wednesday, 25 January 15:20 - 15:40 (UTC-5) | AIAA-2023-1453

Caleigh Rowan, Kadriye Merve Dogan (Embry-Riddle Aeronautical University)

**AFM-13 | In Person - Camellia 2****An Alternate Dimensionless Form of the Linearized Rigid-Body Aircraft Equations of Motion with Emphasis on Dynamic Parameters**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1366

Douglas F Hunsaker, Ben Moulton (Utah State University)

**Aircraft Accident Investigation Using Wavelet Scalogram-Based Metric to Identify Possible PIO Signature**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1367

Ricardo S.F. Mello (Gulfstream Aerospace Corp), David H Klyde (Systems Technology Inc), David G Mitchell (Mitchell Aerospace Research)

**Flight Simulator Result Comparing Three Aircraft Configurations: Quasi-Static, Flexible and Extended Flexibility**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1368

Fernando J Oliveira Moreira, Daniel Drewiacki, Marco Antonio de Oliveira Alves Junior (Embraer SA), Jan-Philipp Buch, Jana Schwithal, Carsten Seehof (Deutsches Zentrum für Luft- und Raumfahrt eV)

**A Theoretical Basis for Predicting Pilot Performance, Workload, and Handling Qualities**

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1369

Edward N Bachelder (San Jose State University), Bimal L Aponso (Federal Aviation Administration), Tom Berger (US Army Combat Capabilities Development Command Aviation &amp; Missile Center)



TP-14 | In Person - Azalea 2

Spatially resolved convective heat flux measurements during satellite demise at flight total enthalpies

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1537  
James Leader, Peter L Collen, Joseph Steer, Matthew McGilvray (University of Oxford)



Design of a Photogrammetric System for Real Time Surface Morphology Analysis

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1538  
Colin M Yee, Evangelos Y Maragoudakis, Kyle Woo, Noah Langton, Tyler T Joyce (The University of Texas at Austin), Joseph H Koo (KAI, LLC)



Pre- and Post-Flight Surface Roughness Measurements on the X-23 Hypersonic Glide Vehicle

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1539  
Cassandra J Butler, Elizabeth Katherine Benitez, Joseph S Jewell (Purdue University), Christopher J Ruscher, Sivaram Gogineni (Spectral Energies)



Open-source Wireless Sensor Network (Wi-Se Net) for Flexible Deployment

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1540  
Sebastian V Colom, Magnus A Haw (NASA Ames Research Center)



APA-46 | In Person - Potomac 3

Large Eddy Simulation of Transitional and Turbulent Hypersonic Flow

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1383  
Natan N Hoffmann, Amareshwara Sainadh Chamarthi, Hemanth Chandra Vamsi Kakumani, Steven Frankel (Technion Israel Institute of Technology)



Visualization and Measurement of Transverse Jet Injection on a 7 Degree Half-Angle Cone in Hypersonic Quiet Flow

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1384  
Christopher C Chinske, Zachary D. Lawless, Robert N. Blackwell, Joseph S Jewell (Purdue University)



Wind-Tunnel based Free-Flight Testing of a Viscous Optimised Hypersonic Waverider

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1385  
Jeremy H Moran, Liam P McQuellin, Luke Pollock, Andrew J Neely (University of New South Wales Canberra at ADFA), David Munk (Defence Science and Technology Group), Fabian Zander (University of Southern Queensland)



Rebuilding the VKI's Experiment on the Interference of a Free-Flying Ring and Stationary Cylinder Using a Multi-Fidelity Numerical Methodology

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1386  
Fábio Morgado, Marco Fossati (University of Strathclyde), Dániel Kóvacs, Thierry Magin (Von Karman Institute for Fluid Dynamics Aeronautics and Aerospace Department)



**(continued) APA-46 | In Person - Potomac 3****Numerical Simulations of Hypersonic Flows over the Fire II Capsule: Impact of Mesh Resolution and Boundary Conditions on Convective Heat Transfer**

Wednesday, 25 January 15:20 - 15:40 (UTC-5) | AIAA-2023-1387

Farney Coutinho Moreira (Instituto Tecnológico de Aeronautica), William Wolf (Universidade Estadual de Campinas), João Luiz F Azevedo (Instituto de Aeronautica e Espaço)

**EXPL-11 | In Person - Chesapeake L****A Methodology for Evaluating Cislunar PNT Architectures during Initial Design Space Exploration**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1418

Madilyn Drosendahl, Theresa E Bender, Michael J Steffens, Dimitri N Mavris (Georgia Institute of Technology)

**Surrogate Modeling of Orbital Decay of Lunar Orbits**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1419

Maxime Varoqui, Michael J Steffens, Dimitri N Mavris (Georgia Institute of Technology College of Engineering)

**Mission Planning and Analysis of Heliopause and the World Beyond Solar System**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1420

Tanishka Roy, Manan Malik (University of Petroleum and Energy Studies), Monica Shanmugam (Virginia Polytechnic Institute and State University), Gurunadh Velidi (University of Petroleum and Energy Studies)

**LP-08 | In Person - National Harbor 14****The Effect of Nitric Oxide on the Ignition Delay of Mixed Oxides of Nitrogen with Monomethylhydrazine**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1475

Ruth A Beaver, Catriona White, Jason Gabl, Timothee L Pourpoint (Purdue University)

**Density Characterization of Mixed Oxides of Nitrogen from Freezing Point to 50°C**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1476

Catriona White (Purdue University), Alicia Benhidjeb-Carayon (Jet Propulsion Laboratory), Jason Gabl, Timothee L Pourpoint (Purdue University)

**Surface Tension Measurements of Mixed Oxides of Nitrogen using Capillary Tubes**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1477

Schuyler T McNaughton, Catriona White, Jason Gabl, Timothee L Pourpoint (Purdue University)

**AA-12/PC-27 | In Person - Baltimore 1****Effect of LAFPA Based Control on Supersonic Rectangular Jets**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1346

Anirudh Lakshmi Narasimha Prasad, Unnikrishnan Sasidharan (Florida State University)



(continued) AA-12/PC-27 | In Person - Baltimore 1

An Experimental and Numerical Investigation of Rectangular Embedded Jet Exhausts

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1347  
Darryl A Douglas, Philip J Morris (The Pennsylvania State University), Nicholas Behlman, Kerwin Low (Pratt and Whitney)



Development of a Pressurized, Liquid-Fueled Combustor for Noise Measurements

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1348  
Shivam J Patel, Sungyoung Ha, Vedanth Nair, Subodh Adhikari, David Wu, Benjamin L Emerson, Adam M Steinberg, Tim C Lieuwen (Georgia Institute of Technology)



Large eddy simulation of combustion noise in a realistic gas turbine combustor

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1349  
Achyut Panchal, Suresh Menon (Georgia Institute of Technology)



EXPL-10 | In Person - Chesapeake I

Increasing Thin Film Evaporation of Liquid Nitrogen using Additively Manufactured Micro-Pillar Arrays for Lunar Ice Collection

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1415  
Mahadi Hasan, Esteban Cook, Nathaniel Regalado, Mohiuddin Ahmad, Ahsan R Choudhuri, Md Mahamudur Rahman (The University of Texas at El Paso College of Engineering)



Rarefied Water Vapor Ionization and Transportation to the Lunar Ice Collector

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1416  
Brenda Caraveo, Fernando Rivera, Amelia D Greig, Ahsan R Choudhuri, Md Mahamudur Rahman (The University of Texas at El Paso)



Increasing Sublimated Water Vapor Collection Rates on an Engineered Cold Plate from Icy Lunar Regolith

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1417  
Mahadi Hasan, Nathaniel I Jurado, Nicolas Veytia, Ahsan R Choudhuri, Md Mahamudur Rahman (The University of Texas at El Paso)



APS-01 | In Person - National Harbor 6

System Architecture Study of A Robust High Power Solar Array for LEO and Lunar Environments

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1388  
Steven Isaacs (Redwire Space)



Lunar Array, Mast, and Power System (LAMPS) for Deployable Lunar Power Provision

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1389  
Hunter Williams, Robert Van Ness, Evan Cloninger, Brian Vogel, Ray Crum, Vishnu Sanigepalli, Kris Zacny (Honeybee Robotics Spacecraft Mechanisms Corp), Murat Okandan, Jason Wilson, Kevin Hell, Kaveh Rouhani (mPower Technology)



**(continued) APS-01 | In Person - National Harbor 6****Energy Storage Requirements for a Lunar DC Micro-Grid System**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1390

Wayne W Weaver (Michigan Technological University), David Wilson, Marvin Cook (Sandia National Laboratories), Joseph Young (OptimoJoe)

**Supervisory On-line Optimal Control of an Electric Power Microgrid Design for Lunar Habitation**

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1391

Joseph Young (OptimoJoe), David Wilson, Marvin Cook (Sandia National Laboratories), Wayne W Weaver (Michigan Technological University)

**Optimal Sensor Placement for Fault Detection and Isolation in a Lunar DC Microgrid**

Wednesday, 25 January 15:20 - 15:40 (UTC-5) | AIAA-2023-1392

Gabriel Heyer, Kaveh Khodadadi Sadabadi, Matilde D'Arpino, Giorgio Rizzoni (The Ohio State University)

**PC-30/MAT-18 | In Person - Chesapeake 3****Frictional Ignition of Metals in High Pressure Oxygen: A Critical Reassessment of NASA Test Data**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1489

Andres Garcia Jimenez, Zachary C Cordero (Massachusetts Institute of Technology School of Engineering)

**Particle-Impact Ignition Testing of Three Commercially Available Ignition Resistant Metal Alloys**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1490

Joshua Winner, James H Morehart (The Aerospace Corporation)

**Friction Ignition Testing of Metals in Oxygen up to 24.1 MPa**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1491

Timothy M Wabel, Fabio Bendana, John DeSain, Levon Gevorkyan (The Aerospace Corporation)

**Interaction of a high energy laser with metals in reacting atmospheres**

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1492

Daniil Andrienko, Iain D Boyd (University of Colorado Boulder), Jaykob N Maser, Steven Shepard (Lockheed Martin Corp)

**EP-08 | In Person - Camellia 1****Investigating the Chemical Stability of Electrospray Plumes During Particle Collisions**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1406

Abderrahim Rafid Bendimerad, Abu Taqui Md Tahsin, Adam Yonas (Cornell University), Caleb Colucci (Embry-Riddle Aeronautical University), Elaine Petro (Cornell University)



(continued) EP-08 | In Person - Camellia 1

Plume-Material Interactions of Metallic Surfaces Bombarded by an [EMIM

[BF<sub>4</sub>] Electro spray Source, before skip=0pt,after skip=0pt,arc=0pt,outer arc=0pt]

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1407  
Avinash Rao, Tanapat Bhakyapaibul, Joshua F



Angular Properties of Ionic Liquid Electro spray Emitters

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1408  
Madeleine Schroeder, Ximo Gallud Cidoncha, Amelia Bruno (Massachusetts Institute of Technology), Oliver Jia-Richards (University of Michigan), Paulo Lozano (Massachusetts Institute of Technology)



Optical Emission Characterization of a Single Emitter Electro spray Thruster Interacting With Surfaces

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1409  
Nazli Turan, Chengyu Ma, Charles N Ryan (University of Southampton)



Experimental Study of a Low-Voltage Pulsed Plasma Thruster for Nanosatellites

Wednesday, 25 January 15:20 - 15:40 (UTC-5) | AIAA-2023-1214  
Brian F Jeffers, Patrick Gresham, Alexey Shashurin (Purdue University)



TF-09/ACD-24 | In Person - Woodrow Wilson B

Semi-Empirical Aerodynamic Modeling Approach for Tandem Tilt-Wing eVTOL Control Design Applications

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1529  
Marc Simon May, Daniel Milz, Gertjan Looye (Deutsches Zentrum fur Luft- und Raumfahrt eV)



Scheduled Flight Control System of Tilt-Rotor VTOL PAV

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1530  
Namuk Kang, James Whidborne, Linghai Lu, Julien Enconniere (Cranfield University Cranfield School of Aerospace Transport and Manufacturing)



Design Modifications for Improved Range for a Quadrotor Tailsitter UAS

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1531  
Matthew Bahr, Farhan Gandhi, Robert j Niemiec (Rensselaer Polytechnic Institute)



Energy Augmentation Concepts for Advanced Air Mobility Vehicles

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1532  
Kapil Sheth, Nhan T Nguyen, Seth Schisler, Todd Stinchfield (NASA Ames Research Center), David Pike, Thomas Lavelle (NASA Glenn Research Center)





IS-18 | In Person - Potomac 4

Distributed Limited Resource Allocation and Energy-Expenditure Learning for Advanced Air Mobility

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1471  
Arezoo Samiei, Robert A Selje, Liang Sun (New Mexico State University)



Virtual Target Approach for Emulating Advanced Guidance Laws on Conventional Interceptors

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1472  
Gleb Merkulov, Martin Weiss, Tal Shima (Technion Israel Institute of Technology)



Multi-Agent Task Assignment and Sequencing using Monte Carlo Tree Search and Process Algebra

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1473  
Steven J Rasmussen (Miami Valley Aerospace LLC), David Casbeer (Air Force Research Laboratory), Abhay Singh Bhadoriya, Swaroop Darbha (Texas A&M University System), Satyanarayana G Manyam (Infoscitex)



Leader Detection in Swarms using a Relative Velocity Framework

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1474  
Animesh Chakravarthy (The University of Texas at Arlington), Debasish Ghose (Indian Institute of Science)



TP-13 | In Person - Azalea 1

Application of ESM Investments to Aerothermodynamic Modeling of the Mars Sample Return Earth Entry System

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | 3774621</stron  
Christopher O Johnston (NASA Langley Research Center), Grant Palmer, Todd White (NASA Ames Research Center)



Overview of NASA’s Detailed Investigation into the MEDLI2 Flight Data

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | 3777014</stron  
Thomas K West (NASA Langley Research Center)



Overview of the material response code Icarus

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1534  
Joseph C Schulz, Georgios Bellas Chatzigeorgis (Analytical Mechanics Associates, Inc.), Eric Stern (NASA Ames Research Center), Grant Palmer (Analytical Mechanics Associates, Inc.), Olivia Schroeder (University of Minnesota)



Model-driven Characterization of Properties and Failure in Woven Thermal Protection Systems

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1535  
Justin Haskins, Lauren Abbott, Sergio Fraile Izquierdo, Sander Visser (NASA Ames Research Center), Trenton M Ricks, Brett A Bednarczyk, Subodh Mital, Evan J Pineda, Pappu L Murthy (NASA John H Glenn Research Center), Kevin Wheeler, Vasyli Hafiychuk, Michael von Pohle, Andrew Santos (NASA Ames Research Center)



Porous Microstructure Analysis (PuMA) software

Wednesday, 25 January 15:20 - 15:40 (UTC-5) | AIAA-2023-1536  
Federico Semeraro, Joseph Corbett Ferguson, John M Thornton (NASA Ames Research Center), Francesco Panerai (University of Illinois Urbana-Champaign), Arnaud Borner, Nagi N Mansour, Jeremie Bernard Erwin Meurisse, Sergio Fraile Izquierdo (NASA Ames Research Center)





**HSABP-06 | In Person - National Harbor 4**

**Adaptive Modeling of Supersonic Combustion in a Cavity-Stabilized Scramjet**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1466  
Matthew Bonanni, Matthias Ihme (Stanford University)



**URANS Simulations of Inlet-Isolator Unstart at Mach 4.9**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1467  
Brian Burke (Georgia Institute of Technology), Jonathan Poggie (Purdue University)



**Noise Generated in a Scramjet Combustor**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0314  
Ramprakash Ananthapadmanaban, Tim McIntyre, Vincent Wheatley, David Mee (The University of Queensland)



**FD-48 | In Person - Chesapeake F**

**Recurrent-Neural Network Prediction of Lift on an Oscillating Plate**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1435  
Nida Ahsan, Mahmoud Ayyad, Muhammad Hajj (Stevens Institute of Technology), Imran Akhtar (National University of Sciences and Technology)



**Evaluation of Knowledge-guided Tensor Decomposition in Engineering Applications**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1433  
Joy Metzler, Christopher Coley (US Air Force Academy)



**Flow on Leeward Side of a Sharp Fin Undergoing Swept Shock/Turbulent Boundary-Layer Interaction**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1434  
Dustin Otten (Lockheed Martin Missiles and Fire Control), Frank K Lu (The University of Texas at Arlington College of Engineering)



**A Variational Principle for Navier-Stokes Equations**

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1432  
Haithem Ezzat Taha, Cody Gonzalez (University of California Irvine)



**FD-47 | In Person - Chesapeake G**

**An Application of Embedded Large Eddy Simulation for Transonic Buffet Prediction**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1425  
Yoimi Kojima, Atsushi Hashimoto (Uchu Koku Kenkyu Kaihatsu Kiko)



(continued) FD-47 | In Person - Chesapeake G

Computational Study of Transonic Buffet’s Sensitivity to Reynolds Number and Wind Tunnel Wall Effects

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1426  
Ian K Eldridge-Allegra, Tsz Yeung Xu (Duke University), Kai Mbali Kruger Bastos (Rivian Automotive LLC), Earl H Dowell (Duke University)



Delayed Detached Eddy Simulation of Axisymmetric Turbulent Shock Wave Boundary Layer Interaction at Mach 2.5

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1427  
John-Paul G Mosele, Andreas Gross (New Mexico State University)



Large Eddy Simulation of Shock Wave Boundary Layer Interaction in an Expansion-Compression Corner

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1428  
Nadia Kianvashrad, Doyle D Knight (Rutgers The State University of New Jersey)



SR-04 | In Person - National Harbor 15

Quantification of HCl in Solid Propellant Combustion Products

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1515  
Filippo Maggi, Stefania Carlotti, Luca Nichelini, Arianna Masini, Marco Adorno, Andrea Galavotti, Alberto Verga (Politecnico di Milano), Stefano Dossi (ReActive Powder Technology s.r.l.), Agostino Neri (European Space Agency)



Laser Heating and Ignition of Solid Fuels in an Oxidizing Environment

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1516  
Felix A Rodriguez, Eric L Petersen (Texas A&M University System)



ASE-01 | In Person - Baltimore 5

Evidence for Multicomponent Arc Plasmas in Arecibo Arcing Data for 5 Satellites

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1395  
Dale C Ferguson (Air Force Research Laboratory), Elena Plis ()



Advances in the Development of a Multi-Energy Electron Gun

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1396  
Miles Thomas Bengtson (National Research Council), Ryan C Hoffmann, Dale C Ferguson (Air Force Research Laboratory), Jainisha Shah, Sydney Collman (Assurance Technology Corporation), Saya Han, Pao Chen, Pratibha Sharma (Violumas)



Dynamic Detection of Nearby Space Objects with Binary Wide Field of View X-Ray Sensing

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1397  
Andrea Lopez, Julian Hammerl, Hanspeter Schaub (University of Colorado Boulder)



**(continued) ASE-01 | In Person - Baltimore 5****Electric Potential Estimation of Inhomogeneous and Differentially Charged Objects Using X-Rays**

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1398

Julian Hammerl, Andrea Lopez, Hanspeter Schaub (University of Colorado Boulder)

**SCS-08 | In Person - Woodrow Wilson C****Design of Experiments and Optimization for Deployable Space Structures**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1505

Jonathan C Griffie, Derek W Hengeveld (Redwire Space), Nathan A Pehrson (Air Force Research Laboratory), Jacob Moulton, Ryan Vasas, Andrew Kline (Redwire Space)

**Thermoelastic Deformations of Thin-Shell Deployable Booms**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1506

John M Pederson, Alexandra Haraszti, Sergio Pellegrino (California Institute of Technology)

**Solar Cruiser TRAC boom development**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1507

Lee Nguyen, Kamron Medina, Zachary McConnel, Mark S Lake (Redwire Space)

**Blossoming Failure Analysis of a Composite Collapsible Tubular Mast (CTM) Boom**

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1508

Sicong Wang, Lining Sun (Soochow University), Chuang Shi (Harbin Institute of Technology), Bin Wang (Self)

**APA-42 | In Person - Potomac 5****Parametric studies of subsonic and supersonic reentry phases of the Orion Crew Module through numerical simulations**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1375

Jonas Buchmeier, FNU Himanshu, Donya Ramezani, Ivan Bermejo-Moreno (University of Southern California)

**Quantifying Emergent Fluid Dynamics using Reynolds-interpolated Fluid Reduced-order Models**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1376

Chris Edwards (NC State University), Michael William Lee (NASA Langley Research Center), Donya Ramezani (University of Southern California), Ralph Smith (NC State University)

**Application of an Affine Nonlinear Galerkin Reduced-order Model to Compressible Fluid Flows**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1377

Donya Ramezani (University of Southern California), Michael William Lee (NASA Langley Research Center), Ivan Bermejo Moreno (University of Southern California)



(continued) APA-42 | In Person - Potomac 5

Low-cost Quantification of Fluid Flow Parameter Sensitivity using Reduced-order Modeling

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1378  
Harley W Hanes (NC State University), Michael William Lee (NASA Langley Research Center), Donya Ramezani (University of Southern California), Ralph Smith (NC State University)



Optimal Sensor Placement in Fluid Dynamics using Machine Learning and Sensitivity Analysis

Wednesday, 25 January 15:20 - 15:40 (UTC-5) | AIAA-2023-1379  
Harley W Hanes (NC State University), Yury Lebedev (University of Florida), Ralph Smith (NC State University), Alina Zare (University of Florida)



GT-05 | In Person - Baltimore 4

Recent Enhancements of Measurement Capabilities at the European Transonic Windtunnel (ETW)

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | 3793875</stron  
Harald Quix (European Transonic Windtunnel GmbH (ETW))



Advances in PSP Testing in LaRC High Reynolds Number Facilities

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | 3796483</stron  
Daniel Reese, Neal Watkins (NASA Langley Research Center)



Remote control actuated wind tunnel models: design and testing best practices

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1459  
Frederick T Calkins, Douglas Nicholson, Michael Carpenter, Alexander Lafranchi (The Boeing Company), Donald R Saxer, Christopher Cramer (NASA Langley Research Center)



Temperature-Sensitive Paint measurements in combination with Carbon-Fiber-Reinforced Plastic models in cryogenic conditions

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1460  
Christian Klein, Jonathan Lemarechal, Ulrich Henne, Stefan Koch (Deutsches Zentrum für Luft- und Raumfahrt eV), Vladimir Ondrus (University of Applied Sciences Muenster), Ann-Katrin Hensch (European Transonic Windtunnel), Sven Schaber (Airbus Bremen Germany)



APA-45 | In Person - Potomac 1

Effects of Anhedral Tip on Hover Performance

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1380  
Shivani Shankar, Lakshmi N Sankar (Georgia Institute of Technology), Po-Wei Chen (Ansys, Inc.)



A Coupled Source Panel, Actuator Line, and Viscous Vortex Particle Method in an O(n) Scheme

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1381  
Ryan Anderson, Andrew Ning (Brigham Young University)



(continued) APA-45 | In Person - Potomac 1

An Application of the Flow360 Solver to the Hover Download Prediction Problem

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1382  
Thomas A Fitzgibbon, Charles J Doolittle, Qiqi Wang, Philippe Spalart (Flexcompute)



STR-24/MAT-19 | In Person - Chesapeake A

Characterizing Air Plasma Sprayed Aluminum Oxide Coatings for the Protection of Lunar Structures

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1517  
Perla C Latorre, Quentin Fouliard, Seetha Raghavan (University of Central Florida)



Design, Analysis and Experimental Development of Structural Joints for a Large Composite Cryotank

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1518  
Aristidis Sidiropoulos, William P. Keith, Jeffrey D. Eichinger, Tin A. Luu, Juan C. Guzman, Jordan O. Birkland, Steven P Wanthal (The Boeing Company)



Modal and Structural Analysis of Lunar Domes Constructed using Micro-Struts

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1519  
Avi Gileadi, Cuauhtemoc Jimenez Avila, Maria Chierichetti (San Jose State University Charles W Davidson College of Engineering)



Correlation Study of SWOT Payload Acoustic Prediction and Test

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1520  
Li Lin (Jet Propulsion Laboratory), Alexis Castel (ESI Group), Andrew Kissil, Gary Wang (Jet Propulsion Laboratory), Bryce Gardner (ESI Group)



Design of Buoyant Architected Materials to Enable a New Aerial Platform Operating Near the Surface of Venus

Wednesday, 25 January 15:20 - 15:40 (UTC-5) | AIAA-2023-1521  
Fakhreddin Emami, Andrew J Gross (University of South Carolina)



SPSN-01 | In Person - Chesapeake C

Redesign of a Low-Boom Supersonic Transport Using Powered Engine Simulation for Sonic Boom Analysis

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1511  
Wu Li, Karl Geiselhart (NASA Langley Research Center)



A Theoretical Trade-Off Between Wave Drag and Sonic Boom Loudness Due to Equivalent Area Changes on a Supersonic Body

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1512  
Nolan L Dixon, Douglas F Hunsaker (Utah State University)



**(continued) SPSN-01 | In Person - Chesapeake C**

**Development of A Sonic Boom Propagation Code For Low-Boom Supersonic Aircraft Design and Optimization**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1513  
Yusuf Demiroglu, Melike Nikbay (Istanbul Teknik Universitesi)



**Sonic Boom Propagation using an Output-based Adaptive, Higher-order Finite Element Method**

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1514  
David L Darmofal, Steven Allmaras, Marshall Galbraith (Massachusetts Institute of Technology)



**Multi-Fidelity and Multi-Disciplinary Design Optimization of A Low-Boom Supersonic Transport Aircraft**

Wednesday, 25 January 15:20 - 15:40 (UTC-5) | AIAA-2023-1478  
Melike Nikbay, Dilan Kilic, Enes Cakmak, Huseyin E Tekaslan, Sihmehmet Yildiz, Yusuf Demiroglu (Istanbul Teknik Universitesi)



**PC-29 | In Person - National Harbor 10**

**Droplet Characteristics in Spray Flames of Jet Fuels and Jet Fuel Surrogates**

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1484  
Christopher B Reuter (US Naval Research Laboratory), Tanvir Farouk (University of South Carolina), Steven G Tuttle (US Naval Research Laboratory)



**Ignition Characteristics of Alcohol to Jet Fuel using a Hot Surface Probe**

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1485  
James M Henderson, Sheikh Salauddin, Kareem A Ahmed (University of Central Florida)



**Predictions of Spray Combustion using Conventional Category A Fuels and Exploratory Category C Fuels**

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1486  
Francesco Pignatelli, Martin Passad, Arvid Åkerblom, Thommie Nilsson, Elna Nilsson, Christer Fureby (Lunds Universitet)



**Development of Kinetic Mechanisms for Varied CN Controlled Fuels using Response Surface Surrogate Modeling**

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1487  
Paxton W Wiersema, Ji Hun Oh, Keunsoo Kim, Tonghun Lee (University of Illinois Urbana-Champaign)



**A novel ultra-low NOx hydrogen combustor based on the Lean Azimuthal Flame concept**

Wednesday, 25 January 15:20 - 15:40 (UTC-5) | AIAA-2023-1488  
Pedro M. de Oliveira (University of Cambridge Department of Engineering), Luigi Miniero, Khushboo Pandey, Nicolas Noiray (Eidgenossische Technische Hochschule Zurich Departement Maschinenbau und Verfahrenstechnik), Epaminondas Mastorakos (University of Cambridge Department of Engineering)



NDA-11/GNC-27/SD-18 | In Person - Chesapeake 8

Probabilistic Transfer Learning through Ensemble Probabilistic Deep Neural Network

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1479  
Sandipp Krishnan Ravi, Piyush Pandita, Sayan Ghosh, Anindya Bhaduri, Valeria Andreoli, Liping Wang (General Electric Research)



Comparison of Methods to Verify Probabilistic Aerospace Requirements

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1480  
Sankalp Bhan, Raghu Venkataraman, Ben Novak, Simone Airoidi, Christopher McFarland (Amazon.com Inc)



Strategies for Automation of Model Tuning in Multi-fidelity Trajectory Uncertainty Propagation

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1481  
Marten Thompson (NASA Langley Research Center), Gianluca Geraci (Sandia National Laboratories), Geoffrey Bomarito, James Warner, Patrick Leser, William Paul Leser (NASA Langley Research Center), Michael S Eldred, John Jakeman (Sandia National Laboratories), Alex Gorodetsky (University of Michigan)



Online Parameter Estimation Within Trajectory Optimization for Dynamic Soaring

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1482  
Carleen A McKenna, Alex Gorodetsky (University of Michigan)



Advantages of the Real-Space Model Validation Approach vs. the ASME VV10 and VV20 Validation Approaches

Wednesday, 25 January 15:20 - 15:40 (UTC-5) | AIAA-2023-1483  
Vicente J Romero (Sandia National Laboratories)



AA-13 | In Person - Baltimore 2

Higher-order Statistical Metrics for Characterizing Rotor Acoustics.

Wednesday, 25 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1350  
Charles E Tinney, John A Valdez (The University of Texas at Austin Applied Research Laboratories)



Aerodynamic and Acoustic Analysis of a Multi-Rotor eVTOL Configuration

Wednesday, 25 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1351  
Dilhara Jayasundara, Bumseok Lee, James D Baeder (University of Maryland at College Park), Jan Goericke, Zoren Habana (Advanced Rotorcraft Technology Inc)



Numerical Method Comparison on Shaped Sonic Boom Propagation Through Atmospheric Boundary Layer Turbulence

Wednesday, 25 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1352  
Joshua L Kapcsos, Victor Ward Sparrow (The Pennsylvania State University - University Park Campus)



Robust Design of Sonic Boom Performance using Spatially Accurate Polynomial Chaos

Wednesday, 25 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1353  
John A Schaefer, David S Lazzara, Stephen T LeDoux (Boeing Research and Technology)



**16:00 | Special Programming**

WATCH-02 | In Person - Baltimore 3

WATCH-03 | In Person - Azalea 3

**16:00 | Technical Panel**

**16:00 | Technical Paper Session**

**16:00 | Technical Workshop**

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## Thursday, 26 January

### 09:30 | Technical Panel

DA-04/GNC-55/ACD-28/AS-24/APA-58/UAS-11   In Person - Woodrow Wilson D
INPSI-19/ACD-32/EAT-12/TF-12/GTE-26/PC-35   In Person - National Harbor 12
AS-37/AA-18   In Person - Chesapeake 12

### 09:30 | Technical Paper Session

EDU-04   In Person - Annapolis 1
Propulsion Research and Academic Programs at the University of Alabama in Huntsville
Thursday, 26 January 09:30 - 09:50 (UTC-5)   AIAA-2023-1779 Robert A Frederick, Lawrence Thomas (The University of Alabama in Huntsville College of Engineering)
Using CEQUEL for Thermochemistry Calculations in a Graduate Rocket Propulsion Course at UAH
Thursday, 26 January 09:50 - 10:10 (UTC-5)   AIAA-2023-1780 Paige Berg, William Loeblich, Robert A Frederick (The University of Alabama in Huntsville)
Ten Years of Voluntary Work
Thursday, 26 January 10:10 - 10:30 (UTC-5)   AIAA-2023-1781 Rene Nardi Rezende (Inotech)
MDO-20   In Person - Chesapeake 6
Exergy-based Sensitivity Analysis of the Generic Hypersonic Vehicle using FUN3D
Thursday, 26 January 09:30 - 09:50 (UTC-5)   AIAA-2023-1843 Neal Novotny, Markus P Rumpfkeil (University of Dayton), Eric J Nielsen (NASA Langley Research Center), Boris Diskin (National Institute of Aerospace)
CFD Based Multi-Component Aerodynamic Optimization for Wing Propeller Coupling
Thursday, 26 January 09:50 - 10:10 (UTC-5)   AIAA-2023-1844 Heyecan Koyuncuoglu, Ping He (Iowa State University)
Comparison of Finite Volume and High Order Discontinuous Galerkin Based Aerodynamic Shape Optimization
Thursday, 26 January 10:10 - 10:30 (UTC-5)   AIAA-2023-1845 Alexander Coppeans, Krzysztof Fidkowski, Joaquim R. R. A. Martins (University of Michigan)
Fast and Accurate Strategies for CFD-based Aerodynamic Shape Exploration in a System of Multi-Objective Evolutionary Algorithms
Thursday, 26 January 10:30 - 10:50 (UTC-5)   AIAA-2023-1846 Sungki Jung (Universidade Federal do ABC Centro de Engenharia Modelagem e Ciencias Sociais Aplicadas), Tamara Guimaraes Bucalo (The Pennsylvania State University - University Park Campus)

**WE-07 | In Person - Chesapeake 9****On the influence of the grid size of large eddy simulations of a neutral atmospheric boundary layer on wind turbine load calculations**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1918

Simone Mancini, Marco Caboni, Koen Boorsma, Gerard Schepers (TNO), Mikko Folkersma, Remco Verzijlbergh (Whiffle)

**Application of an unsteady double wake panel method for aeroelastic rotor analysis**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1919

Akshay Koodly Ravishankara, Koen Boorsma (TNO)

**Nonlinear Analysis of Wind Turbine Blades Using Finite Elements with Anisotropic Variable Kinematics**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1921

Sander F. van den Broek, Mayank Patni, Aewis Hii, Paul Weaver (University of Bristol), Peter Greaves (Offshore Renewable Energy Catapult), Alberto Pirrera (University of Bristol)

**On the Estimation of Short Fiber Orientation in a Filled Epoxy Adhesive and its Effect on the Tensile Strength**

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1922

Tobias Holst (Fraunhofer-Institut für Windenergiesysteme IWES), Alexandros Antoniou (Ethniko Metsobio Polytechnio Schole Epharmosmenon Mathematikon kai Physikon Epistemon), Nils Englisch (Fraunhofer-Institut für Windenergiesysteme IWES), Nikolas Manousides, Claudio Balzani (Leibniz Universität Hannover)

**SD-27 | In Person - Chesapeake 3****Thrust Control and Vibration Damping Using a Wingtip Electric Proprotor**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1891

Changik Cho, Christopher D. Rahn, Edward Smith, Joseph P. Cusumano (The Pennsylvania State University - University Park Campus)

**Three-Dimensional Blade and Hub Stresses of Coaxial Rotors in High-Speed Forward Flight**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1892

Mrinalgouda Patil, Anubhav Datta (University of Maryland at College Park), Buvana Jayaraman (NASA Ames Research Center)

**A Sensitivity Study on Aeroelastic Instabilities of Slender Wings with a Large Propeller**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1893

Nils Böhnisch, Carsten Braun (FH Aachen), Vincenzo Muscarello, Pier Marzocca (RMIT University)

**APA-56 | In Person - Potomac 4****Prediction Accuracy of RANS-based Analysis for Aerodynamic Forces and Moments of a Civil Aircraft Model**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1758

Kohei Konishi (Tokyo Noko Daigaku - Koganei Campus), Yoimi Kojima, Atsushi Hashimoto (Uchu Koku Kenkyu Kaihatsu Kiko), Masaharu Kameda (Tokyo Noko Daigaku - Koganei Campus)



**(continued) APA-56 | In Person - Potomac 4****Mixed-element USM3D Contributions to the 4th AIAA High Lift Prediction Workshop**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1759  
 Michael D Bozeman, Mohagna J Pandya (NASA Langley Research Center)

**The CFFD Equivalence**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1760  
 Ronald M Deslandes (Self)

**Modelling Effect of Rain on the External Aerodynamics of the Utility Truck with the Morphing Boom Equipment: Computations and Wind Tunnel Testing**

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1761  
 Parth Y Patel, Chandramouli Krishnamurthy, Gavin Clausman, Vladimir Vantsevich, Roy Koomullil (The University of Alabama at Birmingham)

**Toward Ultra-High Cruise Lift Coefficient Using Flapped Coflow Jet Airfoil**

Thursday, 26 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1008  
 Jaehyoung Jeon, Yan Ren, Gecheng Zha (University of Miami)

**AFM-16 | In Person - Camellia 2****Minimal Energy Quadcopter Descent and Recovery**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1741  
 Peiman Moradi, Alex Mcconville, Thomas S Richardson (University of Bristol)

**Optimal Landing Control of eVTOL Vehicles Using ODE-Based Aerodynamic Model**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1742  
 Zhenbo Wang, Yufei Wu (The University of Tennessee Knoxville Tickle College of Engineering), Daning Huang (The Pennsylvania State University College of Engineering)

**Model reference adaptive control of experimentally identified honeybee visual tracking dynamics**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1743  
 Md. Saiful Islam, Imraan Faruque (Oklahoma State University)

**TP-16 | In Person - Azalea 3****ArcjetCV: a new machine learning application for extracting time-resolved recession measurements from arc jet test videos**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1912  
 Alexandre Quintart (Flying Squirrel), Magnus A Haw (Analytical Mechanics Associates, Inc.)



(continued) TP-16 | In Person - Azalea 3

Characterization of spalled particles resulting from arc-jet tests

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1913  
Kristen J Price, Alexandre Martin, Sean Bailey (University of Kentucky)



Early Response of Ablative Materials to Arcjet Testing

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1914  
Stewart V McDougall, Aditya Vinod, Fabrizio Bisetti (The University of Texas at Austin)



Numerical reconstruction of spalled particle trajectories in an arc-jet environment: Accounting for non-sphericity and back-tracking

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2714  
Raghava Davuluri, Kristen J Price, Sean Bailey, Kaveh Tagavi, Alexandre Martin (University of Kentucky)



Numerical reconstruction of spalled particle trajectories in an arc-jet environment: Cylinder and Hemicylinder samples

Thursday, 26 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1911  
Raghava Davuluri, Kristen J Price, Sean Bailey, Kaveh Tagavi, Alexandre Martin (University of Kentucky)



FD-55 | In Person - Chesapeake F

Unsteady Lift and Circulation for Impulsively Started Flat Plates at Low Reynolds Numbers

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1788  
Jeremy A Pohly, Chang-kwon Kang (The University of Alabama in Huntsville)



Climbing Flight of Monarch Butterflies via Wing and Abdomen Kinematic Modulation Using a High-Fidelity Numerical Framework

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1789  
Jeremy A Pohly, Chang-kwon Kang (The University of Alabama in Huntsville), Tejaswi K. C., Taeyoung Lee (The George Washington University), Hikaru Aono (Shinshu Daigaku)



An investigation of the sweep effect on corrugated wings at low Reynolds numbers

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1790  
Syed Hassan R Shah, Josh Kacmarzyk (Auburn University), Zaeem Shabbir (National University of Sciences & Technology)



Flow Physics of a Passive Flap on a Dynamically Pitched Airfoil

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1791  
Zoey Flynn, Andres Goza (University of Illinois Urbana-Champaign)



Flow Interactions and Wake Structures in Large Groups of Undulating Foils

Thursday, 26 January 10:50 - 11:10 (UTC-5) | AIAA-2023-2292  
John M Kelly, Yu Pan, Haibo Dong (University of Virginia)



GTE-25 | In Person - National Harbor 11

Measurements of laminar burning speeds in ammonia and hydrogen-air mixtures for gas turbines

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1823  
Louis Yovino, Gihun Kim, Ritesh Ghorpade (University of Central Florida), Rehab M.I. Elsamra (Alexandria University), Subith Vasu (University of Central Florida)



Numerical Modeling of Multiple Liquid Jets in Crossflow for Gas Turbine Spray Characterization

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1824  
Homayoon Feiz, Hasan Karim (General Electric Company), Dominik Kubicki (Engineering Design Center General Electric Company Sp z o o), Vivek Kumar, Pravin M Nakod (ANSYS Inc), Jongguen Lee (University of Cincinnati), Wei Zhao (General Electric Company), Marcin Frackowiak (Engineering Design Center General Electric Company Sp z o o), Yuxin Zhang (General Electric Company)



STR-34 | In Person - Chesapeake 7

Investigation of Damage Mechanisms in Composites due to the Interaction of Ply and Fiber Waviness Defects

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1905  
Jarod Heise, Paulina Diaz Montiel, Satchi Venkataraman (San Diego State University College of Engineering)



Local Analysis-Test Correlation of Tow-Steered Composite Shells With Small Cutouts

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1906  
K Chauncey Wu (NASA Langley Research Center), Rainer MJ Groh (University of Bristol), Nathaniel W Gardner (NASA Langley Research Center)



Modeling and characterization of crushable composite structures

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1907  
Deepak Kumar Patel (Dassault Systemes Simulia Corp), Evan J Pineda (NASA Glenn Research Center), Paria Naghipour (HX5, LLC), Steven M Arnold (NASA Glenn Research Center)



Invited Talk: Adam Smith et al., Low Leakage Valves for long duration missions

Thursday, 26 January 09:30 - 09:30 EDT (UTC-5)



EXPL-13 | In Person - National Harbor 7

Low Leakage Valves for Long Duration Missions

Thursday, 26 January 09:30 - 10:10 (UTC-5) | AIAA-2023-1782  
Cody Gilliland, Scott Kramer, William Sadowski, Andrew Smith, Robert Walker (NASA Marshall Space Flight Center)



Development of a Test Article to Demonstrate the Long Duration Storage of Liquid Hydrogen via a Two-Stage Active Cooling Approach

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1783  
Travis Belcher, Patrick A Giddens (NASA Marshall Space Flight Center), Ryan J Grotenrath (NASA John H Glenn Research Center), Brian Hamill, Kevin Pedersen, James Smith, Jonathan R Stephens, Juan G Valenzuela, Robert M Witbrodt (NASA Marshall Space Flight Center)



**(continued) EXPL-13 | In Person - National Harbor 7****Modeling and Simulation of Tank Pressure Control using Zero-Boil Off Active Thermal Control for LOXSAT Technology Demonstration Mission**

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1784

Jonathan Bentley, Leo Bolshinskiy, Anson R Koch (NASA Marshall Space Flight Center), William Notardonato, Daniel Holibaugh (Eta Space)

**GT-06 | In Person - Baltimore 3****Using Computational Fluid Dynamics for the Development of Supersonic Wind Tunnels**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1815

Ryan T O'Rorke, Daniel R Cuppoletti (University of Cincinnati)

**Renewed characterization of a Mach 6 hypersonic wind tunnel**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1816

Sacha Hirsch (ONERA Mecanique des fluides et energetique), Guillaume Grossir, Olivier Chazot (Von Karman Institute for Fluid Dynamics Aeronautics and Aerospace Department)

**Transient Thermodynamic Simulation of the DLR Turbine Test Facility NG-Turb**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2521

Björn Schneider (Deutsches Zentrum für Luft- und Raumfahrt eV)

**Uncertainty Analysis of Store Separation Aerodynamic Data at the NRC 1.5 m Trisonic Wind Tunnel**

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2520

Jennifer Pereira, Melissa Richardson (National Research Council Canada)

**EAT-11 | In Person - Camellia 1****An Assessment of the Environmental and Cost Benefits from the Electrification of Light Trainer Aircraft**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1772

Mathieu Bouchard, Nathan Louvel, David Rancourt (Universite de Sherbrooke)

**Development of a Large-Scale Thermosyphon for Cooling the Fault Management System of a MW-Scale Electric Aircraft**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1773

Jeff Diebold, Brett Leitherer, Calin Tarau, Kuan-Lin Lee (Advanced Cooling Technologies Inc)

**Analysis of Active Cooling System for High Power Density Bio-LNG Cooled Electric Motors for Electric Aircraft**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1774

Jimmy W Meacham, Rory A Roberts, Trevor J Kramer (Tennessee Tech University)



**(continued) EAT-11 | In Person - Camellia 1****Projected Utility of All-Electric Aircraft in Reducing Emissions at the Hartsfield Jackson Atlanta International Airport**

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1775  
 Jacob Eaton, Mohammad Naraghi, James G Boyd (Texas A&M University)

**EXPL-14 | In Person - Chesapeake L****Microgravity Experiment using Drop Tower and CFD-DEM Coupled Simulation about Plume-Surface Interaction**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1785  
 Mitsuhsa Baba (Uchu Koku Kenkyu Kaihatsu Kiko), Shinpei Okita (Hexagon Manufacturing Intelligence Ltd), Kentaro Watanabe (Mitsubishi Group), Yusuke Maru, Shujiro Sawai, Osamu Mori, Kazuhisa Fujita (Uchu Koku Kenkyu Kaihatsu Kiko)

**Parameterization and Design Space Exploration of a Hypersonic Inflatable Aerodynamic Decelerator**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1786  
 Kaleb Cornick, Bradford E Robertson, Dimitri N Mavris (Georgia Institute of Technology College of Engineering)

**Lift Wire Deployment and Anchoring System for the Lunar Crater Radio Telescope on the Far Side of the Moon**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1787  
 Rebecca Wang (Stanford University), Vinod P. Gehlot, Saptarshi Bandyopadhyay, Patrick M McGarey, Benjamin Byron (Jet Propulsion Laboratory), Dario Pisanti (Scuola Superiore Meridionale), Ron Wilson (United States Air Forces Central), Kenneth Jenks (NASA Johnson Space Center)

**ECS-01 | In Person - National Harbor 6****Impacts of Condensed Carbon in Detonation of Selected Gaseous Hydrocarbon/Oxygen Mixtures**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1776  
 Lien C Yang (Self)

**Comparison of Velocity-Adjusted Detonation Product Equation of State Methods to a Data-Driven Model**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1777  
 Athena Padgiotis, Scott I. Jackson (Texas A&M University)

**Thermite-for-Demise: Preliminary on-Ground Heat Transfer Experimental Testing**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1778  
 Filippo Maggi, Alessandro Finazzi, Piero Finocchi, Christian Paravan, Luciano Galfetti (Politecnico di Milano), Stefano Dossi, Alessandro Murgia (ReActive Powder Technology s.r.l.), Tobias Lips (Hyperschall Technologie Gottingen GmbH), Geert Smet, Kobye Bodjona (European Space Research and Technology Centre)

**TF-13 | In Person - Magnolia 2****Feasibility Study of a Multi Tilt-rotor Aircraft as the Artemis Lunar Training Vehicle**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1908  
 Jing Pei, Jared A Grauer, Jason Welstead, Luke J Miller (NASA Langley Research Center), Han Woong Bae (NASA Marshall Space Flight Center)





**(continued) TF-13 | In Person - Magnolia 2****Towards Zero-Emission Transportation in Scandinavia**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1909  
 Kristian Amadori, Christopher Jouannet (Saab Aeronautics)

**Nonlinear Dynamic Inversion Flight Control of a Tiltwing VTOL Aircraft**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1910  
 Leo Panish, Chris Nicholls, Marko Bacic (University of Oxford)

**GNC-32/IS-21 | In Person - Annapolis 4****Trajectory Planning and Control of Bathy-drone: A Drone Towing a Boat equipped with Sonar for Bathymetry Mapping**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1811  
 Andres Pulido, Antonio Diaz, Andrew Ortega, Peter Ifju, Jane Shin (University of Florida)

**Distributed Adaptive Control of Multiagent System with State and Control Dependent Coupled Dynamics in the Presence of Unknown Control Effectiveness Matrix**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1812  
 Islam A Aly, Sebastian Comeaux, Kadriye Merve Dogan (Embry-Riddle Aeronautical University)

**Scalability Concept for Model Reference Adaptive Control of Gain Scheduled Dynamical Systems**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1813  
 Jesse Jaramillo, Kevin Wilcher, Tansel Yucelen (University of South Florida), Mehrdad Pakmehr (ControlIX)

**Machine Learning Based Architecture for Generation of Synthetic Flight Test Data**

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1814  
 Nathaniel Sisson, Hever Moncayo (Embry-Riddle Aeronautical University)

**Using automotive radar to enable detection and tracking of small UAVs**

Thursday, 26 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1810  
 Adam A Johnson, Aleena Kurumunda (Charles Stark Draper Laboratory Inc)

**TP-17 | In Person - Azalea 2****Feasibility Study on using the Heat Pipe Assembly to Enhance the Performance of Air-Cooled Condensers**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1915  
 Masoud Darbandi, Kazem Mashayekh, Fakhreh Seyedi (Sharif University of Technology), G E Schneider (University of Waterloo)





(continued) TP-17 | In Person - Azalea 2

Micro/Nano-Engineered Hierarchical Arrays for Enhanced Thin Film Evaporation of Water

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1916  
Esteban Rios, Alejandro Amador, Alejandro Silva, Ahsan R Choudhuri, Md Mahamudur Rahman (The University of Texas at El Paso)



Simulation of Natural Convection in Two-Phase Cryogenic Tanks Using Sparse Identification of Nonlinear Dynamics

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1917  
Alireza Moradikazerouni, Tomas Solano, Mark Sussman, Kourosh Shoele (Florida State University)



HMT-02 | In Person - National Harbor 15

Evaluating NASA Scientists' Perspectives of the NASA Task Load Index

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1825  
Eric M McCoy, Ellie Kazemi, Adisa Ptah (California State University Northridge), Amir Rahmani (Jet Propulsion Laboratory), Lauren Khoury (California State University Northridge)



Modeling the Relationship Between Pilot Visual Sca, Control Activity and Aircraft State

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1826  
Prakrith Raja, Amy Pritchett (The Pennsylvania State University)



Procedure and Interface Design for Continuous Descent Approaches Under End Time Constraints

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1827  
Viktoras Georgios Vasilopoulos, Clark Borst, Marinus M van Paassen, Alexander C in't Veld, Max Mulder (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek)



XAI Design Goals and Evaluation Metrics for Space Exploration: A Survey of Human Spaceflight Domain Experts

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1828  
Tammer Barkouki, Ziquan Deng (University of California Davis), John Karasinski (NASA Ames Research Center), Zhaodan Kong, Stephen Robinson (University of California Davis)



FD-57 | In Person - Chesapeake E

Entropy-stable Deep Learning for Navier–Stokes Predictions of Transitional-regime Flows

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1796  
Ashish S Nair (University of Notre Dame), Justin Sirignano (University of Oxford), Marco Panesi (University of Illinois Urbana-Champaign), Jonathan F MacArt (University of Notre Dame)



Numerical Simulation of a Shock Tube in Thermochemical Non-Equilibrium

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1797  
Justin Clarke, Peter L Collen, Matthew McGilvray, Luca di Mare (University of Oxford)



**(continued) FD-57 | In Person - Chesapeake E****Nonequilibrium effects in high-speed flow: experiment and simulation**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1798

Nicholas S Manavi, Albina Tropina, Richard B Miles (Texas A&amp;M University), Maninder S Grover (Air Force Research Laboratory)

**Heat Flux Predictions using a 3D Near Body Solver on an Adaptive Block-Structured Cartesian Off-Body Grid**

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1799

Joel A McQuaid (University of Maryland at College Park), Aleksander Lavi Zibitsker, Alexandre Martin (University of Kentucky), Christoph Brehm (University of Maryland at College Park)

**STR-33 | In Person - Chesapeake 4****Investigation of High-Velocity Nylon Bead Impact Damage on Aerospace Ceramic Materials**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1901

Joshua Richard Leigh, Ibrahim Guven (Virginia Commonwealth University College of Engineering)

**Gas Permeability and Flexural Strength Post Impact of Cryogenically Cycled Composites**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1902

Shuvam Saha, Rani W Sullivan (Mississippi State University James Worth Bagley College of Engineering)

**High Energy Dynamic Impact Testing of APC AS4D/PEKK-FC and TC1225 LMPAEEK T700G Thermoplastic Composite Materials**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1903

Mike Pereira, Sandi G. Miller, Duane M. Revilock, Charles R. Ruggeri (NASA Glenn Research Center), Richard E. Martin (HX5, LLC)

**Knockdown in Load Bearing Capability of Thin and Thick Composites Due to Low Velocity Impact**

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1904

Andrew Seamone (University of Michigan), Paul Davidson (The University of Texas at Arlington), Anthony M Waas (University of Michigan)

**Effects of Boundary Conditions on Damage Size in Composite Structures Subjected to Low Velocity Impact – An Analytical Study**

Thursday, 26 January 10:50 - 11:10 (UTC-5) | AIAA-2023-0200

Landon K Henson, Matthew Molitor, Rebecca Cutting, Brian Carpenter, Brian Justusson (The Boeing Company), Vipul Ranatunga (Air Force Research Laboratory)

**MDO-21 | In Person - Chesapeake 5****Credibility-Based Multidisciplinary Design Optimisation of Electric Aircraft**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1847

Nicolas F.M. Wahler (University of Southampton Faculty of Engineering and the Environment), Daigo Maruyama (Technische Universität Braunschweig), Ali Elham (University of Southampton Faculty of Engineering and the Environment)



**(continued) MDO-21 | In Person - Chesapeake 5****Graph Learning based Decision Support for Multi-Aircraft Take-Off and Landing at Urban Air Mobility Vertiports**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1848

Prajit Krishna Kumar, Jhoel Witter, Steve Paul, Karthik Dantu, Souma Chowdhury (University at Buffalo)

**Coupling Genetic Algorithm with an Artificial Neural Network for Optimization of a Supercritical CO2 Compressor**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1849

Saugat Ghimire, Mark G Turner (University of Cincinnati)

**HR-02/03 | In Person - National Harbor 13****Small-Scale Hybrid Rocket Combustor Temperature and Water Concentration Measurements using Near-Infrared Tunable Diode Laser Absorption Spectroscopy**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1829

Connor Becnel, Mohana Gurunadhan, Shyam K Menon (Louisiana State University)

**Regenerative Cooling of Graphite Nozzles for Throat Erosion Suppression**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1830

Hiroki Kojima, Landon T Kamps, Yuki Nobuhara, Giuseppe Gallo, Harunori Nagata (Hokkaido Daigaku)

**Spray Ignition Studies on a Green Hypergolic Hybrid Rocket Propellant**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1831

Syamantak Nath, Lovely Mallick, Joseph Lefkowitz (Technion Israel Institute of Technology)

**Laser Ignition of Hybrid Rocket Motors: Ignition Characterization and Ignition Mechanism Analysis**

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1832

Veronika Korneyeva, David Dyrda, James Wall, Eylül Bilgin, Brian J Cantwell (Stanford University)

**MAT-21/STR-32/SUR-01 | In Person - Chesapeake A****Radiation hardening of spacecraft and other autonomous robotic systems: Lunar safety v2.0**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1839

Ronald H Freeman (American Institute of Aeronautics and Astronautics (AIAA))

**Design and Evaluation of Additively-Manufactured MMOD Satellite Shielding**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1840

James Boudrie, Erin Shea, Henry Pyzdrowski, Kevin Brisker, Peter Fiori, Michael L Anderson (US Air Force Academy), Justin Rausch (SAFE, Inc), Paul T Mead, Kalyan R Kota, Thomas E Lacy (Texas A&amp;M University System)



**(continued) MAT-21/STR-32/SUR-01 | In Person - Chesapeake A****Comparison of Experimental, Numerical and Analytical approaches to HRAM events**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1841  
 Georg A Heilig, Michael May (Fraunhofer EMI)

**The Effect of Shot Dependency and Weave Matrix on Composite Materials Subject to Ballistic Testing**

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1842  
 Jack T Morgan, Alex M Ramsperger, John H Hansen (Air Force Institute of Technology)

**MVCE-04/NDA-14 | In Person - Chesapeake 8****Potential Approaches for Mesh Adaptation of Large Eddy Simulations with Near-Wall Treatments**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1851  
 Michael A Park, Li Wang (NASA Langley Research Center)

**High-Order Node Movement Discretization Error Control in Shape Optimization**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2367  
 Devina Pribadi Sanjaya (The University of Tennessee Knoxville Tickle College of Engineering), Krzysztof Fidkowski (University of Michigan)

**High-Order Reconstruction of Defect Corrected Solutions on Unstructured Meshes**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2368  
 Akhil Jayasankar, Carl F Ollivier Gooch (The University of British Columbia)

**Adjoint-Based Adaptation of Large-Eddy Simulations using Dynamic Closures**

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1850  
 Krzysztof Fidkowski (University of Michigan)

**Output-Based Mesh Optimization Using Metric-Conforming Node Movement**

Thursday, 26 January 10:50 - 11:10 (UTC-5) | AIAA-2023-2369  
 Krzysztof Fidkowski (University of Michigan)

**FD-59 | In Person - Chesapeake I****On The Choice of Activation Functions in Physics-Informed Neural Network for Solving Incompressible Fluid Flows**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1803  
 Duong Viet Dung, Nguyen Dang Thai Song (Vietnam National University Hanoi), Pramudita Satria Palar, Lavi Rizki Zuhail (Institut Teknologi Bandung)



**(continued) FD-59 | In Person - Chesapeake I**

**Patch-wise Training to Improve Convolutional Neural Network Synthetic Upscaling of Computational Fluid Dynamics Simulations**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1804  
 John Romano, Alec C. Brodeur (Naval Surface Warfare Center Dahlgren Division), Oktay Baysal (Old Dominion University)



**Structured Input-Output Tools for Modal Analysis of a Transitional Channel Flow**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1805  
 Talha Mushtaq, Diganta Bhattacharjee (University of Minnesota Twin Cities), Peter J Seiler (University of Michigan College of Engineering), Maziar Hemati (University of Minnesota Twin Cities)



**Data-Driven RANS closure with Model Derived Turbulence Variables**

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1806  
 Basu Parmar, Kenneth E Jansen, John A Evans (University of Colorado Boulder)



**SE-02/DE-08/DGE-09 | In Person - Magnolia 3**

**An MBSE Approach for Developing an Autonomous Rover Platform**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1894  
 Ignacio G Lopez-Francos, Seydou Mbaye, Samantha I Infeld (NASA Headquarters)



**Leveraging SysML V2 for Integration of MBSE and Multidisciplinary System Development**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1895  
 Joanna A. Zhang, Burak Bagdatli, Dimitri N Mavris (Georgia Institute of Technology College of Engineering)



**Understanding the Benefits of Utilizing Additive Manufacturing (AM) for Liquid Rocket Engine Components and its Quantification Using Model-Based Systems Engineering (MBSE)**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1896  
 Joshua Buettner, Shreyas Lakshmpuram Raghu, Lawrence Thomas (The University of Alabama in Huntsville College of Engineering)



**MBSE-Enabled System Verification and Process Improvement of Transport Aircraft Certification**

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1897  
 Daewoon Kim, Meric Taneri, Ehiremen N Omoarebun, Michael G Balchanos, Dimitri N Mavris (Georgia Institute of Technology)



**AS-23 | In Person - Chesapeake 1**

**Aeroelastic Simulation and Experimental Validation of the 3D-printed Passive Morphing Airfoil**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1766  
 Shuji Ochi, Shoko Kai, Kohei Takase, Kensuke Soneda, Taro Imamura, Kenichi Rinoie, Tomohiro Yokozeki (Tokyo Daigaku)



**(continued) AS-23 | In Person - Chesapeake 1****Optimized Kresling origami-inspired structures using Artificial Neural Network and Monte Carlo Method**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1767

Mojtaba Moshtaghzadeh, Ali Bakhtiari, Pezhman Mardanpour (Florida International University)

**Optimization of Morphing Composite Laminates Due to Temperature Actuation**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1768

Maxwell J Booth, Jeffrey L Kauffman (University of Central Florida)

**FD-56 | In Person - Chesapeake H****Parallel Mesh Adaptation for Unsteady Blast Simulations on Cartesian Meshes**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1792

Wade M Spurlock (Science and Technology Corporation), Michael J Aftosmis, Jonathan J Chiew, Marian Nemec (NASA Ames Research Center)

**Full-Space Goal Oriented Mesh Optimization**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1793

Pranshul Thakur, Sivakumaran Nadarajah (McGill University)

**Conservative Solution Transfer Between Anisotropic Meshes for Adaptive Time-Accurate Hybridized Discontinuous Galerkin Methods**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1794

Tomáš Levý (Zapadoceska univerzita v Plzni), Georg May (Von Karman Institute for Fluid Dynamics Aeronautics and Aerospace Department)

**Development of a Cartesian Cut-Cell Solver for Viscous Flows**

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1795

Alexander O Kleb, Krzysztof Fidkowski, Joaquim R. R. A. Martins (University of Michigan)

**HSABP-09 | In Person - National Harbor 4****CFD Analysis of Scramjet Fuel Injectors**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1833

Justin D Sprunger, Ali Mosa, Adam R Kotler, Mason Redman Thornton, Kareem A Ahmed (University of Central Florida)

**Numerical Investigation of the Effect of Inflow Mach Number on Fuel Mixing in a Supersonic Cavity Combustor**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1834

Cal Rising, Gabriel B Goodwin (US Naval Research Laboratory)



**(continued) HSABP-09 | In Person - National Harbor 4****Uncertainty Quantification for Ignition Delay Times using Polynomial Chaos Expansion**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1835

Ryan J Clark (Air Force Research Laboratory), Mitchell D. Hageman, Michael S Knadler (US Air Force Academy), Ez Hassan (Air Force Research Laboratory)

**LP-10 | In Person - National Harbor 14****Coating Techniques for 3D Printed Catalyst Beds**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1836

Michael R Orth, Timothee L Pourpoint (Purdue University), Brad Bullard (NASA Marshall Space Flight Center)

**Applications of Ceramic Matrix Composites in Liquid Rocket Propulsion**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1837

Grant M Henson (GE Global Research), Timothy M Wabel, Elliott Sullivan-Lewis, Steffen Tai, Vinay K Goyal (The Aerospace Corporation), Jon Strizzi (United States Space Force)

**Flame-acoustic interaction in a high-pressure, single-injector, LOX/CNG rocket combustor with optical access**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1838

Jan Martin, Wolfgang Armbruster, Michael Börner, Justin Hardi, Michael Oschwald (Deutsches Zentrum für Luft- und Raumfahrt DLR Institut für Raumfahrtantriebe)

**PDL-10/AMT-19 | In Person - Baltimore 1****Demonstration of low angle Thomson scattering for background interference suppression**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1859

Junhwi Bak, Amirhossein Abbasszadehrad, Anuj Rekhy, Christopher Limbach, Richard B Miles (Texas A&amp;M University)

**Mapping of an Arbitrarily Oriented Circular Aperture to Determine Solid Angle Broadening Effects on Thomson Scattering**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1860

Amirhossein Abbasszadehrad, Junhwi Bak, James R Creel, Richard Miles (Texas A&amp;M University System)

**Seeded Optical Parametric Oscillator as a Light Source for Slow-Light Imaging Spectroscopy**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1861

Boris S Leonov, Robert T. Randolph, Anuj Rekhy, Junhwi Bak, Amirhossein A. Rad, Arthur Dogariu, Richard Miles, Christopher Limbach (Texas A&amp;M University)

**Electron Momentum-Transfer Collision Frequency Measurements in Small Plasma Objects via Phase Information from Constructive Elastic Microwave Scattering**

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1862

Adam Patel, Xingxing Wang, Apoorv Ranjan, Mikhail Slipchenko, Sergey O Macheret (Purdue University), Mikhail N Shneider (Princeton University), Alexey Shashurin (Purdue University)





(continued) PDL-10/AMT-19 | In Person - Baltimore 1

Preliminary Krypton Measurements by Two-Photon Absorption Laser Induced Fluorescence (TALIF) in Cold Flow and a Hollow Cathode Plasma

Thursday, 26 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1863  
Jacob Gottfried, Seth Antozzi, Ciprian Dumitrache, Azer P Yalin (Colorado State University)



PDL-11 | In Person - Baltimore 2

Control of Shock Train in Mach 4 Duct-Driven Flow by Filamentary Plasma

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1864  
Philip S Andrews, Philip Lax, Sergey B Leonov (University of Notre Dame)



Investigating the Effect of Flow Velocity on Jetting Motion Produced by Repetitively Pulsed Discharges

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1865  
Katherine C Opacich (University of Dayton), Joshua Heyne (Washington State University), Stephen Hammack, Timothy Ombrello (Air Force Research Laboratory)



Influence of Airflow on Nanosecond Pulsed Discharges

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1866  
Carmen Guerra-Garcia, Colin A Pavan, Sankarsh Rao, Raphaël J Dijoud (Massachusetts Institute of Technology)



The effect of humidity on streamer propagation in long air gaps

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1867  
Andrey Starikovskiy (Princeton University), Eduard Bazelyan (AO Energeticeskij institut im G M Krzizanovskogo), Nickolay Aleksandrov (Moskovskij fiziko-tehniceskij institut nacional'nyj issledovatel'skij universitet)



Kinetics of HO<sub>2</sub> Radical in Ns Pulse O<sub>2</sub>-He Plasmas over a Liquid Water Surface

Thursday, 26 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1868  
Hamzeh Telfah (The Ohio State University), Elijah Jans (Sandia National Laboratories), Sai Raskar, Igor V Adamovich (The Ohio State University)



APA-54 | In Person - Potomac 5

Experimental Wind Tunnel Investigation on Propeller-Wing Interactional Aerodynamics

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1752  
Shreyas Srivathsan, Juergen Rauleder (Georgia Institute of Technology)



Analytical Framework for Design of Aero-Propulsive Geometries with Powered Wakes

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1754  
Himavath Jois, Phillip J Ansell (University of Illinois Urbana-Champaign)





**(continued) APA-54 | In Person - Potomac 5****Full Stall Simulations of a Redesigned Ventilation Fan for the International Space Station**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1755

Branden Anthony Butler, Carlos A Valentin, Michael R Borghi, Mark G Turner (NASA Headquarters)

**FD-58 | In Person - Chesapeake G****An improved Riemann solver for RANS simulations**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1800

Axel Buck, Christian Mundt (Universitat der Bundeswehr Munchen Fakultat fur Luft- und Raumfahrttechnik)

**General Formulation of the Gradient Richardson Number for RANS Modelling**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1801

Philip Ströer, Tobias Knopp (Deutsches Zentrum für Luft- und Raumfahrt eV)

**A Neural-Network Based Adaptive Discontinuous Galerkin Method for Turbulent Flow Simulations**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1802

Miles J McGruder, Aniruddhe Pradhan, Krzysztof Fidkowski (University of Michigan)

**APA-55 | In Person - Potomac 1****Local Basis Approach for the Reduction of CFD-Based Embedded Boundary Models**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1756

Noah Youkilis, Charbel Farhat (Stanford University)

**Deep Learning for Realistic Wind Field Prediction in Various Urban Morphologies for Application to Small Unmanned Aerial Systems**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1757

Rohit K S S Vuppala, Kursat Kara (Oklahoma State University)

**SATS-07 | In Person - National Harbor 5****SPICESat: A Nanosatellite Mission to Explore the Propellant Sloshing Problem**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1878

Michael Fogel, Manav Jadeja, Laurent Burlion (Rutgers The State University of New Jersey)

**A Rapid CubeSat Demonstration of an Additive Manufactured Battery Case with Embedded Oscillating Heat Pipes**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1879

Marissa N Miranda, Karen Segura, Daniella Dorantes, David Hyatt, Riley Olsen, Chris Garner, Lachlan McCarthy, Sevada Avanessian, Ryan Orr, Navid Nakhjiri (California State Polytechnic University Pomona), Ben Furst, Scott Roberts, Jeremiah Gayle (Jet Propulsion Laboratory)



(continued) SATS-07 | In Person - National Harbor 5

Overview of the Avionics Design for the Farside Seismic Suite

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1880  
James W Cutler, Tran Anh Nguyen, Tatsuya Kano, Yethinder Ragav Lakshmi Kumar (University of Michigan), Mark Panning, Steve April, Salman Haque (Jet Propulsion Laboratory)



EarthScan-TSS, a Cubesat Based Tethered Satellite System And Platform To Test On Orbit Servicing And Space Sustainability

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1881  
Andrew D Santangelo (Sci\_Zone, Inc.), Gregory Falco (Johns Hopkins University)



ASE-03 | In Person - Baltimore 5

Experimental Validation of Touchless Electric Potential Sensing Using a Pulsed Electron Beam

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1769  
James D Walker, Julian Hammerl, Hanspeter Schaub (University of Colorado Boulder)



Large scale particle tracing simulation for touchless potential sensing

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1770  
Kaylee Marie Champion, Álvaro Romero-Calvo, Hanspeter Schaub (University of Colorado Boulder)



Atomic Oxygen Effects on Outgassing Properties of Silicone Materials

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1771  
Samuel A Westrick (California Polytechnic State University)



SCS-10 | In Person - Woodrow Wilson C

Zero-G Deployment Testing of a New Rollable and Retractable Solar Array

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1882  
Martin Hillebrandt, Sebastian Meyer, Mareike Stegmaier, Marco Straubel, Martin Eckhard Zander, Christian Hühne (Deutsches Zentrum für Luft- und Raumfahrt eV)



Slew Maneuver Constraints for Agile Flexible Spacecraft

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1883  
Michael Marshall, Sergio Pellegrino (California Institute of Technology)



Precision Deployable Spacecraft Structures: Retrospectives and Lessons Learned

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1884  
Mark S Lake (Redwire Space), Lee D Peterson (Safira Piñon, LLC)



(continued) SCS-10 | In Person - Woodrow Wilson C

Accurate Microgravity Simulation for Deployable Structures

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1885  
Chuck Sullivan, Kendall Gebhardt, Christopher Solis (Redwire Space), Tyler Mitchell (COSMIAC), Nathan A Pehrson (Air Force Research Laboratory)



A Simplified Analytical Approach for Detecting Deployment Singularities in Complex Structures

Thursday, 26 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1886  
Heather Passe, Julia Calish, Nicholas W Bearns (Redwire Space), Lee D Peterson (Safira Piñon, LLC), Mark S Lake (Redwire Space)



SD-26 | In Person - Chesapeake 2

Advances in Aeroelasticity and Structural Dynamics in the Gulfstream Dynamics Group

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1887  
Paul F Taylor (Gulfstream Aerospace Corp), Raj Kumar Nariseti (Wisk Aero), Allie Stewart, Seth Hildebrand (Gulfstream Aerospace Corp)



Recent Developments in Static Aeroelasticity and Load Predictions in the Gulfstream Loads Group

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1888  
Gordon Cheung, Michael Palles, Kyle Finnegan, Mark Ray (Gulfstream Aerospace Corp)



An efficient global loads specification process for the design of business aircraft structures at Dassault Aviation

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1889  
Eric Garrigues (Dassault Aviation)



Advances in Structural Dynamics at Rolls Royce Deutschland

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1890  
Carsten Buchholz, Martin Knöpke, Gerald Paysan (Rolls-Royce Deutschland), Paul F Taylor (Gulfstream Aerospace Corp)



FD-60 | In Person - Chesapeake D

DARPA CRANE Program Overview

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1807  
Alexander M Walan, Jeffrey Lydecker (Defense Advanced Research Projects Agency)



DARPA CRANE: Program Overview at Aurora Flight Sciences / Boeing

Thursday, 26 January 09:50 - 10:10 (UTC-5) | 3774970</stron  
Kevin R Uleck (Aurora Flight Sciences), Timothy Garrett, Edward A Whalen (Boeing Research and Technology)



(continued) FD-60 | In Person - Chesapeake D

DARPA CRANE Program Overview by Lockheed Martin

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1808  
Juan Montoro, William L Carbaugh, Daniel N Miller (Lockheed Martin Aeronautics Company)



Presenter Q&A

Thursday, 26 January 10:30 - 11:10 EDT (UTC-5)



APA-57 | In Person - Potomac 3

Materials and Performance Testing of DCM Drag-Reducing Riblets for Aviation

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1762  
Henry C Bilinsky, Mitchell S Quinn, Dylan McGrath, John Whitelock, Swapnil Poudyal, Duncan C Bell (MicroTau), Christoph Feichtinger, Peter Adrian Leitl, Richard Benauer (Bionic Surface Technologies)



Computational Simulation of Staggered 3-D Riblets for Skin Friction Drag Reduction

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1763  
Brian R Smith, Patrick Yagle, Paul D McClure (Lockheed Martin Aeronautics Company)



Numerical study of riblet defects and their impact on performance

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1764  
Peter Adrian Leitl, Christoph Feichtinger, Georg Schatzdorfer, Andreas Flanschger (bionic surface technologies GmbH)



Numerical and experimental investigation of Riblet application on a helicopter rotor blade

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1765  
Peter Adrian Leitl (bionic surface technologies GmbH), Dominik Kohl (Schiebel), Hirokazu Tsuchihashi (Nikon Corporation), Richard Gruber (bionic surface technologies GmbH), Karl Pichler (Schiebel), Yuta Goto (Nikon Corporation), Mikel Lucas Garcia de Albeniz (bionic surface technologies GmbH), Kaneyuki Naito (Nikon Corporation), Andreas Flanschger (bionic surface technologies GmbH), Go Ichinose (Nikon Corporation)



GT-07 | In Person - Baltimore 4

Comparison of Dynamics Stability Testing Techniques with Magnetic Suspension Wind Tunnel Capabilities

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1817  
Otoniel A Ramirez, Mark Schoenenberger, David E Cox (NASA Headquarters), Colin P Britcher (Old Dominion University)



Effects of Separation Region Reattachment on the Dynamic Motion of Low-Fineness Ratio Cylinders

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1818  
Forrest A Miller, Colin P Britcher (Old Dominion University)



**(continued) GT-07 | In Person - Baltimore 4****Electromagnetic Modeling of Wind Tunnel Magnetic Suspension and Balance Systems**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1819

Colin P Britcher (Old Dominion University), David E Cox (NASA Langley Research Center)

**Unsteady three-dimensional wake structure behind magnetically levitated freestream-aligned circular cylinder**

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1820

Sho Yokota, Taku Nonomura (Tohoku Daigaku)

**Measurement of the Aerodynamic Forces Acting on a Rotating Sphere Using a Magnetic Suspension and Balance System**

Thursday, 26 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1821

Kazuna Usui (Yamagata Daigaku), Kazuya Seo, Shinichiro Ito, Masaki Hiratsuka (Kogakuin Daigaku - Hachioji Campus)

**APA-53 | In Person - Potomac 2****Preliminary Assessment of a Distributed Electric Propulsion System for the SUSAN Electrofan**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1748

Leonardo M. G. Machado, Timothy Chau, Gaetan KW Kenway (Science and Technology Corporation), Jared C Duensing, Cetin C Kiris (NASA Ames Research Center)

**SUSAN Concept Vehicle Power and Propulsion System Study**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1749

Jeffryes W Chapman, Jonathan Lee Kratz, Timothy Dever, Arman Mirhashemi, Nicole Heersema, Ralph Jansen (NASA John H Glenn Research Center)

**Control Architecture for a Concept Aircraft with a Series/Parallel Partial Hybrid Powertrain and Distributed Electric Propulsion**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1750

Jonathan S Litt, Jonathan Lee Kratz, Santino Bianco, Jonah Sachs-Wetstone, Timothy Dever (NASA Glenn Research Center), Halle E. Buescher (HX5, LLC), Nicholas C. Ogden, Felipe Valdez, Daniel W. Budolak, Matthew J. Boucher (NASA Armstrong Flight Research Center), Andrew P. Patterson (NASA Langley Research Center), Ralph Jansen (NASA Glenn Research Center)

**Flightcrew Thrust Control and Engine Display Concepts for the Subsonic Single Aft Engine (SUSAN) Transport Aircraft**

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1751

Jarvis J Arthur, Kellie D Kennedy (NASA Langley Research Center), Timothy J Etherington (Analytical Mechanics Associates, Inc.), Jonah Sachs-Wetstone, Jonathan S Litt (NASA John H Glenn Research Center), A. Karl Owen (HX5, LLC)

**PC-36 | In Person - National Harbor 8****Repetitive autoignition and extinction of near-limit non-premixed n-dodecane spray cool flames**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1856

Wenbin Xu, Ziyu Wang, Bowen Mei, Ying Lin (Princeton University Department of Mechanical and Aerospace Engineering), Jiarong Hong (University of Minnesota Department of Mechanical Engineering), Yiguang Ju (Princeton University Department of Mechanical and Aerospace Engineering)



**(continued) PC-36 | In Person - National Harbor 8****Numerical investigation of high-pressure transcritical shock-droplet interaction and mixing layer using VLE-based CFD accelerated by ISAT**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1857  
 Hongyuan Zhang, Suo Yang (University of Minnesota Twin Cities)

**A VLE-Based Reacting Flow Solver for High-Pressure Transcritical Two-Phase Combustion**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1858  
 Navneeth Srinivasan, Hongyuan Zhang, Suo Yang (University of Minnesota Twin Cities)

**PGC-13 | In Person - National Harbor 3****Structural and Fatigue Analysis of a Rotating Detonation Rocket Engine**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1869  
 Krzysztof Stopka, John Smallwood, Aman Chokshi, Stephen D Heister, Michael Sangid (Purdue University)

**In-space Demonstrations of Rotating Detonation Engines: from Gaseous Propellant to Liquid Propellant Applications**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1870  
 Noboru Itouyama, Koichi Matsuyama, Ken Matsuoka, Akira Kawasaki, Kazuki Ishihara, Shiro Ito, Kotaro Nakata, Tomoki Sato, Jiro Kasahara (Nagoya Daigaku), Akiko Matsuo (Keio Gijuku Daigaku), Ikkoh Funaki (Uchu Koku Kenkyu Kaihatsu Kiko - Sagamihara Campus)

**Time-Resolved Stagnation Pressure Measurement Technique in a Rotating Detonation Rocket Combustor**

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1871  
 Kevin Dille, Mark Frederick, Carson D Slabaugh, Stephen D Heister (Purdue University)

**Current State of NASA Continuously Rotating Detonation Cycle Engine Development**

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1873  
 Thomas W Teasley, Tessa M Fedotowsky, Paul R Gradl (NASA Marshall Space Flight Center), Benjamin L Austin (IN Space, LLC), Stephen D Heister (Purdue University System)

**SPSN-02 | In Person - Chesapeake C****Implementation of MachLine: A Subsonic/Supersonic, Unstructured Panel Code**

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1898  
 Cory D Goates, Ammon M Houser, Douglas F Hunsaker (Utah State University)

**Multi-Fidelity Comparison of Supersonic Wave Drag Prediction Methods Using Axisymmetric Bodies**

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1899  
 Troy Abraham, Douglas F Hunsaker (Utah State University), David S Lazzara (The Boeing Company)



(continued) SPSN-02 | In Person - Chesapeake C

A Multi-Limiter Method for Simulating Complex Flows on Large Grids

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1900  
Paul G Cizmas, Justin Schoppe (Texas A&M University)



NDA-15/GNC-33/SD-25 | In Person - Chesapeake B

Stochastic Reachability Analysis using Sparse-Collocation Method

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1852  
Amit Jain, Puneet Singla (The Pennsylvania State University)



Uncertainty Quantification and Collision Assessment in a Traffic of Unmanned Aerial Vehicles

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1853  
Rajnish Bhusal, Aakarshan Khanal, Kamesh Subbarao, Animesh Chakravarthy (The University of Texas at Arlington), Wendy Okolo (NASA Ames Research Center)



Finite Element Model Tuning using Nastran-generated Sensitivity Values

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1854  
Chan-gi Pak (NASA Armstrong Flight Research Center)



Reliability Assessment of Uncertain Linear Systems Subjected to Random Vibrations

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1855  
Luis E Ballesteros Martínez, Samy Missoum (The University of Arizona College of Engineering)



ACD-25/UAS-10 | In Person - Woodrow Wilson A

Design and Fabrication of a Low-Cost, Low-Speed, Self-Deploying sUAS Motor Glider

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1738  
Thomas Jones, Julia Cole, Simon Miller, Michael A. Yukish (The Pennsylvania State University)



Flight Test Driven Development of Low Cost UAVs - Pitfalls and Opportunities

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1739  
Adrian B. Weishaeupl, James Scanlan, Andras Sobester (University of Southampton)



Electric Propeller Configuration and Efficiency Analysis for Long Range Small UAS

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1740  
Cole Callahan, Tristan Denholm, Joshua McConnell, Charles F Wisniewski, Nidal M Jodeh (US Air Force Academy)



(continued) ACD-25/UAS-10 | In Person - Woodrow Wilson A

Development of a Hydrogen-powered UAV System for Crossing the Atlantic Ocean

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1924  
Nikola Gavrilovic, Jean-Marc Moschetta (ISAE-SUPAERO), Quentin Barascud (H3 Dynamics)



Effect of Motor-Rotor Geometry on the Performance of Electric VTOL UAVs

Thursday, 26 January 10:50 - 11:10 (UTC-5) | AIAA-2023-1923  
Oliver Westcott, Swathi Krishna, Mario Ferraro, Robert Entwistle (University of Southampton)



AFM-17/GNC-31/MST-18 | In Person - Potomac 6

X-62 VISTA Capabilities and Architecture

Thursday, 26 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1744  
M Christopher Cotting, Shawn S Stephens, James Cole, Joshua Barricklow, William Gray (U.S. Air Force Test Pilot School)



The New VISTA Simulation System (VSS) Design and Implementation

Thursday, 26 January 09:50 - 10:10 (UTC-5) | AIAA-2023-1745  
Patrick J Haus, Brian Konopka, Derek Faught (Calspan Corp)



VISTA X-62A Model Following Algorithm Overview

Thursday, 26 January 10:10 - 10:30 (UTC-5) | AIAA-2023-1746  
Daniel J Caraway (Lockheed Martin Aeronautics Co Marietta), Que C Harris (Lockheed Martin Aeronautics Company), M Christopher Cotting (U.S. Air Force Test Pilot School)



Model Following Control Allocation For The X-62A

Thursday, 26 January 10:30 - 10:50 (UTC-5) | AIAA-2023-1747  
Que C Harris (Lockheed Martin Aeronautics Company), Daniel J Caraway (Lockheed Martin Aeronautics Co Marietta)



14:00 | Technical Panel

GTE-27 | In Person - Chesapeake C

INPSI-20/GTE-28/EAT-14/ACD-34/PC-37/TF-14 | In Person - National Harbor 12

INPSI-26/ACD-38/GTE-37/EAT-16/TF-17/PC-52 | In Person - Woodrow Wilson A

AS-26/DE-10/STR-35/ACD-41 | In Person - Woodrow Wilson D

ICC-01 | In Person - Azalea 3

14:00 | Technical Paper Session



TP-18 | In Person - Azalea 2

Towards a flow-material unified solver for heatshield modeling

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2718  
Bruno Dias (Oak Ridge Associated Universities), Aleksander Lavi Zibitsker (University of Kentucky), Jeremie Bernard Erwin Meurisse, Nagi N Mansour (Analytical Mechanics Associates, Inc.)



3D ablation modeling of silicone-coated heatshield compared to MEDLI2 in-flight data

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2720  
Jeremie Bernard Erwin Meurisse, Georgios Bellas Chatzigeorgis, Dinesh K Prabhu, Arnaud Borner, John M Thornton, Brett A Cruden, Nagi N Mansour (Analytical Mechanics Associates, Inc.), Joshua D Monk, Brody K Bessire (NASA Ames Research Center)



STR-37 | In Person - Chesapeake 7

Structural-mechanical characterisation of triply periodic minimal surface sheet networks: simulation and experiment

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2076  
Hendrik Traub, Moritz Sprengholz, Daniel Teufel (Technische Universitat Braunschweig), Christian Hühne (Deutsches Zentrum für Luft- und Raumfahrt eV)



Aerospace Quality In-situ Consolidated Thermoplastic Composite Structures via Automated Fiber Placement: Effects of Staggering on Part Performance

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2077  
Timothy Yap (The University of Texas at Austin), Ali Yeilaghi Tamijani (Embry-Riddle Aeronautical University), Mehran Tehrani (The University of Texas at Austin)



Structural Requirements, Process Simulation, and Residual Stress Characterization for Additively Manufactured Spaceflight Parts

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2078  
Brett Soltz, Vinay K Goyal, Jacob Rome, David Witkin, Xueyong Qu (The Aerospace Corporation)



Development of an Additive Manufactured Fitting Sensorized with Optical Fibres for Load Recognition

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2079  
Alessandro Airoidi, Pietro Ballarin, Sebastiano Di Mauro, Daniela Rigamonti (Politecnico di Milano), Felix Reinert (ProtoShape 3D Printing AG), Mohammad Mehdi Dadras, Saba Zabihzadeh (Centre Suisse d'Electronique et de Microtechnique), Eustachio De Nicolò, Paolo Bettini (Politecnico di Milano), Lorenzo Cartabia (Plyform Composites Srl)



Additive Manufacturing Material Behavior Prediction - A Simulation Based ICME Approach

Thursday, 26 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2080  
Yi Zhang, Junyan He (ANSYS, Inc.)



AMT-20 | In Person - Camellia 2

AMT Rising Stars: Optical Diagnostic for Index of Refraction Measurements Across Shock Waves

Thursday, 26 January 14:00 - 14:20 (UTC-5) | 3772171  
Gwendolyn Wang (Georgia Institute of Technology)



<b>(continued) AMT-20   In Person - Camellia 2</b>	
<b>AMT Rising Stars: Resonantly Ionized Photoelectron Thermometry Technique for Non-Intrusive, Non-seeded, One-Dimensional (1D) Measurements in Supersonic Flows</b>	
Thursday, 26 January 14:20 - 14:40 (UTC-5)   3772219</stron Walker McCord (The University of Tennessee Knoxville Tickle College of Engineering)	
<b>AMT Rising Stars: Non-Equilibrium High Reynolds Number Turbulent Boundary Layers Over Rough and Smooth Surfaces</b>	
Thursday, 26 January 14:40 - 15:00 (UTC-5)   3774129</stron Vidya Vishwanathan (Virginia Polytechnic Institute and State University)	
<b>AMT Rising Stars: Studying the Mechanisms of Metal Particle Combustion using Holography and Imaging Pyrometry</b>	
Thursday, 26 January 15:00 - 15:20 (UTC-5)   3775101</stron Andrew W Marsh (Georgia Institute of Technology)	
<b>AMT Rising Stars: Aerodynamic measurements in the UTSA Mach 7 Ludwig Tube facility</b>	
Thursday, 26 January 15:20 - 15:40 (UTC-5)   3776837</stron Eugene N. Hoffman (The University of Texas at San Antonio)	
<b>STR-38   In Person - Chesapeake 4</b>	
<b>A DoE-based scalable approach for the preliminary structural design of Box-Wing aircraft from regional to medium range categories</b>	
Thursday, 26 January 14:00 - 14:20 (UTC-5)   AIAA-2023-2082 Vincenzo Binante (SkyBox Engineering), Karim Abu Salem, Giuseppe Palaia (Universita degli Studi di Pisa), Davide Zanetti (SkyBox Engineering), Vittorio Cipolla (Universita degli Studi di Pisa)	
<b>Structural Sizing of a Composite Transonic Truss-Braced Wing</b>	
Thursday, 26 January 14:20 - 14:40 (UTC-5)   AIAA-2023-2083 Erin K Anderson, Alana Cardona, Brian H Mason (NASA Langley Research Center)	
<b>Modeling and Simulation of a Compression Molding Process for Aircraft Structures with Recycled Thermoplastic Composites</b>	
Thursday, 26 January 14:40 - 15:00 (UTC-5)   AIAA-2023-2084 Sooyoung Lee, Minsu Park, Wooseok Ji (Ulsan National Institute of Science and Technology)	
<b>APA-62   In Person - Potomac 4</b>	
<b>A Numerical Investigation of the Dragonfly Lander Exiting an Aero Backshell During Descent into Titan</b>	
Thursday, 26 January 14:00 - 14:20 (UTC-5)   AIAA-2023-1948 Corey A Zucker, Luis Amaya, Wayne Farrell, Michael P Kinzel (University of Central Florida)	

**(continued) APA-62 | In Person - Potomac 4****Prediction of Duct Airfoil Aerodynamics using Surface Vorticity**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1949

Xiangpu Wang, Roy J. Hartfield (Auburn University), Vivek Ahuja (Research in Flight)

**Computational Evaluation of a Damage Assessment Model for UAV Wings**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1950

Siddharth Chandra Shekar, Raymond P LeBeau, Srikanth Gururajan (Saint Louis University)

**An Evaluation of a Sprayed Liquid Flap on a 3D Wind Turbine Blade**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1951

Alexander Spitzer, George E Loubimov, Michael P Kinzel (University of Central Florida)

**FD-61 | In Person - Chesapeake F****Dynamic Mode Decomposition of the Metachronal Paddling Wake**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1971

Mitchell Ford, Arvind Santhanakrishnan, Imraan Faruque (Oklahoma State University)

**A Mobile Reinforcement Learning-Cyber-Physical Fluid Dynamics-based Flapping Wing Platform: Simulation Component**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1972

Albert R Farah (University of Massachusetts Lowell College of Sciences), Milo F DiPaola (University of Massachusetts Lowell Francis College of Engineering), Tyler Barkin (Self), David J Willis (University of Massachusetts Lowell Francis College of Engineering)

**Lateral stability and wake analysis of tri-foil system pitching in-line**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1973

Jiacheng Guo, Pan Han, Yu Pan, Haibo Dong (University of Virginia)

**Aspect Ratio Effect of Coaxial Rotor in Low Reynolds Number Condition**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1974

Ren Nishimura, Masaki Okawa, Tsubasa Ikami, Hiroki Nagai (Tohoku Daigaku)

**Unsteady Interference between Propeller Slipstream and Flow Field around NACA0012 under Low Reynolds Number Condition**

Thursday, 26 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2293

Masaki Okawa, Ren Nishimura, Tsubasa Ikami, Hiroki Nagai (Tohoku Daigaku Ryutai Kagaku Kenkyujo)



**AMT-21 | In Person - Magnolia 2****Characterization of Shock Tunnel Free-Stream Nonequilibrium using Nanosecond Pulse-Burst Coherent Anti-Stokes Raman Scattering**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1929

Elijah Jans, Kyle P Lynch, Kyle Daniel, Charley Downing, Justin Lawrence Wagner, Ross Wagnild, Jungyeoul B Maeng, Sean P Kearney (Sandia National Laboratories)

**Gas-Phase Pressure and Temperature Measurements in a Cold-Flow Hypersonic Wind Tunnel via Femtosecond Coherent Anti-Stokes Raman Spectroscopy**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1930

Daniel R Richardson (Sandia National Laboratories), Jonathan E Retter (National Institute of Aerospace), Sean P Kearney, Steven J Beresh (Sandia National Laboratories)

**Chirped-Probe-Pulse Femtosecond CARS  $H_2$  Thermometry in a High-Pressure Model Rocket Combustor**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1931

Ziqiao Chang, Rohan Gejji, Aman Satija, Robert P Lucht (Purdue University)

**Towards multi-point thermodynamic flow characterization using single shot coherent Rayleigh Brillouin scattering**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1932

Atulya U Kumar, Alexandros Gerakis (Luxembourg Institute of Science and Technology)

**Development of a fs/ps CARS system for temperature and species measurements in a dual-mode scramjet combustor**

Thursday, 26 January 15:20 - 15:40 (UTC-5) | AIAA-2023-1933

Alan Kim, Chloe E Dedic (University of Virginia), Andrew D Cutler (The George Washington University)

**GT-08 | In Person - Baltimore 3****Design and Development of an Aircraft Electric Powertrain Test Stand**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2008

Ayush Jha, Virinchi Puligundla, Jonathan Paravano, Brian German (Georgia Institute of Technology College of Engineering)

**Development of a Dual Stream Jet Propulsion Rig for Test and Evaluation of Engine Nozzles in a Transonic Wind Tunnel**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2009

Angel Gomariz-Sancha (Aircraft Research Association Ltd), Christopher Sheaf (Rolls-Royce plc), Carlos O. Marquez Gutierrez (Rolls-Royce Deutschland Ltd und Co KG)

**Modal testing and analysis as part of a development process of a test stand for experimental rocket engines**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2010

Piotr Slawecki (Akademia Gorniczo-Hutnicza imienia Stanislaw Staszica w Krakowie Wydzial Informatyki Elektroniki i Telekomunikacji), Radoslaw Korczynski (Akademia Gorniczo-Hutnicza imienia Stanislaw Staszica w Krakowie Wydzial Inzynierii Mechanicznej i Robotyki)



**APS-02 | In Person - National Harbor 6****Methodology to Assess Emissions and Performance Trade-Offs for a Retrofitted Solid Oxide Fuel Cell Hybrid and Hydrogen Powered Aircraft**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1954

Khaled Alsamri, Jessica Janeth De la Cruz, Melody Emmanouilidi, Jacqueline L Huynh, Jacob Brouwer (University of California Irvine)

**Seebeck Effect Generators for Orbit-to-Ground Power Supply**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1955

James H O'Hara, Levi McKinney (Georgia Southern University)

**GNC-37/AFM-19 | In Person - Annapolis 3****Customized Real-Time First-Order Methods for Onboard Dual Quaternion-based 6-DoF Powered-Descent Guidance**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2003

Abhinav G Kamath, Purnanand Elango, Taewan Kim, Skye Mceowen (University of Washington), Yue Yu (The University of Texas at Austin), John M Carson (NASA Johnson Space Center), Mehran Mesbahi, Behcet Acikmese (University of Washington)

**Lossless Convex Guidance for Lunar Powered Descent**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2004

Andrew W Berning, Lloyd Strohl, Stefan R Bieniawski (Blue Origin LLC)

**Six-Degree-of-Freedom Rocket Landing Optimization by Augmented Convex-Concave Decomposition**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2005

Marco Sagliano (Deutsches Zentrum für Luft- und Raumfahrt eV), Ping Lu (San Diego State University), David Seelbinder, Stephan Theil (Deutsches Zentrum für Luft- und Raumfahrt eV)

**Propellant-Optimal Powered Descent Guidance Revisited**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2006

Ping Lu, Ryan Callan (San Diego State University)

**PGC-14 | In Person - National Harbor 3****Transverse Detonation Waves in Near-Limit Detonations**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1874

Mark Frederick, Rohan Gejji (Purdue University), Joseph Shepherd (California Institute of Technology), Carson D Slabaugh (Purdue University)

**Experimental Investigation on Confinement Effects in Hydrogen-Air Detonations**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1875

Robyn Cideme, Joshua Berson, Rachel Hytovick, Robert F Burke, Kareem A Ahmed (University of Central Florida)



(continued) PGC-14 | In Person - National Harbor 3

Effects of Nitrogen Dilution on Detonation Wave Physics in a  $H_2$ -Air Non-premixed Rotating Detonation Combustors

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1876  
Robert B Wang, Venkat Athmanathan, Austin M. Webb, Sahaj Patel, James Braun, Zach Ayers (Purdue University), Christopher Allen Fugger (Spectral Energies), Terrence R Meyer (Purdue University)



Nitric oxide sensitization of hydrogen detonations

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1877  
Karl P. Chatelain, Mhedine Ali Cherif, Samir B. Rojas Chavez, Deanna A Lacoste (King Abdullah University of Science and Technology)



Numerical Study on Pressure Gain of Rotating Detonation System

Thursday, 26 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2565  
A Koichi Hayashi (Aoyama Gakuin Daigaku Riko Gakubu Daigakuin Rikogaku Kenkyuka)



PDL-12/APA-64 | In Person - Baltimore 1

Method for Remote Detection of Temperature and Material Species of Test Articles in Hypersonic Environments

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2052  
Christopher Grunbok, Richard Miles, Arthur Dogariu (Texas A&M University)



Luminous Efficiency Determination of Spacecraft Materials in Ground Test Facilities

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2053  
David Leiser, Christian Andreas Dürnhofer, Stefan Loehle (University of Stuttgart), Jérémie J. Vaubaillon (Observatoire de Paris), Stefanos Fasoulas (Universitat Stuttgart Institut für Raumfahrtssysteme)



Effect of Transport Coefficients on RAM-C-II Plasma Density

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2054  
Prasanna Thoguluva Rajendran, Bernard Parent (The University of Arizona)



Effect of Transport Coefficients on RAM-C-II Plasma Density

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2054  
Prasanna Thoguluva Rajendran, Bernard Parent (The University of Arizona)



Stabilization Effects in Hydromagnetic Plasma Flows


Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2055  
Thomas C Underwood (The University of Texas at Austin)



WE-08 | In Person - Chesapeake 9


Design of Flexible Wind Tunnel Model of Yawed Wind Turbine Rotor with Teetering Hub

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2091  
Panagiotis Georgopoulos, Jurij Sodja, Roeland De Breuker (Technische Universiteit Delft)




Toward the Advanced Manufacturing of Land-Based Wind Turbine Blades

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2092  
Pietro Bortolotti, Derek Berry, William Scott Carron (National Renewable Energy Laboratory), Todd Anderson, Molly Chann (General Electric Company)




An Open-Source NuMAD Model for the IEA 15 MW Blade with Baseline Structural Analysis

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2093  
Alejandra S Escalera Mendoza, Ipsita Mishra, D. Todd Griffith (The University of Texas at Dallas)




Modeling of a Wind-Turbine-Powered Ground Vehicle

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2094  
Meyer Nahon, Zihao Zhuo, Shengan Yang, Inna Sharf (McGill University), Rick Cavallaro (SMT), Stephen Morris (Volansi)



Vibratory Load Reduction on a Quad-Rotor Wind Turbine using Relative Rotor Phasing


Thursday, 26 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2095  
Alexander N Stillman, Etana Ferede, Farhan Gandhi (Rensselaer Polytechnic Institute)



FD-65 | In Person - Chesapeake K


Measurements of the Evolution of Scalar Disturbance Spectra and Heat Transfer Rates on a Flared Cone at Mach 6

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1988  
Farhan Siddiqui, Mark T Gragston (The University of Tennessee Space Institute), Jack Shine, Rodney D Bowersox (Texas A&M University)




Global Stability Analysis of Turbulent Transonic Buffet on the NASA Common Research Model: From Wind Tunnel to Flight Reynolds Numbers

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1989  
Andrea Sansica, Atsushi Hashimoto (Japan Aerospace Exploration Agency (JAXA))



Experimental Investigation of the Role of Shock Strength in Transitional Shockwave-Boundary Layer Interactions

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1990  
Zane M Shoppell, Kenneth R Langley, John D Schmisseeur (The University of Tennessee Space Institute)



AMT-22 | In Person - Magnolia 3

Comparison of Two Load Prediction Methods for Strain-Gage Balances

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1934  
Norbert M Ulbrich, Thomas Volden (Jacobs Technology Inc), Ross Flach (NASA Ames Research Center)



Graphical and Numerical Description of Strain-Gage Balance Interactions

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1935  
Norbert M Ulbrich (Jacobs Technology Inc)



First measurements on BEARCAT, the SAFRAN's heavily instrumented turboshaft

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1936  
Jean-Louis Champion-Reaud (Safran Tech)



Measuring Instantaneous Forces with a Photoelastic Force Balance

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1937  
Brad McLaughlin, John Lawson, Bharathram Ganapathisubramani (University of Southampton)



DGE-10/DE-09 | In Person - Chesapeake 12

Vehicle Configuration Compendium (VCC): Data Richness Studies on High-Speed Vehicles

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1959  
Stenila Simon, Samuel Atchison, Bernd Chudoba (The University of Texas at Arlington)



IBIS : An Interactive Virtual Assistant for System Engineers

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1960  
Sangeeth Saagar Ponnusamy, Philipp Helle, Andreas Zindel, Stefan Richter, Gerrit Schramm, Carsten Strobel (Airbus Defence and Space GmbH)



An Innovative Knowledge Management Methodology and Software Development, AVD<sup>KBS</sup>, for Aerospace Engineering Conceptual Design

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1961  
Xiao Peng, Stenila Simon, Bernd Chudoba (The University of Texas at Arlington)



Quantifying, Visualizing and Managing Vehicle Design Knowledge: A 20-Year Research Effort

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1962  
Stenila Simon, Samuel Atchison, Bernd Chudoba (The University of Texas at Arlington)





**(continued) DGE-10/DE-09 | In Person - Chesapeake 12****Expressing Architecture from Design Patterns, a Real-World Example**

Thursday, 26 January 15:20 - 15:40 (UTC-5) | AIAA-2023-1963  
Samuel P Russell (NASA Johnson Space Center)

**PC-39 | In Person - National Harbor 10****High Pressure Spherically Expanding Laminar Flame Speed Measurement with Plasma Affected Data**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2050  
James Shaffer, Omid Askari (West Virginia University)

**Study of Diethyl Ether Oxidation Kinetics by Using a Supercritical Pressure Jet-stirred Reactor up to 100 atm**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2051  
Ziyu Wang, Chao Yan, Bowen Mei, Ying Lin, Yiguang Ju (Princeton University)

**Methane Oxidation Rates at Turbine-Relevant Conditions in a High Pressure Catalytic Shock Tube**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-0498  
Justin J Urso, Cory Kinney, Michael Pierro, Christopher W Dennis, Jonathan McGaunn, Cooper Mills, Subith Vasu (University of Central Florida)

**MAT-22 | In Person - Chesapeake A****Deformation and Damage in Metallic Structures due to High Speed Soft and Hard Particle Impacts**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2020  
Riza Kaan Gonuleri, Ugur Can, Ibrahim Guven (Virginia Commonwealth University College of Engineering)

**Simulating Hypervelocity Impacts to High-Density Polyethylene**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2021  
Jacob Rogers, Paul T Mead, Justin Wilkerson, Thomas E Lacy (Texas A&M University), Neil Williams (US Army Engineer Research and Development Center)

**Char Strength of Low-Density Thermal Protection Systems Materials**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2022  
Ben M Rech (The University of Texas at Austin)

**Comparison of Material Response Models for Low-Density Ablative Materials**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2023  
Samantha Bernstein, Colin M Yee, Wei Li (The University of Texas at Austin), Mark E. Ewing (Northrop Grumman Corp), Joseph H Koo (The University of Texas at Austin)



**(continued) MAT-22 | In Person - Chesapeake A**

**CFD-Informed Rain Drop Impact Damage Predictions at Hypersonic Conditions**

Thursday, 26 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2024

Riza Kaan Gonuleri (Virginia Commonwealth University College of Engineering), Manuel Viqueira-Moreira (University of Maryland at College Park), Joshua Richard Leigh, Ugur Can, Kyle Watson (Virginia Commonwealth University College of Engineering), Christoph Brehm (University of Maryland at College Park), Ibrahim Guven (Virginia Commonwealth University College of Engineering)



**GNC-35 | In Person - Annapolis 2**

**Design of ReFEx Guidance: Trajectory Correction after Ascent**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1995

Jose Luis R Redondo Gutierrez, David Seelbinder, Stephan Theil (Deutsches Zentrum fur Luft- und Raumfahrt DLR Standort Bremen)



**Nonsingular Impact Time Guidance and Control Co-design against a Stationary Target**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1996

Abhinav Sinha (The University of Texas at San Antonio), Shashi Ranjan Kumar (Indian Institute of Technology Bombay)



**Data fusion-based Incremental Nonlinear Model Following Control Design for a Hypersonic Waverider Configuration**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1997

Johannes Autenrieb (Deutsches Zentrum fur Luft- und Raumfahrt eV)



**L1 Adaptive Augmentation of an Incremental Nonlinear Dynamic Inversion Autopilot for Dual-Spin Guided Projectiles**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1998

Sofiane Pineau (Universite de Lorraine), Spilios Theodoulis (Technische Universiteit Delft), Michel Zasadzinski, Mohamed Boutayeb (Universite de Lorraine), Emmanuel Roussel (French-German Research Institute of Saint-Louis (ISL))



**EXPL-16 | In Person - Chesapeake L**

**Searching for Life on Titan: The Undersea Retrieval of Titan Lake Extractions (TURTLE) Mission**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1968

Maximilian Adang (California Institute of Technology), Arielle Ainabe (McMaster University), Aditya Dave (Regents of the University of Minnesota), Adrian Dumitrescu (University of Southampton), Anna E Engle (Northern Arizona University), Sarah Lamm (University of Kansas College of Liberal Arts and Sciences), Connie Liou (Rutgers The State University of New Jersey), Samuel Y. W. Low (Stanford University), Corey McClelland (School of Visual Arts), Giuliana Miceli (University of Colorado Boulder), Palak Patel (Massachusetts Institute of Technology), Pedro Salazar (Iowa State University), Leanne L Su (University of Michigan), Jessica Todd (Massachusetts Institute of Technology), Adam Vigneron (Airbus Defence and Space GmbH), Brit Wylie (California Institute of Technology)



**Daedalus Solar Probe: A Polar Exploration of Our Closest Star**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1969

Francesco H Latorre, Matthew Mader, Michael Pilipchuk, Ethan Roy, Alex Perry, Jadon Meyers, Nick Crawford, Sam Dzigiel, Sharif Mutasim, Justin Mansell, Rachana Agrawal, Youssef Noureddine (Purdue University System)



**Model-Based Architecting Framework for Lunar Operations**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1970

Timothy Elrick, Michael G Balchanos, Dimitri N Mavris (Georgia Institute of Technology)



**FD-64 | In Person - Chesapeake I**

**Structured Input-Output Analysis of Compressible Plane Couette Flow**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1984  
Diganta Bhattacharjee, Talha Mushtaq (University of Minnesota Twin Cities), Peter J Seiler (University of Michigan), Maziar Hemati (University of Minnesota Twin Cities)



**Global Mode Reconstruction using Phase-Consistent SPOD**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1985  
Jonathan L Hill (Air Force Institute of Technology), Matthew P Borg (Air Force Research Laboratory), Mark F Reeder (Air Force Institute of Technology)



**POD-based reduced-order models in translating coordinates**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1986  
Charles E Tinney, Yingjun Zhao (The University of Texas at Austin)



**Modal analysis for three-dimensional instability coupling mechanisms in turbulent wake flows over an airfoil**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1987  
Het D. Patel, Chi-An Yeh (NC State University)



**NDA-16 | In Person - Chesapeake B**

**Uncertainty Propagation of the Negative Spallart–Allmaras Turbulence Model Coefficients using Projection-based Reduced-Order Models**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2041  
Elizabeth H Krath, Patrick Joseph Blonigan, Eric Parish (Sandia National Laboratories California)



**Data Puncturing and Training Strategies for Cost-Efficient Surrogate Modeling of Airfoil Aerodynamics**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2042  
Koushik Marepally, Nick Paternostro, Bumseok Lee, James D Baeder (University of Maryland at College Park)



**Data-Driven Surrogate Modeling Approaches for Parametric Prediction and Uncertainty Quantification of Fluid Flows**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2043  
Weiming Ding, Petro Junior Milan, Vigor Yang (Georgia Institute of Technology)



**Data-driven Surrogate Modeling using Deep Learning for Uncertainty Quantification of Random Fields**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2044  
Pramudita Satria Palar, Rafael Stevenson, Cahya Amalinadhi, Kemas Zakaria, Lavi Rizki Zuhul (Institut Teknologi Bandung)



**(continued) NDA-16 | In Person - Chesapeake B****Robust Sensitivity Analysis of Complex Simulation Models subject to Noise**

Thursday, 26 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2045

Andriy Prots, Lukas Schlüter, Matthias Voigt, Ronald Mailach (Technische Universität Dresden), Marcus Meyer (Rolls-Royce Deutschland Ltd und Co KG)

**FD-62 | In Person - Chesapeake H****The Moving Discontinuous Galerkin Method with Interface Condition Enforcement for Robust Simulations of High-Speed Viscous Flows**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1975

Eric J Ching, Andrew D Kercher, Andrew T Corrigan (US Naval Research Laboratory)

**Application of a Self-Adaptive Levenberg-Marquardt Algorithm to Solve the Moving Discontinuous Galerkin Method with Interface Conservation Enforcement System**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1976

Gianni Absillis, Hong Luo (NC State University), Robert Nourgaliev (Lawrence Livermore National Laboratory), Matthew Goodson, Giovanni Salazar (Corvid Technologies)

**High-order Implicit Shock Tracking Boundary Conditions for Supersonic Flow over a Smoothed Rectangle**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1977

Tianci Huang, Matthew Joseph Zahr (University of Notre Dame)

**Development of high order interpolation schemes for overset structured grid**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1978

Khalid F AlSubaie, Shereef A Sadek (King Saud University)

**MAT-23 | In Person - Chesapeake 2****Reconstruction of Tricalcium Silicate Microstructures for Repeating Unit Cell Analysis**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2025

Vishnu Saseendran, Namiko Yamamoto, Peter Collins, Aleksandra Radlinska (The Pennsylvania State University), Evan J Pineda, Brett A Bednarczyk (NASA Glenn Research Center)

**Modeling Elasticity of HCP Crystals Using a Nonlocal Lattice Particle Method**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2026

Di Liu (University of Kentucky)

**Massively Multiscale Modeling using NASA Multiscale Analysis Tool through Partitioned Task-Parallel Approach**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2027

Ibrahim Kaleel, Trenton M Ricks (NASA Glenn Research Center), Peter A Gustafson (Western Michigan University), Evan J Pineda, Brett A Bednarczyk, Steven M Arnold (NASA Glenn Research Center)



**(continued) MAT-23 | In Person - Chesapeake 2****Induction welding simulations of curvature-based thermoplastic composites**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2028

Harikrishnan Mohan, Florentius Johannes van Zanten, Darun Barazanchy (University of South Carolina)

**Effects of Non Equilibrium Surface Boundary Conditions for Material Response in Atmospheric Reentry Simulations**

Thursday, 26 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2029

Vincent Le Maout, Alessandro Munafò, Marco Panesi (University of Illinois Urbana-Champaign)

**MAT-24 | In Person - Chesapeake 5****Damage Detection of CNT/CNC-reinforced Foam-cored Sandwich Composites by Acoustic Emission Tests under Flexural Load**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2030

Eyuphan Kucukkalfa (Istanbul Teknik Universitesi), Aliakbar Ghaderiaram (Technische Universiteit Delft Faculteit Civiele Techniek en Geowetenschappen), Kaan Yildiz (Istanbul Teknik Universitesi), Mohammad Fotouhi (Technische Universiteit Delft Faculteit Civiele Techniek en Geowetenschappen), Amir Asadi (Texas A&amp;M University), Hulya Cebeci (Istanbul Teknik Universitesi)

**Fabrication and Characterization of Carbon Nanotube/Bismaleimide Nanocomposite Laminates with Ultrahigh Nanofiber Volume Fraction**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2031

Chloe Curtis-Smith (University of Oxford), Marianna Rogers, Jingyao Dai, Erick Gonzalez, Carina Xiaochen Li, Yuying Lin, Ashley L Kaiser, Jeonyoon Lee, Brian L Wardle (Massachusetts Institute of Technology)

**Multiscale Peridynamic Modeling of Carbon Nanotube-Based Composites**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2032

Kyle Watson, Riley Hall, Ibrahim Guven (Virginia Commonwealth University College of Engineering)

**Fabrication and Characterization of Carbon Nanotube/Silicon Carbide Nanocomposite Laminates**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2033

Jingyao Dai, Luiz Acauan, Shaan Jagani, Palak Patel, Veera Panova, Brian L Wardle (Massachusetts Institute of Technology)

**Cellulose Nanofiber Coated Carbon Fiber/Epoxy Composite with Higher Mechanical Strength**

Thursday, 26 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2034

Siddharth Bhaganagar (Indiana University Purdue University Indianapolis), Pias Kumar Biswas (Purdue University), Mangilal Agarwal, Hamid Dalir (Indiana University Purdue University Indianapolis)

**MAT-25/ICME-05/MDO-22/STR-36 | In Person - Chesapeake 8****Cellular Subgrain Features in Directed Energy Deposited Stainless Steel 316L: The influence of morphology on Mechanical Properties**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2035

Janith C Wann, Arzu Colak, Ajit Achuthan (Clarkson University)



**(continued) MAT-25/ICME-05/MDO-22/STR-36 | In Person - Chesapeake 8****Data-Driven Bayesian Model for Predicting Fatigue Crack Nucleation in Polycrystalline Ni-based Superalloys**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2036  
 Somnath Ghosh, George Weber, Maxwell Pinz (Johns Hopkins University)

**Computationally Efficient Finite Element Models to Simulate Additive Manufacturing Process of Metals**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2037  
 Nipun Sandaruwan Wijesinghe, Ajit Achuthan (Clarkson University)

**Multifidelity Robust Topology Optimization for Material Uncertainties with Digital Manufacturing**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2038  
 Jaeyub Hyun (University of California San Diego Jacobs School of Engineering), Anirban Chaudhuri, Karen E Willcox (The University of Texas at Austin Oden Institute for Computational Engineering and Sciences), Hyunsun A Kim (University of California San Diego Jacobs School of Engineering)

**SD-29 | In Person - Chesapeake 1****Data-Driven Time-Varying Eigensystem Realization Algorithm With Data-Correlation**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2072  
 Damien Gueho, Matthew Brownell, Puneet Singla (The Pennsylvania State University)

**An Integrated Nonlinear Coupled Multibody Aeroelastic Dynamic Simulation Framework for Next-Generation Flexible Aircraft Wing Design**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2073  
 Chi Wing Cheng, Alvaro Cea, Rafael Palacios (Imperial College London), Andrea Castrichini, Thomas Wilson (Airbus UK)

**Spring-Based Approach for Rapid Modeling of Ejector-Store Interaction**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2074  
 Lap Nguyen, Glenn A Gebert (Lockheed Martin Corp)

**Computational Analysis of Tuned Vibration Absorbers with Impact and Friction Contacts**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2075  
 Mihai Cimpuiaru, Sean Thomas Kelly, Bogdan Epureanu (University of Michigan)

**PDL-13/PC-40 | In Person - Baltimore 2****Modeling Flame Speed Modification by Nanosecond Pulsed Discharges to Inform Experimental Design**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2056  
 Colin A Pavan, Carmen Guerra-Garcia (Massachusetts Institute of Technology)



**(continued) PDL-13/PC-40 | In Person - Baltimore 2****Laser Induced Fluorescence and High Speed Imaging of Nanosecond-Pulsed Discharges for Application in Plasma Assisted Combustion in a Microchannel**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2057

Madeline Vorenkamp, Andrey Starikovskiy (Princeton University), Christopher Kliwer (Sandia National Laboratories California), Yiguang Ju (Princeton University)

**Investigation and Modeling of Equilibrium Plasma for Spherical Flame Initiation and Measurements**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2058

James Shaffer, Omid Askari (West Virginia University)

**Kinetics of non-equilibrium plasma in water vapor- and hydrocarbon-containing gaseous mixtures**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2059

Nickolay Aleksandrov (Moskovskij fiziko-tehniceskij institut nacional'nyj issledovatel'skij universitet), Eduard Bazelyan (AO Energeticeskij institut im G M Krzizanovskogo), Alexander Ponomarev (Nacional'nyj issledovatel'skij universitet Vyssaa skola ekonomiki), Andrey Starikovskiy (Princeton University)

**Plasma Assisted Emission Control of Hydrocarbon Gas Flares: A 0D Feasibility Study**

Thursday, 26 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2060

Praise Noah Johnson, Taresh Sanjeev Taneja, Suo Yang (University of Minnesota Twin Cities)

**APA-60 | In Person - Potomac 5****A Wind Tunnel Rig to Study the External Fan Cowl Separation Experienced by Compact Nacelles in Windmilling Scenarios**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1942

Kshitij Sabnis (University of Cambridge), Luca Boscagli, Avery Swarthout, Fernando Tejero Embuena (Cranfield University), Holger Babinsky (University of Cambridge), David MacManus (Cranfield University), Christopher Sheaf (Rolls-Royce plc)

**Discernment of Wall Functions and Turbulence Statistics for Common Supersonic Retropropulsion Configurations**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1943

Emily Jewell, Charbel Farhat (Stanford University)

**Comparison of Aerodynamic Analysis Tools Applied to a Propeller-Blown Wing**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1753

Vivek Ahuja (Research in Flight), Brandon L Litherland (NASA Langley Research Center)

**APA-61 | In Person - Potomac 1****Improved Methods of Optimized Sparse Sensing for Yaw Angle Estimation and Surface Pressure Distribution Reconstruction Using Pressure-Sensitive Paint Data of Ground Vehicle**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1944

Ryoma Inoba, Kazuki Uchida, Yuto Iwasaki, Takayuki Nagata, Yuta Ozawa, Keisuke Asai, Taku Nonomura (Tohoku Daigaku)





**(continued) APA-61 | In Person - Potomac 1****Modeling airfoil dynamic stall using State-Space Neural Networks**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1945

Luca Damiola, Jan Decuyper, Mark Runacres, Tim De Troyer (Vrije Universiteit Brussel)

**System Identification and Control of a Circulation Control Airfoil for Gust Load Alleviation**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1946

Salvatore Asaro (Technische Universitat Braunschweig), Davide Cavaliere, Nicolas Fezans (Deutsches Zentrum fur Luft- und Raumfahrt eV), André Bauknecht (Technische Universitat Braunschweig)

**Low Fidelity Modelling of the Nonlinear Aerodynamics of Spoilers**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1947

Alessandro Pontillo, Punsara Navaratna, Mark H Lowenberg, Djamel Rezgui, Jonathan E Cooper, Simon A Neild (University of Bristol)

**HSABP-10 | In Person - National Harbor 4****RANS comparison of openfoam, star-ccm and US3D code of a supersonic cavity at Mach 2**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2016

Zac Chapman, Thomas Nuese (South Dakota State University), David Peterson (Air Force Research Laboratory), Jeffrey J Doom (South Dakota State University)

**Reduced order design space analysis of for ramjet engines with data mining techniques**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2017

Bora O Cakir, Ali Can Ispir, Francesco Civera, Bayindir H Saracoglu (Von Karman Institute For Fluid Dynamics)

**Thermodynamic Cycle Analysis of an Ejector-Ramjet Propulsion System - Part 1**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2018

Derek Lastiwka, Artem Korobenko, W. Schuyler Hinman, Craig T Johansen (University of Calgary)

**Exergy Analysis and Optimization of a Scramjet Engine**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2019

Francis A Centlivre, Mitch Wolff (Wright State University), Mark Hagenmaier, Timothy A Eymann (Air Force Research Laboratory), Jose A Camberos (Wright State University)

**HIS-06 | In Person - Chesapeake 10****HPCMP CREATE<sup>TM</sup> – The Remarkable Success of a DoD Software Factory**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2014

David R Sears, Scott A Morton (US Department of Defense)





**(continued) HIS-06 | In Person - Chesapeake 10****Bell 8096 Agena: Unsung Hero of America's First Decades in Space**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2015  
 Walter O Gordon (Niagara Frontier Section AIAA)

**ASE-04 | In Person - Baltimore 5****Spacecraft materials degradation under space-simulated low Earth orbit (LEO) environment**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1956

Elena Plis (Georgia Tech Research Institute), Miles T. Bengtson (Air Force Research Laboratory Space Vehicles Directorate), Daniel P Engelhart (University of New Mexico), Gregory Badura (Georgia Tech Research Institute), Heather Cowardin (NASA Johnson Space Center), Ryan C Hoffmann, Alexey Sokolovskiy (Air Force Research Laboratory Space Vehicles Directorate), Jacqueline Reyes (The University of Texas at El Paso), Dale C Ferguson (Air Force Research Laboratory Space Vehicles Directorate), Jainisha Shah, Sydney Collman (Assurance Technology Corporation), Timothy Scott (DuPont de Nemours Inc)

**Spacecraft Material Characterization Using Reflectance Spectra Extracted from RGB/IR Color Images**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1957

Jainisha Shah (Assurance Technology Corporation), Miles Thomas Bengtson (Air Force Research Laboratory), Elena Plis (Georgia Tech Research Institute), Ryan C Hoffmann, Dale C Ferguson (Air Force Research Laboratory Space Vehicles Directorate), Sydney Collman (Assurance Technology Corporation), Daniel P Engelhart (University of New Mexico College of Arts and Sciences), Gregory Badura (Georgia Tech Research Institute), Heather Cowardin (NASA Johnson Space Center), Timothy Scott (DuPont de Nemours Inc)

**High-Fidelity Discontinuous Galerkin Method for Physics-Based Space Weather Modeling**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1958

Jordi Vila-Pérez, Cuong Nguyen, Jaime Peraire (Massachusetts Institute of Technology)

**Invited Talk: Koki Ho**

Thursday, 26 January 14:00 - 14:20 EDT (UTC-5)

**EXPL-15 | In Person - National Harbor 7****A Spaceflight Logistics Approach to Modeling Novel Vehicle Concepts**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1964

Chloe Downs, Akshay Prasad, Bradford E Robertson, Dimitri N Mavris (Georgia Institute of Technology)

**A Heuristic Method for Determining Payload-to-Vehicle Assignment & Launch Order for Multi-Vehicle Exploration Campaigns**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1965

Nicholas J Gollins, Masafumi Isaji, Yuri Shimane, Koki Ho (Georgia Institute of Technology College of Engineering)

**Application of routing problems to space exploration missions**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1966

Jaemyung Ahn, Euihyeon Choi, DongUk Lee (Korea Advanced Institute of Science and Technology)



(continued) EXPL-15 | In Person - National Harbor 7

Analysis of the Business Case for an On-orbit Space Debris Recycling Facility

Thursday, 26 January 15:20 - 15:40 (UTC-5) | AIAA-2023-0071  
Sonali Sinha Roy, Qian Shi, Cesare Guariniello, Daniel A DeLaurentis (Purdue University)



GNC-36 | In Person - Annapolis 1

Nonlinear Robust Control and Observation for Aeroelastic Launch Vehicles with Propellant Slosh in a Turbulent Atmosphere

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1999  
Erwin Mooij, Xuerui Wang (Technische Universiteit Delft)



A Comparison of Linear Quadratic and Nonlinear Model Predictive Control Applied to Station Keeping of Satellites in Areostationary Mars Orbits

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2000  
Robert D Halverson (University of Minnesota Twin Cities), Avishai Weiss (Mitsubishi Electric Research Laboratories), Ryan Caverly (University of Minnesota Twin Cities)



Title: H-Infinity Sensor Fusion Technique for High Bandwidth Pointing Stabilization

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2001  
Richard Y Chiang (The Aerospace Corporation)



Multi-spectral Light Curves For Attitude Estimation via Optimization

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2002  
Stephen R Gagnon, John L Crassidis (University at Buffalo)



Non-Rest to non-Rest Reference Slews for Agile Imaging Satellites With LQ-minimized Angular Momentum

Thursday, 26 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2173  
Peter Zentgraf (Technische Hochschule Rosenheim)



SCS-11 | In Person - Woodrow Wilson C

Validation of Tailored Resonant Behavior for Multiscale Optimized Lattice Structures

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2064  
Morgan D Nightingale, Ryan Murphy, Robert Hewson, Matthew J Santer (Imperial College London)



Dynamics of the Caltech SSPP deployable structures: structure–mechanism interaction and deployment envelope

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2065  
Narravula Harshavardhan Reddy, Sergio Pellegrino (California Institute of Technology)



**(continued) SCS-11 | In Person - Woodrow Wilson C****Launch Vibration Damping Using Slip in Pretensioned Coils**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2066

Alexander Wen, Sergio Pellegrino (California Institute of Technology)

**Development and Testing of an Electromagnetic Platform for Microvibration Suppression**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2067

Vladimir V Yotov (The University of Auckland), Alessandro Stabile (University of Surrey Surrey Space Centre), Guglielmo Aglietti (The University of Auckland), Guy Richardson (Surrey Satellite Technology Ltd), Peter Spanoudakis, Florent Cosandier, Philippe Schwab (Centre Suisse d'Electronique et de Microtechnique SA), Emilia Wegrzyn, Gianluca De Zanet (University of Surrey Surrey Space Centre), Geert Smet (European Space Agency)

**FD-66 | In Person - Chesapeake D****Aerodynamic Active Flow Control using Hybrid, Momentum-Based Actuation**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1991

Michael DeSalvo, Ari Glezer (Georgia Institute of Technology)

**DARPA CRANE Circulation Control using Arrays of Discrete Fluidic Actuator Jets**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1992

Bojan Vukasinovic, Ari Glezer, Robert B Funk (Georgia Institute of Technology)

**DARPA CRANE: Hybrid Aerodynamic Control using Fluidic Actuation Coupled with Distributed Bleed**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | 3779011

Michael DeSalvo, Ari Glezer (Georgia Institute of Technology)

**Experimental investigation of the effectiveness of Coanda reaction surface geometries for Super-Critical Circulation-Control**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1993

Roland Penty Geraets, Bill Crowther, Mark K Quinn, Sam Weigert, Thomas R Shearwood, Mostafa Nabawy (The University of Manchester Faculty of Science and Engineering), Matt Forster, Clyde Warsop, Lucia Axani (BAE Systems Plc)

**CFD Investigation of the Effectiveness of Coanda Reaction Surface Geometries for Super-Critical Circulation Control**

Thursday, 26 January 15:20 - 15:40 (UTC-5) | AIAA-2023-1994

Matt Forster, Lucia Axani, Clyde Warsop (BAE Systems Plc)

**APA-63 | In Person - Potomac 3****Numerical and experimental investigation of different Riblet layouts on a Stratos 716 X business jet**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1952

Peter Adrian Leidl (bionic surface technologies GmbH), John Smoker (Stratos Aircraft), Mikel Lucas Garcia de Albeniz, Andreas Flanschger (bionic surface technologies GmbH)



(continued) APA-63 | In Person - Potomac 3

Wind Tunnel Test Results for Staggered 3-D Riblets

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1953  
Paul D McClure (Lockheed Martin Corp)



Drag Reduction of a Microfiber-Coated Cylinder as a Function of Reynolds Number and Surface Density

Thursday, 26 January 14:40 - 15:00 (UTC-5) | 3773967</stron  
Mitsugu Hasegawa, Yi-Chung Chen, Hirotaka Sakaue (University of Notre Dame)



Viscous drag reduction performance of micro-machined riblet surfaces with geometric defects to simulate surface damage

Thursday, 26 January 15:00 - 15:20 (UTC-5) | 3776131</stron  
Frank Austin Mier, Jonathan W Naughton (University of Wyoming)



GT-09 | In Person - Baltimore 4

Strut Interference with Flow around Slanted Cylinder Levitated by Magnetic Suspension and Balance System

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2011  
Kodai Tashiro (Tohoku Daigaku), Sho Yokota, Yuta Ozawa, Keisuke Asai, Taku Nonomura ( )



Measurement of Aerodynamic Characteristics of Square Cylinders with Low Fineness Ratio Using 1-m Magnetic Suspension and Balance System

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2012  
Hiroyuki Okuizumi, Rintaro Makino, Hideo Sawada, Yasufumi Konishi, Shigeru Obayashi (Tohoku Daigaku Ryutai Kagaku Kenkyujo), Taku Nonomura (Tohoku Daigaku Daigakuin Kogaku Kenkyuka Kogakubu)



Time-efficient Windtunnel test method for Obtaining Dynamic Aircraft Characteristics Using Magnetic Suspension and Balance System

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2013  
Hiroki Sugiura (Uchu Koku Kenkyu Kaihatsu Kiko), Daiki Kai, Asei Tezuka (Waseda Daigaku Riko Gakujutsuin)



APA-59 | In Person - Potomac 2

Mission Profiles for the SUSAN Electrofan Concept

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1938  
Casey L Denham (NASA Langley Research Center), Timothy Chau (Science and Technology Corporation), Wes Ryan (NASA Ames Research Center), Ralph Jansen (NASA John H Glenn Research Center)



Structural Requirements for Design and Analysis of 25% Scale Subsonic Single Aft Engine (SUSAN) Research Aircraft

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1939  
Lilia Miller, Ralph Jansen (NASA John H Glenn Research Center)



**(continued) APA-59 | In Person - Potomac 2****Thermal Requirements for Design and Analysis of Subsonic Single Aft Engine (SUSAN) Research Aircraft**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1940

Erik J Stalcup (NASA John H Glenn Research Center), Nicole Heersema (NASA Armstrong Flight Research Center)

**Market analysis of the Subsonic Aft Engine (SUSAN) Transport Aircraft Concept**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1941

Jacob M Wishart, Kendall Mahavier (Volpe Center), Ralph Jansen (NASA John H Glenn Research Center)

**PC-38 | In Person - National Harbor 8****Mimicking gas-turbine spray combustion in a constant-volume premixed combustion vessel**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2049

Lyle M Pickett, Julien Manin, Francesco Di Sabatino, Tuan Nguyen (Sandia National Laboratories California), Sanghoon Kook (University of New South Wales)

**Atomization Performance of a Simplex Spray through X-ray Scattering Tomography**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2047

Brandon Sforzo, Chi Young Moon, Qian Peng, Jan Ilavsky, Christopher F. Powell (Argonne National Laboratory)

**Influence of an Underexpanded Shock Train on Spray Distribution Statistics**

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2048

Steven G Tuttle, Christopher B Reuter (Naval Research Laboratory Chemistry Division)

**Single-Hole Atomizer (SHA) Research to Study Spray Flame Dynamics and Soot Formation for Aero-engine Combustion**

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2046

Francesco Di Sabatino, Julien Manin, Kevin Wan (Sandia National Laboratories California)

**SD-28 | In Person - Chesapeake 3****A Time-Varying Subspace Method for Shape Estimation of a Flexible Spacecraft Membrane**

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2068

Matthew Brownell (The Pennsylvania State University), Andrew J Sinclair (Air Force Research Laboratory), Puneet Singla (The Pennsylvania State University)

**Using Distributed Fiber-optic Strain Sensing to Estimate Generalized Modal Coordinates from Flight-test Data**

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2069


Jeffrey A Ouellette, Matthew J. Boucher, Peter Suh (NASA Armstrong Flight Research Center)



(continued) SD-28 | In Person - Chesapeake 3


Identification of modal parameters in rotating structures using Stochastic Modal Appropriation (SMA)

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2070  
Giuliano Coppotelli, Gabriele Muto (Universita degli Studi di Roma La Sapienza), Maher Abdelghani (Universite de Sousse)



Safe Flutter Flight Testing of an Unmanned Aerial Vehicle Utilizing Parametric Flutter Margin


Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2071  
Ross Heidersbach, Dhuree Seth, Matthew McCrink (The Ohio State University), Moti Karpel (Technion Israel Institute of Technology)



TP-19 | In Person - Azalea 1


Rotational and Vibrational Temperature Measurements of  $CN X^{2+}$  Behind Shock Waves using Ultrafast-Laser-Absorption Spectroscopy in the UV

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2087  
Vishnu Radhakrishna, Ryan J Tancin, Christopher S Goldenstein (Purdue University)




Method of Characteristics Modeling of Non-Equilibrium Flow in an Impulse Facility

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2088  
Ananthkumar Jayamani, Frank K Lu (The University of Texas at Arlington)




Modeling of Nitric Oxide Vibrational Level Populations Using an Overlay Approach for Emission and Absorption Spectra

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2089  
Shubham Thirani, Irmak Taylan Karpuzcu, Deborah A Levin (University of Illinois Urbana-Champaign)



Freestream Characterization of Hypersonic Wind Tunnels by Combining Measurements and Simulation


Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2090  
Thomas Gross, Thomas E Schwartzentruber (University of Minnesota Twin Cities)



FD-63 | In Person - Chesapeake E


Simulations of a Bell-Shaped Span-Loaded Swept Wing

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1979  
Patrick R Hammer, Daniel J Garmann (Air Force Research Laboratory)



Edge Curvature Effects on the Wake of a Simulated Transport Aircraft Fuselage

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1980  
Chitrarth Prasad (The Ohio State University), Daniel J Garmann (Air Force Research Laboratory), Datta V Gaitonde (The Ohio State University)



(continued) FD-63 | In Person - Chesapeake E

Scaling Characteristics of Ground Vortices in a Nacelle Inlet Flow Field

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1981  
Derek A Nichols, Bojan Vukasinovic, Ari Glezer (Georgia Institute of Technology)



Mean Flow Topology of the Rounded Afterbody in Compressible Flow

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1983  
Rhylan A Huss, Fernando Zigunov, Prabu Sellappan, Farrukh S Alvi (Florida State University)



AFM-18/GNC-34/MST-19 | In Person - Potomac 6

The AAAX Vision to Accelerate Autonomy Test & Evaluation using the X-62A VISTA

Thursday, 26 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1925  
Ronald S Picard, Matthew Niemiec (US Department of the Air Force)



X-62 VISTA System for the Autonomous Control of the Simulation Design and Implementation

Thursday, 26 January 14:20 - 14:40 (UTC-5) | AIAA-2023-1926  
Anthony Schiavone, Paul Babala, Luke Hartwig (Lockheed Martin Corporation Aerospace and Defense), M Christopher Cotting (U.S. Air Force Test Pilot School)



Ground and Flight Testing the New VISTA Simulation System (VSS)

Thursday, 26 January 14:40 - 15:00 (UTC-5) | AIAA-2023-1927  
Patrick J Haus (Calspan Corp)



X-62 VISTA Simulation and Autonomy Flight Testing

Thursday, 26 January 15:00 - 15:20 (UTC-5) | AIAA-2023-1928  
M Christopher Cotting, Shawn S Stephens, James Cole, William Gray (U.S. Air Force Test Pilot School), Luke Hartwig, Daniel J Caraway, Que Harris, Anthony Schiavone, Paul Babala (Lockheed Martin Corporation Aerospace and Defense), Ronald Picard (Air Force Research Laboratory)



14:00 | Technical Workshop

EAT-13 | In Person - Camellia 1

EP-12 | In Person - Annapolis 4

16:00 | Technical Panel

16:00 | Technical Paper Session

Friday, 27 January

09:30 | Technical Panel

EXPL-17   In Person - National Harbor 7
EDU-05   In Person - Chesapeake 9

09:30 | Technical Paper Session

IS-24   In Person - Azalea 3
Reinforcement Learning-based Nonlinear Disturbance Observer for UAV with Parametric Uncertainty and Unmodeled Dynamics
Friday, 27 January 09:30 - 09:50 (UTC-5)   AIAA-2023-2357 Dongwoo Lee, Hyungjoo Ahn, Jaeho Lee, Hyochoong Bang (Korea Advanced Institute of Science and Technology)
Resilience-based Optimization of Investigative Satellite Swarm via an Artificial Honeybee Colony Algorithm
Friday, 27 January 09:50 - 10:10 (UTC-5)   AIAA-2023-2358 Alec C Nichols (The University of Alabama), Sean Phillips, Alexander A Soderlund (Air Force Research Laboratory Space Vehicles Directorate)
Potential of Hybrid Neural Network Local Path Planner for small UAV in Urban Environments
Friday, 27 January 10:10 - 10:30 (UTC-5)   AIAA-2023-2359 Andreas Thoma, Luc Stiemer, Carsten Braun (FH Aachen), Alex Fisher, Alessandro G.M. Gardi (RMIT University STEM College)
GT-11/AMT-27   In Person - Baltimore 4
Development of kHz-rate CO Laser-Induced Fluorescence in High Speed Flows
Friday, 27 January 09:30 - 09:50 (UTC-5)   AIAA-2023-2336 Neil Blackwell, Austin M. Webb, Christopher Crabtree, Mikhail Slipchenko, Terrence R Meyer, Joseph S Jewell (Purdue University)
Tagging Velocimetry in the Stevens Shock Tunnel
Friday, 27 January 09:50 - 10:10 (UTC-5)   AIAA-2023-2337 Ben A. Segall, David Shekhtman, Ahsan Hameed, James H. Chen, Nick J Parziale (Stevens Institute of Technology Charles V Schaefer Jr School of Engineering and Science)
Advanced Optical Diagnostics in an Axis-Symmetric Mach 5 Glass Blown Nozzle
Friday, 27 January 10:10 - 10:30 (UTC-5)   AIAA-2023-2338 Charles Fabijanic, Jordi Esteveadeordal, William Refling (North Dakota State University)
A Single-Piece Wind Tunnel Balance with a Universal Metric End
Friday, 27 January 10:30 - 10:50 (UTC-5)   AIAA-2023-2339 Devin E Burns, Peter A Parker (NASA Langley Research Center)



<b>AFM-20   In Person - Woodrow Wilson B</b>	
<b>Application of Framework for Estimating Performance and Associated Uncertainty for Modified Aircraft Configurations Using NASA's X-57 Maxwell</b>	
Friday, 27 January 09:30 - 09:50 (UTC-5)   AIAA-2023-2249 Casey L Denham (NASA Langley Research Center), Mayuresh Patil (Georgia Institute of Technology), Christopher J Roy (Virginia Polytechnic Institute and State University), Natalia Alexandrov (NASA Langley Research Center)	
<b>Evaluation of the MachLine Subsonic-Supersonic Panel Code With Experimental Results</b>	
Friday, 27 January 09:50 - 10:10 (UTC-5)   AIAA-2023-2250 Ammon M Houser, Cory D Goates, Douglas F Hunsaker (Utah State University)	
<b>Evaluation of Response Surface Experiment Designs for Distributed Propulsion Aircraft Aero-Propulsive Modeling</b>	
Friday, 27 January 10:10 - 10:30 (UTC-5)   AIAA-2023-2251 Benjamin M Simmons (NASA Langley Research Center)	
<b>Wind Estimation using an H<math>\infty</math> Filter with Fixed-Wing Aircraft Flight Test Results</b>	
Friday, 27 January 10:30 - 10:50 (UTC-5)   AIAA-2023-2252 Kenneth Gahan, Jeremy W Hopwood, Craig A Woolsey (Virginia Polytechnic Institute and State University)	
<b>MDO-26   In Person - Chesapeake 6</b>	
<b>Multidisciplinary Design Analysis and Optimization of a Hypersonic Inflatable Aerodynamic Decelerator</b>	
Friday, 27 January 09:30 - 09:50 (UTC-5)   AIAA-2023-2364 Hayden V Dean, Bradford E Robertson, Dimitri N Mavris (Georgia Institute of Technology)	
<b>A Multidisciplinary Analysis Framework for the Sizing and Synthesis of Hypersonic Aerial Systems</b>	
Friday, 27 January 09:50 - 10:10 (UTC-5)   AIAA-2023-2365 Kenneth Decker, Dimitri N Mavris (Georgia Institute of Technology)	
<b>Multi-fidelity Bayesian optimization strategy applied to Overall Drone Design</b>	
Friday, 27 January 10:10 - 10:30 (UTC-5)   AIAA-2023-2366 Rémy Charayron, Thierry Lefebvre, Nathalie Bartoli (ONERA Toulouse), Joseph Morlier (ISAE-SUPAERO)	
<b>APA-73   In Person - Potomac 4</b>	
<b>Performance and Validation of a Segregated Pressure-based Solver for Computations of Low and High-Speed Compressible Flows</b>	
Friday, 27 January 09:30 - 09:50 (UTC-5)   AIAA-2023-2274 Ashutosh Pandey (Simetrics, Inc.)	

**(continued) APA-73 | In Person - Potomac 4**

**Assessment of Using Ideal Gas for Predicting Boattail Flow at Cryogenic Temperatures**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2275  
 Jan-Renee Carlson (NASA Headquarters)



**Transonic Buffet Simulation using Harmonic Balance Method**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2276  
 Andrea Petrocchi, George N Barakos (University of Glasgow College of Science and Engineering)



**Curvature-Based Adaptation Using Gradient Descent Optimization Applied to High-Speed Flows**

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2277  
 Arjun J Vedam, William Engblom (Embry-Riddle Aeronautical University)



**CFD-Based Kriging Surrogate Models Compared to Axisymmetric Missile Concept From Mach 0.60 to 3.95**

Friday, 27 January 10:50 - 11:10 (UTC-5) | AIAA-2023-2278  
 Zachary D. Lawless, Emily R Dreyer, Clayton Smith (Sandia National Laboratories)



**OPS-04 | In Person - Chesapeake 12**

**Impact of Intra-class Variance on YOLOv5 Model Performance for Autonomous Navigation around Non-Cooperative Targets**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2374  
 Trupti Mahendrakar, Monty N Attzs, Ashley L Tisaranni, Josseane M Duarte (Florida Institute of Technology College of Engineering), Ryan Taylor White (Florida Institute of Technology), Markus Wilde (Florida Institute of Technology College of Engineering)



**A Combined Machine Learning and Physics-Based Tool for Anomaly Identification in Propulsion Systems**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2375  
 Samuel R Darr, Sean Engelstad, Talbot Knighton, Matthew E Taliaferro, Vinay K Goyal (The Aerospace Corporation)



**Application of Reinforcement Learning Agents to Space Habitat Resource Management**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2376  
 Matthew R Rines, Michael G Balchanos, Dimitri N Mavris (Georgia Institute of Technology College of Engineering)



**AMT-25/FD-72 | In Person - Camellia 2**

**Investigation of Thermographic Phosphors Properties for High-Speed Aerodynamics**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2258  
 Yasuhiro Egami, Yushi Matsumura, Aoto Shibata (Aichi Kogyo Daigaku), Hirotaka Sakaue (University of Notre Dame)



(continued) AMT-25/FD-72 | In Person - Camellia 2

Single-Component Average Velocity Profiles in the Wake of the Orion Crew Capsule at the National Transonic Facility

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2259  
Jonathan E Retter, Olivia K Tyrrell (National Institute of Aerospace), Bryce Moran, James Montgomery, William Dressler (Jacobs Technology, Inc), Karen L Bibb, Greg J Brauckmann, Daniel Reese, Paul M Danehy (NASA Langley Research Center)



Development of a Micro-Pitot Traverse for Pressure Measurements in the Boeing-AFOSR Mach 6 Quiet Tunnel

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2260  
Samuel Overpeck (Purdue University), Emma Farnan, John Benjamin Middlebrooks, Eric H Matlis (University of Notre Dame), Joseph S Jewell (Purdue University)



The Use of Pitot Tube on IRT Boundary Layer Analysis Validation

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2261  
Ryan Tsao, Nicholas Nomikos, Jack Furey (RMIT University STEM College), Henry Ng, Pier Marzocca (RMIT University Sir Lawrence Wackett Defence and Aerospace Centre)



STR-43 | In Person - Chesapeake 4

Buckling of Metamaterial-Based Cylindrical Shells under Axial Compression

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2419  
Mitansh Sharad Doshi, Xin Ning (The Pennsylvania State University)



Buckling tolerance design of aircraft fuselage using carbon fiber reinforced thermoplastic (CFRTP)

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2420  
Haruka Kaneda (Tohoku Daigaku)



Weight-Effect of Buckled Composite Stiffened Panels Under Static Compression

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2421  
Vijay Goyal (Lockheed Martin Aeronautics Company), Jacob N Gagliano (University of Michigan), Austin Pennington (Lockheed Martin Aeronautics Company), Shiyao Lin, Anthony M Waas (University of Michigan)



INPSI-25 | In Person - National Harbor 12

Data-driven Modelling Tradeoffs to Characterize the Distortion Profile of an APU Inlet

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2355  
Evan H Bond, Nicole L Key (Purdue University)



Design of a high-speed intake distortion simulator for propulsion integration research

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2356  
Matteo Migliorini, Artur Szymanski, Pavlos K Zachos, David MacManus (Cranfield University Cranfield School of Aerospace Transport and Manufacturing), Peter G Martin (Defence Science and Technology Laboratory)



(continued) INPSI-25 | In Person - National Harbor 12

Design Optimization of a Fan Blade under Boundary Layer Ingestion Flow

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-0503  
Akiva R Wernick, Jen-Ping Chen, James Giuliani (The Ohio State University)



GTE-34 | In Person - National Harbor 11

Trajectory Modeling of Liquid Jets in Crossflow with Solid Obstructions

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2340  
Charles R Clark, Michael E Tonarely, Tommy Genova, Kareem A Ahmed (University of Central Florida)



Assessment of mixtures of iso-pentanol and Jet A-1 for use in aviation gas turbine engines

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2341  
Abdallah Abu Saleh, Spiridon Siouris, Kevin Hughes, Ruoyang Yuan, Mohamed Pourkashanian (The University of Sheffield)



Splash Plate Design for Fuel Injector Flow-Independence in a Vitiated Crossflow

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2342  
Michael E Tonarely, Charles R Clark, Kareem A Ahmed (University of Central Florida)



Effect of Catalytic Surface on Oxidation of Methane in a High-Pressure Shock Tube

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2343  
Justin J Urso, Cory Kinney, Michael Pierro, Jonathan McGaunn, Christopher W Dennis, Anthony C Terracciano, Subith Vasu (University of Central Florida)



FD-73 | In Person - Chesapeake H

Residual-Based Time-Step Control for High-Order Discretizations

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2294  
Krzysztof Fidkowski (University of Michigan)



Application of a Jacobian-Free Newton-Krylov Method to the Simulation of Hypersonic Flows

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2295  
Kyle A Damm, Nicholas N Gibbons, Peter A Jacobs, Rowan Gollan (The University of Queensland Centre for Hypersonics)



Combined continuation methods for robust CFD Newton solvers

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2296  
Josh L Anibal, Sabet Seraj, Anil Yildirim, Joaquim R. R. A. Martins (University of Michigan)



**GT-10 | In Person - Baltimore 3****Development of Small Scale Arc-jet Facility OPG1**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2331

Tobias Hermann, Eric Won Keun Chang, Joelle Schaefer, Chinmay Joglekar (University of Oxford), Hannah Boehrk (Baden-Wuerttemberg Cooperative State University (DHBW))

**Scramjet Inflow Characterization Based on Thermodynamic Analysis of Arc-Heater Plenum**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2332

Isabella Gessman, Shruti Ghanekar, Gyu Sub Lee, Keunsoo Kim, Nozomu Kato (University of Illinois Urbana-Champaign), Jihyung Yoo (Hanyang University), Tonghun Lee (University of Illinois Urbana-Champaign)

**Measurements of Temperature and Enthalpy in NASA Ames 60-MW Arcjet using Atomic Oxygen and Atomic Nitrogen Absorption**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2333

Peter M Finch, Zev Noach Granowitz, Christopher Lyle Strand (Stanford University), Megan E. MacDonald (NASA Ames Research Center), Ronald K Hanson (Stanford University)

**Integration of Arc-jet in Impulse Facility for Hypervelocity Aerothermal Testing with Ablation**

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2334

Eric Won Keun Chang, Chinmay Joglekar, Matthew McGilvray, Tobias Hermann (University of Oxford)

**Assessment of Arcjet Radiation by Mass Addition**

Friday, 27 January 10:50 - 11:10 (UTC-5) | AIAA-2023-2335

Christian Andreas Dürnhofer (Universitat Stuttgart), Arne Meindl (Max Planck Institute for Plasma Physics), Martin F. Eberhart, Stefan Loehle (Universitat Stuttgart)

**SD-32 | In Person - Chesapeake 5****On the Determination of Harmonic Propeller Loads**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2404

Felix Möhren, Ole Bergmann, Frank Janser, Carsten Braun (FH Aachen)

**Advanced Modeling and Dynamic Stability Analysis of the Aerodynamic Control Surfaces of CALLISTO**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2405

Lale Evrim Briese, Thiemo M Kier, Ivaylo Petkov, Jens Windelberg, Lars Heinrich, Sven Krummen (Deutsches Zentrum für Luft- und Raumfahrt DLR)

**Non-linear Aeroelastic Capabilities in NeoCASS Suite**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2406

Francesco Toffol, Nicola Fonzi, Sergio Ricci (Politecnico di Milano)

**Coupled Aeroelasticity and Flight Dynamics of Active Morphing Aircraft**

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2407

Kensuke Soneda (Tokyo Daigaku), Natsuki Tsushima (Uchu Koku Kenkyu Kaihatsu Kiko), Tomohiro Yokozeeki, Taro Imamura (Tokyo Daigaku)



GNC-46/AFM-21 | In Person - Annapolis 3

Magnetic Suspension Wind Tunnel Reconstruction Using an Extended Kalman Filter Framework

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2322  
Chris D Karlgaard, Matthew Toniolo (Analytical Mechanics Associates, Inc.), Soumyo Dutta (NASA Langley Research Center)



Multi-State Measurement Processing with Factorized Stochastic Cloning

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2323  
William N Fife (Texas A&M University)



Error State Filtering for Atmospheric Landing Using Air Data Systems

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2324  
William N Fife (Texas A&M University)



Entry, Descent, and Landing GN&C System Evaluation via Cable-Driven Emulation Robotics

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2325  
Davis W Adams, Teming Tse, Sean Downs, Ronald R Sostaric, Joshua Sooknanan, Derek Bankieris, Sarah O'Meara (NASA Johnson Space Center), Caleb Peck, Manoranjan Majji (Texas A&M University), Hector Li Sanchez, Ebrahim Mohammadi, Ringnyu Bunju Antoinette, James Walton, Chris Owens (Astrobotic Technology)



Nonlinear Multiplicative Smoothing Applied to Trajectory Recovery for GPS/INS-Aided Navigation

Friday, 27 January 10:50 - 11:10 (UTC-5) | AIAA-2023-2326  
Davis W Adams, Caleb Peck, Manoranjan Majji (Texas A&M University)



APA-78/SD-31 | In Person - Chesapeake 7

Aerothermoelastic Experimentation and Modeling Overview

Friday, 27 January 09:30 - 09:50 (UTC-5) | 3772077</stron  
Stephen M Spottswood (Air Force Research Laboratory)



Test Article Design for FTSI Experiments at AEDC VKF Tunnel C

Friday, 27 January 09:50 - 10:10 (UTC-5) | 3775923</stron  
Ricardo Perez (Air Force Research Laboratory), Kirk R Brouwer (ARCTOS Technology Solutions), Stephen M Spottswood (Air Force Research Laboratory)



Multi-Scale Modeling of Localized Features of Interest in Built-Up Shell Structures

Friday, 27 January 10:10 - 10:30 (UTC-5) | 3776381</stron  
Patrick J O'Hara (Air Force Research Laboratory)



**PGC-15 | In Person - National Harbor 3****Imaging Exhaust Flow of Radial RDE using Rainbow Schlieren Deflectometry**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2391

Apurav Gupta, Dalton Langner, Robert Miller, Sean Sawaya, Ajay K Agrawal (The University of Alabama)

**Experimental Testing of a Single Airstream Centerbodiless Rotating Detonation Engine with a Hollow Core**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2392

Regan Hencel, John Hoke (Innovative Scientific Solutions, Inc.), Matthew Fotia, Stephen Alexander Schumaker (Air Force Research Laboratory)

**Interferometric visualization of detonation waves inside a pressure gain combustion channel at low-mass flow rates**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2393

Toshiharu Mizukaki, Faming Wang (Tokai Daigaku)

**Survey of Machine Learning Based RDE Diagnostics: Evaluation and Comparison for Broad Application in Experimental Facilities**

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2394

Kristyn Johnson, Donald H Ferguson (National Energy Technology Laboratory Morgantown), Andrew C Nix (West Virginia University)

**Cellular Properties of Unstable Detonations from Mixtures of Ethylene with Nitrous Oxide**

Friday, 27 January 10:50 - 11:10 (UTC-5) | AIAA-2023-2395

Mitchell D Hageman, Michael S Knadler (US Air Force Academy)

**GRE-02 | In Person - National Harbor 5****Experimental Investigation of Hydrogen Storage Strategies with Aerogel at Cryogenic Temperatures**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2327

Yakym Khlyapov, Erik Fernandez, Marcel Otto, Adil Riahi, Jayanta Kapat (University of Central Florida)

**Cost estimation of the use of low-carbon fuels in prospective scenarios for air transport**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2328

Antoine Salgas, Thomas Planès, Scott Delbecq, Florian Simatos (ISAE-SUPAERO), Gilles Lafforgue (TBS Education)

**A Comparison of the Performance of a Data-Driven Surrogate Model of a Dehumidifier with Mathematical Model of Humidification-Dehumidification System**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2329

Mahyar Abedi, Xu Tan, James F. Klausner, Michael S. Murillo, Andre Benard (Michigan State University)



(continued) GRE-02 | In Person - National Harbor 5

Parameter Identification of a Reduced-Order Model for the Reconfigurable Ducted Turbine Array Concept

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2330  
Nazim Erol, Xin Shan, Onur Bilgen (Rutgers The State University of New Jersey)



ACD-35 | In Person - Woodrow Wilson A

Hypersonic Aerial Gunnery: New Missions, Aircraft Design Opportunities

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2246  
Ronald M Barrett-Gonzalez, Nathan Wolf (University of Kansas School of Engineering)



Maneuvering Capabilities of Hypersonic Airframes

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2247  
Timothy T Takahashi (Arizona State University Ira A Fulton Schools of Engineering)



Hypersonic Aircraft Performance Limitations Arising from Aerodynamic Control Limits

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2248  
Timothy T Takahashi, Jack A Griffin (Arizona State University)



HSABP-12 | In Person - National Harbor 4

Performance Evaluation of an Internal Osculating Waverider Inlet

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2352  
Mark E Noftz, Andrew J Shuck, Joseph S Jewell, Jonathan Poggie (Purdue University), Andrew Bustard, Thomas J Juliano (University of Notre Dame), Nicholas J Bisek (Air Force Research Laboratory)



Air Ionization for Air-Breathing Plasma Thruster

Friday, 27 January 09:50 - 10:10 (UTC-5) | 3774785</stron  
Anmol Taploo, Li Lin, Michael Keidar (The George Washington University)



FD-76 | In Person - Chesapeake K

The Near-Wake of Super-Critical Discrete Roughness Elements on Swept Wings

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2306  
Aaron Sequeira, Giulia Zoppini, Theodoros Michelis, Daniele Ragni, Marios Kotsonis (Technische Universiteit Delft)



Machine-Learning-Based Transition Prediction for Hypersonic Boundary Layers with Crossflow

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2307  
Bryan Barraza, Andreas Gross (New Mexico State University), Anthony P Haas, Christoph Hader, Hermann F Fasel (The University of Arizona)





**(continued) FD-76 | In Person - Chesapeake K****Investigation of Cross-Flow and Laminar Separation Using Infrared Thermography**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2308  
 Alek Cotnoir, David Borgmann, Jesse C Little (The University of Arizona)

**A Study on the Impacts in the Numerical Solution of Transition Empirical Correlations Including Crossflow Effects**

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2309  
 Aline R. S. Righi (Instituto Tecnológico de Aeronautica), Gustavo L. O. Halila (Embraer SA), João Luiz F Azevedo (Instituto de Aeronautica e Espaço)

**AMT-26 | In Person - Magnolia 3****Fabrication and Characterization of a Large-array Hot-film Sensor for Detection of Separated Flow**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2262  
 Sean J Wang, Mark A Miller (The Pennsylvania State University)

**Experimental Investigation of Atomic Layer Thermopile Heat-Flux Sensors in a Shock Tube**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2263  
 Jan-Erik Brune, Christian Mundt (Universität der Bundeswehr München Fakultät für Luft- und Raumfahrtstechnik)

**Experimental Measurement of Martian Real-Gas Aerodynamics Using a Two-Stage Light Gas Gun**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2264  
 Kyosuke Itabashi (Tokyo Daigaku), Satoshi Nomura, Masahito Mizuno (Uchu Koku Kenkyu Kaihatsu Kiko), Tatsuru Ishikawa (Shizuoka Daigaku), Hiroki Takayanagi, Kazuhisa Fujita (Uchu Koku Kenkyu Kaihatsu Kiko)

**ATLAS: Assistive Tool for seLf-Aligning Schlieren**

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2265  
 Nicholas Mejia, Bryan E Schmidt (Case Western Reserve University)

**Extended-Phase-Consistent-Dynamic-Mode-Decomposition-based Density Reconstruction of Schlieren Images in Low-Density Wind Tunnel Tests**

Friday, 27 January 10:50 - 11:10 (UTC-5) | AIAA-2023-2266  
 Tsuyoshi Shigeta, Takayuki Nagata, Taku Nonomura (Tohoku Daigaku)

**APA-74 | In Person - Potomac 2****Effect of Turbulence Intensity on Time-Averaged Aerodynamics of NACA0012 Wing at Low Reynolds Numbers**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2279  
 Masataka Kase (National Defense Academy of Japan), Makoto Mizoguchi, Hajime Itoh (National Defense Academy of Japan Department of Aerospace Science)



(continued) APA-74 | In Person - Potomac 2

Utilizing a Spalart-Allmaras Turbulence Model Correction with a Transition Model

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2280  
Christopher J Axten, Mark D Maughmer (The Pennsylvania State University)



PC-47 | In Person - National Harbor 8

Modes of Laser Spark Ignition of a Model Rocket Combustor

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2377  
Ryan Strelau, Mark Frederick, Will C.B. Senior, Rohan Gejji, Carson D Slabaugh (Purdue University)



High Pressure Ignition Study of Methane and CO2 near 200 bar in a Shock Tube

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2379  
Cory Kinney, Michael Pierro, Christopher W Dennis, Jonathan McGaunn, Justin J Urso, Sam Klopp, Subith Vasu (University of Central Florida)



Assessment of impurities effect on methane/natural gas ignition at high pressure

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2378  
Jessica Baker, Ramees Khaleel Rahman, Rosa Olivera, Subith Vasu (University of Central Florida)



Measurement and Kinetics Prediction of Undiluted Methane-Oxygen Laminar Flame Speeds

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2380  
Mattias A Turner, Eric L Petersen (Texas A&M University)



HR-05 | In Person - National Harbor 13

Necessary Condition of Regression Mode in Axial-injection End-burning Hybrid Rockets

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2347  
Mai Fukada, Sho Suzuki, Hiroki Hayasaka, Hironobu Maebayashi, Seong Mungyu, Yownin Albert M. Leung, Harunori Nagata (Hokkaido Daigaku Kogakubu Daigakuin Kogakuin Kogaku Kenkyuin)



Numerical Model for the Prediction of the Regression Rate in Hybrid Rocket Kick-Motors Working with Nitrous Oxide

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2348  
Giuseppe Gallo, Landon T Kamps, Shota Hirai, Carmine Carmicino, Harunori Nagata (Hokkaido Daigaku Kogakubu Daigakuin Kogakuin Kogaku Kenkyuin)



Multi-disciplinary Optimization of Single-stage Hybrid Rocket with Swirl Injection for Lunar Ascent

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2349  
Paolo Zolla, Rodrigo Rosa, Mario Tindaro Migliorino, Daniele Bianchi (Universita degli Studi di Roma La Sapienza)



**(continued) HR-05 | In Person - National Harbor 13****Numerical Simulations of a Paraffin-Hydrogen Peroxide Hybrid Rocket with Swirl Injection**

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2350

Mario Tindaro Migliorino, Marco Fabiani, Daniele Bianchi, Francesco Nasuti (Universita degli Studi di Roma La Sapienza), Francesco Barato (Universita degli Studi di Padova), Nicolas Bellomo (Technology for Propulsion and Innovation), Daniele Pavarin (Universita degli Studi di Padova), Simone Pizzurro, Marco Pizzarelli, Rocco Carmine Pellegrini, Enrico Cavallini (Agenzia Spaziale Italiana)

**Numerical and Experimental Analysis of a Paraffin-based 1000 N Thrust Class Hybrid Rocket including Nozzle Erosion**

Friday, 27 January 10:50 - 11:10 (UTC-5) | AIAA-2023-2351

Mario Tindaro Migliorino, Giorgio Gubernari, Daniele Bianchi, Francesco Nasuti (Universita degli Studi di Roma La Sapienza), Daniele Cardillo, Francesco Battista (Centro Italiano Ricerche Aerospaziali), Simone Pizzurro, Marco Pizzarelli, Rocco Carmine Pellegrini, Enrico Cavallini (Agenzia Spaziale Italiana)

**GTE-35/MDO-25 | In Person - National Harbor 6****Sensitivity of selecting training data for machine learning to predict engine performance**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2344

Jin-sol Jung, Changmin Son, Eric Bae, G. Geoffrey Vining (Virginia Polytechnic Institute and State University)

**Reverse engineering EEE transonic compressor fan blade**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2345

Bharadwaj Dogga, Mark G Turner (University of Cincinnati)

**Techno-economic Evaluation of the sCO<sub>2</sub> Waste Heat Recovery System for Aircraft Engines**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2346

Ladislav Vesely, Jayanta Kapat (University of Central Florida), Cleverson Bringhenti, Jesuino Takachi Tomita (Instituto Tecnológico de Aeronautica)

**SCS-12/AS-35 | In Person - National Harbor 2****Strain Measurement in Coilable Thin Composite Shells with Embedded Fiber Bragg Grating Sensors**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2399

Brayden Aller, Sergio Pellegrino (California Institute of Technology), Nathan Kinkaid, Juan Mejia-Ariza, Richard Otis (Jet Propulsion Laboratory), Patrick Chan, Francisco Pena (NASA Armstrong Flight Research Center)

**A Multifunctional Bistable Ultrathin Composite Boom for In-Space Monitoring of Deployment Dynamics**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2400

Yao Yao, Alexander Ambruso (The Pennsylvania State University), Juan M Fernandez (NASA Langley Research Center), Sven G. Bilén, Xin Ning (The Pennsylvania State University)

**Shape memory behavior and conductivity of CF-CNT-SMP**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2401

Ayako Torisaka (Tokyo Metropolitan University), Veli Bugra Ozdemir, Kawai Kwok (University of Central Florida)



**(continued) SCS-12/AS-35 | In Person - National Harbor 2****Microwave absorption and space radiation shielding composite with polydopamine coating and multi-walled carbon nanotube grafting on the fiber**

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2402  
 Ji-Hun Cha (Korea Advanced Institute of Science and Technology)

**Self-Healing Composite Dielectric Elastomer Sensor for Inflatable Space Structures**

Friday, 27 January 10:50 - 11:10 (UTC-5) | AIAA-2023-2403  
 Scott N Bender, Nicholas Smith, Foram Madiyar, Daewon Kim (Embry-Riddle Aeronautical University)

**GNC-44 | In Person - Annapolis 2****Nonlinear Estimation of Rigid Body Inertial Parameters**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-1809  
 Burak Boyacioglu, Danylo Sandursky, Kristi A Morgansen (University of Washington)

**Trajectory Reconstruction of Launch Vehicle in Atmospheric Flight using the Unscented Kalman Filter**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2315  
 Giovanni Di Monaco, Vincenzo D'Antuono, Alessandro Zavoli, Guido De Matteis (Universita degli Studi di Roma La Sapienza), Simone Pizzurro, Enrico Cavallini (Agenzia Spaziale Italiana)

**Magnetometer-Based Attitude Determination Using Common-Frame Filtering with Unobservable Parameter Consideration**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2316  
 Steven Szklany (XAnalytix Systems, LLC), John L Crassidis (University at Buffalo)

**Differentiable Rendering for Pose Estimation in Non-cooperative Proximity Operations**

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2317  
 Ramchander Bhaskara (Texas A&M University), Roshan Thomas Eapen (The Pennsylvania State University), Manoranjan Majji (Texas A&M University)

**Comparative Study of Beamforming Methods Devised to Reduce the Scan Steps for On-board Active Phased Arrays**

Friday, 27 January 10:50 - 11:10 (UTC-5) | AIAA-2023-2318  
 Avnish Kumar (Defence Research and Development Organisation), Debasish Ghose (Indian Institute of Science)

**SEN-04 | In Person - Chesapeake C****Earth/Moon System Star Tracking Sensor for Improved Deep Space Laser Communications**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2415  
 Stephen C Cain (Air Force Institute of Technology), Michael J Lichter (NASA John H Glenn Research Center)



**(continued) SEN-04 | In Person - Chesapeake C****Novel Methods for Gas Cell Lift Measurement**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2416

Kyle J Vernyi, Jonathan Wittmer, Dennis Carter (Lighter Than Air Research and Exploration)

**Additively Manufactured Flexible Hybrid Electronic Sensor for Discrete Fatigue Crack Detection**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2417

Corinne Smith, Austin R.J. Downey (University of South Carolina)

**Linear and Geometrically Nonlinear Structural Shape Sensing from Strain Data using the Basis Function Method**

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2418

Chan-gi Pak (NASA Armstrong Flight Research Center)

**STR-44 | In Person - Chesapeake A****Organic Matrix Composites Process-to-Performance, Evaluation, Research and Analysis (OPPERA)**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2424

David S Riha, Matthew Kirby, Marcus Stanfield, Vikram Bhamidipati (Southwest Research Institute), Eric Zhou (University of Dayton Research Institute), Alireza Forghani (Convergent Manufacturing Technologies), Endel V larve, Kevin H Hoos, Hari K Adluru, Michael K Ballard (The University of Texas at Arlington), Alex S Selvarathinam (Lockheed Martin Aeronautics Company), David Mollenhauer (Air Force Research Laboratory)

**Development and Calibration of a Model for Predicting the Structural Response of Bonded Composite Pi-joints**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2422

Matthew Kirby, Marcus Stanfield, Erin C DeCarlo, David Riha (Southwest Research Institute)

**Progressive Damage Analysis of Complex 3D Textiles with Open Holes using Independent Mesh Method and Discrete Damage Modeling**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2423

Kevin H Hoos, Hari K Adluru, Endel V larve (The University of Texas at Arlington), Eric Zhou (University of Dayton Research Institute), M. Keith Ballard, David Mollenhauer (Air Force Research Laboratory)

**Uncertainty Quantification of Fiber Volume Fraction of Fiber Bundles using Digital Chains**

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2425

Vikram Bhamidipati, David Riha (Southwest Research Institute), Eric Zhou (University of Dayton Research Institute), Michael K Ballard (The University of Texas at Arlington College of Business), David Mollenhauer (Air Force Research Laboratory Materials &amp; Manufacturing Directorate)

**APA-72 | In Person - Potomac 5****Flow Structures of Ship Airwakes with Quartering Winds**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2270

Kaijus H Palm, Zheng Zhang, Ebenezer P Gnanamanickam, John Gordon Leishman (Embry-Riddle Aeronautical University)



**(continued) APA-72 | In Person - Potomac 5****Pressure Distributions for Bodies of Revolution in Compressible Flows Using an Advanced Panel Method**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2271

William F Collins, Roy J. Hartfield (Auburn University), Vivek Ahuja (Research in Flight)

**Assessment of Quadrotor Near-Wall behaviour using six-Degrees of Freedom CFD simulations**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2272

Manuel Carreno Ruiz, Nicoletta Bloise, Elisa Capello, Domenic D'Ambrosio, Giorgio Guglieri (Politecnico di Torino)

**Computational Methodology to Compute Unmanned Aircraft Deflections due to Aerodynamic Interaction with a Commercial Aircraft**

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2273

Harsh Shah, Nidhi Sathyanarayana, Luis Manuel Gomez, Gerardo Olivares (Wichita State University National Institute for Aviation Research)

**PDL-14/AMT-28 | In Person - Baltimore 1****Electric Field Distribution in a "Hybrid" RF Discharge with Ionization Generated by Ns Discharge Pulses**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2381

Sai Raskar, Keegan Orr, Xin Yang, Igor V Adamovich (The Ohio State University)

**Measurements of Vibrationally Excited Oxygen Molecules in Preheated O<sub>2</sub>-Ar Mixtures Excited by a Ns Pulse Discharge**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2382

Keegan Orr (The Ohio State University), Dirk van den Bekerom (Sandia National Laboratories California), Igor V Adamovich (The Ohio State University)

**Single-shot time-resolved thermometry of atmospheric-pressure nanosecond pulsed plasma discharges**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2383

Karna Patel, Anup Saha, Aman Satija, Terrence R Meyer, Sally PM Bane (Purdue University)

**Optical and Electrical Diagnostics of a High-Voltage Laser-Triggered Switch with Variable Impedance Load**

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2384

Jacob Gottfried (Colorado State University), Charles E Rose (Sandia National Laboratories), Azer P Yalin (Colorado State University)

**High-fidelity simulations of plasma-assisted oxidation of hydrocarbon fuels using nanosecond pulsed discharges**

Friday, 27 January 10:50 - 11:10 (UTC-5) | AIAA-2023-2385

Nicholas E Deak, Alfredo J Duarte (The University of Texas System), Lucas Esclapez, Marc Day (National Renewable Energy Laboratory), Fabrizio Bisetti (The University of Texas System)



**PDL-15/PC-48 | In Person - Baltimore 2****Dynamics of low-temperature filamentary plasma-assisted ignition-stabilized combustion**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2386

Ravi B Patel, Jeroen van Oijen, Nico Dam, Sander Nijdam (Technische Universiteit Eindhoven)

**Stabilization of lean flames with nanosecond discharges in a gas turbine model combustor**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2387

Victorien P Blanchard, Frédéric Roqué, Philippe Scoufnaire, Christophe O Laux, Sébastien Ducruix (CentraleSupélec)

**Numerical Simulation of Microwave-Enhanced Low Swirl Methane-Air Flames**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2388

Christer Fureby, Elna Nilsson (Lunds Universitet), Daniel Lörstad (Siemens Energy AB), Kevin Nordin Bates, Tomas Hurtig, Niklas Zettervall (Totalforsvarets Forskningsinstitut), Rasmus Robertsson, Andreas Ehn (Lunds Universitet)

**Electrical characteristics and flow topology of ring-type dielectric barrier discharge plasma actuator**

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2389

Tom Fridlender (National Center for Scientific Research (CNRS)), Srikar Yadala Venkata (Norges teknisk-naturvitenskapelige universitet Fakultet for ingeniørvitenskap), Nicolas Benard, Eric Moreau (National Center for Scientific Research (CNRS))

**Mixing enhancement downstream of an active square mesh grid using plasma actuation**

Friday, 27 January 10:50 - 11:10 (UTC-5) | AIAA-2023-2390

Tom Fridlender, Nicolas Benard, Jean-Paul Bonnet, Eric Moreau (National Center for Scientific Research (CNRS))

**LP-11/PC-46 | In Person - National Harbor 14****Testing of Thermodynamic Vent System Augmented Injectors for Tank-to-Tank Transfer of Cryogenics**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2360

Nicole Vaughn, Travis Belcher, Cameron Hines, Omar Mireles, Kevin Pedersen, James Smith, Jonathan R Stephens, Noah Rhys (NASA Marshall Space Flight Center)

**Broad Area Cooling with Hybrid Additive Manufactured Pressure Vessel Analysis**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2361

Tony Skaff, Ama R Carney, Alex Walker (Sierra Lobo, Inc.)

**Efficient Three-Dimensional Sump Optimization Using Potential Flow Theory and a Thermal Analogy**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2362

Nathan F Andrews, Steven T. Green (Southwest Research Institute), Shane B Coogan (Self)

**An Unsteady Hypergolic Combustion Modeling Tool Based on Compressible Three-Stream Flamelet Methodology**

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2363

Siddharth S Thakur, Jeffrey Wright, Christopher Neal (Streamline Numerics, Inc.)





**APA-75 | In Person - Potomac 3**

**Scaling of Hovering Rotorcraft Aerodynamics in Hyperbaric Experimental Conditions**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2281  
Constantinos S Kandias, Mark A Miller (The Pennsylvania State University College of Engineering)



**High-Fidelity Simulations of a Tiltwing Vehicle for Urban Air Mobility**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2282  
David Garcia Perez, Patricia Ventura Diaz, Steven Yoon (NASA Ames Research Center)



**Assessment of Methods for Propeller Performance Calculation at High Incidence Angles**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2283  
Luiz F. T. Fernandez (ONERA Traitement de l'information et systemes), Murat Bronz (Ecole Nationale de l'Aviation Civile), Nathalie Bartoli, Thierry Lefebvre (ONERA Traitement de l'information et systemes)



**Effect of Propeller Incidence Angle on Wing Embedded Propeller Configuration in Forward Flight**

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2284  
George J Gogidze, Sidaard Gunasekaran, Jielong Cai (University of Dayton)



**Flowfield Analysis of a Quadrotor in Forward and Maneuvering Flight Modes**

Friday, 27 January 10:50 - 11:10 (UTC-5) | AIAA-2023-2285  
Colin P Britcher, Engin Baris (Old Dominion University)



**EXPL-18 | In Person - Chesapeake L**

**Demonstration and Evaluation of an Automated Construction System for Assembling a Landing Pad and Blast Wall**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2289  
Tyler B Stephans, Alan R. Wagner (The Pennsylvania State University College of Engineering)



**Pill Bug-Inspired Robot with Crawling and Rolling Locomotion Mechanisms for Use on the Lunar Surface**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2290  
Sara Lanctot, James Montoya, Chase Dunaway, Celeste Elizalde Flores, Juliana Barstow, Suzanne Eisenberg, Forest Good, Natasha Davis, Shengyu Zhang, William Janney, Mostafa Hassanalian (New Mexico Institute of Mining and Technology)



**An ADMM-based Decomposition Method for Human-Scale Mars Entry Guidance**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2291  
Changhuang Wan (Tuskegee University)





**AMT-24 | In Person - Magnolia 2****Characterization of an Accurate Method for Obtaining High-Temperature, Low-Pressure Shock Tube Test Conditions for Hyper-sonics**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2253

Marley Anna Albright, Farhan Arafin, Jacklyn Higgs, Justin J Urso, Subith Vasu (University of Central Florida)

**Comparison of rotational and vibrational thermometry of detonation in microchannels**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2254

Sarang Bidwai, James B Michael (Iowa State University), Chloe E Dedic (University of Virginia)

**Spectral Analysis of a Shock Wave Turbulent Boundary Layer Interaction In a Circular Test Section**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2255

Jonathan Sasson, Paul Barnhart (Case Western Reserve University)

**Direct Measurements of Shock Impingement in a Busemann Inlet via a Miniature Embedded Imaging System**

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2256

Griffin David Eagan, Christopher J Lewis, Ryan M Alles (Auburn University), Kyle C Klingaman, Kirk Davenport, Mark T Gragston (The University of Tennessee Space Institute), Brian Elliot Rice (Air Force Research Laboratory), Michael C Hamilton, Brian S Thurow (Auburn University)

**Experiments on Water Droplet Breakup in a Detonation Medium**

Friday, 27 January 10:50 - 11:10 (UTC-5) | AIAA-2023-2257

Sydney M Briggs, Nicolas Berube, Daniel R Dyson, Reed Forehand, Michael P Kinzel, Subith Vasu (University of Central Florida), Sheryl Grace (Boston University), Phillip Anderson (Andersonics LLC)

**FD-75 | In Person - Chesapeake I****Particle-laden high-speed flows over a blunted cone**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2301

Qiong Liu, Irmak Taylan Karpuzcu, Akhil Marayikkottu Vijayan, Deborah A Levin (University of Illinois Urbana-Champaign)

**Numerical Investigation of Liquid Droplet Interactions with Cylindrical Bow Shocks**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2302

Andrew Michael Hess, David A Kessler, Camilo Aguilera Munoz (US Naval Research Laboratory)

**Shock-Particle Curtain Interactions at High Mach Number**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2303

Justin Lawrence Wagner, Kyle Daniel, Charley Downing, Thomas W. Grasser, Kyle P Lynch (Sandia National Laboratories)



(continued) FD-75 | In Person - Chesapeake I

Multi-Scale Modeling of Shock-Droplet Interaction Within a Shock Tube

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2304  
Reed Forehand, Khanh C Nguyen, Caroline Anderson, Sydney M Briggs, Nicolas Berube, Subith Vasu, Michael P Kinzel (University of Central Florida), Sheryl Grace (Boston University)



Higher-Order Simulations of Droplet-Shock Interaction, Aerobreakup and Impingement at High Mach Numbers

Friday, 27 January 10:50 - 11:10 (UTC-5) | AIAA-2023-2305  
Manuel Viqueira-Moreira (University of Maryland at College Park), Riza Kaan Gonuleri, Joshua Richard Leigh, Kyle Watson, Ibrahim Guven (Virginia Commonwealth University), Christoph Brehm (University of Maryland at College Park)



SAT-02 | In Person - National Harbor 15

The Sociotechnical Imaginaries of Contemporary Commercial Space: Explicating Homo Galacticus, Techno-Utopianism, and Capitalistkind

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2396  
Robert Edgell (SUNY Polytechnic Institute), Jeffrey Olney (Oregon Health and Science University)



Maverick and Skunk Works: Representing Aerospace in Popular Culture

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2397  
James M Walton, Patrick LeBeau (Lockheed Martin Corp)



Can we dream of the conquest of space? The influence of isolation and sunlight deprivation on the sleep of members of simulated space missions

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2398  
Nina Bazela (Uniwersytet Jagiellonski w Krakowie Wydział Filozoficzny), Pawel Graczak, Lena Stec (Akademia Gorniczo-Hutnicza imienia Stanisława Staszica w Krakowie Wydział Humanistyczny)



Mental Health and Well-being in Space: Artificial Intelligence-supported Heritage Extended Reality Experiences and What Can be Learnt for the Indigenous Perspectives

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2566  
Kaja Antlej (Deakin University Faculty of Science Engineering and Built Environment), Annahita Nezami (VR Overview Effect), Bahareh Nakisa (Deakin University Faculty of Science Engineering and Built Environment), Kaori Becerril (Dereum Labs), Tyson Yunkaporta, Gabrielle Fletcher, John Davis (Deakin University, National Indigenous Knowledges Education Research Innovation (NIKERI) Institute)



ASE-05 | In Person - Baltimore 5

Instrumentation for Measuring Supercooled Large Droplet Cloud Distributions in Icing Wind Tunnels

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2286  
Venkateshwa Reddy Bora Bora, Inken Knop (Technische Universitat Braunschweig Fakultat fur Maschinenbau), Johannes Lucke, Tina Jurkat-Witschas (Deutsches Zentrum fur Luft- und Raumfahrt eV)



Debris Risk Assessment for Mega-Constellations in Low and Medium Earth Orbit Due to Satellite Breakup During Orbit Raising Maneuver

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2287  
Joseph Canoy, Robert A. Bettinger (Air Force Institute of Technology)



**(continued) ASE-05 | In Person - Baltimore 5****Simulation of Fluid Flows about Titan Probes during Atmospheric Entry**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2288  
 Jiajun Guo, Raymond P LeBeau (Saint Louis University)

**GNC-45 | In Person - Annapolis 1****Distributed Control of the Attitude and Shape of a Flexible Spacecraft**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2319  
 Curtis Merrill, Derek A Paley (University of Maryland at College Park)

**Sensor Based Motion Planner for Small Solar System Body Exploration**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2320  
 Jan Olucak, Sebastian Zähringer, Fabian Schimpf, Walter Fichter (Universität Stuttgart Fakultät 6 Luft- und Raumfahrttechnik und Geodäsie)

**Convex Approach to Covariance Control for Low-Thrust Trajectory Optimization with Mass Uncertainty**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2321  
 Boris Benedikter, Alessandro Zavoli (Università degli Studi di Roma La Sapienza), Zhenbo Wang (The University of Tennessee Knoxville Tickle College of Engineering), Simone Pizzurro, Enrico Cavallini (Agenzia Spaziale Italiana)

**FD-77 | In Person - Chesapeake D****Development of Active Flow Control Prediction Tools for Aircraft Conceptual Design**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2310  
 Niko Intravartolo, Alex Miller, Rene Woszidlo (The Boeing Company), Elisa Phillips (The University of Arizona College of Engineering), Arvin Shmilovich (The Boeing Company)

**DARPA CRANE – A toolset for the design of compact fluidic distribution systems for flow control applications: Part 1 – Model development and system optimisation**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2311  
 Bill Crowther, Mostafa Nabawy, Roland Penty Geraets, Mark K Quinn, Sam Weigert (The University of Manchester Faculty of Science and Engineering), Clyde Warsop, Matt Forster, Lucia Axani (BAE Systems Plc), Thomas R Shearwood (The University of Manchester Faculty of Science and Engineering)

**DARPA CRANE – A toolset for the design of compact fluidic distribution systems for flow control applications: Part 2 – Model validation and implementation**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2312  
 Bill Crowther, Thomas R Shearwood, Mostafa Nabawy, Roland Penty Geraets, Mark K Quinn, Sam Weigert (The University of Manchester Faculty of Science and Engineering), Clyde Warsop, Matt Forster, Lucia Axani (BAE Systems Plc)

**THALES: Development of a Compendium for Active Flow Control Technologies**

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2313  
 Evan Harrison, Dimitri N Mavris (Georgia Institute of Technology)



(continued) FD-77 | In Person - Chesapeake D

Surrogate Modelling of Active Flow Control

Friday, 27 January 10:50 - 11:10 (UTC-5) | AIAA-2023-2314  
Matt Forster, Jon Feldman, Peter Lyes, Joe Johns, Clyde Warsop (BAE Systems Plc)



APA-71 | In Person - Potomac 1

Lessons Learned from the Advanced Aerodynamic Design Center for Ultra-Efficient Commercial Vehicles

Friday, 27 January 09:30 - 09:50 (UTC-5) | 3776789</stron  
James G Coder (The University of Tennessee Knoxville Tickle College of Engineering)



Update on the Aerodynamic Performance Analysis of a SNLF-enabled Transonic Truss Braced Wing

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2267  
Khanh H Pham, Leo L Chou, Neal A Harrison, Paul M Vijgen, Abdollah Khodadoust (The Boeing Company)



A Winglet Design Study for the Slotted, Natural-Laminar-Flow Strut-Braced Transport Aircraft

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2268  
Leonard P Metkowski, Mark D Maughmer (The Pennsylvania State University)



Investigating Fluidic Oscillators Embedded in a Slotted-Natural Laminar Flow Airfoil for High-Lift Applications

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2269  
Christopher Colletti, Phillip J Ansell (University of Illinois Urbana-Champaign)



SE-04 | In Person - Chesapeake 1

QuickSAT/Designer and /Test, a Flexible and Collaborative AI Based Mission Design and Test Environment

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2411  
Andrew D Santangelo (Sci\_Zone, Inc.)



Affordability: Comparing Perspectives of NASA MSFC to Industry

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2412  
Taylor Yeazitzis (The University of Alabama in Huntsville)



Methodology for Launch Vehicle Postflight Assessments in Support of the Mission Assurance Process

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2413  
Vinay K Goyal, Brianne Williams, Steve Frolik, Akhil Gujral, Nikolas Nordendale (The Aerospace Corporation), Jon Strizzi (United States Space Force)



(continued) SE-04 | In Person - Chesapeake 1

A Hybrid Agile Systems Engineering Approach for the ESRA CubeSat Mission to Earth’s Radiation Belts

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2414  
Brooke Mosley (Los Alamos National Laboratory)



TP-20 | In Person - Azalea 2

Thermal Modeling of Hypersonic Wind Tunnel Heater using Low Fidelity Fluid Model

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2426  
Alexander J Snyder , Lindsay Gilkey, Nathan Porter, Humberto Silva, Steven J Beresh (Sandia National Laboratories)



CFD Simulations of the IHF 13-Inch Nozzle Flow: 55-deg Sphere-Cone Model, Manufactured Fences and Gaps

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2427  
Tahir Gokcen, Tane Boghozian, Antonella Alunni (Analytical Mechanics Associates, Inc.)



Numerical study of thermal and pressure diffusion effects on canonical blunt bodies in hypersonic flows

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2428  
Chiara Amato, Graham V Candler (University of Minnesota Twin Cities)



Direct molecular simulation and quasi-classical trajectory calculation studies of 5-species air mixtures

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2429  
Erik Torres, Eric C Geistfeld, Thomas E Schwartzentruber (University of Minnesota Twin Cities)



Efficient Parametric Uncertainty Analysis of an Earth Entry Vehicle Concept using Least Angle Regression

Friday, 27 January 10:50 - 11:10 (UTC-5) | AIAA-2023-2430  
Thomas K West, Christopher O Johnston (NASA Langley Research Center)



NDA-17 | In Person - Chesapeake B

Exact Method of Antithetic Sampling for Higher Dimensionality

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2370  
Nadiya Rowshan, Subham Gupta, Achyut Paudel, Mishal Thapa, Sameer B Mulani (The University of Alabama), Robert W Walters (Virginia Polytechnic Institute and State University)



Control Allocation with Physics-Based Reliability Models for Multirotor UAVs

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2371  
Ikedichi Nnamdi-Nwosu, Jonathan Liscouët (Concordia University)



**(continued) NDA-17 | In Person - Chesapeake B****Statistical Reliability Estimation of Satellites Operating from 1991-2020**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2372  
 Travis Grile, Robert A. Bettinger (Air Force Institute of Technology)

**Towards a Framework for Non-intrusive Uncertainty Propagation in the Preliminary Design of Aircraft Systems**

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2373  
 Ioanna Ioannou, Peter O Hristov (University of Liverpool Faculty of Science and Engineering), Hau Kit Yong, Robert Marsh, Edmar Silva, Andras Sobester (University of Southampton), Scott Ferson (University of Liverpool Faculty of Science and Engineering)

**SD-33 | In Person - Chesapeake 3****Dynamic Antiresonant Vibration Isolators with Flexible Levers and Elastic Boundary Conditions**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2408  
 George Rai, Christopher D. Rahn, Edward Smith (The Pennsylvania State University), Conor Marr (LORD Corporation)

**Exact Solutions for the Free Vibration of Uniform Beams under Combined Inertial and Stiffness Bending-Torsion Coupling**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2409  
 Arnold Deffo (California Polytechnic State University)

**A study of wave propagation in thick/multilayer panels using theory of elasticity**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2410  
 Pankaj Joshi (ZAL Center of Applied Aeronautical Research), Mayuresh Patil (Georgia Institute of Technology)

**FD-74 | In Person - Chesapeake E****Wake dynamics of tapered wings. Part I: a computational study**

Friday, 27 January 09:30 - 09:50 (UTC-5) | AIAA-2023-2297  
 Jean Helder M Ribeiro, Kunihiko Taira (University of California Los Angeles), Jacob Neal, Michael Amitay (Rensselaer Polytechnic Institute), Anton Burtsev, Vassilios Theofilis (University of Liverpool Faculty of Science and Engineering)

**Wake dynamics of tapered wings. Part II: an experimental study**

Friday, 27 January 09:50 - 10:10 (UTC-5) | AIAA-2023-2298  
 Jacob Neal, Brandon Gares, Michael Amitay (Rensselaer Polytech Institute School of Engineering), Anton Burtsev, Vassilios Theofilis (University of Liverpool Faculty of Science and Engineering), Jean Helder M Ribeiro, Kunihiko Taira (University of California Los Angeles)

**Wake Dynamics of Tapered Wings. Part III: TriGlobal Linear Stability Analysis**

Friday, 27 January 10:10 - 10:30 (UTC-5) | AIAA-2023-2299  
 Anton Burtsev, Vassilios Theofilis (University of Liverpool), Jean Helder M Ribeiro, Kunihiko Taira (University of California Los Angeles), Jacob Neal, Michael Amitay (Rensselaer Polytechnic Institute)



(continued) FD-74 | In Person - Chesapeake E

Characterization of the Flow Field of Slender Delta Wings with Trailing Edge Jets Using Volumetric PIV

Friday, 27 January 10:30 - 10:50 (UTC-5) | AIAA-2023-2300  
Hakeem Balogun, Antoine Smith, Mohammad J Khan, Chadia A. Aji (Tuskegee University)



14:00 | Technical Panel

- EDU-06 | In Person - Chesapeake 9
- HIS-07 | In Person - Azalea 2
- EXPL-20 | In Person - National Harbor 7

14:00 | Technical Paper Session

IS-27 | In Person - Azalea 3

Explainable Artificial Intelligence Techniques for the Analysis of Reinforcement Learning in Non-Linear Flight Regimes

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2534  
Gabriel de Haro Pizarroso, Erik-Jan Van Kampen (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek)



Adaptive fault-tolerant control of octo-rotor UAV under motor faults in adverse wind conditions

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2535  
Ibrahim Ahmed, Marcos Quinones-Grueiro, Gautam Biswas (Vanderbilt University)



Sim-to-Real Transfer of a Deep Reinforcement Learning Approach for Active Stall Protection

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2536  
Franziska Hein, Stefan Notter, Walter Fichter (Universitat Stuttgart)



Machine Actuating Commands for Autonomy of an Unmanned Combat Air Vehicle

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2537  
Chimpalthradi R Ashokkumar (Smartools, LLC)



ACD-36 | In Person - Woodrow Wilson A

Design, Manufacturing and Testing of a Wing Pivot Mechanism

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2431  
Drew Priest, Matthew P Snyder, Catherine McAlister, Beckett Andersen, Charles Lo, Joshua Schmidt, Hugh Clark Briggs (US Air Force Academy)



Simplified Mass and Inertial Estimates for Aircraft with Components of Constant Density

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2432  
Ben Moulton, Douglas F Hunsaker (Utah State University)



**(continued) ACD-36 | In Person - Woodrow Wilson A**

**A Form-Finding Approach to the Geometric Modelling of Aircraft Sub-Systems**

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2601  
Hau Kit Yong, Robert Marsh, Edmar Silva, Neil Bressloff, András Sóbester (University of Southampton Faculty of Engineering and the Environment)



**A Multidisciplinary Analysis of a Stratospheric Airborne Climate Observatory System for Key Climate Risk Areas**

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2603  
Annick Dewald, R John Hansman (Massachusetts Institute of Technology)



**The Aerial Gunnery Gap: Challenged Programs, New Combat Aircraft Opportunities and Designs**

Friday, 27 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2602  
Ronald M Barrett-Gonzalez, Nathan Wolf (The University of Kansas)



**APA-79 | In Person - Potomac 6**

**Three-dimensional Viscous Coupling & Flow Separation Enhancements to an Inviscid Surface Vorticity Flow Solver**

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2455  
Vivek Ahuja, Roy J Hartfield (Research in Flight), Danilo Ciliberti (Universita degli Studi di Napoli Federico II)



**Aerodynamic Investigation of a Novel Diamond-Back Morphing Wing Configuration**

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2456  
Shiladitya Bhowmick, Rinku Mukherjee (Indian Institute of Technology Madras), V Kalyana Chakravarthy (Defence Research and Development Organisation)



**Application of a Semi-Empirical Method to Model Subsonic Vortex Lift over Sharp Leading-Edge Delta Wings**

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2457  
Daniel Huynh, Davide Di Pasquale, Simon Prince (Cranfield University Cranfield School of Aerospace Transport and Manufacturing), Vivek Ahuja (Research In Flight)



**Performance of Forward-Swept and Backward-Swept Stabilizers in a V-tail Configuration**

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2458  
Ronald C M Cheung, Djamel Rezgui, Jonathan E Cooper (University of Bristol), Richard Green (University of Glasgow), Raul Carlos Llamas-Sandin (Airbus)



**SEN-07 | In Person - National Harbor 6**

**Vision-based Positioning System for a Micro-UAV Flight in an Indoor Operation**

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2579  
Chandra Liuswanto, Yazdi I Jenie, Rianto Adhy Sasongko (Institut Teknologi Bandung)





**(continued) SEN-07 | In Person - National Harbor 6****Probability map based aerial target detection and localisation using networked cameras**

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2580

Zihao Wang (The University of Sydney School of Aerospace Mechanical and Mechatronic Engineering), David Williams (SiNAB Pty. Ltd.), KC Wong (The University of Sydney School of Aerospace Mechanical and Mechatronic Engineering)

**Tornado localization and structure identification from UAV wind measurements**

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2581

Abdallah Mansy, Imraan Faruque (Oklahoma State University College of Engineering Architecture and Technology)

**Exploiting Information Fusion for Cybersecurity of Small Unmanned Aerial Vehicles**

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2582

Ali K Raz, Michael Hieb, Jair Ferrari, Lance Sherry, Paulo Costa (George Mason University)

**STR-45 | In Person - Chesapeake 4****Discrete Nonlinear Lattice Truss Beam Displacement Analysis Related to Fundamental Solid Mechanics, Heat Transfer, and Fluid Mechanics Theory**

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2590

Winfred S Kenner (NASA Langley Research Center)

**Ritz Analysis of Stepped Beams Subjected to Discontinuous Load**

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2591

Sudharsan Parthasarathy, Rakesh K Kapania (Virginia Polytechnic Institute and State University)

**APA-80 | In Person - Potomac 2****A Preliminary Investigation into Icing Accretion around a Wavy Leading-edge Wing**

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2459

Andrea Da Ronch, Gabriele Immordino, Jae Wook Kim (University of Southampton)

**Computation study about the interaction between the tandem flying snake airfoils with dynamic motion**

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2460

Yuchen Gong, Haibo Dong (University of Virginia)

**Experimental Investigation of Planar Swept Bio-Inspired Wing Planforms**

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2461

Arnab Chatterjee, Tulasi Ram Vechalapu, Chang-Kwon Kang, Konstantinos Kanistras (The University of Alabama in Huntsville College of Engineering)



(continued) APA-80 | In Person - Potomac 2

Experimental analysis of a large-scale tandem flapping wing system

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2462  
Thomas Lambert, Grigorios Dimitriadis (Universite de Liege)



On the aeroelastic characterization of flexible wings at high angles of attack

Friday, 27 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2463  
Guojun Li, Rajeev Kumar Jaiman (The University of British Columbia)



GTE-36 | In Person - National Harbor 11

Accuracy Improvement of Soot Prediction for Aviation Gas Turbine Combustor using Method of Moments

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2522  
Saurabh Patwardhan, Pravin M Nakod, Stefano Orsino, Rakesh Yadav (ANSYS Inc), Fang Xu, Kiran Manoharan (Honeywell Aerospace)



Blow-off Zone Identification In Preliminary Gas Turbine Combustor Design

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2523  
Navin Kumar Mahto, Satyanarayanan R. Chakravarthy (Indian Institute of Technology Madras)



A distributed fuel injection enabled approach for two-zone combustion of methane-ammonia-air mixtures

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2524  
Varun Nanjunda Rao Viswamithra, Shyam K Menon (Louisiana State University)



CPS-02 | In Person - Chesapeake I

Provably Correct Software: Don't Leave Earth Without It

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2471  
Richard C Linger (AssuranceLabs, Inc.), Ali Mili (New Jersey Institute of Technology), Robert Drazovich (AssuranceLabs, Inc.), Mark Pleszkoch (Institute for Defense Analyses), John McHugh (The University of North Carolina at Chapel Hill), Wided Ghardallou (AssuranceLabs, Inc.)



Byzantine Resilient Reinforcement Learning for Multi-Agent UAV Systems

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2472  
Jishu K. Medhi, Chao Huang, Rui Liu, Xuhui Chen (Kent State University)



A New Parallel Resampling Algorithm for GPU-Accelerated Particle Filter

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2473  
Kyung Woo Hong (Korea Advanced Institute of Science and Technology), Youngjoo Kim (Nearthlab), Hyochoong Bang (Korea Advanced Institute of Science and Technology)



IS-29 | In Person - Woodrow Wilson C

An L1 Adaptive Control Augmentation for a Lift-Plus-Cruise Vehicle

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2541  
Andrew Patterson, Kasey A Ackerman, Jacob Cook, Michael J Acheson, Irene M Gregory (NASA Langley Research Center)



Modified Cascading Generalized Inverse Control Allocation

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2542  
Michael J Acheson, Irene M Gregory (NASA Langley Research Center)



Comparison of Acoustic Models and Trajectory Generation Methods for an Acoustically-Aware Aircraft

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2543  
Kasey A Ackerman, Irene M Gregory (NASA Langley Research Center)



Combined Bernstein Polynomial Optimal Reciprocal Collision Avoidance Differential Dynamic Programming for Trajectory Re-planning and Collision Avoidance for UAM Vehicles

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2544  
Matthew D Houghton, Michael J Acheson, Andrew P. Patterson, Alex Oshin, Irene M Gregory (NASA Langley Research Center)



GT-12/AMT-33 | In Person - Baltimore 4

Aerothermal Characterization of the Plasmatron X Wind Tunnel: Optical Emission Spectroscopy and Jet Temperature Reconstruction

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2516  
Trey Oldham, Lorenzo Capponi, Matthew Konnik, Kelly Stephani, Daniel J Bodony, Marco Panesi, Gregory S Elliott, Francesco Panerai (University of Illinois Urbana-Champaign)



Spectroscopic Characterization of a High-Enthalpy Plasma Arcjet Tunnel

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2517  
Killian E Samuels, Damiano Baccarella (The University of Tennessee Knoxville Tickle College of Engineering)



Near-Body Measurements in Hypersonic Wedge Flows in the T5 Reflected Shock Tunnel by Tunable Diode Laser Absorption Spectroscopy

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2518  
Peter M Finch, Tal Schwartz, Zev Noach Granowitz (Stanford University), Wesley M Yu (California Institute of Technology), Thomas Gross (University of Minnesota Twin Cities), Christopher Lyle Strand (Stanford University), Thomas E Schwartzentruber (University of Minnesota Twin Cities), Joanna M Austin, Hans G Hornung (California Institute of Technology), Ronald K Hanson (Stanford University)



Laser-based *in-situ* absorption spectroscopy sensor for gas measurements in an impulse facility

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2519  
Tal Schwartz, Joana Porfirio Santos, Christopher Lyle Strand, Ronald K Hanson (Stanford University)



**SD-34 | In Person - Chesapeake 5**

Active hinged wingtip for gust load alleviation and manoeuvres

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2567  
Davide Balatti, James D Ellis, Shakir Jiffri, Hamed Haddad Khodaparast, Micheal Ian Friswell (Swansea University)

Transient Release and Lateral Gust Behavior of Aircraft Incorporating Flared Folding Wingtips

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2568  
Huaiyuan Gu, Ronald C M Cheung, Fintan Healy, Vahid Goodarzi Ardakani, Saber Abdo, Djamel Rezgui, Mark H Lowenberg, Jonathan E Cooper (University of Bristol)

Experimental Effect of Liquid Sloshing on the Dynamic Behaviour of Flared Folding Wingtips

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2569  
Fintan Healy, Joe J De Courcy, Huaiyuan Gu, Djamel Rezgui, Jonathan E Cooper (University of Bristol)

Prediction of Gust Aeroelastic performance of HALE using Graph Neural Networks

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2570  
Michele Colombo, Joseph Morlier, Michaël Bauerheim (ISAE-SUPAERO)

LQG-based Gust Load Alleviation Systems for Very Flexible Aircraft

Friday, 27 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2571  
Stefanie Duessler, Thulasi Mylvaganam, Rafael Palacios (Imperial College London)

**PC-51 | In Person - National Harbor 8**

Adhesion of Thermoplastic Copolymers with Hydroxyl Terminated Polybutadiene in Application to Dissimilar Materials 3D Printing

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2556  
Mitchell Donoughue, James Plotzke, Monique McClain (Purdue University)

Droplet Impact of Additives and HTPB

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2557  
Marc A Magana, Alexander Klotz, Joseph Kalman (California State University Long Beach)

Dynamic Contact Angle Measurements Using LabRam

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2558  
Izabel B Marquez, Joseph Kalman (California State University Long Beach)

GNC-50 | In Person - Annapolis 3

Simulator Evaluation of Flightpath-oriented Control Allocation for the Flying-V

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2508  
Gijs Vugts, Olaf Stroosma, Roelof Vos, Max Mulder (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek)



Distribution Based Performance Analysis of Control Allocation Strategies Under Failure Conditions

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2509  
Cedric Kotitschke, Venkata Sravan Akkinapalli, Florian Holzapfel (Technische Universitat Munchen)



Auto-landing Fault-Tolerant Control System Design for a Light Aircraft

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2510  
Ege Cagri Altunkaya, Ibrahim Ozkol (Istanbul Teknik Universitesi)



Local Strong Accessibility Analysis and Fault-Tolerant Control of Multicopter Considering Actuator Failures

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2511  
Hanna Lee, Jinrae Kim, Seong-hun Kim, Miae Kim, Youdan Kim (Seoul National University)



Model Reference Control for Reducing Pilot-Induced Oscillation Tendencies Due to Actuator Rate Limits

Friday, 27 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2512  
Loren J Newton, Ilan Kroo (Stanford University)



AMT-29/PC-49 | In Person - Magnolia 3

Simultaneous Detection of OH and CH Using a Single Femtosecond Pulsed Laser

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2433  
Matthew K Hay, Pradeep Parajuli, Waruna D Kulatilaka (Texas A&M University)



OH imaging of partially-premixed ethylene-air flames in a dual-mode scramjet

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2434  
Andrew Joseph Metro, Alan Kim, Robert D. Rockwell, Laurie A Elkowitz, Chloe E Dedic (University of Virginia), Andrew D Cutler (The George Washington University)



Planar Time-Resolved Laser-Induced Incandescence for Particulate Emissions in Premixed Flames at Elevated Pressures

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2435  
Andy X Zheng, Sundar Manikandan, Samuel E Wonfor, Adam M Steinberg, Yi Chen Mazumdar (Georgia Institute of Technology)



Multi-parameter Measurements in Sooting Turbulent Non-premixed Flames

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2436  
Jinpeng Pu, Wesley R Boyette, Jeffrey Alan Sutton (The Ohio State University)



GNC-49/IS-25 | In Person - Annapolis 4

Investigating Noise Rejection with Gradient-Based Update Laws in Discrete-Time Adaptive Control

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2503  
Peter Fisher, Anuradha Annaswamy (Massachusetts Institute of Technology)



On Adaptive Control of Robotic Manipulators with Actuator Deficiencies

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2504  
Islam A Aly, Sebastian Comeaux, Kadriye Merve Dogan (Embry-Riddle Aeronautical University), Enver Tatlicioglu (Ege Universitesi), Erkan Zergeroglu (Gebze Teknik Universitesi)



Hierarchical Reinforcement Learning and Gain Scheduling-based Control of a Hypersonic Vehicle

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2505  
Wanjiku Makumi, Max L Greene (University of Florida), Zachary Bell, Brendan Bialy (Air Force Research Laboratory), Rushikesh Kamalapurkar (Oklahoma State University), Warren Dixon (University of Florida)



Vision-based Distributed Pose Estimation using a Spacecraft Constellation

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2506  
Saptarshi Bandyopadhyay, Vinod P. Gehlot, William Seto, Amir Rahmani (Jet Propulsion Laboratory), Spencer Kraisler, Shahriar Talebi, Aditya Deole, Niyousha Rahimi, Mehran Mesbahi (University of Washington), Jonathan Becktor (Danmarks Tekniske Universitet)



Adaptive Stabilization of Multi-Rotor Systems with Actuator Limits and Transient Mass Distribution

Friday, 27 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2507  
John K Zelina, Islam A Aly, Kadriye Merve Dogan, Richard J Prazenica (Embry-Riddle Aeronautical University)



GRE-03 | In Person - National Harbor 5

Climate Assessment of Hydrogen Combustion Aircraft: Towards a Green Aviation Sector

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2513  
Miguel Ángel Sáez Ortuño, Feijia Yin, Arvind Gangoli Rao, Roelof Vos, Pieter-Jan Proesmans (Technische Universiteit Delft)



Quantification of Hybrid-Electric Propulsion Systems for Aerospace Applications

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2514  
Roydon G Fernandes, John Parsells, Kyle Collins, Patrick Currier, Mark Ricklick, Richard Anderson (Embry-Riddle Aeronautical University)



Numerical Prediction of Pressurized Hydrogen Leakage and Spontaneous Ignition

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2515  
Yu Xia, Didier Bessette, Vivek Kumar, Abhijit Patil, Sourabh Shrivastava, Patrick Sharkey, Pravin M Nakod (ANSYS Inc)



HSABP-13 | In Person - National Harbor 4

Validation of the Density Based Navier-Stokes solver simulating the combustion process of different Scramjets combustors

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2528  
Bruce G Crawford (ANSYS Inc), Jayson C Small, Liwei Zhang (The University of Texas at Arlington), Shaoping Li, Valerio Viti, Jean-Sébastien Cagnone (ANSYS Inc)



Manifold-based Modeling for Supersonic Turbulent Combustion

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2529  
Esteban Cisneros-Garibay, Michael E Mueller (Princeton University)



Shock Tube and Laser Measurements of HTPB/air Combustion at Solid Ramjet Conditions for Hypersonics

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2530  
Jacklyn Higgs, Juan Cruz Pellegrini, Ramees Khaleel Rahman, Rosa Olivera, Subith Vasu (University of Central Florida)



HMT-03/IS-26 | In Person - Woodrow Wilson D

Foundational Human-Autonomy Teaming Research and Development in Scalable Remotely Operated Advanced Air Mobility Operations: Research Model and Initial Work

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-1066  
Eric T. Chancey, Michael S Politowicz, Bill K Buck, Kathryn Ballard (NASA Langley Research Center), James Unverricht (National Institute of Aerospace), Vincent E Houston (NASA Langley Research Center), Meghan Chandarana (NASA Ames Research Center), Lisa Le Vie (NASA Langley Research Center)



A Remote Vehicle Operations Center’s Role in Collecting Human Factors Data

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2526  
Bill K Buck, Eric T. Chancey, Michael S Politowicz (NASA Langley Research Center), James Unverricht (National Institute of Aerospace), Steven Geuther (NASA Langley Research Center)



MPATH (Measuring Performance for Autonomy Teaming with Humans) Ground Control Station: Design Approach and Initial Usability Results

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2525  
Michael S Politowicz, Eric T. Chancey, Bill K Buck (NASA Langley Research Center), James Unverricht (National Institute of Aerospace), Bryan J Petty (NASA Langley Research Center)



Where is the Human-in-the-Loop? Human Factors Analysis of Extended Visual Line of Sight Unmanned Aerial System Operations within a Remote Operations Environment

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2656  
James Unverricht (National Institute of Aerospace), Eric T. Chancey, Michael S Politowicz, Bill K Buck, Steven Geuther, Kathryn Ballard (NASA Langley Research Center)



Intelligent Change Detection System (ICDS): A Machine Learning Approach to Combat Change Blindness in Remote Operation Environments

Friday, 27 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2527  
Vincent E Houston, Michael S Politowicz (NASA Langley Research Center), Noah E Jennings (Old Dominion University)



**PDL-16/APA-82 | In Person - Baltimore 2****Numerical Analysis of Magnetohydrodynamic Flow Control in Mars Direct and Orbital Entries**

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2559

Kotaro Tabuchi, Ryota Sumitomo, Kaito Tanaka, Takayasu Fujino (Tsukuba Daigaku)

**Feasibility of MHD Aerobraking for Use in Martian Atmospheric Entry**

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2560

John C Ogilvie, David Gildfind, Rowan Gollan, Nicholas N Gibbons (The University of Queensland)

**Prediction of communication blackout and degradation for a re-entry hypersonic capsule through high-fidelity numerical simulations**

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2561

Henry H Vu, Valerio Viti, Jeff Tharp, Eldon Staggs (Ansys Inc)

**Optimised Magnetic Field Strengths for Venus Atmospheric Entry using Magnetohydrodynamic Aerobraking**

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2562

Sebastiaan B van Oeveren, David Gildfind (The University of Queensland)

**FD-78 | In Person - Chesapeake H****A Cut-Cell Inspired Immersed Boundary Solver for Compressible Flows**

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2479

MLNV Kasturi Rangan, Santanu Ghosh (Indian Institute of Technology Madras)

**A high-order 3D immersed interface finite difference method for the advection-diffusion equation**

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2480

James Gabbard, Wim M van Rees (Massachusetts Institute of Technology)

**Modeling a shock front as an extended dividing hypersurface**

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2481

Joseph John Thalakkottor (South Dakota School of Mines and Technology), Adam C DeVoria (The Citadel Military College of South Carolina)

**ICC-02 | In Person - Chesapeake A****Intelligent Wargaming Approach to Increase Course of Action Effectiveness in Military Operations**

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2531

Batu Candan, Guney Guner, Burak Yuksek, Hasan Karali, Gokhan Inalhan (Cranfield University)






(continued) ICC-02 | In Person - Chesapeake A


Prediction of Critical Aircraft Performance Model Parameters from Historical Flight Data

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2532  
Alicia Fernandes, Dan Wesely (Mosaic ATM, Inc.), Tejas G Puranik, Aida Sharif Rohani (Universities Space Research Association), Krishna M Kalyanam (NASA Ames Research Center), Drew Morin (Federal Aviation Administration)



Learning-based Adaptive Thrust Regulation of Solid Fuel Ramjet


Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2533  
Parham Oveissi, Arjun Trivedi, Ankit Goel (University of Maryland Baltimore County), Ozgur Tumuklu, Kyle M. Hanquist (The University of Arizona Graduate College), Alireza Farahmandi, Douglas Philbrick (Naval Air Weapons Station China Lake)



IS-28 | In Person - National Harbor 13


Situational Anomaly Detection Using Multi-agent Trajectory Prediction for Terminal Airspace Operations

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2538  
Hyunsang Park, Inseok Hwang (Purdue University)




Online Probabilistic Collision Detection for Urban Air Mobility under Data-Driven Uncertainty

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2539  
Pengcheng Wu, Jun Chen (San Diego State University)



Data-Driven Controller and Multi-Gradient Search Algorithm for Morphing Configurations


Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2540  
Jose Messias Magalhaes (Georgia Institute of Technology), Gustavo Luiz Olichevis Halila (Instituto de Aeronautica e Espaco), Kyriakos G Vamvoudakis (Georgia Institute of Technology)



ASE-06/EXPL-19 | In Person - Baltimore 5


Impacts of the Space Environment on Lunar Exploration

Friday, 27 January 14:00 - 14:40 (UTC-5) | AIAA-2023-2467  
Joseph I Minow (NASA Headquarters)




Designing the PLANET Chamber for Lunar Environment Ground Testing

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2468  
Erin G Hayward, Mary Nehls, Todd Schneider, Patrick Lynn, Peter Bertone, Jason Vaughn (NASA Marshall Space Flight Center)



Low-cost Testing in Representative Lunar Regolith Environment

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2469  
Scott L Stebbins, Nic Heersema (NASA Armstrong Flight Research Center)



**(continued) ASE-06/EXPL-19 | In Person - Baltimore 5****Spacecraft Wake Formation in Cislunar Plasma Regions**

Friday, 27 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2470

Kaylee Marie Champion, Hanspeter Schaub (University of Colorado Boulder)

**GNC-47 | In Person - Annapolis 2****Linear Quadratic Differential Games Guidance Law with an Intercept Angle Constraint and Varying Speed Adversaries**

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2495

Adi Mishley, Vitaly Shaferman (Technion Israel Institute of Technology)

**Three-dimensional Nonlinear Impact Time Guidance using Predicted Interception Point**

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2496

Abhinav Sinha (The University of Texas at San Antonio), Rohit Vishwajit Nanavati (Loughborough University), Shashi Ranjan Kumar (Indian Institute of Technology Bombay)

**Information-Enhancement via Trajectory Shaping in Bayesian Decision-Directed Stochastic Guidance**

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2497

Liraz Mudrik, Yaakov Oshman (Technion Israel Institute of Technology)

**Linear Parameter Varying Pitch Autopilot Design for a Class of Long Range Guided Projectiles**

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2498

Gian Marco Vinco (French-German Research Institute of Saint-Louis (ISL)), Spiliotis Theodoulis (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek), Olivier Senéme (Grenoble Images Parole Signal Automatique Pole Automatique et Diagnostic), Guillaume Strub (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek)

**MDO-27/DE-13 | In Person - Chesapeake 8****Flexible Design for an in-Space Assembled Telescope**

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2547

Rosemary Davidson, David W Miller (Massachusetts Institute of Technology)

**Level Set Topology Optimization in OpenMDAO**

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2548

Carolina M Jauregui (University of California San Diego), Sydney L Schnulo, Justin S Gray (NASA Headquarters), Hyunsun A Kim (University of California San Diego)

**OPS-05 | In Person - Chesapeake 12****Decision-Making and Optimization Framework for the Design of Emerging Satellite Constellations**

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2549

Marc A Koerschner, Kavya Navaneetha Krishnan, Alexia P. Payan, Dimitri N Mavris (Georgia Institute of Technology)



(continued) OPS-05 | In Person - Chesapeake 12

Optimal Active Debris Removal Mission Design Using Low-thrust Trajectory

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2550  
DongUk Lee, Jaemyung Ahn (Korea Advanced Institute of Science and Technology)



FD-81 | In Person - Chesapeake K

Non-intrusive, 3-D Crater Formation Measurements Due to Plume-Surface Interactions Under Sub-Atmospheric Pressure Conditions

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2488  
Daniel Stubbs, Lokesh Silwal, Vikas N. Bhargav, Brian S Thurow, Masatoshi Hirabayashi, Vrishank Raghav, David E. Scarborough (Auburn University)



Unconventional Wave Phenomena of a Bethe-Zel'dovich-Thompson Gas and Numerical Computation of Dense Gas Flow

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2489  
Jingyi Zeng, Jie Zhu, Feng Liu (University of California Irvine)



Separation Region Unsteadiness Drivers in Swept Compression Ramps

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2490  
Daniel S Allen, Kenneth R Langley, John D Schmisser, Phillip A Kreth (The University of Tennessee Space Institute)



Wall shear stress measurements using a MTV-based plenoptic microscope

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2491  
Peter D Huck, Charles Fort, Philippe Matthieu Bardet (The George Washington University)



SD-35 | In Person - Chesapeake 3

Investigating Low-Dimensional Representations for Body Freedom Flutter

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2572  
Samuel C Stanton, Nicholas Hawley (US Air Force Academy), Alexander M Pankonien, Kevin McHugh (Air Force Research Laboratory)



Flutter Testing Methodology for Swirl Distortion Generators

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2573  
Cole Hefner, Andrew P Hayden, John Gillespie, Todd Lowe, Alexandrina Untaroiu (Virginia Polytechnic Institute and State University)



Turbine blade structural analysis by using the isogeometric Bernstein-Bezier discretization


Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2574  
DongHyeon Song, Seung Hoon Kang, Yongse Kim, Sang Joon Shin (Seoul National University)



(continued) SD-35 | In Person - Chesapeake 3


Dispersion Characteristics of Wave Propagation in Lattice-Based Mechanical Metamaterial for Vibration Suppression

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2575  
Natsuki Tsushima (Uchu Koku Kenkyu Kaihatsu Kiko Koku Gijutsu Bumon), Yuta Hayashi, Tomohiro Yokozeki (Tokyo Daigaku)



Inextensible plate model for nonlinear structural dynamics


Friday, 27 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2576  
Dylan Donovan Dooner, Gareth A Vio (The University of Sydney Faculty of Engineering and Information Technologies), Nicholas F Giannelis (The University of Newcastle College of Engineering Science and Environment)



STR-46 | In Person - Chesapeake 7


An Aerospace Structural Sizing Tool with Sectional Equivalent Beam Requirements

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2593  
Mario Lee, Stephen Jones, August Noever, Bertram Stier (Collier Aerospace)




An Integrated Design Tool for Tow-steering Composites in Abaqus and MSC.Patran/Nastran

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2594  
Xin Liu, Bangde Liu, Twinkle Kothari (The University of Texas at Arlington), Su Tian, Yufei Long (Purdue University), Frank Leone (NASA Langley Research Center), Wenbin Yu (Purdue University)



Effects of Liquid Disinfectants and Ultraviolet-C Germicidal Irradiation on Honeycomb Core Sandwich Panels

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2595  
Akhil Bhasin, Aswini Kona Ravi, Luis Daniel Castillo, Tanat Maichan, Luis Manuel Gomez, Gerardo Olivares (Wichita State University National Institute for Aviation Research)



Reflections on 37 Years as a NASA Structural Engineer


Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2596  
John J Zipay (Self)



EXPL-21 | In Person - Chesapeake L


Transportation and Energy Ecosystem based on Martian Atmosphere

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2474  
Miranda Anhalzer, Alexis Abundio, Johan Zambrano, Yusif Gurbanli, Gecheng Zha (University of Miami)



Investigating Photogrammetric Accuracy of a Lunar-lander-induced Crater Measurement System

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2475  
Olivia K Tyrrell (National Institute of Aerospace), Joshua M Weisberger, Timothy Weldon Fahringer, Paul M Danehy (NASA Langley Research Center), William D Hutchins (University of Virginia)



**(continued) EXPL-21 | In Person - Chesapeake L**

**Seismic activity of Mars**

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2624  
Mateusz Olszewski (Akademia Gorniczo-Hutnicza imienia Stanislaw Staszica w Krakowie)



**APA-81 | In Person - Potomac 3**

**Vertically Offset Overlapping Propellers in Tandem Configuration**

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2464  
Jielong Cai, Sidaard Gunasekaran (University of Dayton), Michael V Ol (Folderol LLC)



**Fundamental Studies Towards Rotor Simulations and Design**

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2465  
Feilin Jia, Philippe Spalart (Flexcompute), Maks J Groom, Qiqi Wang (Massachusetts Institute of Technology)



**Comparison of Instantaneous Aerodynamic Loads on Sharp and Blunt Trailing-Edged Blades of High Advance Ratio Rotors**

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2466  
Oliver Wild (University of Maryland at College Park), Matthew James Murphy (University of Glasgow), Anya R Jones (University of Maryland at College Park)



**FD-80 | In Person - Chesapeake G**

**Rational Boolean Stabilization of Subgrid Models for Large Eddy Simulation**

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2485  
Emilio E. Torres, Werner J.A. Dahm (Arizona State University)



**Extension of the Smagorinsky Subgrid Stress Model to Anisotropic Filters**

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2486  
Aviral Prakash, Kenneth E Jansen, John A Evans (University of Colorado Boulder)



**Sub-grid Scale Modeling of Meso-scale Hurricane Boundary Layer Flows using Machine Learning**

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2487  
MD Badrul Hasan, Meilin Yu (University of Maryland Baltimore County), Heng Xiao (Virginia Polytechnic Institute and State University)



**AMT-30 | In Person - Camellia 2**

**High Magnification Telecentric Background Oriented Schlieren (BOS) and its Application to a Supersonic Turbulent Boundary Layer**

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2437  
Terry Zhou, Jonathan Gaskins, Suzanne Swaine, Sally PM Bane, Jonathan Poggie, Gregory A Blaisdell (Purdue University)



**(continued) AMT-30 | In Person - Camellia 2****Implementation of Self-Aligned Focusing Schlieren for Hypersonic Boundary Layer Measurements**

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2438

Jonathan L Hill (Air Force Institute of Technology), Matthew P Borg, Elizabeth Katherine Benitez (Air Force Research Laboratory), Carson L Running (University of Dayton), Mark F Reeder (Air Force Institute of Technology)

**A Quantitative Comparison of Background Oriented and Conventional Schlieren Visualization**

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2439

Julia Dobrosotskaya, Abdulaziz Alrefaie, Bryan E Schmidt (Case Western Reserve University)

**Superresolution Measurement and Comprehension of Time-Resolved Three-Dimensional Density Field of an Underexpanded Jets in Screech B Mode**

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2440

Chungil Lee, Yuta Ozawa, Takayuki Nagata, Taku Nonomura (Tohoku Daigaku)

**Physics-Informed Background-Oriented Schlieren of Turbulent Underexpanded Jets**

Friday, 27 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2441

Joseph P Molnar, Samuel J Grauer (The Pennsylvania State University), Olivier Léon, David Donjat (ONERA/DMPE, Université de Toulouse), François Nicolas (ONERA/DAAA, Université Paris Saclay)

**SOF-05 | In Person - Camellia 1****Model-Based Systems Engineering for AI-Based Systems**

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2587

Jasper Sprockhoff, Bojan Lukic, Vincent Janson, Alexander Ahlbrecht, Umut Durak, Siddhartha Gupta, Thomas Krueger (Deutsches Zentrum für Luft- und Raumfahrt eV)

**A Hierarchy of Monitoring Properties for Autonomous Systems**

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2588

Sebastian Schirmer, Christoph Torens, Johann Christoph Dauer (Deutsches Zentrum für Luft- und Raumfahrt eV), Jan Baumeister, Bernd Finkbeiner (CISPA Helmholtz-Zentrum für Informationssicherheit gGmbH), Kristin Yvonne Rozier (Iowa State University College of Engineering)

**Operational Domain Metamodel for Testing AI Systems in Aviation**

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2589

Siddhartha Gupta, Umut Durak (Deutsches Zentrum für Luft- und Raumfahrt DLR Standort Braunschweig)

**SOF-04 | In Person - Chesapeake C****aeroBERT-NER: Named-Entity Recognition for Aerospace Requirements Engineering using BERT**

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2583

Archana Tikayat Ray, Olivia J Pinon-Fischer, Dimitri N Mavris (Georgia Institute of Technology), Ryan Taylor White (Florida Institute of Technology), Bjorn F Cole (Lockheed Martin Space Systems Co)



**(continued) SOF-04 | In Person - Chesapeake C****COLIBRY - A Counter Optimization Library for MATLAB**

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2584

David Braun, Florian Schwaiger, Florian Holzapfel (Technische Universitat Munchen), Johannes Diepolder (Diepolder Dynamic Optimization GmbH), Joseph Z. Ben-Asher (Technion Israel Institute of Technology)

**Development of a Web-based Test Procedure Authoring and Execution Environment for Space Systems**

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2585

Hongman Kim, Christopher A Swan (Jet Propulsion Laboratory)

**An Open-Source Gazebo Plugin for GNSS Multipath Signal Emulation in Virtual Urban Canyons**

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2586

Kartik A Pant, Zhanpeng Yang, James M Goppert, Inseok Hwang (Purdue University System)

**GNC-48 | In Person - Annapolis 1****Dynamic Inversion Heat-Flux Tracking for Hypersonic Entry**

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2499

Erwin Mooij (Technische Universiteit Delft)

**Control of a Spacecraft Rendezvous with an Asteroid and Proximity Maneuvering**

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2500

Hadarou Sare, Balachandran Balakumar (University of Maryland College Park Official Bookstore)

**Spacecraft Rendezvous and Docking with Obstacle Avoidance using Model Predictive Control**

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2501

Jinaykumar Patel (The University of Texas at Arlington Department of Mechanical &amp; Aerospace Engineering), Shashi Ranjan Kumar (Indian Institute of Technology Bombay Department of Aerospace Engineering)

**Direct-Indirect Hybrid Strategy for Optimal Powered Descent and Landing**

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2502

Fabio Spada (Politecnico di Milano), Marco Sagliano (Deutsches Zentrum fur Luft- und Raumfahrt DLR Standort Bremen), Francesco Toppato (Politecnico di Milano)

**FD-82 | In Person - Chesapeake D****DARPA CRANE <i>Analysis and Simulation of a Fluidic Effector-Controlled Aircraft</i>**

Friday, 27 January 14:00 - 14:20 (UTC-5) | 3779230&lt;/stron

Michael A Niestroy, Neil S Hall (Lockheed Martin Aeronautics Company)



(continued) FD-82 | In Person - Chesapeake D

Integration of Active Flow Control Effectors into Aircraft Control Laws

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2492  
Seth Zelman, Matthew Silic, Sui Nam Chan (Aurora Flight Sciences)



Sizing, Integration and Characterization of an Active Flow Control System

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2493  
Cody Gray, Kevin R Uleck, Alexander W Feldstein (Aurora Flight Sciences), Benjamin Kangas, Mary Beckman (The Boeing Company Defense Space and Security), Ted Florence, Rene Woszidlo (The Boeing Company)



Novel Approach to Characterizing Tare & Interference Effects on the Lockheed Martin CRANE Wind Tunnel Model

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2494  
Emma Chao, Edward Rooney, Mark Buchholz, Austin Shellito, Henry Reagan, Glen Duncan, Brant Maines (Lockheed Martin Corporation), David R Williams (Illinois Institute of Technology)



APA-87 | In Person - Potomac 1

Transonic Wind-Tunnel Testing of a Slotted, Natural-Laminar-Flow Wing at Full-Scale Conditions

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2452  
James G Coder (The University of Tennessee Knoxville Tickle College of Engineering)



Boundary-Layer Stability Analysis of a Swept, Slotted Wing in the NASA Ames 11-Foot Transonic Wind Tunnel

Friday, 27 January 14:20 - 14:40 (UTC-5) | 3776667</stron  
Koen J. Groot, Nicholas John Porfido (Texas A&M University), James G Coder (The Pennsylvania State University)



Measurements of Crossflow Vortices and Tollmien-Schlichting Waves on a Slotted, Natural-Laminar-Flow Airfoil

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2453  
Jeppesen G Feliciano, Edward B White (Texas A&M University)



Effect of Transition Modeling for Analysis of a Slotted, Natural-Laminar-Flow Transonic Truss-Braced Wing Aircraft Configuration

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2454  
Cody L Perkins, Zhi Yang, Dimitri J Mavriplis (University of Wyoming), James G Coder, Lawton Shoemake (The University of Tennessee Knoxville Tickle College of Engineering), Christopher J Axten (The Pennsylvania State University College of Engineering)



AMT-31 | In Person - Magnolia 2

A Method for Direct Shear Measurement of Large Scale Roughened Surfaces in Short Duration Hypersonic Facilities

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2442  
David C Steuer (Universitat Stuttgart), Christopher Hambidge, Matthew McGilvray (University of Oxford)





(continued) AMT-31 | In Person - Magnolia 2

A Method for IR Measurement of Large Scale Roughened Surfaces in Hypersonic Flow

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2443  
Wesley J Condren, Christopher Hambidge, David Christopher Steuer, Imran Naved, Matthew McGilvray (University of Oxford)



Accurate Near Wall Measurements in Wall Bounded Flows with wOFV via an Explicit No-Slip Boundary Condition

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2444  
Gauresh Raj Jassal, Bryan E Schmidt (Case Western Reserve University)



Temperature-Sensitive Paint Measurements of Cylinder-Induced Shockwave-Boundary Layer Interaction on a 6-degree Cone with Laminar Mach 7 Flow

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2445  
Cary Dean Smith, Phillip A Kreth, John D Schmisser (The University of Tennessee Space Institute), Garrett Strickland (Lockheed Martin Space Systems)



One-Dimensional Resonantly Ionized Photoelectron Thermometry Measurements in Supersonic Flow Around a Cylinder

Friday, 27 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2446  
Walker McCord (The University of Tennessee Knoxville Tickle College of Engineering), Mark T Gragston (The University of Tennessee Space Institute), Zhili Zhang, Aleksander Madison Clark (The University of Tennessee Knoxville Tickle College of Engineering)



AMT-32 | In Person - Baltimore 1

Unsteady Pressure Sensitive Paint Camera Calibration Improvements

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2447  
Nicholas Califano (Metis Technology Solutions, Inc.), Marc Shaw-Lecerf, Nettie Roozeboom (NASA Ames Research Center)



Half-Isolator Shock Dynamics Due to the Presence of Pressure-Sensitive Paint and Microramp Vortex Generators

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2448  
Chase Jenquin, Ethan Johnson, Venkateswaran Narayanaswamy (NC State University)



Novel Luminescent Temperature Sensor for Internal Temperature Measurement of Ablating Objects in High-Speed Flows

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2449  
Joseph Gonzales, Philip Lax, Hirotaka Sakaue (University of Notre Dame)



Tunable Diode Laser Absorption Spectroscopy (TDLAS) for Material Characterization

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2450  
Samuel Feltis, Zhili Zhang (The University of Tennessee Knoxville Tickle College of Engineering)



**(continued) AMT-32 | In Person - Baltimore 1****Improvement of Pressure-sensitive-paint Measurement of Rotating blades by Adjusting Oxygen Concentration under Low-pressure Conditions**

Friday, 27 January 15:20 - 15:40 (UTC-5) | AIAA-2023-2451

Takafumi Matsuyama, Takayuki Nagata, Miku Kasai, Taku Nonomura (Tohoku Daigaku)

**PC-50 | In Person - National Harbor 10****Investigation of Mixing Mechanisms to Enable Premixed Hydrogen Combustion**

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2552

Tate Prater, Christopher Caulfield, Gan Xiao, Paul P Palies (The University of Tennessee Space Institute)

**A Study of the Effects of Containment Wall on the Combustion of Swirl-Stabilized Flames**

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2553

Saja Al-rifai, Cheng-Xian Lin (Florida International University), Brian T. Bohan, Kevin J. DeMarco, Marc D Polanka (Air Force Institute of Technology)

**Combustion Dynamics in a Swirl-stabilized Cavity Combustor**

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2554

Kranthi Yellugari, Rodrigo Villalva Gomez, Ephraim J Gutmark (University of Cincinnati)

**Premixed Hydrogen-Air Swirled-Stabilized Combustor Development**

Friday, 27 January 15:00 - 15:20 (UTC-5) | AIAA-2023-2555

Christopher Caulfield, Jonathan Kolwyck, Tate Prater, Paul Palies (The University of Tennessee Space Institute)

**SE-05 | In Person - Chesapeake 2****Interference-to-Noise (I/N) Compliance Validation of Telesat, OneWeb and SpaceX's 2020 Ka-Band NGSO FCC Processing Round Applications**

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2577

Antoinette Tan, Pranavi Boyalakuntla, Braden Oh, Utsav Gupta, Lieselotte Heinrich, Whitney Lohmeyer (Franklin W Olin College of Engineering)

**Uncovering Hazards Using a Multi-Objective Optimization to Explore the Faulty State-Space**

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2578

Inga Girshfeld, Daniel Hulse, Lukman Irshad (NASA Ames Research Center)

**TP-21 | In Person - Azalea 1****Stochastic determination of gas-phase chemical reaction rates from experiments in air plasmas**

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2598

Ana Isabel del Val, Olivier Chazot (Von Karman Institute For Fluid Dynamics)



(continued) TP-21 | In Person - Azalea 1

Development of a Scalable Radiative Heat Transfer Module for Gray, Diffuse Surfaces

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2599  
Rainald Lohner (George Mason University), Alejandro Figueroa (Eawag)



Modeling Heat Conduction in Composite Materials Using a Nonlocal Lattice Particle Method

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2600  
Donglai Liu, Hailong Chen (University of Kentucky)



FD-79 | In Person - Chesapeake E

Time-resolved volumetric particle tracking measurements of an unstable helical vortex pair

Friday, 27 January 14:00 - 14:20 (UTC-5) | AIAA-2023-2482  
Dominic Schröder (Rheinisch-Westfälische Technische Hochschule Aachen), Thomas Leweke (Institut de Recherche sur les Phenomenes hors Equilibre), Eike Stumpf (Rheinisch-Westfälische Technische Hochschule Aachen)



Time-Resolved Particle Image Velocimetry Measurements of Vortex Breakdown

Friday, 27 January 14:20 - 14:40 (UTC-5) | AIAA-2023-2483  
Assaf Krupnik, Anya R Jones (University of Maryland at College Park)



Effect of Freestream Turbulence on Wall-bounded Tip Vortex Breakdown and Decay Mechanisms

Friday, 27 January 14:40 - 15:00 (UTC-5) | AIAA-2023-2484  
Jack R Medzorian, Stephen P Lynch (The Pennsylvania State University)



16:00 | Technical Panel

EXPL-20.2 | In Person - National Harbor 7

SOF-07 | In Person - Camellia 1

HIS-08 | In Person - Azalea 2

16:00 | Technical Paper Session

SEN-05 | In Person - Chesapeake I

Selection of Tuning Parameters of the Unscented Kalman Filter using Analytical Truth Statistics

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2702  
Matthew Rhudy (Penn State Berks)



Image Database Generation and Management System for the Small-pixelized Airborne Target Recognition

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2703  
Lee Hoseop, Sungwook Cho (Cheongju University)



(continued) SEN-05 | In Person - Chesapeake I

INS Aiding by Combining Radar Altimeter and Seeker Measurements

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2704  
Emre han Ata, Koray S. Erer (Roketsan Roket Sanayii ve Ticaret AS), Erhan Ilhan Konukseven (Orta Dogu Teknik Universitesi)



INS Aiding by Combining Radar Altimeter and Seeker Measurements

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2704  
Emre han Ata, Koray S. Erer (Roketsan Roket Sanayii ve Ticaret AS), Erhan Ilhan Konukseven (Orta Dogu Teknik Universitesi)



Drone Navigation Based on Integrated MEMS Inertial and Polarimetric Camera Measurements

Friday, 27 January 17:00 - 17:20 (UTC-5) | AIAA-2023-2705  
Verdiana Bottino, Giorgio de Alteriis, Claudia Conte, Rosario Schiano Lo Moriello, Giancarlo Rufino, Domenico Accardo (Universita degli Studi di Napoli Federico II)



APA-84 | In Person - Potomac 6

Design of Laminar-Flow Airfoils Based On Boundary-Layer Integral Parameters

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2608  
Armando R. Collazo Garcia, Phillip J Ansell (University of Illinois Urbana-Champaign)



Numerical Study of Co-Flow-Jet Distribution along the Span of Finite Wing

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2609  
Zhijin Lei, Gecheng Zha (University of Miami)



Flight Dynamics of a Flying Wing Aircraft Featuring the Bell Spanload

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2610  
Caleb S Robb, Rohit K S S Vuppala, Ryan C Paul, Kursat Kara (Oklahoma State University College of Engineering Architecture and Technology)



Experimental analysis of the effect of active morphing of a VR-12 airfoil for unsteady aerodynamics optimization

Friday, 27 January 17:00 - 17:20 (UTC-5) | AIAA-2023-2611  
William Reffling, Thomas Sprengeler, Joshua Yurek, Charles Fabijanic, Yildirim B Suzen, Jordi Estevadeordal (North Dakota State University)



Simulation of 3D Co-Flow Jet Airfoil with Integrated Micro-Compressor Actuator at Different Cruise Mach Numbers

Friday, 27 January 17:20 - 17:40 (UTC-5) | AIAA-2023-2118  
Paula A Barrios, Yan Ren, Gecheng Zha (University of Miami)



**SEN-06 | In Person - Chesapeake 11****Heterogeneous Fleet Allocation and Route Planning Using Weighted Voronoi Diagrams**

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2706

Victor A Yang, Jehan Dastoor, Xiao Wei, Johann Bradley, Mostafa Elghorab, Alicia Sudol, Dimitri N Mavris (Georgia Institute of Technology)

**On-demand Landmark Activation to aid Navigation for Advanced Air Mobility**

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2707

Rohith Boyinine (University of Cincinnati), Eshaan Khanapuri, Anusna Chakraborty (Utopia Compression), Rajnikant Sharma (University of Cincinnati)

**IS-32 | In Person - Baltimore 2****A Deep Reinforcement Learning Approach to solve the Vehicle Routing Problem with Resource Constraints**

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2662

Dong Ho Lee, Jaemyung Ahn (Korea Advanced Institute of Science and Technology)

**Robust Waypoint Guidance of a Hexacopter on Mars using Meta-Reinforcement Learning**

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2663

Lorenzo Federici, Roberto Furfaro (The University of Arizona), Alessandro Zavoli, Guido De Matteis (Universita degli Studi di Roma La Sapienza)

**Systems Theoretic Process Analysis of a Run Time Assured Neural Network Control System**

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2664

Kerianne L Hobbs, Benjamin Heiner (Air Force Research Laboratory), Lillian Busse (University of Cincinnati), Kyle Dunlap (Parallax Advanced Research Corporation), Jonathan Rowanhill, Ashlie Ben Hocking (Dependable Computing, LLC), Aditya Zutshi (Galois Inc)

**State-Estimation-Aware Planning for Autonomous Systems with Temporal Logic Specifications**

Friday, 27 January 17:00 - 17:20 (UTC-5) | AIAA-2023-2665

Ali Tefvik Büyükköçak, Yingjie Hu, Azizollah Taheri (University of Minnesota Twin Cities), Derya Aksaray (Northeastern University), Demoz Gebre-Egziabher (University of Minnesota Twin Cities)

**GPS-Denied State Estimation for Blue/NDAA Unmanned Multi-Rotor Vehicles**

Friday, 27 January 17:20 - 17:40 (UTC-5) | AIAA-2023-2666

Grant Phillips, Justin M Bradley (University of Nebraska-Lincoln), Prashant Ganesh (University of Florida)

**IS-31 | In Person - Azalea 3****Estimating System State from the Actions of a Reinforcement Learning Agent**

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2657

Andres Enriquez Fernandez, John J Bird (The University of Texas at El Paso)



**(continued) IS-31 | In Person - Azalea 3****Sequential Cooperative Reinforcement Learning of Mothership Routing Problem**

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2658

Jaeho Lee, Junwoo Park, Dongwoo Lee, Hyochoong Bang (Korea Advanced Institute of Science and Technology)

**Real-time planning of Optimal Route for Conflict-Free UAS Operation Using Deep Reinforcement Learning**

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2659

Jaejun Jang, Nicholas Chaehoon Song, Junki Shim, Gwonyeol Lee (Gwangju Institute of Science and Technology), Jae-Young Choi, Rachit Prasad (Virginia Polytechnic Institute and State University), Seongim Choi (Gwangju Institute of Science and Technology)

**Data-Driven Trajectory Modeling of UAS/UAM in Dynamic Environment**

Friday, 27 January 17:00 - 17:20 (UTC-5) | AIAA-2023-2660

Rachit Prasad (Virginia Polytechnic Institute and State University), Gwonyeol Lee (Gwangju Institute of Science and Technology), Jae-Young Choi (Virginia Polytechnic Institute and State University), Jaejun Jang, Junki Shim, Nicholas Chaehoon Song, Seongim Choi (Gwangju Institute of Science and Technology)

**Dynamic Network-based Probabilistic Route Planner and Validation with Flight Test**

Friday, 27 January 17:20 - 17:40 (UTC-5) | AIAA-2023-2661

Rachit Prasad (Virginia Polytechnic Institute and State University), Junki Shim (Gwangju Institute of Science and Technology), Jae-Young Choi, Jean-Michel W Fahmi (Virginia Polytechnic Institute and State University), Jaejun Jang, Gwonyeol Lee, Nicholas Chaehoon Song (Gwangju Institute of Science and Technology), Craig A Woolsey (Virginia Polytechnic Institute and State University), Seongim Choi (Gwangju Institute of Science and Technology)

**IS-34 | In Person - Baltimore 4****Self-supervised Obstacle Detection During Autonomous UAS Taxi Operations**

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2672

Muhammad Yousuf Shaikh, Ivan Petrunin, Argyrios Zolotas (Cranfield University Cranfield School of Aerospace Transport and Manufacturing)

**A Closed Loop Perception Subsystem for small Unmanned Aerial Systems**

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2673

Veera Venkata Ram Murali Krishna Rao Muvva, Kruttdipta Samal, Justin M Bradley, Marilyn Wolf (University of Nebraska-Lincoln)

**Integration of Reinforcement Learning and Unreal Engine for Enemy Containment via Autonomous Swarms**

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2674

David Peterson, Beyonce Andrades, Kevin Lizarazu-Ampuero, Jai Deshmukh, Thomas Stapor (Virginia Polytechnic Institute and State University), Will Destaffan, Don Engel (University of Maryland Baltimore County College of Engineering and Information Technology), Justin Krometis (Virginia Polytechnic Institute and State University), Justin A Kauffman (Virginia Tech Research Center - Arlington)

**Multi-agent Control of Chaser Satellites using Games with Lexicographic Preferences**

Friday, 27 January 17:00 - 17:20 (UTC-5) | AIAA-2023-2675

Kristina Miller (University of Illinois Urbana-Champaign), Sean Phillips, Alexander A Soderlund (Air Force Research Laboratory Space Vehicles Directorate)

**Impact of Hydrogen Powered Drones on Advanced Air Mobility**

Friday, 27 January 17:20 - 17:40 (UTC-5) | AIAA-2023-2676

Daniel Coraspe, Samuel Diaz-Acosta, Emilio Serrano, Zoey Banash, Liang Sun (New Mexico State University)



**IS-33 | In Person - Baltimore 3**

**Motion-Primitive based Deep Reinforcement Learning for High Speed Aerospace Vehicle Missions**

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2667  
 Winston C Levin, Sean M Nolan (Purdue University), Ali K Raz (George Mason University), Kris Ezra (Purdue University), Julie J Parish, Kyle Williams (Sandia National Laboratories)



**Development of Active Decoy Guidance Policy by Utilising Multi-Agent Reinforcement Learning**

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2668  
 Enver Bildik, Burak Yuksek, Antonios Tsourdos, Gokhan Inalhan (Cranfield University Cranfield School of Aerospace Transport and Manufacturing)



**Impact and Influence of Cyber-Physical Systems Research on Autonomous Aerospace Systems**

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2669  
 Justin M Bradley (University of Nebraska-Lincoln), Cody H Fleming (Iowa State University)



**Energy-Aware Motion Planning using Experimental Flight Data from a Tailsitter UAV**

Friday, 27 January 17:00 - 17:20 (UTC-5) | AIAA-2023-2670  
 Peter Ryseck (University of Maryland at College Park), Elena Shrestha, Derrick W Yeo (University of Michigan), Rajneesh Singh, Matt Floros (Army Research Laboratory Aberdeen Proving Ground), Inderjit Chopra (University of Maryland at College Park)



**Effects of Intercept Point Placement On Clothoid Path Recovery Time After Collision Avoidance**

Friday, 27 January 17:20 - 17:40 (UTC-5) | AIAA-2023-2671  
 Travis W Moleski, Theodore Tuttle, Jay Wilhelm (Ohio University)



**PC-53 | In Person - National Harbor 10**

**Combustion Characteristics of Gaseous  $O_2/CH_4$  Coaxial Jet Flames in a Model Combustion Chamber**

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2688  
 Young Hoo Kim, Jae Hyun Kim, Oh Chae Kwon (Sungkyunkwan University College of Engineering)



**Investigation of Extinction and Turbulence Effects in Liquid-Fueled Jet Flames**

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2689  
 John Schihl, Amirreza Gandomkar (Michigan State University), Aaron Skiba, Campbell D Carter (Air Force Research Laboratory), Patton M Allison (Michigan State University)



**Model Simulations of Soot Formation due to PAH Kinetics from Mixing Layers of Jet-A Fuels**

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2690  
 Shubham B Karpe, Suresh Menon (Georgia Institute of Technology)





**DA-02 | In Person - National Harbor 14****Concept of Operations for an In-time Aviation Safety Management System (IASMS) for Upper E Airspace**

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2620

Kyle KE Ellis, Lawrence J Prinzel (NASA Langley Research Center), Paul Krois (Crown Consulting, Inc.), Misty Davies, Nikunj Oza, Robert Mah (NASA Ames Research Center), Chad Stephens, Michael Vincent (NASA Langley Research Center), Jan de Regt, Deborah Kirkman, Debra Moch-Mooney (Flight Safety Foundation), James Ackerson (Flight Research Aerospace), Samantha I Infeld (Analytical Mechanics Associates, Inc.)

**Design and Implementation of a Low-Cost Local Beacon System for GPS-Denied Environments**

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2621

Aref Asgari, Philip A Ferguson (University of Manitoba)

**Safe and Sustainable Unmanned Aircraft Trajectory Planning in Dense Urban Environments**

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2622

Maarten Uijt De Haag, Christian Berth, Carola Ebert, Julien Weiss (Technische Universitat Berlin Fakultat V Verkehrs- und Maschinensysteme)

**A Strategic Approach for Dense, Integrated, Vehicle Navigation**

Friday, 27 January 17:00 - 17:20 (UTC-5) | AIAA-2023-2623

Mahyar R Malekpour (NASA Langley Research Center)

**IS-36 | In Person - Potomac 4****Comparison of Visual and LiDAR SLAM Algorithms using NASA Flight Test Data**

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2679

Keerthana Kannan, Anjan Chakrabarty, Joshua E Baculi, Evan Kawamura, Wendy Holforty, Corey A Ippolito (NASA Ames Research Center)

**A Structurally-Adaptive Framework for Distributed Airborne Sensing over Real-time Collaborative Information Sharing Networks**

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2680

Corey A Ippolito (NASA Ames Research Center)

**Distributed Decision-Making on the Edge**

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2681

Aditya N Das (NASA Headquarters)

**PC-54 | In Person - National Harbor 8****Altering the Burning Rate of a Propellant with Shape Memory Alloy**

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2691

Derek K Messer, Cohen T Nunes, Thomas A Hafner, Steven Son (Purdue University School of Mechanical Engineering)






**(continued) PC-54 | In Person - National Harbor 8**

**Effects of Oxidizer Content on Electrically Controlled Gel Polymer Electrolyte Monopropellants**

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2692

Harrison Autry, Bradley Gobin, Ryan Marks, Gregory Young (Virginia Polytechnic Institute and State University)



**Extinguishing and Reignition Characteristics of Electrically Controllable Solid Propellants Under Elevated Pressures**

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2693


Bradley Gobin, Gregory Young (Virginia Polytechnic Institute and State University)



**The Effects of Simple Copper Containing Particles on the Thermal Decomposition of Ammonium Perchlorate**

Friday, 27 January 17:00 - 17:20 (UTC-5) | AIAA-2023-2694

Hope H Feltenberger, Joseph Kalman (California State University Long Beach)




**FD-84 | In Person - Chesapeake H**

**Investigation of Turbulent Inflow Techniques for High-Fidelity Simulations**

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2628


Matthew J Schwartz (Ohio Aerospace Institute), Daniel J Garmann (Air Force Research Laboratory)



**Economical Third-Order Methods for Accurate Surface Heating Predictions on Simplex Element Meshes**

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2629


Kyle B Thompson (NASA Langley Research Center), Hiroaki Nishikawa, Emmett Padway (National Institute of Aerospace)



**Shock-capturing model using PID controller for high-order discontinuous Galerkin method**

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2630


Juhyun Kim, Hojun You, Chongam Kim (Seoul National University)



**Walsh Functions for Shock Tracking and their Application to Expansion Tube Simulations**

Friday, 27 January 17:00 - 17:20 (UTC-5) | AIAA-2023-2631

Jamie Border, Rowan Gollan (The University of Queensland Centre for Hypersonics)




**GNC-54/IS-37 | In Person - Annapolis 4**

**Dynamic Inversion with Adaptive Augmentation for a High-Speed Guided Projectile**

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2647

Tristan Griffith (Texas A&M University), John K Zelina (Embry-Riddle Aeronautical University), Benjamin C Gruenwald, Joshua Bryson (Army Research Laboratory Aberdeen Proving Ground)



**(continued) GNC-54/IS-37 | In Person - Annapolis 4****Modeling of GPS Degradation Conditions for Risk Assessment of UAS Operations in Urban Environments**

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2648

Andrei Cuenca, Tatiana Gutierrez, Eduardo Morillo, Brock Steinfeldt, Hever Moncayo (Embry-Riddle Aeronautical University)

**Experimental Validation of a Distributed Norm-Free and Adaptive Event-Triggered Control Approach on an Aerial Multiagent System**

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2649

Deniz Kurtoglu, Jesse Jaramillo (University of South Florida), Stefan Ristevski (Combine Control System AB), Andrya Pimentel, Tansel Yucelen (University of South Florida), Jonathan A Muse (Wright-Patterson Air Force Base)

**Candidate Performance Metrics for Generalized Control for Autonomous Flight**

Friday, 27 January 17:00 - 17:20 (UTC-5) | AIAA-2023-2650

Irene M Gregory, Michael J Acheson, Andrew P. Patterson, Matthew D Houghton, Alex Oshin, Kasey A Ackerman, Jacob Cook (NASA Langley Research Center)

**GTE-38 | In Person - National Harbor 11****Conjugate Heat Transfer Prediction Procedure for Realistic Film-Cooled Axial Turbines**

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2651

Joseph Graff, Roger L. Davis (University of California Davis), John P. Clark (Air Force Research Laboratory)

**Unsteady Simulation of a Single Stage High Speed Compressor with Advanced Casing Treatments**

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2652

Russell W Powers, Joshua Gilbert (Naval Air Warfare Center Aircraft Division)

**Computational Fluid Dynamics Modeling of Lean Blowout in the ARC-M1 Gas Turbine Combustor**

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2653

Debolina Dasgupta, Sibendu Som (Argonne National Laboratory), Eric J Wood, Tonghun Lee (University of Illinois Urbana-Champaign Grainger College of Engineering), Eric Mayhew, Jacob Temme, Chol Bum Kweon (Army Research Laboratory Aberdeen Proving Ground)

**IS-35 | In Person - National Harbor 13****Safe Path Planning of UAV Based on Reinforcement Learning in Probabilistic Environments**

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2677

James Gault, Jun Xiang, Jun Chen (San Diego State University)

**Twin-Delayed Deep Deterministic Policy Gradient for altitude control of a flying-wing aircraft with an uncertain aerodynamic model**

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2678

Willem Völker, Yifei Li, Erik-Jan Van Kampen (Technische Universiteit Delft Faculteit Luchtvaart- en Ruimtevaarttechniek)



MDO-28 | In Person - Chesapeake 5

Nonlinear Projection-Based Model Order Reduction in the Presence of Adaptive Mesh Refinement

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2682  
Clayton Little, Charbel Farhat (Stanford University)



Efficient Global Optimization Algorithm Using Neural Network-based Prediction and Uncertainty

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2683  
Pavankumar Koratikere, Leifur T Leifsson (Purdue University), Laurel Barnet, Kenneth Bryden (Iowa State University)



Uncertainty Quantification via Deep Ensembles in Missile Performance Prediction

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2684  
SunWoong Yang, Kwanjung Yee (Seoul National University)



GNC-51 | In Person - Annapolis 2

Optimal Coasting Time Determination of a Multi-stage Interceptor Considering Engagement Zone

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2637  
Hyungho Na, Taehyun Sung, Jaemyung Ahn (Korea Advanced Institute of Science and Technology)



Integrated and Adaptive Guidance and Control for Endoatmospheric Missiles via Reinforcement Meta-Learning

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2638  
Brian Gaudet, Roberto Furfaro (The University of Arizona)



On-Board Optimal Feedback Controller Generation for Hypersonic Re-Target Scenarios

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2639  
Mihir Vedantam (The University of Texas at Austin), Carlos Andres Vargas Venegas, Damien Gueho, Puneet Singla (The Pennsylvania State University), Maruthi R Akella (The University of Texas at Austin)



HMT-04/IS-30 | In Person - National Harbor 6

Q-Learning based Pursuit-Evasion game in a grid network with partial information

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2654  
Srikanth Elkoori Ghantala Karnam, Rajnikant Sharma (University of Cincinnati)



Multi-Agent Assisted Shortest Path Planning using Monte Carlo Tree Search

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2655  
Abhay Singh Bhadoriya, Swaroop Darbha, Sivakumar Rathinam (Texas A&M University), David Casbeer, Steven J Rasmussen (Air Force Research Laboratory), Satyanarayana G Manyam (Infoscitex)



OPS-06 | In Person - Chesapeake 12

Commercial Potential Evaluation of Scramjet Powered Vehicles for Access-to-Space

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2685  
Lachlan McTaggart, Tristan Vanyai (The University of Queensland)



A Bibliometric Approach to Characterizing Technology Readiness Levels Using Machine Learning

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2686  
Jehan Dastoor, Heying Zhang, Michael G Balchanos, Dimitri N Mavris (Georgia Institute of Technology)



Developing a Roadmap for an On-Orbit Satellite Factory Concept

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2687  
Jacob Rome, Matthew Obenchain, Christopher Hartney, Kelvin Chen, Arianna Villegas, Vinay K Goyal (The Aerospace Corporation), Jon Strizzi (United States Space Force)



GNC-52 | In Person - Annapolis 3

Robust Wind-Aware Path Optimization Onboard Small Fixed-wing UAVs

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2640  
Thomas Bucher, Thomas Stastny (Eidgenossische Technische Hochschule Zurich), Sebastian Verling (Wingtra AG), Roland Siegwart (Eidgenossische Technische Hochschule Zurich)



A Nonlinear Guidance Law for Target Enclosing with Arbitrary Smooth Shapes

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2641  
Abhinav Sinha, Yongcan Cao (The University of Texas at San Antonio)



Energy-efficient Ring Formation Control with Constrained Inputs

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2642  
Praveen Kumar Ranjan, Abhinav Sinha, Yongcan Cao (The University of Texas at San Antonio), Dzung M Tran, David Casbeer, Isaac E Weintraub (Air Force Research Laboratory)



APA-85 | In Person - Potomac 3

Aerodynamic Design of Propellers for an EVTOL Aircraft

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2612  
Carlotta Manca, Prasanth K Murari, Kavipiriyam Shanmuganathan, Sachin Ramesh (Volador FlyTech Limited)



Time Varying Rotor Aerodynamics for Quadrotor Vehicles

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2613  
Christopher Smith, Alok Sinha (The Pennsylvania State University)



**(continued) APA-85 | In Person - Potomac 3****Design of Propellers with Passive Mitigation of Coherent Tip Vortex Roll-up**

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2614

Tove E Kopperstad, Phillip J Ansell (University of Illinois Urbana-Champaign)

**FD-86 | In Person - Chesapeake G****Applying compressible transformations to wall modeled LES of cold wall flat plate boundary layers**

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2635

Tyler R Hendrickson, Pramod Subbareddy, Graham V Candler (University of Minnesota Twin Cities), Robyn L Macdonald (University of Colorado Boulder)

**Rotor Performance and Turbulent Wake Simulations of a Scaled Helicopter Rotor in Hover Using Wall-Modeled Large-Eddy Simulations**

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2636

Zachary Stratton, John T Spyropoulos (Naval Air Systems Command), Sanjeeb Bose (Cascade Technologies Inc), Jelena Svorcan (Univerzitet u Beogradu)

**SOF-06 | In Person - Chesapeake C****Space-based Computing Challenges**

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2708

Fred C Briggs (Self)

**Space ROS: An Open-Source Framework for Space Robotics and Flight Software**

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2709

Austin Probe (Emergent Space Technologies, Inc), Amalaye Oyake, S Will Chambers (Blue Origin LLC), Matthew Deans, Guillaume Brat, Nick Bryan Cramer (NASA Ames Research Center), Brian Roberts (NASA Goddard Space Flight Center), Kimberly Hambuchen (NASA Johnson Space Center)

**Analysis of Input from Wildfire Incident Experts to Identify Key Risks and Hazards in Wildfire Emergency Response**

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2710

Seydou Mbaye, Garfield Jones (Morgan State University), Misty D Davies (NASA Ames Research Center)

**ARINC 661 Based User Interface Design for a Sustainable Aviation Application on an Electronic Flight Bag**

Friday, 27 January 17:00 - 17:20 (UTC-5) | AIAA-2023-2711

Nimisha Scariachan (Technische Universitat Clausthal), Marie Goetz, Joscha Kurz, Umut Durak (Deutsches Zentrum fur Luft- und Raumfahrt eV)

**SCS-13/SATS-08 | In Person - Woodrow Wilson D****Development of the High Strain Composite Deployable Vector Sensor Payload for the AERO and VISTA Cubesat Missions**

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2695

Mark J Silver, Alai Lopez, Robert Reeve, Alexander Morris, Alan Fenn (Massachusetts Institute of Technology Lincoln Laboratory)



**(continued) SCS-13/SATS-08 | In Person - Woodrow Wilson D**

**Prototyping and Engineering Model Test Campaign of the 100W 1U PowerCube Deployable Solar Array**

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2696


Antonio Pedivellano, Thomas Sinn, Ambre Raharijaona, Michael Kringer, Joram Gruber, Joachim Schmidt, Thomas Lund, Alexander Titz (Deployables Cubed GmbH), Diego Garcia, Daria Stepanova, Anton Drachuk, Anton Vlaskin (German Orbital Systems GmbH), Tim Kubera (Azur Space Solar Power GmbH), Stefan Titze, Mathias Hartmann (Technische Hochschule Deggendorf), Bailey Leona Garrett, Callan Whitney, Pauline Faure (California Polytechnic State University)



**Design and Testing of the BionicWingSat in a Zero-g Flight Campaign - A 2U-CubeSat with Deployable, Biologically-Inspired Wings**

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2697

Martin Eckhard Zander (Deutsches Zentrum für Luft- und Raumfahrt DLR Institut für Faserverbundleichtbau und Adapttronik), Matthew K Chamberlain (NASA Langley Research Center), Dominic Jost, Daniel Robert Müller, Niels Hagmeister, Marco Straubel, Christian Hühne (Deutsches Zentrum für Luft- und Raumfahrt DLR Institut für Faserverbundleichtbau und Adapttronik)



**Deployable Roll-Out Composite (ROC) Booms for Smallsat Antennas**

Friday, 27 January 17:00 - 17:20 (UTC-5) | AIAA-2023-2698

Michael Pulford, Mark S Lake (Redwire Space)




**GNC-53 | In Person - Annapolis 1**

**Rigid Body Pose Estimation on TSE(3) for Spacecraft with Unknown Moments of Inertia**

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2643


Brennan S McCann, Morad Nazari, Matthew M Wittal (Embry-Riddle Aeronautical University), Jeffrey Smith (NASA John F Kennedy Space Center)



**Convex Optimization of Ascent and Powered Descent of a Reusable Launch Vehicle**

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2644


Federico Gettatelli, Boris Benedikter, Alessandro Zavoli (Universita degli Studi di Roma La Sapienza), Simone Pizzurro, Enrico Cavallini (Agenzia Spaziale Italiana)



**Electrospray Propulsion Performance for Cubesat Missions**

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2645

Ivan Martinez I Cano, Kenneth D. Mease (University of California Irvine)



**A Novel Variable Specific Impulse Optimization Methodology for Modulable Electric Propulsion Systems**

Friday, 27 January 17:00 - 17:20 (UTC-5) | AIAA-2023-2646

Giuseppe Di Pasquale (IENAI SPACE), Manuel Sanjurjo Rivo (Universidad Carlos III de Madrid - Campus de Leganes), Daniel Pérez Grande (IENAI SPACE)




**ASE-07/PDL-17 | In Person - Baltimore 5**

**Liquid Plasma Crystals on the ISS**

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2615

Evdokiya G Kostadinova (Auburn University), Emerson Gehr (Baylor University), Bradley Andrew (Auburn University), Lorin S Matthews, Truell W Hyde, Abbie Terrell (Baylor University)



**(continued) ASE-07/PDL-17 | In Person - Baltimore 5****Charging of Irregularly-Shaped Dust Grains near Surfaces in Space**

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2616

David Lund, Xiaoming He, Daoru Han (Missouri University of Science and Technology)

**Simulated Propagation of Ion Acoustic Solitary Waves from Orbital Debris Contrasted with Simultaneous Observations of the Ionosphere by an Incoherent Scatter Radar**

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2617

Connor M Wilson, Christine M Hartzell (University of Maryland at College Park)

**Addressing the Lightning Protection Needs of Novel Aircraft**

Friday, 27 January 17:00 - 17:20 (UTC-5) | AIAA-2023-2618

Carmen Guerra-Garcia, Samuel Austin, Jaime Peraire, Cuong Nguyen (Massachusetts Institute of Technology)

**Streamer Discharge Development in Long Air Gaps**

Friday, 27 January 17:20 - 17:40 (UTC-5) | AIAA-2023-2619

Andrey Starikovskiy (Princeton University), Eduard Bazelyan (AO Energeticeskij institut im G M Krzizanovskogo), Nickolay Aleksandrov (Moskovskij fiziko-tehniceskij institut nacional'nyj issledovatel'skij universitet)

**FD-83 | In Person - Chesapeake D****Conceptual Aircraft Design Studies with Integrated Active Flow Control**

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2625

Alexander L Carrere (Boeing Research and Technology), Alexander W Feldstein (Aurora Flight Sciences), Sean R Wakayama (Boeing Research and Technology), Lauren Wolfe (Aurora Flight Sciences), Ryan Hupp, Norman Princen (Boeing Research and Technology)

**Evaluation of Mission and Configuration Effectiveness Employing Active Flow Control (AFC) Technologies**

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2626

Carl Johnson, Jimmy C Tai (Georgia Institute of Technology)

**Preliminary Design of Coplanar Joined Wing Aircraft with Integrated Active Flow Control**

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2627

Alexander W Feldstein, Kevin R Uleck, John Floyd, Cody Gray (Aurora Flight Sciences), Niko Intravartolo, Matthew Stauffer, Timothy Garrett (Boeing Research and Technology)

**APA-83 | In Person - Potomac 5****AVT-297 Development of a Framework for Validation of Computational Tools**

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2604

Joseph H Morrison (NASA Langley Research Center), Melike Nikbay (Istanbul Teknik Universitesi), Eric L Walker (NASA Langley Research Center)



(continued) APA-83 | In Person - Potomac 5

Exploitation of a Validation Hierarchy for Modeling and Simulation

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2605  
Scott Shaw (MBDA UK Ltd), James M Luckring (NASA Langley Research Center), William Oberkampf (W. L. Oberkampf Consulting), Rick E Graves (Air Force Research Laboratory)



A Process for Identifying Requirements for Physical Referent Data to Support Computational Model Validation

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2606  
Nigel J Taylor (MBDA UK Ltd), Dimitri N Mavris, Efe Yamac Yarbasi, Burak Bagdatli (Georgia Institute of Technology)



A Systems Engineering Based Model Selection Approach for Complex, Multi-Disciplinary Physics Problems

Friday, 27 January 17:00 - 17:20 (UTC-5) | AIAA-2023-2607  
Efe Yamac Yarbasi, Burak Bagdatli, Dimitri N Mavris (Georgia Institute of Technology College of Engineering)



FD-85 | In Person - Chesapeake E

Evaluation of the Modified Version of the Holmén Vortex Identification Method Using Experimental Data

Friday, 27 January 16:00 - 16:20 (UTC-5) | AIAA-2023-2632  
Tomas E Rojas Carvajal, Jacob Neal, Michael Amitay (Rensselaer Polytech Institute School of Engineering)



Recognition and Classification of Vortical Flows using Artificial Neural Networks and Graftieaux’s Identification Criteria

Friday, 27 January 16:20 - 16:40 (UTC-5) | AIAA-2023-2633  
Dylan T O'Donoghue, Chang-Kwon Kang (The University of Alabama in Huntsville), Truong Tran (Penn State Harrisburg)



Investigation of Interacting Wake Instability using Complex Network Analysis

Friday, 27 January 16:40 - 17:00 (UTC-5) | AIAA-2023-2634  
Renee Dorer (The Pennsylvania State University), Michael Meehan (University of Colorado Boulder), Jacqueline A O'Connor (The Pennsylvania State University)

