Program Schedule

SciTech 2016

January 03 - 08, 2016

The Program Report was last updated December 11, 2015 at 01:06 AM EST. To view the most recent meeting schedule online, visit https://aiaa-mst16.abstractcentral.com/planner.jsp

Sunday, January 03, 2016

Time	Session or Event Info
6:00 PM-7:30 PM, Seaport H, **NW-01. Student Welcome Reception**, Networking, **Forum Event**	

Monday, January 04, 2016

Time	Session or Event Info
7:00 AM-7:30 AM, Session Room Foyers, **NW-02. Monday Early Morning Networking Coffee Break**, Networking, **Forum Event**	
7:30 AM-8:00 AM, Session Rooms, **SB-01. Monday Morning Speakers' Briefing**, Speakers' Briefing, **Forum Event**	
8:00 AM-9:00 AM, Seaport A-E, **PLNRY-01. Monday Morning Plenary Panel** **Aerospace S&T Policy in the 2016 Political Arena** , Plenary, **Forum Event**	
9:00 AM-12:30 PM, Nautical, **AA-01. Aeroacoustics - Jet Noise I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Krishan Ahuja, krish.ahuja@gtri.gatech.edu, Georgia Institute of Technology; Co-Chair: Douglas Nark, d.m.nark@nasa.gov, NASA Langley Research Center	
9:00-9:30 AM	**Mean Velocity and Turbulence Measurements of Supersonic Jets with Fluidic Inserts** R.W. Powers; S. Hromisin; D.K. McLaughlin; P.J. Morris
9:30-10:00 AM	**Numerical Investigation of Supersonic Jet Noise Suppression via Downstream Microjet Fluidic Injection** H. Pourhashem; I. Kalkhoran
10:00-10:30 AM	**Fluctuating Pressure Gradients in Heated Supersonic Jets** K.T. Lowe; C.C. Nelson
10:30-11:00 AM	**Extracting Near-Field Structures Related to Noise Production in High Speed Jets** P. Kan; J. Lewalle; M.N. Glauser; S.P. Gogeneni; B.V. Kiel
11:00-11:30 AM	**Scale-specific Intermittency and Spatio-temporal Correlations in a Supersonic Jet** U. Sasidharan Nair; L.M. Agostini; D.V. Gaitonde
11:30-12:00 PM	**Including Finite Surface Span Effects in Empirical Jet-Surface Interaction Noise Models** C.A. Brown
9:00 AM-12:30 PM, Golden Hill B, **ABPSI-01/GEPC-01. NASA ERA Systems Integration I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Kevin James, kevin.d.james@nasa.gov; Co-Chair: Laurence Leavitt, ldleavitt1@cox.net, N A S A	

9:00-9:30 AM	**Overview Of ERA Integrated Technology Demonstration (ITD) 51A Ultra-High Bypass (UHB) Integration for Hybrid Wing Body (HWB) (Invited)** J.D. Flamm; K. James; J.T. Bonet
9:30-10:00 AM	**Oral Presentation. Summary of the Configuration Development of the BWB-009H1 Concept Vehicle for ERA Integrated Technology Demonstration (ITD) 51A Ultra-High Bypass (UHB) Integration for Hybrid Wing Body (HWB) (Invited)** J.T. Bonet; N. Princen; D. Roman
10:00-10:30 AM	**Wind Tunnel Model Design and Fabrication of a 5.75% Scale Blended -Wing-Body Twin Jet Configuration (Invited)** E.D. Dickey; N. Princen; J.T. Bonet; G.K. Ige
10:30-11:00 AM	**Overview of Low-speed Aerodynamic Tests on a 5.75% Scale Blended-Wing-Body Twin Jet Configuration (Invited)** D.D. Vicroy; E.D. Dickey; N. Princen; M. Beyar
11:00-11:30 AM	**Experimental Evaluation of Inlet Distortion on an Ejector Powered Hybrid Wing Body at Take-off and Landing Conditions (Invited)** M.B. Carter; P.R. Shea; J.D. Flamm; M.J. Schuh; K. James; M.R. Sexton; D. Tompkins; M. Beyar
11:30-12:00 PM	**Turbine Powered Simulator Calibration and Testing for Hybrid Wing Body Powered Airframe Integration (Invited)** K. Long; P.R. Shea; J.D. Flamm; D. Tompkins; M. Beyar
12:00-12:30 PM	**Phased Acoustic Array Measurements of a 5.75% Hybrid Wing body Aircraft (Invited)** N.J. Burnside; W.C. Horne; K.R. Elmer; R. Cheng; L. Brusniak
9:00 AM-12:30 PM, Cortez Hill A, **AFM-01. Biometric Flight Mechanics,** Technical Paper, **AIAA Atmospheric Flight Mechanics Conference,** Chair: Richard Lind, ricklind@ufl.edu, University of Florida; Co-Chair: Ming Xin, xin@missouri.edu, University of Missouri	
9:00-9:30 AM	**The Dynamics of Passive Wing-Pitching in Hovering Flight of Flapping Micro Air Vehicles Using Three-Dimensional Aerodynamic Simulations** L. Chang; N.O. Perez-Arancibia
9:30-10:00 AM	**Aerodynamic Model Identification of a Clap-and-Fling Flapping-Wing MAV: a Comparison between Quasi-steady and Black-box Approaches** S.F. Armanini; J.V. Caetano; C.C. de Visser; G.C. de Croon; M. Mulder
10:00-10:30 AM	**Effect of Unsteady Aerodynamics on the Trim of Hovering Insects and FWMAVs** A. Mouy; A. Rossi; H.E. Taha
10:30-11:00 AM	**Dynamic Stability of a Hawkmoth-scale Flapping-wing Micro Air Vehicle during Forward Flight** J. Kim; J. Han; S. Choi; J. Han
11:00-11:30 AM	**Minimum-Time Transition of FWMAVs from Hovering to Forward Flight** A. Hussein; H.E. Taha

11:30-12:00 PM	**Effects of Advance Ratio on the Aerodynamic Characteristics of an Insect Wing in Forward Flight** J. Han; J. Han; J. Chang
12:00-12:30 PM	**Oral Presentation. Systems level analysis of resonant mechnisms for flapping-wing flyers** J. Kok; J. Chahl
9:00 AM-12:30 PM, Cortez Hill B, **AFM-02. Atmospheric Entry, Hypersonic Flight and Aeroassist Technology I**, Technical Paper, **AIAA Atmospheric Flight Mechanics Conference**, Co-Chair: Tom Berger, tom.n.berger@gmail.com, US Army Aviation Development Directorate -AFDD; Chair: Michael Bolender, michael.bolender@us.af.mil, Air Force Research Lab	
9:00-9:30 AM	**High Mass Mars Exploration using Slender Entry Vehicles** K. Mall; M.J. Grant
9:30-10:00 AM	**Incorporation of Ablative Shape Change into Conceptual Hypersonic Mission Design** H. Saranathan; M.J. Grant
10:00-10:30 AM	**Strategies for Landing Large Ballistic Coefficient Vehicles on Mars** T.R. Anderson; Z.R. Putnam; R.D. Braun
10:30-11:00 AM	**Stability Analysis of Multibody Systems for Mars Descent and Landing** E. Mooij
11:00-11:30 AM	**Robust Aerial Deployment of Mars Airplane with Tilted Folding-Axis** K. Fujita; H. Nagai; A. Oyama
11:30-12:00 PM	**Application of Taylor Series Integration to Reentry Problems** M. Bergsma; E. Mooij
9:00 AM-12:30 PM, Balboa B, **AMT-01. Velocimetry I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Tobias Ecker, ecker@vt.edu, Virginia Tech; Co-Chair: David Plemmons, david.plemmons@arnold.af.mil, Aerospace Testing Alliance (ATA)	
9:00-9:30 AM	**100-kHz burst-mode particle image velocimetry: space-time correlations and considerations for spatial and temporal resolution** J.D. Miller; N. Jiang; D. Thul; M. Slipchenko; J. Mance; T.R. Meyer; S. Roy; J.R. Gord
9:30-10:00 AM	**Velocity Measurements in an Arcjet Erosion Test Facility** D.H. Plemmons; N. Galyen; E.S. Smith; R.G. Porter
10:00-10:30 AM	**Particle Image Velocimetry for Transonic Unsteady Flow Field around a Rocket Fairing Model** S. Koike; K. Nakakita; S. Tsutsumi
10:30-11:00 AM	**Towards shear flow measurements using FLEET** Y. Zhang; N. Calvert; A. Dogariu; R.B. Miles
11:00-11:30 AM	**Scale-up of the Time-Resolved Doppler Global Velocimetry Technique** T. Ecker; K. Lowe; W. Ng
11:30-12:00 PM	**Velocity Spectrum Estimation in Shock–Boundary Layer Interaction** T. Jiang; A. Schreyer; L. Larchevêque; S. Piponniau; D. Pierre

9:00 AM-12:30 PM, Coronado D, **AMT-10/SD-15. Advances in Fluid-Structural Interaction Experimentation**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Timothy Beberniss, timothy.beberniss@us.af.mil; Chair: Justin Wagner, jwagner@sandia.gov, Sandia National Laboratories	
9:00-9:30 AM	**Oral Presentation. Advancements and Experimental Measurement Challenges of Shock-Boundary Layer Interaction Influence on the Dynamic Response of a Flexible Panel** T. Beberniss
9:30-10:00 AM	**Oral Presentation. Optical Full-field Response Verification of Wind Tunnel Tests on Inflatable Aerodynamic Decelerators** A.M. Calomino; K. Johnson; M. Cheatwood; A. Cassell; G. Swanson; C.D. Kazemba
10:00-10:30 AM	**Oral Presentation. High-Speed Fluid-Structure Interaction Experiments at Sandia National Laboratories** K.M. Casper; J.L. Wagner; S.J. Beresh; J. Henfling; R. Spillers
10:30-11:00 AM	**Oral Presentation. Simultaneous time-resolved PIV, and force measurements of membrane wings** B. Ganapathisubramani
11:00-11:30 AM	**Oral Presentation. Structural Response to Fluid/Acoustic Coupling** N.E. Murray
11:30-12:00 PM	**Oral Presentation. Digital image correlation used for dynamic full-field deformation and strain measurements: Examples and applications** P. Reu
12:00-12:30 PM	**Oral Presentation. FSI measurements of nuclear fuel bundles during earthquakes** P. Bardet; N. Weichselbaum; S. Hussain
9:00 AM-12:30 PM, Coronado E, **APA-02. Special Session: Simulation of Rotor in Hover I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Nathan Hariharan, nathan.hariharan.ctr@hpc.mil, CREATE-AV; Co-Chair: Robert Narducci, robert.p.narducci@boeing.com, Boeing Defense, Space & Security	
9:00-9:30 AM	**Helicopter Aerodynamic Modeling of S-76 Rotor with Tip-Shape Variations: Review of AIAA Standardized Hover Evaluations** N.S. Hariharan; R.P. Narducci; T. Egolf
9:30-10:00 AM	**A Comparison of CFD Hover Predictions for the Sikorsky S-76 Rotor** R. Jain
10:00-10:30 AM	**Assessment of S-76 Rotor Hover Performance in Ground Effect Using an Unstructured Mixed Mesh Method** J. Hwang; J. Choi; O. Kwon
10:30-11:00 AM	**Numerical simulation of Hovering S-76 Helicopter Rotor including Far-Field Analysis** P. Gardarein; A. Le Pape
11:00-11:30 AM	**Mesh Adaption for Tracking Vortex Structures in OVERTURNS Simulation of an S-76 Rotor in Hover** J. Hayes; B. Govindarajan; J.D. Baeder

11:30-12:00 PM	**Direct Comparsion of Hover Prediction Workshop Results** E.P. Duque; A. Toyoda; M. Burklund; N.S. Hariharan; R.P. Narducci; C.P. Stone
9:00 AM-12:30 PM, Americas Cup C, **APA-03. Aerodynamic Testing: Flight and Large Scale**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Steven Massey, s.j.massey@larc.nasa.gov, NASA-Langley Research Center; Co-Chair: Michael Park, Mike.Park@NASA.Gov, NASA-Langley Research Center	
9:00-9:30 AM	**Flight Testing of FlexFloil^{TM} Adaptive Compliant Trailing Edge** S. Kota; P. Flick; F.S. Collier
9:30-10:00 AM	**An Autonomous, Traversable Boundary-Layer Probe for Flight Testing** H. Koch; P. Scholz; R. Kerbstadt; M. Wermes
10:00-10:30 AM	**Evaluation of the Hinge Moment and Normal Force Aerodynamic Loads from a Seamless Adaptive Compliant Trailing Edge Flap in Flight** E.J. Miller; J. Cruz; S. Lung; S. Kota; G. Ervin; K. Lu; P. Flick
10:30-11:00 AM	**Measurements of Dynamic Interface Between Ship and Helicopter Air Wakes** C. Friedman; J. Duplessis; M. Snyder
11:00-11:30 AM	**Aerodynamic Tests Conducted on a Large Scale Nose Landing Gear and Cavity Model in the ARA Transonic Wind Tunnel** D. Greenwell; A. Hill; M.K. Quinn
11:30-12:00 PM	**High lift INflight VAlidation (HINVA) - Overview about the 2nd Flight Test Campaign** R. Rudnik; D. Schwetzler
12:00-12:30 PM	**Determination of Power Required through Accelerated Flight with Application to Unmanned Vehicles** L. Soltmann; C.E. Hall
9:00 AM-12:30 PM, Americas Cup D, **APA-04. Transonic & Supersonic Aerodynamics**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Marco Fossati, marco.fossati@cfdlab.mcgill.ca, McGill University; Chair: Christopher Rosema, christopher.c.rosema.civ@mail.mil, US Army AMRDEC	
9:00-9:30 AM	**Computation of High-Subsonic and Transonic Flows by a Lattice Boltzmann Method** P. Gopalakrishnan; Y. Li; R. Zhang; H. Chen
9:30-10:00 AM	**Influence of transition on the flow downstream of normal shock wave--boundary layer interactions** T.S. Davidson; H. Babinsky
10:00-10:30 AM	**Large-Eddy Simulation of Shock-Induced Flow Separation Control Using SparkJet Concept** G. Yang; Y. Yao; J. Fang; T. Gan; L. Lu
10:30-11:00 AM	**Numerical Investigation of Supersonic Flow Over a Wall-Mounted Cylinder** P.E. Morgan; S.E. Sherer; M. Visbal
11:00-11:30 AM	**Investigation Of Diffusers For Two Stream Supersonic Wind Tunnels** M. Prabakar; T. M. Thiruchengode

9:00 AM-12:30 PM, Harbor E, **FD-01/APA-05. Special Session: Low Re & Bio-inspired Flows Discussion Group (Invited),** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Chair: Melissa Green, greenma@syr.edu, Syracuse University	
9:00-9:30 AM	**Oral Presentation. Vortex dynamics around translating and pitching wings and fins** K. Taira; M.A. Green
9:30-10:00 AM	**Oral Presentation. Discrete-Vortex Method for Separated Flows, Augmented with Shedding Criteria from Boundary Layer Solutions** K. Ramesh
10:00-10:30 AM	**Oral Presentation. Advances in Low-Dimensional Data-Driven Systems Modeling for Unsteady Nonlinear Aerodynamics** M. Hemati
10:30-11:00 AM	**Oral Presentation. Applications of unsteady aerodynamic reduced-order models from experiments** K.O. Granlund
11:00-11:30 AM	**Oral Presentation. Unsteady Separated Flow Associated with Cross-Flow Turbines** B. Strom; B. Polagye; S. Brunton
11:30-12:30 PM	**Discussion**
9:00 AM-12:30 PM, Promenade B, **FD-02. Acoustics and Compressible Flow Transition,** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Co-Chair: Ryan Gosse, ryan.gosse.1@us.af.mil, WPAFB; Chair: Rudolph King, rudolph.a.king@nasa.gov, NASA-Langley Research Center	
9:00-9:30 AM	**Acoustic Radiation from a Mach 14 Turbulent Boundary layer** C. Zhang; L. Duan
9:30-10:00 AM	**Numerical Study of Wave Trains in Supersonic Flow over a Compression Corner** A.V. Novikov; A.V. Fedorov; I. Egorov
10:00-10:30 AM	**Measurements in a Transitioning Cone Boundary Layer at Freestream Mach 3.5** R.A. King; A. Chou; P. Balakumar; L.R. Owens; M.A. Kegerise
10:30-11:00 AM	**Transient Growth Analysis of Compressible Boundary Layers with Parabolized Stability Equations** P. Paredes; M.M. Choudhari; F. Li; C. Chang
11:00-11:30 AM	**Effect of Freejet Upstream Flow Conditions on Flow-Acoustic Resonant Interactions in Transitional Airfoils** L.D. Nguyen; V.V. Golubev; R.R. Mankbadi; M. Roger; M. Visbal
9:00 AM-12:30 PM, Cove, **FD-03. Aerodynamic Flow Control,** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Co-Chair: John Lin, john.c.lin@nasa.gov, NASA-Langley Research Center; Co-Chair: David Williams, david.williams@iit.edu, Illinois Institute of Technology	
9:00-9:30 AM	**Aerodynamic Control of Coupled Body-Wake Interactions** T.J. Lambert; B. Vukasinovic; A. Glezer

9:30-10:00 AM	**Separation Control With Cooperative Actuation** M. Blechschmidt; K. Bauer; W. Nitsche
10:00-10:30 AM	**Investigation of Trapped Vorticity Concentrations Effected by Hybrid Actuation in an Offset Diffuser** T. Burrows; Z. Gong; B. Vukasinovic; A. Glezer
10:30-11:00 AM	**An Overview of Active Flow Control Enhanced Vertical Tail Technology Development** J.C. Lin; M.Y. Andino; M.G. Alexander; E.A. Whalen; M.A. Spoor; J.T. Tran; I.J. Wygnanski
11:00-11:30 AM	**Conical Forebody Flow Control Using Thick Dielectric Barrier Plasma Actuators** Y. Long; H. Li; X. Meng; H. Hu; F. Liu; S. Luo
11:30-12:00 PM	**Modeling Dynamic Lift Response to Actuation** X. An; D.R. Williams; J. Eldredge; T. Colonius
9:00 AM-12:30 PM, Pier, **FD-04. CFD Applications and Design**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Per-Olof Persson, persson@berkeley.edu,	
9:00-9:30 AM	**CFD Studies of Hybrid Air Vehicles** M. Carrion; M. Biava; R. Steijl; G.N. Barakos; D. Stewart
9:30-10:00 AM	**Numerical Study of Water Impact of an Elastic Cylindrical Shell Using Coupled FVM-FEM Method** Q. Qu; R. Wang; H. Guo; P. Liu; R.K. Agarwal
10:00-10:30 AM	**Hybrid Quasi Molecular-Continuum Modeling of Supercooled Large Droplet Dynamics for In-flight Icing Conditions** V. Abdollahi; W.G. Habashi; M. Fossati
10:30-11:00 AM	**Development of a Parallel Lagrangian Particle Tracking Code for 3D Multi-Block Curvilinear Grids** A.A. Kulkarni; J.R. Edwards
11:00-11:30 AM	**A Surface Vorticity Panel Method** D.J. Pate; B. German
11:30-12:00 PM	**High-Order, Time-Dependent Aerodynamic Optimization using a Discontinuous Galerkin Discretization of the Navier-Stokes Equations** M.J. Zahr; P. Persson
12:00-12:30 PM	**One-Dimensional Approach to Modeling of Reflected and Transmitted Pressure Pulses in Ducts** M. Golbabaei-Asl; A. Povitsky
9:00 AM-12:30 PM, Promenade A, **FD-05. CFD: Time Integration and Preconditioning**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Kevin Cassel, cassel@iit.edu, Illinois Institute of Technology; Co-Chair: Thomas Pulliam, thomas.h.pulliam@nasa.gov, NASA Ames Research Center	
9:00-9:30 AM	**Towards Efficient Parallel-in-Time Simulation of Periodic Flows** J.I. Leffell; J. Sitaraman; V.K. Lakshminarayan; A.M. Wissink
9:30-10:00 AM	**Implicit Time Marching Methods for Large-Scale High-Accuracy Simulations of Compressible Flows** Y. Du; J.A. Ekaterinaris

10:00-10:30 AM	**Cost Effective Multi-Resolution Analysis Applied to Implicit Temporal Integration** S. Chae; H. Kang; S. Oh; K. Yee
10:30-11:00 AM	**Toward an Optimal Solver for Time-spectral Solutions on Unstructured Meshes** N.L. Mundis; D.J. Mavriplis
11:00-11:30 AM	**Finite Volume Implementation of the Harmonic Balance Method for Periodic Non-Linear Flows** G. Cvijetic; H. Jasak; V. Vukcevic
11:30-12:00 PM	**The Role of Dispersion and Dissipation on Stabilization Strategies for Time-Accurate Simulations** A. Edoh; N.L. Mundis; A.R. Karagozian; V. Sankaran
12:00-12:30 PM	**Highly-Accurate Filter-Based Artificial-Dissipation Schemes for Stiff Unsteady Fluid Systems** N.L. Mundis; A. Edoh; V. Sankaran
9:00 AM-12:30 PM, Harbor F, **FD-06. Shock Boundary Layer Interaction I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Nicholas Bisek, Nicholas.Bisek.1@us.af.mil, Air Force Reseach Laboratory; Co-Chair: Jesse Little, jesselittle@email.arizona.edu, The University of Arizona	
9:00-9:30 AM	**On the length and time scales of a laminar shock wave boundary layer interaction** M. Diop; S. Piponniau; D. Pierre
9:30-10:00 AM	**Forced Navier-Stokes-based Analysis of Low-Frequency Dynamics in a Shock/Turbulent Boundary Layer Interaction** M.C. Adler; D.V. Gaitonde
10:00-10:30 AM	**An Experiment Investigation on Shock-induced Turbulent Boundary Layer Separation Flow-field** X. Zhao
10:30-11:00 AM	**Effect of Upstream Boundary Layer on Unsteadiness of Swept-Ramp Shock/Boundary Layer Interactions at Mach 2** L. Vanstone; M. Saleem; S. Seckin; N.T. Clemens
11:00-11:30 AM	**Shock Wave Boundary Layer Interaction Unsteadiness: The Effects of Configuration and Strength** J.A. Threadgill; P.J. Bruce
11:30-12:00 PM	**Response of a shock train to downstream back pressure forcing** R. Klomparens; J.F. Driscoll; M. Gamba
9:00 AM-12:30 PM, Hillcrest A, **GNC-01. Vehicle & Flight Control Validation**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Co-Chair: Anshu Narang-Siddarth, anshu@aa.washington.edu, University of Washington; Chair: Kevin Wise, kevin.a.wise@boeing.com, Boeing Defense, Space & Security	
9:00-9:30 AM	**Geometric Nonlinear Controllability Analysis for Airplane Flight Dynamics** A.M. Hassan; H.E. Taha
9:30-10:00 AM	**Local Linear Controllability and Observability Analysis of Nonlinear Systems with Continuation Methods** M. Spetzler; A. Narang-Siddarth

10:00-10:30 AM	**Efficient Nonlinear Actuator Fault Reconstruction System** P. Lu; E. Van Kampen; Q. Chu
10:30-11:00 AM	**The Influence of Control Surface Faults on Flexible Aircraft** W. Fan; H.H. Liu; R. Kwong
11:00-11:30 AM	**Efficient Methods for Flight Envelope Estimation through Reachability Analysis** J. Stapel; C.C. de Visser; E. Van Kampen; Q. Chu
11:30-12:00 PM	**Flight Testing of a Gain-Scheduled Stability and Control Augmentation System for a Quad-Tilt-Wing UAV** H. Totoki; Y. Ochi; M. Sato; K. Muraoka
12:00-12:30 PM	**Piloted Simulator Evaluation of a Model-Independent Fault-Tolerant Flight Control System** D. Tang; D.M. Pool; O. Stroosma; Q. Chu; C.C. de Visser
9:00 AM-12:30 PM, Hillcrest B, **GNC-02. Spacecraft Attitude Control I**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Chair: John Liu, john.y.liu@boeing.com, Boeing Defense, Space & Security; Co-Chair: Julie Thienel, Julie.k.thienel@nasa.gov, NASA Goddard Space Flight Center	
9:00-9:30 AM	**Spacecraft Attitude Stabilization using Magnetorquers with Separation between Measurement and Actuation** F. Celani
9:30-10:00 AM	**Design and Stability of an On-Orbit Attitude Control System Using Reaction Control Thrusters** R.A. Hall; S. Hough; C. Orphee; K. Clements
10:00-10:30 AM	**Formulation of Torque-Optimal Guidance Trajectories for a CubeSat with Degraded Reaction Wheels** S. Kedare; S. Ulrich
10:30-11:00 AM	**Simulation of Malfunctions for the ISS Double-Gimbal Control Moment Gyroscope** R. Inampudi; J. Gordeuk
11:00-11:30 AM	**Fault-Tolerant Architecture of Two Parallel Double-Gimbal Variable-Speed Control Moment Gyros** T. Sasaki; T. Shimomura
11:30-12:00 PM	**Simulation of an Electromechanical Spin Motor System of a Control Moment Gyroscope** R. Inampudi; J. Gordeuk
9:00 AM-12:30 PM, Coronado B, **GNC-03. Invited Session: LOC-1, Onboard Systems for LOC Prevention and Recovery – Problem Analysis and Upset Prevention Methods**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Chair: Christine Belcastro, christine.m.belcastro@nasa.gov, NASA-Langley Research Center; Co-Chair: Dennis Crider, criderd@ntsb.gov, National Transportation Safety Board	
9:00-9:30 AM	**Aircraft Loss of Control: Problem Analysis for the Development and Validation of Technology Solutions** C.M. Belcastro; J.V. Foster; R.L. Newman; L. Groff; D.A. Crider; D.H. Klyde

9:30-10:00 AM	**Design and Piloted Simulator Evaluation of Adaptive Safe Flight Envelope Protection Algorithm** T. Lombaerts; G. Looye; J. Ellerbroek; M. Rodriguez y Martin
10:00-10:30 AM	**Flight Safety Assessment and Management to Prevent Loss of Control Due to In-Flight Icing** S. Balachandran; E.M. Atkins
10:30-11:00 AM	**Pilot Perception Model Supports the Analysis of Vestibular Illusions in Flight Accidents** E.L. Groen; J. Bos; M. Houben
11:00-11:30 AM	**Mathematical Multi-Sensory Model of Spatial Orientation** B. McGrath; B. Mortimer; S. Drakunov; J. French
11:30-12:00 PM	**A Computational Analysis of the Impact of Pilot Awareness of Control Surface Deflection on Expectation of Aircraft State** L. Whitcher; A. Pritchett; A. Bozan
9:00 AM-12:30 PM, Coronado A, **GNC-04. Invited Session: EDL-1, Entry, Descent and Landing GN&C Technology I**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Chair: John Carson, john.m.carson@nasa.gov, NASA Jet Propulsion Laboratory; Co-Chair: Ronald Sostaric, ronald.r.sostaric@nasa.gov, NASA-Johnson Space Center	
9:00-9:30 AM	**An Inertial Dual-State State Estimator for Precision Planetary Landing with Hazard Detection and Avoidance** R.H. Bishop; T. Crain; K.J. DeMars; C. Hanak; J.M. Carson; N. Trawny; J.A. Christian
9:30-10:00 AM	**Approach-Phase Precision Landing with Hazard Relative Navigation: Terrestrial Test Campaign Results of the Morpheus/ALHAT Project** T. Crain; R.H. Bishop; J.M. Carson; N. Trawny; J. Sullivan; J.A. Christian; K.J. DeMars; J. Getchius; C. Hanak
10:00-10:30 AM	**GN&C Subsystem Concept for Safe Precision Landing of the Proposed Lunar MARE Robotic Science Mission** J.M. Carson; A.E. Johnson; G.D. Hines; W. Johnson; F.S. Anderson; S. Lawrence; D.E. Lee; A. Huertas; F. Amzajerdian; J.B. Olansen; J. Devolites; W.J. Harris; N. Trawny; G.L. Condon; L. Nguyen
10:30-11:00 AM	**Flyover Modeling of Planetary Pits** A. Balakumar; N. Bhasin; O. Daids; R. Shanor; K. Snyder; W. Whittaker
11:00-11:30 AM	**Maraia Capsule Flight Testing and Results for Entry, Descent, and Landing (EDL)** A. Strahan; R.R. Sostaric
9:00 AM-12:30 PM, Hillcrest C, **GNC-05. Aerospace Robotics and Unmanned/Autonomous Systems I**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Chair: Maruthi Akella, makella@mail.utexas.edu, University of Texas at Austin; Co-Chair: Steve Ulrich, steve.ulrich@carleton.ca, Carleton University	
9:00-9:30 AM	**Modeling and Attitude Control of Tri-Tilt Ducted Fan Vehicle** Y. Seo; Y. Kim

9:30-10:00 AM	**Three Dimensional Optimum Path Calculation for Autonomous Parafoil Vehicles in High Altitude Ballooning** S. Lee; J. Conner; A.S. Arena
10:00-10:30 AM	**An Improved Model-Based Observer for Inertial Navigation for Quadrotors with Low Cost IMUs.** D.J. Hanley; T.W. Bretl
10:30-11:00 AM	**Characterization of Flow Field Divergence for MAVs Vertical Control Landing** H. Ho; G.C. de Croon
11:00-11:30 AM	**Nonlinear Control of a Fixed-Wing UAV using Support Vector Machine** S. Bhandari; Y. Lu; A. Raheja; D. Tang
9:00 AM-12:30 PM, Harbor I, **GT-01. SAMURAI - Testing and Simulation of Real Engine Flows I (Invited),** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Co-Chair: Benjamin Mills, millsmea@gmail.com, AEDC/ ATA; Co-Chair: Jürgen Quest, jq@etw.de, ETW GmbH	
9:00-9:30 AM	**Flow field investigations in the free bypass jet flow of a V2527 engine at Ground Operation using SPIV** A. Schroeder; R. Geisler; D. Schanz; B. Wrede; J. Agocs
9:30-10:00 AM	**Large-scale density gradient visualization of the V2527 engine jet flow at Ground Operation using BOS** R. Geisler; A. Schroeder; D. Schanz; J. Agocs
10:00-10:30 AM	**SAMURAI - jet noise source analysis of a V2500 engine** H.A. Siller; A. Bassetti; S. Funke
10:30-11:00 AM	**Aerodynamic Performance Characteristics of the Installed V2527 Fan at Ground Operation** D. Schönweitz; R. Becker; P. Ebel; R. Schnell; M. Schroll
11:00-11:30 AM	**Correlation analysis between the jet exhaust velocity and microphone -array acoustic measurements for a turbo-fan engine** A. Bassetti; T. Berkefeld; A. Schroeder; H.A. Siller; B. Wrede
9:00 AM-12:30 PM, Gaslamp D, **GTE-01. Turbine Technologies,** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Co-Chair: Jon Ebacher, Jon.Ebacher@Rolls-Royce.com, Rolls-Royce; Chair: Gerard Welch, Gerard.E.Welch@nasa.gov, NASA Glenn Research Center	
9:00-9:30 AM	**The Effect of Profile Contouring on Secondary Flow Structures in Low Pressure Turbines** P.S. Bear; M. Wolff; C.R. Marks; R. Sondergaard
9:30-10:00 AM	**Reynolds Number Effects on the Secondary Flow of Profile Contoured Low Pressure Turbines** C.R. Marks; R. Sondergaard; P.S. Bear; M. Wolff
10:00-10:30 AM	**Three Dimensional Turbine Blade Optimization Using Evolutionary Algorithm with Viscous Flow Analysis** C.R. Thorn; R.J. Hartfield

10:30-11:00 AM	**Flow Disturbance Environment in Low Pressure Turbines** J. Cui; P.G. Tucker
11:00-11:30 AM	**Effects of Modeled Stator Wake on a Low Pressure Turbine Blade Dynamic Performance** J. Masud; U. Safdar; O. Khan; S. Ahmed
9:00 AM-12:30 PM, Harbor H, **GTE-02. Cycles and Auxiliary Systems**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Guillermo Paniagua, gpaniagua@me.com, Purdue University; Chair: Jimmy Tai, jimmy.tai@ae.gatech.edu, Georgia Institute of Technology	
9:00-9:30 AM	**Micro-Gas Turbine Thrust Enhancement via Flow Angularity Corrections** N.A. Kidder; A. Motsinger; K. Ruff; B. Jackson; B. Novitsky
9:30-10:00 AM	**Meanline Analysis of Turbines with Choked Flow in the Object-Oriented Turbomachinery Analysis Code** E.S. Hendricks
10:00-10:30 AM	**Development and Testing of a Fuzzy Logic Controller for a Small Turbojet Engine** S. Ekinci; S. Usenmez; I. Yavrucuk; O. Uzol
10:30-11:00 AM	**Expected Performance of a Jetcat P200 as a Gas Generator** N.D. Grannan; J. Hoke; S.T. Bailie; F. Schauer
9:00 AM-12:30 PM, Harbor B, **HSABP-01. Advances in Pressure Gain Combustion I - RDE & PDE**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Kailas Kailasanath, KAILAS@LCP.NRL.NAVY.MIL, Naval Research Laboratory; Chair: Daniel Paxson, daniel.e.paxson@nasa.gov, NASA Glenn Research Center	
9:00-9:30 AM	**Experimental Performance Evaluation of 3N-Class Pulse Detonation Thruster using Liquid Purge Method** S. Takagi; K. Hosono; K. Matsuoka; J. Kasahara; A. Matsuo; I. Funaki
9:30-10:00 AM	**Development of High-Frequency Pulse Detonation Combustor without Purging Material** K. Muto; K. Matsuoka; J. Kasahara; H. Watanabe; A. Matsuo; T. Endo
10:00-10:30 AM	**Hollow Rotating Detonation Combustor** V.A. Ganesh Kumar; A.C. St. George; E.J. Gutmark
10:30-11:00 AM	**High Fidelity Simulations of a Non-Premixed Rotating Detonation Engine** P.A. Cocks; A.T. Holley; B.A. Rankin
11:00-11:30 AM	**Starting Transients and Detonation Onset Behavior in a Rotating Detonation Combustor** A.C. St. George; R.B. Driscoll; V.A. Ganesh Kumar; E.J. Gutmark
11:30-12:00 PM	**Design of a Premixed Fuel-Oxidizer System to Prevent Flashback in a Rotating Detonation Engine** I.Q. Andrus; P. King; M.D. Polanka; F. Schauer; J.L. Hoke

12:00-12:30 PM	**Experimental Validation of Expanded Centerbodiless RDE Design** W. Stoddard; A.C. St. George; R.B. Driscoll; V.A. Ganesh Kumar; E.J. Gutmark
9:00 AM-12:30 PM, Regatta B, **IS-01/ICC-01/DA-01. Student Paper Competition -- Information Systems Group**, Technical Paper, **AIAA Infotech @ Aerospace**, Co-Chair: Michael Sotak, mikesotak@gmail.com, ; Co-Chair: Tansel Yucelen, yucelen@mst.edu, Missouri University of Science & Technology	
9:00-9:30 AM	**Intent-based Abstraction for Formal Verification of Flight Deck Mode Confusion** J. Suraj Nandiganahalli; S. Lee; I. Hwang
9:30-10:00 AM	**Belief Space Hierarchical Planning in the Now for Unmanned Aerial Vehicles** C. Moses; R. Chipalkatty
10:00-10:30 AM	**Incremental Scheduling with Upper and Lowerbound Temporospatial Constraints** G. Sturla; M. Gombolay; J.A. Shah
10:30-11:00 AM	**Simple Adaptive Control with PID for MIMO Fault Tolerant Flight Control Design** T. Nishiyama; S. Suzuki; M. Sato; K. Masui
11:00-11:30 AM	**Combined Flight Management System and Flight Data Recorder for General Aviation using Tablet Computers** J.W. Adams; C.G. Merrett
9:00 AM-12:30 PM, Torrey Hills A, **ISC-01. International Student Conference - Undergraduate Category**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Shelly Corbets, psushelly@hotmail.com, Lockheed Martin Corporation	
9:00-9:30 AM	**Dynamic Impact Response and Simulation of Intrumented Projectile using Bond-Based Peridynamics** T. Buckley
9:30-10:00 AM	**Improved Digital Holographic Interferometry for Two-Dimensional Plasma Density Measurements** E.G. Forbes
10:00-10:30 AM	**Correlation-based Depth Estimation with a Plenoptic Camera** W. Roberts; B.S. Thurow
10:30-11:00 AM	**Investigation of the Effect of Blade Kinematics and Reynolds Number on the Aerodynamic Performance of a Small-Scale Vertical Axis Wind Turbine with Dynamic Blade Pitching** A. Mills; M. Benedict; I. Chopra
11:00-11:30 AM	**Aerodynamic Evaluation of the NASA Microgravity Unmanned Aerial Vehicle** J. Castagnetta; R. Larson
11:30-12:00 PM	**Preliminary Evaluation of an Electromyographically Controlled Quadrotor** A. Azocar
12:00-12:30 PM	**Dynamic Coupling Effects on Twin Supersonic Impinging Jets** M. Wong
9:00 AM-12:30 PM, Torrey Hills B, **ISC-02. International Student Conference - Masters Category**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Shelly Corbets, psushelly@hotmail.com, Lockheed Martin Corporation	

9:00-9:30 AM	**Design and Fabrication of a Meso-scale Aircraft using a Cycloidal Rotor Propulsion System** G. Andrews; E. Shrestha; I. Chopra
9:30-10:00 AM	**On Steady Trkalian High Speed Flows: Swirling Compressible Motion in Solid Rocket Motors** O. Cecil; J. Majdalani
10:00-10:30 AM	**Development of Rate Gyroscope Characterization Tools with Application to Helium Exposure Testing** E. Hilgemann; H. Ruch; J.W. Cutler
10:30-11:00 AM	**On the Development of a Robotic Hummingbird** D. Coleman; M. Benedict
11:00-11:30 AM	**Discrete-time Modified State Observer Implementation on a Two Wheeled Inverted Pendulum Robot** J. Stumfoll
11:30-12:00 PM	**Experimental Investigation of Dynamic Stall on Pliant Wings for Micro Air Vehicles** N. Osterberg
12:00-12:30 PM	**Beyond Nyquist by Pouring Space into Time** J. Schneiders; R. Dwight; F. Scarano
9:00 AM-10:00 AM, Harbor A, **LEC-01. NDA: A Bayesian Framework for Assessment of Model Uncertainty**, Lecture, **18th AIAA Non-Deterministic Approaches Conference (non-paper sessions)**	
9:00 AM-12:30 PM, Gaslamp B, **MAT-01. Nanostructured Materials I** , Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Biliyar Bhat, Biliyar.N.Bhat@nasa.gov, NASA Marshall Space Flight Center; Co-Chair: Gregory Odegard, gmodegar@mtu.edu, ; Co-Chair: Samit Roy, sroy@eng.ua.edu, The University of Alabama	
9:00-9:30 AM	**Structure-Process-Property Study of Aligned Carbon Nanotube Interlaminar Reinforcement in Woven Carbon Fiber Prepreg Laminate** E. Kalfon-Cohen; D. Lewis; J. Ravine; B.L. Wardle
9:30-10:00 AM	**Woven Hierarchical Aerospace Composite Laminates with Aligned Carbon Nanotube Bulk Reinforcement** R. Li; E. Antunes; A. Liotta; C. Parschau; M. Payne; B.L. Wardle
10:00-10:30 AM	**Nanoparticle Alignment using Oscillating Magnetic Fields for Scalable Nanocomposite Manufacturing** M.P. Spencer; N. Yamamoto
10:30-11:00 AM	**Influence of Waviness on the Elastic Properties of Aligned Carbon Nanotube Polymer Matrix Nanocomposites** I.Y. Stein; B.L. Wardle
11:00-11:30 AM	**Thermal conductivity via atomistic modeling for epoxy-SWNT composites** N.A. Fasanella; V. Sundararaghavan
11:30-12:00 PM	**Mode I Fracture Toughness of Aligned Carbon Nanotube Epoxy Nanocomposites** D.L. Lidston; C. Parschau; C. Chappelle; D. Lewis; B.L. Wardle

12:00-12:30 PM	**Non-covalent Functionalization of CNT and Graphene and Its Application to Hybrid Carbon/Epoxy Composites** A.F. Avila; V.C. Munhoz; A.M. Oliveira; N.C. Menezes; S.G. Leao; C.F. Silva
9:00 AM-12:30 PM, Gaslamp C, **MAT-02. Fatigue & Fracture I**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Ray Fertig, rfertig@uwyo.edu, University of Wyoming; Chair: Gary Seidel, gary.seidel@vt.edu, Virginia Polytechnic Institute and State Universit	
9:00-9:30 AM	**Multiscale Modeling of Effective Piezoresistivity in Nanocomposite Bounded Explosives** A.K. Chaurasia; G.D. Seidel
9:30-10:00 AM	**Utilization of a Linear Solver for Multiscale Design and Optimization of Microstructures in an Airframe Panel Buckling Problem** P. Acar; V. Sundararaghavan
10:00-10:30 AM	**High-energy hydroforming for the aerospace industry** S.O. Van Der Veen; L. Barcenas; H.D. Groeneveld; V. Bhoelai; J. Sinke
9:00 AM-12:30 PM, Balboa A, **MDO-01. Aero & Structural Technology Investigations**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Seongim Choi, schoi1@vt.edu, Virginia Polytechnic Institute and State University; Co-Chair: Justin Gray, justin.s.gray@nasa.gov, NASA Glenn Research Center	
9:00-9:30 AM	**Flight Vehicle Structural Design Processes for a Common Bulkhead and an MPCV Spacecraft Adapter** P. Aggarwal; P.V. Hull
9:30-10:00 AM	**Performance Evaluation of a Morphing Trailing Edge Using Multipoint Aerostructural Design Optimization** D.A. Burdette; G.K. Kenway; J. Martins
10:00-10:30 AM	**Aerostructural Optimization of a Low Sweep Transonic Wing with Shock Control Bump** A. Elham; B. Timmer
10:30-11:00 AM	**Cure Rate Tailoring of Thick Composites Via Temperature Controlled Vascular Pathways** M.P. O'Donnell; Y. Mahadik; C. Ward
11:00-11:30 AM	**Co-Design of Strain-Actuated Solar Arrays for Precision Pointing and Jitter Reduction** C.M. Chilan; D.R. Herber; Y.K. Nakka; S. Chung; J.T. Allison
11:30-12:00 PM	**Adaptive Variable-Fidelity Analysis and Design for A Tailless Aircraft with Innovative Control Effectors under Model-Form Uncertainty** Y. Jo; J. Park; S. Choi; D. Lee
12:00-12:30 PM	**Aerodynamic Optimisation of Non-planar Lifting Surfaces** S.N. Skinner; H. Zare-Behtash
9:00 AM-12:30 PM, Golden Hill A, **MST-01. Modeling and Simulation of Air Traffic Management I**, Technical Paper, **AIAA Modeling and Simulation Technologies Conference**, Co-Chair: Daniel Cartmell, daniel.h.cartmell@boeing.com, Boeing Engineering Operations & Technology; Chair: Jeffery Schroeder, jeffery.schroeder@faa.gov, Federal Aviation Administration	

9:00-9:30 AM	**Probabilistic Airport Aceptance Rate Prediction** J. Cox; M.J. Kochenderfer
9:30-10:00 AM	**Effects of Aircraft Mass and Weather Data Errors on Trajectory Optimization and Benefits Estimation** N.K. Wickramasinghe; M. Brown; Y. Miyamoto; Y. Miyazawa
10:00-10:30 AM	**Creating severe weather model for arrival manager by analyzing the flight data of weather front passage** A. Tezuka; A. Senoguchi
10:30-11:00 AM	**Analyzing Feasibility of Continuous Descent Operation Following Fixed-flight Path Angle from Oceanic Route to Tokyo International Airport** E. Itoh; N.K. Wickramasinghe; H. Hirabayashi; K. Uejima; S. Fukushima
11:00-11:30 AM	**Human-in-the-Loop Simulation Analysis of Conflict Resolution Maneuvers Using an Air Traffic Control Simulation** H. Oh; S. Jeong; K. Choi; H. Lee
9:00 AM-12:30 PM, Hillcrest D, **MST-02. Special Topics in Modeling and Simulation**, Technical Paper, **AIAA Modeling and Simulation Technologies Conference**, Co-Chair: Alaa Elmiligui, alaa.a.elmiligui@nasa.gov, NASA Langley Research Center; Chair: Peter Zaal, peter.m.t.zaal@nasa.gov, NASA Ames Research Center	
9:00-9:30 AM	**Modeling And Simulation of Spacecraft Pointing Modes Using Quaternion-Based Nonlinear Control Laws** H. Bel; A.M. Aly; A.M. Youssef; Y.Z. Elhalwagy
9:30-10:00 AM	**Compressor Performance Modeling and Prognostics Using Artificial Neural Networks** S.G. Ritz; J. Dahlen; R.J. Hartfield; W.S. Woltosz
10:00-10:30 AM	**Development of a Cockpit-Pilot Model for Thermal Comfort Optimization During Long-Mission Flight** J. Schminder; R. Gårdhagen; E. Nilsson; K. Storck; M. Karlsson
10:30-11:00 AM	**Aerodynamic Modelling of a 5-MW Wind Turbine for Development and Application of Real-Time Nonlinear Receding Horizon Control** P.A. Galvani; F. Sun; K. Turkoglu
11:00-11:30 AM	**Optimal Attitude Control of a 6U CubeSat with a Four-Wheel Pyramid Reaction Wheel Array and Magnetic Torque Coils** K. Gross; R. Patrick; E. Swenson; J.S. Agte
11:30-12:00 PM	**Extracting measurements from operational flight data using the flare example** C. Wang; L. Drees; F. Holzapfel
12:00-12:30 PM	**Simulation of Spatial Automatic Assembly System Based on Stewart Platform** J. Qi; C. Wang
9:00 AM-9:30 AM, Session Room Foyers, **NW-03. Monday Late Morning Networking Coffee Break**, Networking, **Forum Event**	
9:00 AM-12:30 PM, Marina Room, **PANEL. NASA Sessions Part I**, Panel, **Forum Event**	

9:00 AM-12:30 PM, Harbor C, **PC-01. Combustion Chemistry**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Harsha Chelliah, harsha@virginia.edu, University of Virginia; Co-Chair: Yiguang Ju, yju@princeton.edu, Princeton University	
9:00-10:00 AM	**An Overview of the National Jet Fuels Combustion Program** M.B. Colket; J. Heyne; M. Rumizen; J.T. Edwards; M. Gupta; W.M. Roquemore; J.P. Moder; J.M. Tishkoff; C. Li
10:00-10:30 AM	**Shock Tube Measurements of Jet and Rocket Fuels** D.F. Davidson; Y. Zhu; S. Wang; T. Parise; R. Sur; R.K. Hanson
10:30-11:00 AM	**Shock Tube Ignition and CH_4 Time-Histories during Propanal Oxidation** B. Koroglu; O. Pryor; J. Lopez; L. Nash; S. Vasu
11:00-11:30 AM	**Reduced-species mechanisms for the combustion of cyclohexane using the Local Self Similarity Tabulation method** P. Kourdis; J.R. Bellan
11:30-12:00 PM	**Consistent Chemical Mechanism from Collaborative Data Processing** N. Slavinskaya; U. Riedel; M. Abbasi; J. Starke; A. Tursynbai; M. Frenklach; A. Packard; W. Li; J. Oreluk; A. Hedge
12:00-12:30 PM	**Modeling Chemical Mechanism for Surrogate Jet Fuel under Scramjet Operating Conditions** W. Huang; F. Chen; H. Liu; X. Huang
9:00 AM-12:30 PM, Cortez Hill C, **PC-02. Advanced Concepts, Combustion Diagnostics, Environmental Impact**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Isaac Boxx, isaac.boxx@dlr.de, DLR - German Aerospace Center; Co-Chair: Yuji Ikeda, yuji@imagineering.jp, Imagineering, Inc.	
9:00-9:30 AM	**Green Propellant Infusion Mission (GPIM), Advancing the State of Propulsion System Safety and Performance** C.H. McLean
9:30-10:00 AM	**Nano-ignition Torch Applied to Cryogenic H2/O2 Coaxial Jet** A. Badakhshan; S. Danczyk; D.J. Forliti; I.A. Leyva; D.G. Talley
10:00-10:30 AM	**Investigation of Confined Turbulent Jet Flames Using kHz-Rate Diagnostics** Z. Yin; I.G. Boxx; M. Stöhr; O. Lammel; W. Meier
10:30-11:00 AM	**PIV Measurement for Diffusion Flame in A Porous Cylindrical Burner** K. Pan; C. Guo
11:00-11:30 AM	**Effect of Reactant Inlet Temperature on Passive Mitigation of Thermo -acoustic Instabilities by Implementation of 3D Additive Manufactured Metallic Porous Insert** J. Kornegay; D. Depperschmidt; A.K. Agrawal
11:30-12:00 PM	**High-Speed Imaging of Ignition behind Reflected Shock Waves** D.F. Davidson; A. Tulgestke; R.K. Hanson
12:00-12:30 PM	**Direct Numerical Simulation of Turbulent Lean Methane-Air Bunsen Flame with Mixture Inhomogeneities** S. Luca; A. Attili; F. Bisetti

9:00 AM-12:30 PM, Harbor D, **PDL-01. Plasma Assisted Combustion,** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Co-Chair: Igor Adamovich, adamovich.1@osu.edu, Ohio University ; Co-Chair: Joshua Rovey, roveyj@mst.edu, Missouri University of Science & Technology	
9:00-9:30 AM	**Simulations of plasma-assisted combustion flames in coaxial microwave reactors** J.W. Zimmerman; A. Palla; D. King; D.L. Carroll; C. Mitsingas; R. Rajasegar; T. Lee
9:30-10:00 AM	**Plasma Assisted Combustion Mechanism for Hydrogen and Small Hydrocarbons** A. Starikovskiy; N. Aleksandrov
10:00-10:30 AM	**Kinetics of plasma-assisted oxidation of methane** K. Togai; N. Tsolas; R.A. Yetter
10:30-11:00 AM	**Effects of Axial Stretch on the Flame Propagation Enhancement of Large Hydrocarbons by Addition of Ozone** M.D. Pinchak; T. Ombrello; C.D. Carter; E.J. Gutmark; V.R. Katta
11:00-11:30 AM	**Plasma assisted GT combustion** A. Starikovskiy; A. Zagorskiy; T. Wind; F. Guethe
11:30-12:00 PM	**Parallel On-the-fly Adaptive Kinetics for Non-equilibrium Plasma Discharges of C_2H_4/O_2/Ar Mixture** S. Yang; V. Yang; W. Sun; S. Nagaraja; W. Sun; Y. Ju; X. Gou
9:00 AM-12:30 PM, Ocean Beach, **PDL-02. DBD Plasma Actuators I,** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Chair: Konstantinos Kontis, kostas.kontis@glasgow.ac.uk, University of Glasgow	
9:00-9:30 AM	**Electrode Material Degradation Monitoring for Durable Dielectric Barrier Discharge Plasma Actuators Manufacturing** A. Iwakawa; M.G. De Giorgi; L. Francioso; A. Taurino; P. Lavoie
9:30-10:00 AM	**Direct Position Control of Dielectric Barrier Discharge Filaments** M.C. Paliwoda; J. Rovey
10:00-10:30 AM	**PIV-Estimated DBD Plasma-Actuator Thrust Verified by Measurement in Quiescent Air** L. Wu; C. Gao; X. Yan; F. Liu; S. Luo
10:30-11:00 AM	**Coaxial DBD Actuator Design for Control of a Hydrogen Diffusion Flame** J.E. Retter; R.A. Fontaine; J.B. Freund; N.G. Glumac; G.S. Elliott
9:00 AM-12:30 PM, Balboa C, **SD-01. Structural Dynamic Modeling and Analysis,** Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference,** Chair: Chad Hebert, chad.hebert@sncorp.com, Sierra Nevada Corporation; Co-Chair: Michael Ross, mross@sandia.gov, Sandia National Laboratories	
9:00-9:30 AM	**Joining 3-D Finite Elements to Variational Asymptotic Beam Models** H.S. Hoseini; D.H. Hodges

9:30-10:00 AM	**Constrained-Energy Cross-Well Actuation of the Duffing-Holmes Oscillator** M. Zarepoor; O. Bilgen
10:00-10:30 AM	**The Evaluation of an Icosahedron' Eigenvalue** A.N. Palazotto; L. Just
10:30-11:00 AM	**Evaluating the stiffness of conic interfacing parts : a practical method for finite element model updating based on experimental modal testing** A. Letarte; S. Joncas; A. Ross; F. Martin
11:00-11:30 AM	**Force Reconstruction from Ejection Tests of Aircraft Stores Used for Model Predictions and Missing/Bad Gages** M.R. Ross; M. Starr; A. Urbina; J. Cap; A. Brink
9:00 AM-12:30 PM, Gaslamp A, **SD-02. Energy Harvesting,** Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Devesh Kumar, deveshk@umich.edu, University of Michigan; Co-Chair: Kumar Singh, singhkv@MiamiOh.edu, Miami Univeristy	
9:00-9:30 AM	**Toward broadband resistive-inductive piezoelectric energy harvesters** H. Abdelmoula; A. Abdelkefi
9:30-10:00 AM	**The Role of Sweep Rate in Energy Harvesting** T.D. Hynds; J.L. Kauffman
10:00-10:30 AM	**Representation and comparative study of electromagnetic-piezoelectric galloping energy harvesters** U. Javed; H. Dai; A. Abdelkefi
10:30-11:00 AM	**Piezoaeroelastic investigation on the control and energy harvesting of galloping systems** H. Abdelmoula; A. Abdelkefi
11:00-11:30 AM	**Energy Harvesting From Aeroelastic Instabilities** N.S. Hosking; Z. Sotoudeh
11:30-12:00 PM	**Enhanced stability identi cation and global response prediction of galloping energy harvesters** U. Javed; A. Abdelkefi; I. Akhtar
9:00 AM-12:30 PM, Americas Cup B, **SE-01. Systems Engineering I,** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Chair: John Eiler, jeiler@stellarsolutions.com, Stellar Solutions, Inc.; Co-Chair: Mat French, mat.french@liberty.rolls-royce.com, Rolls-Royce Corp	
9:00-9:30 AM	**Theoretical Foundations for the Discipline of Systems Engineering** S.B. Johnson; J.C. Day
9:30-10:00 AM	**Can the Capability Maturity Model® Contribute to a Common Model for Systems Engineering?** V.S. Johnson
10:00-10:30 AM	**A Systems Engineering Approach to the Conceptual Design of a Martian UAV** S.J. D'Urso; K. Tsai; P. Chadha; H.H. Hilton
10:30-11:00 AM	**Integrated Assessment of Aircraft and Novel Subsystem Architectures in Early Design** I. Chakraborty; D.N. Mavris

11:00-11:30 AM	**A Methodology for Sizing and Analysis of Electric Propulsion Subsystems for Unmanned Aerial Vehicles** G. Cinar; M. Emeneth; D.N. Mavris
9:00 AM-12:30 PM, Americas Cup A, **SEO-01. Intelligent and Autonomous Systems for Improving Space Exploration and Operations**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: David LaVallee, david.lavallee@jhuapl.edu, The Johns Hopkins University Applied Physics Laboratory; Co-Chair: Stephanie Van Y, stephanie_vany@hotmail.com, Accenture Limited	
9:00-9:30 AM	**Optimization of Injection Parameters for Slightly Inclined Geosynchronous Orbits** J. Shan; N. Bijnens
9:30-10:00 AM	**Space Data Integrator: FAA's Innovative Platform for Launch and Reentry Operations** L.H. Mutuel; D.P. Murray
10:00-10:30 AM	**A High-Heritage Blunt-Body Entry, Descent, and Landing Concept for Human Mars Exploration** H.W. Price; R.D. Braun; R. Manning; E. Sklyanski
10:30-11:00 AM	**Impactor Missions to Europa and Ganymede: Seismic Approach for Estimating Icy Crust Thickness** A. Franqui; S.T. Seufert; M. Cosenza; M. Okutsu
11:00-11:30 AM	**Impact and Crashworthiness Characteristics of Venera Type Landers for Future Venus Missions** K. Schroeder; J. Bayandor; J.A. Samareh
9:00 AM-10:30 AM, Regatta A, **SOF-01. Software Architecture and Robust Software Engineering**, Technical Paper, **AIAA Infotech @ Aerospace**, Chair: Chris Thames, chris.thames@cox.net, NASA Langley Research Center	
9:00-9:30 AM	**Formally Verified Run Time Assurance Architecture of a 6U CubeSat Attitude Control System** K.H. Gross; M. Clark; J.A. Hoffman; A. Fifarek; K. Rattan; E. Swenson; M. Whalen; L. Wagner
9:30-10:00 AM	**New Requirement-Definition and Verification Techniques According to DO-178C, DO-331, and DO-333** U. Eisemann; J.L. Allen
9:00 AM-12:30 PM, Bankers Hill, **SRE-01. Extraterrestrial Water: Prospecting and Acquisition**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Julie Kleinhenz, Julie.E.Kleinhenz@nasa.gov, NASA Glenn Research Center	
9:00-9:30 AM	**Accessing, Drill and Operating at the Lunar South Pole: Status of European Plans and Activities** R. Fisackerly; J. Carpenter; B. Houdou; G. Visentin; F. Rizzi; M. Savoia; P. Magnani; S. Barber
9:30-10:00 AM	**Oral Presentation. Sample Acqusition Systems for a Free-Flying Unmanned Robotic System to Support Interplanetary Bodies Prospecting and Characterization Missions** K. Zacny; B. Yaggi; J. Spring; P. Chu; R.P. Mueller; T. Ebert; M. Dupuis; H. Moncayo; R.J. Prazenica

10:00-10:30 AM	**Laboratory Apparatus for Evaluating Volatiles Production from Meteorites and Simulants: Design and Testing** L. Gertsch; A. Abbud-Madrid; C. Dreyer; J. Heniff; D.L. Linne; J. Mantovani; J. Sercel; E. Unobe
10:30-11:00 AM	**Extraction and Capture of Water from Martian Regolith Experimental Proof-of-Concept** D.L. Linne; J.E. Kleinhenz
11:00-11:30 AM	**Mechanical Properties of Icy Mars Regolith Simulant: Assessment of a Potential ISRU Feedstock** R.L. Ash; J. Emery; B. Crane; J. Ricci
11:30-12:00 PM	**Near-Infrared monitoring of volatiles in frozen lunar simulants while drilling** T.L. Roush; A. Colaprete; R. Elphic; J. Forgione; B. White; R. McMurray; A. Cook; R. Bielawski; E. Fritzler; S.J. Thompson; J.E. Kleinhenz; J. Benton; G. Paulson; K. Zacny; J. Smith
12:00-12:30 PM	**Oral Presentation. Regolith Volatile Recovery at Simulated Lunar Environment** J.E. Kleinhenz; G. Paulsen; K. Zacny; S.L. Schmidt; D.S. Boucher
9:00 AM-12:30 PM, La Jolla A, **STR-01. Aircraft Structural Design I**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Pezhman Mardanpour, mardanpour@gmail.com, ; Chair: Michael Wolff, michaelwolff1@mac.com, Gulfstream Aerospace Corporation	
9:00-9:30 AM	**Conceptual Design and Structural Optimization of NASA Environmentally Responsible Aviation (ERA) Hybrid Wing Body Aircraft** J. Quinlan; F.H. Gern
9:30-10:00 AM	**Moving Aerospace Structural Design Practice to a Load and Resistance Factor Approach** C.E. Larsen; I.S. Raju
10:00-10:30 AM	**A Historical Assessment of Building Block Development Test Programs for Modern Military Aircraft** D.S. Norwood; G.L. Hahn; P.F. Joyce; R.J. Wippich-Dienhart
10:30-11:00 AM	**Structural Loads Analysis of a Carrier Onboard Delivery Aircraft** B.D. Flansburg
11:00-11:30 AM	**Determination of Load Path Using Streamline Analogy and Galerkin Method** K. Gharibi; A. Tamijani
11:30-12:00 PM	**Preliminary Wing Study of General Aviation Aircraft with PRSEUS panels** V.S. Papapetrou; A. Tamijani; D. Kim
12:00-12:30 PM	**Bi-Level Optimization of a Conceptual Metallic Wing Box with Stiffness Constraints** A.T. Noevere; A.W. Wilhite
9:00 AM-12:30 PM, La Jolla B, **STR-02. Challenges in the Design of Joined Wings**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Rauno Cavallaro, rauno@technion.ac.il, Technion, Israel Institute of Technology; Co-Chair: Luciano Demasi, ldemasi@mail.sdsu.edu, San Diego State University College of Engineering	

9:00-9:30 AM	**Minimum Induced Drag Theorems for Multi-Wing Systems** L. Demasi; G. Monegato; R. Cavallaro
9:30-10:00 AM	**Transonic Aeroelastic Analysis for Multidisciplinary Design Optimization Applications** W. Mallik; R.K. Kapania; J.A. Schetz
10:00-10:30 AM	**Aeroelasticity of Joined Wings: Unique Aspects and Challenges** R. Cavallaro; L. Demasi; R. Bombardieri
10:30-11:00 AM	**Distributed Optical Sensing in Composite Laminate Adhesive Bonds** L. Meadows; R.W. Sullivan; K. Vehorn
9:00 AM-12:30 PM, Old Town A, **TES-01. The State and Future of Energy Systems**, Panel, **54th AIAA Aerospace Sciences Meeting (non-paper sessions)**	
9:00 AM-12:30 PM, Old Town B, **TES-02/TP-01. Joint Session: Heat Transfer in Terrestrial Energy Systems** , Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Diane Pytel, diane.pytel@lmco.com, Lockheed Martin Space Systems	
9:00-9:30 AM	**Mist cooling ratios analysis in rectangular passage with 45-deg angled rib** H.M. Alhajeri; J. Amaral Teixeira; A. Addali A.; A. Gamil A. A.; A.H. Alenezi
9:30-10:00 AM	**Jet Impingement Heat Transfer Enhancement on a rib-roughened Flat Plate** A.H. Alenezi; J. Amaral Teixeira; A. Addali A.; A. Gamil A. A.; H.M. Alhajeri
10:00-10:30 AM	**Effect of porous insert on flame dynamics in a lean premixed swirl-stabilized combustor using planar laser-induced flueorescence** J. Allen; B.T. Fisher; A.K. Agrawal
10:30-11:00 AM	**Design of a Supersonic Oxy-Methane Combustor for Direct Power Extraction** M.J. Hernandez; L.A. Cabrera ; O. Vidana; M. Chaidez; N.D. Love
11:00-11:30 AM	**Oral Presentation. Eulerian-Lagrangian modeling of particle-laden flow** S. Davis; G.B. Jacobs
11:30-12:00 PM	**Oral Presentation. Study of Kaplan Hydro Turbine Performance** Y. Yen; T. ElHammal; R.S. Amano
9:00 AM-12:30 PM, Harbor G, **TP-02. Thermal Protection System, Ablation and Surface Catalysis I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: David Hash, David.B.Hash@nasa.gov, NASA - ARC; Chair: David Kuntz, dwkuntz@sandia.gov, Sandia National Laboratories	
9:00-9:30 AM	**Laser Ablation of Dielectrics for Development of High Temperature Sapphire Based Pressure Transducers** P. Woerner; W.S. Oates; M. Sheplak; D. Blood; D.A. Mills
9:30-10:00 AM	**Radiative Transfer In A Rigid Carbon Material Under Arcjet Flow Condition** T. Sakai; T. Horiuchi; T. Suzuki; H. Fukui; Y. Ishida

10:00-10:30 AM	**Near-Surface CO_2 Tunable Diode Laser Absorption Spectroscopy Concentration Measurements in the LENS-XX Expansion Tunnel Facility** J.M. Weisberger; P. DesJardin; M.G. MacLean; R.A. Parker; Z.R. Carr
10:30-11:00 AM	**Numerical Prediction of Tungsten Ablation under Arc Heater Experimental Conditions** S. Noh; K. Kim
11:00-11:30 AM	**Effect of spalled particles on the flow field environment** R. Davuluri; H. Zhang; A. Martin
9:00 AM-12:30 PM, Regatta C, **UMS-01. Unmanned Systems: Mission Management and Planning Technologies**, Technical Paper, **AIAA Infotech @ Aerospace**, Co-Chair: Michael Anderson, michael.anderson@usafa.edu, ; Chair: Michael Logan, michael.j.logan@nasa.gov, NASA Langley Research Center	
9:00-9:30 AM	**Comprehensive Safety System Design and Development for Unmanned Aerial Vehicles Formation Flight System** D. Wei
9:30-10:00 AM	**Privacy Aware Mission Planning and Video Masking for UAV Systems** R.A. Martin; A. Hall; C. Brinton; K. Franke; J.D. Hedengren
10:00-10:30 AM	**Hierarchical Path Planning Using Q-Learning and Incremental Approximate Dynamic Programming** Y. Zhou; E. Van Kampen; Q. Chu
10:30-11:00 AM	**Experimental Assessment of Online Dynamic Soaring Optimization for Small Unmanned Aircraft** W. Silva; E.W. Frew
11:00-11:30 AM	**Navigation and Guidance Strategy Planning for UAV Urban Operation** Y. Watanabe; A. Veillard; C. Chanel
11:30-12:00 PM	**BugFlood: A bug inspired algorithm for efficient path planning in an obstacle rich environment** N. Sharma; J. Pinto; P. Sujit
12:00-12:30 PM	**Development of an Area of Interest Extended Coverage Loitering Path Planner** J. Wilhelm; J. Rojas
9:30 AM-11:30 AM, Seaport FG, **PANEL-01. Monday Morning Forum 360** **Distilling Your Message: Putting yourself back into your science and engineering**, Panel, **Forum 360**	
10:30 AM-12:30 PM, Regatta A, **SOF-02. Lightweight Perfection: Why and How You Should Review Code for Small Teams**, Panel, **AIAA Infotech @ Aerospace (non-paper sessions)**, Chair: Stephen Blanchette, sblanche@sei.cmu.edu, Software Engineering Institute	
12:30 PM-2:00 PM, Seaport A-E, **LUNCH-01. Durand Lectureship for Public Service and Luncheon** **Thoughts on Complex Systems Solutions in the 21st Century**, Lunch, **Forum Event**	

2:00 PM-5:30 PM, Nautical, **AA-02. Computational Aeroacoustics I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Srinivasan Arunajatesan, sarunaj@sandia.gov, Sandia National Labs; Chair: Anastasios Lyrintzis, lyrintzi@erau.edu,	
2:00-2:30 PM	**Numerical Simulation of the Noise from Tandem Cylinder Flow with Spectral Difference Method** J. Gao; X. Li
2:30-3:00 PM	**Implementation of a Wall-Modeled Sharp Immersed Boundary Method in a High-Order Large Eddy Simulation Tool for Jet Aeroacoustics** N.S. Dhamankar; G.A. Blaisdell; A.S. Lyrintzis
3:00-3:30 PM	**Detached Eddy Simulation of High-Lift Wing Slat Track and Cut-Out Noise** X. Wang; Z. Hu
3:30-4:00 PM	**Lattice Boltzmann Method for Aeroacoustic Simulations with Block-Structured Cartesian Grid** T. Ishida
4:00-4:30 PM	**Noise estimation of beveled trailing edges using an integral and boundary element method** W.C. van der Velden; A. van Zuijlen; A. de Jong; H. Bijl
4:30-5:00 PM	**A study of the influence of grid resolution and axial extent on the prediction of jet turbulence and noise** C. Bogey; O. Marsden
2:00 PM-5:30 PM, Golden Hill B, **ABPSI-02/GEPC-02. NASA ERA Systems Integration II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Gary Dale, gary.dale@wpafb.af.mil, Air Force Research Laboratory; Co-Chair: Jeff Flamm, jeffrey.d.flamm@nasa.gov, NASA Langley Research Center	
2:00-2:30 PM	**NASA ERA Integrated CFD for Wind Tunnel Testing of Hybrid Wing-Body Configuration (Invited)** J.A. Garcia; J. Melton; M.J. Schuh; K. James; K. Long; D.D. Vicroy; K.A. Deere; J.M. Luckring; M.B. Carter; J.D. Flamm; P.M. Stremel; B.E. Nikaido; R.E. Childs
2:30-3:00 PM	**NASA Environmentally Responsible Aviation Hybrid Wing Body Flow-Through Nacelle Wind Tunnel CFD (Invited)** M.J. Schuh; J.A. Garcia; M.B. Carter; K.A. Deere; P.M. Stremel; D. Tompkins
3:00-3:30 PM	**Computational Evaluation of Inlet Distortion on an Ejector Powered Hybrid Wing Body at Takeoff and Landing Conditions (Invited)** M.R. Sexton; D. Tompkins; K.A. Deere; S. McMillin; M. Carter; M.J. Schuh; P.M. Stremel
3:30-4:00 PM	**Estimating Flow-Through Balance Momentum Tares with CFD (Invited)** J. Melton; K. James; J.D. Flamm; K. Long
4:00-4:30 PM	**CFD Predictions for Transonic Performance of the ERA Hybrid Wing-Body Configuration (Invited)** K.A. Deere; J.M. Luckring; S. McMillin; J.D. Flamm; D. Roman
4:30-5:00 PM	**Impact of Ultra-High Bypass/ Hybrid Wing Body Integration on Propulsion System Perrformance and Operability (Invited)** W.K. Lord; G. Hendricks; M. Kirby; S.S. Ochs; R. Lin; L.W. Hardin

5:00-5:30 PM	**Oral Presentation. Preferred System Concept System Assessment (Invited)** J.T. Bonet; N. Princen; K.R. Elmer; P. Camacho; D. Tompkins
2:00 PM-5:30 PM, Bankers Hill, **AFM-03. Special Session: Flight Testing in Education**, Technical Paper, **AIAA Atmospheric Flight Mechanics Conference**, Chair: M Christopher Cotting, chris@cottings.com, US Air Force Test Pilot School; Co-Chair: Nesrin Sarigul-Klijn, nsarigulklijn@ucdavis.edu, University of California, Davis	
2:00-2:30 PM	**Balancing Education and Training at the USAF Test Pilot School - Invited** M. Cotting; W.R. Gray
2:30-3:00 PM	**Undergraduate Learn by Doing Flight Test Curriculum - Invited** K.W. Colvin
3:00-3:30 PM	**Flight Test Education at The Ohio State University - Invited** J.W. Gregory; M.H. McCrink
3:30-4:00 PM	**Flight Testing of Stability Boundary and Dynamic Separation in a University Environment - Invited** N. Sarigul-Klijn
4:00-4:30 PM	**Systems Test and Evaluation within Engineering Curricula at the Naval Postgraduate School - Invited** O.A. Yakimenko
4:30-5:00 PM	**Flight Testing with Senior Design Students - Invited** C.E. Hall
5:00-5:30 PM	**Teaching Flight Testing Through Soaring - Invited** J.P. Stewart
2:00 PM-5:30 PM, Cortez Hill B, **AFM-04. Atmospheric Entry, Hypersonic Flight and Aeroassist Technology II**, Technical Paper, **AIAA Atmospheric Flight Mechanics Conference**, Chair: Michael Grant, mjgrant@purdue.edu, Purdue University; Co-Chair: Chris Karlgaard, karlgaard@ama-inc.com, Analytical Mechanics Associates Inc	
2:00-2:30 PM	**Rapid Indirect Trajectory Optimization on Highly Parallel Computing Architectures** T. Antony; M.J. Grant
2:30-3:00 PM	**Rapid Indirect Trajectory Optimization of a Hypothetical Long Range Weapon System** M.J. Grant; T. Antony
3:00-3:30 PM	**Tree Based Trajectory Planning for Mars Aerocapture.** A. Chakrabarty; S. Swei; D.K. Prabhu
3:30-4:00 PM	**Review and Assessment of the Steep Lifting Entry Closed-Form Trajectory Solution** Z.R. Putnam; R.D. Braun
4:00-4:30 PM	**Entry Guidance by Onboard Trajectory Planning and Tracking** K.D. Webb; P. Lu
4:30-5:00 PM	**Dynamic Stability Analysis of Hypersonic Transport during Reentry** G.P. Guruswamy

2:00 PM-5:30 PM, Balboa B, **AMT-02. Spectroscopy and Combustion Applications**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Andrew Cutler, adcutler@gwu.edu, The George Washington University; Co-Chair: Sean Kearney, spkearn@sandia.gov, Sandia National Laboratories	
2:00-2:30 PM	**Hybrid fs/ps Rotational CARS Temperature and Oxygen Measurements in a Sooting, Turbulent C_2H_4-Fueled Jet Flame** S.P. Kearney; D.R. Guildenbecher; K.N. Gabet Hoffmeister; C. Winters; T.W. Grasser; J.C. Hewson
2:30-3:00 PM	**Hybrid fs/ps CARS for Sooting and Particle-laden Flames** K.N. Gabet Hoffmeister; D.R. Guildenbecher; S.P. Kearney
3:00-3:30 PM	**Comparison of Chirped-Probe and Hybrid fs/ps Femtosecond CARS for Gas Phase Thermometry** D.R. Richardson; H. Stauffer; S. Roy; J.R. Gord
3:30-4:00 PM	**Quantitative O_2 Measurements in Flames at Elevated Pressures by Laser-induced Breakdown Spectroscopy** Y. Wu; C.D. Smith; Z. Zhang
4:00-4:30 PM	**Evaluation of Hybrid fs/ps coherent anti-Stokes Raman scattering temperature and pressure sensitivity at combustor relevant conditions** C.E. Dedic; J.B. Michael; J.D. Miller; T.R. Meyer
2:00 PM-5:30 PM, Coronado D, **APA-06/FD-07. Special Session: Advances in Fundamental Unsteady Low Reynolds Number Flows AVT-202**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Holger Babinsky, hb@eng.cam.ac.uk, University of Cambridge; Co-Chair: Michael Ol, Michael.Ol@us.af.mil, US Air Force Reseach Laboratory	
2:00-2:30 PM	**Unsteady Flat Plates: a Cursory Review (Invited - AVT202 special session)** M.V. Ol; H. Babinsky
2:30-3:00 PM	**Low Reynolds Number Acceleration of Flat Plate Wings at High Incidence (Invited).** R.J. Stevens; H. Babinsky; F. Manar; P. Mancini; A.R. Jones; K.O. Granlund; M.V. Ol; T. Nakata; N. Phillips; R. Bomphrey; A. Gozukara
3:00-3:30 PM	**Unsteady Aerodynamics of Pitching Low Aspect Ratio Wings: A review of AVT-202-panel results (Invited Paper)** L.P. Bernal
3:30-4:00 PM	**Leading Edge Vortex Evolution and Lift Production on Rotating Wings (Invited)** A.R. Jones; F. Manar; N. Phillips; T. Nakata; R. Bomphrey; M.J. Ringuette; M. Percin; B. van Oudheusden; J. Palmer
4:00-4:30 PM	**Parametric Variations in Aspect Ratio, Leading Edge and Planform Shapes for the Rectilinear Pitch Cases of AVT-202 (Invited)** O. Son; O.N. Cetiner-Yildirim; R.J. Stevens; H. Babinsky; F. Manar; P. Mancini; A.R. Jones; M.V. Ol; A. Gozukara
4:30-5:00 PM	**Low Order Modelling of Lift Forces for Unsteady Pitching and Surging Wings.** H. Babinsky; R.J. Stevens; A.R. Jones; L.P. Bernal; M.V. Ol

5:00-5:30 PM	**Next Steps in the Fundamentals of Highly Unsteady Aerodynamics**
2:00 PM-5:30 PM, Americas Cup B, **APA-07. Aerodynamic Design: Analysis, Methodologies, and Optimization Techniques I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Phillip Ansell, ansell1@illinois.edu, University of Illinois at Urbana-Champaign; Chair: Joao Luiz Azevedo, joaoluiz.azevedo@gmail.com,	
2:00-2:30 PM	**Using A Fast and Explicit Mesh Movement Method To Efficiently Compute Mesh Sensitivity** G.L. Mura; B.L. Hinchliffe; N. Qin; J. Brezillon
2:30-3:00 PM	**An Evaluation of Aerodynamic Analysis Software for use in Aircraft MDO** C.M. Meckstroth
3:00-3:30 PM	**Computational Analysis and Optimization of Blockerless Engine Thrust Reverser Concept** P. Rajput; I. Kalkhoran
3:30-4:00 PM	**Variable-Fidelity Surrogate Modeling of Lambda Wing Transonic Aerodynamic Performance** D.E. Bryson; M.P. Rumpfkeil
4:00-4:30 PM	**Parametric Study of the Effects of a Tubercle's Geometry on Wing Performance Through the Use of the Lifting-Line Theory** M.D. Bolzon; R.M. Kelso; M. Arjomandi
4:30-5:00 PM	**Least Squares Shadowing Sensitivity Analysis of Chaotic Flow around a Two-Dimensional Airfoil** P.J. Blonigan; Q. Wang; E.J. Nielsen; B. Diskin
5:00-5:30 PM	**An Optimization Approach to Split-Winglet Design for Sailplanes** T. Krebs; G. Bramesfeld
2:00 PM-5:30 PM, Coronado E, **APA-08. Special Session: Simulation of Rotor in Hover II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Nathan Hariharan, nathan.hariharan.ctr@hpc.mil, CREATE-AV; Chair: Robert Narducci, robert.p.narducci@boeing.com, Boeing Defense, Space & Security	
2:00-2:30 PM	**Performance Impact of Tip Shape Variations on the S-76 Rotor Using KCFD** J. Abras; N.S. Hariharan
2:30-3:00 PM	**Hover Predictions of the S-76 Rotor using HMB2 - Model to full Scale** G.N. Barakos; A. Jimenez-Garcia
3:00-3:30 PM	**A Comparative Study of Two Hover Prediction Methodologies** R.M. Eshcol; C. Zhou; J. Kim; L.N. Sankar
3:30-4:00 PM	**Parametric Validation Study for a Hovering Rotor using UT-GENCAS** B. Min; B. Wake
4:00-4:30 PM	**Performance and Physics of a S-76 Rotor in Hover With Non-Contiguous Hybrid Methodologies** K. Jacobson; A. Grubb; M. Smith
4:30-5:00 PM	**Investigations of XV-15 Rotor Hover Performance and Flow Field Using U^{2}NCLE and HELIOS Codes** C. Sheng; Q. Zhao; M. Hill

5:00-5:30 PM	**Oral Presentation. NASA Hover Tests: Overview and Plans** T. Norman; L. Jenkins; S. Gorton
2:00 PM-5:30 PM, Americas Cup C, **APA-09. High Angle of Attack and High Lift Aerodynamics**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Jonathan Murray, jmurray@sandia.gov, Sandia National Laboratories; Co-Chair: Anthony Sclafani, tony.sclafani@boeing.com, Boeing Commercial Airplanes	
2:00-2:30 PM	**Numerical Simulations of Streamwise Vortices on a Generic High-Lift Configuration** T. Landa; R. Radespiel; J. Wild
2:30-3:00 PM	**Prediction of Buffet Loads of F-15 with FUN3D Solver** S. Yang; P. Chen; X. Wang; M.P. Mignolet; D.M. Pitt; J. Loyet
3:00-3:30 PM	**Prediction of Post-Stall Aerodynamic Characteristics of wing(s) with separated flow modeled as a Single Nascent Vortex** A.B. Samuel; R. Mukherjee
3:30-4:00 PM	**Frequency Response Measurements of Flapped Airfoil at High Angles of Attack** M.Y. Zakaria; M.R. Hajj
4:00-4:30 PM	**Development of the High Lift Common Research Model (HL-CRM): A Representative High Lift Configuration for Transonic Transports** D.S. Lacy; E.D. Dickey; A.J. Sclafani; A. Clark
2:00 PM-5:30 PM, Americas Cup D, **APA-10. Test and Prediction Techniques for High-speed Flows**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Carl Tilmann, carl.tilmann@us.af.mil, Air Force Research Laboratory; Chair: Xiaowen Wang, sean.xiaowen.wang@gmail.com, Air Force Research Laboratory	
2:00-2:30 PM	**Effect of Canard Deflection for Roll Control on Fin Performance of a Fin-Stabilized Projectile** S.I. Silton; C.J. Coyle
2:30-3:00 PM	**Computational Analysis, Model Reduction, and Experimental Comparison of Model Scale Impinging Jets** A. Crowell; L.M. Myers
3:00-3:30 PM	**Evaluation of Dynamic Pressure-Sensitive Paint for Improved Analysis of Cavity Flows and CFD Validation** D.A. Roberts; N.P. Stokes; M.K. Quinn; J. Coppin; T.J. Birch
3:30-4:00 PM	**The Incoming Flow Investigation around Geometric Elements in Hypersonic Shock Tube.** M. Kotov; I. Kryukov; L. Ruleva; S. Solodovnikov; S. Surzhikov
4:00-4:30 PM	**Temperature Measurements by Temperature Sensitive Paint on Flexible and Deforming Body in Hypersonic Flow** M. Taguchi; R. Maruyama; K. Mori
2:00 PM-5:30 PM, Gaslamp D, **ASC-01. EU FP7 CHANGE (Special Session)**, Technical Paper, **24th AIAA/AHS Adaptive Structures Conference**, Co-Chair: Ronald Barrett-Gonzalez, adaptivebarrett@yahoo.com, The University of Kansas; Chair: Roeland De Breuker, r.debreuker@tudelft.nl, TU Delft	

2:00-2:30 PM	**MDAO for Aerodynamic Assessment of a Morphed Wing for the Loiter Segment of a UAV Flight Mission** Y. Yang; S. Ozgen; Y. Yaman; A. Ciarella; M. Hahn; C. Beaverstock; M.I. Friswell
2:30-3:00 PM	**Design and Experiments of a Warp Induced Camber and Twist Morphing Leading and Trailing Edge Device** N. Werter; J. Sodja; G. Spirlet; R. De Breuker
3:00-3:30 PM	**A Hybrid Morphing Trailing Edge Designed for Camber Change of the Control Surface** I. Tunçöz; Y. Yang; E. Gürses; M. Sahin; Y. Yaman; S. Ozgen
3:30-4:00 PM	**Telescopic Wing-Box for a Morphing Wing** P.V. Gamboa; P.D. Santos
4:00-4:30 PM	**From development of multi-material skins to morphing flight hardware production** A. Falken; S. Steeger; O. Heintze; R. De Breuker
2:00 PM-5:30 PM, Cove, **FD-08. Airfoil Flow Control**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: John Farnsworth, john.farnsworth@colorado.edu, University of Colorado Boulder; Co-Chair: Donald Rizzetta, donald.rizzetta@us.af.mil,	
2:00-2:30 PM	**Open-Loop and Closed-Loop Trailing-Edge Separation Control on a Natural Laminar Flow Airfoil** R. Gupta; P.J. Ansell
2:30-3:00 PM	**Aero-Servo-Elastic Control of a Cyber-Physical FlexibleWing** C.P. Fagley; J. Seidel; T.E. McLaughlin; J.A. Farnsworth
3:00-3:30 PM	**Aerodynamic Control of a Dynamically Pitching VR-12 Airfoil using Discrete Pulsed Actuation** Y. Tan; T.M. Crittenden; A. Glezer
3:30-4:00 PM	**Control Strategies for a Laminar-Flow Compatible High-Lift Wing Configuration** D.P. Rizzetta; M. Visbal
4:00-4:30 PM	**Effet of Oscillating Winglet on the Development of Wing-Tip Vortex** T.K. Guha; R. Kumar
4:30-5:00 PM	**Flow Seperation and Passive Flow Control on E387 Airfoil** A. Heffron; J.J. Williams; E.J. Avital
5:00-5:30 PM	**An Experimental Study of Mini-Tabs for Aerodynamic Load Control** D.J. Heathcote; I. Gursul; D. Cleaver
2:00 PM-5:30 PM, Pier, **FD-09. CFD Simulation of Vortex Flows**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Daniel Garmann, Daniel.Garmann@us.af.mil, Air Force Research Laboratory; Co-Chair: Steve Karman, slkarman@icloud.com, Pointwise, Inc.	
2:00-2:30 PM	**Analysis on Λ-vortex development in a transitional boundary layer** Y. Wang; S. Chern; Y. Dong; C. Liu
2:30-3:00 PM	**DNS Study on Motion around a Vortex Ring in Transitional Boundary Layers** Y. Wang; S. Chern; Y. Yang; C. Liu

3:00-3:30 PM	**Unsteady Evolution of the Tip Vortex on a Stationary and Oscillating NACA0012 Wing** D.J. Garmann; M.R. Visbal
3:30-4:00 PM	**CFD Simulations of the ERICA tiltrotor using HMB2** A. Jimenez-Garcia; G.N. Barakos
4:00-4:30 PM	**Transient Laminar Cross-Flow over a Rigid Cantilever Plate** N. DiZinno; G. Vradis
4:30-5:00 PM	**Numerical Investigation of Low-Pressure Turbine Endwall Flows** A. Gross; S. Romero; C. Marks; R. Sondergaard
2:00 PM-5:30 PM, Harbor D, **FD-11. Compressible Boundary Layers**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Lionel Agostini, agostini.8@osu.edu, The Ohio State University; Co-Chair: Stanislav Gordeyev, sgordeye@nd.edu, University of Notre Dame	
2:00-2:30 PM	**Shock Wave Boundary Layer Interaction Control using Repetitive-Pulse Laser Energy Depositions** A. Iwakawa; T. Tamba; S.H. Pham; T. Shoda; A. Sasoh
2:30-3:00 PM	**CFD Investigation of Supersonic Bleed with Discretely Modeled Holes in Cambridge Wind Tunnel** S.A. Duncan; P.D. Orkwis; M. Ugolotti
3:00-3:30 PM	**Entropy Generation and Transport Mechanism in Compressible Mixing Layer: A Direct Numerical Study** K. Shi; S. Morris; A. Jemcov
3:30-4:00 PM	**Causal relationship between large outer structures and small-scale near-wall turbulence in a compressible boundary layer at Mach=2.3** L.M. Agostini; M. Leschziner; J. Poggie; N.J. Bisek; D.V. Gaitonde
2:00 PM-5:30 PM, Harbor E, **FD-12. DNS/LES Techniques**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Man Rai, man.m.rai@nasa.gov, NASA-Ames Research Center; Co-Chair: Felix Schranner, felix.schranner@mytum.de,	
2:00-2:30 PM	**Significance of Computational Spanwise Domain Length on LES for the Flowfield with Large Vortex Structure** H. Fukumoto; H. Aono; T. Nonomura; A. Oyama; K. Fujii
2:30-3:00 PM	**Utilizing Direct Numerical Simulations of Transition and Turbulence in Design Optimization** M.M. Rai
3:00-3:30 PM	**Optimization of an Implicit LES Method for Underresolved Simulations of Incompressible Flows** F.S. Schranner; V. Rozov; N. Adams
3:30-4:00 PM	**Validation of a Window-Embedded RANS/LES Method Based on Synthetic Turbulence** Z. Li; H. Chen; Y. Zhang
4:00-4:30 PM	**Turbulent Inflow Generation for the Large-eddy Simulation Technique Through Globally Neutral Buoyancy Perturbations** C. Umphrey; I. Senocak

4:30-5:00 PM	**Large Eddy Simulation based on Residual-based Variational Multiscale Method and Lagrangian Dynamic Smagorinsky Model** S.A. Tran; O. Sahni
2:00 PM-5:30 PM, Promenade B, **FD-13. Jet Flows I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Rene Woszidlo, rene.woszidlo@boeing.com, The Boeing Company	
2:00-2:30 PM	**Comparison between LES and experimental round jet for diesel fuel spray** J. Brulatout; F. Garnier; P. Seers
2:30-3:00 PM	**Computational Methodology for Investigating the Transient Interaction Between a Reaction Control Jet and a Hypersonic Crossflow** W. Miller; P. Medwell; M. Kim; C.J. Doolan
3:00-3:30 PM	**Numerical Simulation of Jet Mixing in a Recessed Coaxial Injector at Supercritical Pressure** D. Muto; H. Terashima; N. Tsuboi
3:30-4:00 PM	**The Time-Resolved Flow Field of a Jet Emitted by a Fluidic Oscillator into a Crossflow** F. Ostermann; R. Woszidlo; C. Nayeri; C.O. Paschereit
2:00 PM-5:30 PM, Harbor F, **FD-14. Shock Boundary Layer Interaction II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: John Benek, John.Benek@us.af.mil, Air Force Research Lab AFRL/RQ; Co-Chair: Andreas Gross, agross@nmsu.edu, New Mexico State University	
2:00-2:30 PM	**New LES of a Hypersonic Shock/Turbulent Boundary Layer Interaction** C.M. Helm; M.P. Martin
2:30-3:00 PM	**Numerical Investigation of Shock Boundary-Layer Interactions** A. Gross; H.F. Fasel
3:00-3:30 PM	**Experimental Study of the Three-Dimensionality of Shock Wave-Boundary Layer Interactions in Rectangular Inlets** I.J. Grossman; P.J. Bruce
3:30-4:00 PM	**Simulation of Hypersonic Shock Wave Laminar Boundary Layer Interaction on Hollow Cylinder Flare** N. Kianvashrad; D.D. Knight
4:00-4:30 PM	**Assessment of CFD Capability for Hypersonic Shock Wave Boundary Layer Interactions, Part II** M. Rouhi Youssefi; D.D. Knight
4:30-5:00 PM	**Shock Wave Boundary Layer Interaction in a Hypersonic Laminar Flow on a Hollow Cylinder Flare** M. Mortazavi; D.D. Knight
5:00-5:30 PM	**Simulations of Incident Shock Boundary Layer Interactions** J.A. Benek; C.J. Suchyta; H. Babinsky
2:00 PM-5:30 PM, Promenade A, **FD-20. Stability and Transition of Hypersonic Flows I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Matthew Borg, matthew.borg.3@us.af.mil, Air Force Research Laboratory; Co-Chair: Michael Kegerise, michael.a.kegerise@nasa.gov, NASA-Langley Research Center	

2:00-2:30 PM	**Direct Numerical Simulation of Crossflow Instability Excited by Microscale Roughness on HIFiRE-5** D.J. Dinzl; G.V. Candler
2:30-3:00 PM	**Simultaneous Infrared and Pressure Measurements of Crossflow Instability Modes for HIFiRE-5** M.P. Borg
3:00-3:30 PM	**Instability and Transition Experiments in the Boeing/AFOSR Mach-6 Quiet Tunnel** C.J. Sweeney; B.C. Chynoweth; J. Edelman; S.P. Schneider
3:30-4:00 PM	**Traveling Crossflow Wave Predictions on the HIFiRE-5 at Mach 6: Stability Analysis vs. Quiet Tunnel Data** M.T. Lakebrink; M.P. Borg
4:00-4:30 PM	**Unsteady Heat-Flux Measurements of Second-Mode Instability Waves in a Hypersonic Boundary Layer** M.A. Kegerise; S.J. Rufer
4:30-5:00 PM	**Visualization of Hypersonic Boundary Layer Transition on Elliptic Cone in High Enthalpy Shock Tunnel with Temperature-Sensitive Paint** T. Nagayama; H. Nagai; H. Tanno; T. Komuro
2:00 PM-5:30 PM, Hillcrest A, **GNC-06. Control Theory and Applications**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Co-Chair: Jonathan Rogers, jrogers8@gmail.com, Georgia Institute of Technology; Chair: Matt Sorgenfrei, matthew.c.sorgenfrei@nasa.gov, NASA Ames Research Center	
2:00-2:30 PM	**Robust Hover Mode Control of a Tiltrotor Using Nonlinear Control Technique** M. Alam; S. Celikovsky; D. Walker
2:30-3:00 PM	**An Incremental Approximate Dynamic Programming Flight Controller Based on Output Feedback** Y. Zhou; E. Van Kampen; Q. Chu
3:00-3:30 PM	**Observer-Based Sequential Control of a Two Time Scale Spring-Mass-Damper System** D. Saha; J. Valasek
3:30-4:00 PM	**Robust Control of Uncertain Linear Input-Delayed Sampled Data System Through Use of Optimization Scheme and Robust Stability Bound** J. Kratz; R.K. Yedavalli
4:00-4:30 PM	**Hardening Control Systems with the ICAR Loop** H.R. Sells
4:30-5:00 PM	**Modified Extended State Observer Control of Linear Systems** C.D. Heise; S.P. Schatz; F. Holzapfel
5:00-5:30 PM	**Handling Hidden Coupling Terms in Gain-Sheduling Control Design: Application to a Pitch-Axis Missile Autopilot** H. Lhachemi; D. Saussié; G. Zhu
2:00 PM-5:30 PM, Hillcrest B, **GNC-07. Spacecraft Attitude Control II**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Chair: Robert Hall, robert.a.hall@nasa.gov, ; Chair: Erwin Mooij, E.Mooij@TuDelft.nl, Delft Technical University of Technology	

2:00-2:30 PM	**Flexible GN&C architecture enables an innovative control solution to repurpose the Kepler Space Telescope** D. Putnam; D. Wiemer; I. Gravseth
2:30-3:00 PM	**Recovery of an Uncontrolled, Asymmetric Spacecraft with Limited Controls** M.D. Coen; J. Valasek
3:00-3:30 PM	**A Bang-Bang Attitude Stabilizer for Rotating Rigid Bodies** E. Serpelloni; M. Maggiore; C.J. Damaren
3:30-4:00 PM	**Deterministic Drift Counteraction Optimal Control for Attitude Control of Spacecraft with Time-Varying Mass** R.A. Zidek; I.V. Kolmanovsky
4:00-4:30 PM	**Almost Global Stochastic Stabilization of Attitude Motion with Unknown Multiplicative Diffusion Coefficient** E. Samiei; A.K. Sanyal; E.A. Butcher
4:30-5:00 PM	**Solving Polynomial Optimal Control Problems via Iterative Convex Optimization** C. Sun; R. Dai; P. Lu
2:00 PM-5:30 PM, Coronado B, **GNC-08. Invited Session: LOC-2, Onboard Systems for LOC Prevention and Recovery – Real-Time Failure Detection, Isolation, and Redundancy Management**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Chair: Christine Belcastro, christine.m.belcastro@nasa.gov, NASA-Langley Research Center; Co-Chair: Dennis Crider, criderd@ntsb.gov, National Transportation Safety Board	
2:00-2:30 PM	**Aircraft Fault Detection Using Real-Time Frequency Response Estimation** J.A. Grauer
2:30-3:00 PM	**Aircraft Actuator Fault Detection and Isolation using Piecewise Constant Fault Estimation Scheme** H. Lee; S. Snyder; A. Patterson; N. Hovakimyan
3:00-3:30 PM	**Aerodynamic Modeling from Flight Data with Unknown Time Skews** E.A. Morelli
3:30-4:00 PM	**An Innovative Approach to Air Data Sensor FDIR for Commercial Aircraft** J. Boskovic; J.A. Jackson
4:00-4:30 PM	**Virtual Redundancy for Safety Assurance in the Presence of Sensor Failures** M. Devore; N. Gandhi; A.J. Bateman
2:00 PM-5:30 PM, Coronado A, **GNC-09. Invited Session: EDL-2, Entry, Descent and Landing GN&C Technology II**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Co-Chair: Behcet Acikmese, behcet@austin.utexas.edu, University of Texas at Austin; Chair: John Carson, john.m.carson@nasa.gov, NASA Jet Propulsion Laboratory	
2:00-2:30 PM	**Verification of a Fully Numerical Entry Guidance Algorithm** P. Lu; C. Brunner; S. Stachowiak; G.F. Mendeck; M. Tigges; C. Cerimele
2:30-3:00 PM	**A Convex Formulation for the Minimum Fuel Powered-Descent Guidance Problem with Drag, Nonlinear State Constraints, and Free Final Time** M. Szmuk; B.A. Acikmese

3:00-3:30 PM	**Design and Analysis of Map Relative Localization for Access to Hazardous Landing Sites on Mars** A.E. Johnson; Y. Cheng; J. Montgomery; N. Trawny; B.E. Tweddle; J. Zheng
2:00 PM-5:30 PM, Hillcrest C, **GNC-10. Aerospace Robotics and Unmanned/Autonomous Systems II**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Co-Chair: Toralf Boge, toralf.boge@dlr.de, DLR GSOC; Chair: Steve Ulrich, steve.ulrich@carleton.ca, Carleton University	
2:00-2:30 PM	**Trajectory Transcriptions for Potential Autonomy Features in UAV Maneuvers** C.R. Ashokkumar; G.W. York
2:30-3:00 PM	**Unifying Artificial Intelligence and Trajectory Optimization for UAV Guidance** R.V. Cowlagi; J. Sperry
3:00-3:30 PM	**Landmark-Aided Navigation for Air Vehicles Using Learned Object Detectors** M.P. DeAngelo; J.F. Horn
3:30-4:00 PM	**Optimal Flight Paths in Wireless Sensor Networks: Modeling, Simulation, and Flight Test** N.M. Jodeh; R. Cobb
4:00-4:30 PM	**Bio-inspired Time-to-contact Control for Autonomous Quadrotor Vehicles** B. Thomsen; M. Zhang; I. Sharf
4:30-5:00 PM	**A Comparison between Trajectory Optimization Methods: Differential Dynamic Programming and Pseudospectral Optimal Control** M. Gandhi; E. Theodorou
2:00 PM-5:30 PM, Hillcrest D, **GT-02. SAMURAI - Testing and Simulation of Real Engine Flows II (Invited)**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Jürgen Quest, jq@etw.de, ETW GmbH; Co-Chair: Tim Wadhams, wadhams@cubrc.org, CUBRC	
2:00-2:30 PM	**Image Base Fan Blade Deformation Measurements on an Airbus A320 V2500 Engine in Ground Operation** T. Kirmse; P. Ebel; A. Schroeder
2:30-3:00 PM	**Structural Modelling and Validation of a V2500 Honeycomb Core Fan Blade** P. Ebel; R. Schnell; D. Schönweitz; T. Kirmse
3:00-3:30 PM	**Engine performance simulation of the integrated V2527 - Engine Fan** F. Wolters; R. Becker; R. Schnell; P. Ebel
3:30-4:00 PM	**Numerical Simulation of a Fully Integrated Engine Ground Test** D. Keller
4:00-4:30 PM	**Hybrid RANS/CAA Computation of A320 V2527 Engine at Ground Operation** A. Neifeld; R. Ewert
2:00 PM-5:30 PM, Gaslamp C, **GTE-03. Compression Systems I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Nicole Key, nkey@purdue.edu, Purdue University; Co-Chair: Kenneth Suder, kenneth.l.suder@nasa.gov, NASA Glenn Research Center	

2:00-2:30 PM	**A CFD Study and Performance Evaluation of Service-Run Variable Vanes in a High Pressure Compressor of a Turbofan Engine** S. Li; R. Ramakrishnan
2:30-3:00 PM	**Improved Predictions of Transonic, Low Aspect Ratio, Axial Compressor Stage Performance and Tip Clearance Effects** R.M. Howard; S.L. Puterbaugh
3:00-3:30 PM	**Computational Investigation of Upstream-Propagating Potential Disturbances in a Fan Stage** K. Gordon; E.J. Jumper; A. Jemcov; K. Shi
3:30-4:00 PM	**Pulsed-DC Plasma Actuator Characteristics and Application in Compressor Stall Control** R. McGowen; T.C. Corke; E.H. Matlis; R. Kaszeta; C. Gold
4:00-4:30 PM	**Computational Simulations of a Multi-stage Subsonic Research Compressor** K. Sreenivas; R.S. Webster; E. Hereth; N.L. Key; R.A. Berdanier
4:30-5:00 PM	**Effect of Vortex Ingestion on Transonic Fan Stability** J.H. Page; P. Hield; P.G. Tucker
5:00-5:30 PM	**Compressor integration study for a pulse detonation engine** B.H. Saracoglu; G. Paniagua
2:00 PM-5:30 PM, Regatta B, **IS-02. Intelligent and Adaptive Aerospace Control,** Technical Paper, **AIAA Infotech @ Aerospace,** Chair: Chelsea Sabo, cmsabo8@gmail.com, University of Cincinnati; Co-Chair: Adnan Yucel, adnan.yucel@lmco.com, Lockheed Martin Aeronautics	
2:00-2:30 PM	**Demonstration Platform for Baysian Based Decentralized UAS Control and Task Allocation** G.J. Keller; S. Hening; S. Song; M. Teodorescu; B. Guillaume; N.T. Nguyen; C.A. Ippolito
2:30-3:00 PM	**Adaptive Estimation of Disturbance Torque for Orbiting Spacecraft Using Recursive Least Squares Method.** S. Swei; N.T. Nguyen
3:00-3:30 PM	**Adaptive Modal Identification and Flutter Suppression Control** N.T. Nguyen; S. Swei
3:30-4:00 PM	**A Zero Filter Augmentation for Robust Adaptive Control of Weakly Minimum Phase Finite-Dimensional Systems** M.J. Balas; S.A. Frost
4:00-4:30 PM	**Post Loss-Of-Control Autonomous Recovery Flight Regimes Using Nonlinear Smooth Feedback Regulators and Neural Network with Nonlinear Observers** J. Dongmo
4:30-5:00 PM	**Quadcopter Obstacle Avoidance using Biomimetic Algorithms** A. Simpson; C.M. Sabo
5:00-5:30 PM	**Bio-Inspired Visual Navigation for a Quadcopter using Optic Flow** C.M. Sabo; A. Cope; K. Gurney; E. Vasilaki; J. Marshall

2:00 PM-5:30 PM, Torrey Hills B, **ISC-03. International Student Conference -Team Category**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Shelly Corbets, psushelly@hotmail.com, Lockheed Martin Corporation	
2:00-2:30 PM	**L1A Turbine Flow Characterization in a Cascade Facility with a T-Bar Turbulence Generator** G. Gutkin; G. Whitener; Y. Wu; K.P. Rouser
2:30-3:00 PM	**Design of an Engine Air Particle Separator for Unmanned Aerial Vehicle Applications** J. Wolf; E. Shelley; D. Stralka
3:00-3:30 PM	**A Feasibility Experimanet of a Small Scale RTV-655 Cryogenic Liquid Container for Space Applications** D. Pumroy; D. Williams; W. Parker
3:30-4:00 PM	**Implementation of Flexible Matrix Composite Actuators into the eSPAARO Unmanned Air Vehicle** N. Beaty; M. Burns; C. MacNeal; G. Mohan; K. Pyne; C. Weit; A. Bialy; M. Heim; C.A. Woolsey; M. Philen
2:00 PM-3:30 PM, Torrey Hills A, **ISC-04. ISC-Community Outreach Category**, Panel, **54th AIAA Aerospace Sciences Meeting (non-paper sessions)**, Chair: Shelly Corbets, psushelly@hotmail.com, Lockheed Martin Corporation	
2:00 PM-3:00 PM, Harbor A, **LEC-02. SCS: Technology Development and Infusion for the James Webb Telescope Sun Shield**, Lecture, **3rd AIAA Spacecraft Structures Conference (non-paper sessions)**, Chair: Wendel Belvin, w.k.belvin@nasa.gov, NASA-Langley Research Center; Co-Chair: Gregory Agnes, gregory.s.agnes@jpl.nasa.gov, Jet Propulsion Laboratory	
2:00 PM-5:30 PM, Gaslamp B, **MAT-03. Materials Testing & Characterization I**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Jonathan Ransom, jonathan.b.ransom@nasa.gov, NASA-Langley Research Center; Chair: Steven Wanthal, steven.wanthal@boeing.com, The Boeing Company	
2:00-2:30 PM	**Investigating Sub-surface Microstructure in Fiber Reinforced Polymer Composites via X-Ray Tomography Characterization** R.F. Agyei; B. Sharma; M. Sangid
2:30-3:00 PM	**Interpreting High Temperature Deformation Behavior of a Ceramic Matrix Composite via High Energy X-rays and Numerical Simulation** A.C. Manero; S. Sofronsky; K. Artzt; S. Hackemann; J. Wischek; J. Okasinski; P. Kenesei; J. Almer; M. Bartsch; S. Raghavan
3:00-3:30 PM	**Computationally Intelligent Image Processing Techniques for Crack Detection in Structural Components from Imaged Data** D. Gillaugh; J.A. Beck; J.M. Brown; T. George; O. Scott-Emuakpor; C. Holycross
3:30-4:00 PM	**Real Time In-Situ Sensing of Damage Evolution in Carbon Nanotube-Polymer Nanocomposites under Impact Loading** E.C. Sengezer; G.D. Seidel

4:00-4:30 PM	**Aircraft Tire Spin-Up Wear Analysis through Experimental Testing and Computational Modeling** A.J. Zakrajsek; J. Childress; M.H. Bohun; S. Naboulsi; R.N. Vogel; N.J. Lindsey; S. Mall
2:00 PM-5:30 PM, Balboa A, **MDO-02. Design Space Exploration**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Bret Stanford, bret.k.stanford@nasa.gov, NASA Langley Research Center; Chair: Timothy Takahashi, ttakahas@asu.edu, Arizona State University	
2:00-2:30 PM	**An Evolutionary Multi-Architecture Multi-Objective Optimization Algorithm for Design Space Exploration** C. Frank; R. Marlier; O.J. Pinon-Fischer; D.N. Mavris
2:30-3:00 PM	**A Heuristic Approach to Finding the Preferred Design Variable Parameterization for Optimization** J.D. Sinsay; J.J. Alonso
3:00-3:30 PM	**Oral Presentation. Comparison of Adaptive Design Space Exploration Methods Applied to S-Duct CFD Simulation** A. Garbo; B. German
3:30-4:00 PM	**Adaptive Model Refinement in Surrogate-based Multiobjective Optimization** S. Chowdhury; A. Mehmani; W. Tong; A. Messac
4:00-4:30 PM	**Rapid Multi-Objective Aerodynamic Design Using Co-Kriging and Space Mapping** S. Koziel; Y. Tesfahunegn; A. Amrit; L.T. Leifsson
4:30-5:00 PM	**Multi-Fidelity Aerodynamic Shape Optimization Using Manifold Mapping** J. Ren; L.T. Leifsson; S. Koziel; Y. Tesfahunegn
5:00-5:30 PM	**Aircraft Wing Optimization based on Computationally Efficient Gradient-Enhanced Ordinary Kriging Metamodel Building** C. Mortished; J. Ollar; V. Toropov; J. Sienz
2:00 PM-5:30 PM, Golden Hill A, **MST-03. Modeling and Simulation of Air Traffic Management II**, Technical Paper, **AIAA Modeling and Simulation Technologies Conference**, Chair: Bimal Aponso, bimal.l.aponso@nasa.gov, NASA-Ames Research Center; Co-Chair: Steven Beard, steven.d.beard@nasa.gov, NASA-Ames Research Center	
2:00-2:30 PM	**Using Airport Fast-Time Simulation Models to Increase the Quality of Airport Capacity Utilization Studies** C. Schinwald; K.O. Plötner; M. Hornung
2:30-3:00 PM	**Global Simulation of Aviation Operations** B. Sridhar; K. Sheth; H. Ng; A.R. Morando; J. Li
3:00-3:30 PM	**Validation Study on Descent Trajectory Optimization and Scheduling Improvement using Actual Operation Data** N. Takeichi; J. Ishihara; Y. Abumi
3:30-4:00 PM	**Simulation Approach to the Resilience Engineering Assessment of the ATM System in Crisis Scenarios** A. Errico; E. Filippone; R. Palumbo; D. Pascarella; F. Gargiulo

4:00-4:30 PM	**Next Generation Flight Management System Simulator** S. Park; V.V. Vaddi; J. Kwan
4:30-5:00 PM	**A Self-Separation Algorithm for High-Density Air Corridor Allocated to Optimal Flight Trahectories** Y. Nakamura; N. Takeichi
2:00 PM-5:30 PM, Old Town B, **NDA-01. Surrogate Modeling Approaches for Uncertainty Quantification and Reliability Estimation**, Technical Paper, **18th AIAA Non-Deterministic Approaches Conference**, Co-Chair: Jeff Brown, jeffrey.brown.70@us.af.mil; Chair: Ramana Grandhi, ramana.grandhi@wright.edu, Wright State University	
2:00-2:30 PM	**Sensitivity Analysis-Based Surrogate Modeling of Limit States** Z. Hu; S. Mahadevan
2:30-3:00 PM	**Engineering Design Exploration Utilizing Locally-Optimized Covariance Kriging** D.L. Clark; H. Bae
3:00-3:30 PM	**A Set of Test Problems and Results in Assessing Method Performance for Calculating Low Probabilities of Failure** V.J. Romero; L.P. Swiler; M.S. Ebeida; S. Mitchell
3:30-4:00 PM	**Surrogate Modeling of Full-Field Pressure Measurements from Supersonic Wind Tunnel Experiments** G.W. Bartram; R. Perez; B.P. Smarslok
4:00-4:30 PM	**Application of Interval Predictor Models to Space Radiation Shielding** L.G. Crespo; S.P. Kenny; D.P. Giesy; R.B. Norman; S. Blattnig
4:30-5:00 PM	**A Comparison of Metamodeling Techniques via Numerical Experiments** L.G. Crespo; S.P. Kenny; D.P. Giesy
5:00-5:30 PM	**Sparse polynomial surrogates for aerodynamic computations with random inputs** E. Savin; A. Resmini; J.E. Peter
2:00 PM-5:30 PM, Marina Room, **PANEL. NASA Sessions Part II**, Panel, **Forum Event**	
2:00 PM-4:00 PM, Seaport FG, **PANEL-02. Monday Afternoon Forum 360**, Panel, **Forum 360**	
2:00 PM-5:30 PM, Harbor B, **PC-03. Combustion Diagnostics**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Andrew Caswell, awcaswell@gmail.com, ; Co-Chair: Adam Steinberg, steinberg@utias.utoronto.ca, University of Toronto	
2:00-2:30 PM	**Measurements of Hydrocarbon Absorbance at High Temperatures and Pressures** D. Maqbool; C.P. Cadou
2:30-3:00 PM	**Measurements of Turbulent Swirl Flame Dynamics in an Ethylene-fuelled Gas Turbine Model Combustor at Elevated Pressure** I.G. Boxx; C.D. Carter; K. Geigle; W. Meier
3:00-3:30 PM	**Evaluation of Gappy Proper Orthogonal Decomposition for Gas Turbine Combustor Flows** P. Saini; Q. An; A.M. Steinberg

3:30-4:00 PM	**Effect of Chirp Length on Accuracy and Precision of Chirped Probe Pulse Femtosecond Coherent Anti-Stokes Raman Scattering Thermometry** C.N. Dennis; R.P. Lucht
4:00-4:30 PM	**DSMC Simulations of a Photoionization Mass Spectrometer** Q. Guan; G. Ellison; J.W. Daily; J.F. Stanton; M. Ahmed
2:00 PM-5:30 PM, Harbor C, **PC-04. Detonations, Explosions, and Supersonic Combustion**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Timothy Ombrello, timothy.ombrello.1@us.af.mil, Air Force Research Laboratory; Co-Chair: Robert Pitz, robert.w.pitz@vanderbilt.edu, Vanderbilt University	
2:00-2:30 PM	**Diffusion-Flame Ignition by Shock-Wave Impingement on a Hydrogen -Air Supersonic Mixing Layer** A.L. Sanchez; C. Huete; F. Williams
2:30-3:00 PM	**Large-Eddy Simulation of Cheng's Supersonic Burner** G. Ribert; L. Bouheraoua; P. Domingo
3:00-3:30 PM	**Growth Rate and Flame Structure of Turbulent Premixed Flame Kernels in Supersonic Flows** B.A. Ochs; D. Fries; D.E. Scarborough; S. Menon
3:30-4:00 PM	**Investigation of Flame Structure and Combustion Dynamics using CH_2O PLIF and High-Speed CH* Chemiluminescence in a Premixed Dual-Mode Scramjet Combustor** P. Allison; K. Frederickson; J.W. Kirik; R.D. Rockwell; W.R. Lempert; J.A. Sutton
4:00-4:30 PM	**Effect of Elevated Mixture Pressure and Equivalence Ratio on Hydrogen-Air Detonation Cell Size** C.A. Babbie; P. King; J. Hoke; F. Schauer
4:30-5:00 PM	**Fluidic Jet Augmentation of a Deflagrated Turbulent Flame for Deflagration-to-Detonation** J. Chambers; J. McGarry; K. Ahmed
2:00 PM-5:30 PM, Cortez Hill C, **PC-05. High-Pressure Combustion, Fuel Technology**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Keith McManus, mcmanus@ge.com, GE Global Research Center; Co-Chair: Lance Smith, smithll@utrc.utc.com, United Technologies Research Center	
2:00-2:30 PM	**Numerical Simulations of Cool Flame Propagation Limits and Speeds at Elevated Pressures** Y. Ju; C.B. Reuter
2:30-3:00 PM	**Counterflow Analysis for Combustion at High Pressure** A. Jorda Juanos; P.P. Popov; W.A. Sirignano
3:00-3:30 PM	**Experimental Studies of a High-g Ultra-Compact Combustor at Elevated Pressures and Temperatures** T.J. Erdmann; D. Burrus; D. Shouse; J. Gross; C. Neuroth; A.W. Caswell
3:30-4:00 PM	**Low Temperature Autoignition Behavior of Surrogate Jet Fuels with Targeted Properties in a Rapid Compression Machine** D.J. Valco; K. Min; A. Oldani; J.T. Edwards; T. Lee

4:00-4:30 PM	**Fuel effects on the performance of a recirculation-zone supported burner** V.R. Katta; W.M. Roquemore
4:30-5:00 PM	**Quasi-State-Specific QCT Method for Calculating the Dissociation Rate of Nitrogen in Thermal Non-Equilibrium** S.J. Voelkel; V. Raman; P.L. Varghese
5:00-5:30 PM	**Comparison of Alternative Jet Fuel Lean Blowouts for Bluff-Body Stabilized Flames** B. Huelskamp; J. Monfort; B.V. Kiel; C. Neuroth; A.W. Caswell
2:00 PM-5:30 PM, Ocean Beach, **PDL-03. Plasma Based Flow Control**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Thomas McLaughlin, tom.mclaughlin@usafa.edu, US Air Force Academy; Co-Chair: Jonathan Poggie, jonathan.poggie@gmail.com, Purdue University- Sch of Aero and Astro	
2:00-2:30 PM	**Properties of Multi-Spark Plasma Discharge Developed for Flow Control** V. Boretskij; A. Veklich; S. Fesenko; A. Lebid
2:30-3:00 PM	**Experimental Investigation of Dynamic Stall in a Wide Range of Mach Numbers by Plasma Actuators with Combined Energy/Momentum Action** A. Starikovskiy; R.B. Miles
3:00-3:30 PM	**Ignition, Sustained Flame, and Extinction of a Dielectric-Barrier-Discharge Altered Hydrogen Jet in a Cross-Flow** R.A. Fontaine; J.E. Retter; J.B. Freund; N.G. Glumac; G.S. Elliott
3:30-4:00 PM	**Plasma Assisted Turbulent Flow Separation control over a Backward Facing Step** A. das Gupta; P. Zhao; S. Roy
4:00-4:30 PM	**Active Control of a Turbulent Mixing Layer using Pulsed Laser and Pulsed Plasma** A. Singh; J.C. Little
4:30-5:00 PM	**Drag reduction on a Semi – Trailer Truck using Serpentine Dielectric Barrier Discharge Actuators** A. das Gupta; P. Zhao; J. Soni; S. Roy
5:00-5:30 PM	**Exposed-Electrode Geometry Effects on DBD Plasma Actuation over Conical Forebody** D. Zhang; X. Meng; H. Hu; J. Wang; F. Liu; S. Luo
2:00 PM-5:30 PM, Cortez Hill A, **PDL-04. Laser Discharge and Applications**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Sergey Macheret, macheret@purdue.edu, Purdue University	
2:00-2:30 PM	**Launch capability of a conceptual laser-launch system of a spherical vehicle and a dunut-mode beam** K. Mori; R. Maruyama
2:30-3:00 PM	**Schlieren imaging investigation of successive laser-induced breakdowns in quiescence atmospheric air** L. Wermer; S. Im; M. Bak
3:00-3:30 PM	**Trajectory Control of Small Rotating Projectiles by Laser Sparks** A. Starikovskiy; C. Limbach; R.B. Miles

3:30-4:00 PM	**Laser Thermal Ignition Using a Dual-Pulse Approach** C. Dumitrache; A.P. Yalin
4:00-4:30 PM	**Femtosecond laser discharge and small scale turbulence** A. Tropina; M.N. Shneider; R.B. Miles
2:00 PM-5:30 PM, Balboa C, **SD-03. Reduced Order Modeling I**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Nathan Falkiewicz, nathan.falkiewicz@ll.mit.edu, MIT Lincoln Laboratory; Co-Chair: Bryan Glaz, bryan.j.glaz.civ@mail.mil, U. S. Army Research Laboratory (APG)	
2:00-2:30 PM	**Reduced Order Modeling of Highly Unsteady Flows Using Adaptive Sparse Bases** R. Deshmukh; Z. Liang; J.J. McNamara
2:30-3:00 PM	**Model Reduction of Unsteady Flows using Sparse Coding: Efficient Basis Extraction from Large Datasets** Z. Liang; R. Deshmukh; J.J. McNamara
3:00-3:30 PM	**Reduced Order Models for Generation of Large, High Speed Aerodynamic Databases with Jet Interactions** A. Vanderwyst; A.B. Shelton; C. Martin; L. Neergaard; Z. Witeof
3:30-4:00 PM	**Efficiency Enhancement of Reduced Order Model using Variable Fidelity Modeling** S.I. Lee; T. Kim; S. Jun; K. Yee
4:00-4:30 PM	**Reduced-Order Modeling of Flow-Induced Vibrations in Bellows Joints of Rocket Propulsion Systems** S.L. Higgins; R. Davis; A.M. Brown
2:00 PM-5:30 PM, Gaslamp A, **SD-04. Dynamic Loads, Response, and Vibration I**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Teresa Kinney, teresa.l.kinney@nasa.gov, NASA-Kenndey Space Center; Co-Chair: Zahra Sotoudeh, Zahra.vpi@gmail.com, Rensselaer Polytechnic Institute	
2:00-2:30 PM	**Aeroelastic Response of the ACTE Transition Section** C. Herrera; N. Spivey; S. Lung; G. Ervin; P. Flick
2:30-3:00 PM	**Dynamic Behavior of Initially-Stressed and Post-Buckled Laminated Composite Beams** J.B. Kosmatka
3:00-3:30 PM	**Dynamic Response of Aeroelastically Tailored Composite Wing: Analysis and Experiment** J. Sodja; N. Werter; M. Natella; J. . Dillinger; R. De Breuker
3:30-4:00 PM	**The Influence of Wing Flexibility on the Stability of a Biomimetic Flapping Wing Micro Air Vehicle in Hover** J.E. Bluman; M.K. Sridhar; C. Kang
4:00-4:30 PM	**Damped Free Vibration Response of An Adhesively Bonded Stiffened Plate with Plate-Strip Stiffeners** N. Ahmad; R.K. Kapania

4:30-5:00 PM	**Impact of the Spar Sweep Angle and Rib/Spar Orientation on Wing Structural Response – Experiment and Modelling** G. Francois; J.E. Cooper; P. Weaver
5:00-5:30 PM	**Energy Based Representations of Mechanical Shock for Failure Characterization** V. Babuska; C. Sisemore; J. Booher
2:00 PM-5:30 PM, La Jolla B, **SE-02. Systems Engineering II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: David Dress, David.A.Dress@nasa.gov, NASA Langley Research Center	
2:00-2:30 PM	**Resilience Analysis for Complex Supply Chain Systems Using Bayesian Networks** N. Yodo; P. Wang
2:30-3:00 PM	**Resilient Multi-UAV Operation: Key Concepts and Challenges** E. Ordoukhanian; A.M. Madni
3:00-3:30 PM	**Agent-Based Flexible Design Contracts for Resilient Spacecraft Swarms** M. Sievers; A.M. Madni
2:00 PM-5:30 PM, Americas Cup A, **SEO-02. Innovative Ideas for Exploring and Operating Space Missions**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Larry Bryant, larry.w.bryant@jpl.nasa.gov, Jet Propulsion Laboratory; Co-Chair: Scott Burleigh, Scott.Burleigh@jpl.nasa.gov, Jet Propulsion Laboratory	
2:00-2:30 PM	**ASTROSAT - Overview and Technical Architecture of India's First Space Observatory** V. Sundararajan
2:30-3:00 PM	**Oral Presentation. Adaptive Control Strategy of Exploration Rover with Potential Function Method** R. Hatori; K. Shibuya; K. Uchiyama
3:00-3:30 PM	**Transfer trajectory design about doubly synchronous binary asteroid system** X. Wu; H. Shang ; X. Qin
3:30-4:00 PM	**A GNC Perspective of the Launch and Commissioning of NASA's New SMAP (Soil Moisture Active Passive) Spacecraft** T.S. Brown
4:00-4:30 PM	**Study of Optimal Transfers from L_2 Halo-orbits to Lunar Surface** Y. Ulybyshev
4:30-5:00 PM	**Electromagnetic Propulsion system for spacecrafts using geomagnetic fields and superconductors.** A. Dadhich
2:00 PM-4:00 PM, Regatta A, **SOF-03. Software Challenges in Aerospace Symposium**, Technical Paper, **AIAA Infotech @ Aerospace**, Chair: James Murphy, james.r.murphy@nasa.gov, NASA -Ames Research Center	
2:00-2:30 PM	**Applying Machine Learning for Run-time Bug Detection in Aviation Software** H. Huang; S. Guyer; J. Rife
2:30-3:00 PM	**Soft Computing in Aerospace** F.C. Briggs

3:00-3:30 PM	**Towards Generic Requirements and Models for Automated Mission Tasks with RPAS** C. Torens; F. Adolf; G. Patil; G.K. Vernekar
2:00 PM-5:30 PM, La Jolla A, **STR-03. Aircraft Structural Design II**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Harry Hilton, h-hilton@illinois.edu, University of Illinois at Urbana-Champaign; Co-Chair: Mark Sensmeier, mark.sensmeier@erau.edu, Embry-Riddle Aeronautical University	
2:00-2:30 PM	**Parameterization Framework for Aeroelastic Design Optimization of Bio-Inspired Wing Structural Layout** A. Dubois; C. Farhat; A.H. Abukhwejah
2:30-3:00 PM	**Analysis of Designer / Tailored Linear Aero-Piezo-Viscoelastic Energy Harvesting** H.H. Hilton; Y. Saito
3:00-3:30 PM	**Design and structural analysis of unique structures under an internal vacuum** B.C. Cranston; A.N. Palazotto
3:30-4:00 PM	**Effects of Shallow-Angle, Thin-Ply Laminates on the Structural Performace of Composite Wing** N.H. Kimber; J. Tian; S.U. Thielk; P. Chang; S. Ko; W. Lay; H. Bang; J. Yang
4:00-4:30 PM	**Optimization, Manufacturing and Testing of a Composite Wing with Maximized Tip Deflection** Y.M. Meddaikar; J. . Dillinger; J. Sodja; H. Mai; R. De Breuker
4:30-5:00 PM	**Thermal Response of a Spatially Graded Metal-Ceramic Structural Panel to Non-Uniform Heating in Hypersonic Flow** P. Deierling; O.I. Zhupanska; C.L. Pasiliao
5:00-5:30 PM	**Design, manufacturing and testing of a horizontal stabilizer in composite material** W.L. de Mello; S.F. de Almeida; H.B. Resende
2:00 PM-5:30 PM, Old Town A, **TES-03. Fluids and Combustion in Power Systems** , Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Gustaaf Jacobs, gjacobs@mail.sdsu.edu, San Diego State Univ; Co-Chair: Farzad Mashayek, mashayek@uic.edu, University of Illinois at Chicago	
2:00-2:30 PM	**Comparative Study of Using Streamlined Bodies as a Passive Enhancer in Combustor Dilution System** R.S. Amano; T. ElHammal
2:30-3:00 PM	**Multi-Location Fuel Injection Effects on NO*/OH* Chemiluminescence in a High Intensity Combustor** A.O. Said; A.K. Gupta
3:00-3:30 PM	**Investigation of Heat Transfer and Fluid Mechanics across a Heated Rotating Circular Cylinder in Crossflow** O. Fatta; G. Smaisim; N. Syred; A. Valera-Medina; A. Rageb
3:30-4:00 PM	**Numerical Investigation of PEM Fuel Cell Performance in an Aircraft Oxygen–Gas Oxidizer System** K. Okai; T. Himeno; T. Watanabe; Y. Yachi; N. Shinozaki

4:00-4:30 PM	**Thermal Field Investigation under Distributed Combustion Conditions** A.E. Khalil Hasan; A.K. Gupta
4:30-5:00 PM	**Large Eddy Simulation of a Supersonic Underexpanded Jet with a High-order Hybrid Central/WENO-Z Scheme** D. Quimby; G.B. Jacobs
5:00-5:30 PM	**Investigation of Alumina Flow Breakup Process in Solid Rocket Propulsion Chamber** Y. Yen; R.S. Amano
2:00 PM-5:30 PM, Harbor G, **TP-03. Non-Equilibrium Flows, Non-Equilibrium Radiation and Rarefied Flows I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Jonathan Burt, jonathanburt@oai.org, Universal Technology Corporation; Co-Chair: Ryan Gosse, ryan.gosse.1@us.af.mil, WPAFB	
2:00-2:30 PM	**Entropy Production Analysis of Burnett Equations Using Classical Thermodynamics with Gibbs Equations** H. Liu; W. Chen; W. Zhao; R.K. Agarwal
2:30-3:00 PM	**Ab initio based model for high temperature nitrogen rovibrational excitation and dissociation** P. Valentini; T.E. Schwartzentruber; I. Nompelis; G.V. Candler
3:00-3:30 PM	**Study of Shock-Shock Interactions Using an Unstructured AMR Octree DSMC Code** S.S. Sawant; O. Tumuklu; B. Korkut; D.A. Levin
3:30-4:00 PM	**Molecular Dynamics Studies of Nitrogen collision on Graphene and Quartz Surfaces** N.A. Mehta; D.A. Levin
4:00-4:30 PM	**Comparison of quantum mechanical and empirical potential energy surfaces and computed rate coefficients for N_2 dissociation** R.L. Jaffe; D.W. Schwenke; S. Venturi; M. Panesi; M. Grover; T.E. Schwartzentruber
4:30-5:00 PM	**Effect of reagent energy on nonequilibrium O2+O dissociation** M. Kulakhmetov; M.A. Gallis; A. Alexeenko
5:00-5:30 PM	**State-to-State and reduced-order models for dissociation and energy transfer in aerothermal environments** A. Munafò; R.L. Macdonald; M. Panesi
2:00 PM-5:30 PM, Harbor H, **TP-04. Heat Transfer: Conduction, Convection, Phase Change, Radiation, and Conjugate Heat Transfer**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Kevin Pope, kpope@mun.ca, Memorial University of Newfoundland; Co-Chair: Elliott Short, eshort@raytheon.com, Raytheon Company	
2:00-2:30 PM	**Inviscid-flow approximation of radiative ablation of asteroidal meteoroids by line-by-line method.** C. Park
2:30-3:00 PM	**Limits for Thermionic Emission from Leading Edges of Hypersonic Vehicles** K.M. Hanquist; I.D. Boyd
3:00-3:30 PM	**Analysis of Internal Thermocouple Data in Carbon/Carbon Using Inverse Heat Conduction Methods** M.E. Pizzo; D.E. Glass; K. Bey

3:30-4:00 PM	**Heat Transport in Aqueous Suspensions of Alumina Nanoparticles** M. Muraleedharan; D.S. Sundaram; V. Yang
4:00-4:30 PM	**An Experimental Investigation on Unsteady Heat Transfer and Transient Icing Process upon Impingement of Water Droplets** H. Li; R.M. Waldman; H. Hu
4:30-5:00 PM	**Simulation of Steady Two-Dimensional Heat Transfer in Rectangular Micro-Cavities at Elevated Pressures** M.J. Martin; P. Kumar
2:00 PM-5:30 PM, Regatta C, **UMS-02. Unmanned Systems - Flight Dynamics and Control**, Technical Paper, **AIAA Infotech @ Aerospace**, Co-Chair: Jamey Jacob, jdjacob@okstate.edu, Oklahoma State University; Chair: Richard Prazenica, prazenir@erau.edu, Embry-Riddle Aeronautical University, Daytona Beach	
2:00-2:30 PM	**Non-linear Model Predictive Control for Longitudinal and Lateral Guidance of a Small Fixed-Wing UAV in Precision Deep Stall Landing** S.H. Mathisen; K. Gryte; T. Johansen; T.I. Fossen
2:30-3:00 PM	**Lateral-Directional Stability of the Near-space Solar-powered Aircraft** Y. Chuan; L. Feng; L. Guangjia; Y. Wang
3:00-3:30 PM	**Dynamic Model of 25% Yak-54 Unmanned Aerial System** R.B. LaRue; S.S. Thomas; I. Costa; W. Liu; C.H. Yeo
3:30-4:00 PM	**Autonomous Formation Flight of Indoor UAVs Based on Model Predictive Control** S. Mao; W. Tan; K. Low
4:00-4:30 PM	**Comparison and Validation of Dynamic Modeling Software Using the DG808S RC Sailplane** J.B. Dixon; J. Ink; T.B. Le Pichon; L. Marcotte; O. Coulson
4:30-5:00 PM	**Longitudinal Control Considering Trim of Outdoor Blimp Robots for Disaster Surveillance** H. Saiki
2:00 PM-5:30 PM, Harbor I, **WE-01. Wind Energy: Wind Turbine Aerodynamics Improvements and Analysis**, Technical Paper, **34th Wind Energy Symposium**, Co-Chair: Matthew Churchfield, matt.churchfield@nrel.gov, National Renewable Energy Laboratory; Chair: Jonathan Naughton, naughton@uwyo.edu, University of Wyoming	
2:00-2:30 PM	**Study of Drag Reduction Devices on a Flatback Airfoil** M. Manolesos; G. Papadakis; S. Voutsinas
2:30-3:00 PM	**Application of Vortex Generators to Wind Turbine Blades** Q.Q. Tian; D. Corson; J.P. Baker
3:00-3:30 PM	**Effects of Mie Vanes and Tip Injection on the Performance and Wake Characteristics of a HAWT** A. Abdulrahim; E. Anik; O. Uzol
3:30-4:00 PM	**Prediction and Analysis of the Nonsteady Transitional Boundary Layer Dynamics for flow over an Oscillating Wind Turbine Airfoil using the γ-Re_θ Transition Model** T.N. Nandi; J. Brasseur; G. Vijayakumar

4:00-4:30 PM	**Interaction of Atmospheric Turbulence with Blade Boundary Layer Dynamics on a 5MW Wind Turbine using Blade-boundary-layer-resolved CFD with hybrid URANS-LES** G. Vijayakumar; J. Brasseur; A.W. Lavely; B. Jayaraman; B. Craven
4:30-5:00 PM	**Experimental study of near and far wake generated by a Gurney mini flap in turbulent flow** J. Delnero; J. Marañón Di Leo; M.O. Garcia Sainz
3:30 PM-4:00 PM, Session Room Foyers, **NW-04. Monday Afternoon Networking Coffee Break**, Networking, **Forum Event**	
3:30 PM-5:30 PM, Harbor A, **PANEL-03. SCS: Infusing New Structures Technology Into Space Systems**, Panel, **3rd AIAA Spacecraft Structures Conference (non-paper sessions)**	
4:00 PM-5:30 PM, Regatta A, **SOF-04. The Apps Store vs. Mission Critical Apps**, Panel, **AIAA Infotech @ Aerospace (non-paper sessions)**, Chair: Chris Thames, chris.thames@cox.net, NASA Langley Research Center	
5:30 PM-6:30 PM, Seaport A-E, **LEC-03. The Future of AIAA: Why Governance Matters to You**, Lecture, **Forum Event**	
6:30 PM-7:30 PM, Seaport H, **NW-05. Rising Leaders Reception**, Networking, **Forum Event**	

Tuesday, January 05, 2016

Time	Session or Event Info
7:00 AM-7:30 AM, Session Room Foyers, **NW-06. Tuesday Early Morning Networking Coffee Break**, Networking, **Forum Event**	
7:30 AM-8:00 AM, Session Rooms, **SB-02. Tuesday Morning Speakers' Briefing**, Speakers' Briefing, **Forum Event**	
8:00 AM-9:00 AM, Seaport A-E, **PLNRY-02. Tuesday Morning Plenary Panel** **Aerospace Generations – Lessons Learned from a Half Century of Innovation in Aerospace Technology** , Plenary, **Forum Event**	
9:00 AM-12:30 PM, Nautical, **AA-03. Aeroacoustics - Jet Noise II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Clifford Brown, Clifford.A.Brown@nasa.gov, NASA Glenn Research Center; Co-Chair: Douglas Nark, d.m.nark@nasa.gov, NASA Langley Research Center	
9:00-9:30 AM	**Quiet Nozzle Concepts for Three-Stream Jets** D. Papamoschou; V. Phong; J. Xiong; F. Liu
9:30-10:00 AM	**Correlation of events between near- and far-field of a 3-stream supersonic nozzle** J. Lewalle; M.N. Glauser; S.P. Gogineni; C.J. Ruscher; B.V. Kiel

10:00-10:30 AM	**Acoustic Signature of a Supersonic Jet Emanating from a Rectangular C-D Nozzle** H.E. Hafsteinsson; N. Andersson; B. Malla; E.J. Gutmark
10:30-11:00 AM	**A Comparison of the Aeroacoustic Characteristics of Free and Impinging Jets with Noise Reduction Techniques** S. Hromisin; L.M. Myers; D.K. McLaughlin; P.J. Morris
11:00-11:30 AM	**Flow and Acoustic Features of a Mach 0.9 Jet Using High Frequency Excitation** P. Upadhyay; G. Valentich; F.S. Alvi
11:30-12:00 PM	**Hybrid Approach to Nonlinear Propagation of Jet Noise in Complex Environments** V. Sassanis; A. Sescu; E. Collins; R.E. Harris; E.A. Luke
9:00 AM-12:30 PM, Golden Hill B, **ABPSI-03. Inlets**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Eric Loth, loth@virginia.edu, University of Virginia	
9:00-9:30 AM	**Numerical Investigation on Two Streamline-Traced Busemann Inlet-Isolators** F. Xing; Y. Huang; X. Fang; Y. Yao
9:30-10:00 AM	**SUPIN: A Computational Tool for Supersonic Inlet Design** J.W. Slater
10:00-10:30 AM	**Interpolation Methods for Inlet Distortion Determination** S.F. Walter; R.P. Starkey
10:30-11:00 AM	**Mass Flow Ratio Influence on Shock and Pressure Spectra for a Low-Boom Supersonic Inlet** E. Loth; S. Candon; M. Rybalko
11:00-11:30 AM	**Measurements of Fan Response to Inlet Total Pressure and Swirl Distortions Produced by Boundary Layer Ingesting Aircraft Configurations** D.J. Frohnapfel; A.M. Ferrar; J. Bailey; W.F. O'Brien; K. Lowe
11:30-12:00 PM	**An overview of recent results using the StreamVane method for generating tailored swirl distortion in jet engine research** T. Guimaraes Bucalo; K. Lowe; W.F. O'Brien
9:00 AM-12:30 PM, Cortez Hill A, **ACD-01. Aircraft Design Issues I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Dyna Benchergui, Dyna.Benchergui@aero.bombardier.com, Bombardier Inc; Chair: Dennis Carter, dennis.carter.5@us.af.mil, Air Force Research Laboratory	
9:00-9:30 AM	**Legacy Aircraft Drag Reduction** D.L. Carter
9:30-10:00 AM	**Planning Technology Development Experimentation through Quantitative Uncertainty Analysis** K.N. Gatian; D.N. Mavris
10:00-10:30 AM	**Aircraft Design as a Tool in Achieving Educational Objectives for Engineering Concepts in a Core Curriculum** R.M. Cummings; S. Reed; A.J. Rolling; S.A. Brandt

9:00 AM-12:30 PM, Cortez Hill B, **AFM-05. Launch Vehicle, Missile, and Projectile Flight Mechanics I**, Technical Paper, **AIAA Atmospheric Flight Mechanics Conference**, Chair: Bradley Burchett, bradley.t.burchett@rose-hulman.edu, Rose-Hulman Institute of Technology; Co-Chair: Bruce Jolly, jollyb@eglin.af.mil, US Air Force	
9:00-9:30 AM	**Projectile Parameter Estimation Using Meta-Optimization** M. Gross; M. Costello
9:30-10:00 AM	**Euler-Lagrange Optimal Control of Indirect Fire Symmetric Projectiles** A.L. Nash; B.T. Burchett
10:00-10:30 AM	**Performance Optimization of Guided Projectiles Using Design of Experiments** L. Fowler; J.D. Rogers
10:30-11:00 AM	**Coning Motion Instability of a Spinning Missile Induced by Aeroelasticity** S. Zhongjiao; L. Zhao; J. Peng
11:00-11:30 AM	**Empirical Mode Decomposition Filtering of Wind Profiles** B.H. Sako
9:00 AM-12:30 PM, Coronado D, **APA-11. Special Session: Space Launch System (SLS) Induced Environments I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: John Blevins, john.a.blevins@nasa.gov, NASA Marshall Space Flight Center; Co-Chair: Jeremy Pinier, jeremy.t.pinier@nasa.gov, NASA Langley Research Center	
9:00-9:30 AM	**Overview of the Space Launch System Ascent Aeroacoustic Environment Test Program** A.J. Herron; W.A. Crosby; D.K. Reed
9:30-10:00 AM	**Sensitivity of Space Launch System Buffet Forcing Functions to Buffet Mitigation Options** D.J. Piatak; M.K. Sekula; R. Rausch
10:00-10:30 AM	**Effect of Surface Pressure Integration Methodology on Launch Vehicle Buffet Forcing Functions** M.K. Sekula; D.J. Piatak; R. Rausch
10:30-11:00 AM	**Space Launch System Base Heating Test: Experimental Operations and Results** A.T. Dufrene; M. Mehta; M.G. MacLean; M. Seaford; M.S. Holden
11:00-11:30 AM	**Space Launch System Base Heating Test: Environments and Base Flow Physics** M. Mehta; A.T. Dufrene; M. Seaford; K. Knox
11:30-12:00 PM	**Space Launch System Base Heating Test: Tunable Diode Laser Absorption Spectroscopy** R.A. Parker; Z.R. Carr; A.T. Dufrene; M. Mehta
9:00 AM-12:30 PM, Americas Cup B, **APA-12. Applied CFD & Numerical Correlations with Experimental Data I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Cetin Kiris, cetin.c.kiris@nasa.gov, NASA Ames Research Center; Chair: Jeffrey Slotnick, jeffrey.p.slotnick@boeing.com, Boeing Engineering Operations & Technology	
9:00-9:30 AM	**Simulation of ONERA M6 Wing Flows for Assessment of Turbulence Modeling Capabilities** R.G. Silva; J.F. Azevedo; E. Basso

9:30-10:00 AM	**Inflow Turbulence Effects on Transition Prediction Using a Correlation -Based Transition Model** G.L. Halila; E.D. Bigarella; A.P. Antunes; J.F. Azevedo
10:00-10:30 AM	**A Comparison of Transition Prediction Methodologies Applied to High Reynolds Number External Flows** C.M. Langel; R. Chow; C.P. Van Dam
10:30-11:00 AM	**Dynamic Stability Analysis of a Reentry Lifting Capsule with Detached Eddy Simulation** A. Hashimoto; K. Murakami; T. Aoyama; R. Tagai; S. Koga; S. Nagai; K. Hayashi
11:00-11:30 AM	**Comparison of Drag Prediction Using RANS models and DDES for the DLR-F6 Configuration Using High Order Schemes** J. Gan; Y. Shen; G. Zha
11:30-12:00 PM	**Application of Hybrid Turbulence Method to Transonic Flowfield of a Payload Fairing** S. Tsutsumi; R. Takaki; S. Koike; S. Teramoto
12:00-12:30 PM	**High Fidelity, High Order, Large Eddy Simulations of a Real Geometry Aircraft Nose Landing Gear on Hybrid Unstructured Meshes & Small-scale Many-core Computing System** Y. Lu; A.A. Demargne; K. Liu; W.N. Dawes
9:00 AM-12:30 PM, Americas Cup C, **APA-13. Aerodynamic Design: Analysis, Methodologies, and Optimization Techniques II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Kelsey Denissen, kjdenis@sandia.gov, Sandia National Labs; Co-Chair: Anthony Sclafani, tony.sclafani@boeing.com, Boeing Commercial Airplanes	
9:00-9:30 AM	**Part I: Uncertainty Analysis of Various Design Parameters on Winglet Performance** J. Masud; Z. Toor; Z. Abbas; U. Ahsun
9:30-10:00 AM	**Multifidelity Optimization for High-Lift Airfoils** J. Demange; A. Savill; T. Kipouros
10:00-10:30 AM	**A Geometric Comparison of Aerofoil Shape Parameterisation Methods** D.A. Masters; N.J. Taylor; T. Rendall; C.B. Allen; D.J. Poole
10:30-11:00 AM	**Progressive Subdivision Curves for Aerodynamic Shape Optimisation** D.A. Masters; N.J. Taylor; T. Rendall; C.B. Allen
11:00-11:30 AM	**Using surface sensitivity from mesh adjoint solution for transonic wing drag reduction** B.L. Hinchliffe; N. Qin
11:30-12:00 PM	**Prediction and Experimental Evaluation of Planar Wing Spanloads for Minimum Drag** G.E. Wroblewski; P.J. Ansell
9:00 AM-12:30 PM, Coronado E, **APA-14. Special Session: CREATE-AV HPC Multiphysics Applications of Full-up Air Vehicles I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Nathan Hariharan, nathan.hariharan.ctr@hpc.mil, CREATE-AV; Co-Chair: Robert Meakin, Robert.Meakin@hpc.mil	

9:00-9:30 AM	**The CREATE Program: Design and Analysis Tools for DoD Weapon Systems** D.E. Post; C.E. Atwood; K.E. Newmeyer; R.E. Meakin; J. D'Angelo; S. Dey
9:30-10:00 AM	**Recent Advancements in the Helios Rotorcraft Simulation Code** A.M. Wissink; J. Sitaraman; B. Jayaraman; B. Roget; V.K. Lakshminarayan; M.A. Potsdam; R. Jain; A. Bauer; R. Strawn
10:00-10:30 AM	**HPCMP CREATE^{TM}-AV Kestrel Architecture, Capabilities, and Long Term Plan for Fixed-Wing Aircraft Simulations** S.A. Morton; R.E. Meakin
10:30-11:00 AM	**Mixing Plane Multi-Stage Turbomachinery Simulation Capability for Kestrel/Firebolt** R.H. Nichols; D.R. McDaniel; K. Jason
11:00-11:30 AM	**Introduction to COFFE: The Next-Generation HPCMP CREATE^{TM}-AV CFD Solver** R.S. Glasby; J.T. Erwin
11:30-12:00 PM	**Application of CREATE^{TM}-AV Helios to Predict CH-47 Dynamic Blade Loads** D.M. O'Brien
9:00 AM-12:30 PM, Americas Cup D, **APA-15. Flow Control Applications & Demonstrations I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Bohdan Cybyk, Bohdan.Cybyk@jhuapl.edu, The Johns Hopkins University Applied Physics Laboratory; Co-Chair: Kirk Vanden, kirk.vanden@us.af.mil, USAF	
9:00-9:30 AM	**Simulation of Sweep-Jet Flow Control, Single Jet and Full Vertical Tail** R.E. Childs; P.M. Stremel; L.K. Kushner; J.T. Heineck; B.L. Storms
9:30-10:00 AM	**Trade Study of 3D Co-Flow Jet Wing for Cruise and Takeoff/Landing Performance** A.M. Lefebvre; G. Zha
10:00-10:30 AM	**LES Analysis on Shock-Vortex Ring Interaction** Y. Yang; J. Tang; C. Liu
10:30-11:00 AM	**LES-based characterization of a suction and oscillatory blowing fluidic actuator** J. Kim; P. Moin; A. Seifert
11:00-11:30 AM	**Flow around a Finite Circular Cylinder Coated with Porous Media** H. Yuan; C. Xia; Y. Chen; Z. Yang
9:00 AM-12:30 PM, Regatta B, **CMS-01/CPS-01. Communication, Computing and Information Processing**, Technical Paper, **AIAA Infotech @ Aerospace**, Chair: Eric Butte, eric.butte@lmco.com, Lockheed Martin Space Systems; Co-Chair: Chiping Li, chiping.li@afosr.af.mil, Air Force Office of Scientific Research	
9:00-9:30 AM	**Battlefield Airborne Communications Node (BACN)** K.R. Burns; K. Smith
9:30-10:00 AM	**Smart Node Pod (SNP) - Big Capabilities in a Small Package** S. Vaught; M. Rafter; K.R. Burns; C. Hill; W.H. Roeting

10:00-10:30 AM	**A low cost, secure radio communications system for UAVs** A.D. Santangelo; P. Skentzos
10:30-11:00 AM	**ATLAS: Big Data Storage and Analytics Tool for ATM Researchers** A. Tyagi; J. Nanda
9:00 AM-12:30 PM, Old Town A, **DE-01. Design Processes and Tools**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Garfield Creary, garfield.a.creary@nasa.gov, NASA-Langley Research Center; Co-Chair: Clifton Davies, clifton.davies@lmco.com, Lockheed Martin Aeronautics	
9:00-9:30 AM	**A High-Fidelity Approach to Conceptual Design** J. Watson; R.W. Wlezien
9:30-10:00 AM	**Global/Local analysis of thermal effects on a threaded fastener** B. Devarajan; D. Locatelli; R.K. Kapania; R.J. Meritt
10:00-10:30 AM	**Sizing Study for First-Order Feasibility Assessment of a Space Vehicle Applied to the Space Transportation System** S.M. Hussein; B. Chudoba
10:30-11:00 AM	**Electric Multirotor UAV Propulsion System Sizing for Performance Prediction and Design Optimization** D. Bershadsky; S. Haviland
11:00-11:30 AM	**The Full-Scale Helicopter Flight Simulator Design and Fabrication at CCSU** F. Wei; L. Amaya-Bower; A. Gates; D. Rose; T. Vasko
11:30-12:00 PM	**Ascendancy of Extinction-Reignition on Single-Stage Hybrid Sounding Rocket in View of Fuels** K. Chiba; H. Yoda; S. Ito; M. Kanazaki; S. Watanabe; K. Kitagawa; T. Shimada
9:00 AM-12:30 PM, Promenade A, **FD-10. CFD: Turbulence Modeling**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Hassan Nagib, nagib@iit.edu, IHI AEROSPACE Co., Ltd.	
9:00-9:30 AM	**An Adaptive Variational Multiscale Discontinuous Galerkin Method For Large Eddy Simulation** G. Kuru; M. de la Llave Plata; V. Couaillier; R. Abgrall; F. Coquel
9:30-10:00 AM	**Validation of a turbulence methodology using the SST k-ω model for adjoint calculation** S. Evans; S. Lardeau
10:00-10:30 AM	**Development and Validation of a LES Turbulence Wall Model for Compressible Flows with Heat Transfer** J.R. Komives; P.K. Subbareddy; G.V. Candler
10:30-11:00 AM	**Turbulence Simulation Using Direct Gradient Adaptive k-ω Model** Z. Li; H. Zhang; J. Hoagg; S.C. Bailey; A. Martin
11:00-11:30 AM	**A new wall-law for adverse pressure gradient flows and modification of k-omega type RANS turbulence models** T.A. Knopp

9:00 AM-12:30 PM, Cove, **FD-15. Aqueous Flow Control and Flow Control Experiments**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Louis Cattafesta, lcattafesta@fsu.edu, FAMU-FSU College of Engineering; Co-Chair: Raymond LeBeau, rlebeau@slu.edu, Saint Louis University	
9:00-9:30 AM	**Thrust of a Zero-Net-Mass-Flux Actuator in Aqueous Crossflow** B. Ayers; H. Johari
9:30-10:00 AM	**Numerical Investigation of Entrainment Mechanism of Jet Boat Tail Passive Flow Control for Base Drag Reduction** Y. Yang; G. Zha
10:00-10:30 AM	**Fluidic Oscillators for Drag Reduction on a Bluff Body in Water** H. Schmidt; R. Woszidlo; C. Nayeri; C.O. Paschereit
10:30-11:00 AM	**Pressure Characteristics over 20 deg Cone Forebody at Alpha 35 deg and Re (0.1-0.9)×10^6** J. Zhao; X. Meng; J. Wang; F. Liu; S. Luo
11:00-11:30 AM	**An Investigation of Three-Dimensional Flow over a Undulating Inflatable Wing** J. Beltz; G. Spencer; J. Krofta; R.P. LeBeau
11:30-12:00 PM	**Bistable State of High Angle-of-Attack Flow over Conical Forebody.** F. Liu; S. Luo; X. Meng; J. Zhao
9:00 AM-12:30 PM, Promenade B, **FD-16. Boundary-Layer Transition**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Heath Johnson, heath.johnson@gohypersonic.com, University of Minnesota; Co-Chair: Helen Reed, helen.reed@tamu.edu, Texas A&M University	
9:00-9:30 AM	**Measurement of HIFiRE-5 Boundary-Layer Transition in a Mach-6 Quiet Tunnel with Infrared Thermography** T.J. Juliano; L. Paquin; M.P. Borg
9:30-10:00 AM	**Global stability analysis on cone models under the conditions of the HIEST experiments** Y. Matsuse; M. Saijo; T. Ishihara; Y. Ogino; N. Ohnishi; H. Tanno
10:00-10:30 AM	**Prediction Methodology for 2^{nd} Mode Dominated Boundary Layer Transition in Hypersonic Wind Tunnels** E.C. Marineau
10:30-11:00 AM	**Boundary Layer Stability Analysis for Stetson's Mach 6 Blunt Cone Experiments** J.S. Jewell; R.L. Kimmel
11:00-11:30 AM	**Measurements of Instability in Supersonic Flow with Injection by Time -Resolved Flow Visualization** B.E. Schmidt; J. Shepherd
9:00 AM-12:30 PM, Pier, **FD-17. CFD: Cartesian and Mapped Grids**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Haibo Dong, haibo.dong@virginia.edu, University of Virginia; Co-Chair: Steve Karman, slkarman@icloud.com, Pointwise, Inc.	
9:00-9:30 AM	**A Cartesian Cut-Cell Approach for Modelling Air and Water Droplet Flow** L. Wutschitz; N. Nikiforakis

9:30-10:00 AM	**A Novel Simple Cut-Cell Method for Robust Flow Simulation on Cartesian Grids** M. Harada; Y. Tamaki; Y. Takahashi; T. Imamura
10:00-10:30 AM	**Cartesian Cut-Cell and GFM Approaches to Free-Surface and Moving Boundary Interaction** W.P. Bennett; L. Michael; N. Nikiforakis
10:30-11:00 AM	**A Cartesian Immersed Boundary Method to Simulate Stably Stratified Turbulent Flows** C. Umphrey; R. DeLeon; I. Senocak
11:00-11:30 AM	**A Fourth-Order Viscous Operator on Mapped Grids** L.D. Owen; S.M. Guzik; X. Gao
11:30-12:00 PM	**Anisotropic Patch-Based Adaptive Mesh Refinement for Finite-Volume Methods** J. Christopher ; X. Gao; S.M. Guzik
12:00-12:30 PM	**A hierarchical Cartesian method for conjugate heat transfer involving moving bodies** G. Brito Gadeschi; M.H. Meinke; W. Schroeder
9:00 AM-12:30 PM, Harbor E, **FD-18. RANS/LES and Its Applications**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Xinfeng Gao, Xinfeng.Gao@colostate.edu, Colorado State Univ; Co-Chair: Brian Smith, brian.r.smith@lmco.com, Lockheed Martin Aeronautics	
9:00-9:30 AM	**Simulation Using Flamelet Radiation Modeling** J.J. Doom
9:30-10:00 AM	**A Comparison Study of Turbulence Models in RANS Simulations of Rotor 67** N. Spotts; X. Gao
10:00-10:30 AM	**LES/RANS Modeling of Turbulent Mixing in a Jet in Crossflow at Low Momentum Ratios** J. Prause; Y. Emmi; B. Noll; M. Aigner
10:30-11:00 AM	**Impact of Periodic Boundary Conditions on the Flow Field in an Axial Fan** A. Pogorelov; M.H. Meinke; W. Schroeder
11:00-11:30 AM	**Turbulence Modeling for Realistic Computation of Internal Flow in Liquid Ejector Pumps** J. Masud; M. Imran
11:30-12:00 PM	**A New DES Model Based on Wray-Agarwal Turbulence Model for Simulation of Wall-Bounded Flows** H. Xu; T. Wray; R.K. Agarwal
9:00 AM-12:30 PM, Harbor F, **FD-19. Shock Boundary Layer Interaction III**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Datta Gaitonde, gaitonde.3@osu.edu, The Ohio State University; Co-Chair: Jayahar Sivasubramanian, jayahar@email.arizona.edu, The University of Arizona	
9:00-9:30 AM	**Numerical Investigation of Shockwave Boundary Layer Interactions in Supersonic Flows** J. Sivasubramanian; H.F. Fasel
9:30-10:00 AM	**Numerical Investigation of a Normal Shock Wave Boundary Layer Interaction in a 4.3 Aspect Ratio Test Section** M.P. Pizzella; S. Warning; M. Jennerjohn; M.W. McQuilling; A. Purkey; R. Scharnhorst; M. Mani

10:00-10:30 AM	**Conditional analysis of unsteadiness in shock boundary layer interactions** M. Waindim; L.M. Agostini; L. Larchevêque; D.V. Gaitonde
10:30-11:00 AM	**Ramp Separation Response to Laser-Induced Breakdown Disturbed Boundary Layer at Mach 4.5** S. Im; L. Wermer; D. Baccarella; Q. Liu; B. McGann; H. Do
11:00-11:30 AM	**Simulation of Supersonic Turbulent Non-Reactive Flow in Ramp-Cavity Combustor Using a Discontinuous Spectral Element Method** Z. Ghiasi; J. Komperda; D. Li; F. Mashayek
11:30-12:00 PM	**Direct Numerical Simulation of Shock Waves Passed by Multiple Particles by Using Immersed Boundary Method** Y. Mizuno; S. Takahashi; T. Nonomura; T. Nagata; K. Fukuda
9:00 AM-12:30 PM, Hillcrest A, **GNC-11. Adaptive Control**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Chair: Mark Balas, balasm@erau.edu, Embry-Riddle Aeronautical University; Co-Chair: Florian Holzapfel, Florian.Holzapfel@tum.de,	
9:00-9:30 AM	**An L1 Adaptive Output Feedback Controller using Modified Piecewise Constant Adaptation Law** M. Bichlmeier
9:30-10:00 AM	**Direct Uncertainty Minimization Framework in the Presence of Unknown Control Effectiveness for Model Reference Adaptive Control** B.C. Gruenwald; T. Yucelen; J.A. Muse
10:00-10:30 AM	**Adaptive Model Tracking Control for Weakly Minimum Phase Linear Infinite-Dimensional Systems in Hilbert Space Using a Zero Filter** M.J. Balas; S.A. Frost
10:30-11:00 AM	**Nonlinear Adaptive Robust Control with Linear Matrix Inequalities Applied to a Quadrotor** D.W. Kun; I. Hwang
11:00-11:30 AM	**An LMI-Based Hedging Approach to Adaptive Control with Actuator Dynamics in the Presence of Unknown Control Effectiveness** B.C. Gruenwald; D. Wagner; T. Yucelen; J.A. Muse
11:30-12:00 PM	**Adaptive flow control of rotating wind turbine blades based on the Beddoes-Leishman model using trailing-edge flaps** M.J. Balas; N. Li
9:00 AM-12:30 PM, Hillcrest B, **GNC-12. Spacecraft Parameter Estimation and Modeling**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Co-Chair: John Reed, john.g.reed@ulalaunch.com, United Launch Alliance, LLC; Chair: Uday Shankar, Uday.Shankar@jhuapl.edu, The Johns Hopkins University Applied Physics Laboratory	
9:00-9:30 AM	**Attitude Estimation Employing Common Frame Error Representations** M. Andrle; J.L. Crassidis
9:30-10:00 AM	**Spin-Axis Tilt Estimation for Spinning Spacecraft** H.E. Soken; S. Sakai; K. Asamura; Y. Nakamura; T. Ken

10:00-10:30 AM	**Angular Velocity Bounds via Light Curve Glint Duration** J.C. Hinks; J.L. Crassidis
10:30-11:00 AM	**Realization of a Two-Synodic-Period Earth-Mars Cycler** M. Naeije; E. Mooij
11:00-11:30 AM	**Development of an Air-Bearing Inclinable Turntable for Testing Tether Deployment** U. Bindra; Z. Zhu
11:30-12:00 PM	**Flying Beacon Aided Entry Navigation for Mars Orbiter-Lander Integrated Mission** T. Qin; S. Zhu; P. Cui
9:00 AM-12:30 PM, Coronado B, **GNC-13. Invited Session: LOC-3, Onboard Systems for LOC Prevention and Recovery – Resilient Flight Control and Guidance Systems**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Co-Chair: Christine Belcastro, christine.m.belcastro@nasa.gov, NASA-Langley Research Center; Chair: Dennis Crider, criderd@ntsb.gov, National Transportation Safety Board	
9:00-9:30 AM	**L1 Stability Augmentation System for Calspan's Variable-Stability Learjet** K. Ackerman; E. Xargay; R. Choe; N. Hovakimyan; M. Cotting; R.B. Jeffrey; M.P. Blackstun; T.P. Fulkerson; T.R. Lau; S.S. Stephens
9:30-10:00 AM	**'Can I Get L1 On?!' Providing Consistent Handling Qualities on Calspan's Variable-Stability Learjet** M. Cotting; R.B. Jeffrey; M.P. Blackstun; T.P. Fulkerson; T.R. Lau; S.S. Stephens; K. Ackerman; E. Xargay; R. Choe; N. Hovakimyan
10:00-10:30 AM	**An L1 Adaptive Backup Flight Control Law for Transport Aircraft with Vertical-Tail Damage** D. Sun; R. Choe; E. Xargay; N. Hovakimyan
10:30-11:00 AM	**Safe Flight Using One Aerodynamic Control Surface** R. Venkataraman; P.J. Seiler
11:00-11:30 AM	**Robust Adaptive Control Allocation for an Octocopter under Actuator Faults** H. Yoon; V. Cichella; N. Hovakimyan
11:30-12:00 PM	**Online Pilot Model Parameter Estimation Using Sub-Scale Aircraft Flight Data** T. Mandal; Y. Gu
9:00 AM-12:30 PM, Hillcrest C, **GNC-14. Aerospace Robotics and Unmanned/Autonomous Systems III**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Co-Chair: Karol Seweryn, kseweryn@cbk.waw.pl, Space Research Centre Polish Academy of Sciences; Chair: Brent Tweddle, Brent.E.Tweddle@jpl.nasa.gov, Jet Propulsion Laboratory	
9:00-9:30 AM	**A novel approach with safety metrics for real-time exploration of uncertain environments** T. Mannucci; E. Van Kampen; C.C. de Visser; Q. Chu
9:30-10:00 AM	**Adaptive Step-length RRT Algorithm for Improved Coverage** M. McCourt; C.T. Ton; S.S. Mehta; J.W. Curtis

10:00-10:30 AM	**A New Centrality Measure Based on Formation Response** C.J. Robertson; A.J. Sinclair; E.A. Doucette
10:30-11:00 AM	**Cohesive Autonomous Navigation System** D.J. Kuether; B. Morrell; G. Chamitoff; M. Bishop; D. Mortari; P. Gibbens; M.D. Coen
11:00-11:30 AM	**Attitude Stabilization of an Uncooperative Spacecraft in an Orbital Environment using Visco-Elastic Tethers** K. Hovell; S. Ulrich
11:30-12:00 PM	**Control analysis for a contactless de-tumbling method based on eddy currents: problem definition and approximate proposed solutions.** N. Ortiz Gómez; S.J. Walker; M. Jankovic; J. Romero Martín; F. Kirchner; M.L. Vasile
9:00 AM-12:30 PM, Hillcrest D, **GNC-15. Planning and Control for Mini/Micro UAVs,** Technical Paper, **AIAA Guidance, Navigation, and Control Conference,** Chair: Amanda Lampton, alampton@systemstech.com, Systems Technology, Inc.; Co-Chair: Miao Liu, miaoliu@mit.edu, MIT - Massachusetts Institute of Technology	
9:00-9:30 AM	**Observer Based Controllers for UAV Maneuver Options** C.R. Ashokkumar; G.W. York
9:30-10:00 AM	**Smooth Trajectory Planning for MAVs with Airspace Restrictions** S. Upadhyay; A. Ratnoo
10:00-10:30 AM	**UAV Flight Test Evaluation of Fusion Algorithms for Estimation of Angle of Attack and Sideslip Angle** P. Tian; H. Chao; Y. Gu; S. Hagerott
10:30-11:00 AM	**Rudder Augmented Trajectory Correction for Small Unmanned Aerial Vehicles and the Effects on Fixed Camera Imagery** T. Fisher; R. Sharma
11:00-11:30 AM	**Absolute Localization using Image Alignment and Particle Filtering** G.J. Van Dalen; D.P. Magree; E.N. Johnson
9:00 AM-12:30 PM, Harbor B, **GT-03. High Reynolds Number Aerodynamics and Testing (Invited),** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Co-Chair: Roman Paryz, roman.w.paryz@nasa.gov, ; Co-Chair: Jürgen Quest, jq@etw.de, ETW GmbH	
9:00-9:30 AM	**Oral Presentation. Testing a Laminar Wing Bizjet Model at High Reynolds Number** O. Colin
9:30-10:00 AM	**Force Measurement Improvements to the National Transonic Facility Sidewall Mounted Support System** D.H. Butler; S. Balakrishna; C. Cagle; D.T. Chan; S. Goodliff; G.S. Jones; W.E. Milholen
10:00-10:30 AM	**Oral Presentation. Overview of Data Quality from a Semi-Span Wind Tunnel Model Tested in NASA's National Transonic Facility at Transonic Conditions** J.R. Hooker; A.T. Wick; D.T. Chan; R. Plumley

10:30-11:00 AM	**Oral Presentation. Pretest and Setup Bay for High Reynolds Propulsion Airframe Integration Testing at the National Transonic Facility** M.J. Acheson; R.C. Hudgins; G.S. Jones
11:00-11:30 AM	**Oral Presentation. Upgrades and Enhancements of the European Windtunnel (ETW)** H. Quix
11:30-12:00 PM	**Application of Lifetime-based Pressure-Sensitive Paint Technique to Cryogenic Wind Tunnel Test** D. Yorita
12:00-12:30 PM	**Development of a Highly Sensitive Temperature-Sensitive Paint for Measurements under Cryogenic Temperatures (100 – 160 K) Conditions** C. Klein
9:00 AM-12:30 PM, Cortez Hill C, **GTE-04. Compression Systems II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Reid Berdanier, rberdani@purdue.edu, Purdue University; Chair: Kenneth Suder, kenneth.l.suder@nasa.gov, NASA Glenn Research Center	
9:00-9:30 AM	**Quantifying Blockage in a Multistage Compressor for Different Tip Clearances using Steady and Unsteady Pressure Measurements** R.A. Berdanier; N.L. Key
9:30-10:00 AM	**Evaluation of New Blade Concept for Turbofan Engines** A.Y. Soueidan; R.P. LeBeau
10:00-10:30 AM	**3-D Separation Control in a Linear Cascade with Diffusion** C. Kleven; T.C. Corke; D. Frias; D. Hanson; N. Nolcheff
9:00 AM-12:30 PM, Gaslamp D, **GTE-05. Turbine Cooling I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: George Woo, gtkwoo@gmail.com, General Electric Global Research	
9:00-9:30 AM	**Design of a High Pressure Turbine Nozzle Guide Vane with Effective Film Cooling System on Leading Edge** F. Kiyici; T. Aksu; S. Uslu
9:30-10:00 AM	**Heat Transfer in a Rotating Two-pass Square Channel Representing Internal Cooling of Gas Turbine Blades** R.S. Amano; S. Beyhaghi
10:00-10:30 AM	**Effect of Physical Model Size in Matching Film Cooling Performance Using PSP Technique** R.W. Ashby; M.D. Polanka; J. Rutledge; C.J. Wiese
9:00 AM-12:30 PM, Americas Cup A, **HIS-01. Aerospace Archives: All is not Lost - Keepers of the Right Stuff**, Panel, **54th AIAA Aerospace Sciences Meeting (non-paper sessions)**, Chair: Cam Martin, cam.martin@nasa.gov, NASA Armstrong Flight Research Center	
9:00 AM-12:30 PM, Regatta A, **HSABP-02. Scramjet Combustors**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Roy Hartfield, rjh@eng.auburn.edu, Auburn University; Co-Chair: Orval Powell, rusty.powell@comcast.net,	

9:00-9:30 AM	**WIDECARS Measurements of a Premixed Ethylene-Air Flame in a Small-Scale Dual-Mode Scramjet Combustor** E.C. Gallo; L. Cantu; A.D. Cutler; R.D. Rockwell; C.P. Goyne; J.C. McDaniel
9:30-10:00 AM	**Dynamic Response of Supersonic Flow to Short Duration Normal Flow Injection** C. Guarnaccio; T. Ombrello; B.I. Bentley
10:00-10:30 AM	**Establishing the Controlling Parameters of Ignition in High-Speed Flow** T. Ombrello; C.D. Carter; B. McGann; H. Do; D.M. Peterson
10:30-11:00 AM	**Common-Path Measurement of H2O, CO, and CO2 via TDLAS for Combustion Progress in a Hydrocarbon-Fueled Scramjet** K.M. Busa; M.S. Brown; M. Gruber; J.J. France
11:00-11:30 AM	**Fast Data Processing for Optical Absorption Measurements** K.M. Busa; M.S. Brown
11:30-12:00 PM	**Ignition of Light Hydrocarbon Mixtures Relevant to Thermal Cracking of Jet Fuels** P. Gokulakrishnan; C. Fuller; M. Klassen; Y. Zhu; D.F. Davidson; R.K. Hanson; B.V. Kiel
12:00-12:30 PM	**Turbulent Diffusion Flux of Transverse Jet into Pseudo-Shock Wave** T. Lee; T. Kouchi; Y. Oka; G. Masuya
9:00 AM-11:00 AM, Coronado A, **IS-03. Big Data Analytics**, Panel, **AIAA Infotech @ Aerospace (non-paper sessions)**	
9:00 AM-10:00 AM, Harbor A, **LEC-04. ASC: Adaptive Aerospace Structures – An Air Force Perspective**, Lecture, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference (non-paper sessions)**	
9:00 AM-12:30 PM, Gaslamp B, **MAT-04. Materials Testing & Characterization II** , Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Rajiv Naik, rajiv.naik@pw.utc.com, Pratt & Whitney; Chair: Jonathan Ransom, jonathan.b.ransom@nasa.gov, NASA-Langley Research Center	
9:00-9:30 AM	**Effect of Silane Treated Electrospun SiO_2 Nanofibers Interleaving on Mode I Fracture Toughness of Glass Epoxy Composites** V. Suryawanshi; L. Zhang; A.D. Kelkar
9:30-10:00 AM	**Acoustic Emission Beamforming for Detecting and Localizing Damage in Composite Materials** J.C. Rivey; G. Lee; J. Yang; Y. Kim; S. Kim
10:00-10:30 AM	**Experimental Investigation of Laser Machining of Sapphire for High Temperature Pressure Transducers** H. Bal; W.S. Oates; R. Kumar; D.A. Mills; M. Sheplak
10:30-11:00 AM	**Comparisons between Forced-Response and Hysteretic Energy Damping Assessment Methods** O.E. Scott-Emuakpor; B. Langley; C. Holycross; T. George; B. Runyon; J. Justice

11:00-11:30 AM	**Numerical Determination of Mechanical Properties for Flexible Material Systems** J.L. Hill; R.D. Braun
11:30-12:00 PM	**Development of creep-dominant creep-fatigue testing for Alloy 617** F. Tahir; Y. Liu
9:00 AM-12:30 PM, Balboa A, **MDO-03. Propulsion & Thermal Design Considerations**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Darcy Allison, darcy.allison.ctr@us.af.mil, Optimal Flight Sciences LLC; Co-Chair: Gregory Russell, gregory.russell.5.ctr@us.af.mil	
9:00-9:30 AM	**Thermodynamics For Gas Turbine Cycles With Analytic Derivatives in OpenMDAO** J.S. Gray; J. Chin; T. Hearn; E.S. Hendricks; T.M. Lavelle; J. Martins
9:30-10:00 AM	**Fuel Thermal Management System Consideration in Conceptual Design Sizing** E.J. Alyanak; D.L. Allison
10:00-10:30 AM	**Aircraft System Affects Including Propulsion and Air Cycle Machine Coupled Interactions** D.L. Allison; E.J. Alyanak; K. Shimmin
10:30-11:00 AM	**Impact of High Energy Pulsed Systems on an Aircraft's Power and Thermal Management System** R.A. Roberts; A. Donovan; S.R. Nuzum; M. Wolff
11:00-11:30 AM	**An Aerospace Vehicle Model Including a Cryogenic Thermal Subsystem** S.R. Nuzum; R.A. Roberts; M. Wolff
11:30-12:00 PM	**An Overview of the Optimized Integrated Multidisciplinary Systems Program** R.A. Reuter; S. Iden; R.D. Snyder; D.L. Allison
9:00 AM-12:30 PM, Golden Hill A, **MST-04. Modeling of Space Systems and Dynamics**, Technical Paper, **AIAA Modeling and Simulation Technologies Conference**, Chair: Andreas Himmler, ahimmler@dspace.de, dSPACE, Inc.; Co-Chair: Che-Hang Ih, che-hang.c.ih@boeing.com, Boeing Defense, Space & Security	
9:00-9:30 AM	**Optimal Attitude Control of Agile Spacecraft Using Combined Reaction Wheel and Control Moment Gyroscope Arrays** C. Doupe; E.D. Swenson
9:30-10:00 AM	**High-Fidelity General-Purpose Robotic Simulation Framework for Artificially Intelligent Space Exploration Vehicles** S.M. Walker; J. Shan
10:00-10:30 AM	**A Method for Launch Vehicle Performance Analysis via Surrogate Modeling** M.J. Steffens; S.J. Edwards; D.N. Mavris; P. Dees; M. Diaz
10:30-11:00 AM	**Modeling SMAP Spacecraft Attitude Control Estimation Error Using Signal Generation Model** F. Rizvi
11:00-11:30 AM	**Empirical Data Driven Model for Shape and Dynamics Estimation of Large Deployable Membrane Space Structure** M. Yamazaki

9:00 AM-12:30 PM, Old Town B, **NDA-02. Analysis and Optimization Under Uncertainty**, Technical Paper, **18th AIAA Non-Deterministic Approaches Conference**, Co-Chair: Saber DorMohammadi , DSaber@alphastarcorp.com; Chair: Pingfeng Wang, pingfeng.wang@wichita.edu, Wichita State University	
9:00-9:30 AM	**Multi-fidelity Methods in Aerodynamic Robust Optimization** A.S. Padron; J.J. Alonso; M.S. Eldred
9:30-10:00 AM	**Incorporation of Risk Preferences in a Value-Based Systems Engineering Framework for a Satellite System** H. Kannan; B. Mesmer; C.L. Bloebaum
10:00-10:30 AM	**Probabilistic Design Analysis of Bellows Type Pogo Accumulator** D.L. Ransom
10:30-11:00 AM	**Using Normalized Parameter Perturbations to Investigate Design, Sensitivity Analysis, and Uncertainty Quantification** E.E. Forster; P.S. Beran; R.M. Kolonay; H. Bae
11:00-11:30 AM	**Application of Bayesian Theory to Interval Based Representation of Epistemic Uncertainty for a Decomposed Multilevel Optimization Framework** I.D. Dettwiller; M. Rais-Rohani
9:00 AM-9:30 AM, Session Room Foyers, **NW-07. Tuesday Late Morning Networking Coffee Break**, Networking	
9:00 AM-12:30 PM, Harbor C, **PC-06. Heterogeneous Propellants and Combustion, Fuel Technology**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Aswin Gnanaskandan, aswin.gnanaskandan@jpl.nasa.gov, Jet Propulsion Laboratory; Co-Chair: Thomas Jackson, tlj@ufl.edu, University of Florida Gainesville	
9:00-9:30 AM	**Microwave-Supported Plasma Combustion Enhancement of Composite Solid Propellants Using Alkali Metal Dopants** J. Lynch; M. Ballestero; R. Cazin; J. Michael; T.R. Sippel
9:30-10:00 AM	**Combustion of Sonochemically-Generated Amorphous Reactive Mixed-Metal Nanopowders in an n-Decane Spray Flame** M.R. Weismiller; B.T. Fisher; Z.J. Huba; A. Epshteyn; S.G. Tuttle; B.A. Williams
10:00-10:30 AM	**Size-Resolved Burn Rate Measurements of Metal NanoParticles** R. Jacob; Y. Zong; Y. Yang; S. Li; M.R. Zachariah
10:30-11:00 AM	**Direct-Deposition to Create High Particle Loading Propellants with Controlled Architecture: Combustion and Mechanical Properties** X. Li; M.R. Zachariah
11:00-11:30 AM	**Functional Group Analysis of Evaporation and Liquid Combustion of Jet-A and Its Surrogate Fuel Based On Quantitative FT-IR Measurements** Y. Liu; B. Walker

11:30-12:00 PM	**The effect of fuel composition on the non-premixed flame structure of LNG/LOx mixtures at supercritical pressure** P.E. Lapenna; P.P. Ciottoli; F. Creta
12:00-12:30 PM	**Three-dimensional Structures in Hypergolic Ignition Process and Flame Holding Mechanisms for Hydrazine/Nitrogen Dioxide Un-like Doublet Impinging Gas Jets** Y. Daimon; H. Tani; H. Terashima; M. Koshi
9:00 AM-12:30 PM, Harbor D, **PDL-05/PC-07/AMT-03. Special Walter Lempert Memorial Session I (Invited)**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Igor Adamovich, adamovich.1@osu.edu, Ohio University ; Chair: Richard Miles, miles@princeton.edu, Princeton University	
9:00-9:30 AM	**Oral Presentation. "It's Amazing What You May See If You Only Look": Walter Lempert's Legacy in Science.** I.V. Adamovich
9:30-10:00 AM	**Oral Presentation. What we learned from Walter Lempert** S.O. Macheret; R.A. Yetter
10:00-10:30 AM	**Oral Presentation. Nice Guys Can Finish First: Walter Lempert's Legacy of Scholarship and Comradeship** C.D. Carter; G.S. Elliott
10:30-11:00 AM	**Oral Presentation. Remembering Prof. Walter Lempert** J.M. Tishkoff; M.A. Gundersen
11:00-11:30 AM	**Oral Presentation. Plasma Assisted Low Temperature Combustion** Y. Ju; J.K. Lefkowitz
11:30-12:00 PM	**Oral Presentation. Short Pulses, Big Impact: Walter Lempert and ns Discharge Kinetics** M.J. Kushner
9:00 AM-12:30 PM, Ocean Beach, **SATS-01. Small Satellites - Technologies I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Jeremy Straub, jastraub@gmail.com, University of North Dakota	
9:00-9:30 AM	**Micro Pulsed Plasma Thrusters for Attitude Control of a Low Earth Orbiting CubeSat** N.A. Gatsonis; Y. Lu; J.J. Blandino; M.A. Demetriou; N. Paschalidis
9:30-10:00 AM	**Spherical Reaction Wheel System For Satellite Attitude Control** H. Paku; R. Takehana; K. Uchiyama
10:00-10:30 AM	**Designing, Building, and Testing a Mesh Ka-band Parabolic Deployable Antenna (KaPDA) for CubeSats** J.F. Sauder; N. Chahat; R. Hodges; E. Peral; Y. Rahmat-Samii; M. Thomson
10:30-11:00 AM	**Electrical Power System of SRMSAT - 2** S. Pavuluri
11:00-11:30 AM	**Fabrication of Asymmetric Nanostructures for Plasmonic Force Propulsion** J.N. Maser; J. Rovey; X. Yang

11:30-12:00 PM	**Implementation of three DoFs small satellite ground simulation system** H. Yao; Y. Wang; J. Cui; J. Bao; H. Yang; Z. Zhu; G. Zheng; Z. Zhu
9:00 AM-12:30 PM, Balboa B, **SCS-01. Spacecraft Antennas and Apertures**, Technical Paper, **3rd AIAA Spacecraft Structures Conference**, Co-Chair: Houfei Fang, houfei_fang@yahoo.com, ; Chair: Mark Silver, mark.silver@ll.mit.edu, MIT Lincoln Laboratory	
9:00-9:30 AM	**System Design Study of a Deployable Reflector Antenna with Flexible Shell Segments** J.N. Footdale; J. Banik
9:30-10:00 AM	**Measuring Critical Alignments of the James Webb Space Telescope Aft Optics Subsystem** A.A. Barto; B. Gallagher; J.S. Knight; K. Smith
10:00-10:30 AM	**Design and Deployment Testing of the Multi-Arm Radial Composite (MARCO) Reflector Antenna** J.N. Footdale; J. Banik
10:30-11:00 AM	**Concept Design of 15m class Light Weight Deployable Antenna Reflector for L-band SAR Application** K. Nakamura; N. Nakamura; S. Ozawa; A. Uematsu; H. Hoshino; T. Kimura
11:00-11:30 AM	**Energy-Efficient Active Reflectors with Improved Mechanical Stability and Improved Thermal Performance** S.C. Bradford
11:30-12:00 PM	**Shape-Control Experiment of Space Reconfigurable Reflector Using Antenna Reception Power** H. Sakamoto; H. Tanaka; K. Ishimura; A. Doi; Y. Kono; N. Matsumoto; K. Kimura
12:00-12:30 PM	**Shape Control of a Reflector Based on Generalized Zernike Functions** L. Lan; S. Jiang; Y. Zhou; H. Fang; Z. Wu; J. Du
9:00 AM-12:30 PM, Balboa C, **SD-05. Turbomachinery / Structural Health Monitoring**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Jonathan Black, jonathan.black@vt.edu, Virginia Tech; Chair: Dexter Johnson, dexter.johnson@nasa.gov, NASA Glenn Research Center	
9:00-9:30 AM	**Analysis of Damage Assessment of Large Hailstone Ingestion into Advanced High Bypass Propulsion system** Y. Song; J. Bayandor
9:30-10:00 AM	**Reduced Order Geometric Mistuning Models using Principal Component Analysis Approximations** E.B. Henry; J.M. Brown; J.A. Beck
10:00-10:30 AM	**The Development of an Active Damping and Stiffness Technique for Turbomachinery using Shape Memory Alloys** R.J. Wischt; N.G. Garafolo
10:30-11:00 AM	**Evaluation of Fiber Optic Strain Sensors for Applications in Structural Health Monitoring** B.L. Martins; J.B. Kosmatka

11:00-11:30 AM	**Frequency Domain Statistical Damage Identification Applied to an Experimental Composite Plate** J.A. Oliver; J.B. Kosmatka; C.R. Farrar; J.P. Conte
11:30-12:00 PM	**Frequency Domain Statistical Damage Identification Development and Analytical Study** J.A. Oliver; J.B. Kosmatka; C.R. Farrar; J.P. Conte
9:00 AM-12:30 PM, Gaslamp A, **SD-06. Dynamics, Feedback Control, and Aeroservoelasticity I**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Jack McNamara, mcnamara.190@osu.edu, The Ohio State University; Chair: Suzanne Smith, suzanne.smith@uky.edu, University of Kentucky	
9:00-9:30 AM	**Model-Predictive Control of Flexible Aircraft Dynamics using Nonlinear Reduced-Order Models** Y. Wang; A. Wynn; R. Palacios
9:30-10:00 AM	**Optimal Selection of Control Surfaces for Active Aeroelastic Control of Prescribed Modes** R. Brown; K.V. Singh
10:00-10:30 AM	**Inverse Dynamics for Deceleration Control of Deployment of Linked Panel Structure in Space** M. Takatsuka
10:30-11:00 AM	**Feedback control of integrally actuated membrane wings: a computational study** S. Buoso; R. Palacios
11:00-11:30 AM	**Active Piezoelectric Actuation and Control of Highly Flexible Multifunctional Wings** N. Tsushima; W. Su
11:30-12:00 PM	**Spacecraft Docking with Type II Superconductor Flux Pinning and Potential Energy Capture** R.A. Caracciolo; F. Zhu; M.A. Peck
9:00 AM-12:30 PM, Bankers Hill, **SRE-02. ISRU technologies and trades**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Leslie Gertsch, gertschl@mst.edu, Missouri University of Science and Technology; Chair: Diane Linne, diane.l.linne@nasa.gov, NASA Glenn Research Center	
9:00-9:30 AM	**Solar System Exploration Augmented by In-Situ Resource Utilization: Mercury and Saturn Propulsion Investigations** B.A. Palaszewski
9:30-10:00 AM	**Sampling of Regolith from Asteroids Utilizing Magnetic Force** M. Adachi; R. Obata; A. Shigeta; H. Kawamoto
10:00-10:30 AM	**Dynamic Elasto-Plastic Impact Force in a Special Planetary Drilling Mechanism** R.B. Malla; L.J. Vila
10:30-11:00 AM	**Aquaponics: An Option for In-situ Production of Mission Consumables** K.T. Kalbacher de Marquez; E. Marquez Gonzalez
11:00-11:30 AM	**Liquefaction and Storage of In-Situ O_2 on the surface of Mars** D.M. Hauser; W.L. Johnson

9:00 AM-12:30 PM, La Jolla A, **STR-04. Special Session: USAF Benchmarking of Composite Fatigue Prediction Methods**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Stephen Clay, stephen.clay.2@us.af.mil; Chair: Stephen Engelstad, steve.engelstad@lmco.com, Lockheed Martin Aeronautics	
9:00-9:30 AM	**Assessment of Multiscale Design System for Fatigue Life Prediction of Advanced Composite Aircraft Structures** J. Fish; Z. Yuan; J. Wollschlager
9:30-10:00 AM	**Fatigue Damage Prediction in Quasi-Isotropic Open-Hole Tension Coupon using the Kinetic Theory of Fracture** R.W. Dalgarno; D. Robbins; J. Action; S.P. Engelstad
10:00-10:30 AM	**3D delamination profile reconstruction for composite laminates using inverse heat conduction** T. Peng; Y. Liu
10:30-11:00 AM	**Assessment of Composite Damage Growth Tools for Aircraft Structure Part II** S.P. Engelstad; S. Clay
11:00-11:30 AM	**Progressive Failure Simulation in Laminated Composites under Fatigue Loading by Using Discrete Damage Modeling** K.H. Hoos; E.V. Iarve; M. Braginsky; E. Zhou; D.H. Mollenhauer
11:30-12:00 PM	**A Continuum Damage and Discrete Crack Approach for Fatigue Damage Prediction of Laminated Composites** E. Fang; X. Cui; J. Lua
12:00-12:30 PM	**A Micromechanical Approach to Low Cycle Fatigue Analysis and Life Prediction of Heterogeneous Materials** H. Sertse; W. Yu
9:00 AM-12:30 PM, La Jolla B, **STR-05. Failure Analysis and Prediction I**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Lisa Hardaway, lhardawa@ball.com, Ball Aerospace & Technologies Corporation; Chair: Anthony Palazotto, anthony.palazotto@afit.edu	
9:00-9:30 AM	**Micro-Scale Crack Propagation Using the eXtended Finite Element Method** V. Goyal; R. Jorge
9:30-10:00 AM	**The EST Model for Predicting Progressive Damage and Failure of Open Hole Bending Specimens** A. Joseph; A.M. Waas; E.J. Pineda
10:00-10:30 AM	**Effect of Strength Variation Along a Single Fiber on Micro-Scale Damage Development in UD-FRPs** N.K. Parambil; K.P. Fathima; S. Gururaja
10:30-11:00 AM	**A Comparative Study of Local and Nonlocal Domain Integration for XFEM Based Stress Intensity Factor Extraction for Fatigue Life Prediction** X. Ren; A. Sadeghirad; N. Simon; J. Lua
11:00-11:30 AM	**Effect of Notch on the Failure Response of Oxide/Oxide Ceramic Composites** D. Zhang; P. Meyer; A.M. Waas

11:30-12:00 PM	**In situ study of static and dynamic strain energy density at notch roots and fatigue cracks using digital image correlation** C. Holycross; H. Shen; O. Scott-Emuakpor; T. George
12:00-12:30 PM	**A Selectively Activated Continuum-Coupled Extrinsic Cohesive Model** W.M. Peterson; D.S. Cairns
9:00 AM-12:30 PM, Gaslamp C, **TES-04. Electrochemical Power for Aerospace Missions**, Panel, **54th AIAA Aerospace Sciences Meeting (non-paper sessions)**, Chair: Ashwani Gupta, akgupta@umd.edu, University of Maryland	
9:00 AM-12:30 PM, Harbor G, **TP-05. Aerothermodynamics I** , Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Michael Barnhardt, michael.d.barnhardt@nasa.gov, NASA-Ames; Co-Chair: Xiaowen Wang, sean.xiaowen.wang@gmail.com, Air Force Research Laboratory	
9:00-9:30 AM	**High Fidelity Modeling of Thermal Relaxation and Dissociation of Oxygen** D. Andrienko; I.D. Boyd
9:30-10:00 AM	**Assessment of Vibrational Nonequilibrium for State Resolved Simulation of a Hypersonic Flow** J.M. Burt; E. Josyula
10:00-10:30 AM	**Uncertainty and Sensitivity Analysis of Afterbody Radiative Heating Predictions for Earth Entry** T. West; S. Hosder; C.O. Johnston
10:30-11:00 AM	**Analysis of CO2 Plasma Infrared Radiation Measurements** S. Nishimura; A. Lemal; H. Takayanagi; S. Nomura; S. Matsuyama; K. Fujita
11:00-11:30 AM	**Analysis of VUV radiation measurements from high temperature air mixtures** A. Lemal; S. Nishimura; S. Nomura; H. Takayanagi; S. Matsuyama; K. Fujita
11:30-12:00 PM	**Radiative Gas Dynamics of Large Superorbital Space Vehicle at Angle of Attack** S. Surzhikov
12:00-12:30 PM	**Radiative Gas Dynamics of MSL at Angle of Attack** S. Surzhikov
9:00 AM-12:30 PM, Regatta C, **UMS-03. Unmanned Systems: Missions and Applications**, Technical Paper, **AIAA Infotech @ Aerospace**, Co-Chair: Richard Stansbury, stansbur@erau.edu, Embry-Riddle Aeronautical University; Chair: John Valasek, valasek@tamu.edu, Texas A&M University	
9:00-9:30 AM	**A Dual-Use Unmanned Aerial System for Precision Agriculture and Search and Rescue Applications** A.K. Weber; N. Lauer; J. Brady; C. Branyan; M. Goodstein; A. Gupta; B. Katona; J. Katzman; J. Krause; M. Siburt; M. Smith; J. Szczubelek
9:30-10:00 AM	**Flight Analysis of an Autonomous Parafoil Recovery System for High Altitude Descent Systems** J. Chin; S. Dunker; D. Montague; J. Niehaus; D. Goodenow

10:00-10:30 AM	**Unmanned Aircraft Operations at Texas A&M University – Corpus Christi** D.H. Bridges; D.W. Yoel
10:30-11:00 AM	**Dynamic Re-plan of the Loyal Wingman Optimal Control Problem in a Changing Mission Environment** C.J. Humphreys; R. Cobb; D.R. Jacques; J.A. Reeger
11:00-11:30 AM	**UAV-carried Long-distance Wi-Fi Communication Infrastructure** J. Xie; F. Al-Emrani; Y. Gu; Y. Wan; S. Fu
9:00 AM-12:30 PM, Harbor H, **WE-02. Wind Energy: Wind Turbine Aerodynamics Modeling I**, Technical Paper, **34th Wind Energy Symposium**, Chair: Scott Schreck, scott.schreck@nrel.gov, NREL	
9:00-9:30 AM	**Improving Airfoil Drag Prediction** G. Ramanujam; H. Ozdemir; H.W. Hoeijmakers
9:30-10:00 AM	**Higher-Order Accurate Simulations of Wind Turbine Flow Fields: A Poor Man's Approach** K. Sreenivas; A. Mittal; L.K. Taylor; L. Hereth
10:00-10:30 AM	**Aeroacoustic Calculations of Wind Turbine Noise with the Actuator Line/ Navier-Stokes Technique** H. Debertshaeuser; W. Shen; W. Zhu
10:30-11:00 AM	**Analytical actuator disc solution for unsteady load** W. Yu; C. Simao Ferreira; G. van Kuik
11:00-11:30 AM	**Analytical Method to Determine a Tip Loss Factor for Highly-Loaded Wind Turbine Rotors** S. Schmitz; D.C. Maniaci
9:00 AM-12:30 PM, Harbor I, **WE-03. Wind Energy: Structural Dynamics and Materials**, Technical Paper, **34th Wind Energy Symposium**, Chair: Doug Cairns, dcairns@me.montana.edu, Montana State University	
9:00-9:30 AM	**Partitioned nonlinear structural analysis of wind turbines using BeamDyn** Q. Wang; M.A. Sprague; J.M. Jonkman
9:30-10:00 AM	**The Usage of Parameterized Fatigue Spectra and Physics-Based Systems Engineering Models for Determination of Wind Turbine Component Sizing** T.J. Parsons; P.S. Veers; Y. Guo
10:00-10:30 AM	**Fracture and Fatigue of Thick Adhesive Joints in Wind Turbine Blade Structures** D.S. Cairns
10:30-11:00 AM	**Influence of Fabric Architecture on Damage Progression Evidenced by Acoustic Emission Measurements** D.A. Miller; D. Samborsky; D.S. Cairns; M. Schuster; A. Lolatte
9:30 AM-11:30 AM, Seaport FG, **PANEL-04. Tuesday Morning Forum 360** **Innovation in Space: How Researchers Can Leverage the ISS National Laboratory for Pioneering Research & Development** , Panel, **Forum 360**	

10:30 AM-12:30 PM, Harbor A, **PANEL-05. ASC: Where's My Morphing Aircraft? Reflections Based on Twenty Years of Adaptive Aerostructures** , Panel, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference (non-paper sessions)**	
11:00 AM-12:30 PM, Coronado A, **IS-04. Intelligent Systems Autonomy Roadmap Panel**, Panel, **AIAA Infotech @ Aerospace (non-paper sessions)**, Nhan Nguyen, Nhan.T.Nguyen@nasa.gov, NASA-Ames Research Center; Christopher Tschan, tschan@comcast.net, The Aerospace Corporation	
12:30 PM-2:00 PM, Seaport A-E, **LUNCH-02. Recognition Luncheon: Celebrating Achievements in Aerospace Sciences and Information Systems**, Lunch	
2:00 PM-5:30 PM, Nautical, **AA-04. Computational Aeroacoustics II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Srinivasan Arunajatesan, sarunaj@sandia.gov, Sandia National Labs; Chair: Xiaodong Li, lixd@buaa.edu.cn, Beihang University	
2:00-2:30 PM	**Linking Lagrangian & Acoustic Wave Dynamics via Finite-Time Lyapunov Exponent Fields** D.R. Gonzalez; R. Speth; D.V. Gaitonde; M.J. Lewis
2:30-3:00 PM	**Numerical Simulations for Supersonic Jet Noise Reduction Using Fluidic Inserts** M. Kapusta; R.W. Powers; P.J. Morris; D.K. McLaughlin
3:00-3:30 PM	**Effect of Flow-Acoustic Resonant Interactions on Aerodynamic Response of Transitional Airfoils** V.V. Golubev; J. Hayden; L.D. Nguyen; S. Salehian; R.R. Mankbadi; C.L. Pasiliao; M. Visbal
3:30-4:00 PM	**Numerical Investigations of Bio-Inspired Blade Designs to Reduce Broadband Noise in Aircraft Engines and Wind Turbines** B.R. Agrawal; A. Sharma
4:00-4:30 PM	**Investigation of the mechanisms of jet-engine core noise using large-eddy simulation** J.D. O'Brien; J. Kim; M. Ihme
4:30-5:00 PM	**Coupled Overset Unstructured Discontinuous Galerkin Method for Jet Noise Prediction** R.E. Harris; E. Collins; E.A. Luke; A. Sescu
2:00 PM-5:30 PM, Golden Hill B, **ABPSI-04. Propulsion Integration**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Dyna Benchergui, Dyna.Benchergui@aero.bombardier.com, Bombardier Inc	
2:00-2:30 PM	**Investigation of the impact of a Variable Area Fan Nozzle on the overall performance of an UHBR-Highlift-Configuration** S. Ritter
2:30-3:00 PM	**Aerodynamics of Aero-Engine Installation** T.P. Stankowski; D.G. MacManus; C.T. Sheaf; N. Grech
3:00-3:30 PM	**Gas Temperature Measurement using FTIR Spectroscopy in Small Internal Combustion Engines** M.J. Deutsch; J. Ausserer; M.D. Polanka; P.J. Litke; A.W. Caswell; K.D. Grinstead

3:30-4:00 PM	**Aerodynamic Interference for Aero-Engine Installations** T.P. Stankowski; D.G. MacManus; C.T. Sheaf; N. Grech
4:00-4:30 PM	**Progress in Optimizing the Propulsive Fuselage Aircraft Concept** J. Bijewitz; A. Seitz; A.T. Isikveren; M. Hornung
4:30-5:00 PM	**Experimental Performance of a Small Scale Pressure Wave Supercharger** M.R. Mataczynski; D.E. Paxson; M.D. Polanka; J. Hoke
5:00-5:30 PM	**A Transient Aircraft/Jet-Engine Simulator for Education** J. Dionisopoulos; M. Danilevsky; E. Kellogg; G. Christensen; D. Nguyen; R.L. Davis
2:00 PM-5:30 PM, Cortez Hill A, **ACD-02. Aircraft Design Issues II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Ronald Barrett-Gonzalez, adaptivebarrett@yahoo.com, The University of Kansas; Co-Chair: Jason Merret, jason.merret@gulfstream.com, Gulfstream Aerospace Corporation	
2:00-2:30 PM	**A Simple Method for High-Lift Propeller Conceptual Design** M.D. Patterson; N.K. Borer; B. German
2:30-3:00 PM	**Engine/Inlet Matching for Supersonic Aircraft Design** C.A. Dickman; T.T. Takahashi
3:00-3:30 PM	**Influence of Engine Intake/Exhaust on Wing Design of Civil Aircraft by Means of Knowledge Discovery Techniques** N. Endo; M. Kanazaki; M. Murayama; K. Yamamoto
3:30-4:00 PM	**Variable Camber Application to Aircraft in Formation Flight** Y. Liu; E. Stumpf
4:00-4:30 PM	**Tracking PRSEUS Technical Progress with Reduction of Performance Uncertainty Through Technology Development and Demonstration Phases** J.A. Corman; D.N. Mavris
4:30-5:00 PM	**Aircraft Concepts Modeling with Subdivision Surfaces** K. Amadori; C. Jouannet
2:00 PM-5:30 PM, Bankers Hill, **ACD-03. Aircraft Wing Design**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Cees Bil, c.bil@rmit.edu.au, RMIT University; Chair: David Hall, dwhall@netmagic.net, DHC Engineering	
2:00-2:30 PM	**Aerodynamic Design of a Winglet for the Dassault Falcon 10** N.R. El Haddad; L. Gonzalez-Linero
2:30-3:00 PM	**A Novel Three Dimensional Aircraft Wing Design Method Using High Order Bezier Curves** C. Im
3:00-3:30 PM	**Aeroelastic Analysis of High Apect Ratio Wings** A. Suleman; F. Afonso; C. Spada
3:30-4:00 PM	**Aircraft High-Lift Aerodynamic Analysis Using a Surface-Vorticity Solver** E.D. Olson; C.W. Albertson

4:00-4:30 PM	**A Physics-Based Methodology for Cantilever and Strut-Braced Wing Weight Estimation** D. Locatelli; B.K. Riggins; R.K. Kapania; J.A. Schetz; T. Poquet
4:30-5:00 PM	**Wing Design Challenges Explained: A Study of the Finite Wing Effects of Camber, Thickness, and Twist** J. Jensen; T.T. Takahashi
2:00 PM-5:30 PM, Cortez Hill B, **AFM-06. Launch Vehicle, Missile, and Projectile Flight Mechanics II**, Technical Paper, **AIAA Atmospheric Flight Mechanics Conference**, Chair: Frank Fresconi, frank.e.fresconi.civ@mail.mil, US Army Research Lab; Co-Chair: Thomas Richardson, thomas.richardson@bristol.ac.uk, University of Bristol	
2:00-2:30 PM	**Flight Behavior of an Asymmetric Body through Spark Range Experiments using Roll-Yaw Resonance for Yaw Enhancement** F. Fresconi; B. Guidos; I. Celmins; W. Hathaway
2:30-3:00 PM	**A Proposed Ascent Abort Flight Test for the Max Launch Abort System** P.V. Tartabini; M. Gilbert; B.R. Starr
3:00-3:30 PM	**Part-I : Aerodynamic Data Generation and 6 DOF Trajectory Calculation of a Baseline Large-Caliber Spinning Projectile** J. Masud; F.A. Chughtai; S. Akhtar
3:30-4:00 PM	**Part-II : Effect of Design Modifications on Computed Trajectory of a Large-Caliber Spinning Projectile** J. Masud; F.A. Chughtai; S. Akhtar
4:00-4:30 PM	**SHEFEX II - A First Aerodynamic and Atmospheric Post-Flight Analysis** M. Franze
4:30-5:00 PM	**Rapid Characterization of Munitions Using Neural Networks** M. Carpenter; N. Speakman; R.J. Hartfield
2:00 PM-5:30 PM, Harbor D, **AMT-04. Velocimetry II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Tom Jenkins, tjenkins@metrolaserinc.com, MetroLaser Inc; Co-Chair: K. Todd Lowe, kelowe@vt.edu	
2:00-2:30 PM	**A Hybrid Technique for Laser Flare Reduction** D.R. Cadel; D. Shin; K. Lowe
2:30-3:00 PM	**Comparison of Pulse-Burst PIV Data to Simultaneous Conventional PIV Data** S.J. Beresh; J.L. Wagner; J. Henfling; R. Spillers; B. Pruett
3:00-3:30 PM	**Three component LDV probe for AFRL-TGF for SWBLI Studies** C. DeSio; K. Miller; P. Schinetsky; N.S. Chaganti; B.T. Brooker; J.A. Tinapple; S.M. Olcmen
3:30-4:00 PM	**Pulse-Burst PIV Measurements of Transient Phenomena in a Shock Tube** J.L. Wagner; S.J. Beresh; E.P. Demauro; K.M. Casper; D.R. Guildenbecher; B. Pruett; P. Farias
4:00-4:30 PM	**Three-Component Unseeded Velocity Diagnostic for Jet Engine Exhaust Flows** T.P. Jenkins; C.F. Hess

4:30-5:00 PM	**Measurements of Gas-Phase Velocity during Shock-Particle Interactions using Pulse-Burst PIV** E.P. Demauro; J.L. Wagner; S.J. Beresh; P. Farias; B. Pruett
2:00 PM-5:30 PM, Coronado D, **APA-16. Special Session: Space Launch System (SLS) Induced Environments II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Reynaldo Gomez, reynaldo.j.gomez@nasa.gov; Co-Chair: Jeremy Pinier, jeremy.t.pinier@nasa.gov, NASA Langley Research Center	
2:00-2:30 PM	**Global Comparison of CFD and Wind Tunnel Derived F&M Databases for the Space Launch System** M.J. Hemsch
2:30-3:00 PM	**Space Launch System Aerodynamic Database Uncertainty Quantification Methodologies** A.L. Favaregh; H. Houlden; J.T. Pinier; M.J. Hemsch
3:00-3:30 PM	**Space Launch System Booster Separation Aerodynamic Testing at the NASA Langley Unitary Plan Wind Tunnel** F. Wilcox; J.T. Pinier; D.T. Chan; W.A. Crosby
3:30-4:00 PM	**Inviscid and Viscous CFD Analysis of Booster Separation for the Space Launch System Vehicle** D.J. Dalle; S.E. Rogers; H.C. Lee; W.M. Chan
4:00-4:30 PM	**Space Launch System Booster Separation Aerodynamic Database Development and Uncertainty Quantification** D.T. Chan; D.J. Dalle; S.E. Rogers; J.T. Pinier; F.J. Wilcox; R.J. Gomez
4:30-5:30 PM	**SLS Discussion**
2:00 PM-5:30 PM, Americas Cup B, **APA-17. Applied CFD & Numerical Correlations with Experimental Data II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Marco Fossati, marco.fossati@cfdlab.mcgill.ca, McGill University; Chair: Michael Park, Mike.Park@NASA.Gov, NASA-Langley Research Center	
2:00-2:30 PM	**Transonic Numerical and Experimental Investigation into Unconventional Lambda Wing Control Surfaces** M. Paul; M. Rein
2:30-3:00 PM	**Numerical and laboratory experiments on a new wing-body-tail configuration** L. Smith; T.W. Davis; G. Spedding; J.P. Meyer
3:00-3:30 PM	**An Experimental and Numerical Study on a Small-Scale Joined-Wing Aircraft** Z. Teo; T. New; B. Nagel; V. Gollnick
3:30-4:00 PM	**Computational and Experimental Investigation into Flapping Wing Propulsion** H.W. Hoeijmakers; J. Mulder
4:00-4:30 PM	**CFD Predictions of Unsteady Aero-Loads from Vortex Shedding on A-320 Landing Gear Door** M.M. Tomac; A.W. Rizzi

2:00 PM-5:30 PM, Americas Cup C, **APA-18. Aerodynamic Design: Analysis, Methodologies, and Optimization Techniques III**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Phillip Ansell, ansell1@illinois.edu, University of Illinois at Urbana-Champaign; Co-Chair: Kelsey Denissen, kjdenis@sandia.gov, Sandia National Labs	
2:00-2:30 PM	**Evaluation of Load Analysis Methods for NASA's GIII Adaptive Compliant Trailing Edge Project** J. Cruz; E.J. Miller
2:30-3:00 PM	**Low Order Supersonic Nozzle Design using Superimposed Characteristics** O.O. Jegede; W.J. Crowther
3:00-3:30 PM	**Flight Dynamics Modeling of a Propeller-Driven Cargo Airplane** K. Biber
3:30-4:00 PM	**Gradient based aerodynamic shape optimization using the FIVER embedded boundary method** D. De Santis; M.J. Zahr; C. Farhat
4:00-4:30 PM	**Sensitivity and Stability Derivative Analysis using an Efficient Adjoint Harmonic Balance Technique** A.L. Kaminsky; K. Ekici
4:30-5:00 PM	**A Continuous Adjoint Method for Viscous Flows at All Speeds** H. Lee; S. Lee
5:00-5:30 PM	**Surrogate-based Robust Airfoil Optimization under Aleatory Flight Condition and Geometric Uncertainties** L. Shi; Z. Han; M. Shahbaz; W. Song
2:00 PM-5:30 PM, Coronado E, **APA-19. Special Session: CREATE-AV HPC Multiphysics Applications of Full-up Air Vehicles II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Nathan Hariharan, nathan.hariharan.ctr@hpc.mil, CREATE-AV; Co-Chair: David McDaniel, drmcd@uab.edu, University of Alabama at Birmingham	
2:00-2:30 PM	**An Assessment of CREATE^{TM}-AV Helios for Apache Hover and Forward Flight Simulations** R.P. Narducci; H. Tadghighi
2:30-3:00 PM	**X-56A Aeroelastic Flight Test Predictions** D.A. Reasor; K.K. Bhamidipati; A.W. Chin
3:00-3:30 PM	**Maneuvering Rotorcraft Simulations Using CREATE A/V^{TM} Helios** B. Roget; J. Sitaraman; A.M. Wissink
2:00 PM-5:30 PM, Americas Cup D, **APA-20. Propeller/Rotorcraft/Wind Turbine Aerodynamics I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Mark Calvert, mark.e.calvert.civ@mail.mil, U.S. Army AMRDEC; Chair: Juergen Rauleder, juergen.rauleder@tum.de, Technical University of Munich	
2:00-2:30 PM	**Implicit Hybrid mesh Method for the Computation of Rotorcraft Flows** M. Woodgate; G.N. Barakos
2:30-3:00 PM	**Computational Analysis of Multi-Rotor Flows** S. Yoon; H.C. Lee; T.H. Pulliam

3:00-3:30 PM	**Time Marching Simulations of Wind Turbine Blades Subject to Particle Erosion** G. Fiore; M.S. Selig
3:30-4:00 PM	**Structured Overlapping Grid Simulations of Contra-Rotating Open Rotor Noise** J.A. Housman; C.C. Kiris
4:00-4:30 PM	**Open Rotor Computational Aeroacoustic Analysis with an Immersed Boundary Method** C. Brehm; M.F. Barad; C.C. Kiris
2:00 PM-5:30 PM, Gaslamp D, **ASC-02. Modeling and Analysis**, Technical Paper, **24th AIAA/AHS Adaptive Structures Conference**, Chair: Onur Bilgen, obilgen@odu.edu, Old Dominion University; Co-Chair: Jeffrey Kauffman, JLKauffman@ucf.edu, University of Central Florida	
2:00-2:30 PM	**Design optimization of a morphing flap device using variable stiffness materials** Q. Ai; P. Weaver; M. Azarpeyvand
2:30-3:00 PM	**A Multistep Morphing Structures Design Approach Applied to Different Types of Applications in Aerospace** L. da Rocha-Schmidt; L.S. Datashvili; H. Baier
3:00-3:30 PM	**Induced Strain Actuation for Solid-State Ornithopters: A Geometric Configuration Study** F.C. Hauris; O. Bilgen
3:30-4:00 PM	**Design and Analysis of the Link Mechanism in the Flapping Wing MAV Using Flexible Multi-Body Dynamic Analysis** J. Jeon; H. Cho; Y. Kim; J. Lee; S. Shin; C. Kim; S. Kim
4:00-4:30 PM	**Aero-electro-mechanical Coupling of Electro-Active Membrane Wings** I. Barbu; R. de Kat; B. Ganapathisubramani
4:30-5:00 PM	**Hybrid Position Feedback Control of Bistable Structures** M.R. Simsek; O. Bilgen
5:00-5:30 PM	**Multiscale modeling of electrical transport in carbon nanotube-metal-polymer composite materials.** S. Shenogin; J. Lee; A.A. Voevodin; A.K. Roy
2:00 PM-5:30 PM, Old Town A, **DE-02. Innovative Designs in Aerospace / Design Education**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Jon Cutshall, jcutshall@swri.edu, Southwest Research Institute; Co-Chair: Jian Wang, J.Wang@kingston.ac.uk, Kingston University	
2:00-2:30 PM	**Framework for Probabilistic Analysis of Future Energy Technologies: Hybrid-Electric Propulsion** C.Y. Justin; A. Ramamurthy; S. Briceno; D.N. Mavris
2:30-3:00 PM	**Design of an Automated On-Demand Meal Delivery System Under Emerging and Evolving Passenger Requirements** C. Frank; M.N. Deveraux; R. Ausseil; D.N. Mavris

3:00-3:30 PM	**Extending Low-Cost Linux Computers for Education and Applications in Embedded Control and Robotics** H.C. Briggs; J. Strawson; T. Bewley
3:30-4:00 PM	**A Beagle Bone Black Baed AHRS for Control of Small UAS and Small Sounding Rockets** C.E. Hall
4:00-4:30 PM	**AREND: A Sensor Aircraft to support Wildlife Rangers** J.N. Koster; A. Buysse; L. Smith; J. Huyssen; J. Hotchkiss; J. Malangoni; J. Schneider
2:00 PM-5:30 PM, Promenade B, **FD-21. Bio-inspired Flows**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Haibo Dong, haibo.dong@virginia.edu, University of Virginia; Co-Chair: Kenneth Granlund, kgranlu@ncsu.edu, North Carolina State University	
2:00-2:30 PM	**Effect of rotational phase on the flow topology and force production of a flapping flat-plate wing** S. Krishna; K. Mulleners; M.A. Green
2:30-3:00 PM	**Experimental Study of the Three-Dimensional Wake of a Trapezoidal Pitching Panel** J.T. King; R. Kumar; M.A. Green
3:00-3:30 PM	**Wake Dynamics and Structure of a Heaving Flexible Foil Based on PIV Measurements** F. Siala; A.D. Totpal; J. Liburdy
3:30-4:00 PM	**Theoretical Investigation of the Aerodynamics of Membrane MAV Wings with Cambered Frames** A.H. Wrist; J.P. Hubner
2:00 PM-5:30 PM, Pier, **FD-22. CFD: Error Estimation and Mesh Adaptation**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Krzysztof Fidkowski, kfid@umich.edu, University of Michigan; Co-Chair: Christopher Roy, cjroy@vt.edu, Virginia Tech	
2:00-2:30 PM	**Continuous adjoint based error estimation and r-refinement for the active-flux method** K. Ding; K. Fidkowski; P.L. Roe
2:30-3:00 PM	**Development of a High-Order Space-Time Matrix-Free Adjoint Solver** M. Ceze; L. Diosady; S.M. Murman
3:00-3:30 PM	**A Truncation Error Based Mesh Adaption Metric for CFD** T. Phillips; C.F. Ollivier Gooch
3:30-4:00 PM	**A Local Sampling Approach to Anisotropic Metric-Based Mesh Optimization** K. Fidkowski
4:00-4:30 PM	**Discretization Error Estimation by the Error Transport Equation on Unstructured Meshes - Applications to Viscous Flows** G. Yan; C.F. Ollivier Gooch
4:30-5:00 PM	**Entropy residual as an adaptation indicator for simulations of unsteady ows** Y. Lv; M. Ihme

5:00-5:30 PM	**Robust moving-mesh algorithms for hybrid stretched meshes: Application to moving boundaries problems** J. Landry; A. Soulaïmani; E. Luke ; A. Ben Haj Ali
2:00 PM-5:30 PM, Harbor F, **FD-23/PDL-06. DBD Plasma Actuators II,** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Co-Chair: Joshua Rovey, roveyj@mst.edu, Missouri University of Science & Technology; Co-Chair: Mo Samimy, samimy.1@osu.edu, The Ohio State University	
2:00-2:30 PM	**Control of Boundary Layer Separation and the Wake of an Airfoil using ns-DBD Plasma Actuators** T. Ashcraft; K. Decker; J.C. Little
2:30-3:00 PM	**Improving the Performance of a DBD Plasma Actuator Model through Modification of Boundary Condition Parameters** J.B. Laten; R.P. LeBeau
3:00-3:30 PM	**Control of a Non-Resonating Supersonic Cavity Using Plasma Actuators** N.J. Webb; M. Samimy
3:30-4:00 PM	**Laminar-Separation-Bubbles Flow Control over Airfoil Using SDBD Plasma Actuator** M. Li; X. Meng; H. Li; F. Liu; S. Luo
4:00-4:30 PM	**Flow Separation Control over a Boeing Vertol VR-7 using NS-DBD Plasma Actuators** A. Esfahani; A. Singhal; C.J. Clifford; M. Samimy
4:30-5:00 PM	**Experimental Study of Effects of Frequency for Burst Wave on a DBD Plasma Actuator for Separation** S. Sekimoto; T. Nonomura; K. Fujii
5:00-5:30 PM	**The Phenomenology and Physics of Peristaltic Flow Acceleration Induced by Multiple DBD Plasma Actuators Based on PIV** L. Feng; C. Gao; Z. Lv; B. Wu; L. Wu
2:00 PM-5:30 PM, Promenade A, **FD-24. Stability and Transition of Hypersonic Flows II,** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Co-Chair: Meelan Choudhari, meelan.m.choudhari@nasa.gov, NASA-Langley Research Center; Co-Chair: Helen Reed, helen.reed@tamu.edu, Texas A&M University	
2:00-2:30 PM	**Numerical Investigation of Laminar-Turbulent Transition for a Flared Cone at Mach 6** J. Sivasubramanian; H.F. Fasel
2:30-3:00 PM	**Transition Prediction in Hypersonic Boundary Layers Using Receptivity and Freestream Spectra** P. Balakumar; A. Chou
3:00-3:30 PM	**Secondary Instability Analysis of Crossflow on a Hypersonic Yawed Straight Circular Cone** A. Moyes; P. Paredes; T.S. Kocian; H.L. Reed
3:30-4:00 PM	**Gortler Modified Mack-modes on a Hypersonic Flared Cone** J. Kuehl; P. Paredes
4:00-4:30 PM	**Stabilization of the Hypersonic Boundary Layer by Finite-Amplitude Streaks** J. Ren; S. Fu; A. Hanifi

2:00 PM-5:30 PM, Cove, **FD-25. Wing Aerodynamics**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Ramesh Agarwal, rka@wustl.edu, Washington University in St Louis; Co-Chair: Russell Cummings, russ.cummings@usafa.edu, US Air Force Academy	
2:00-2:30 PM	**Drag, Lift and Effective Angle of Attack from the Wake of an Airfoil in the Open-Jet Wind Tunnel** D.E. Faleiros; M. Tuinstra; H.W. Hoeijmakers
2:30-3:00 PM	**Experimental investigation of the wake of a lifting wing with cut-in sinusoidal trailing edges** S.L. Prigent; O. Buxton; P.J. Bruce
3:00-3:30 PM	**Effect of the leading and trailing edge geometry on the fluid-structural coupling of membrane aerofoils** S. Serrano Galiano; R. Sandberg
3:30-4:00 PM	**Experimental Study of Thin and Thick Airfoils at Low Reynolds Numbers** E. Garcia; P. Yu; V. Durgesh; H. Johari
4:00-4:30 PM	**Steady Aerodynamics of Thick and Cambered Airfoils with Porosity Gradients** R. Hajian; J.W. Jaworski
4:30-5:00 PM	**Flow Physics of a Multi-Element Airfoil in Ground Effect** Q. Qu; B. Ju; L. Huang; P. Liu; R.K. Agarwal
5:00-5:30 PM	**The effect of aspect ratio on the near-wake flow of rectangular wings** A.C. DeVoria; K. Mohseni
2:00 PM-5:30 PM, Harbor E, **FD-26/APA-21. Special Session: Evaluation of RANS Solvers on Benchmark Aerodynamic Flows I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Boris Diskin, bdiskin@nianet.org, National Institute of Aerospace; Chair: Hong Luo, hong_luo@ncsu.edu, North Carolina State University	
2:00-2:30 PM	**Grid-Converged Reynolds Averaged Navier Stokes Solutions for Benchmark Three-Dimensional Cases (Invited)** B. Diskin; J. Thomas; C.L. Rumsey; M.J. Pandya
2:30-3:00 PM	**Spatial Convergence of Three Dimensional Turbulent Flows** M.A. Park; W.K. Anderson
3:00-3:30 PM	**Assessment of Preconditioner for a USM3D Hierarchical Adaptive Nonlinear Iteration Method (HANIM) (Invited)** M.J. Pandya; B. Diskin; J. Thomas; N.T. Frink
3:30-4:00 PM	**High-Order Discontinuous Galerkin Mesh Resolved Turbulent Flow Simulations of NASA Turbulence Model Validation Cases** M.J. Brazell; D.J. Mavriplis
4:00-4:30 PM	**High-Order Output-Based Adaptive Simulations of Turbulent Flow in Three Dimensions (Invited)** K. Fidkowski; M. Ceze

2:00 PM-5:30 PM, Americas Cup A, **GEPC-03. Noise Reduction and Flight Demonstrations**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Gaudy Bezos O'Connor, gaudy.m.bezos-oconnor@nasa.gov, NASA-Langley Research Center ; Co-Chair: Nateri Madavan, Nateri.K.Madavan@nasa.gov, NASA-Ames Research Center	
2:00-2:30 PM	**Assessment of the Noise Reduction Potential of Advanced Subsonic Transport Concepts for NASA's Environmentally Responsible Aviation Project** R.H. Thomas; C.L. Burley; C.L. Nickol
2:30-3:00 PM	**Innovative Flow Control Concepts for Drag Reduction** J.C. Lin; E.A. Whalen; J.L. Eppink; E.J. Siochi; M.G. Alexander; M.Y. Andino
3:00-3:30 PM	**Oral Presentation. Challenges with Developmenting a Distributed Electric Propulsion Researach Aircraft** S.R. Ginn; D. Hines; S. Clarke; M. Redifer
3:30-4:00 PM	**Green Aerospace Engineering: A Focus on the Technical and Economical Hurdles of Next Generation Lithium-Ion Batteries** A.S. Gohardani; R. Dunn; N. Millecam
4:00-4:30 PM	**Entropy Generation Minimisation and Exergy analysis approaches for aerospace applications - A review** D. Hayes; M.M. Lone; J. Whidborne; E. Coetzee
2:00 PM-5:30 PM, Hillcrest A, **GNC-16. Optimal Control: Methods and Applications**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Co-Chair: Armand Awad, awada@uw.edu, ; Co-Chair: Hugh Liu, liu@utias.utoronto.ca, University of Toronto	
2:00-2:30 PM	**Exact Hybrid Jacobian Computation for Optimal Trajectories via Dual Number Theory** V. D'Onofrio; M. Sagliano; Y.E. Arslantas
2:30-3:00 PM	**Analytical Solution for Optimal Drogue-to-Main Parachute Transition Altitude for Ballistic Airdrops** A.R. Gerlach; D.B. Doman
3:00-3:30 PM	**Approximate Model Predictive Control for Polynomial Systems Using Sum-of-Squares Programming** N. Yokoyama
3:30-4:00 PM	**Longitudinal trajectory optimization of an underwater glider in finite depth water** S. Yoon; J. Kim
4:00-4:30 PM	**Monte Rey Methods for Unscented Optimization** I. Ross; R.J. Proulx; M. Karpenko
2:00 PM-5:30 PM, Hillcrest B, **GNC-17. Spacecraft Formations and Rendezvous**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Chair: Ian Gravseth, igravset@ball.com, ; Co-Chair: Julie Thienel, Julie.k.thienel@nasa.gov, NASA Goddard Space Flight Center	
2:00-2:30 PM	**An Information-Theoretic Active Localization Approach during Relative Circumnavigation in Orbit** M. Kontitsis; P. Tsiotras; E. Theodorou

2:30-3:00 PM	**Game Theoretic Strategies for Spacecraft Rendezvous and Motion Synchronization** M. Innocenti; V. Tartaglia
3:00-3:30 PM	**Spacecraft Formation Keeping via Discrete-Time Hamilton-Jacobi Theory** K. Lee; C. Park; T. Lee; S. Park
3:30-4:00 PM	**Pose Tracking of a Noncooperative Spacecraft During Docking Maneuvers Using a Time-of-Flight Sensor** J. Ventura; A. Fleischner; U. Walter
4:00-4:30 PM	**An Inverse Dynamics-Based Trajectory Planner for Autonomous Docking to a Tumbling Target** J. Ventura; M. Ciarcia; M. Romano; U. Walter
4:30-5:00 PM	**Analytical Formulation for Light and Fast Low-Thrust Guidance Design to Perform Multi-Target On-Orbit Servicing** L. Bucci; M.R. Lavagna
2:00 PM-5:30 PM, Coronado B, **GNC-18. Invited Session: LOC-4, Onboard Systems for LOC Prevention and Recovery – Upset Recovery and System Validation**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Co-Chair: Christine Belcastro, christine.m.belcastro@nasa.gov, NASA-Langley Research Center; Chair: Dennis Crider, criderd@ntsb.gov, National Transportation Safety Board	
2:00-2:30 PM	**Stall Recovery Guidance Algorithms Based on Constrained Control Approaches** V. Stepanyan; K.S. Krishnakumar; J. Kaneshige; D.M. Acosta
2:30-3:00 PM	**Development and Pilot-In-The-Loop Evaluation of Robust Upset-Recovery Guidance** N.D. Richards; N. Gandhi; A.J. Bateman; D.H. Klyde; A.K. Lampton
3:00-3:30 PM	**Conceptual Design and Evaluation of Stability and Upset Recovery Systems for Civil Transport Aircraft** H. Smaili; W. Rouwhorst; P. Frost
3:30-4:00 PM	**Aircraft Trim Recovery from Highly Nonlinear Upset Conditions** B. Chang; H. Kwatny; E.R. Ballouz; D. Hartman
4:00-4:30 PM	**Real-Time Extended Kalman Filter Stability Indicator** K. Lassak; Y. Gu
4:30-5:00 PM	**AirSTAR Beyond Visual Range System Description and Preliminary Test Results** K. Cunningham; D.E. Cox; J.V. Foster; S.E. Riddick; S.A. Laughter
2:00 PM-5:30 PM, Hillcrest C, **GNC-19. Aerospace Robotics and Unmanned/Autonomous Systems IV**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Co-Chair: Maruthi Akella, makella@mail.utexas.edu, University of Texas at Austin; Chair: Toralf Boge, toralf.boge@dlr.de, DLR GSOC	
2:00-2:30 PM	**Integral Vector Field Path Following for a Stratospheric Satellite** T. Chen; Z. Zewei; M. Zhu; Z. Wu

2:30-3:00 PM	**Control Laws Development for a Free-Flying Unmanned Robotic System to Support Interplanetary Bodies Prospecting and Characterization Missions.** A.E. Perez Rocha; H. Moncayo; R.J. Prazenica; K. Zacny; R.P. Mueller; M. Dupuis; T. Ebert
3:00-3:30 PM	**Trajectory Optimization of Space Manipulator with Non-zero Angular Momentum During Orbital Capture Maneuver** T. Rybus; K. Seweryn; J.Z. Sasiadek
3:30-4:00 PM	**Autonomous Determination of Spin Rate and Rotation Axis of Rocket Bodies based on Point Clouds** H.C. Gomez Martinez; B. Eissfeller
4:00-4:30 PM	**Autonomous Navigation of a Balloon over Saturn's Moon Titan** K. Garg; E. Mooij
4:30-5:00 PM	**Vision-Aided Navigation for a Free-Flying Unmanned Robotic System to Support Interplanetary Bodies Prospecting and Characterization Missions** R.J. Prazenica; Z. Kern; T. John; H. Moncayo; K. Zacny; R.P. Mueller; T. Ebert; M. Dupuis
5:00-5:30 PM	**Trajectory Optimization for Proximity Operations Around Tumbling Geometrical Constraints via Legendre Polynomials** J. Shi; S. Ulrich; A. Allen
2:00 PM-5:30 PM, Hillcrest D, **GNC-20. Control of Bio-inspired Mini/Micro UAVs,** Technical Paper, **AIAA Guidance, Navigation, and Control Conference,** Co-Chair: Michael Bolender, michael.bolender@us.af.mil, Air Force Research Lab; Chair: Haitham Taha, hetaha@uci.edu, University of California, Irvine	
2:00-2:30 PM	**A Combined Geometric-Control-Averaging to Optimum Trim of Hovering FWMAVs and Insects** H.E. Taha; D. Allen; S. Tahmasian; C.A. Woolsey; M.R. Hajj
2:30-3:00 PM	**A Fuzzy Control Strategy for UAV Perching using Varying Tau-dot** W. Chi; K. Low; K. Hoon
3:00-3:30 PM	**Kinematic Selection for a Tailless Flapping Wing Micro-Air Vehicle** I. Weintraub; D. Sigthorsson; M.W. Oppenheimer; D.B. Doman
3:30-4:00 PM	**Transient Dynamic Analysis and Control of a Morphing UAV** N. Prabhakar; R.J. Prazenica; S. Gudmundsson; M.J. Balas
4:00-4:30 PM	**L_1 Adaptive Control for a Single Coaxial Rotor MAV** M. Harada; R. Ichikawa; S. Watanabe; K. Bollino
4:30-5:00 PM	**Optimal UAV Rendezvous on a UGV** A. Rucco; P. Sujit; A. Aguiar; J. Sousa
2:00 PM-5:30 PM, Harbor H, **GT-04. Integration of Experimental and Computational Methods (Invited),** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Co-Chair: Victor Canacci, victor.a.canacci@nasa.gov, Jacobs Technology; Co-Chair: Steven Dunn, steven.c.dunn@nasa.gov, Jacobs Technology	

2:00-2:30 PM	**Direction and Integration of EFD and CFD, a Summary of Two Panel Sessions** S.C. Dunn
2:30-3:00 PM	**Oral Presentation. Education and Training of the Next Generation of Aerospace Engineers** R. Kumar
3:00-3:30 PM	**Oral Presentation. Modeling and Simulation for Research** A.E. Washburn
3:30-4:00 PM	**The Air Force Digital Thread/Digital Twin - Life Cycle Integration and Use of Computational and Experimental Knowledge.** E.M. Kraft
4:00-4:30 PM	**Oral Presentation. Developing a Briefing Targeted for Non-Engineers: The Role and Importance of Experimental and Computational Capabilities in the Development of New Aerospace Products.** S.C. Dunn; V.A. Canacci
2:00 PM-5:30 PM, Harbor C, **GTE-06. Gas Turbine Engine with Pressure Gain Combustion**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Stephen Heister, heister@purdue.edu, Purdue University; Chair: Gregory Meholic, greg.v.meholic@aero.org, The Aerospace Corporation	
2:00-2:30 PM	**Mono-dimensional analysis of the MagnetoHydrodynamic effect in Rotating Detonation Combustors** J. Braun; B.H. Saracoglu; T.E. Magin; G. Paniagua
2:30-3:00 PM	**Design of an Actively Valved and Acoustically Resonant Pulse Combustor for Pressure-gain Combustion Applications** J.C. Lisanti; W.L. Roberts
3:00-3:30 PM	**Computationally Quantifying Loss Mechanisms in a Rotating Detonation Engine** P. Strakey; D. Ferguson; A. Sisler; A. Nix
3:30-4:00 PM	**The Design of a Small-Scale Wave Rotor for Use As a Modified Brayton-Cycle Engine** M.J. McClearn; M.D. Polanka; M.R. Mataczynski; F. Schauer; D.E. Paxson
4:00-4:30 PM	**Development of a Three-dimensional Transient Wall Heat Transfer Model of a Rotating Detonation Combustor** A. Roy; P. Strakey; T. Sidwell; D. Ferguson; A. Sisler; A. Nix
4:30-5:00 PM	**Testing and Characterization of a Liquid Hydrocarbon Fueled Rotating Detonation Engine** J.J. Shepard; M.D. Polanka; A. Naples; F. Schauer
2:00 PM-5:30 PM, Harbor B, **GTE-07. Turbine Cooling II** , Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: John Clark, john.clark3@wpafb.af.mil, US Air Force; Co-Chair: Andrew Nix, andrew.nix@mail.wvu.edu	
2:00-2:30 PM	**Film Coolant Property Variation in Scaling Gas Turbine Cooling Effectiveness** C.J. Wiese; J. Rutledge; M.D. Polanka; R.W. Ashby

2:30-3:00 PM	**Jet Diameter Effect on Impingement Jet Cooling on the Leading Edge of a Turbine Blade** S.A. Haider; X. Yan
3:00-3:30 PM	**Spatial Concentration Fields and Trajectory Investigation of Single Row Film Cooling at Various Inclination Angles and Blowing Ratios Using Laser Induced Fluorescence** M.K. Geikie; J. Sosa; C.P. Fernandes; K. Ahmed; J.S. Kapat
3:30-4:00 PM	**An Experimental Investigation of Shroud Cooling Using an Upstream Slot and Angled Discrete Holes** S. Acharya; O. Tamunobere
4:00-4:30 PM	**Effect of Inlet Flow Condition on Heat Transfer in Pin-Fin Cooling Configurations** S. Singh; S. Acharya; F. Ames
4:30-5:00 PM	**Study of the attainable flow topologies in a supersonic blunt trailing edge at various blowing ratios** Y. Gorbachova; E. Valero; G. Paniagua; A. Martinez-Cava; B.H. Saracoglu
5:00-5:30 PM	**Wind Tunnel Testing of Turbine Blade Tip Flows** S. Lavagnoli; C.G. De Maesschalck; V. Andreoli; G. Paniagua; D.G. Cuadrado
2:00 PM-5:30 PM, Regatta A, **HSABP-03. Scramjet Performance and Optimization**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Faure Malo-Molina, faurejoel@gmail.com, Raytheon Missile Systems; Co-Chair: Ronald Springer, ronald.springer@jhuapl.edu, The Johns Hopkins University Applied Physics Laboratory	
2:00-2:30 PM	**Reduced Edney Type-IV Cowl Shock-On-Lip Heating By Leading Edge Geometry Optimization** P.E. Rodi
2:30-3:00 PM	**Mulit-Objective Optimization of a Hypersonic Inlet Using Generalized Outflow Boundary Conditions in the Continuous Adjoint Method** H.L. Kline; T.D. Economon; J.J. Alonso
3:00-3:30 PM	**The Design of Scramjet Engine Configurations for Optimal Operational Temperature and Overall Engine Efficiency** F. Ferguson; N. Dasque; M. Dhanasar; I.M. Blankson
3:30-4:00 PM	**A Method to Compute Flameout Limits of Scramjet-Powered Hypersonic Vehicles** C. Mbagwu; J.F. Driscoll
4:00-4:30 PM	**Parametric Geometry Models for Hypersonic Aircraft: Integrated External Inlet Compression** K. Kontogiannis; N.J. Taylor; A. Sobester
2:00 PM-5:30 PM, Regatta B, **ICC-02. Information and Command and Control Systems**, Technical Paper, **AIAA Infotech @ Aerospace**, Co-Chair: Jimmie McEver, jimmie.mcever@jhuapl.edu, The Johns Hopkins University Applied Physics Laboratory; Chair: Michael Sotak, mikesotak@gmail.com,	
2:00-2:30 PM	**An Unknown-Input-Observer Based Approach for Cyber Attack Detection in Formation Flying UAVs** L.N. Lemma; S. Kim; H. Choi
2:30-3:00 PM	**LTL Templates for Play-Calling Supervisory Control** T.B. Apker; B. Johnson; L. Humphrey

3:00-3:30 PM	**Consensus Based Operating Picture for Distributed Battlefield Management** K. Neema; S. Tamaskar; D.A. DeLaurentis
3:30-4:00 PM	**Wildlife Tracking on the Wing Using Unmanned Air Systems** S. Tavakoli; A. Heaton
2:00 PM-5:30 PM, Regatta C, **IS-05. Novel Aerospace Applications of Intelligent Systems**, Technical Paper, **AIAA Infotech @ Aerospace**, Chair: Christopher Bowman, cbowman@df-nn.com, ; Co-Chair: Corey Ippolito, corey.a.ippolito@nasa.gov, NASA Ames Research Center	
2:00-2:30 PM	**Helicopter Cockpit Video Data Analysis for Attitude Estimation using DBSCAN Clustering** S. Shin; I. Hwang
2:30-3:00 PM	**Intelligent Decentralized Unmanned Aerial Survey of Volcanic Plumes** C.A. Ippolito; D. Pieri; M. Fladeland; J. Lohn; J. Dolan
3:00-3:30 PM	**Generic Clustering Approach to Track-to-Track Correlation for Multisensor-Multitarget Environments** N. Hanlon; E.H. Kivelevitch; M. Kumar; K. Cohen
3:30-4:00 PM	**Challenges and Opportunities in Flight Data Mining: A Review of the State of the Art** A. Gavrilovski; H. Jimenez; D.N. Mavris; A.H. Rao; S. Shin; I. Hwang; K. Marais
4:00-4:30 PM	**The Search for Signatures of Space Weather Effects** C.L. Bowman
2:00 PM-3:00 PM, Harbor A, **LEC-05. DSC: The Curiosity/Mars Science Laboratory Sky-Crane Landing System**, Lecture, **15th Dynamics Specialists Conference (non-paper sessions)**	
2:00 PM-5:30 PM, Gaslamp B, **MAT-05. Fatigue & Fracture II**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Josh Dustin, joshua.dustin@ge.com, GE-Aviation; Chair: Ray Fertig, rfertig@uwyo.edu, University of Wyoming	
2:00-2:30 PM	**Improved Pre-Strain Method for Generating Goodman Data with Vibration-Based Fatigue Testing** K. Knapp; O.E. Scott-Emuakpor; T. George; C. Holycross; A.N. Palazotto
2:30-3:00 PM	**Experimental, numerical, and analytical free vibration analyses of open-hole composite plates** B. Aidi; M. Shaat; A. Abdelkefi; S. Case
3:00-3:30 PM	**A Micromechanical Approach to High Cycle Fatigue Analysis and Life Prediction of Heterogeneous Materials** H. Sertse; W. Yu
3:30-4:00 PM	**A novel crack growth equation based on crack tip opening displacement variation** S. Jiang; W. Zhang; Z. Wang
4:00-4:30 PM	**Anisotropic Fatigue Crack Growth in High-Strength Aluminium Alloys** S.O. Van Der Veen; H.P. Dijkers; R.C. Alderliesten

4:30-5:00 PM	**An equivalent crack growth model for creep fatigue life prediction of metals** D. Pan; F. Tahir; Y. Liu
2:00 PM-5:30 PM, Gaslamp C, **MAT-06. Nanostructured Materials II**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Gregory Odegard, gmodegar@mtu.edu, ; Co-Chair: Brian Wardle, wardle@mit.edu, Massachusettes Institute of Technology	
2:00-2:30 PM	**Effect of Combining Suspended Particle Shapes on Shear Thickening Fluid Behavior** C. Kabanda Mihigo; T.E. Lacy; S. Kundu; C.U. Pittman ; H. Toghiani; J. Warren
2:30-3:00 PM	**Effect of Amount of Nylon-66 Nanofiber Interleaf on Impact Performance of AS4/3501-6 Carbon Epoxy Composite Laminate** H.A. Ahmed; K.N. Shivakumar
3:00-3:30 PM	**Grains size and rigid rotations effects on the dynamics and pull-in instability of electrostatically-actuated beams** M. Shaat; A. Abdelkefi
3:30-4:00 PM	**Effects of POSS Addition on Bisphenol-E Cyanate Ester Network** J. Piness; J. Wiggins
4:00-4:30 PM	**Modeling of strain gradient-based nanoparticle composite plates with surface elasticity** M. Shaat; A. Abdelkefi
4:30-5:00 PM	**A Coupled Electromechanical Peridynamics Framework for Modeling Carbon Nanotube Reinforced Polymer Composites** N. Prakash; G.D. Seidel
5:00-5:30 PM	**Experimental Characterization and Computational Analysis of Mode I Fracture Toughness of a Nano-Cellulose Z-Pin Reinforced Carbon Fiber Laminate** K. Talamadupula; S. Berry; J. O'Donnell; G.D. Seidel; B. Goodell
2:00 PM-5:30 PM, Balboa A, **MDO-04. Topology Methods and Applications**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Joshua Deaton, josh.deaton.ctr@us.af.mil, Adjoint Technologies; Co-Chair: Marcelo Kobayashi, evodevohi@gmail.com, Hawaii Evolutionary Development, LLC	
2:00-2:30 PM	**Multi-scale Topology Optimization** P. Dunning; H.A. Kim
2:30-3:00 PM	**Large-Scale Compliance-Minimization and Buckling Topology Optimization of the Undeformed Common Research Model Wing** T. Chin; G. Kennedy
3:00-3:30 PM	**A New Topology Optimization Method for Simultaneous Design of Component Layout and Frame Structure of Aircraft Wing** M. Bakhtiarinejad; S. Lee; J.J. Joo
3:30-4:00 PM	**Experimental Validation of Structures Optimised for Frequency Constraints and Dynamic Loading** D.J. Munk; N.F. Giannelis; G.A. Vio

4:00-4:30 PM	**On a Bio-Inspired Design Methodology for the Simultaneous Topology, Shape, Sizing and Subsystem Placement Optimization of Aircrafts** M. Kobayashi; R.M. Kolonay; J.D. Deaton; R.A. Reuter
4:30-5:00 PM	**Combined mesh and penalization adaptivity based topology optimization** D.K. Gupta; M. Langelaar; F. van Keulen
2:00 PM-5:30 PM, Golden Hill A, **MST-05. Uninhabited Aerial Systems and Vehicle Dynamics**, Technical Paper, **AIAA Modeling and Simulation Technologies Conference**, Chair: Daniel Keating, dkeating@draper.com, ; Co-Chair: Patrick Kenney, patrick.s.kenney@nasa.gov, NASA Langley Research Center	
2:00-2:30 PM	**UAV Control and Simulation Using Trajectory Transcriptions** C.R. Ashokkumar; G.W. York
2:30-3:00 PM	**Recursive Bayesian Estimation of Bat Flapping Flight Using Kinematic Trees** M.J. Bender; H.M. McClelland; A. Kurdila; R. Mueller
3:00-3:30 PM	**Arduino Based Low-Cost Experimental Unmanned Aerial Flight System For Attitude Determination in Autonomous Flights** J.E. Rico; K. Turkoglu
3:30-4:00 PM	**Simulation Enviroment for Testing UAS Collision Avoidance System** S. Bhandari; E. Gomez; D. Garcia; M. Piana; M. Ritterbush
2:00 PM-5:30 PM, Old Town B, **NDA-03. Testing in Support of Model Calibration or Uncertainty Quantification**, Technical Paper, **18th AIAA Non-Deterministic Approaches Conference**, Co-Chair: Benjamin Smarslok, benjamin.smarslok@us.af.mil, Air Force Reseach Laboratory; Chair: Eric Walker, eric.l.walker@nasa.gov, NASA Langley Research Center	
2:00-2:30 PM	**Robust Statistical Modeling of Piezoelectric Axial Fatigue Tests using Bayesian Model Averaging** J.A. Beck; O. Scott-Emuakpor; J.M. Brown; T. George; C. Holycross
2:30-3:00 PM	**Improved Test Planning and Analysis Through the Use of Advanced Statistical Methods** L.L. Green; K. Maxwell; D.E. Glass; W. Vaughn; W. Barger; M. Cook
3:00-3:30 PM	**Simulating Future Test and Redesign Considering Epistemic Model Uncertainty** N.B. Price; M. Balesdent; . Defoort; R. Le Riche; N. Kim; R.T. Haftka
3:30-4:00 PM	**A-B Basis Allowable Test Reduction Approach and Composite Generic Basis Strength Values** F. Abdi; E. Clarkson; C. Godines; S. DorMohammadi
4:00-4:30 PM	**Robust Test Resource Allocation using Global Sensitivity Analysis** C. Li; S. Mahadevan
4:30-5:00 PM	**Experimental Validation of Polynomial Chaos Theory on an Aircraft T-Tail** P. Cheema; D.J. Munk; N.F. Giannelis; G.A. Vio

2:00 PM-4:00 PM, Seaport FG, **PANEL-06. Tuesday Afternoon Forum 360** **Cybersecurity Below 30,000 Feet—Applying Lessons From Other Industries**, Panel, **Forum 360**	
2:00 PM-5:30 PM, Cortez Hill C, **PC-08. Micro-Propulsion, Plasma Discharges, Autoignition**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Christopher Cadou, cadou@umd.edu, University of Maryland; Co-Chair: Millicent Coil, coilm@orbitec.com, Orbital Technologies Corporation	
2:00-2:30 PM	**Performance Testing of Various Nozzle Designs for Water Electrolysis Thruster** Y.M. Liu
2:30-3:00 PM	**Coarse graining of Ethylammonium Nitrate using Effective Field Coarse Graining Method** N.A. Mehta; D.A. Levin
3:00-3:30 PM	**Near-blowoff dynamics of lean premixed flames stabilized on a meso-scale bluff body** Y. Kim; B. Lee; H.G. Im
3:30-4:00 PM	**Monte Carlo Simulation of the Effect of "Hot" Atoms on Active Species Production in High-Voltage Pulsed Discharges** N. Aleksandrov; A. Ponomarev; A. Starikovskiy
4:00-4:30 PM	**Measurements of Low Temperature Oxidation of n-Heptane/O_2/Ar Mixtures in Nanosecond-pulsed Plasma Discharges** A.C. Rousso; J.K. Lefkowitz; Y. Ju
4:30-5:00 PM	**Comparative Shock-Tube Study of Autoignition and Plasma-Assisted Ignition of C2-Hydrocarbons** I. Kosarev; S. Kindysheva; E. Plastinin; N. Aleksandrov; A. Starikovskiy
5:00-5:30 PM	**The Effect of Ozone Addition on Autoignition and Flame Stabilization** X. Gao; J. Zhai; W. Sun; T. Ombrello; C.D. Carter
2:00 PM-5:30 PM, Ocean Beach, **SATS-02. Small Satellites - Technologies II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Jeremy Straub, jastraub@gmail.com, University of North Dakota	
2:00-2:30 PM	**Selection of an Inertial Measurement Unit for High Accuracy CubeSat Attitude Determination** M. Sorgenfrei; M. Nehrenz; D. Kemp
2:30-3:00 PM	**Dual Propulsion System Design for Small Spacecraft** A. Ratheesh; K. Naik; P. Putambekar; P. Shrivastava; J. Dhanasekaran; P. Malani; L. Muthuswamy
3:00-3:30 PM	**Development of an Additively Manufactured Microthruster for Nanosatellite Applications** K.R. Gagne; D.L. Hitt; M.R. McDevitt
3:30-4:00 PM	**System Design and Dynamic Analysis for Sail Deployment for Cube Satellite CNUSAIL-1** S. Song; Y. Yoo; S. Koo; S. Kim; J. Suk

4:00-4:30 PM	**Feasibility for Orbital Life Extension of a CubeSat Flying in the Lower Thermosphere** J.J. Blandino; N. Martinez; M.A. Demetriou; N.A. Gatsonis; N. Paschalidis
4:30-5:00 PM	**Utilizing the Globalstar Network for Satellite Communications in Low Earth Orbit** A.D. Santangelo; P. Skentzos
2:00 PM-5:30 PM, Balboa B, **SCS-02. High-Strain Composite Materials and Structures**, Technical Paper, **3rd AIAA Spacecraft Structures Conference**, Chair: David Murphy, dave.murphy@orbitalatk.com, Orbital ATK-Space Components; Co-Chair: John Steeves, john.b.steeves@jpl.nasa.gov, NASA JPL	
2:00-2:30 PM	**Deployment Testing of Flexible Composite Hinges in Bi-Material Beams** J.F. Sauder; B. Trease
2:30-3:00 PM	**Reconfigurable Deployable CubeSat Solar Arrays Usin Thin Composite Flexures** R. Yasin; M.J. Santer
3:00-3:30 PM	**Precision High Strain Composite Hinges for the Deployable In-Space Coherent Imaging Telescope** M.J. Silver; M.A. Echter; B.M. Reid; J. Banik
3:30-4:00 PM	**Folding and Deployment of Closed Cross-Section Dual-Matrix Composite Booms** M. Sakovsky; S. Pellegrino; H. Mallikarachchi
4:00-4:30 PM	**Free Deployment of a Sparse-Isogrid Column with High Strain Composite Ribs** S.K. Jeon; J. Banik; M. Peterson
2:00 PM-5:30 PM, Balboa C, **SE-03. Systems Engineering III**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Michelle Bailey, mic.bailey@att.net, Defense Acquisition University; Co-Chair: Vicki Johnson, vsjohnson@txtav.com, Textron Aviation	
2:00-2:30 PM	**A Game Theory approach to Bargaining over Attributes of Complex Systems in the context of Value-Driven Design** G.V. Bhatia ; H. Kannan; C.L. Bloebaum
2:30-3:00 PM	**Understanding the Impact of Uncertainty on the Fidelity of the Value Model** T.R. Subramanian; A.R. Khol; H. Kannan; E.H. Winer; C.L. Bloebaum
3:00-3:30 PM	**Quantifying the Effect of Orbit Altitude on Mission Cost for Earth Observation Satellites** A. Shao; A.M. Madni; J.R. Wertz
3:30-4:00 PM	**The Devil is in the Detail – Continuous Airworthiness of Aircraft Servo Control Units** T. Lammering; P. Forschner; L. Faleiro; T. Schneider
4:00-4:30 PM	**Fundamentals of Weapon System Sustainment** C.T. Vono
2:00 PM-5:30 PM, La Jolla A, **STR-06. Composite Fatigue Damage Prediction Methods**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Kuen Yuan Lin, lin@aa.washington.edu, University of Washington; Chair: Gerald Mabson, gerald.e.mabson@boeing.com, Boeing Engineering Operations & Technology	

2:00-2:30 PM	**Fatigue Analysis of Notched Laminates: A Time-Efficient Macro-Mechanical Approach** P. Naghipour; E.J. Pineda; B.A. Bednarcyk; S.M. Arnold; A.M. Waas
2:30-3:00 PM	**Fatigue Validation of Composite Open Hole Analysis Technique for Standard and Nonstandard Laminate - Part 2** F. Abdi; C. Godines; S. DorMohammadi ; L. Minnetyan
3:00-3:30 PM	**Fatigue Life Prediction of IM7/977-3 Composite Laminates with Multispatial/Multitemporal Homogenization** M.J. Bogdanor; C. Oskay
3:30-4:00 PM	**Three-Dimensional Delamination Analysis in Composite Open Hole Tensile Specimens with Cohesive Zone Method** B. Bartan; B. Acar; A. Kayran
4:00-4:30 PM	**Interlaminar Fatigue Growth for Fail-Safe Life Limit Analysis** B.D. Flansburg; C. Rousseau; J. Action
4:30-5:00 PM	**Fatigue Life of Postbuckled Structures with Indentation Damage** C.G. Davila; C. Bisagni
2:00 PM-5:30 PM, La Jolla B, **STR-07. Failure Analysis and Prediction II**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Pravin Aggarwal, pravin.k.aggarwal@nasa.gov, NASA Marshall Space Flight Center; Chair: Craig Merrett, cmerrett@gmail.com, Carleton University	
2:00-2:30 PM	**Progressive Failure Based On Strain Invariant Failure Theory** V. Goyal; C. Garcia
2:30-3:00 PM	**A Residual Strength Prediction Methodology for Composite Laminates Wth Surface Damage Under Tensile Loading** S.G. Russell
3:00-3:30 PM	**Probabilistic First Ply Failure Analysis of Wind Turbine Blade Laminates** G. Mustafa; A. Suleman; C.A. Crawford
3:30-4:00 PM	**Thermal Ablation in Fiber-Reinforced Composite Laminates Subjected to Continuing Lightning Current** Y. Wang; O.I. Zhupanska
4:00-4:30 PM	**Residual Stress Failure Prediction of Adhesive Bonded Joints Through a Combined CZ and XFEM Model** V. Goyal
4:30-5:00 PM	**Predicting Composite Fatigue Life of Wind Turbine Blades Using Constituent-Level Physics and Realistic Aerodynamic Load** F. Bhuiyan; D. Mavriplis; R.S. Fertig
5:00-5:30 PM	**A Beam Theory for Progressively Elastic Damage in Fiber-Reinforced Composite Structures** F. Jiang; W. Yu
2:00 PM-5:30 PM, Gaslamp A, **TES-05. Design of Energy Systems**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Sivaram Arepalli, sivaram.arepalli@gmail.com,	

2:00-2:30 PM	**Component and System Modeling of a Direct Power Extraction System** O. Vidana; M. Chaidez; B. Lovich; J. Aboud; M.J. Hernandez; L.A. Cabrera ; N.D. Love
2:30-3:00 PM	**Analysis of a Directly Heated Oxyfuel Supercritical Power Generation System** A.R. Chowdhury; L. Bugarin; A. Badhan; N.D. Love
3:00-3:30 PM	**Development of Self-Healing Materials for use in Wind Turbine Blades** A.K. Matt; S.P. Strong; R.S. Amano
3:30-4:00 PM	**A modified Cellular automaton model evaluation of the dendritic nucleation and growth during alloys solidification** A. Reikher; R.S. Amano
4:00-4:30 PM	**On the Computations of Aircraft Postcrash Fires** E.E. Khalil; M.A. Othman
4:30-5:00 PM	**Smoke Behaviour and Management in Domed Mosques** E.E. Khalil; E. Bialy; W. Abdelmaksoud; O. Selim
5:00-5:30 PM	**Numerical Investigations of Flow Patterns and Thermal Comfort in Air -Conditioned Gymnastic Sport Facility** E.E. Khalil; T. AlHababi
2:00 PM-5:30 PM, Harbor G, **TP-06. Special Session: Aerothermodynamics of Meteor Entries**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Aaron Brandis, aaron.m.brandis@nasa.gov, ERC Incorporated; Co-Chair: Dinesh Prabhu, Dinesh.K.Prabhu@nasa.gov, ERC Incorporated	
2:00-2:30 PM	**Oral Presentation. NASA's New Program to Characterize Risk of Potential Asteroid Strikes** J.O. Arnold; C. Burkhard; E. Venkatapathy; D.D. Morrison
2:30-3:00 PM	**The internal structure of Earth-impacting meteoroids: The view from the microscope, the laboratory bench, and the telescope.** D.W. Sears; K. Bryson; D. Ostrowski
3:00-3:30 PM	**Oral Presentation. Computational Modeling of Asteroid Airbursts** M. Boslough
3:30-4:00 PM	**Oral Presentation. Thermophysics issues relevant to high-speed Earth entry of large asteroids** D.K. Prabhu; D.A. Saunders; R.L. Jaffe; E. Stern; Y. Chen; S. White; C. Bauschlicher; G. Allen; M.E. Tauber; A.M. Brandis; P. Agrawal
4:00-4:30 PM	**Oral Presentation. Shock Layer Characteristics of Meteors at Entry Velocities below 25 km/s** C.O. Johnston; A.M. Brandis
4:30-5:00 PM	**Numerical Simulation of Bolide Entry with Ground Footprint Prediction** M.J. Aftosmis; M. Nemec; D. Mathias; M. Berger
5:00-5:30 PM	**Airborne observations of an asteroid entry for high fidelity modeling** P. Jenniskens; J.H. Grinstead

2:00 PM-5:30 PM, Coronado A, **UMS-04. Unmanned Systems: UAS Integration into National Airspace System and Civil Applications**, Technical Paper, **AIAA Infotech @ Aerospace**, Chair: Andrew Lacher, alacher@mitre.org, The MITRE Corporation; Co-Chair: Vincent Schultz, Vincent.P.Schultz@nasa.gov, NASA Langley Research Center	
2:00-2:30 PM	**Safety Assessment of Unmanned Aerial Vehicle Operations in an Integrated Airspace** Y.I. Jenie; E. Van Kampen; J. Ellerbroek; J.M. Hoekstra
2:30-3:00 PM	**A Game Theoretical Modeling and Simulation Framework For The Integration Of Unmanned Aircraft Systems In To The National Airspace** N. Musavi; K. Tekelioğlu; Y. Yildiz; K. Gunes; D. Onural
3:00-3:30 PM	**The Impact of Suggestive Maneuver Guidance on UAS Pilot Performing the Detect and Avoid Function** R.C. Rorie; L. Fern; J. Shively
3:30-4:00 PM	**Linear-Optimization-Based Path Planning Algorithm for an Agricultural UAV** A. Noriega; R. Anderson
4:00-4:30 PM	**Use of a Small Unmanned Aircraft System for autonomous fire spotting at the Great Dismal Swamp** M.J. Logan; L. Glaab; T. Craig
4:30-5:00 PM	**Wildfire Plume Tracking and Dynamics Using UAS** F. Keating; T. Mitchell; J. Kidd; J.D. Jacob
2:00 PM-5:30 PM, Harbor I, **WE-04. Wind Energy: Aero-Elastic Modeling and Validation**, Technical Paper, **34th Wind Energy Symposium**, Chair: Lance Manuel, lmanuel@mail.utexas.edu, University of Texas at Austin	
2:00-2:30 PM	**The Unsteady Aerodynamic Response of an Airfoil with Microtabs and it's Implications for Aerodynamic Damping** M. Lennie; A. Bach; G. Pechlivanoglou; C. Nayeri; C.O. Paschereit
2:30-3:00 PM	**Development and Validation of a New Unsteady Airfoil Aerodynamics Model Within AeroDyn** R. Damiani; G. Hayman; Q. Wang; J.M. Jonkman; A. Gonzalez
3:00-3:30 PM	**Verification and Validation of FAST for Aero-Elastically Tailored Blades** S. Guntur; S.J. Schreck; J.M. Jonkman; M.S. Singh; M. Hind
3:30-4:00 PM	**Aeroelastic stability evaluation of bend-twist coupled composite wind turbine blades designed for load alleviation in wind turbine systems** T. Farsadi; A. Kayran
4:00-4:30 PM	**Using Pretwist to Reduce Power Loss of Bend-Twist Coupled Blades** A.R. Stäblein; C. Tibaldi; M.H. Hansen
3:30 PM-4:00 PM, Session Room Foyers, **NW-08. Tuesday Afternoon Networking Coffee Break**, Networking	

3:30 PM-5:30 PM, Harbor A, **PANEL-07. DSC: Panel Discussion and Open Forum on the 2nd Aeroelastic Prediction Workshop** , Panel, **15th Dynamics Specialists Conference (non-paper sessions)**
5:30 PM-6:30 PM, Seaport FG, **LEC-06. Dryden Lectureship in Research**, Lecture, **Forum Event**
6:30 PM-8:00 PM, Exposition Hall, **NW-09. Reception in the Exposition Hall**, Networking, **Forum Event**

Wednesday, January 06, 2016

Time	Session or Event Info
7:00 AM-7:30 AM, Session Room Foyers, **NW-10. Wednesday Early Morning Networking Coffee Break**, Networking, **Forum Event**	
7:30 AM-8:00 AM, Session Rooms, **SB-03. Wednesday Morning Speakers' Briefing**, Speakers' Briefing, **Forum Event**	
8:00 AM-9:00 AM, Seaport A-E, **PLNRY-03. Wednesday Morning Keynote** **Designing for Resilience**, Plenary, **Forum Event**	
9:00 AM-12:30 PM, Nautical, **AA-05. Aeroacoustics - Advanced Measurement and Experiment**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Eric Nesbitt, eric.nesbitt@boeing.com , The Boeing Company; Co-Chair: Chuck Royalty, chuck.royalty@honeywell.com, Honeywell	
9:00-9:30 AM	**On the factors affecting the performance of the generalized cross validation method in the context of nearfield acoustic holography** K. Chelliah; G. Raman; R. Muehleisen
9:30-10:00 AM	**Tomographic-PIV investigation of the flow over serrated trailing-edges** F. Avallone; C. Arce Leon; S. Pröbsting; K.P. Lynch; D. Ragni
10:00-10:30 AM	**Vibro-acoustic analysis of flight test data comprising fuselage vibrations, external pressure and interior cabin noise measurements** M. Norambuena; M. Böswald; Y. Govers
10:30-11:00 AM	**PIV Investigation of the Flow Past Solid and Slitted Sawtooth Serrated Trailing Edges** C. Arce Leon; F. Avallone; S. Pröbsting; D. Ragni
11:00-11:30 AM	**Supersonic Jet Impingement on a Model-scale Jet Blast Deflector** T.J. Worden; C. Shih; F.S. Alvi
11:30-12:00 PM	**Vibroacoustic loads during the end effects regime of clustered rockets** R. Rojo; C.E. Tinney; J.H. Ruf

9:00 AM-12:30 PM, Hillcrest D, **ABPSI-05. High Speed Propulsion Integration,** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Co-Chair: Steven Bauer, steven.x.bauer@nasa.gov, NASA LaRC; Co-Chair: Patrick Shea, patrick.r.shea@nasa.gov, NASA Langley Research Center	
9:00-9:30 AM	**Numerical analysis for higher ejector-jet performance in the RBCC engine combustor model** S. Hasegawa; K. Tani; S. Ueda
9:30-10:00 AM	**Numerical simulation of shock trains in a 3D channel** R. Fiévet; H. Koo; V. Raman; A. Auslender
10:00-10:30 AM	**Multistage Optimization Applied to the Hypersonic Inward Turning Inlet Design** J. Wang; J. Cai
10:30-11:00 AM	**Bi-Objective Switching Control Design for a Tradeoff between Acceleration and Unstart in Hypersonic Airframe/Propulsion Models** X. Hao; J. Chang; B. Wen; Z. Zhang
11:00-11:30 AM	**Shock Wave Structure of Supersonic Droplets in Under-expanded Jet** Y. Kim
9:00 AM-12:30 PM, Bankers Hill, **ACD-04. Electric Aircraft Design,** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Co-Chair: Ronald Barrett-Gonzalez, adaptivebarrett@yahoo.com, The University of Kansas; Chair: Roelof Vos, roelof_vos@hotmail.com,	
9:00-9:30 AM	**Overcoming the Adoption Barrier to Electric Flight** N.K. Borer; C.L. Nickol; F. Jones; R. Yasky; K. Woodham; J. Fell; B. Litherland; P. Loyselle; A. Provenza; L. Kohlman; A. Samuel
9:30-10:00 AM	**Comparison of Heat Exchanger and Thermal Energy Storage Designs for Aircraft Thermal Management Systems** W. Reed; M. von Spakovsky; P. Raj
10:00-10:30 AM	**A Highly Efficient Solid Oxide Fuel Cell Power System for an All-Electric Commuter Airplane Flight Demonstrator** T. Stoia; S. Atreya; P. O'Neil
10:30-11:00 AM	**Misconceptions of Electric Small Aircraft Emissions** M.D. Moore; K.H. Goodrich; K.R. Antcliff
11:00-11:30 AM	**Modeling of Electric Motor Driven Variable Pitch Propellers for Conceptual Aircraft Design** R.A. McDonald
11:30-12:00 PM	**Design and Optimization of Short-Range Aluminum-Air Powered Aircraft** J.M. Vegh; J.J. Alonso
9:00 AM-12:30 PM, Cortez Hill A, **ACD-05. Transport Aircraft Design I,** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Co-Chair: Jason Merret, jason.merret@gulfstream.com, Gulfstream Aerospace Corporation; Chair: Matthew Orr, matthew.w.orr@boeing.com, Boeing Commercial Airplanes	

9:00-9:30 AM	**Conceptual Design of a Single-Aisle Turboelectric Commercial Transport with Fuselage Boundary Layer Ingestion** J. Welstead; J.L. Felder
9:30-10:00 AM	**Mission Analysis and Aircraft Sizing of a Hybrid-Electric Regional Aircraft** K.R. Antcliff; M.D. Guynn; T. Marien; D.P. Wells; S.J. Schneider; M.J. Tong
10:00-10:30 AM	**Design Study for a Highly Fuel Efficient Regional Transport** J. Kirkman; D.L. Wood; T.H. Knight; M. Gurczak; C. Rothlsiberger; K.Z. Pan; T.T. Takahashi
10:30-11:00 AM	**Assessment of the Performance Potential of Advanced Subsonic Transport Concepts for NASA's Environmentally Responsible Aviation Project** C.L. Nickol; W.J. Haller
11:00-11:30 AM	**Design, Economic Competitiveness, and Profitability of a 2025 LNG Fueled Turboprop for the LNG Air Transportation System** J. Gibbs; B. Nagel
11:30-12:00 PM	**Conceptual Design of Biplane with High Aspect Ratio Wings as Next Generation Civil Jet Transport** T. Masuko; T. Imamura; K. Rinoie; T. Nomura
9:00 AM-12:30 PM, Harbor A, **AFM-07. Aircraft Flight Dynamics, Handling Qualities, and Performance I**, Technical Paper, **AIAA Atmospheric Flight Mechanics Conference**, Co-Chair: Bret Leonhardt, leonhardtb@aol.com, Northrop Grumman Corporation; Chair: Mohammad Lone, m.m.lone@cranfield.ac.uk, Cranfield University	
9:00-9:30 AM	**An Approach to Flight Control with Large Time Delays Derived from a Pulsive Human Control Strategy** T. Fricke; F. Holzapfel
9:30-10:00 AM	**Switch-Induced Simulated PIO: Relay Feedback as a Flight Test Technique for Pilot-in-the-Loop Stability** W.R. Gray
10:00-10:30 AM	**Dynamics and Aerodynamics of a Landing Airplane during a High-Speed Lateral Runway Departure** D.T. Horak; K. Renze
10:30-11:00 AM	**Low-Speed Stability and Control of a Reduced Scale Long-Range Supersonic Configuration with Reduced-Size or No Vertical Tail** S. Langston; C.P. Nelson; E. Livne
11:00-11:30 AM	**Modeling and Bifurcation Analysis of Combat Aircraft Dynamics under Lateral C.M. Shift** B.K. Mukherjee; M. Sinha
11:30-12:00 PM	**Analysis of Spin Characteristics of a High Performance Aircraft with High Alpha Yawing Moment Asymmetry** J. Masud; B. Malik; S. Akhtar
9:00 AM-12:30 PM, Coronado B, **AFM-08. Special Session: LOC-5: Aircraft Loss of Control (LOC) Modeling Methods**, Technical Paper, **AIAA Atmospheric Flight Mechanics Conference**, Chair: Christine Belcastro, christine.m.belcastro@nasa.gov, NASA-Langley Research Center; Co-Chair: Dennis Crider, criderd@ntsb.gov, National Transportation Safety Board	

9:00-9:30 AM	**Parameter Estimation for Extending Flight Models into Post-Stall Regime - Invited** S.F. Liu; Z. Luo; G. Moszczynski; P.R. Grant
9:30-10:00 AM	**Semi-Analytical and Empirical Approaches to Aircraft Configuration Effects on Post-Stall Aerodynamics - Invited** T. Teng; T. Zhang; P.R. Grant
10:00-10:30 AM	**Status of Computational Aerodynamic Modeling Tools for Aircraft Loss-of-Control - Invited** N.T. Frink; P.C. Murphy; H.L. Atkins; S. Viken; J.L. Petrilli; A. Gopalarathnam; R.C. Paul
10:30-11:00 AM	**Nonlinear Unsteady Aerodynamic Modeling Using Wind Tunnel and Computational Data - Invited** P.C. Murphy; V. Klein; N.T. Frink
11:00-11:30 AM	**Extending the operational envelope of a turbofan engine simulation into the sub-idle region - Invited** J.W. Chapman; T. Guo
9:00 AM-12:30 PM, Harbor D, **AMT-05. Tomographic, Holographic and Other Volumetric Measurements,** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Co-Chair: Christopher Goyne, goyne@virginia.edu, University of Virginia; Co-Chair: Brian Thurow, thurow@auburn.edu, Auburn University	
9:00-9:30 AM	**kHz Rate Digital In-line Holography Applied to Quantify Secondary Droplets from the Aerodynamic Breakup of a Liquid Column in a Shock-Tube** D.R. Guildenbecher; J.L. Wagner; J.D. Olles; E.P. Demauro; P. Farias; T.W. Grasser; P.E. Sojka
9:30-10:00 AM	**A Preliminary Comparison of Three Dimensional Particle Tracking and Sizing using Plenoptic Imaging and Digital In-line Holography** E.D. Munz; D.R. Guildenbecher; P. Farias; B.S. Thurow
10:00-10:30 AM	**Optical phase conjugate digital inline holography for correcting aberrations in particle-laden flames** K.N. Gabet Hoffmeister; S.P. Kearney; D.R. Guildenbecher
10:30-11:00 AM	**3-D Visualization of Compressible Flow Using a Plenoptic Camera and Background Oriented Schlieren** J. Klemkowsky; B. Thurow; R. Mejia-Alvarez
11:00-11:30 AM	**Instantaneous Pressure Measurements from Large-Scale Tomo-PTV with HFSB Tracers past a Surface-Mounted Finite Cylinder** J. Schneiders; G. Caridi; A. Sciacchitano; F. Scarano
11:30-12:00 PM	**Instantaneous Pressure Reconstruction from Measured Pressure Gradient using Rotating Parallel Ray Method** X. Liu; J.R. Moreto; S. Siddle-Mitchell
12:00-12:30 PM	**Tomographic schlieren system for visualisation of supersonic jet** N. Raju; M. Prabakar; B. Medhi; O. Oliver M; T. M. Thiruchengode

9:00 AM-12:30 PM, Coronado E, **APA-22. Special Session: CREATE-AV HPC Multiphysics Applications of Full-up Air Vehicles III**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Nathan Hariharan, nathan.hariharan.ctr@hpc.mil, CREATE-AV; Co-Chair: Andrew Wissink, andrew.m.wissink@us.army.mil, US Army Aeroflightdynamics Directorate	
9:00-9:30 AM	**Accuracy and Performance Improvements to Kestrel's Near-Body Flow Solver** D.R. McDaniel; R.H. Nichols; T.A. Eymann; R.E. Starr; S.A. Morton
9:30-10:00 AM	**CREATE-MG Capstone version 5 Applications** D. Hine; J. Forsythe; B.E. Green; B.P. Hallissy; E. Lynch; T. Shafer
10:00-10:30 AM	**Comparison Between HPCMP CREATE^{TM}-AV COFFE and Kestrel for Two and Three-Dimensional Turbulent Flow Cases** R.S. Glasby; J.T. Erwin
10:30-11:00 AM	**Time dependent Forcing for Flow Control on a FlutteringWing using HPCMP CREATE™-AV Kestrel** S. Jurgen
11:00-11:30 AM	**Unstructured/Structured Overset Methods for Flow Solver Using Hamiltonian Paths and Strand Grids** Y. Jung; B. Govindarajan; J.D. Baeder; J. Sitaraman
9:00 AM-12:30 PM, Coronado D, **APA-23/FD-27. Special Session: NASA's Revolutionary Computational Aerosciences I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Mujeeb Malik, Mujeeb.r.malik@nasa.gov, NASA-Langley Research Center; Co-Chair: Michael Rogers, michael.m.rogers@nasa.gov, NASA-Ames Research Center	
9:00-9:30 AM	**Oral Presentation. Revolutionary Computational Aerosciences (Invited)** M.R. Malik
9:30-10:00 AM	**Towards an Entropy Stable Spectral Element Framework for Computational Fluid Dynamics** M.H. Carpenter; M. Parsani; E.J. Nielsen; T.C. Fisher
10:00-10:30 AM	**A Space-Time Discontinuous-Galerkin Approach for Separated Flows** S.M. Murman; L. Diosady; A. Garai; M. Ceze
10:30-11:00 AM	**The Space-Time Conservative Schemes for Large-Scale, Time-Accurate Flow Simulations with Tetrahedral Meshes** B. Venkatachari; C. Streett; C. Chang; D.J. Friedlander; X.J. Wang; S. Chang
11:00-11:30 AM	**Overview of the NASA Glenn Flux Reconstruction Based High-Order Unstructured Grid Code** S.C. Spiegel; J.R. DeBonis; H. Huynh
11:30-12:00 PM	**Recent Progresses in Large Eddy Simulations with the FR/CPR Method** Z.J. Wang
12:00-12:30 PM	**An Overview of Combined Uncertainty and A-Posteriori Error Bound Estimates for CFD Calculations** T. Barth

9:00 AM-12:30 PM, Americas Cup B, **APA-24. Low Speed, Low Reynolds Number Aerodynamics**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Kirk Vanden, kirk.vanden@us.af.mil, USAF	
9:00-9:30 AM	**Performance Conscience Lateral Stability Tuning of Low Aspect Ratio Flyers** T.I. Linehan; K. Mohseni
9:30-10:00 AM	**Analytical Aerodynamic Model of Chordwise Flexible Flapping Wings in Forward Flight** D. Kodali; C. Kang
10:00-10:30 AM	**Time Spectral Method for Unsteady Confined Viscous Flows with Variable Inflow Velocity at Low Reynolds Numbers** D.F. Mateescu; A. Khaled
10:30-11:00 AM	**Experimental Investigation of Three-Dimensional Flow Development by Pitching Low-Aspect-Ratio Wing** H. Yu; L.P. Bernal
11:00-11:30 AM	**Three-dimensional Effects in the Wake Vortex Formation of Flapping Flat Plate in Hover** S. Chintamani; A.A. Rege; B.H. Dennis; K. Subbarao
11:30-12:00 PM	**Further Insight into Stratified Turbulent Wakes Behind Wings** S. Gunasekaran; A. Altman
9:00 AM-12:30 PM, Americas Cup C, **APA-25. Aerodynamic Testing: Wind-Tunnel I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Gregory Gatlin, gregory.m.gatlin@nasa.gov, NASA Langley Research Center; Chair: Jonathan Murray, jmurray@sandia.gov, Sandia National Laboratories	
9:00-9:30 AM	**Dynamic Wind Tunnel Simulation of Aircraft Wake Vortex Trajectory in Ground Proximity.** J.C. Holt; K.P. Garry
9:30-10:00 AM	**Schlieren Visualization Technique for High-Enthalpy and Low-Density Flow with LED Light Source** N. Morimoto; J. Yamashita; A. Tabata; S. Aso; Y. Tani
10:00-10:30 AM	**Experimental Investigation of the Turbulent Aerodynamic Environment Produced by a Generic Ship** A. Sydney; J. Ramsey; K. Kimmel
10:30-11:00 AM	**Detection of Unsteady Boundary Layer Transition Using Three Experimental Methods** K. Richter; C.C. Wolf; A. Gardner; C.B. Merz
11:00-11:30 AM	**Wind Tunnel Testing of Wings in Spin** A. Ragheb; M.S. Selig
9:00 AM-12:30 PM, Americas Cup D, **APA-26. Unsteady Aerodynamics I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: John Farnsworth, john.farnsworth@colorado.edu, University of Colorado Boulder; Co-Chair: Mark Jurkovich, mark.jurkovich@us.af.mil, US Air Force	
9:00-9:30 AM	**Direct Eddy Simulation of Flap Side-Edge Flow** S. Balakrishnan; K. Shariff

9:30-10:00 AM	**Least Squares Spectral Element Method For Laminar Compressible Flows** J.J. Hasbestan; J. Newman; A. Arabshahi
10:00-10:30 AM	**Time Resolved Flow Field Investigations of Low Reynolds number Transient Maneuvers** H. Ehlers; R. Konrath; M. Börner; R. Wokoeck; R. Radespiel
10:30-11:00 AM	**Collaborative Evaluation of CFD-to-ROM Dynamic Modeling** M. Ghoreyshi; N.T. Frink; M. van Rooij; A.J. Lofthouse; R.M. Cummings; S. Nayani
11:00-11:30 AM	**Unsteady Aerodynamics and Trailing-edge Vortex Sheet of An Airfoil** X. Xia; K. Mohseni
11:30-12:00 PM	**Detached-Eddy Simulation of Ground Effect on the Wake of a High-Speed Train** C. Xia; X. Shan; Z. Yang
9:00 AM-12:30 PM, Gaslamp D, **ASC-03. Design and Testing**, Technical Paper, **24th AIAA/AHS Adaptive Structures Conference**, Co-Chair: Ruxandra Botez, ruxandra@gpa.etsmtl.ca, Ecole de Technologie Superieure; Chair: David McGowan, david.m.mcgowan@nasa.gov, NASA Langley Research Center	
9:00-9:30 AM	**Solid-State Rotor: A Feasibility Study** O. Bilgen; T. Alberts
9:30-10:00 AM	**Transient Flow Analysis and Static Bench Measurements for an Active Trailing-Edge Flap** U. Visconti; W. Eun; J. Kang; J. Lim; J. Sim; S. Shin
10:00-10:30 AM	**Self-adaptive morphing wing model, smart actuated and controlled by using a multiloop controller based on a laminar flow real time optimizer** L. Grigorie; R.M. Botez; A.V. Popov
10:30-11:00 AM	**Numerical Optimization and Experimental Testing of a Morphing Wing with Aileron System** A. Koreanschi; S. Oliviu; T. Ayrault; R.M. Botez; M. Mamou; Y. Mebarki
11:00-11:30 AM	**Adaptive Control and Actuation System Development for Biomimetic Morphing** N. Nigam; Y. Zhang; P. Chen; G. Wolfe; T. Pillsbury; N.M. Wereley; P.M. Suh
11:30-12:00 PM	**Design and Testing of a Lattice-based Cellular Component Active Twist Wing** N.B. Cramer; K. Cheung; S. Swei
12:00-12:30 PM	**Primary Structural Components Characterization of an Adaptive Trailing Edge Device (ATED)** I. Dimino; A. Concilio; R. Pecora
9:00 AM-12:30 PM, Gaslamp A, **DSC-01. Fluid-Structure Interaction in High Speed Flows**, Technical Paper, **15th Dynamics Specialists Conference**, Co-Chair: Manav Bhatia, bhatia@ae.msstate.edu, Mississippi State University; Chair: Paul Taylor, paul.taylor@gulfstream.com, Gulfstream Aerospace Corporation	

9:00-9:30 AM	**Mutual Interaction of Aerothermally Compliant Structures and Boundary Layer Transition in Hypersonic Flows** Z.B. Riley; J.J. McNamara
9:30-10:00 AM	**Measurement and simulation of hypersonic fluid-structural interaction on a cantilevered plate in a Mach 6 flow** G. Currao; A.J. Neely; D.R. Buttsworth; R. Choudhury
10:00-10:30 AM	**Efficient Treatment of Viscous Interactions for Aerothermoelastic Loads Prediction in High-Speed Flows** K. Brouwer; A. Gogulapati; J.J. McNamara
10:30-11:00 AM	**An Integrated Aerothermoelastic Analysis Framework for Predicting the Response of Composite Panels** D. Huang; P.P. Friedmann
11:00-11:30 AM	**Aeroelastic Instability Boundaries for Reflecting Oblique Shockwaves on Compliant Panels** N. Boyer; J.J. McNamara; D.V. Gaitonde
11:30-12:00 PM	**Elastic-Viscoplastic Effects on Fluid-Thermal-Structural Interactions** J. LaFontaine; A. Gogulapati; J.J. McNamara
9:00 AM-12:30 PM, Gaslamp C, **DSC-02. Adaptive Aeroelastic Wing Shaping Control**, Technical Paper, **15th Dynamics Specialists Conference**, Chair: Nhan Nguyen, Nhan.T.Nguyen@nasa.gov, NASA-Ames Research Center; Co-Chair: Fred Nitzsche, fred_nitzsche@carleton.ca, Carleton University	
9:00-9:30 AM	**Fuzzy Model-Based Optimal Variance Control of Flexible Aircraft with Actuator Amplitude and Rate Constraints.** S. Swei; M.A. Ayoubi; N.T. Nguyen
9:30-10:00 AM	**Inertial Force Coupling to Nonlinear Aeroelasticity of Flexible Wing Aircraft** N.T. Nguyen; E. Ting; S. Lebofsky
10:00-10:30 AM	**Mission Adaptive Wing Shape Determination for Highly Flexible Aeroelastic Aircraft** W. Su; S. Swei; G.G. Zhu
10:30-11:00 AM	**Drag Identification and Reduction Technology (DIRECT) for Commercial Aircraft** J. Boskovic; R. Wise; J.A. Jackson
11:00-11:30 AM	**Multi-Objective Flight Control for Load Alleviation of High-Aspect Ratio Flexible Wing Aircraft** N.T. Nguyen; E. Ting
11:30-12:00 PM	**Static and Dynamic Aeroelastic Tailoring with Variable Camber Control** B. Stanford
9:00 AM-12:30 PM, Pier, **FD-28. CFD: Higher-Order Methods I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Timothy Eymann, tim.eymann@gmail.com, CREATE-AV/Kestrel; Co-Chair: Zhi Wang, zjw@ku.edu, University of Kansas	
9:00-9:30 AM	**Vertex–Centered, High-Order Schemes for Turbulent Flows** H.Q. Yang; R.E. Harris

9:30-10:00 AM	**Finite Element Analysis of Boundary Layer Flows using a Mixed B-spline Setting on Hybrid Meshes** A. Zhang; O. Sahni
10:00-10:30 AM	**A Novel Efficient Reconstruction Scheme for Unstructured Grids based on Iterative Least-Squares methods** Y. Tamaki; T. Imamura
10:30-11:00 AM	**Hyperbolic Navier-Stokes Solver for Three-Dimensional Flows** Y. Nakashima; N. Watanabe; H. Nishikawa
9:00 AM-12:30 PM, Cove, **FD-29. Flow Control Methods and Simulations**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Mingjun Wei, mjwei@nmsu.edu, New Mexico State Universtiy	
9:00-9:30 AM	**Domain Decomposition in POD-Galerkin Projection for Flows with Moving Boundary** H. Gao; M. Wei
9:30-10:00 AM	**Improving Separation Control with Noise-Robust Variants of Dynamic Mode Decomposition** M. Hemati; E. Deem; M. Williams; C.W. Rowley; L.N. Cattafesta
10:00-10:30 AM	**Improved Delayed Detached Eddy Simulation of Flow Structures behind A Backward-Facing Step** R. Hu; L. Wang; S. Fu
10:30-11:00 AM	**Parametric Investigation of Under-Expanded Jet Receptivity to Asymmetric Active Control** D.R. Gonzalez; D.V. Gaitonde; M.J. Lewis
11:00-11:30 AM	**On the Symmetrization in POD-Galerkin Model for Linearized Compressible Flows** M. Tabandeh; M. Wei; J.P. Collins
11:30-12:00 PM	**Reduction of Aerodynamic Drag on a Commercial Pickup Truck via External Flow Devices** C.G. Spike; T.J. Finn; E.M. Dubreuil; A.K. Wessner; S. Lee
9:00 AM-12:30 PM, Promenade B, **FD-30. Jet Flows II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Mark Glauser, mglauser@syr.edu, Syracuse University; Co-Chair: Jonathan Naughton, naughton@uwyo.edu, University of Wyoming	
9:00-9:30 AM	**Identifying Coherent Structures in a 3-Stream Supersonic Jet Flow Using Time-Resolved Schlieren Imaging** A.S. Tenney; T.J. Coleman; J. Lewalle; M.N. Glauser; B.V. Kiel; S.P. Gogineni
9:30-10:00 AM	**Physics of Twinjet Plume Interactions** K. Goparaju; D.V. Gaitonde; S. Bhaumik; D.J. Garmann
10:00-10:30 AM	**Investigation of Rectangular Jet Issuing From a Varying Cross-Section Nozzle** S. Sengupta; L.M. Agostini; U. Sasidharan Nair; D.V. Gaitonde
10:30-11:00 AM	**Experimental Investigation of the Structure of Turbulent Swirling Jets** E. DeMillard; J.W. Naughton
11:00-11:30 AM	**An Axisymmetric Underexpanded Jet Flowing Parallel to an Adjacent Planar Surface** R. Hortensius; G.S. Elliott; J. Dutton

11:30-12:00 PM	**An Investigation of Twin Supersonic Jet Coupling** C. Kuo; J.D. Cluts; M. Samimy
9:00 AM-12:30 PM, Harbor E, **FD-31. RANS/LES Methods and Techniques I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Ryan Bond, rbbond@sandia.gov; Co-Chair: Philip Morgan, Philip.Morgan.2.ctr@us.af.mil, Ohio Aerospace Institute	
9:00-9:30 AM	**Computation of Turbulent Flow in a Lid-Driven 2D Cavity and a 3D Box Using a Number of Turbulence Models** H. Nagapetyan; T. Wray; R.K. Agarwal
9:30-10:00 AM	**High-Fidelity Simulations of the HIFiRE-6 Flow Path** N.J. Bisek
10:00-10:30 AM	**Analysis of spatio-temporal wake modes of space launchers at transonic flow** V. Statnikov; B. Roidl; M.H. Meinke; W. Schroeder
10:30-11:00 AM	**Numerical Prediction of the Minimum Height of Roughness Strip for Artificial Transition on Swept Wings** Y. Tian; Z. Zhang; . Zhai; K. Qu
11:00-11:30 AM	**Dynamic Hybrid RANS/LES Computations of a Supersonic Cavity** E.A. Hassan; D.M. Peterson; K. Walters; E.A. Luke
11:30-12:00 PM	**Modeling low-Reynolds-number flow over rough airfoils** D.A. Kessler; R. Johnson; A.T. Corrigan; J. Thomas; S. Qidwai
9:00 AM-12:30 PM, Harbor F, **FD-32. Subsonic Boundary Layers**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Zachary Berger, zachary.berger@utoronto.ca; Co-Chair: Adrian Sescu, sescu@ae.msstate.edu, Mississippi State University	
9:00-9:30 AM	**Turbulence Amplitude Modulation in an Externally Forced, Subsonic Turbulent Boundary Layer** P.M. Ranade; S. Duvvuri; B.J. McKeon; S. Gordeyev; K.T. Christensen; E.J. Jumper
9:30-10:00 AM	**Simultaneous Wall Shear Stress and Velocity Measurements in a Flat Plate Turbulent Boundary Layer** R.J. Pabon; C. Barnard; L.S. Ukeiley; M. Sheplak
10:00-10:30 AM	**Can Surface Streaks Counteract Boundary Layer Streaks?** A. Sescu; M. Afsar
10:30-11:00 AM	**An Experimental Study on The Transient Behavior of Wind-Driven Water Runback over a Flat Surface** K. Zhang; H. Hu
11:00-11:30 AM	**Interaction of Rectangular Synthetic Jet with a Turbulent Boundary Layer** G. Gomit; Z. Berger; B. Ganapathisubramani; P. Lavoie
9:00 AM-12:30 PM, Promenade A, **FD-33. Surface Roughness & Disturbances in Supersonic Flow**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Rodney Bowersox, bowersox@tamu.edu, Texas A&M University; Co-Chair: Jonathan Poggie, jonathan.poggie@gmail.com, Purdue University- Sch of Aero and Astro	

9:00-9:30 AM	**A Parametric Study into the Effects of Surface Roughness Spacing on the Transition of Hypersonic Boundary Layers** O.W. Taylor; P.J. Bruce
9:30-10:00 AM	**Fluid-Structure Interactions using Controlled Disturbances on a Slender Cone at Mach 8** K.M. Casper; S.J. Beresh; J. Henfling; R. Spillers
10:00-10:30 AM	**Computation of Turbulent Heat Flux with Roughness Induced Transition in High Enthalpy Shock Tunnel HIEST** T. Ishihara; Y. Ogino; N. Ohnishi; H. Tanno; K. Sawada
10:30-11:00 AM	**Direct Numerical Simulation of Shock/Boundary Layer Interaction over Surface Roughness Using the High-Oder FR/CPR-LLAV Method** M. Yu
9:00 AM-12:30 PM, Hillcrest B, **GNC-21. Spacecraft De-Orbiting, Reentry and Landing**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Chair: John Reed, john.g.reed@ulalaunch.com, United Launch Alliance, LLC; Co-Chair: Uday Shankar, Uday.Shankar@jhuapl.edu, The Johns Hopkins University Applied Physics Laboratory	
9:00-9:30 AM	**Tether Dynamics Analysis for Active Space Debris Removal** H. Linskens; E. Mooij
9:30-10:00 AM	**Station Relocation and Deorbit Using Electric Propulsion** J.K. Gill; D. Stratemeier
10:00-10:30 AM	**Aerodynamic Oscillation and Attitude Control Analysis for Reentry Capsule using OREX Flight Data and Wind Tunnel Data** S. Matsumoto; Y. Kondoh; S. Nagai; R. Tagai; T. Imada; E. Nakano
10:30-11:00 AM	**Two-Dimensional Experimental Investigation of Base-Extension Separation Mechanism with Telescopic Gear** N. Saeki; S. Hara; M. Otsuki
11:00-11:30 AM	**Passive Hazard Detection for Planetary Landing** S. Woicke; E. Mooij
11:30-12:00 PM	**Online Landing Site Selection Considering Maneuverability Constraint during Mars Powered Descent Phase** D. Ge; A. Gao; P. Cui
9:00 AM-12:30 PM, Hillcrest A, **GNC-22. GN&C Sensor Systems**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Chair: Manoranjan Majji, mmajji@buffalo.edu, State University of New York at Buffalo; Co-Chair: Scott Starin, scott.r.starin@nasa.gov, NASA-Goddard Space Flight Center	
9:00-9:30 AM	**Enhanced detection and isolation of angle of attack sensor faults** D. Ossmann
9:30-10:00 AM	**Compound eye sensor for real-time aircraft wing deflection measurement** S.A. Frost; G. Gorospe; C. Teubert
10:00-10:30 AM	**Landing Zone Determination for Autonomous Rotorcraft in Surveillance Applications** J. Mackay; G. Ellingson; T.W. McLain

10:30-11:00 AM	**Precision Onboard Small Sensor System for Unmanned Air Vehicle Testing and Control** F. Arthurs; J. Valasek
11:00-11:30 AM	**Modelling an Angular Accelerometer using Frequency-Response Measurements** D. Jatiningrum; C.C. de Visser; M. van Paassen; M. Mulder
11:30-12:00 PM	**Accelerometer Bias Calibration Using Attitude and Angular Velocity Information** Z. Yu; J.L. Crassidis
12:00-12:30 PM	**Vacuum temperature field simulation and experiments of four-mode differential laser gyroscope** X. Yu; G. Lu; H. Luo
9:00 AM-12:30 PM, Hillcrest C, **GNC-23. Aerospace Robotics and Unmanned/Autonomous Systems V**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Co-Chair: Michele Lavagna, michelle.lavagna@polimi.it, Politecnico Di Milano; Chair: Inna Sharf, inna.sharf@mcgill.ca, McGill University	
9:00-9:30 AM	**Path generation for rendezvous of dissimilar UAVs using Particle Swarm Optimization of Dubin's curve sets** V. Jouffroy; X. Bovier-Lapierre; O.K. Ariff; T. Richer
9:30-10:00 AM	**Autonomous Control of GPS Denied Guided Airdrop Systems Using Radio Beacon Feedback** M.R. Cacan; E. Scheuermann; M.B. Ward; M. Costello
10:00-10:30 AM	**Graph based dynamic policy for UAV navigation** T. Mannucci; E. Van Kampen; C.C. de Visser; Q. Chu
10:30-11:00 AM	**Automatic Prevention of Loss of Control Due to Winds by Bandwidth Adaptation** Y. Zhao; J. Zhu
9:00 AM-12:30 PM, Cortez Hill B, **GT-05. Ground Test Studies and Techniques**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Wendell Baker, Wink.M.Baker@lmco.com, Lockheed Martin Aeronautics ; Co-Chair: Brianne Williams, brianne.y.williams@aero.org, The Aerospace Corporation	
9:00-9:30 AM	**Uncertainty Analysis of NASA Glenn's 8- by 6- Foot Superonic Wind Tunnel** J. Stephens; E. Hubbard; J. Walter; T. McElroy
9:30-10:00 AM	**A New High Channel-Count, High Scan-Rate, Data Acquisition System for the NASA Langley Transonic Dynamics Tunnel** T.G. Ivanco; D.J. Piatak; M.K. Sekula; S.A. Simmons; W.C. Babel; J.G. Collins; J.M. Ramey; D.M. Heald
10:00-10:30 AM	**Neural Network Model Predictive Control of Wind Tunnel Test Conditions** P. Sutcliffe; M.R. Rennie
10:30-11:00 AM	**Evaluating Environmental Control System Thermal Response to Degraded Operating Conditions** T.G. Childs; A.B. Jones; R. Chen; A. Murray

11:00-11:30 AM	**Free Flight Testing in Hypersonic Flows: HEXAFLY-INT EFTV** C. Kennell; A.J. Neely; D.R. Buttsworth; R. Choudhury; M. Tahtali
9:00 AM-12:30 PM, Cortez Hill C, **GTE-08. Combustion I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Janet Convery, janet.convery@ge.com, GE Aviation; Chair: Carson Slabaugh, cslabau@purdue.edu, Purdue University	
9:00-9:30 AM	**Combustion Blowoff Effects on the Central Recirculation Zone using various Syngas mixtures in a Tangential Swirl Burner** H. Baej; A. Valera-Medina; N. Syred; R. Marsh; P. Bowen
9:30-10:00 AM	**Effect of Aviation Fuel Type and Fuel Injection Conditions on Non-reacting Spray Characteristics of Hybrid Air Blast Fuel Injector** T. Buschhagen; R.Z. Zhang; S.V. Naik; C.D. Slabaugh; S. Meyer; J.P. Gore; R.P. Lucht
10:00-10:30 AM	**Impact of Internal Entrainment and Dilution on Enhancing Distributed Combustion** A.E. Khalil Hasan; A.K. Gupta
10:30-11:00 AM	**Analysis of Combustion Oscillations in a Staged MLDI Burner using Decomposition Methods and Recurrence Analysis** J.M. Wilhite; B.J. Dolan; L. Kabiraj; R. Villalva Gomez; E.J. Gutmark
11:00-11:30 AM	**Measurement and Analysis of Flame Transfer Functions in a Lean-Premixed, Swirl-Stabilized Combustor with Water Injection** N. Stadlmair; T. Sattelmayer
9:00 AM-12:30 PM, Americas Cup A, **HIS-02. Aerospace History**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Sofia Russi, sicalica@gmail.com, Bigelow Aerospace	
9:00-9:30 AM	**Portuguese Contribution to Early Airplane Design: The Industriousness of João Gouveia** J. Sousa; R. Reis
9:30-10:00 AM	**John J. Montgomery's Circulation Theory of Lift** G. Fogel; C. Harwood
10:00-10:30 AM	**The First American Aeroplane Export Octave Chanute's 1904 Glider at the Threshold of Powered Flight.** S. Short
10:30-11:00 AM	**The American Legion Airplane--Those Willing to Dare--** L.C. Forrest
11:00-11:30 AM	**The American Legion Airplane - Transition to Santa Maria** K.R. Burns
11:30-12:00 PM	**Southern Nevada Aerospace History** S.I. Russi; D. Henry
9:00 AM-12:30 PM, Regatta A, **HSABP-04. Scramjet Inlets**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Bayindir Saracoglu, bayindir@saracoglu.co.uk, von Karman Institute for Fluid Dynamics; Co-Chair: Thomas Smith, thomas.r.smith@boeing.com, Boeing Engineering Operations & Technology	
9:00-9:30 AM	**Three-Dimensional Nature of Shock Trains in Rectangular Scramjet Isolators** J.S. Geerts; K.H. Yu

9:30-10:00 AM	**Swept shock corner flow interacions** R.R. Morajkar; M. Gamba
10:00-10:30 AM	**Reduced-Order Analysis of Scramjet Inlet Operation** V. Gopal; D. Wilson
10:30-11:00 AM	**Reduced-Order Analysis of Dual Mode Scramjet Isolator Operation** V. Gopal; D. Wilson
11:00-11:30 AM	**Comparison of Unstart Induced by Mass Addition and Heat Release** S. Im; L. Wermer; D. Baccarella; Q. Liu; B. McGann; H. Do
11:30-12:00 PM	**Experimental Study on Start/Unstart Behaviour of Two dimensional Mixed compression Inlet by Cowl Actuation** R. Ananthapadmanaban; T. M. Thiruchengode; P. Velvetrangan
9:00 AM-12:30 PM, Gaslamp B, **MAT-07. Integrated Computational Materials Engineering (ICME)** , Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: John Matlik, John.F.Matlik@rolls-royce.com, Rolls-Royce Corp; Co-Chair: Michael Sangid, msangid@purdue.edu, Purdue University; Co-Chair: Vasisht Venkatesh, vasisht.venkatesh@pw.utc.com,	
9:00-9:30 AM	**Material Design Using a NURBS-based Shape Optimization** A. Najafi; M. Safdari; P.H. Geubelle
9:30-10:00 AM	**Development of a Structural Finite Element Progressive Failure Simulation and Integration into the ICM2 Framework** J. Dustin; R.W. Dalgarno; M. Hockemeyer
10:00-10:30 AM	**Modeling of Shock Wave Propagation through Energetic Solid State Composites using a Taylor-Galerkin Scheme** A.V. Duran; V. Sundararaghavan
10:30-11:00 AM	**Multi-Functional Topology Optimization of Nanocomposite Beams** D.R. Seifert; M. Patil; G.D. Seidel; G.W. Reich
11:00-11:30 AM	**Information Management Workflow and Tools Enabling Multiscale Modeling Within ICME Paradigm** S.M. Arnold; B.A. Bednarcyk; N. Austin; I. Terentjev; D. Cebon; W. Marsden
9:00 AM-12:30 PM, Balboa A, **MDO-05. Aeroelastic Sensitivity Analysis & Applications**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Darcy Allison, darcy.allison.ctr@us.af.mil, Optimal Flight Sciences LLC; Chair: Timothy Takahashi, ttakahas@asu.edu, Arizona State University	
9:00-9:30 AM	**Development of a High-Fidelity Time-Dependent Aero-Structural Capability for Analysis and Design** D. Mavriplis; E. Anderson; R.S. Fertig; M. Garnich
9:30-10:00 AM	**Adjoint Based Structure and Shape Optimization with Flutter Constraints** Z. Zhang; P. Chen; Q. Wang; Z. Zhou; S. Yang; Z. Wang
10:00-10:30 AM	**Continuum Sensitivity Analysis for Aeroelastic Shape Optimization** M.D. Kulkarni; R.A. Canfield; M. Patil

10:30-11:00 AM	**Gradient Based Optimization using Spectral Formulation-Based FSI and Coupled Sensitivity Analysis** R. Prasad; S. Yi; S. Choi; D. Im
11:00-11:30 AM	**High-fidelity Aerostructural Optimization of a High Aspect Ratio Tow-steered Wing** T.R. Brooks; G. Kennedy; J. Martins
9:00 AM-12:30 PM, Golden Hill A, **MST-06. Human Factors, Perception, and Cueing**, Technical Paper, **AIAA Modeling and Simulation Technologies Conference**, Chair: Frank Cardullo, cardullo@binghamton.edu, State University of NY; Co-Chair: Alaa Elmiligui, alaa.a.elmiligui@nasa.gov, NASA Langley Research Center	
9:00-9:30 AM	**Development of Spatial Disorientation Demonstration Scenarios for Commercial Pilot Training** D.H. Klyde; A.K. Lampton; P.C. Schulze
9:30-10:00 AM	**Effect of Different Levels of Haptic Feedback on Human Performance during Haptic Failure** M. Olivari; F.M. Nieuwenhuizen; H. Buelthoff; L. Pollini
10:00-10:30 AM	**Identifying Time-Varying Pilot Responses: a Recursive Least-Squares Based Approach** M. Olivari; F.M. Nieuwenhuizen; H. Buelthoff; L. Pollini
10:30-11:00 AM	**Simulation-based concept development and evaluation: Augmented reality to improve communication between helicopter crew during firefighting operations** R. Arents; M. Klijn; M. Roza; A. de Reus
11:00-11:30 AM	**Simulating Flight-Deck Mode-Confusion Incidents using Human Error Templates** S. Park; B. Yang
9:00 AM-12:30 PM, Golden Hill B, **MST-07. Modeling of Vehicle Dynamics, Systems, and Environments**, Technical Paper, **AIAA Modeling and Simulation Technologies Conference**, Co-Chair: Christopher Atkinson, christopher.atkinson@lmco.com, Lockheed Martin Corporation; Chair: Steven Beard, steven.d.beard@nasa.gov, NASA-Ames Research Center	
9:00-9:30 AM	**Modeling of Inertial Control Surface Hinge Moments Using Quaternion Calculations** C.J. Atkinson
9:30-10:00 AM	**Simulation Framework for UAS Conceptual Design** K. Jerath; J.W. Langelaan
10:00-10:30 AM	**The Trick Simulation Toolkit: A NASA/Opensource Framework for Running Time Based Physics Models** J. Penn; A. Lin
10:30-11:00 AM	**Extending the SPeAD-M86 Model: Incorporating the Effects of $F_{10.7}$ Variations on Atmospheric Density** S. Kedare; S. Ulrich
11:00-11:30 AM	**Online Safe Flight Envelope Prediction for Damaged Aircraft: A Database-driven Approach** Y. Zhang; C.C. de Visser; Q. Chu
11:30-12:00 PM	**An Analysis of Stochastic Disturbances on Nonlinear Missile-Target Engagements Based on the Adjoint Method** E. Sezer; M.O. Nalci; A.T. Kutay

12:00-12:30 PM	**Fast Modeling for Lunar Landing Dynamics Analysis** J. Ding; C. Wang
9:00 AM-12:30 PM, Old Town B, **NDA-04. Model Calibration, Verification, Validation, Uncertainty Quantification**, Technical Paper, **18th AIAA Non-Deterministic Approaches Conference**, Co-Chair: Markus Rumpfkeil, Markus.Rumpfkeil@udayton.edu, University of Dayton; Chair: Ben Thacker, bthacker@swri.org, Southwest Research Institute	
9:00-9:30 AM	**Validation, Uncertainty Quantification and Uncertainty Reduction for a Shock Tube Simulation** C. Park; R.T. Haftka; N. Kim
9:30-10:00 AM	**Sequential Experimental Design and Model Calibration for Targeted Events** D.C. Villanueva; B.P. Smarslok; R. Perez
10:00-10:30 AM	**Uncertainty Reduction using Bayesian Inference and Sensitivity Analysis: A Sequential Approach to the NASA Langley Uncertainty Quantification Challenge** S. Sankararaman
10:30-11:00 AM	**Anomaly Detection Using Groups of Simulations** M. Fernandez-Godino; A. Diggs; C. Park; N. Kim; R.T. Haftka
11:00-11:30 AM	**Development of a Prototype Model-Form Uncertainty Knowledge Base** L.L. Green
11:30-12:00 PM	**Bridging the Gap between Point Cloud and CAD: a Method to Assess Form Error in Aero Structures** A. Forslund; J. Madrid; R. Söderberg; J. Lööf; S. Knuts; O. Isaksson; D.D. Frey
9:00 AM-9:30 AM, Exposition Hall, **NW-11. Wednesday Late Morning Networking Coffee Break**, Networking, **Forum Event**	
9:00 AM-12:30 PM, Harbor B, **PC-09/GTE-09. Rotating-Detonation Engines**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: John Hoke, john.hoke.ctr@wpafb.af.mil, Innovative Scientific Solutions Incorporated; Co-Chair: Edward Lynch, edward.lynch@rocket.com, Aerojet Rocketdyne	
9:00-9:30 AM	**Evaluation of Mixing Processes in a Non-Premixed Rotating Detonation Engine Using Acetone PLIF** B.A. Rankin; C.A. Fugger; D.R. Richardson; K.Y. Cho; J. Hoke; A.W. Caswell; J.R. Gord; F. Schauer
9:30-10:00 AM	**Time-Resolved *In-Situ* Absorption Spectroscopy of a Hydrocarbon-Air Rotating Detonation Engine using a Fiber-Coupled Tunable Laser System** K.D. Rein; S. Roy; B. Sell; A.W. Caswell; J. Hoke; F. Schauer; J.R. Gord
10:00-10:30 AM	**Comparison of Simulated and Measured Instantaneous Heat Flux in a Rotating Detonation Engine** S.W. Theuerkauf; F. Schauer; R.J. Anthony; D.E. Paxson; C.A. Stevens; J. Hoke
10:30-11:00 AM	**Development and Testing of a High-Pressure Rotating Detonation Engine for Rocket Applications** D. Stechmann; S.D. Heister

11:00-11:30 AM	**Detonation Reignition within a Rotating Detonation Engine** J.R. Burr; K.H. Yu
9:00 AM-12:30 PM, Harbor C, **PC-10. Laminar Flames**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: David Glaze, djglaze@sandia.gov, Sandia National Laboratories; Co-Chair: Panayotis Kourdis, Panagiotis.D.Kourdis@jpl.nasa.gov	
9:00-9:30 AM	**Major Species Investigation of Non-Premixed Cellular Tubular Flame** C. Hall; R.W. Pitz
9:30-10:00 AM	**Partially premixed hydrogen-air cellular flames in a tubular burner** D. Tinker; C. Hall; R.W. Pitz
10:00-10:30 AM	**The Dynamics of Premixed Flames in Long Narrow Channels** M. Matalon; V. Kurdyumov
10:30-11:00 AM	**The Effect of Stretch and Heat Loss on the Anchoring and Response to Acoustic Forcing of a Bluff Body Stabilized Lean Premixed Flame** D. Michaels; K. Kedia; A. Ghoniem
11:00-11:30 AM	**Flame Dynamics and Structures of Partially Premixed Cool Flames** C.B. Reuter; S. Won; Y. Ju
11:30-12:00 PM	**A Smart CSP Method and Correlated Dynamic Adaptive Chemistry and Transport Algorithm for Computationally Efficient Modeling with A Detailed Mechanism** W. Sun; Y. Ju
12:00-12:30 PM	**Analysis of the Ignition of a Combustible Fuel Spray-Oxidant Mixture** J.B. Greenberg; G. Kats
9:00 AM-12:30 PM, Ocean Beach, **PDL-07. ns-DBD Plasma Actuator**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Subrata Roy, roy@ufl.edu, University of Florida	
9:00-9:30 AM	**Pulse-to-Pulse Coupling for Ignition in Cross-Flow Using Nanosecond -Pulsed High-Frequency Discharge** T. Ombrello; J.K. Lefkowitz
9:30-10:00 AM	**Measurements and kinetic modeling of OH and H number densities in nanosecond pulse discharges in C_xH_y-O_2-Ar and C_xH_y-air mixtures** C. Winters; A. Chernukho; Z. Eckert; I.V. Adamovich
10:00-10:30 AM	**Characterization of efficiency of energy deposition of a ns-DBD plasma actuator** J. Van den Broecke; G. Correale; F. Avallone
10:30-11:00 AM	**Kinetics of excited species at high specific energy deposition: quenching by electrons in the afterglow of a nanosecond capillary discharge** N.D. Lepikhin; A. Klochko; N. Popov; S. Starikovskaia
11:00-11:30 AM	**Fluid Motion Induced by Spark Plasma: Development of Particle Image Velocimetry Measurements** B. Singh; L.K. Rajendran; M. Giarra; S.P. Bane; P. Vlachos

11:30-12:00 PM	**CARS / 4-Wave Mixing Measurements of Electric Field in AC Dielectric Barrier Discharges Overlapped with Nanosecond Duration Voltage Pulses** B.M. Goldberg; I.V. Adamovich; W.R. Lempert
9:00 AM-12:30 PM, Balboa B, **SCS-03. Spacecraft Membranes, Booms, and Trusses I**, Technical Paper, **3rd AIAA Spacecraft Structures Conference**, Chair: Bruce Davis, bld175@gmail.com, Roccor LLC; Co-Chair: Gyula Greschik, greschik@teguec.com, TentGuild Engineering Co	
9:00-9:30 AM	**Membrane Spin-Up in a Normal Gravity Field: Experiments and Simulations** M. Delapierre; S. Pellegrino
9:30-10:00 AM	**Membrane Space Structure with Sterical Support of Booms and Cables** A. Torisaka; Y. Satoh; T. Akita; M.C. Natori; H. Yamakawa; T. Miyashita
10:00-10:30 AM	**Windmill Torque Estimation of Spin-type Solar Power Sail with Shape Control** J. Kikuchi; T. Chujo; Y. Shirasawa; O. Mori
10:30-11:00 AM	**Shape Estimation and Design Methods for Membrane Structures to Achieve Appropriate Flatness** T. Nishizawa; H. Sakamoto
11:00-11:30 AM	**Mechanical Development of a Novel Inflatable and Rigidizable Structure** G. Secheli; A. Viquerat; G. Aglietti
11:30-12:00 PM	**Viscoelastic Effects in Metal-Polymer Laminate Inflatable Structures** A. Viquerat; M. Schenk
9:00 AM-12:30 PM, Balboa C, **SD-07. Dynamics, Feedback Control, and Aeroservoelasticity II**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Mayuresh Patil, mpatil@vt.edu, Virginia Tech	
9:00-9:30 AM	**Model Order Reduction of Aeroservoelastic Model of Flexible Aircraft** Y. Wang; H. Song; K. Pant; M.J. Brenner; P.M. Suh
9:30-10:00 AM	**Optimal manoeuvres with very flexible wings** S. Maraniello; R.J. Simpson; R. Palacios
10:00-10:30 AM	**Alternative Unsteady Aerodynamic Uncertainty Modeling Approaches for Aeroservoelastic Reliability Analysis** E. Livne; S. Wu
10:30-11:00 AM	**Nonlinear Passive Control Strategies for Suppression of Transonic Flutter** Z. Yan; S.A. Ragab; M.R. Hajj
11:00-11:30 AM	**Aeroelastic responses identification of a high-aspect-ratio flexible wing model and its active flutter suppression strategy** Z. Lu; Y. Cui; D. J Schneider; Z. Zhao; X. Chen; K. Lai; K. Lum
11:30-12:00 PM	**Active Flutter Suppression Combining the Receptance Method and Flutter Margin** Z. Wu; J.E. Cooper

12:00-12:30 PM	**Active Vibration Control Applications for Adaptive Aircraft Wings Modelled as Thin-Walled Composite Beams** K. Yildiz; S. Eken; M. Kaya
9:00 AM-12:30 PM, Regatta C, **SEN-01. Novel Sensor Systems and Sensing Techniques I**, Technical Paper, **AIAA Infotech @ Aerospace**, Chair: Domenico Accardo, domenico.accardo@unina.it, University of Naples	
9:00-9:30 AM	**Acceleration and Velocity Sensing from Measured Strain** C. Pak; R.A. Truax
9:30-10:00 AM	**Laser Anemometer for Autonomous Systems Operations** C. Font; T. Apker; F. Santiago
10:00-10:30 AM	**Error Sensitivity Analysis of sUAS Wind Sensing Systems** T.W. Nichols; D. Kingston; B. Argrow
10:30-11:00 AM	**Characterization of multiple damage sites in composites using reduced order piezoelectric sensor array** V. Nethala
9:00 AM-12:30 PM, Coronado A, **SOF-05/UMS-05/IS-06. Assurance of Autonomy Symposium I**, Workshop, **AIAA Infotech @ Aerospace (non-paper sessions)**, Chair: Brat Guillaume, guillaume.p.brat@nasa.gov	
9:00 AM-12:30 PM, La Jolla A, **STR-08. Design, Test and Analysis of Composite Structures I**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Ali Najafi, ali.najafi@ansys.com, ANSYS, Inc.; Chair: Alex Selvarathinam, aselvarathin@hotmail.com, Lockheed Martin Corporation	
9:00-9:30 AM	**Role of FEA, Closed-Form, and Empirical Models in Certifying Aircraft Composite Structures** A.S. Selvarathinam; C. Rousseau; S.P. Engelstad; L. Flansburg
9:30-10:00 AM	**Extension of Automated 3D Digital Reconstruction to Multi-Directional Fiber Reinforced Composite Microstructures** W. Whitacre; M. Czabaj
10:00-10:30 AM	**Determining Effective Interface Fracture Properties of 3D Fiber Reinforced Foam Core Sandwich Structures** Z.T. Kier; A.M. Waas
10:30-11:00 AM	**Approach of Interlaminar Characterization for Thick Aircraft Composite Structures** M.R. Gurvich; P.L. Clavette; M.E. Robeson
11:00-11:30 AM	**Impact Response of Woven Composites with Interlaminar Reinforcement** A.G. Castellanos; S.M. Islam; S. Quevedo; M. Shuvo; Y. Lin; P. Prabhakar
11:30-12:00 PM	**Hybrid Textile Composites as Potential Cryogenic Tank Materials** M.S. Islam; R. Avila; A.G. Castellanos; P. Prabhakar
9:00 AM-12:30 PM, La Jolla B, **STR-09. Other Topics in Structures**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Ivatury Raju, ivatury.s.raju@nasa.gov, NASA-Langley Research Center; Chair: Steven Russell, sgrnd1983@gmail.com, Triumph Aerostructures	

9:00-9:30 AM	**Implementation of MPI and MPI+GPU Solver Parallelism and ExodusII Output Format in the Open Source CalculiX FEA Software** P.A. Gustafson; J. Kapenga
9:30-10:00 AM	**The Effects of Reducing the Structural Mass of the Transit Habitat on the Cryogenic Propellant Required for a Human Phobos Mission** J.J. Zipay
10:00-10:30 AM	**Simple Test Functions in Meshless Local Petrov-Galerkin Methods** I.S. Raju
10:30-11:00 AM	**Thermally-Driven Morphing with High Temperature Composites** E. Eckstein; M.C. Halbig; P. Weaver
11:00-11:30 AM	**Nonlinear Modelling of Axially Deformable Elastica based on Hyperelasticity** F. Jiang; S. Tian; W. Yu
9:00 AM-12:30 PM, Old Town A, **SUR-01. Air and Space Survivability I**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Eric Fahrenthold, epfahren@mail.utexas.edu, University of Texas; Chair: Julian Rimoli, Julian.Rimoli@aerospace.gatech.edu, Georgia Institute of Technology	
9:00-9:30 AM	**Crew Compartment Fire Survivability** A. Goss
9:30-10:00 AM	**Characterization of Hydrodynamic Ram Cavity Dynamics to Transient Spray** A.J. Lingenfelter; D. Liu
10:00-10:30 AM	**Composition Characterization of Cavity Consisting of Multiple Fluids** A.J. Lingenfelter; D. Liu
10:30-11:00 AM	**Wing Design Utilizing Topology Optimization and Additive Manufacturing** D. Walker; D. Liu; A.L. Jennings
11:00-11:30 AM	**Topology Optimization and CFD Analysis of a Hypersonic Vehicle Nose Cone** K. Liu; D. Stelzer; A. Williamson; D. Liu; A.L. Jennings
9:00 AM-12:30 PM, Harbor G, **TP-07. Aerothermodynamics II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Karl Edquist, karl.t.edquist@nasa.gov, NASA Langley Research Center	
9:00-9:30 AM	**Computational Study of Non-Equilibrium Effects on Hypersonic Boundary-Layer Transition** X. Wang; E. Josyula
9:30-10:00 AM	**Simulation of O2-N Collisions on ab-initio Potential Energy Surfaces** D. Andrienko; I.D. Boyd
10:00-10:30 AM	**Thermochemistry of Strong Air Plasmas for Hypervelocity Earth Entry of Asteroids** R.L. Jaffe; D.K. Prabhu; D.A. Saunders
10:30-11:00 AM	**Thermochemical Nonequilibrium CFD Modeling for Hypersonic Flows Containing Oxygen** K. Neitzel; D. Andrienko; I.D. Boyd

11:00-11:30 AM	**Analysis of the Temperature Ratio Effects on the Flow Properties of the Low Reynolds and High Mach number Flow around a Sphere** T. Nagata; T. Nonomura; S. Takahashi; Y. Mizuno; K. Fukuda
11:30-12:00 PM	**The Effects of Chemical Nonequilibrium and Surface Catalyticity on Aerothermodynamic Characteristics of Hypersonic Vehicles** X. Chen; F. Chen; S. Zhang; H. Liu
9:00 AM-12:30 PM, Regatta B, **UMS-06. Unmanned Systems: Novel Platforms and Controls,** Technical Paper, **AIAA Infotech @ Aerospace,** Chair: Brian Argrow, brian.argrow@colorado.edu, University of Colorado Boulder; Co-Chair: Richard Christiansen, richsc1@aol.com, Sierra Lobo, Inc.	
9:00-9:30 AM	**Real Time Detection And Tracking Of Visual Features For Aircraft Guidance** H. Chaudhry; E.M. Smith; K.B. Kochersberger
9:30-10:00 AM	**Design and Control of a Novel Tiltrotor Platform** J. Kim; D. Choi
10:00-10:30 AM	**Development of a 20 gram Cycloidal-Rotor-Based Micro Air Vehicle** C.C. Runco; M. Benedict
10:30-11:00 AM	**Collaboration between Multiple Unmanned Vehicles for Increased Mission Efficiency** S. Bhandari; R. Demonteverde; T. Cecil; E. Ito; A. Phan; O. Dadian; D. Tang; S. Boskovich; Z. Aliyazicioglu
11:00-11:30 AM	**Managing small UAS Very Low Level operations with 4D contracts** A. Joulia; T. Dubot
9:00 AM-12:30 PM, Harbor H, **WE-05. Wind Energy: Wind Turbine Aerodynamics Modeling II,** Technical Paper, **34th Wind Energy Symposium,** Chair: James Brasseur, brasseur@psu.edu, Penn State University; Co-Chair: Kyle Wetzel, Kyle.Wetzel@wetzelengineering.com, Wetzel Engineering	
9:00-9:30 AM	**Development of Free Vortex Wake Model for Wind Turbine Aerodynamics under Yaw Condition** H. Abedi; L. Davidson; S. Voutsinas
9:30-10:00 AM	**A Novel Approach for Staggered Fluid-Structure Interaction Simulation of Shape-Adaptive Airfoils for Wind Turbine Rotor Blades** I. Ahmed; M. Lawerenz
10:00-10:30 AM	**Experimental investigation of asymmetric steamwise vortices in a turbulent boundary layer** D. Baldacchino; D. Ragni; C. Simao Ferreira; G.J. van Bussel
10:30-11:00 AM	**Improved Free Vortex Wake Models Of Floating Offshore Wind Turbines** E.M. Gaertner; S. Liu; M.A. Lackner
11:00-11:30 AM	**Wind Farm Large-Eddy Simulations on Very Coarse Grid Resolutions using an Actuator Line Model** L.A. Martinez; C. Meneveau; R. Stevens

9:00 AM-12:30 PM, Harbor I, **WE-06. Wind Energy: Rotor Design**, Technical Paper, **34th Wind Energy Symposium**, Chair: D. Todd Griffith, dgriffi@sandia.gov,	
9:00-9:30 AM	**Aeroelastic Optimization of a 10 MW Wind Turbine Blade with Active Trailing Edge Flaps** A.K. Barlas; C. Tibaldi; F. Zahle; H.A. Madsen
9:30-10:00 AM	**Blade Element Momentum Based Study for Active and Passive Microjets Systems on the NREL 5-MW Turbine** O.F. Hurley; R. Chow; M.L. Blaylock; C.P. Van Dam
10:00-10:30 AM	**Blade Load Reduction for a 13 MW Downwind Pre-Aligned Rotor** C. Qin; E. Loth; S. Lee; P.J. Moriarty
10:30-11:00 AM	**Direct and Surrogate-Based Optimization of Dual-Rotor Wind Turbines** A.S. Thelen; L.T. Leifsson; A. Sharma; S. Koziel
11:00-11:30 AM	**Optimal Aerodynamic Design of a Biplane Wind Turbine Blade** P. Chiu; R.E. Wirz
9:30 AM-11:30 AM, Seaport FG, **PANEL-08. Wednesday Morning Forum 360** **Design, Analysis, and Certification of Additive Layer Manufacturing (ALM) Parts**, Panel, **Forum 360**	
10:00 AM-11:00 AM, Seaport H, **LEC-07. Aviation Week Annual Workforce Survey Results**, Lecture, **Forum 360**	
12:30 PM-2:00 PM, Exposition Hall, **LUNCH-03. Luncheon in the Exposition Hall**, Lunch, **Forum Event**	
2:00 PM-5:30 PM, Nautical, **AA-06. Aeroacoustics - Fan, Rotor, and Airframe Noise**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Jeff Mendoza, mendozjm@utrc.utc.com, United Technologies Research Center; Co-Chair: Chuck Royalty, chuck.royalty@honeywell.com, Honeywell	
2:00-2:30 PM	**Evaluation of Skin Friction Drag for Liner Applications in Aircraft** C.H. Gerhold; M. Brown; C. Jasinski
2:30-3:00 PM	**Hybrid Feedforward Feedback Noise Control at Remote Locations** J.J. Bean; C. Fuller
3:00-3:30 PM	**Broadband Noise from a Rotor at an Angle to the Mean Flow** S.A. Glegg; J. Grant; D. Wisda; H. Murray; W. Alexander; W.J. Devenport
3:30-4:00 PM	**Rotor Broadband Noise Due to Surface Roughness during Ice Accretion** B. Cheng; Y. Han; K.S. Brentner; J. Palacios; P.J. Morris
4:00-4:30 PM	**Isolated Open Rotor Noise Prediction Assessment Using the F31A31 Historical Blade Set** D.M. Nark; W. Jones; D. Boyd; N. Zawodny
4:30-5:00 PM	**Efficient Multidisciplinary Optimization of CROR with Time-Spectral Aeroelastics/Aeroacoustics Analysis** S. Yi; D. Lee; S. Choi; D. Im

5:00-5:30 PM	**Landing Gear Noise Prediction and Analysis for Tube-And-Wing and Hybrid-Wing-Body Aircraft** Y. Guo; C.L. Burley; R.H. Thomas
2:00 PM-5:30 PM, Bankers Hill, **ACD-06. Aircraft Design Tools**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Willem Anemaat, anemaat@darcorp.com, DARcorporation; Chair: Pradeep Raj, praj@vt.edu, Virginia Polytechnic Institute and State University	
2:00-2:30 PM	**Three-Dimensional Modeling of Aircraft High-Lift Components with Vehicle Sketch Pad** E.D. Olson
2:30-3:00 PM	**SUAVE: An Open-Source Environment for Conceptual Vehicle Design and Optimization** E.M. Botero; A. Wendorff; T. MacDonald; A. Variyar; J.M. Vegh; T.W. Lukaczyk; J.J. Alonso; T.H. Orra; C. Ilario da Silva
3:00-3:30 PM	**A Conceptual Design Framework for Performance, Life-Cycle Cost, and Safety Evaluation of Suborbital Vehicles** C. Frank; M.F. Atanian; O.J. Pinon-Fischer; D.N. Mavris
3:30-4:00 PM	**RDS^{win} : Seamlessly-Integrated Aircraft Conceptual Design for Students & Professionals** D.P. Raymer
4:00-4:30 PM	**Object-Oriented Aircraft Mission Analysis Using NPSS** S.B. Coogan
4:30-5:00 PM	**Development of a Wave Drag Prediction Method for the Conceptual Design Phase** J.A. Vargas-Jimenez; R. Vos
2:00 PM-5:30 PM, Cortez Hill A, **ACD-07. Transport Aircraft Design II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Dennis Carter, dennis.carter.5@us.af.mil, Air Force Research Laboratory; Chair: Ed DiGirolamo, edward.a.digirolamo@lmco.com, Lockheed Martin Aeronautics	
2:00-2:30 PM	**Improved Field Performance through Regulatory Changes to Enable Speed Scheduled Reverse Thrust** D.B. Smith; T.T. Takahashi
2:30-3:00 PM	**Assessing the Effect of Decreased Longitudinal Stability on Aircraft Size and Performance** Q. Jansen; R. Vos
3:00-3:30 PM	**Application of a low fineness ratio fuselage to an airliner configuration** M. Kruger; R.J. Huyssen; L. Smith; J.P. Meyer
3:30-4:00 PM	**Seat Capacity Selection for an Advanced Short-Haul Aircraft Design** T. Marien
4:00-4:30 PM	**PAXelerate - An Open Source Passenger Flow Simulation Framework for Advanced Aircraft Cabin Layouts** M. Schmidt; M. Engelmann; T. Brügge-Zobel; M. Hornung; M. Glas
2:00 PM-5:30 PM, Harbor A, **AFM-09. Aircraft Flight Dynamics, Handling Qualities, and Performance II**, Technical Paper, **AIAA Atmospheric Flight Mechanics Conference**, Co-Chair: Daniel Murri, daniel.g.murri@nasa.gov, NASA Engineering and Safety Center; Chair: Kamal Shweyk, kamal.m.shweyk@boeing.com, Boeing Engineering Operations & Technology	

2:00-2:30 PM	**The Utilization of Wingtip Vortices in Formation Flight Aerodynamics for Unmanned Arial Vehicles** N. Saneholtz; S.A. Kasper; T. Burke; J. Rapski
2:30-3:00 PM	**Trajectory Scripts for Aircraft and Spacecraft Flight path Analysis** D.P. Raymer
3:00-3:30 PM	**Linear Approximation of Flapping Wing Flight Dynamics of a Ross's Goose** E. Bodlak; M.A. Dessouki; M. Fiser; M. Mitchener
3:30-4:00 PM	**Comparisons between Avian and Unmanned Aerial Vehicle Approach to Thermal Updraft Detection** C.W. Pinkerman; T. O'Connell; A.S. Arena
4:00-4:30 PM	**Dynamic Modeling and Analysis of a VTOL Freewing Concept** S.T. Haviland; D. Bershadsky; E.N. Johnson
4:30-5:00 PM	**Effects of Basing UAS DAA Requirements on Intruder Speeds Lower Than the Statute Speed Limit** D.P. Jack; K.D. Hoffler; S.C. Johnson
5:00-5:30 PM	**Aircraft Navigation with Uncertain Aerodynamics** C.R. Ashokkumar; G.W. York
2:00 PM-5:30 PM, Harbor D, **AMT-06/PC-11/PDL-08. Special Walter Lempert Memorial Session II (Invited)**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Steven Beresh, sjberes@sandia.gov, Sandia National Laboratories; Co-Chair: Terrence Meyer, trmeyer@purdue.edu, Purdue University	
2:00-2:30 PM	**Oral Presentation. Walter's Legacy from his Decade at Princeton** R.B. Miles
2:30-3:00 PM	**Oral Presentation. Walter's contributions to NASA: the early years through 1 MHz PLIF Imaging** N. Jiang; P.M. Danehy
3:00-3:30 PM	**Oral Presentation. Burst-Mode Diagnostics for Combustion Species: Evolution to 4D Imaging and Nonlinear Spectroscopy** T.R. Meyer; J.R. Gord
3:30-4:00 PM	**Oral Presentation. Flow Diagnostics for Exploring Physics of Complex Flows** M. Samimy
4:00-4:30 PM	**Oral Presentation. Recent Developments in Rayleigh Scattering and Filtered Rayleigh Scattering Imaging in Gas-Phase, Multi-Phase, and Reacting Flows** J.A. Sutton
4:30-5:00 PM	**Oral Presentation. CARS Measurements of Electric-Field: Walter's Contributions at Sandia** S.P. Kearney
5:00-5:30 PM	**Oral Presentation. Walter Lempert's contributions to graduate research and education** B.S. Thurow

2:00 PM-5:30 PM, Coronado D, **APA-27. Special Session: Aerodynamic Design Optimization Benchmark Problems I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Stephen LeDoux, stephen.t.ledoux@boeing.com, Boeing Engineering Operations & Technology; Chair: Leifur Leifsson, leifur@iastate.edu, Iowa State University	
2:00-2:30 PM	**Progress in Aerodynamic Shape Optimization Based on the Reynolds -Averaged Navier-Stokes Equations** D. Koo; D.W. Zingg
2:30-3:00 PM	**Gradient-Based Optimization of CRM Wing-alone and Wing-body-tail Configurations by RANS Adjoint Technique** M. Meheut; A. Dumont; G. Carrier; J.E. Peter
3:00-3:30 PM	**Aerodynamic Shape Optimization of the CRM Configuration Including Buffet-Onset Conditions** G.K. Kenway; J. Martins
3:30-4:00 PM	**Two-Dimensional Adjoint-Based Transonic Aerodynamic Design on Unstructured Meshes** E. Fabiano; D.J. Mavriplis
4:00-4:30 PM	**Comparitive Study of Two Optimization Frameworks Applied to Case III: Induced-Drag Minimization** A.W. Rizzi; M. Zhang; S. Nadarajah; J.B. Vos
2:00 PM-5:30 PM, Coronado E, **APA-28. Special Session: CREATE-AV HPC Multiphysics Applications of Full-up Air Vehicles IV**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Jim Forsythe, james.r.forsythe@navy.mil; Chair: Nathan Hariharan, nathan.hariharan.ctr@hpc.mil, CREATE-AV	
2:00-2:30 PM	**Collaborating with Kestrel** T. Tuckey; R.P. McNally; S. Adamec
2:30-3:00 PM	**Modularization of FUN3D as a CREATE-AV Helios Near-body Solver** R. Jain; R.T. Biedron; W. Jones; E.M. Lee-Rausch
3:00-3:30 PM	**Unstructured Sliding Interface Boundaries in Kestrel** D.R. McDaniel; R.H. Nichols; J.B. Klepper
3:30-4:00 PM	**Entropy solution at concave corners and ridges** R. Aubry; B.K. Karamete; E.L. Mestreau; S. Dey
4:00-4:30 PM	**A Novel Double Link Structure (DLS) with Applications to Computational Engineering and Design** B.K. Karamete; R. Aubry; E.L. Mestreau; S. Dey
2:00 PM-5:30 PM, Americas Cup C, **APA-29. Flow Control Applications & Demonstrations II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Douglas Hunsaker, doug.hunsaker@gmail.com, Blucraft, LLC	
2:00-2:30 PM	**The Development and Demonstration of a Plasma Flow Control System on a 20 kW Wind Turbine** J.A. Cooney; C. Szlatenyi; N.E. Fine
2:30-3:00 PM	**Active Flow Control at Low Reynolds Numbers by Periodic Airfoil Morphing** G.R. Jones; M.J. Santer; G. Papadakis; M.T. Debiasi

3:00-3:30 PM	**Optimization of Vane-Type Vortex Generators for Tiltrotor Wings using Computational Fluid Dynamics** R. Bevan; D.J. Poole; C.B. Allen; T. Rendall
3:30-4:00 PM	**Enhancement of Engine Onflow Conditions Using Vortex Generators within Curved Intake Channels** M. Ruetten
4:00-4:30 PM	**The Airfoil Thickness Effect on Wavy Leading Edge Performance** B.d. Mattos; J. Meneghini; B.R. Padilha; A.A. de Paula
2:00 PM-5:30 PM, Americas Cup D, **APA-30. Unsteady Aerodynamics II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: John Farnsworth, john.farnsworth@colorado.edu, University of Colorado Boulder; Chair: David O'Brien, david.m.obrien48.civ@mail.mil, US Army RDECOM	
2:00-2:30 PM	**A Variational Principle for Unsteady Compressible Flow** Y. Hwang; Z. Sotoudeh
2:30-3:00 PM	**Effects of Upstream Disturbances on a Pitching NACA0012 Airfoil** B.E. Merrill; Y. Peet
3:00-3:30 PM	**Characterisation of Buffet on a Civil Aircraft Wing** S. Lawson; D. Greenwell; M.K. Quinn
3:30-4:00 PM	**Transonic Buffet Simulation over Supercritical Airfoil by Unsteady-FaSTAR Code** T. Ishida; K. Ishiko; A. Hashimoto; T. Aoyama; K. Takekawa
4:00-4:30 PM	**Modified Spectral Operators for Time-Collocation and Time-Spectral Solvers** R. Djeddi; K. Ekici
4:30-5:00 PM	**Experimental analysis of the flow development on an airfoil harmonically surging into reverse flow** K. Mulleners; M.V. Ol; A.R. Jones
2:00 PM-5:30 PM, Gaslamp D, **ASC-04. Wing Leading and Trailing Edge Morphing**, Technical Paper, **24th AIAA/AHS Adaptive Structures Conference**, Chair: Gregory Reich, gregory.reich.1@us.af.mil, ; Co-Chair: Friedrich Straub, friedrich.k.straub@boeing.com, Boeing Defense, Space & Security	
2:00-2:30 PM	**Investigation into the Effect of Shape Deviation on Variable Camber Compliant Wing Performance** C.R. Marks; L. Zientarski; J.J. Joo
2:30-3:00 PM	**Optimization, Design and Structural Testing of a High Deformable Adaptive Wing Leading Edge** A. Rudenko; M. Radestock; H.P. Monner
3:00-3:30 PM	**Directionally Variable Stiffness to Reduce Actuation Requirement in Airfoil Camber Morphing** M. DiPalma; F. Gandhi
3:30-4:00 PM	**Design, Manufacturing and Wind Tunnel Test of a Morphing Wing Based on Compliant Structures** S. Ricci; A. De Gaspari; L. Riccobene

4:00-4:30 PM	**Structural Design of an Adaptive Wing Trailing Edge for Enhanced Cruise Performance** A. Concilio; I. Dimino; R. Pecora; M. Ciminello
4:30-5:00 PM	**Safety and Reliability Aspects of an Adaptive Trailing Edge Device (ATED)** I. Dimino; A. Concilio; R. Pecora
2:00 PM-5:30 PM, Gaslamp C, **DSC-03. High Speed Systems**, Technical Paper, **15th Dynamics Specialists Conference**, Co-Chair: Eric Blades, eric.blades@ata-e.com, ATA Engineering, Inc.; Chair: Nathan Falkiewicz, nathan.falkiewicz@ll.mit.edu, MIT Lincoln Laboratory	
2:00-2:30 PM	**Using FUN3D for Aeroelatic, Sonic Boom, and AeroPropulsoServoElastic (APSE) Analyses of a Supersonic Configuration** W.A. Silva; M.D. Sanetrik; P. Chwalowski
2:30-3:00 PM	**Towards an Aero-Propulso-Servo-Elasticity Analysis of a Commercial Supersonic Transport** J.W. Connolly; P. Chwalowski; M.D. Sanetrik; J. Carlson; W.A. Silva; J.J. McNamara; G. Kopasakis
3:00-3:30 PM	**Dynamic Fluid-Thermal-Structural Interaction Effects in Preliminary Design of High Speed Vehicles** Z. Witeof; L.J. Neergaard; A. Vanderwyst; A.B. Shelton; C.L. Martin; C.L. Pasiliao
3:30-4:00 PM	**Nonlinear Thermal and Thermoelastic Reduced Order Models of a Hypersonic Vehicle** R. Klock; C.E. Cesnik
4:00-4:30 PM	**Rapid Loads Prediction for Supersonic and Hypersonic Vehicles Using CFD Surrogates** D. Zettl; E. Dreyer; B. Grier; J.J. McNamara; C.L. Pasiliao
4:30-5:00 PM	**Aeroelastic Modeling and Simulation of Very Flexible Munitions** R.C. Kitson; C.E. Cesnik
5:00-5:30 PM	**Aeroelastic Control-oriented Modeling of an Air-breathing Hypersonic Vehicle** P. Sudalagunta; C. Sultan; R.K. Kapania; L.T. Watson; P. Raj
2:00 PM-5:30 PM, Pier, **FD-34. CFD: Higher-Order Methods II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Hong Luo, hong_luo@ncsu.edu, North Carolina State University; Co-Chair: Alireza Mazaheri, ali.r.mazaheri@nasa.gov, NASA-Langley Research Center	
2:00-2:30 PM	**A fast, implicit discontinuous Galerkin method based on analytical Jacobians for the compressible Navier-Stokes equations** X. Yang; J. Cheng; C. Wang; H. Luo; J. Si; A. Pandare
2:30-3:00 PM	**Improved Spectral Volume Method (SV^+ Method) for Hybrid Unstructured Mesh** Y. Sawaki; T. Haga; Y. Ogino; S. Kawai; K. Sawada
3:00-3:30 PM	**Investigation of Stabilization Methods for Multi-Dimensional Summation-by-parts Discretizations of the Euler Equations** J. Crean; K. Panda; A. Ashley; J.E. Hicken

3:30-4:00 PM	**Summation-by-Parts Operators with Minimal Dispersion Error for Accurate and Efficient Flow Calculations** V. Linders; M. Kupiainen; S.H. Frankel; Y. Delorme; J. Nordstrom
4:00-4:30 PM	**A Hybrid Reconstructed Discontinuous Galerkin Method for Compressible Flows on Unstructured Grids** J. Cheng; T. Liu; H. Luo
4:30-5:00 PM	**High-Order Residual-Distribution Schemes for Discontinuous Problems on Irregular Triangular Grids** A.R. Mazaheri; H. Nishikawa
5:00-5:30 PM	**Implicit large-eddy simulation of compressible flows using the Interior Embedded Discontinuous Galerkin method** P. Fernandez; C. Nguyen; X. Roca; J. Peraire
2:00 PM-5:30 PM, Harbor F, **FD-35. Discontinuous Galerkin Methods**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: John Benek, John.Benek@us.af.mil, Air Force Research Lab AFRL/RQ; Co-Chair: John Ekaterinaris, ekaterij@erau.edu, Embry-Riddle Aeronautical University	
2:00-2:30 PM	**A High-order Discontinuous Galerkin Method for Unsteady Flow Problems** R. Borker; C. Farhat; R. Tezaur
2:30-3:00 PM	**A Direct Discontinuous Galerkin method for the compressible Navier-Stokes equations on arbitrary grids** J. Cheng; X. Yang; T. Liu; H. Luo
3:00-3:30 PM	**High-Order Cellwise Relaxation Implicit Discontinuous Galerkin Scheme for Unsteady Flow Computations** H. Asada; S. Kawai; K. Sawada
3:30-4:00 PM	**A dissipative Iter for DG discretizations with subcell discontinuity resolution** K. Panourgias; J.A. Ekaterinaris
4:00-4:30 PM	**Discontinuous Galerkin for Advection with Interface-Centered Reconstruction** L.H. Khieu; K. Fidkowski; E. Johnsen
4:30-5:00 PM	**Development of a Perfectly Matched Layer Technique for a Discontinuous-Galerkin Spectral-Element Method** A. Garai; L. Diosady; S.M. Murman; N.K. Madavan
2:00 PM-5:30 PM, Promenade B, **FD-36. Multiphase Flow I: Simulations and Models**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Dominique Pelletier, Dominique.Pelletier@PolyMtl.Ca, École polytechnique de Montréal	
2:00-2:30 PM	**Modeling of Large Droplets Impingement Using a Hybrid Taylor-Galerkin Variational Multi-Scale Stabilized Level Set Method** A. Bakkar; W.G. Habashi; M. Fossati
2:30-3:00 PM	**An Adaptive Coupled Level Set and Moment-of-Fluid Method for Simulating Droplet Impact and Solidification on Solid Surfaces with Application to Aircraft Icing** M. Vahab; C. Pei; M.Y. Hussaini; M. Sussman; Y. Lian

3:00-3:30 PM	**Computations of Evolving Oil Droplet on Surface of a Wall-Bounded Air Flow** G. Bonnavion; W. Dziedzic; A. Obabko; H.M. Nagib
3:30-4:00 PM	**Adaptive time integration for separated two-phase viscous flows** A. Hay; D. Pelletier
2:00 PM-5:30 PM, Promenade A, **FD-37. Unsteady Vortex Flows**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Jacob Morrida, jmorrida@nd.edu, ; Co-Chair: Zvi Rusak, rusakz@rpi.edu, Rensselaer Polytechnic Institute	
2:00-2:30 PM	**Spanwise Effects on High Speed Cavity Flows** Y. Sun; Y. Zhang; K. Taira; L.N. Cattafesta; B. George; L.S. Ukeiley
2:30-3:00 PM	**Resonance Characteristics of Transonic Flow over a Rectangular Cavity using Pulse-Burst PIV** S.J. Beresh; J.L. Wagner; E.P. Demauro; J. Henfling; R. Spillers
3:00-3:30 PM	**Relationship between Transonic Cavity Tones and Flowfield Dynamics using Pulse-Burst PIV** J.L. Wagner; S.J. Beresh; K.M. Casper; E.P. Demauro; S. Arunajatesan; J. Henfling; R. Spillers
3:30-4:00 PM	**Improvement in prediction capability of Transonic Buffet on NASA-CRM Using URANS** K. Kumada; K. Sawada
4:00-4:30 PM	**Prediction of Dynamic Stability using Mapped Chebyshev Pseudospectral Method** J. Choi; S. Choi; J. Park; D. Im
4:30-5:00 PM	**Investigation of Shock Dynamics on a Hemisphere Using Pressure and Optical Measurements** J.J. Morrida; S. Gordeyev; E.J. Jumper; S.P. Gogineni; A. Marruffo; D.J. Wittich
5:00-5:30 PM	**Transonic Flow Dynamics Over a Hemisphere in Flight** J.J. Morrida; S. Gordeyev; E.J. Jumper
2:00 PM-5:30 PM, Cove, **FD-38. Unsteady Wing Aerodynamics**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Caleb Barnes, caleb.barnes.1@us.af.mil, AFRL/RQVA; Co-Chair: Bruce Jolly, jollyb@eglin.af.mil, US Air Force	
2:00-2:30 PM	**Two dimensional and three dimensional numerical simulation of cycloidal propellers in hovering status** Y. Hu; H. Zhang; G. Wang
2:30-3:00 PM	**Fluid-Structure Interaction simulations of a membrane wing with variable compliance** G. Cetraro; R. Sandberg
3:00-3:30 PM	**Spectral Decomposition and Scale Separation of the Dynamic Stall Vortices in a Plunging Airfoil** A.T. Mohan; L.M. Agostini; M.R. Visbal; D.V. Gaitonde
3:30-4:00 PM	**High-Fidelity LES Simulations of Self-Sustained Pitching Oscillations on a NACA0012 Airfoil at Transitional Reynolds Numbers** C.J. Barnes; M. Visbal

4:00-4:30 PM	**Variation of Leading-Edge Suction at Stall for Steady and Unsteady Airfoil Motions** S. Narsipur; P. Hosangadi; A. Gopalarathnam; J.R. Edwards
4:30-5:00 PM	**Effects of 3D Time-Harmonic Gust and Turbulence on Unsteady Aerodynamic Responses of Loaded Low-Speed Airfoils** M. Kazarina; L.D. Nguyen; V.V. Golubev; S. Borener; D. Hufty; C.L. Pasiliao; M. Visbal
5:00-5:30 PM	**High Advance-Ratio Airfoil Streamwise Oscillations: Wind Tunnel vs. Water Tunnel** H. Mueller-Vahl; D. Greenblatt; M.V. Ol; K.O. Granlund
2:00 PM-5:30 PM, Harbor E, **FD-39/APA-31. Special Session: Evaluation of RANS Solvers on Benchmark Aerodynamic Flows II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Krzysztof Fidkowski, kfid@umich.edu, University of Michigan; Co-Chair: Aaron Katz, aaron.katz@usu.edu,	
2:00-2:30 PM	**RANS simulations on TMR 3D test cases with the Onera *elsA* flow solver** M. Julien; A. Dumont; V. Gleize; D. Destarac
2:30-3:00 PM	**Results of Three-dimensional Turbulent Flow with FaSTAR** A. Hashimoto; T. Ishida; T. Aoyama; K. Takekawa; K. Hayashi
3:00-3:30 PM	**Development and Assessment of a Reconstructed Discontinuous Galerkin Method for the Compressible Turbulent Flows on Hybrid Grids** X. Liu; H. Luo
3:30-4:00 PM	**Critical Evaluation of Turbulence Modeling with the Flux Correction Method on Strand Grids** Y. Yanagita; O. Tong; A.J. Katz
4:00-4:30 PM	**Application of HPCMP CREATE^{TM}-AV COFFE for Three-Dimensional Turbulent Flow Cases** J.T. Erwin; R.S. Glasby
2:00 PM-5:30 PM, Americas Cup B, **GEPC-04. Alternative Fuels and Green Engineering Computations**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Tarek Abdel-Salam, ABDELSALAMT@ecu.edu, East Carolina University; Co-Chair: Nathan Hicks, nhicks08@gmail.com,	
2:00-2:30 PM	**Potential Market Sizes and Adoption Schedules of Liquid Natural Gas Commercial Aircraft and the LNG Air Transportation System** J. Gibbs; K. Wicke; T. Schilling; R. Ghosh; B. Nagel; O. Pape
2:30-3:00 PM	**Biodiesel for Aviation use in New Zealand** R.Y. Davies; G. Gunabalan; C. Davies
3:00-3:30 PM	**Comparative Assessment of Air Distribution Systems : Improving Indoor Thermal Comfort in Office Spaces** E.E. Khalil; A. Abou Zeid
3:30-4:00 PM	**Flow Regimes in Turbulent Swirling Flames in Cylindrical Furnaces** E.E. Khalil; K. Samir
4:00-4:30 PM	**On the Computations of Double Squealer and Flat Gas Turbine Blades Tips** E.E. Khalil; H. El-Zomor; M. Morsy

4:30-5:00 PM	**Computational Analyses of Aerodynamic Characteristics of NACA653218airfoil** E.E. Khalil; O.E. Abdelattif; E.S. AbdelGhany; G.A. ElHariri
5:00-5:30 PM	**Computations of Aerodynamic Behaviour of Rectangular Wing with Naca653218airfoil** E.E. Khalil; E.S. AbdelGhany; O.E. Abdelattif; G.A. ElHariri
2:00 PM-5:30 PM, Hillcrest B, **GNC-24. Spacecraft Trajectory Optimization and Orbit Control**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Chair: John Reed, john.g.reed@ulalaunch.com, United Launch Alliance, LLC; Co-Chair: Uday Shankar, Uday.Shankar@jhuapl.edu, The Johns Hopkins University Applied Physics Laboratory	
2:00-2:30 PM	**Spinning CubeSats with Liquid Propellant** K. Doyle; M.A. Peck; L.L. Jones
2:30-3:00 PM	**The Method of Multiple Scales for Orbit Propagation with Atmospheric Drag** A. Awad; A. Narang-Siddarth; R.M. Weisman
3:00-3:30 PM	**Flight-Path Angle Guidance for Aero-Gravity Assist Maneuvers on Hyperbolic Trajectories** A. Mazzaracchio
3:30-4:00 PM	**Three-Dimensional Trajectory Optimization for Lunar Ascent Using Gauss Pseudospectral Method** L. Ma; Z. Shao; W. Chen; X. Lv; Z. Song
4:00-4:30 PM	**An Observability-Based Trajectory Optimization Considering Disturbance for Atmospheric Entry** Z. Yu; Z. Zhao; P. Cui
2:00 PM-5:30 PM, Hillcrest A, **GNC-25. Invited Session: Advances in Guidance and Control of Unmanned Air Vehicles**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Chair: Soon-Jo Chung, sjchung@illinois.edu, University of Illinois at Urbana-Champaign; Co-Chair: Naira Hovakimyan, nhovakim@illinois.edu, University of Illinois at Urbana-Champaign	
2:00-2:30 PM	**Path Planning for Cooperative Autonomous Soaring** M.A. Zaman; R. Choe; S. Mehdi; N. Hovakimyan
2:30-3:00 PM	**A Real-Time Framework for Kinodynamic Planning with Application to Quadrotor Obstacle Avoidance** R. Allen; M. Pavone
3:00-3:30 PM	**Convex Multi-Objective Filter Optimization for Output Feedback L1-Adaptive Controller** H. Jafarnejadsani; H. Lee; N. Hovakimyan
3:30-4:00 PM	**Nonlinear Flight Controller Synthesis of a Bat-Inspired Micro Aerial Vehicle** A. Ramezani; X. Shi; S. Chung; S. Hutchinson
4:00-4:30 PM	**Bio-Inspired Algorithm for Task Allocation in Multi-UAV Search and Rescue Missions** H. Kurdi; J. How
4:30-5:00 PM	**Robotic Herding Flight using Herding Primitives and Wavefront Algorithms** S. Gade; A.A. Paranjape; S. Chung

2:00 PM-5:30 PM, Hillcrest C, **GNC-26. H Infinity, Nonlinear, and Adaptive Flight Control,** Technical Paper, **AIAA Guidance, Navigation, and Control Conference,** Chair: Haitham Taha, hetaha@uci.edu, University of California, Irvine; Co-Chair: Erik-Jan Van Kampen, E.vanKampen@TUDelft.nl, TU Delft	
2:00-2:30 PM	**Sequential Loop Closure Based Adaptive Autopilot Design for a Hypersonic Vehicle** D.P. Wiese; A.M. Annaswamy; J.A. Muse; M.A. Bolender; E. Lavretsky
2:30-3:00 PM	**Adaptive Incremental Backstepping Flight Control for a High-Performance Aircraft with Uncertainties** P. van Gils; E. Van Kampen; C.C. de Visser; Q. Chu
3:00-3:30 PM	**Comparison of Robust and Probabilistic LMI-Based Design of Adaptive Flight Controllers with Uncertain Input Dynamics** M.L. Fravolini; T. Yucelen; B.C. Gruenwald; D. Wagner; M.R. Napolitano
3:30-4:00 PM	**L1 Adaptive Control with Eigenstructure Assignment for Pole Placement considering Actuator Dynamics and Delays** F. Hellmundt; J. Dodenhöft; F. Holzapfel
4:00-4:30 PM	**Nonlinear Aircraft Flight Control Using the Forward Propagating Riccati Equation** A. Prach; O. Tekinalp; D. Bernstein
2:00 PM-5:30 PM, Cortez Hill B, **GNC-27. Control of Multirotor Aircraft,** Technical Paper, **AIAA Guidance, Navigation, and Control Conference,** Co-Chair: Jaime Junell, j.l.junell@tudelft.nl, Jaime Junell; Chair: Vahram Stepanyan, vahram.stepanyan@nasa.gov, University of California, Santa Cruz	
2:00-2:30 PM	**Identification and reconfigurable Control of Impaired Multi-Rotor Drones** V. Stepanyan; K.S. Krishnakumar; A. Bencomo
2:30-3:00 PM	**Autonomous Position Control Analysis of Quadrotor Flight in Urban Wind Gust Conditions** S. Raza; J. Etele
3:00-3:30 PM	**Onboard Flow Sensing for Rotary-Wing UAV Pitch Control in Wind** D. Yeo; N. Sydney; D.A. Paley
3:30-4:00 PM	**Self-tuning Gains of a Quadrotor using a Simple Model for Policy Gradient Reinforcement Learning** J. Junell; T. Mannucci; Y. Zhou; E. Van Kampen
4:00-4:30 PM	**Position Tracking of an Underactuated Quadrotor using Model Reference Adaptive Control** A.F. Abdul Ghaffar ; T.S. Richardson
4:30-5:00 PM	**Robust Tracking Control of a Quadrotor with Time-Varying Gain in the Presence of Uncertainty and Disturbances** C.T. Ton; M. McCourt; S.S. Mehta
5:00-5:30 PM	**Adaptive Incremental Nonlinear Dynamic Inversion for Attitude Control of Micro Aerial Vehicles** E.J. Smeur; Q. Chu; G.C. de Croon

2:00 PM-5:30 PM, Harbor H, **GT-06. Use of Flow Visualization and Rapid Prototyping in Ground Test Facilities (Invited)**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Mark Thornblom, mark.n.thornblom@nasa.gov, NASA Langley Research Center; Co-Chair: Thomas Wayman, thomas.wayman@gulfstream.com, Gulfstream Aerospace Corporation	
2:00-2:30 PM	**Dynamic Pressure-Sensitive Paint Demonstration in AEDC Propulsion Wind Tunnel 16T** M. Sellers; M. Nelson; J.W. Crafton
2:30-3:00 PM	**PIV Measurements of Mach 2.7 Turbulent Boundary Layer with Varying Reynolds Numbers** J.M. Brooks; A.K. Gupta; M. Smith; E.C. Marineau
2:00 PM-5:30 PM, Cortez Hill C, **GTE-10. Combustion II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Chiping Li, chiping.li@afosr.af.mil, Air Force Office of Scientific Research; Co-Chair: Sameer Naik, naiks@ecn.purdue.edu, Purdue University	
2:00-2:30 PM	**Modeling of Methane Ingestion into Gas Turbine Engines** J. Delimont
2:30-3:00 PM	**Mechanisms for Enhanced Flow Migration from an Annular, High-g Ultra Compact Combustor** A.E. Cottle; M.D. Polanka
3:00-3:30 PM	**High-Fidelity Simulations of Fuel Injection and Atomization of a Hybrid Air-Blast Atomizer** P.C. Ma; L. Esclape; S. Carbajal; M. Ihme; T. Buschhagen; S.V. Naik; J.P. Gore; R.P. Lucht
3:30-4:00 PM	**Parametric Modeling Investigation of a Radially-Staged Low-Emission Aviation Combustor** C. Heath
4:00-4:30 PM	**Numerical Study on Flame Stabilization Mechanism of a multi-jet burner with LES Flamelet Approach** Y. Tang; H. Koo; C. Lietz; V. Raman
4:30-5:00 PM	**Experimental and Computational Imaging of Mid-Infrared Radiation from a Turbulent Ethylene Flame** H. Lalit; R. Kapaku; B.A. Rankin; M.E. Mueller; J.P. Gore
2:00 PM-5:30 PM, Americas Cup A, **HIS-03. Boeing Centennial 1916-2016 I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Sarah Musi, sarah.m.musi@boeing.com	
2:00-3:30 PM	**Oral Presentation. Boeing Centennial Session Opening Presentation** M.J. Lombardi
3:30-4:00 PM	**The Boeing Aerodynamical Chamber and its Impact on Aeronautics Education at the University of Washington** A.P. Bruckner; S. Eberhardt; J.P. Lee; S. Musi
4:00-4:30 PM	**The History of Boeing Heritage Companies Impact on Naval Tactical Aircraft** R. Dowgwillo
4:30-5:00 PM	**Vanguard: A Pre-History of The Boeing Company** S. Musi

2:00 PM-5:30 PM, Regatta A, **HSABP-05. Advances in Pressure Gain Combustion II - RDE & PDE**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Kailas Kailasanath, KAILAS@LCP.NRL.NAVY.MIL, Naval Research Laboratory; Co-Chair: Jiro Kasahara, kasahara@nuae.nagoya-u.ac.jp, Nagoya University	
2:00-2:30 PM	**Propane-Air Cell Size Correlation to Temperature and Pressure** C.A. Stevens; J. Hoke; F. Schauer
2:30-3:00 PM	**One-Dimensional Numerical Investigation on Purging the Burned Gas by the Evaporation of Water Droplets in Pulse Detonation Combustor** H. Watanabe; A. Matsuo; K. Muto; K. Matsuoka; J. Kasahara; T. Endo
3:00-3:30 PM	**A Correlation-Based Method to Quantify the Operating State in a Rotating Detonation Combustor** A.C. St. George; V.A. Ganesh Kumar; R.B. Driscoll; E.J. Gutmark
3:30-4:00 PM	**Parametric Study of an Ethylene-Air Rotating Detonation Engine Using an Ideal Model** R.T. Fievisohn; K.H. Yu
4:00-4:30 PM	**Experimentation of a Premixed Rotating Detonation Engine Utilizing a Variable Slot Feed Plenum** I.Q. Andrus; P. King; M.D. Polanka; F. Schauer; J. Hoke
4:30-5:00 PM	**Thermodynamic Modeling of a Rotating Detonation Engine Through a Reduced Order Approach** T.A. Kaemming; M. Fotia; J. Hoke; F. Schauer
5:00-5:30 PM	**Study of Combustion Chamber Characteristic Length in Rotating Detonation Engine with Convergent-Divergent Nozzle** Y. Kato; K. Ishihara; K. Matsuoka; J. Kasahara; A. Matsuo; I. Funaki
2:00 PM-5:30 PM, Regatta B, **IS-07. Machine Learning and Probabilistic Reasoning for Intelligent UAS**, Technical Paper, **AIAA Infotech @ Aerospace**, Co-Chair: Ali-akbar Agha-mohammadi, aliagha@mit.edu; Chair: David Casbeer, david.casbeer@us.af.mil, Air Force Reseach Laboratory	
2:00-2:30 PM	**Health-Aware Multi-UAV Planning using Decentralized Partially Observable Semi-Markov Decision Processes** S. Omidshafiei; A. Agha-mohammadi; C. Amato; S. Liu; J.P. How; J.L. Vian
2:30-3:00 PM	**Analytic Chance Constraints for the Robust Guidance of Autonomous Parafoils** A. Ellertson; J.P. How; L.S. Breger
3:00-3:30 PM	**Scalable Decentralized Target Localization with Ownship Uncertainties Using Factorized Data Fusion** W. Whitacre; N.R. Ahmed; A.M. Anderson; E.W. Frew
3:30-4:00 PM	**Co-operation in an Autonomous, Decentralised, Unmanned Air System for Atmospheric Research** C. Crispin; A. Sobester
4:00-4:30 PM	**Trajectory Clustering, Modeling and Selection with the focus on Airspace Protection** W.J. Eerland; S. Box

4:30-5:00 PM	**Deep Convolutional Neural Network For Human Detection And Tracking In FLIR Videos** A. Sathyan; J. Cohen; M. Kumar
2:00 PM-5:30 PM, Gaslamp B, **MAT-08. Advanced Materials and Processing** , Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Mohammad Naraghi, naraghi@aero.tamu.edu, Texas A & M university; Co-Chair: David Powell, davidblairpowell@att.net, SpaceX	
2:00-2:30 PM	**Characterizing Mechanical Properties of Hybrid Alumina Carbon Fiber Composites with Piezospectroscopy** I. Hanhan; A.P. Selimov; D. Carolan; A. Taylor; S. Raghavan
2:30-3:00 PM	**Development of Advanced Conformal Ablative TPS Fabricated from Rayon- and Pan-Based Carbon Felts** M. Gasch; M. Stackpoole; S. White; T. Boghozian
3:00-3:30 PM	**Flexible Lightweight Adjustable Stiffness Hinge (FLASH) for Advanced Cable Technology** J.M. Mejia-Ariza; T.W. Murphey
3:30-4:00 PM	**Fabrication of High Thermal Conductivity NARloy-Z-Diamond Composite Combustion Chamber Liner for Advanced Rocket Engines** B.N. Bhat; S. Greene; J. Singh
4:00-4:30 PM	**Development of a Novel Self-Healing Polymer with High Temperature Stability** Y. Heo; H.A. Sodano
4:30-5:00 PM	**An Experimental Study into Active Damping Mechanisms in CNT Nanocomposite** F. Gardea; D.C. Lagoudas; M. Naraghi
2:00 PM-5:30 PM, Balboa A, **MDO-06. Design Including Uncertainty & Frameworks**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Joshua Deaton, josh.deaton.ctr@us.af.mil, Adjoint Technologies; Chair: Masoud Rais-Rohani, masoud@ae.msstate.edu, Mississippi State University	
2:00-2:30 PM	**Uncertainty Quantification for Cargo Hold Fires** A. DeGennaro; M.W. Lohry; L. Martinelli; C.W. Rowley
2:30-3:00 PM	**Using Multiple Information Sources to Construct Stochastic Databases to Quantify Uncertainty in Certification Maneuvers** A. Wendorff; J.J. Alonso; S.R. Bieniawski
3:00-3:30 PM	**Optimization Under Uncertainty of Parallel Nonlinear Energy Sinks** E.R. Boroson; S. Missoum
3:30-4:00 PM	**Kona: A Parallel Optimization Library for Engineering-Design Problems** A. Dener; P. Meng; J.E. Hicken; G. Kennedy; J. Hwang; J.S. Gray
4:00-4:30 PM	**Sensitivity analysis methods for uncertainty budgeting in system design** M.M. Opgenoord; K.E. Willcox

4:30-5:00 PM	**A Multi-Disciplinary Study of Future Fuel Efficient Regional Aircraft** R.M. Palma; M.E. Thomas; A. Balasiu; L. Takamatsu; W. Noonan; T.T. Takahashi
2:00 PM-5:30 PM, Golden Hill A, **MST-08. Hardware-in-the-Loop Simulation**, Technical Paper, **AIAA Modeling and Simulation Technologies Conference**, Co-Chair: Umut Durak, umut.durak@dlr.de, DLR-German Aerospace Center; Chair: Richard Ruff, richard.ruff@mathworks.com,	
2:00-2:30 PM	**Benchmarking Variants of a Hardware-in-the-Loop Simulation System** E. Aretskin-Hariton; A. Zinnecker; J.L. Kratz; D.E. Culley; G. Thomas
2:30-3:00 PM	**Integrated Energy and Power Management: Validation Testing for Aerosapce Vehicles** K.L. Yerkes; B.J. Eussen; D.M. Pratt; J. van Muijden; J.H. Doty
3:00-3:30 PM	**How to Realize Coupling of HIL Simulations over Large Distances** A. Himmler
3:30-4:00 PM	**Modeling and Simulation Hardware-in-the-Loop for Unmanned Aerial Vehicle** A. Shawky Mohamedy; A.M. Aly; A.H. Elnashar
2:00 PM-5:30 PM, Coronado B, **MST-09. Invited Session: LOC-6, Simulation-Based Evaluations for Improved Pilot Insights and Training for LOC Prevention and Recovery.**, Technical Paper, **AIAA Modeling and Simulation Technologies Conference**, Chair: Christine Belcastro, christine.m.belcastro@nasa.gov, NASA-Langley Research Center; Co-Chair: Dennis Crider, criderd@ntsb.gov, National Transportation Safety Board	
2:00-2:30 PM	**Upset Prevention and Recovery Training - A Regulator Update** J.A. Schroeder
2:30-3:00 PM	**Global Implementation of Upset Prevention & Recovery Training** S.K. Advani; J.A. Schroeder; B. Burks
3:00-3:30 PM	**"Type-Representative" Stall Modeling for Full-Stall Recovery Training** J.N. Ralston; D.R. Gingras
3:30-4:00 PM	**Integrated Multidisciplinary Piloted Simulation Capability for Aircraft Loss of Control (LOC) Research** G.H. Shah; K. Cunningham; J.V. Foster; M.A. Hill; T. Guo; J.S. Litt
4:00-4:30 PM	**Modeling and Simulation Development of a T-Tail Regional Aircraft for LOC Research** G.H. Shah; J.V. Foster; K. Cunningham; D.E. Cox; J.L. Petrilli; N.T. Frink
4:30-5:00 PM	**A Computational Model for Prediction of Pilot Manual Control Behavior in Air Transport Concepts of Operation** D.C. Dickson; A. Pritchett; A. Bozan
5:00-5:30 PM	**Are Pilots in Control? How do pilots react to unexpected situations?** J. Field; A. Lemmers; E. Boland

2:00 PM-5:30 PM, Golden Hill B, **MST-10. Motion Systems, Visual Systems, and Image Generation**, Technical Paper, **AIAA Modeling and Simulation Technologies Conference**, Chair: Daniel Cartmell, daniel.h.cartmell@boeing.com, Boeing Engineering Operations & Technology; Co-Chair: Peter Zaal, peter.m.t.zaal@nasa.gov, NASA Ames Research Center	
2:00-2:30 PM	**ISS Double-Gimbaled CMG Subsystem Design using the Agile Development Method** R. Inampudi
2:30-3:00 PM	**Motion Simulator 2-Axis Input Design for Angular Accelerometer Calibration** D. Jatiningrum; C.C. de Visser; M. van Paassen; M. Mulder
3:00-3:30 PM	**Non-intrusive Flight Test Instrumentation using Video Recognition** J.M. Ricciardi; C. Minwalla
3:30-4:00 PM	**A Review of Control Schemes for Hydraulic Stewart Platform Flight Simulator Motion Systems** Y. Huang; D.M. Pool; O. Stroosma; Q. Chu; M. Mulder
4:00-4:30 PM	**Modeling and Simulation of Hydraulic Hexapod Flight Simulator Motion Systems** Y. Huang; D.M. Pool; O. Stroosma; Q. Chu; M. Mulder
4:30-5:00 PM	**Modeling and Simulation Activities for Digital Sun Sensor Development** M. Celebi; F. Gulmammadov
5:00-5:30 PM	**Adaptive Control of a Camera-Projection System using Vision-Based Feedback** C. Liao; M.J. Bender; A. Kurdila; S. Southward
2:00 PM-5:30 PM, Old Town B, **NDA-05. Non-Deterministic Methods**, Technical Paper, **18th AIAA Non-Deterministic Approaches Conference**, Co-Chair: Philip Beran, philip.beran@us.af.mil, US Air Force Research Laboratory; Chair: Shankar Sankararaman, shankar.sankararaman@gmail.com, SGT Inc., NASA Ames Research Center	
2:00-2:30 PM	**Importance Sampling-based Post-Processing Method for Global Sensitivity Analysis** D. Sparkman; H.R. Millwater; J. Garza; B.P. Smarslok
2:30-3:00 PM	**A New Approach for Probability of Failure Analysis with Distributed Failure Region** P. Wang; X. Cui
3:00-3:30 PM	**Multifidelity Uncertainty Propagation in Coupled Multidisciplinary Systems** A. Chaudhuri; K.E. Willcox
3:30-4:00 PM	**Compositional Uncertainty Analysis via Importance Weighted Gibbs Sampling for Coupled Multidisciplinary Systems** S. Ghoreishi; D.L. Allaire
4:00-4:30 PM	**A Dynamic Data-Driven Approach to Optimal Offline Learning for Online Flight Capability Estimation** B. Isaac; D.L. Allaire
4:30-5:00 PM	**A Corrector for Probability Dilution in Satellite Conjunction Analysis** M.S. Balch

5:00-5:30 PM	**Stochastic Models for Fast Analysis of Unsteady Wing Aerodynamics** M. Fluck; C.A. Crawford
2:00 PM-4:00 PM, Seaport FG, **PANEL-09. Wednesday Afternoon Forum 360** **Mission Assurance**, Panel, **Forum 360**	
2:00 PM-5:30 PM, Harbor B, **PC-12. Spray and Droplet Combustion I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Jay Gore, gore@purdue.edu, Purdue University; Co-Chair: Marios Soteriou, soterimc@utrc.utc.com, United Technologies Research Center	
2:00-2:30 PM	**Investigation of Reduced Toxicity Hypergolic Fuels – Renewed Efforts in the Department of the Navy** J.D. Dennis; J. Clubb
2:30-3:00 PM	**Impingement and splashing of droplets on spherical targets** G. Charalampous; Y. Hardalupas
3:00-3:30 PM	**LES based evaluation of multi-component fuel evaporation effects at aero-engine conditions** V. Sankaran; J.C. Lee; H. Gao; M.C. Soteriou
3:30-4:00 PM	**High Fidelity Simulation of Liquid Jet in Crossflow Under Dynamic Excitation** X. Li; M.C. Soteriou
4:00-4:30 PM	**High Heat Flux Surface Coke Deposition and Removal Assessment** D.T. Wickham; J.R. Engel; B.D. Hitch; A.R. Wickham
4:30-5:00 PM	**Hollow-Cone Spray Modeling for Outwardly Opening Piezoelectric Injector** J. Sim; J.A. Badra; H.G. Im
5:00-5:30 PM	**Design Procedure of a Movable Pintle Injector for Liquid Rocket Engines** M. Son; K. Yu; K. Radhakrishnan; J. Koo
2:00 PM-5:30 PM, Harbor C, **PC-13. Turbulent Combustion I - Experiments**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Tim Lieuwen, tim.lieuwen@energy.gatech.edu, Georgia Institute of Technology; Co-Chair: Brent Rankin, brent.a.rankin@gmail.com, Air Force Research Laboratory	
2:00-2:30 PM	**Experimental Assessment of the Turbulent Premixed Combustion Regime Diagram Boundaries** A.W. Skiba; T.M. Wabel; J. Temme; J.F. Driscoll
2:30-3:00 PM	**Characterization of Aerodynamically Stabilized Flames Using Simultaneous Analysis of Planar and Line-of-Sight Images** I. Chterev; B.L. Emerson; T. Lieuwen
3:00-3:30 PM	**Comparison of Three Interacting V-Flames to a Single Bluff-Body Flame at Two Reynolds Numbers** W. Culler; A. Tyagi; P. Venkateswaran; J.A. O`Connor
3:30-4:00 PM	**Experimental studies of freely propagating turbulent premixed kernels in low speed channel flow** D. Fries; B.A. Ochs; S. Menon

2:00 PM-5:30 PM, Ocean Beach, **PDL-09/FD-40. Experimental and Numerical Studies of Large Eddy Structures**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Nicholas Bisek, Nicholas.Bisek.1@us.af.mil, Air Force Reseach Laboratory	
2:00-2:30 PM	**Investigations of Transonic Flow over a Hemisphere using DES and hybrid RANS/LES Turbulence Models** C. Tam; T.J. Madden; B.S. Thurow
2:30-3:00 PM	**Studies of Flow Topology around Hemisphere at Transonic Speeds Using Time-Resolved Oil Flow Visualization** S. Gordeyev; A. Vorobiev; E.J. Jumper; S.P. Gogineni; D.J. Wittich
3:00-3:30 PM	**Optical investigation of large-scale boundary-layer structures** M.R. Kemnetz; S. Gordeyev
3:30-4:00 PM	**LES of an Aero-Optical Turret Flow at High Reynolds Number** E.R. Mathews; K. Wang; M. Wang; E.J. Jumper
4:00-4:30 PM	**Predictions of Aero-Optical Distortions Using LES with Wall Modeling** M.S. Kamel; K. Wang; M. Wang
2:00 PM-5:30 PM, Hillcrest D, **SATS-03. Small Satellites - Missions**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Jeremy Straub, jastraub@gmail.com, University of North Dakota	
2:00-2:30 PM	**The CUSPED Mission: CUbeSat for GNSS Sounding of the Ionosphere-Plasmasphere Electron Density** J.N. Gross; A. Keesee; J.A. Christian; Y. Gu; E. Scime; A. Komjathy; E. Lightsey; C. Pollock
2:30-3:00 PM	**Simulation-to-Flight 1 (STF-1): A Mission to Enable CubeSat Software -based Verification and Validation** J. Morris; S. Zemerick; M. Grubb; J. Lucas; M. Jaridi; J.N. Gross; J.A. Christian; D. Vassiliadis; A. Kadiyala; J. Dawson; D. Korakakis; R.H. Bishop
3:00-3:30 PM	**Autonomous Rendezvous and Docking of Two 3U Cubesats Using a Novel Permanent-Magnet Docking Mechanism** J. Pei; L. Murchison; V. Stewart; J. Rosenthal; D. Sellers; M. Banchy; A. BenShabat; R. Elandt; D. Elliott; A.K. Weber
3:30-4:00 PM	**MarsCAT: Mars Array of ionospheric Research Satellites using the CubeSat Ambipolar Thruster** E.A. Bering; L.S. Pinsky; L. Li; D. Jackson; J. Chen; H.L. Reed; M. Moldwin; J.C. Kasper; J. Sheehan; J.R. Forbes; T. Heine; A. Case; M. Stevens; D.G. Sibeck
4:00-4:30 PM	**SRMSAT: A Feasibility Study on Small Satellite Mission to Moon** A. Ratheesh; K. Barad; K. Naik; S. Pavuluri; A.K. Singha; H. Bhate; P. Putambekar; A. Krishnamoorthy; S.K. Gupta; L. Muthuswamy; P. Shrivastava; J. Dhanasekaran; S. Tumu; A.K. Ohja
4:30-5:00 PM	**Dynamics of Chip-scale Spacecraft Swarms near Irregular Bodies** L.M. Weis; M.A. Peck

2:00 PM-5:30 PM, Balboa B, **SCS-04. Spacecraft Membranes, Booms, and Trusses II**, Technical Paper, **3rd AIAA Spacecraft Structures Conference**, Co-Chair: Hiraku Sakamoto, hsakamoto@mech.titech.ac.jp, Tokyo Institute of Technology; Chair: Omer Soykasap, soykasap@aku.edu.tr, Afyon Kocatepe University	
2:00-2:30 PM	**Thermal deformation of very slender TRAC booms** O.R. Stohlman; E. Loper
2:30-3:00 PM	**An Analysis of a Coiled Tape Spring during Extension and Compression** A.L. Hoskin; A. Viquerat
3:00-3:30 PM	**Stepwise Deployments of Membrane Structure with Rolled-up Braided CFRP Bi-Convex Booms** N. Okuizumi; H. Ikuta; S. Hakata; M.C. Natori; A. Watanabe; H. Yamakawa
3:30-4:00 PM	**Natural Frequency Optimization and Stability Analysis of Bistable Carbon Fiber Reinforced Plastic Booms for Space Applications** C. Wu; A. Viquerat; G. Aglietti
4:00-4:30 PM	**Development of Stereo Camera System for Accurate Observation of Large Deployable Membranes in Orbit** Y. Shimoda; K. Watanabe; N. Sakamoto; T. Kuratomi; Y. Naito; H. Sakamoto; H. Nakanishi; M. Yamazaki
4:30-5:00 PM	**Effects of Damage on Long Term Displacement Data of Woven Fabric Webbings under Constant Load for Inflatable Structures** W.S. Kenner
5:00-5:30 PM	**Non-Axisymmetric Inflatable Pressure Structure (NAIPS) Concept that Enables Mass Efficient Packageable Pressure Vessels with Openings** W.R. Doggett; T. Jones; J.J. Watson; J.E. Warren; A. Makino; M. Selig; M. Mikulas
2:00 PM-5:30 PM, Balboa C, **SD-08. Passive Control and Damping**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Hyoung-Man Kim, hyoung.m.kim@boeing.com, Boeing Defense, Space & Security; Chair: Ramesh Malla, MallaR@engr.uconn.edu, University of Connecticut	
2:00-2:30 PM	**Damping of Sandwich Panels via Acoustic Metamaterials** T. Yu; G.A. Lesieutre
2:30-3:00 PM	**Finite Element Modeling of Longitudinal Metastructures for Passive Vibration Suppression** K.K. Reichl; D.J. Inman
3:00-3:30 PM	**Design of Three Parameter Isolator for the RWA Disturbance Considering Flexible Structural Effects** G. Park; D. Lee; J. Han
3:30-4:00 PM	**Finite Element Modeling of Fluidic Flexible Matrix Composite (F^2MC) Treatments for Bending and Torsional Vibration Control** M.J. Krott; K. Miura; C. Rahn; E.C. Smith
4:00-4:30 PM	**Cellular Lattices with an Internal Topology for High Stiffness and Damping** M. DiPalma; F. Gandhi

4:30-5:00 PM	**Structural dynamics analysis and passive control of wind turbine vibrations with Tuned Mass Damper (TMD) technique** T. Farsadi; A. Kayran
5:00-5:30 PM	**Interfacial Micromechanics and Load Transfer of Off-Aligned Nanocomposites** R.A. Kopp; B.J. Glaz; J.C. Riddick; E.C. Smith
2:00 PM-5:30 PM, Gaslamp A, **SD-09. Gust Loads, Response, and Control**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Daniella Raveh, daniella@technion.ac.il, ; Co-Chair: Isam Yunis, isam.yunis@nasa.gov, NASA-Langley Research Center	
2:00-2:30 PM	**Probabilistic Gust Loads Analysis Accounting for Aeroservoelastic System Uncertainty** S. Wu; E. Livne
2:30-3:00 PM	**Gust Reconstruction from Flight Data Recording via Numerical Optimisation** S. Simeone; C. Agostinelli; T. Rendall; A. Rampurawala
3:00-3:30 PM	**Reduced Order Gust Response Simulation using Computational Fluid Dynamics** P. Bekemeyer; S. Timme
3:30-4:00 PM	**Aeroservoelastic Response of Nonlinear Wind Tunnel Model to Non-Uniform Gust Field** R. Veiberman; M. Weiss; M. Karpel; F. Fonte; L. Travaglini; S. Ricci
4:00-4:30 PM	**Derived Gust Velocities Extracted from Flight Data for Various Aircraft** K. Rokhsaz; L.K. Kliment
4:30-5:00 PM	**Examination of Methods to Separate Gust and Maneuver Load Factors** L.K. Kliment; K. Rokhsaz
2:00 PM-5:30 PM, Regatta C, **SEN-02. Novel Sensor Systems and Sensing Techniques II**, Technical Paper, **AIAA Infotech @ Aerospace**, Co-Chair: Giancarmine Fasano, g.fasano@unina.it, University of Naples; Co-Chair: David Faulk, davidfaulk@charter.net, Lockheed Martin Aeronautics	
2:00-2:30 PM	**Psychophysiological Sensing and State Classification for Attention Management in Commercial Aviation** A.R. Harrivel; C. Liles; C.L. Stephens; K.K. Ellis; L.J. Prinzel; A.T. Pope
2:30-3:00 PM	**Vision-aided Cooperative Navigation for UAV Swarms** A. Vetrella; G. Fasano; D. Accardo
3:00-3:30 PM	**Multi-band Sensor for Exoplanet Detection to be Installed Onboard Cubesat** I. Marcella; G. Rufino; D. Accardo; E. Oliva; A. Tozzi
3:30-4:00 PM	**Multiple-Target Tracking Framework for Aircraft in Airport Ramp Area** V.V. Vaddi; P. Dutta; H. Lu; J. Tsai
4:00-4:30 PM	**Networked Cooperative Swarm System for Area Denial Operations** M.L. Anderson; J. Rios; D. Stone; J. Cuany; C. Rasmussen; L. Hale

4:30-5:00 PM	**RF Network Localization Method for Unmanned Robotics Systems** S. Kahnemouyi; A. Pourshafiee; N.B. Cramer; H.A. Kassamnath; K. Obraczka; M. Teodorescu
2:00 PM-5:30 PM, Coronado A, **SOF-06/UMS-07/IS-08. Assurance of Autonomy Symposium II**, Workshop, **AIAA Infotech @ Aerospace (non-paper sessions)**, Chair: Brat Guillaume, guillaume.p.brat@nasa.gov	
2:00 PM-5:30 PM, La Jolla A, **STR-10. Design, Test and Analysis of Composite Structures II**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: James Min, james.b.min@nasa.gov, NASA Glenn Research Center; Chair: Olesya Zhupanska, ozhupans@engineering.uiowa.edu, The University of Iowa	
2:00-2:30 PM	**Ultra-Flexible Advanced Stiffness Truss (U-FAST) for Large Solar Arrays** J.M. Mejia-Ariza; T.W. Murphey
2:30-3:00 PM	**Optimization of a Composite Lattice Satellite Central Cylinder Structure Using an Efficient Semi-automated Approach** L. Pavlov; B.J. Smeets; S.M. Simonian; I. te Kloeze
3:00-3:30 PM	**Imperfection Insensitivity Analyses of Advanced Composite Tow-Steered Shells** K. Wu; B. Farrokh; B. Stanford; P. Weaver
3:30-4:00 PM	**Modeling the Bistability of Laminated Composite Toroidal Slit Tubes** G.P. Knott; A. Viquerat
4:00-4:30 PM	**Vibrational Analysis of Unitized Curvilinearly Stiffened Composite Panels Subjected to In-plane Loads** W. Zhao; R.K. Kapania
4:30-5:00 PM	**Adhesive-Bonded Shape Memory Alloy Strip Joint for Composite Fan Blade Shape Changing Concept** J.B. Min; T. Williams
2:00 PM-5:30 PM, La Jolla B, **STR-11. Structural Joints and Repairs**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Donald Norwood, scott.norwood@lmco.com, Lockheed Martin Aeronautics; Chair: Stephanie TerMaath, stermaat@utk.edu, University of Tennessee	
2:00-2:30 PM	**Analytical and Experimental Studies on Delamination Arrest in Bolted-Bonded Composite Structures** L.I. Richard; K. Lin
2:30-3:00 PM	**Delamination Growth of Redundantly Joined Sandwich Composites Under Compression** C.N. Phan; E.C. Lundgren; D.N. Patel; V.K. Goyal
3:00-3:30 PM	**Sensitivity Analysis of Composite Patch Design Parameters under Low Velocity Impact Loading Conditions** S.C. TerMaath; R. Timilsina
3:30-4:00 PM	**Non-linear finite element analysis for progressive failure prediction of composite bolted joints** M.P. Palwankar; A.P. Popescu; S. Venkataraman

4:00-4:30 PM	**A Method for Predicting Fastener Hole Elongation in Composite Joints due to Cyclic Loading** J.D. Bartley-Cho; D.P. Wang; B.R. Sheppard; T.E. Palm; R.C. Holzwarth; M. Wilkinson
4:30-5:00 PM	**High Fidelity Bearing and Bypass Response and Failure Prediction of Composite Bolted Joints** N. Simon; E. Fang; J. Lua
2:00 PM-5:30 PM, Old Town A, **SUR-02. Air and Space Survivability II**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Eric Fahrenthold, epfahren@mail.utexas.edu, University of Texas; Co-Chair: Julian Rimoli, Julian.Rimoli@aerospace.gatech.edu, Georgia Institute of Technology	
2:00-2:30 PM	**Multiscale Simulation of Reacting Shock Physics** E.P. Fahrenthold; S. Lee; J. Bass
2:30-3:00 PM	**Topology Optimization of a Penetrating Warhead** W.T. Graves; D. Liu; A.N. Palazotto
3:00-3:30 PM	**Dynamic Properties of Additively Manufactured 15-5 Stainless Steel and Three-Dimensional Microstructure Characterization** A. Dempsey; D. Liu; A.N. Palazotto; R. Abrahams
3:30-4:00 PM	**On tensegrity structural dynamics, reliability, and survivability** J.J. Rimoli
4:00-4:30 PM	**Surface Roughness of Electron Beam Melting Ti-6Al-4v Effect on Ultrasonic Testing** E. Hanks; D. Liu; A.N. Palazotto
2:00 PM-5:30 PM, Harbor G, **TP-08. Thermal Protection System, Ablation and Surface Catalysis II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Micah Howard, mhoward@sandia.gov, Sandia National Laboratories; Chair: Eric Stern, eric.c.stern@nasa.gov, University of Minnesota	
2:00-2:30 PM	**Thermogravimetric Analysis of Flexible Thermal Protection Systems for Thermal Response Modeling** G. Rossman; R.D. Braun
2:30-3:00 PM	**Thermal Ablation Modeling for Silicate Materials** Y. Chen
3:00-3:30 PM	**Investigation of Performance Envelope for Phenolic Impregnated Carbon Ablator (PICA)** P. Agrawal; D.K. Prabhu; T.H. Squire; F.S. Milos; M. Stackpoole
3:30-4:00 PM	**Characterization of Candidate Materials for Remote Recession Measurements of Ablative Heat Shield Materials** B.D. Butler; M. Winter; F. Panerai; A. Martin; S.C. Bailey; M. Stackpoole; P.M. Danehy; S. Splinter
4:00-4:30 PM	**Predicting the Combined Optical and Thermal Response of Polymer Matrix Composites with Varying Composite Properties** T.J. Godar; B. Volk ; G. Ehlert; W. Kennedy ; G. Frank

4:30-5:00 PM	**Thermal Testing of Ablators in the NASA Johnson Space Center Radiant Heat Test Facility** S.V. Del Papa; J.D. Milhoan; B.J. Remark; L.E. Suess
2:00 PM-5:30 PM, Harbor I, **WE-07. Wind Energy: Wind Turbine Wakes**, Technical Paper, **34th Wind Energy Symposium**, Chair: Patrick Moriarty, patrick.moriarty@nrel.gov, National Renewable Energy Laboratory	
2:00-2:30 PM	**Megawatt Wind Turbine Far Wake and Performance Predictions Using the Unsteady Actuator Line Model** M. Darbandi; A. Behrouzifar; R. Jalali; G.E. Schneider
2:30-3:00 PM	**Wake Interaction Effects Using a Parallelized Free Vortex Wake Model** K. Shaler; K.M. Kecskemety; J.J. McNamara
3:00-3:30 PM	**Scaled Aerodynamic Wind Turbine Design for Wake Similarity** C.L. Kelley; D.C. Maniaci; B.R. Resor
3:30-4:00 PM	**Wake flow characteristics at high wind speed** H.A. Madsen; T.J. Larsen; G.C. Larsen; K.S. Hansen
4:00-4:30 PM	**Wind tunnel tests on controllable model wind turbines in yaw** J. Schottler; A. Hölling; J. Peinke; M. Hölling
4:30-5:00 PM	**Characterization of Turbulence Structure in Swirling Wakes** M. Holmes; J.W. Naughton
5:00-5:30 PM	**Field Demonstration of the Sandia Wake Imaging System Capabilities at the Scaled Wind Farm Technology Facility** T.G. Herges; D. Bossert; R. Schmitt; M. Johnson; D.C. Maniaci; C. Glen; B. Naughton
3:30 PM-4:00 PM, Exposition Hall, **NW-12. Wednesday Afternoon Networking Coffee Break**, Networking, **Forum Event**	
6:00 PM-7:00 PM, Seaport FG, **LEC-08. SDM Lecture: Real Life Problems are Multi-Disciplinary**, Lecture, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference (non-paper sessions)**	
6:30 PM-10:00 PM, Old Town B, **FD-60. Transition Open Forum**, Panel, **54th AIAA Aerospace Sciences Meeting (non-paper sessions)**, Chair: Helen Reed, helen.reed@tamu.edu, Texas A&M University	

Thursday, January 07, 2016

Time	Session or Event Info
7:00 AM-7:30 AM, Session Room Foyers, **NW-13. Thursday Early Morning Networking Coffee Break**, Networking, **Forum Event**	
7:30 AM-8:00 AM, Session Rooms, **SB-04. Thursday Morning Speakers' Briefing**, Speakers' Briefing, **Forum Event**	

8:00 AM-9:00 AM, Seaport A-E, **PLNRY-04. Thursday Morning Plenary Panel** **Aerospace Frontiers – Academia, Government, Industry, AIAA Collaboration**, Plenary, **Forum Event**	
9:00 AM-12:30 PM, Cortez Hill A, **ACD-08. Unmanned Aerial Vehicle Design**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Gil Crouse, gil@davinci.aero, Sierra Nevada Corporation; Co-Chair: Michael Logan, michael.j.logan@nasa.gov, NASA Langley Research Center	
9:00-9:30 AM	**Design of a Recharge Station for UAVs using Non-Contact Wireless Power Transfer** C. Bil; M. Simic; V. Vojisavljevic
9:30-10:00 AM	**Conceptual design of an Anti-Drone Drone** T. Lefebvre; T. Dubot
10:00-10:30 AM	**Design and Performance of a Flexible Aircraft Manufacturing Platform** T.S. Tao; R. Hansman
10:30-11:00 AM	**A Novel Sea Launch and Recovery Concept for fixed wing UAVs** N. Sarigul-Klijn; M. Sarigulklijn
11:00-11:30 AM	**Propulsion System Selection and Modeling for a Quadrotor with Search and Rescue Mission** O. Tekinalp; A.T. Kutay; D. Kaya; D.F. Kurtulus; I. Simsek; S. Soysal; G. Hosgit
9:00 AM-12:00 PM, Hillcrest D, **ACD-09. Conceptual Aircraft Design Working Group 21, CADWG**, Panel, **54th AIAA Aerospace Sciences Meeting (non-paper sessions)**, Chair: Willem Anemaat, anemaat@darcorp.com, DARcorporation; Co-Chair: Timothy Takahashi, ttakahas@asu.edu, Arizona State University	
9:00 AM-12:30 PM, Hillcrest B, **AFM-10. Small/Mini/Micro Aerial Vehicles**, Technical Paper, **AIAA Atmospheric Flight Mechanics Conference**, Chair: Kevin Cunningham, kevin.cunningham@nasa.gov, NASA Langley Research Center; Co-Chair: Bruce Jolly, jollyb@eglin.af.mil, US Air Force	
9:00-9:30 AM	**A Time-Scale Separation Approach for Time-Varying Model Identification of a Flapping-Wing Micro Aerial Vehicle** S.F. Armanini; C.C. de Visser; G.C. de Croon; M. Mulder
9:30-10:00 AM	**Experimental characterization of a small and micro unmanned aerial vehicle propulsion systems** R. Fabela; C. Santana; A. Naranjo; L. Amezquita-Brooks; E. Liceaga-Castro; M. Torres-Reyna
10:00-10:30 AM	**Gust Detection and Mitigation on a Quad Rotor Biplane** D. Yeo; V. Hrishikeshavan; I. Chopra
10:30-11:00 AM	**Automatic Path Generation for Multirotor Descents Through Varying Air Masses above Ascension Island** C.M. Greatwood; T.S. Richardson; J. Freer; R. Thomas; E. Nisbet

11:00-11:30 AM	**Flow interaction between dissimilar UAVs in rendezvous conditions** X. Bovier-Lapierre; V. Jouffroy; T. Richer; O.K. Ariff
11:30-12:00 PM	**Manipulation of Flow Structures on Low Aspect Ratio Wings using Control Surfaces** R.S. O'Donnell; K. Mohseni
9:00 AM-12:30 PM, Harbor A, **AFM-11. Aerodynamic Prediction Methods, Aircraft Flight Dynamics, Handling Qualities, and Performance** , Technical Paper, **AIAA Atmospheric Flight Mechanics Conference,** Co-Chair: Andrea Da Ronch, A.Da-Ronch@soton.ac.uk, University of Southampton; Chair: Tucker Lavin, talavin@sandia.gov, Sandia National Laboratories	
9:00-9:30 AM	**Aircraft Parameter Estimation Using Optimal Control Methods** C. Göttlicher; M. Gnoth; M. Bittner; F. Holzapfel
9:30-10:00 AM	**Determination of Water Droplet Collection Efficiency: An Empirical Approach** M. Ali; Q. Ejaz Ur Rehman; S. Chaudhry
10:00-10:30 AM	**CFD Calculation of Stability and Control Derivatives For Ram-Air Parachutes** M. Ghoreyshi; K. Bergeron; A.J. Lofthouse; R.M. Cummings
10:30-11:00 AM	**Release Point Determination and Dispersion Reduction for Ballistic Airdrops** J.T. Vandermey; D.B. Doman; A.R. Gerlach
9:00 AM-12:30 PM, Harbor D, **AMT-07. Error Sources and Calibration of Instruments,** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Co-Chair: Philippe Bardet, bardet@gwu.edu, George Washington University; Co-Chair: Gregory Jones, gregory.s.jones@nasa.gov, NASA-Langley Research Center	
9:00-9:30 AM	**A New Load Residual Threshold Definition for the Evaluation of Wind Tunnel Strain-Gage Balance Data** N.M. Ulbrich; T. Volden
9:30-10:00 AM	**Optimal Filtering of Hotwire Anemometry Data Using Multi-Level Wavelet Decomposition** I. Choutapalli ; T. Reynolds; R. Guyton; C. Tilmann
10:00-10:30 AM	**Effects of Turbulence on the Measurements of Five-Hole Probes** J.M. Diebold; M.B. Bragg
10:30-11:00 AM	**Aerodynamic Parameter Prediction on a Airfoil with Flap via Artificial Hair Sensors and Feedforward Neural Network** K.S. Thapa Magar; G.W. Reich; M. Rickey; B. Smyers; R. Beblo
11:00-11:30 AM	**A Development of Dynamic Wind Tunnel Testing Technique by Using a Magnetic Suspension and Balance System** R. Oshima; H. Sawada; S. Obayashi
9:00 AM-12:30 PM, Coronado D, **APA-32. Special Session: Aerodynamic Design Optimization Benchmark Problems II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Chair: Jason Hicken, hickej2@rpi.edu, Rensselaer Polytechnic Institute; Co-Chair: T. Rendall, thomas.rendall@bristol.ac.uk, University of Bristol	

9:00-9:30 AM	**Application of Multifidelity Optimization Techniques to Benchmark Aerodynamic Design Problems** J. Ren; A.S. Thelen; A. Amrit; X. Du; L.T. Leifsson; Y. Tesfahunegn; S. Koziel
9:30-10:00 AM	**Application of OPTIMENGA Software to Multi-point Multi-constrained Aerodynamic Design** B. Epstein; S. Peigin
10:00-10:30 AM	**Oral Presentation. A Global and Gradient Based Optimization Study of the AIAA Aerodynamic Design Optimization Discussion Group Test Cases 4 and 5** S.T. LeDoux; D.P. Young; R. Melvin; W.P. Huffman; J.K. Elliott; B.J. Basom; A.J. Booker
10:30-11:00 AM	**Impact of Shape Parameterisation on Aerodynamic Optimisation of Benchmark Problem** D.A. Masters; D.J. Poole; N.J. Taylor; T. Rendall; C.B. Allen
11:00-11:30 AM	**Multi-round Surrogate-based Optimization for Benchmark Aerodynamic Design Problems** Y. Zhang; Z. Han; L. Shi; W. Song
11:30-12:00 PM	**Oral Presentation. NASA Common Research Model redesign using adjoint-based methods on unstructured meshes** F. Palacios; J.C. Vassberg; T.D. Economon; J.J. Alonso; T. Albring; N.R. Gauger
12:00-12:30 PM	**Aerodynamic Design Optimization Benchmark Problems (Discussion)** 1Hour Discussion
9:00 AM-12:30 PM, Americas Cup D, **APA-33. Applied CFD & Numerical Correlations with Experimental Data III**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Cetin Kiris, cetin.c.kiris@nasa.gov, NASA Ames Research Center; Co-Chair: Steven Massey, s.j.massey@larc.nasa.gov, NASA-Langley Research Center	
9:00-9:30 AM	**CFD Validation of Interaction of Fin Trailing Vortex with Downstream Control Surface in High Subsonic Flow** J. DeSpirito
9:30-10:00 AM	**prediction of iced airfoil aerodynamic characteristics** M. Costes; F. Moens; V. Brunet
10:00-10:30 AM	**Simulation of a Hammerhead Payload Fairing in the Transonic Regime** S.M. Murman; L. Diosady
10:30-11:00 AM	**Effects of Different Geometries of leading edge on Boundary Layer Transition** D. Bhatia; G. Yang; J. Sun; J. Wang; P. Barrington; H. Li
9:00 AM-12:30 PM, Americas Cup B, **APA-34. Aerodynamic-Structural Dynamics Interactions I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Crystal Pasiliao, crystal.pasiliao@us.af.mil, AFRL/RWWV; Co-Chair: Anton Vanderwyst, tvander@me.com, Leidos	
9:00-9:30 AM	**Methodology Development for Coupled Aeroelastic Analysis of Wing Flutter** W. Yuan; D.C. Poirel
9:30-10:00 AM	**Numerical Study of Benchmark Super-Critical Wing, BSCW, at Flutter Condition** A. Jirasek; M.J. Dalenbring; J. Navratil

10:00-10:30 AM	**Initial Investigations of Supercritical Airfoil Dynamic Response due to Transonic Buffet** R. Carrese; P. Marzocca; O. Levinski; N. Joseph
10:30-11:00 AM	**Wind Tunnel Experiments with Flexible Plates in Transonic Flows** E.R. Jinks; P.J. Bruce; M.J. Santer
11:00-11:30 AM	**Spanwise Variation of Stall Flutter on a Flexible NACA 0018 Finite SpanWing** E.C. Culler; J.A. Farnsworth; C.P. Fagley; T.E. McLaughlin
11:30-12:00 PM	**Multi-Objective Aerodynamic-Structural Optimization of Supercritical Wing of Wide Body Aircraft** Z. Tong; Y. Zhang; H. Chen
9:00 AM-12:30 PM, Coronado E, **APA-35/FD-41. Special Session: NASA's Revolutionary Computational Aerosciences II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: James DeBonis, James.R.DeBonis@nasa.gov, NASA Glenn Research Center; Chair: Mujeeb Malik, Mujeeb.r.malik@nasa.gov, NASA-Langley Research Center	
9:00-9:30 AM	**Informing Turbulence Closures With Computational and Experimental Data.** K. Duraisamy
9:30-10:00 AM	**The NASA Juncture Flow Experiment: Goals, Progress, and Preliminary Testing (Invited)** C.L. Rumsey; D. Neuhart; M.A. Kegerise
10:00-10:30 AM	**Comparison of Experimental Surface and Flow Field Measurements to Computational Results of the Juncture Flow Model (JFM)** N. Roozeboom; H.C. Lee; G. Zilliac; T.H. Pulliam; J.H. Burces
10:30-11:00 AM	**Model-Invariant Hybrid Computations of Separated Flows for RCA Standard Test Cases (Invited)** S. Woodruff
11:00-11:30 AM	**Wall-modeled LES in Unstructured Grids: Application to the NASA Wall-mounted Hump** G. Park
11:30-12:00 PM	**Comparison of Turbulent Thermal Diffusivity and Scalar Variance Models** D.A. Yoder
9:00 AM-12:30 PM, Americas Cup C, **APA-36. Airfoil/Wing/Configuration Aerodynamics I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Christopher Rosema, christopher.c.rosema.civ@mail.mil, US Army AMRDEC; Co-Chair: Kenrick Waithe, kenrickwaithe@gmail.com, Gulfstream Aerospace Corporation	
9:00-9:30 AM	**Rigid Ram-Air Parachute Experiments with Bleed Air Vents** J. Seidel; C. Latscha; G. Venkataraman; K. Bergeron; T.E. McLaughlin
9:30-10:00 AM	**Experimental investigation of aerodynamic performance of airfoils fitted with morphing trailing edges** Q. Ai; H. Kamliya Jawahar; M. Azarpeyvand
10:00-10:30 AM	**Rediscovering the "Peakey Leading Edge": A Study of the Transonic Properties of Classic Airfoils** M.Q. Merrell; T.T. Takahashi
10:30-11:00 AM	**Measurements of a Symmetric Wing Morphed by Macro Fiber Composite Actuators** M.T. Debiasi; W. Chan; S. Jadhav

11:00-11:30 AM	**Evaluating an Experimental Streamlined Fairing for a Diverterless Supersonic Inlet (DSI) Equipped Aircraft** J. Masud; O. Khan
9:00 AM-12:30 PM, Gaslamp D, **ASC-05. Shape Memory Alloys**, Technical Paper, **24th AIAA/AHS Adaptive Structures Conference**, Chair: Travis Turner, t.l.turner@nasa.gov, NASA -Langley Research Center; Co-Chair: Ed White, edward.v.white@boeing.com, Boeing Engineering Operations & Technology	
9:00-9:30 AM	**Increased Volume Change in a Shape Memory Alloy Buoyancy Heat Engine using Auxetic Lattice Cylinders** A.J. Angilella; F. Gandhi; T.F. Miller
9:30-10:00 AM	**Experimental Characterization of a Shape Memory Alloy-Based Morphing Radiator** C.L. Bertagne; J. Chong; D.J. Hartl; J.D. Whitcomb; L.R. Erickson; R. Sheth
10:00-10:30 AM	**Additive Topological Optimization of Muscular-Skeletal Structures via Genetic L-System Programming** D.J. Hartl; G.W. Reich; P.S. Beran
10:30-11:00 AM	**Synergistic Smart Morphing Alleron: Capabilites Identification** A.M. Pankonien; L. Gamble; C. Faria; D.J. Inman
9:00 AM-12:30 PM, Gaslamp C, **DSC-04. Aircraft Loads Prediction - Special Session**, Technical Paper, **15th Dynamics Specialists Conference**, Co-Chair: Jonathan Cooper, j.e.cooper@bristol.ac.uk, University of Bristol; Chair: Kenneth Griffin, kgriffin@swri.edu, Southwest Research Institute	
9:00-9:30 AM	**Aircraft Loads Prediction using Enhanced Simulation (ALPES)** J.E. Cooper; A. Gaitonde; D. Jones; M.H. Lowenberg; P. Sartor; Y. Lemmens
9:30-10:00 AM	**Comprehensive Bifurcation Analysis of a Nose Landing Gear System** I. Tartaruga; M.H. Lowenberg; J.E. Cooper; P. Sartor; Y. Lemmens
10:00-10:30 AM	**Nonlinear Static Aeroelasticity of High Aspect Ratio Wing Aircraft by FEM and Multibody methods** M. Castellani; J.E. Cooper; Y. Lemmens
10:30-11:00 AM	**Nonlinear Negative Stiffness Folding Wing-Tip Device for Gust Loads Alleviation** A. Castrichini; J.E. Cooper; T. Wilson; A. Carrella; Y. Lemmens
11:00-11:30 AM	**Doublet-Lattice Method Correction by Means of Linearised Frequency Domain Solver Analysis** C. Valente; D. Jones; A. Gaitonde; J.E. Cooper; Y. Lemmens
11:30-12:00 PM	**Frequency Domain Approach for Transonic Aerodynamic Modelling** A. Poncet-Montanges; J.E. Cooper; D. Jones; A. Gaitonde; Y. Lemmens
9:00 AM-12:30 PM, Bankers Hill, **EDU-01. Advancing Aerospace Education I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: K. Ravindra, ravindrak@slu.edu, Parks College of Engineering, Aviation & Technology	

9:00-9:30 AM	**Model Rocket Projects for Aerospace Engineering Course: Simulation of Flight Trajectories** T.A. Campbell; S.T. Seufert; R. Reis; J.C. Brewer; R. Limberger Tomiozzo; C.E. Whelan; M. Okutsu
9:30-10:00 AM	**Model Rocket Projects for Aerospace Engineering Course: Propellant Analyses** J.C. Brewer; R. Reis; R. Limberger Tomiozzo; M. Okutsu
10:00-10:30 AM	**Case Study of Two Capstone Student Projects from Canada and the United Kingdom** C.A. Ferlisi; C. Mazzini; E. Laurendeau; D.R. Ramasawmy; A. Da Ronch; O. Stalnov
10:30-11:00 AM	**Brazilian Space-Tech Vocational Center** E. Gonçalves; C.G. Veras
9:00 AM-12:30 PM, Pier, **FD-42. CFD: Meshfree Methods and Non-Equilibrium Gas Dynamics**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Aaron Katz, aaron.katz@usu.edu,	
9:00-9:30 AM	**Development and Validation of a Multi-Strand Solver for Complex Aerodynamic Flows** V.K. Lakshminarayan; J. Sitaraman; B. Roget; A.M. Wissink
9:30-10:00 AM	**Assessment of a Two-Equation Turbulence Model in the High-Order Flux Correction Scheme** O. Tong; C. Blakely; A.J. Katz
10:00-10:30 AM	**Simulation of Moving Bodies Using a Meshfree Method** Z. Duan; Z.J. Wang; L. Duncil; B.T. Vu
10:30-11:00 AM	**Asymptotic Geometry Representation for Complex Configurations** O. Tong; Y. Yanagita; A.J. Katz
11:00-11:30 AM	**Finite Element Modeling of Non-equilibrium Gasdynamics Beyond the Continuum Regime** M. Dumas; S. Gao; W.G. Habashi; M. Fossati; G. Baruzzi; D. Isola; I. Ozcer
9:00 AM-12:30 PM, Harbor F, **FD-43. Experimental Investigations of High-Speed Flow**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Matthew Borg, matthew.borg.3@us.af.mil, Air Force Research Laboratory; Co-Chair: Katya Casper, kmcaspe@sandia.gov, Sandia National Laboratories	
9:00-9:30 AM	**Optical Characterization of Nozzle-Wall Mach-6 Boundary Layers** S. Gordeyev; T.J. Juliano
9:30-10:00 AM	**Krypton Tagging Velocimetry (KTV) in Supersonic Turbulent Boundary Layers** D. Zahradka; N.J. Parziale; M. Smith; E.C. Marineau
10:00-10:30 AM	**Interactions of Shock Tube Exhaust Flows with Laminar and Turbulent Flames** J.E. Chan; P. Giannuzzi; K.R. Kabir; M. Hargather; G. Doig
10:30-11:00 AM	**Flow structure and unsteadiness in the supersonic wake of a generic space launcher** A. Schreyer; S. Stephan; R. Radespiel

11:00-11:30 AM	**Turbulence characteristics of supersonic corner flows in a low aspect ratio rectangular channel** R.R. Morajkar; M. Gamba
9:00 AM-12:30 PM, Promenade B, **FD-44. Multiphase Flow II: Liquid-gas and Engines**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Corey Bourassa, coreybour1@gmail.com, GE Aviation; Co-Chair: Daniel Troolin, dan.troolin@tsi.com, TSI Incorporated	
9:00-9:30 AM	**Penetration Height of a Circular Liquid Jet in a Subsonic Gaseous Crossflow: An Eulerian-Lagrangian Approach** M. Broumand; M. Farokhi; M. Birouk
9:30-10:00 AM	**Exploration of Liquid Mass Distribution for Liquid Jets in Subsonic Crossflows Using X-Ray Radiography** K. Lin; S. Peltier; C.D. Carter; J.M. Donbar; A. Kastengren
10:00-10:30 AM	**Three-dimensional liquid sheet breakup: vorticity dynamics** A. Zandian; W.A. Sirignano; F. Hussain
10:30-11:00 AM	**Adaptive simulation of gas-liquid interfacial flows with surface tension** A. Hay; S. Etienne; D. Pelletier
11:00-11:30 AM	**Active Damping of Fuel Slosh Using a Hybrid Magneto-Active Propellant Management Device** L.V. Paul; B. Sivasubramanian; S.D. Putheenveed; S.N. Gangadharan
11:30-12:00 PM	**Influence of Scavenge Geometry on Separation Efficiency for an Inertial Particle Separator** B.J. Connolly; E. Loth; P.H. Snyder; C.F. Smith
12:00-12:30 PM	**Large Length-Scale Thermocapillary Flow Experiment Design and Feasibility Analysis for the ISS FIR** S.J. Alberts; S.H. Collicott
9:00 AM-12:30 PM, Harbor E, **FD-45. RANS/LES Methods and Techniques II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**	
9:00-9:30 AM	**A Modified One–Equation Turbulence Model Based on Turbulent Kinetic Energy Equation** M.M. Rahman; R.K. Agarwal; T. Siikonen
9:30-10:00 AM	**A Hybrid RANS-Implicit LES Approach for the High-Order FR/CPR Method** H. Zhu; S. Fu; L. Shi; Z.J. Wang
10:00-10:30 AM	**development of an elliptic-blending lag model for industrial applications** S. Lardeau; F. Billard
10:30-11:00 AM	**Improvements to SST turbulence model for free shear layers, turbulent separation and stagnation point anomaly** G. Kalitzin; G. Medic; G. Xia
11:00-11:30 AM	**Unified RANS-LES Simulations of Separated Flow at High Reynolds Number** R. Mokhtarpoor; S. Heinz; M.K. Stoellinger

9:00 AM-12:30 PM, Promenade A, **FD-46. Vortex Flows I**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: James Buchholz, james-h-buchholz@uiowa.edu, University of Iowa; Co-Chair: Kunihiko Taira, ktaira@fsu.edu, Florida State University	
9:00-9:30 AM	**Characterization of Aircraft Wake Vortex Circulation Decay in Reasonable Worst Case Conditions** I. De Visscher; V. Treve; G. Winckelmans
9:30-10:00 AM	**A Simple Model of Asymmetric Wakes for Periodically Oscillating Airfoils** H. Xuzhao; I. Gursul
10:00-10:30 AM	**Response of a Streamwise Vortex/Wall Interaction to Unsteady Forcing** S.I. Benton; J.P. Bons
10:30-11:00 AM	**The Role of Vorticity Transport in the Detachment of Unsteady Leading-Edge Vortices** J. Akkala; J. Buchholz
11:00-11:30 AM	**Vorticity Generation at Sharp Corners** P. Zhang; K. Mohseni
9:00 AM-12:30 PM, Coronado B, **GNC-28. Invited Session: Interval Management: Operational Concept, Integration, and Benefits**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Chair: Bryan Barmore, bryan.barmore@nasa.gov, ; Co-Chair: William Penhallegon, penhallegon@mitre.org, The MITRE Corporation	
9:00-9:30 AM	**Interval Management: Development and Implementation of an Airborne Spacing Concept** B. Barmore; W.J. Penhallegon; L.A. Weitz; R.S. Bone; I. Levitt; J. Flores Kriegsfeld; D. Arbuckle; W.C. Johnson
9:30-10:00 AM	**Concept of Operations for Interval Management Arrivals and Approach** D.S. Hicok; B. Barmore
10:00-10:30 AM	**Modeling Schedule and Mixed Terminal Operations on a Graph Network** I. Levitt; T. Steiner
10:30-11:00 AM	**Leveraging Interval Management to Improve Air Traffic Operations during Departure** B. Lascara; C. Guensch; L.A. Weitz; P. Moertl
11:00-11:30 AM	**Results from a Field Evaluation of Interval Management during an Optimized Profile Descent Arrival and Approach** W.J. Penhallegon; R.S. Bone; H. Stassen
11:30-12:00 PM	**Interval Management Operations in the Terminal Airspace of Amsterdam Airport Schiphol.** N. De Gelder
12:00-12:30 PM	**ASTAR Flight Test: Overview and Spacing Results** R.D. Roper; M. Koch
9:00 AM-12:30 PM, Hillcrest A, **GNC-29. Novel Navigation, Estimation and Tracking I**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Co-Chair: Yang Cheng, cheng@ae.msstate.edu, Mississippi State University; Chair: Scott Starin, scott.r.starin@nasa.gov, NASA-Goddard Space Flight Center	

9:00-9:30 AM	**Estimation of Gas Concentration from a Moving Source with an Unmanned Aerial Vehicle** T. Egorova; N.A. Gatsonis; M.A. Demetriou
9:30-10:00 AM	**Wind Field Estimation From Airdrop Trajectory Measurements** A.R. Gerlach; D.B. Doman
10:00-10:30 AM	**Practical Observer Design for Real-Time Helicopter Weight Estimation** J. Warner; J.D. Rogers; N.D. Phan
10:30-11:00 AM	**Positive Weighted Compact Quadrature Rule for Uncertainty Propagation and Nonlinear Estimation** B. Jia; M. Xin
11:00-11:30 AM	**A General Solution for Update with Out-of-Sequence Measurements: The Augmented Fixed-Lag Smoother** H. Yoon; D.C. Sternberg; K. Cahoy
11:30-12:00 PM	**Suboptimal Gain Functions of Feedback Particle Filter Derived from Continuation Method** Y. Matsuura; R. Ohata; K. Nakakuki; R. Hirokawa
9:00 AM-12:30 PM, Hillcrest C, **GNC-30/ACD-10. Aircraft GNC I,** Technical Paper, **AIAA Guidance, Navigation, and Control Conference,** Co-Chair: Haitham Taha, hetaha@uci.edu, University of California, Irvine; Chair: William Whitacre, wwhitacre@draper.com, Draper Laboratory	
9:00-9:30 AM	**Fuel Flow Control for Extending Aircraft Thermal Endurance Part I: Underlying Principles** D.B. Doman
9:30-10:00 AM	**Fuel Flow Control for Extending Aircraft Thermal Endurance Part II: Closed Loop Control** D.B. Doman
10:00-10:30 AM	**Model-Based Engine Control Architecture with an Extended Kalman Filter** J. Csank; J.W. Connolly
10:30-11:00 AM	**H_∞ Loop-Shaping Robust Differential Thrust Control Methodology for Lateral/Directional Stability of an Aircraft with a Damaged Vertical Stabilizer** L.K. Lu; K. Turkoglu
11:00-11:30 AM	**Application of a Kalman Filter for Reduction of Sensor/Turbulence-Induced Noise Within a Model Reference Adaptive Controller** M. Rafi; J.E. Steck; J.M. Watkins
11:30-12:00 PM	**Optimization of the vertical trajectory through Time and Energy management: A Human-in-the-Loop Study** F. Bussink; R. Verhoeven; A. Marsman; X. Prats; B. Bendris; J. Montolio; B. Day
9:00 AM-12:30 PM, Cortez Hill B, **GNC-31. GNC Concepts in Air Traffic Control,** Technical Paper, **AIAA Guidance, Navigation, and Control Conference,** Chair: Animesh Chakravarthy, animesh.chakravarthy@wichita.edu, Wichita State University	
9:00-9:30 AM	**A Dynamic Heads-Up Air Traffic Locator & Collision Advisory Display Using Google Glass** M. Rafi; B. Chandrasekaran; M. Kusmez; J.E. Steck; J. He

9:30-10:00 AM	**Improving Sense and Avoid using Multi-modal Sensor Fusion for Non-communicating Threats** J.A. Jackson; J. Boskovic; D. Diel
10:00-10:30 AM	**Three-Dimensional Velocity Obstacle Method for UAV's Uncoordinated Avoidance Maneuver** Y.I. Jenie; E. Van Kampen; C.C. de Visser; J. Ellerbroek; J.M. Hoekstra
10:30-11:00 AM	**Encounter Rate Estimation of Continuous Descent Arrival Procedures in Terminal Area** S. Park; J.B. Clarke; E. Feron; H. Jimenez
11:00-11:30 AM	**Separation Assurance and Scheduling Coordination in the Arrival Environment.** A.S. Aweiss; A.C. Cone; J.J. Holladay; E. Munoz; T.A. Lewis
9:00 AM-12:30 PM, Cove, **GT-07. Aerodynamic Force Measurement and NFMTC Update (Invited)**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Sean Commo, sean.a.commo@nasa.gov, NASA Langley Research Center; Co-Chair: Ray Rhew, ray.d.rhew@nasa.gov, NASA-Langley Research Center	
9:00-9:30 AM	**Oral Presentation. National Force Measurement Technology Capability (NFMTC) Project Update** S.A. Commo
9:30-10:00 AM	**Oral Presentation. Balance In-Situ Load System (ILS) Demonstration Results** K. Toro
10:00-10:30 AM	**Oral Presentation. Balance Calibration Study Update** D. Landman
10:30-11:00 AM	**Oral Presentation. On-board Signal Digitization** J. Ponder
11:00-11:30 AM	**Oral Presentation. Unique Force Measurement Applications at AFRL** R.W. Guyton
11:30-12:00 PM	**Pre-Test Assessment of the Use Envelope of the Normal Force of a Wind Tunnel Strain-Gage Balance** N.M. Ulbrich
9:00 AM-12:30 PM, Cortez Hill C, **GTE-11. Jet Noise**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Sivaram Gogineni, sgogineni@spectralenergies.com, Spectral Energies, LLC; Co-Chair: Barry Kiel, barry.kiel@wpafb.af.mil, Air Force Reseach Laboratory	
9:00-9:30 AM	**Velocity Statistics and Spectra in Three-Stream Jets** T. Ecker; W. Ng; K. Lowe; B.S. Henderson; S.J. Leib
9:30-10:00 AM	**Noisy Flow Structures in a Heated and Unheated Jet Produced by a Three-Stream Rectangular Nozzle with an Aft Deck** C.J. Ruscher; S.P. Gogineni; B.V. Kiel; A.J. Giese; K. Viswanath
10:00-10:30 AM	**Perceived Noise Analysis for Offset Jets Applied to Commercial Supersonic Aircraft** D.L. Huff; B.S. Henderson; J.J. Berton; J.A. Seidel
10:30-11:00 AM	**Characterization of Three-Stream Jet Flow Fields** B.S. Henderson; M. Wernet

11:00-11:30 AM	**Simple Scaling Of Multi-Stream Jet Plumes For Aeroacoustic Modeling** J.E. Bridges
11:30-12:00 PM	**Noise Characteristics of a Rectangular vs Circular Nozzle for Ideally Expanded Jet Flow** K. Viswanath; R.F. Johnson; A.T. Corrigan; K. Kailasanath; P.A. Mora ; F. Baier; E.J. Gutmark
12:00-12:30 PM	**A near-field investigation of a supersonic, multi-stream jet: locating turbulence mechanisms through velocity and density measurements** A.S. Magstadt; M.G. Berry; T.J. Coleman; P.R. Shea; M.N. Glauser; C.J. Ruscher; S.P. Gogineni; B.V. Kiel
9:00 AM-12:30 PM, Golden Hill A, **GTE-12. Methodologies for advanced components**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Scott Drennan, scott.drennan@convergecfd.com, Convergent Science, Inc.; Chair: Bayindir Saracoglu, bayindir@saracoglu.co.uk, von Karman Institute for Fluid Dynamics	
9:00-9:30 AM	**Simple and Robust Framework for Coupled Aerothermal Gas Turbine Simulation using Low-Mach and Compressible Industrial CFD Solvers** P. Legrenzi; K. Kannan; G. Page; I. Tristanto
9:30-10:00 AM	**Simulation of Particle flow in Inertial Particle Separator with Eulerian Method of Velocity Re-associated Two-node Quadrature-based Method of Moment** D. Sun; A. Garmory; G. Page; I. Tristanto
10:00-10:30 AM	**Mode-Tracking in Surrogate-Based Inverse Identification of Rotor Blade Geometry Using Campbell Diagram** V. Yadav; S. Venkataraman; S. Bland
9:00 AM-12:30 PM, Americas Cup A, **HIS-04. Boeing Centennial 1916-2016 II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Sarah Musi, sarah.m.musi@boeing.com	
9:00-9:30 AM	**Dyna-Soar: What Might Have Been** J.M. Tishkoff
9:30-10:00 AM	**The Road to the Modern Airliners: The first Boeing–Douglas commercial aircraft market battle** M.G. Lavelle
10:00-12:00 PM	**Discussions on Boeing's 100-year History** Moderator: James Kidrick, President, San Diego Air & Space Museum Michael Lombardi, Chief Historian, Boeing Dr. Tom Crouch, Senior Curator, Smithsonian Institution Mike Lavelle, Aviation historian Dr. Richard Hallion, Air Force Chief Historian, Retired Guy Norris, Senior Editor, Aviation Week

9:00 AM-12:30 PM, Regatta A, **HSABP-06. Advances in Pressure Gain Combustion III - RDE, PDE, & Pulse Combustion**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Scott Claflin, scott.claflin@rocket.com, Aerojet Rocketdyne; Co-Chair: Daniel Paxson, daniel.e.paxson@nasa.gov, NASA Glenn Research Center	
9:00-9:30 AM	**Enhanced Combustion in Supersonic Flows Using a Pulsed Detonation** Y.M. Abul-Huda; M. Gamba
9:30-10:00 AM	**The Rayleigh Efficiency of Pressure Gain Combustors** R.J. Blackburn; R. Miller
10:00-10:30 AM	**Impact of an Exhaust Throat on Semi-Idealized Rotating Detonation Engine Performance** D.E. Paxson
10:30-11:00 AM	**High-Repetition-Rate Chemiluminescence Imaging of a Rotating Deotonation Engine** K.Y. Cho; J.R. Codoni; B.A. Rankin; J. Hoke; F. Schauer
11:00-11:30 AM	**Efficacy of Acoustics in Determining the Operating Mode of a Rotating Detonation Engine** N. Pandiya; A.C. St. George; R.B. Driscoll; V.A. Ganesh Kumar; B. Malla; E.J. Gutmark
11:30-12:00 PM	**Investigation of a Rotating Detonation Engine using Ethylene-Air Mixture** J. Wilhite; R.B. Driscoll; A.C. St. George; V.A. Ganesh Kumar; E.J. Gutmark
9:00 AM-12:30 PM, Regatta B, **IS-09. Intelligent Human-Automation Interaction**, Technical Paper, **AIAA Infotech @ Aerospace**, Chair: Matthew Gombolay, gombolay@mit.edu, MIT; Co-Chair: Julie Shah, julie_a_shah@csail.mit.edu, MIT - Massachusetts Institute of Technology; Co-Chair: Alex Stimpson, alexander.stimpson@duke.edu	
9:00-9:30 AM	**Towards Self-Confidence in Autonomous Systems** N. Sweet; N.R. Ahmed; U. Kuter; C. Miller
9:30-10:00 AM	**Functional Requirements for Onboard Intelligent Automation in Single Pilot Operations** M.L. Cummings; A. Stimpson; M. Clamann
10:00-10:30 AM	**Cooperative Search Using Human-UAV Teams** C. Liu; J. Hedrick
10:30-11:00 AM	**A Hybrid System Approach to Information Management in Human-Machine Interaction** B. Yang; I. Hwang
9:00 AM-12:30 PM, Gaslamp B, **MAT-09. Materials & Design for Additive Manufacturing** , Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Teresa Clement, teresa.clement@raytheon.com, Raytheon; Co-Chair: Steven Wanthal, steven.wanthal@boeing.com, The Boeing Company	
9:00-9:30 AM	**Cathodic Protection Tests for the Galvanic Corrosion of Airframe Grade CFRP/Al Systems** T. Morimoto; J. Koyanagi
9:30-10:00 AM	**Fire-Retardant Polyamide 11 Nanocomposites/Elastomer Blends for Selective Laser Sintering: Further Studies** R. Ortiz; H. Wu; J.H. Koo

10:00-10:30 AM	**On the Fatigue Performance of Additively Manufactured Ti-6Al-4V to Enable Rapid Qualification for Aerospace Applications** P. Li; D. Warner; A. Fatemi ; N.D. Phan
10:30-11:00 AM	**Powder Bed Models – Numerical Assessment of As-Built Quality** M. Megahed; H. Mindt; B. Shula; A. Peralta; J. Neumann
11:00-11:30 AM	**Data-Driven Certification of Additively Manufactured Parts** D. Mies; W. Marsden; S. Dyer; S. Warde
9:00 AM-12:30 PM, Balboa A, **MDO-07. Mission Driven Design**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Darcy Allison, darcy.allison.ctr@us.af.mil, Optimal Flight Sciences LLC; Chair: Frode Engelsen, engelsen.frode@gmail.com, The Boeing Company	
9:00-9:30 AM	**An EGO-like Optimization Framework for Simultaneous Aircraft Design and Airline Allocation** S. Roy; W.A. Crossley
9:30-10:00 AM	**Wing Aerostructural Optimization under Uncertain Payload Weight and Aircraft Range** A. Elham; L. Bahamonde Jacome
10:00-10:30 AM	**An Aircraft Development Methodology Aligning Design and Strategy to Support Key Decision Making** F. Burgaud; C. Frank; D.N. Mavris
10:30-11:00 AM	**Allocation-mission-design optimization of next-generation aircraft using a parallel computational framework** J. Hwang; J. Martins
11:00-11:30 AM	**Waverider Design, Analysis and Performance Evaluation** F. Ferguson; N. Dasque; M. Dhanasar; I.M. Blankson
9:00 AM-12:30 PM, Golden Hill B, **MST-11. Model Design and Development**, Technical Paper, **AIAA Modeling and Simulation Technologies Conference**, Chair: Gano Broto Chatterji, gano.b.chatterji@nasa.gov, NASA Ames Research Center; Co-Chair: Krista Klosinski, kbklosinski@gmail.com, Engineering Systems, Inc.	
9:00-9:30 AM	**Simulator Design for Flying and Handling Qualities Instruction** J. Kemper; M. Cotting
9:30-10:00 AM	**A New Method of Flight Path Reconstruction Using the j2 Universal Tool-Kit** J.H. Slane; K.B. Klosinski; R. Osteroos; D. Saracino; J. Jeffery
10:00-10:30 AM	**Aerodynamic Model Update Using Parameter Identification Supporting a Cessna Grand Caravan Engineering Simulation** A.C. Paris; O. Alaverdi
10:30-11:00 AM	**Hard Real-Time General-Purpose Robotic Simulations of Autonomous Air Vehicles** S.M. Walker; J. Shan; R. Allison
11:00-11:30 AM	**Design and Development of Ground-Based 5-DOF Spacecraft Formation Flying Testbed** Y. Eun; C. Park; S. Park

11:30-12:00 PM	**Design and Validation of a Gust Response Alleviation System Based on Generalized Predictive Control** W. Zhuang; Z. Wu; C. Yang; C. Huang
12:00-12:30 PM	**Usage of a Model Following Small Scale UAV for Evaluation of ACMI Ground System** S. Jo; J. Kim; K. Choi
9:00 AM-12:30 PM, Nautical, **MVC-01. Grid Generation**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Eric Blades, eric.blades@ata-e.com, ATA Engineering, Inc.; Chair: James Masters, james.masters.2.ctr@us.af.mil, AEDC	
9:00-9:30 AM	**Optimization-Based Smoothing for Extruded Meshes** S.L. Karman; M.G. Remotigue
9:30-10:00 AM	**The impact of unstructured mesh generation approach on truncation error** H. Fan; C.F. Ollivier Gooch
10:00-10:30 AM	**Automatic 2D high-order viscous mesh generation by Spring-Field and vector-adding** T. Liu; L. Wang; S.L. Karman; B. Hilbert
10:30-11:00 AM	**Radial basis function mesh deformation including surface orthogonality** T. Gillebaart; A. van Zuijlen; H. Bijl
11:00-11:30 AM	**Ventus: An Overset Adaptive Cartesian Simulation Framework for Moving Boundary Problems, Part II - Parallelism and Dynamic Load Balancing** R. Harris
9:00 AM-12:30 PM, Old Town B, **NDA-06. Reliability and Life Prediction**, Technical Paper, **18th AIAA Non-Deterministic Approaches Conference**, Co-Chair: Thiagarajan Krishnamurthy, t.krishnamurthy@nasa.gov, NASA-Langley Research Center; Chair: Eric Tuegel, eric.tuegel@us.af.mil, USAF	
9:00-9:30 AM	**Sequential Subspace Reliability Method** H. Bae; E.J. Alyanak
9:30-10:00 AM	**Modeling epistemic uncertainty in the representation of spatial and temporal variability in reliability analysis** H. Devathi; Z. Hu; S. Mahadevan
10:00-10:30 AM	**Bearing Prognostics Method Based on Entropy Decrease at Specific Frequency** D. An; N. Kim; J. Choi
10:30-11:00 AM	**Aerospace electronics-and-photonics (AEP) reliability has to be quantified to be assured** E. Suhir
11:00-11:30 AM	**Probabilistic PoF based Framework for Fatigue Life Prediction of Aircraft Gas Turbine Discs** S. Zhu; H. Huang; W. Peng; H. Wang; S. Mahadevan
9:00 AM-9:30 AM, Exposition Hall, **NW-14. Thursday Late Morning Networking Coffee Break**, Networking, **Forum Event**	

9:00 AM-12:30 PM, Harbor B, **PC-14. Spray and Droplet Combustion II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Joel Haynes, haynes@ge.com, GE Global Research Center; Co-Chair: Jacqueline O`Connor, jxo22@engr.psu.edu, Pennsylvania State University	
9:00-9:30 AM	**Simulations of kerosene droplet combustion in vitiated air** A. Giusti; J. Sidey; G. Borghesi; E. Mastorakos
9:30-10:00 AM	**Droplet Combustion Characteristics of Butyl Butyrate, Limonene, and their Blends with Jet A-1** D. Chaitanya Kumar Rao; S. Syam; S. Karmakar
10:00-10:30 AM	**Puffing and Micro-explosion behavior of Ethanol/Jet A-1 Fuel Droplets** S. Syam; D. Chaitanya Kumar Rao; S. Karmakar; R. Joarder
10:30-11:00 AM	**Simulations of Injection of LOX/GCH$_4$ under Flashing Conditions** T. Ramcke; M. Pfitzner
11:00-11:30 AM	**Interface-Tracking Simulations of Droplet Vaporization and Burning of Hypergolic Propellants** H. Tani; Y. Umemura; Y. Daimon; H. Terashima; M. Koshi
9:00 AM-12:30 PM, Harbor C, **PC-15. Turbulent Combustion II - Fuel Chemistry**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Chiping Li, chiping.li@afosr.af.mil, Air Force Office of Scientific Research; Co-Chair: Venke Sankaran, venkateswaran.sankaran@us.af.mil, US Air Force/AFRL	
9:00-9:30 AM	**The Mixture Fraction for High-Pressure Turbulent Reactive Flows** J.R. Bellan
9:30-10:00 AM	**Impact of Chemical Kinetics Mechanisms on the Predictions of Bluff Body Stabilized Flames** S.V. Sardeshmukh; W.E. Anderson
10:00-10:30 AM	**Investigation of chemical pathways for turbulent Hydrogen-Air premixed flames** D. Dasgupta; W. Sun; M.S. Day; T. Lieuwen
10:30-11:00 AM	**Predicting and Accelerating Chemistry in High Speed Reacting Flows** T. Wignall; C.H. Patton; T. Echekki; J.R. Edwards
9:00 AM-12:30 PM, Old Town A, **PDL-10. Novel Plasma Actuators, Concepts and Systems**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Thomas Corke, tcorke@nd.edu, University of Notre Dame	
9:00-9:30 AM	**Development of plasma actuator based on surface sparks for a buffet control** A.A. Firsov; Y.I. Isaenkov; M.A. Shurupov; S.B. Leonov
9:30-10:00 AM	**Development of Serrated Multi-Electrode Plasma Actuators for Enhanced Force Production** T. Matsuno; M. Sugahara; H. Kawazoe; H. Nishida
10:00-10:30 AM	**Development of a Compact/Portable Plasma Reactor for Sterilization and Flow Control** S.E. Portugal; S. Roy; J. Lin

10:30-11:00 AM	**Multi-point ignition of Hydrogen/Air mixtures with single pulsed nanosecond surface dielectric barrier discharge. Morphology of the discharge in different gases at elevated pressures** S. Shcherbanev; N. Popov; S. Starikovskaia
11:00-11:30 AM	**Carbon Nanoparticles in the Radiation and Acoustic fields the Vicinity of the Arc Discharge** M.N. Shneider
11:30-12:00 PM	**Modeling of Microplasmas with Nano-Engineered Electrodes** S. Tholeti; A. Alexeenko; S.O. Macheret
9:00 AM-12:30 PM, Ocean Beach, **PDL-11. Plasma Diagnostics**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Richard Miles, miles@princeton.edu, Princeton University	
9:00-9:30 AM	***In-situ* quantitative measurement of ethylene from n-butane pyrolysis in a flow reactor** L. Su; Z. Zhang
9:30-10:00 AM	**Phase-Locked Averaged Schlieren of Periodic Nanosecond-Pulsed DBD Actuation in Quiescent Air** H. Hu; H. Li; X. Meng; J. Wang; F. Liu; S. Luo
10:00-10:30 AM	**Optical Emission Spectroscopy of the A.C. Plasma Anemometer** E.H. Matlis; C. Marshall; T.C. Corke; S.P. Gogineni
10:30-11:00 AM	**Development of a Cavity Enhanced Thomson and Raman Scattering Diagnostic** A. Friss; A.P. Yalin
11:00-11:30 AM	**Plasma Density Measurements for Aero-Optic Applications Using Two-Wavelength Heterodyne Interferometry** B.W. Neiswander; E.H. Matlis; T.C. Corke
11:30-12:00 PM	**A Comparison of Radar REMPI and Laser Induced Fluorescence for Concentration Measurements** T. Chng; R.B. Miles
9:00 AM-12:30 PM, Balboa B, **SCS-05. Spacecraft Solar Array Structures I**, Technical Paper, **3rd AIAA Spacecraft Structures Conference**, Co-Chair: Matthew Chamberlain, mkchamberlain@gmail.com, NASA; Chair: Richard Pappa, richard.s.pappa@nasa.gov, NASA Langley Research Center	
9:00-9:30 AM	**Structural Design Considerations for a 50 kW-Class Solar Array for NASA's Asteroid Redirect Mission** T.W. Kerslake; T.G. Kraft; J. Yim; D.K. Le
9:30-10:00 AM	**Rapid Parametric Analysis and Design of Space-Based Solar Arrays** C. Rupp; L. Schweizer; D.M. Murphy
10:00-10:30 AM	**Simulation of the Deployment of a Flexible Roll-Up Solar Array Using Multi-Body Dynamics Software** B. Ross; N. Woo; J.R. Blandino
10:30-11:00 AM	**Composite Beam Roll-Out Array - A Multifunctional Deployable Structure for Space Power Generation** T.G. Stern; K. Steele

11:00-11:30 AM	**Development of a Continuous Advanced Composite Truss Printing System** Q.P. McAllister; J. Senne; A. Romanyszyn
11:30-12:00 PM	**Active Control of Solar Array Dynamics During Spacecraft Maneuvers** B. Ross; N. Woo; T.G. Kraft; J.R. Blandino
9:00 AM-12:30 PM, Balboa C, **SD-10. Reduced Order Modeling II**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Salvatore Liguore, salvatore.l.liguore@boeing.com, Boeing Engineering Operations & Technology; Co-Chair: Seetha Raghavan, seetha.raghavan@ucf.edu, University of Central Florida	
9:00-9:30 AM	**Using Complex Variables to Estimate the Derivatives of Nonlinear Reduced-Order Models** J.J. Hollkamp; P.J. O'Hara
9:30-10:00 AM	**Large Deformation Modeling of a Beam Type Structure and a 3D Wingbox using an Enhanced Modal Approach** M. Ritter; C.E. Cesnik
10:00-10:30 AM	**An Optimum Thermal Basis for Coupled Structural-Thermal Reduced Order Models** R. Murthy; A. Matney; M.P. Mignolet
10:30-11:00 AM	**Modeling Fatigue Crack Propagation in a Ti-Alloy at Elevated Temperature within a Reduced-OrderModel Framework** P.J. O'Hara; J.J. Hollkamp
11:00-11:30 AM	**Geometrically Non-linear Structural Dynamics using Increased-Order Modelling** L. Bernhammer; M. Karpel; M. Reyes; H. Climent Manez
9:00 AM-12:30 PM, Gaslamp A, **SD-11. Computational Methods for Aeroelasticity**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Anant Grewal, anant.grewal@nrc-cnrc.gc.ca, National Research Council Canada; Co-Chair: Alessandro Scotti, alessandro.scotti@bluewin.ch, Pilatus Aircraft Ltd	
9:00-9:30 AM	**Towards a Fluid-Structure Interaction Solver for Problems with Large Deformations Within the Open-Source SU2 Suite** R. Sanchez; R. Palacios; T.D. Economon; H.L. Kline; J.J. Alonso; F. Palacios
9:30-10:00 AM	**Adaptive Finite Element in Time Method for Rotorcraft Analysis Using Element Size Control** S. Kwon; I. Chopra; S. Lee
9:00 AM-12:30 PM, Regatta C, **SEN-03. Advanced Data Fusion Techniques**, Technical Paper, **AIAA Infotech @ Aerospace**, Chair: Thomas Frey, tom.frey@charter.net, Lockheed Martin Aeronautics	
9:00-9:30 AM	**Vision-aided Applications for Enhanced UAV Navigation** R. Opromolla; A. Vetrella; G. Fasano; D. Accardo
9:30-10:00 AM	**Cooperative-timing Attack with Smart Munitions using Cooperative Localization in Contested Environments** R. Sharma; S. Rathinam
10:00-10:30 AM	**Novel Blind Load Balancing Scheduling Algorithms for Distributed Tracking Networks** T. Frey; D. Faulk

10:30-11:00 AM	**Database Completeness Impact on Target Identification Performance** K.R. Engebretson
9:00 AM-12:00 PM, Coronado A, **SOF-07/UMS-08/IS-10. Assurance of Autonomy Symposium III**, Workshop, **AIAA Infotech @ Aerospace (non-paper sessions)**, Chair: Brat Guillaume, guillaume.p.brat@nasa.gov	
9:00 AM-12:30 PM, La Jolla A, **STR-12. Spacecraft Structural Design**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: John Zipay, john.j.zipay@nasa.gov, NASA-Johnson Space Center	
9:00-9:30 AM	**The Ultimate Factor of Safety for Aircraft and Spacecraft – Its History, Applications and Misconceptions** J.J. Zipay; C.T. Modlin; C.E. Larsen
9:30-10:00 AM	**Thermo-structural design of the Hexafly-INT Experimental Flight Test Vehicle (EFTV) and Experimental Service Module (ESM)** V. Carandente; R. Scigliano
10:00-10:30 AM	**Post-buckling Analysis of Curved Honeycomb Sandwhich Panels Containing Interfacial Disbonds** E.J. Pineda; B.A. Bednarcyk; T.K. Krivanek
10:30-11:00 AM	**Integrated Composite Stiffener Structure (ICoSS) Concept for Planetary Entry Vehicles** S. Kellas
11:00-11:30 AM	**Forward Skirt Structural Testing on the Space Launch System (SLS) Program** J. Lohrer; R. Wright
11:30-12:00 PM	**Flutter Analysis of Laminated Curvilinear-Stiffened Plates** R. Fernandes; A. Tamijani
9:00 AM-12:30 PM, La Jolla B, **STR-13. Buckling, Fatigue, and Fracture of Structures I**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Chiara Bisagni, C.Bisagni@tudelft.nl; Chair: Marc Schultz, marc.r.schultz@nasa.gov, NASA Langley Research Center	
9:00-9:30 AM	**Peridynamic Truss Element for Viscoelastic Deformation** M. Dorduncu; A. Barut; E. Madenci
9:30-10:00 AM	**Bond-Based Peridynamics with an Arbitrary Poisson's Ratio** Y. Hu; E. Madenci
10:00-10:30 AM	**Peridynamics for Predicting Tensile and Compressive Strength of Notched Composites** Y. Hu; E. Madenci; N.D. Phan
10:30-11:00 AM	**Mean Stress Effects in Strain Energy-based Criterion for Fatigue Life Prediction** S. Zhu; Q. Lei; H. Huang; Y. Yang
11:00-11:30 AM	**Fiber Path Optimization of a Symmetric Laminate with a Cutout for Thermal Buckling, Using a Novel Finite Element Algorithm** A.A. Vijayachandran; P. Acar; V. Sundararaghavan; A.M. Waas

11:30-12:00 PM	**Influence of microstructure arrangement on the responses of composites beyond one representative unit cel.** H. Huang
9:00 AM-12:30 PM, Harbor G, **TP-09. Non-Equilibrium Flows, Non-Equilibrium Radiation and Rarefied Flows II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Michael Kio, M.T.KIO@CRANFIELD.AC.UK, National Space Research & Development Agency; Chair: Thomas Schwartzentruber, schwart@umn.edu, University of Minnesota	
9:00-9:30 AM	**Title: Numeircal Simulations of Flows over a Small Sphere within Velocity Slip Regime** C. Cai
9:30-10:00 AM	**Modeling of Non-equilibrium Radiation for CO_2-N_2 Gas Mixtures** R.L. Macdonald; A. Munafò; C.O. Johnston; M. Panesi
10:00-10:30 AM	**Investigation of Condensation Effect in CO_2 Hypersonic Rarefied Flows** T. Ozawa; T. Suzuki; K. Fujita
9:00 AM-12:30 PM, Harbor H, **WE-08. Wind Energy: VAWT Aerodynamics**, Technical Paper, **34th Wind Energy Symposium**, Chair: David Maniaci, dcmania@sandia.gov, Sandia National Laboratories	
9:00-9:30 AM	**Parameterized Vertical-Axis Wind Turbine Wake Model Using CFD Vorticity Data** E.B. Tingey; A. Ning
9:30-10:00 AM	**Implicit Large-Eddy Simulation of 2D Counter-Rotating Vertical-Axis Wind Turbines** S. Kanner; L. Wang; P. Persson
10:00-10:30 AM	**An Experimental Investigation on the Near Wake Characteristics of a Darrious Vertical-Axis Wind Turbine** M. Khosravi; P. Sarkar; H. Hu
10:30-11:00 AM	**Numerical / Experimental Investigation of Airfoil Shape for Small VAWT** W. Yamazaki; Y. Arakawa
11:00-11:30 AM	**Flow Curvature Effects for VAWT: a Review of Virtual Airfoil Transformations and Implementation in XFOIL** S. van der Horst; J.E. van de Wiel; C. Simao Ferreira; N. Ramos García
11:30-12:00 PM	**Aerodynamic Optimization of Vertical Axis Wind Turbine with Trailing Edge Flap** S. Ertem; C. Simao Ferreira; M. Gaunaa; H.A. Madsen
9:00 AM-12:30 PM, Harbor I, **WE-09. Wind Energy: Wind Turbine and Wind Plant Control**, Technical Paper, **34th Wind Energy Symposium**, Chair: Susan Frost, Susan.A.Frost@nasa.gov, NASA-Ames Research Center	
9:00-9:30 AM	**Disturbance Accommodating Control based Independent Blade Pitch Control Design on CART2** N. Wang; A. Wright
9:30-10:00 AM	**Experimental Evaluation of Extremum Seeking Based Region-2 Controller for CART3 Wind Turbine** Y. Xiao; Y. Li; M. Rotea
10:00-10:30 AM	**impact of airfoil performance degradation on annual energy production and its mitigation via extremum seeking controls** T. Ashuri; M. Rotea; C. Ponnurangam; Y. Xiao

10:30-11:00 AM	**CFD Analysis on Load Mitigation of Wind Turbine Utilizing Individual Pitch Control in Stable ABL** H. Oe; Y. Tanabe; H. Sugawara; M. Yamamoto
11:00-11:30 AM	**Aeroservoelastic analysis of storm-ride-through control strategies for wind turbines** C. Tibaldi; M.H. Hansen
11:30-12:00 PM	**Wake detection for wind farm control – Formulation and validation** C.L. Bottasso; S. Cacciola; F. Campagnolo; J. Schreiber
9:30 AM-11:30 AM, Seaport FG, **PANEL-10. Thursday Morning Forum 360** **Focus on the E in STEM**, Panel, **Forum 360**	
12:30 PM-2:00 PM, Seaport A-E, **LUNCH-04. Recognition Luncheon: Celebrating Achievements in Aerospace Design/Structures and Literature**, Lunch	
2:00 PM-5:30 PM, Cortez Hill A, **ACD-11. Micro Air Vehicle Design**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Cees Bil, c.bil@rmit.edu.au, RMIT University; Co-Chair: Roelof Vos, roelof_vos@hotmail.com,	
2:00-2:30 PM	**Development of an In-Flight-Deployable Micro-UAV** T.S. Tao; R. Hansman
2:30-3:00 PM	**Design and manufacture of a fixed wing MAV with zimmerman planform** M. Hassanalian; A. Abdelkefi
3:00-3:30 PM	**Design and manufacture of a self-learning flapping wing-actuation system for a Dragonfly-inspired MAV** J. Kok; J. Chahl
3:30-4:00 PM	**Effective design of flapping wing actuation mechanisms: theory and experiments** M. Hassanalian; A. Abdelkefi
4:00-4:30 PM	**Theoretical analysis and experimental verification for sizing of flapping wing micro air vehicles** M. Hassanalian; A. Abdelkefi; M. Wei; S. Ziaei-Rad
2:00 PM-5:30 PM, Coronado D, **AFM-12. Special Session: Realizing Performance Adaptive Aeroelastic Wing: Progress and Challenges**, Technical Paper, **AIAA Atmospheric Flight Mechanics Conference**, Chair: Brian Danowsky, bdanowsky@systemstech.com, Systems Technology, Inc.; Co-Chair: Harald Pfifer, hpfifer@umn.edu, University of Minnesota	
2:00-2:30 PM	**mAEWing1: Design, Build, Test - Invited** C.D. Regan; B.R. Taylor
2:30-3:00 PM	**Flight-Dynamics and Flutter Modeling and Analyses of a Flexible Flying-Wing Drone - Invited** D.K. Schmidt; W. Zhao; R.K. Kapania
3:00-3:30 PM	**Control Oriented Aeroservoelastic Modeling of a Small Flexible Aircraft using Computational Fluid Dynamics and Computational Structural Dynamics - Invited** B.P. Danowsky; T. Lieu; A. Coderre-Chabot

3:30-4:00 PM	**System Identification of a Small Flexible Aircraft - Invited** H. Pfifer; B.P. Danowsky
4:00-4:30 PM	**Robust Control Design for Active Flutter Suppression** J. Theis; H. Pfifer; P.J. Seiler
4:30-5:00 PM	**Sensitivity of Robust Flutter Boundary to Model Uncertainties in Aeroservoelastic Systems - Invited** A. Kotikalpudi; H. Pfifer; P. Seiler
5:00-5:30 PM	**Ground Vibration Tests on a Flexible Flying Wing Aircraft - Invited** A. Gupta; P.J. Seiler; B.P. Danowsky
2:00 PM-5:30 PM, Harbor A, **AFM-13. Flight Test and System Identification I**, Technical Paper, **AIAA Atmospheric Flight Mechanics Conference**, Chair: Travis Fields, fieldstd@umkc.edu, University of Missouri; Co-Chair: Charles Suchomel, charles.suchomel@wpafb.af.mil, USAF	
2:00-2:30 PM	**Low Cost Alternative to Motion Capture Systems for Indoor Flight Testing Using On-board Computer Vision** A.J. Smith; E. Wang; J.C. LaCombe; T. Fields
2:30-3:00 PM	**Nonlinear Aircraft Attitude and Heading Reference System Failure Detection and Identification** P. Lu; E. Van Kampen; C.C. de Visser; Q. Chu
3:00-3:30 PM	**Flight Test Overview for UAS Integration in the NAS Project** J.R. Murphy; P.S. Williams-Hayes; S.K. Kim; W. Bridges; M. Marston
3:30-4:00 PM	**A Study on the Exhaust Heat Characteristics from a Wing Surface Depending on the Airfoil Shape at Low Reynolds Number** K. Kamisori; K. Shimoyama; S. Obayashi
4:00-4:30 PM	**Design of Experiments with an Application to Laminar Flow Control Flight Research** A.A. Tucker; H.L. Reed; W.S. Saric; D.T. Ward
4:30-5:00 PM	**Stability Augmentation for Rotor MAV Takeoff and Landing using a Meshed Platform** M. Harada; S. Watanabe; R. Ichikawa; K. Bollino
5:00-5:30 PM	**Feasibility of In-Flight Quadrotor Individual Motor Thrust Measurements** J. Bazin; T. Fields; A.J. Smith
2:00 PM-5:30 PM, Harbor D, **AMT-08. High Speed Facility Measurements**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Craig Johansen, johansen@ucalgary.ca, University of Calgary; Co-Chair: Justin Wagner, jwagner@sandia.gov, Sandia National Laboratories	
2:00-2:30 PM	**Simultaneous Measurements of Scalar and Velocity in a Mach 5 Turbulent Boundary Layer using Naphthalene PLIF and PIV** C.S. Combs; N.T. Clemens
2:30-3:00 PM	**Dual-Pump CARS Measurements in a Vibrationally Nonequilibrium Supersonic Mixing Layer** M. Nishihara; K. Frederickson; W.R. Lempert

3:00-3:30 PM	**OH PLIF Visualization of a Premixed Ethylene-fueled Dual-Mode Scramjet Combustor** L. Cantu; E. Gallo; A.D. Cutler; P.M. Danehy; R.D. Rockwell; C.T. Johansen; C.P. Goyne; J.C. McDaniel
3:30-4:00 PM	**Optical Measurements of Shock Wave Oscillations in Transonic Diffusers by High-Speed Mach-Zehnder Interferometers** T. Ota; S. Nakao; D. Ono; Y. Miyazato
4:00-4:30 PM	**Development of a Compact Focusing Color Schlieren Technique** I. Schoegl; A.J. Pisano; G. Sedky
4:30-5:00 PM	**Wavelet Analysis of Unsteady Shock-wave Motion on Two-dimensional Airfoil with Vortex Generators** T. Kouchi; S. Yamaguchi; S. Koike; S. Yanase; T. Nakajima; M. Sato; A. Kanda
5:00-5:30 PM	**Experimental Investigation of Unsteady Shock Oscillation by a Forward-Facing Hemisphere at Mach 3** T. Mizukaki; K. Hatanaka; T. Saito; K. Yamada
2:00 PM-5:30 PM, Coronado E, **APA-37. Special Session: Sea-Based Aviation Aeromechanics Computational Analysis**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: David Findlay, david.findlay@navy.mil; Chair: Nathan Hariharan, nathan.hariharan.ctr@hpc.mil, CREATE-AV	
2:00-2:30 PM	**CFD Analysis of the F/A-18E Super Hornet during Aircraft-Carrier Landing High-Lift Aerodynamic Conditions** B.E. Green; D. Findlay
2:30-3:00 PM	**Shipboard Aircraft Simulation with Ship-Relative Navigation Sensor Modeling** C. Wilkinson; D. Findlay; J. Nichols; T. Keck; D. Bayard; C. Liebe; C. Padgett
3:00-3:30 PM	**Project MAGIC CARPET: "Advanced Controls and Displays for Precision Carrier Landings"** J.W. Denham
3:30-4:00 PM	**Development and Application of the SAFEDI Tool for Virtual Dynamic Interface Ship Airwake Analysis** S.A. Polsky; C. Wilkinson; J. Nichols; D. Ayers; J. Mercado-Perez; T. Davis
4:00-4:30 PM	**Methods for Characterizing Rotorcraft Pilot Strategy and Handling Qualities in the Shipboard Environment** J.A. Pritchard; R. Wallace; D. Eksuzian; J. Tritschler; J. O'Connor
4:30-5:00 PM	**Numerical Simulation of Water-Landing Performance of a Regional Aircraft** Q. Qu; C. Liu; P. Liu; B. Guo; R.K. Agarwal
2:00 PM-5:30 PM, Americas Cup B, **APA-38. Aerodynamic Testing: Wind-Tunnel II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: David Chan, david.t.chan@nasa.gov, NASA-Langley Research Center; Chair: Gregory Gatlin, gregory.m.gatlin@nasa.gov, NASA Langley Research Center	
2:00-2:30 PM	**A New Type of Wind Tunnel for the Evaluation of Curved Motion** J.M. Keogh; T. Barber; S. Diasinos; G. Doig

2:30-3:00 PM	**Computational Analysis of the Transonic Dynamics Tunnel Using FUN3D** P. Chwalowski; E.W. Quon
3:00-3:30 PM	**Investigation on the Flow-Field of Two Parallel Round Jets Impinging Normal to a Flat Surface** L.M. Myers; N. Rudenko; D.K. McLaughlin
3:30-4:00 PM	**Quantification of Drag from Flat Suspension Line for Parachutes and the Influence of Flow Induced Vibrations** T.M. Siefers; J.P. Campbell; D.K. Clark; T.E. McLaughlin; K. Bergeron
4:00-4:30 PM	**Qualitative Tuft Flow Visualization on the Volvo S60 under realistic driving Conditions** D. Wieser; S. Bonitz; C. Nayeri; C.O. Paschereit; A. Broniewicz; L. Larsson; L. Löfdahl
2:00 PM-5:30 PM, Americas Cup C, **APA-39. Airfoil/Wing/Configuration Aerodynamics II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Martiqua Post, Martiqua.Post@usafa.edu, USAF Academy; Chair: Eric Walker, eric.l.walker@nasa.gov, NASA Langley Research Center	
2:00-2:30 PM	**Reduction of Induced Drag in Con guration Flight using Wing Twist at Post-Stall Angles of Attack** M. Gunasekaran; R. Mukherjee
2:30-3:00 PM	**Summary of First Aerodynamics Prediction Challenge (APC-I)** A. Hashimoto; T. Aoyama; Y. Matsuo; M. Ueno; K. Nakakita; S. Hamamoto; K. Sawada; K. Matsushima; T. Imamura; A. Ochi; M. Yoshimoto
3:00-3:30 PM	**Near-field Wingtip Vortex Characteristics of a Rectangular Wing in Ground Effect** Q. Qu; L. Huang; P. Liu; R.K. Agarwal
3:30-4:00 PM	**A Validation Study of OVERFLOW for Wing-Tip Vortices** D.G. Schauerhamer; S. Robinson
4:00-4:30 PM	**Aerodynamic shape optimization and static aeroelastic analysis of a morphing trailing edge wing** M. Zhang; C. Yang; Z. Wan
2:00 PM-5:30 PM, Americas Cup D, **APA-40. Propeller/Rotorcraft/Wind Turbine Aerodynamics II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Juergen Rauleder, juergen.rauleder@tum.de, Technical University of Munich; Co-Chair: Anton Vanderwyst, tvander@me.com, Leidos	
2:00-2:30 PM	**Adjoint-Based Optimisation of Ducted Propellers for Hybrid Air Vehicles** M. Biava; M. Carrion; G.N. Barakos; D. Stewart
2:30-3:00 PM	**An Experimental Study on the Aerodynamics and Aeroacoustic Characteristics of Small Propellers** Z. Ning; H. Hu
3:00-3:30 PM	**Aerodynamic Performance Characterization of Leading Edge Protrusions on Small Propellers** K.R. Moore; A. Ning
3:30-4:00 PM	**Computational and Experimental Investigations of Coaxial Rotor Unsteady Loads** R. Singh; H. Kang; C. Cameron; J. Sirohi

4:00-4:30 PM	**Multi-disciplinary Design of Small Rotor Blades in Multiple Rotor Configurations** T. Carroll; I.E. George; G. Bramesfeld
2:00 PM-5:30 PM, Gaslamp D, **ASC-06. Health Monitoring**, Technical Paper, **24th AIAA/AHS Adaptive Structures Conference**, Chair: Ratneshwar Jha, jha@raspet.msstate.edu, Mississippi State University; Co-Chair: Shiv Joshi, sjoshi@nextgenaero.com, NextGen Aeronautics Inc	
2:00-2:30 PM	**The Spacecraft SHM Experiment, Part 2: Integration, Challenges and Early Ground Science** D.T. Doyle; S. Lee; J. Stein; B. Cooper; M. Campisi; S.S. Kessler
2:30-3:00 PM	**Characterization of Aircraft Structural Damage using Guided Wave Based Finite Element Analysis for in-Flight Structural Health Management** T. Krishnamurthy; B.R. Seshadri; R. Ross
3:00-3:30 PM	**Wavelet Spectral Finite Element Modeling for Health Monitoring of Adhesively Bonded Joints** N. Jayakody; R. Jha; D. Samaratunga
3:30-4:00 PM	**In-situ Structural Health Monitoring of Carbon Fiber Reinforced Composites with CNT Smart Paint** Y. Atescan; H. Cebeci
4:00-4:30 PM	**Harvesting Energy from Internal Flows with Piezocomposite Transducers: Towards a Self-Powered Low-Cost Blood Pressure Measurement Device** O. Bilgen; J.G. Kenerson; M. Akpinar-Elci; R. Hattery
2:00 PM-5:30 PM, Gaslamp C, **DSC-05. Nonlinear Aeroelasticity**, Technical Paper, **15th Dynamics Specialists Conference**, Chair: Inderjit Chopra, chopra@umd.edu, University of Maryland; Co-Chair: Rafael Palacios, palacios@fulbrightmail.org, Imperial College London	
2:00-2:30 PM	**Enhanced Modal Approach for Free-flight Nonlinear Aeroelastic Simulation of Very Flexible Aircraft** M. Ritter; J. Jones; C.E. Cesnik
2:30-3:00 PM	**A Reduced Order Model-Based Nonlinear Damping Model: Formulation and Application to Post Flutter Aeroelastic Behavior** P. Song; X. Wang; M.P. Mignolet; P. Chen
3:00-3:30 PM	**Geometrically Non-linear Structural Modal Model for Aeroelastic Applications** E. Kantor; R. Cavallaro; D.E. Raveh
3:30-4:00 PM	**Aeroelastic Modelling of Highly Flexible Wings** C. Howcroft; D. Calderon; L. Lambert; M. Castellani; J.E. Cooper; M.H. Lowenberg; S. Neild
4:00-4:30 PM	**Nonlinear Aeroelastic Analysis of the X-56 Multi-Utility Aeroelastic Demonstrator** J. Jones; C.E. Cesnik
4:30-5:00 PM	**Nonlinear Aerodynamics and Nonlinear Structures Interaction for F-16 Limit Cycle Oscillation Prediction** Z. Zhang; P. Chen; X. Wang; M.P. Mignolet

5:00-5:30 PM	**Numerical and Experimental Investigations on Very Flexible Aero-structures** O. Stalnov; A. Da Ronch
2:00 PM-5:30 PM, Bankers Hill, **EDU-02. Advancing Aerospace Education II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Raymond LeBeau, rlebeau@slu.edu, Saint Louis University	
2:00-2:30 PM	**Senior Capstone Design Project for Preparing Undergraduate Students for Work in a Research and Engineering Environment** V.I. Naoumov; N. Al Masoud; H. Nguyen; E.d. Patallo; A. Mocarski
2:30-3:00 PM	**From Teamwork to United Courses: Summary of a Decade's Reforms on Undergraduate Aircraft Design Education** H. Liu; C. Wen; K. Sun; M. Luo; Y. Zhou
3:00-3:30 PM	**Incorporation of Museum-Based Service Learning into an Aerospace Engineering Course** M.J. Martin; P.R. Davis; D.F. Bowles; M. Lima
3:30-4:00 PM	**Top Down Design Applied to the Aerospace Engineering Senior Capstone Program** T.P. Gielda; A. Lee; B. Kirkpatrick
4:00-4:30 PM	**Aeronautical and Astronautical Engineering Major Selection in First-Year Engineering Students** K.M. Kecskemety; R.L. Kajfez
2:00 PM-5:30 PM, Pier, **FD-47. CFD: Multiphase and Multi-Species Flows**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Meng-Sing Liou, meng-sing.liou@nasa.gov, NASA Glenn Research Center	
2:00-2:30 PM	**Development of a VOF-Based Interface Capturing Method Using a Family of Bounded Compressive Flux Blending Schemes in an Existing Finite Volume Flow Solver** R.W. Smith
2:30-3:00 PM	**Improved Weighted Compact Nonlinear Scheme for Flows with Shocks and Material Interfaces: Algorithm and Assessment** M. Wong; S.K. Lele
3:00-3:30 PM	**A High-Order Finite-Volume Method for Combustion** X. Gao; L.D. Owen; S.M. Guzik
3:30-4:00 PM	**Numerical simulation of laser energy deposition near a wall** S. Ghosh
2:00 PM-5:30 PM, Cove, **FD-48. Exploiting Hardware and Software Advances in CFD**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Qiqi Wang, qiqi@mit.edu, MIT	
2:00-2:30 PM	**Data Assimilated Computational Fluid Dynamics Algorithm for Combustion** X. Gao; Y. Wang; N. Overton; I. May; X. Tu
2:30-3:00 PM	**Extending a Three-Dimensional GPU RANS Solver for Unsteady Grid Motion and Free-Wake Coupling** D. Jude; J.D. Baeder
3:00-3:30 PM	**Enabling Performance Optimization of CFD Applications with Source-to-Source Compiler Technology** J. Riley; X. Gao; S.M. Guzik

3:30-4:00 PM	**Towards Portability For A Compressible Finite-Volume CFD Code** D. Curran; C.B. Allen; S. McIntosh-Smith; D. Beckingsale
4:00-4:30 PM	**On the Use of Discrete Nonlinear Reduced-Order Models for the Prediction of Steady-State Flows Past Parametrically Deformed Complex Geometries** K.M. Washabaugh; C. Farhat; C. Othmer
4:30-5:00 PM	**OpenACC directive-based GPU acceleration of an implicit reconstructed discontinuous Galerkin method for compressible flows on 3D unstructured grids** J. Lou; Y. Xia; L. Luo; H. Luo; J.R. Edwards; F. Mueller
5:00-5:30 PM	**Further Development of the Navier-Stokes Equations-Based Mean Flow Perturbation Technique** M. Waindim; S. Bhaumik; D.V. Gaitonde
2:00 PM-5:30 PM, Cortez Hill C, **FD-49. Flow-Control Actuators**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Jeffrey Bons, bons.2@osu.edu, Ohio State University; Co-Chair: LaTunia Pack Melton, latunia.p.melton@nasa.gov, NASA-Langley Research Center	
2:00-2:30 PM	**Active Flow Control Using Sweeping Jet Actuators on a Semi-Span Wing Model** L.G. Pack Melton; M. Koklu
2:30-3:00 PM	**Unsteady Flow Simulation of a Sweeping Jet Actuator Using a Lattice -Boltzmann Method** B.M. Duda; E. Fares; M. Wessels; V.N. Vatsa
3:00-3:30 PM	**Flow response to multi-spark and multi-jet flow actuation** N.F. Yurchenko; P.M. Vynogradskyy; K.M. Kuzmenko
3:30-4:00 PM	**Aerodynamic Load Control through Blowing** N. Al-Battal; D. Cleaver; I. Gursul
4:00-4:30 PM	**Control of fluid flows using multivariate spline reduced order models** H. Tol; C.C. de Visser; M. Kotsonis
4:30-5:00 PM	**Control of Leading-Edge Airfoil Stall Using Pulsed Jets** K.D. Hipp; M. Walker; S.I. Benton; J.P. Bons
5:00-5:30 PM	**Physics and Control of the Flow over Generic Diamond Shaped Wing** S. Endrikat; B. Roentsch; J.C. Little; L. Taubert; I.J. Wygnanski
2:00 PM-5:30 PM, Harbor F, **FD-50. Flux Reconstruction/Correction Procedure via Reconstruction (FR/CPR)**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Daniel Bodony, bodony@illinois.edu, University of Illinois at Urbana-Champaign; Co-Chair: HT Huynh, huynh@grc.nasa.gov, NASA Glenn Research Center	
2:00-2:30 PM	**Equivalence between the Energy Stable Flux Reconstruction and Filtered Discontinuous Galerkin Schemes: Numerical Validation** P. Zwanenburg; S. Nadarajah
2:30-3:00 PM	**Extension of the Flux Reconstruction Method to Triangular Elements using Collapsed-Edge Quadrilaterals** J. Romero; A. Jameson

3:00-3:30 PM	**Adaptive RANS Solution with the High-order Correction Procedure via Reconstruction Method** L. Shi; C. Zhou; Z.J. Wang
3:30-4:00 PM	**A high-order flux reconstruction solver for unsteady incompressible Navier-Stokes equations on unstructured grids with implicit time stepping** C. Cox; C. Liang; M.W. Plesniak
4:00-4:30 PM	**A High-Order Dual-Time Stepping FR/CPR Method for Unsteady Incompressible Navier-Stokes Equations on Unstructured Moving Grids** L. Wang; M. Yu
4:30-5:00 PM	**Adjoint-based Mesh Adaptation for the 3D Navier-Stokes Equations with the High-order CPR Method** L. Shi; Z.J. Wang
2:00 PM-5:30 PM, Harbor E, **FD-51. RANS/LES of Separated Flows**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Donald Rizzetta, donald.rizzetta@us.af.mil,	
2:00-2:30 PM	**Simulation of Wing and Nacelle Stall** R. Radespiel; D. Francois; D. Hoppmann; S. Klein; P. Scholz; K. Wawrzinek; T. Lutz; T. Auerswald; J. Bange; C. Knigge; S. Raasch; S. Übelacker; R. Hain; C. Kähler; P. Kelleners; R. Heinrich; S. Reuss; A. Probst; T.A. Knopp
2:30-3:00 PM	**Numerical investigation of flow separation from aircraft tail surfaces.** A. Masi; J. Cui; P.G. Tucker
3:00-3:30 PM	**Detached-Eddy Simulation of flow past a pitching NACA 0015 airfoil with pulsed actuation** L. Wang; L. Li; S. Fu
3:30-4:00 PM	**Low- and Medium-Frequency Unsteadinesses in a Transitional Shock --Boundary Reflection with Separation** L. Larchevêque
4:00-4:30 PM	**A Novel Zonal RANS-DES Method for Prediction of Accelerated and Separated Flow** H.S. Kalsi; P.G. Tucker
4:30-5:00 PM	**Realizable Dynamic Large Eddy Simulation of Separated Flows** R. Mokhtarpoor; S. Heinz; M.K. Stoellinger; P. Balakumar
5:00-5:30 PM	**Application of a Lattice-Boltzmann Method to the Separated Flow over the NASA Hump** B.M. Duda; E. Fares
2:00 PM-5:30 PM, Promenade B, **FD-52. Reacting Flows**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Ez Hassan, ez_eldin.hassan.2@us.af.mil, Air Force Research Laboratory; Co-Chair: Matthias Ihme, mihme@stanford.edu, Stanford University	
2:00-2:30 PM	**Direct numerical simulation of lifted autoigniting turbulent flame** R. Asaithambi; K. Mahesh
2:30-3:00 PM	**Compressible Flamelet Model in a Rule-Based Turbulent Combustion Solver** S.S. Thakur; J. Wright; M. Ihme
3:00-3:30 PM	**Global Analysis of Premixed Combustion with Swirl and Vortex Breakdown** Z. Rusak; J.J. Choi; N. Bourquard; S. Wang

3:30-4:00 PM	**Identification of unstable coherent modes in reacting swirling flows and their control** C.O. Paschereit
4:00-4:30 PM	**High-Speed Flow Field Measurements of Turbulent Jet Flames Undergoing Shear Layer Manipulation** H. Nawroth; C.O. Paschereit
4:30-5:00 PM	**The Effect of Soot nano-Particles Injection on Two-Phase Smoke Aerosol Formation in a Kerosene-Fired Burner** M. Darbandi; M. Ghafourizadeh; G.E. Schneider
5:00-5:30 PM	**The Effects of Baffle Plate on Soot Nano-Aerosol and Pollutant Productions in a JP-Fueled Combustor** M. Darbandi; M. Ghafourizadeh; G.E. Schneider
2:00 PM-5:30 PM, Promenade A, **FD-53. Vortex Flows II: Experimental Investigations,** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Co-Chair: Ismet Gursul, i.a.gursul@bath.ac.uk, University of Bath	
2:00-2:30 PM	**Transient, Three-Dimensional Disturbances Interacting with a High-Lift Airfoil - Wind Tunnel Experiments** S. Klein; P. Scholz; R. Radespiel
2:30-3:00 PM	**A Statistical Approach to the Identification of Vortical Structures During Dynamic Stall with Flow Control** K. Taylor; M. Amitay
3:00-3:30 PM	**Experimental study of tip vortex flow from a periodically pitched airfoil section** K.Q. Zaman; A.F. Fagan; M.R. Mankbadi
3:30-4:00 PM	**Wingtip Vortex Behavior in the Vicinity of the Maximum Lift to Drag Ratio Lift Condition** M.O. Memon; A. Altman
4:00-4:30 PM	**Interaction of Trailing Vortices with Downstream Wings** C. Chen; Z. Wang; D. Cleaver; I. Gursul
2:00 PM-5:30 PM, Coronado B, **GNC-32. Invited Session: Interval Management: Avionics Algorithms and Performance Analysis,** Technical Paper, **AIAA Guidance, Navigation, and Control Conference,** Chair: Ian Levitt, ian.levitt@faa.gov, Federal Aviation Administration; Co-Chair: Lesley Weitz, lweitz@mitre.org, The MITRE Corporation	
2:00-2:30 PM	**Modeling Uncertainty in Inter-aircraft Spacing Between the Final Approach Fix and the Runway Threshold** H. Stassen; L.A. Weitz; S. Priess
2:30-3:00 PM	**Defining an Error Budget for Required Interval Management Performance** L.A. Weitz; I. Levitt; J. Martensson
3:00-3:30 PM	**Development of an Interval Management Algorithm for Delayed Traffic** B. Barmore; K.A. Swieringa; M. Underwood; T. Abbott; R. Leonard
3:30-4:00 PM	**Evaluating the Impact of Estimated Time of Arrival Accuracy on Interval Management Performance** X. Bai; L.A. Weitz; S. Priess

4:00-4:30 PM	**Designing Stochastic Optimal Control Laws for Interval Management** T.L. Gaydos; L.A. Weitz
4:30-5:00 PM	**Closing The Loop: Testing for IM Avionics Certification** S. Bowman; D. Elliott; B. Perez; D. Walker
2:00 PM-5:30 PM, Hillcrest A, **GNC-33. Novel Navigation, Estimation and Tracking II**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Co-Chair: Walter Fichter, fichter@ifr.uni-stuttgart.de, University of Stuttgart; Chair: Mario Innocenti, minnoce@dsea.unipi.it, University of Pisa	
2:00-2:30 PM	**Adaptive Estimation of Nonlinear Spacecraft Attitude Dynamics with Time-Varying Moments of Inertia Using On-Board Sensors** J.A. Hess; E.D. Swenson; F. Leve; J. Black; G.M. Goff
2:30-3:00 PM	**Norm-constrained Unscented Kalman Filter with Application to High Area-to-Mass Ratio Space-Debris Tracking** S.A. Chee; J.R. Forbes
3:00-3:30 PM	**Application of Active-Passive Dynamic Consensus Filter Approach to Multitarget Tracking Problem for Situational Awareness in Unknown Environments** J.D. Peterson; T. Yucelen
3:30-4:00 PM	**Smooth Singularity Free Solution to the Three-Dimensional Bearings-Only Tracking Problem** L. Schmitt; W. Fichter
4:00-4:30 PM	**A Dynamic Sensor Tasking Strategy for Tracking Maneuvering Spacecraft using Multiple Models** G.M. Goff; J. Black; J.A. Beck; J.A. Hess
4:30-5:00 PM	**State-Dependent Adaptive Estimation for Impulsively Maneuvering Spacecraft Tracking** S. Lee; I. Hwang
5:00-5:30 PM	**Predictive Modeling of Pedestrian Motion Patterns with Bayesian Nonparametrics** Y. Chen; M. Liu; S. Liu; J. Miller; J.P. How
2:00 PM-5:30 PM, Hillcrest C, **GNC-34/ACD-12. Aircraft GNC II**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Co-Chair: James Henrickson, james.henrickson@tamu.edu, Texas A&M University; Chair: Michael Oppenheimer, michael.oppenheimer@wpafb.af.mil, AFRL/RBCA	
2:00-2:30 PM	**Cooperative Control for Missile Evasion** R.W. Carr; J. Torf; R. Cobb
2:30-3:00 PM	**Virtual Model Control of Rotorcraft with Articulated Landing Gear for Shipboard Landing** D. Kim; M. Costello
3:00-3:30 PM	**Shape Control of Tensegrity Airfoils** J.V. Henrickson; R.E. Skelton; J. Valasek
3:30-4:00 PM	**Enforcing State Constraints on a Model of a Hypersonic Vehicle** D. Famularo; J. Valasek; J.A. Muse; M.A. Bolender
4:00-4:30 PM	**Differential Game-Based Control Law for Stabilization of Aeroelastic System with Gust Load** P. Ghorawat; K. Lee; S.N. Singh

4:30-5:00 PM	**Integrated Control and Display Augmentation for Manual Remote Flight Control in the Presence of Large Latency** F. Zhang; T. Fricke; F. Holzapfel
2:00 PM-5:30 PM, Cortez Hill B, **GNC-35. Trajectory Design**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Chair: David Doman, david.doman@us.af.mil, Air Force Research Laboratory; Co-Chair: William Whitacre, wwhitacre@draper.com, Draper Laboratory	
2:00-2:30 PM	**Trajectory Specification for Automation of Terminal Air Traffic Control** R.A. Paielli
2:30-3:00 PM	**Performance Characterization of Tightly-Coupled GNSS Precise Point Positioning Inertial Navigation within a Simulation Environment** R.M. Watson; V. Sivaneri; J.N. Gross
3:00-3:30 PM	**Efficient Approximation of Optimal High-Order Kinematic Trajectories** J. Mooney; E.N. Johnson
3:30-4:00 PM	**Augmenting Wireless Time-of-Arrival Positioning with Terrain Elevation Measurements for Navigation in absence of GPS** B.L. Copp; K. Subbarao
4:00-4:30 PM	**An Optimization Paradigm for Arrival Trajectories usingTrajectory Segmentation and State Parameterization** H. Yu; E. Van Kampen; J. Mulder
4:30-5:00 PM	**G3-Continuous Trajectory Design For Fixed-Wing Aircraft Based On 6 -DoF Kinematics** M. Gros; W. Fichter
5:00-5:30 PM	**Fast Generation of Landing Paths for Fixed-Wing Aircraft with Thrust Failure** J. Stephan; W. Fichter
2:00 PM-5:30 PM, Hillcrest B, **GNC-36. Missile Autopilots and Integrated Guidance & Control**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Chair: Sebastian Fleischman, Sebastian.FLEISCHMANN@isl.eu, French-German Institute of Saint-Louis (ISL) ; Co-Chair: Guillaume Strub, guillaume.strub@uha.fr, University of Haute-Alsace	
2:00-2:30 PM	**Skid-To-Turn Autopilot Design and Validation for an Experimental Guided Projectile Prototype** G. Strub; M. Basset
2:30-3:00 PM	**Extended Kalman Filter Based Robust Altitude Controller for Sea Skimming Missiles** O. Dulgar; R.B. Gezer; A.T. Kutay
3:00-3:30 PM	**Integrated guidance and control of agile missiles using the Finite-SDRE approach** J. Yang; Z. Wang
3:30-4:00 PM	**Acceleration-free Nonlinear Guidance and Tracking Control of Hypersonic Missiles for Maximum Target Penetration** S.S. Mehta; C.T. Ton; W. Mackunis

2:00 PM-5:30 PM, Hillcrest D, **GT-08. Model Attitude, Deformation, and Data Acquisition Techniques (Invited)**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Robert Guyton, Robert.Guyton2@wpafb.af.mil, USAF Wright Lab; Co-Chair: Daniel Lewis, daniel.lewis.21.ctr@us.af.mil, Aerospace Testing Alliance (ATA)	
2:00-2:30 PM	**Development of an Active Damping System for use with a Single Strut Mount** J.L. Pereira
2:30-3:00 PM	**Oral Presentation. On-board Remote Model Attitude Sensor for the ARFL Vertical Wind Tunnel** P. Smith
3:00-3:30 PM	**Oral Presentation. Projection Moiré Interferometry Measurement System for Rotorcraft Applications** M.K. Sekula
3:30-4:00 PM	**Oral Presentation. Model Deformation Methods at ETW - Recent Applications and Ongoing Developments** H. Quix
4:00-4:30 PM	**Oral Presentation. Model Attitude and Deformation through Stereoscopic Measurement and their Statistical Analysis** J. Postma; K. Artois
2:00 PM-5:30 PM, Old Town A, **GTE-13. Noise**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Sivaram Gogineni, sgogineni@spectralenergies.com, Spectral Energies, LLC; Chair: Barry Kiel, barry.kiel@wpafb.af.mil, Air Force Reseach Laboratory	
2:00-2:30 PM	**Level-educed Wavepacket Representation of Noise Radiation from a High-Performance Military Aircraft** T.B. Neilsen; K.L. Gee; B.M. Harker; M.M. James
2:30-3:00 PM	**Direct Combustion Noise Simulation of a Lean Premixed Swirl Flame using Stochastic Sound Sources** F. Grimm; D. Ohno; S. Werner; M. Stöhr; R. Ewert; J. Dierke; B. Noll; M. Aigner
3:00-3:30 PM	**Reynolds-Averaged Navier-Stokes Solutions and Noise Predictions for Three-Stream Jets** S.J. Leib; N.J. Georgiadis; D.A. Yoder
3:30-4:00 PM	**An acoustic investigation of a supersonic, multi-stream jet with aft deck: Characterization and acoustically-optimal operating conditions** M.G. Berry; A.S. Magstadt; M.N. Glauser; C.J. Ruscher; S.P. Gogineni; B.V. Kiel
4:00-4:30 PM	**Acoustics from a Rectangular C-D Nozzle Exhausting Over a Flat Surface** P.A. Mora ; F. Baier; E.J. Gutmark; K. Kailasanath
4:30-5:00 PM	**Impact of Scale on the Acoustics from a Conical C-D Nozzle Interacting with a Flat Surface** F. Baier; P.A. Mora ; E.J. Gutmark; K. Kailasanath
2:00 PM-5:30 PM, Old Town B, **GTE-14. Experimental tools**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Richard Anthony, richard.anthony@email.com, ; Co-Chair: Sergio Lavagnoli, lavagnoli@vki.ac.be, von Karman Institute for Fluid Dynamics	

2:00-2:30 PM	**Experimental investigation of high temperature erosion resistance of thermal barrier coating via design of experiment** D. Shin; A. Hamed
2:30-3:00 PM	**Uncertainty Analysis of Blade Tip Timing Methods and Reduced Order Modeling of Integrally Bladed Rotors** A. Kamaraj; V. Yadav; S. Venkataraman
3:00-3:30 PM	**Modeling Far-field Acoustical Nonlinearity from F-35 Aircraft during Ground Run-up** B.O. Reichman; A.T. Wall; K.L. Gee; T.B. Neilsen; J. Downing; M.M. James; R. McKinley
3:30-4:00 PM	**The Application of Stereoscopic PIV in a Liquid-Fueled Gas Turbine Combustor** A.C. Pratt; R.Z. Zhang; R.P. Lucht; C.D. Slabaugh
4:00-4:30 PM	**A new thrust stand for testing multi-stream and heat simulated supersonic nozzles** J. Valdez; C.E. Tinney
4:30-5:00 PM	**Measurements and Predictions of the Three-Dimensional Boundary Layer in a Turbine Blade Passage** S.P. Lynch
5:00-5:30 PM	**Separation Control in a 140 degree Bend Channel Using AC and Plasma-sliding-discharge DBD Actuators** M. Arthur; T. Samper; T.C. Corke; D. Frias; D. Hanson; N. Nolcheff
2:00 PM-5:30 PM, Americas Cup A, **HIS-05. History of AIAA**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Kevin Burns, kevin.burns2@NGC.com, Northrop Grumman Corporation	
2:00-2:30 PM	**The History of the San Diego IAS Building - Currently the San Diego Harbor Police Building** K.R. Burns
2:30-3:00 PM	**Howard Marx - The extraordinary life of an aerospace engineer** L.K. Sweeney
2:00 PM-5:30 PM, Americas Cup A, **SAT-01. Society and Aerospace Technology**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: John Christian, john.christian@mail.wvu.edu, West Virginia University; Co-Chair: Bradley Steinfeldt, bsteinfeldt@gmail.com, Georgia Institute of Technology	
2:00-4:00 PM	**No Presentations**
4:00-4:30 PM	**Applications of UAV in Daily Life** Z. Shahid; A. Rashid
4:30-5:00 PM	**Advancing Socially Disruptive Aerospace Technologies Through Venture Capital Investment** J.J. Taylor; J. Matthews
5:00-5:30 PM	**Medical Astrosociology and Space Medicine: Bringing Together the Two Branches of Science** J. Pass
2:00 PM-5:30 PM, Regatta A, **HSABP-07. Computational Analysis of Scramjets**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Hassan Hassan, hassan@eos.ncsu.edu, North Carolina State University; Co-Chair: Venkat Tangirala, tangiral@crd.ge.com, General Electric	

2:00-2:30 PM	**Hybrid Reynolds-Averaged / Large Eddy Simulation of Flow in a Model SCRamjet Cavity Flameholder** R.A. Baurle
2:30-3:00 PM	**Numerical Predictions of Mixing in a Supersonic Cavity Flameholder** D.M. Peterson; E.A. Hassan
3:00-3:30 PM	**Analysis of Combustion Closure Assumptions in a Dual-Mode Scramjet Combustor** W. Chan; M. Ihme
3:30-4:00 PM	**A Computational Investigation of Unstart in a Dual-Mode Scramjet** L.P. Riley; M.A. Hagenmaier; J.M. Donbar; D.V. Gaitonde
2:00 PM-5:30 PM, Regatta B, **IS-11. Intelligent Mission Design and Vehicle Control**, Technical Paper, **AIAA Infotech @ Aerospace**, Co-Chair: Elad Kivelevitch, elad.kivelevitch@gmail.com, University of Cincinnati; Chair: Christopher Tschan, tschan@comcast.net, The Aerospace Corporation	
2:00-2:30 PM	**Design Exploration of a Low-Thurst Space Trajectory Problem for DESTINY Mission** T. Watanabe; T. Tatsukawa; T. Yamamoto; A. Oyama; Y. Kawakatsu
2:30-3:00 PM	**Mission Optimization for Information Gathering Unmanned Aircraft Systems: A Cyber-Physical Perspective** B.T. Coloe; E.M. Atkins
3:00-3:30 PM	**Detection and Localization using Unmanned Aerial Systems for Firefighting Applications** S.R. Kukreti; M. Kumar; K. Cohen
3:30-4:00 PM	**Exploring Non-Aviation Information Sources for Aircraft Emergency Landing Planning** P.F. Di Donato; E.M. Atkins
4:00-4:30 PM	**A Fuzzy Logic Approach for Low Altitude UAS Traffic Management (UTM)** B. Cook; K. Cohen; E.H. Kivelevitch
4:30-5:00 PM	**Empirical Dynamics Learning and Reduction of Motion-Primitive-Based Pattern Generators with Applications to Flapping Wings** I.J. Sledge; K. Mohseni
2:00 PM-5:00 PM, Gaslamp B, **MAT-10. Work Force Development for Integrated Computational Materials Engineering** , Panel, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference (non-paper sessions)**, Co-Chair: Michael Sangid, msangid@purdue.edu, Purdue University; Co-Chair: Vasisht Venkatesh, vasisht.venkatesh@pw.utc.com,	
2:00 PM-5:30 PM, Balboa A, **MDO-08. Sensitivity Derivations & Optimization Applications**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Vladimir Balabanov, vladimir.balabanov@boeing.com, Boeing Commercial Airplanes; Co-Chair: Graeme Kennedy, graeme.kennedy@aerospace.gatech.edu, Georgia Institute of Technology	
2:00-2:30 PM	**A Scalable Adjoint Method for Coupled Flexible Multibody Dynamics** G. Kennedy

2:30-3:00 PM	**Shape Optimization for Two-Dimensional Acoustic Metamaterials and Phononic Crystals with a Time-Dependent Adjoint Formulation** W. Lin; W.K. Anderson; J. Newman; X. Zhang
3:00-3:30 PM	**Implementation of discrete adjoint method for parameter sensitivity analysis in chemically reacting flows** M.K. Esfahani; G. Houzeaux
3:30-4:00 PM	**Time-Dependent Aero-acoustic Adjoint-based Shape Optimization of Hovering Helicopter Rotors** E. Fabiano; A. Mishra; D.J. Mavriplis; K. Mani
4:00-4:30 PM	**Trajectory Optimization Procedure for Interplanetary Transfers based on Direct Collocation Method** D.H. Somavarapu; E. Wahl; A. Westfall; K. Turkoglu
4:30-5:00 PM	**Multi-parametric high-order flow sensitivity analysis** A. Hay; C. Belley; D. Pelletier
2:00 PM-5:30 PM, Golden Hill B, **MST-12. Computational Methods I**, Technical Paper, **AIAA Modeling and Simulation Technologies Conference**, Co-Chair: Melissa Carter, Melissa.B.Carter@gmail.com, NASA-Langley Research Center; Chair: Peter Grant, prgrant@utias.utoronto.ca, University of Toronto	
2:00-2:30 PM	**Numerical Investigation of Scale Factor in Composites Applying Extended Finite Element Method** P. Behroozinia; J. Bayandor; R. Mirzaeifar
2:30-3:00 PM	**Ice release phenomena modelled by Finite Element models** R. Milanese; R. Scigliano; V. De Simone; V. Carandente
3:00-3:30 PM	**A VPM/CFD Coupling Methodology to Study Rotor/Ship Aerodynamic Interaction** N. Rajmohan; C. He
3:30-4:00 PM	**Modeling and simulation of the thermal performance of a stratospheric airship with photovoltaic array** Q. Liu; Y.C. Yang; Z.j. Li; J.j. Cai
4:00-4:30 PM	**Exploration of POD-Galerkin Techniques for Developing Reduced Order Models of the Euler Equations** C. Huang; W.E. Anderson; C. Merkle
4:30-5:00 PM	**Multistep Simulation for Three-dimensinal Ice Accretion on an Aircraft Wing** J. Huang; S. Nie; Y. Cao; Y. Yao; J. Yao
2:00 PM-5:30 PM, Golden Hill A, **MST-13. Model and Simulation Verification and Validation**, Technical Paper, **AIAA Modeling and Simulation Technologies Conference**, Chair: Terry Burress, terry.j.burress@lmco.com, Lockheed Martin Corporation; Co-Chair: Scott Kowalchuk, sakowal@sandia.gov, Sandia National Laboratories	
2:00-2:30 PM	**Validation Process of the Physics-based Modeling of Navigation Sensors for Sea-based Aviation Automated Landing** N. Good; O. Aboutalib; B. Thai; N. Yamaoka; C. Kim; C. Wilkinson; D. Findlay

2:30-3:00 PM	**Upgrades to the Horizon Simulation Framework: Dynamic Model Creation, Scripting, and Multi-thread Support** B. Butler; E.A. Mehiel
3:00-3:30 PM	**A Systematic LPV/LFR Modelling Approach Optimized for Linearised Gain Scheduling Control Synthesis** S. Fleischmann; S. Theodoulis; E. Laroche; E. Wallner; J. Harcaut
3:30-4:00 PM	**An overview of Model-Based Development Verification/Validation Processes and Technologies in the Aerospace Industry** J.L. Allen
4:00-4:30 PM	**Consistent Behavioral Abstractions of Experimental Frame** S.S. Ponnusamy; V. Albert; P. Thebault
2:00 PM-5:30 PM, Nautical, **MVC-02. Geometry & Computational Environments**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: John Dannenhoffer, jfdannen@syr.edu, Syracuse University ; Chair: Greg Power, gregory.power.1.ctr@us.af.mil, Aerospace Testing Alliance	
2:00-2:30 PM	**CGNS test suites for CFD software components** M. Poinot
2:30-3:00 PM	**Generation of Multi-fidelity, Multi-discipline Air Vehicle Models with the Engineering Sketch Pad** J. Dannenhoffer; R. Haimes
3:00-3:30 PM	**Generation of Parametric Aircraft Models from a Cloud of Points** P. Jia; J. Dannenhoffer
3:30-4:00 PM	**NASA CFD Vision 2030 Visualization and Knowledge Extraction: Panel Summary from AIAA AVIATION 2015 Conference** E.P. Duque; S.T. Imlay; S. Ahern; C. Guoning; D.L. Kao
4:00-4:30 PM	**In Situ Infrastructure Enhancements for Data Extract Generation** B.J. Whitlock; S.M. Legensky; J. Forsythe
4:30-5:00 PM	**Snapshot Lagrangian Proper Orthogonal Decomposition of Cylinder Wake Flow** J.S. Rossetti; J. Dannenhoffer; M.A. Green
5:00-5:30 PM	**Unstructured mesh adaptation for functional outputs. With application to two dimensionnal invscid flows.** J.E. Peter; J. Desideri
2:00 PM-4:00 PM, Seaport FG, **PANEL-11. Thursday Afternoon Forum 360** **Learning from Hollywood**, Panel, **Forum 360**	
2:00 PM-5:30 PM, Harbor B, **PC-16. Rocket & Air-Breathing Combustion I - Combustion Instabilities, Supercritical Conditions**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Bradley Hitch, hitch@rxnsys.com, Reaction Systems; Co-Chair: Doug Talley, douglas.talley.1@us.af.mil,	
2:00-2:30 PM	**Application of Detailed Chemical Kinetics to Combustion Instability Modeling** M.E. Harvazinski; D.G. Talley; V. Sankaran
2:30-3:00 PM	**Low-Probability Events Leading to Rocket Engine Combustion Instability** P.P. Popov; A. Sideris; W.A. Sirignano

3:00-3:30 PM	**Effects of Kerosene Annulus Length on Mixing Characteristics of Swirl Coaxial Injectors at Supercritical Conditions** X. Wang; V. Yang
3:30-4:00 PM	**Direct numerical simulation of transcritical turbulent boundary layers at supercritical pressures with strong real fluid effects** S. Kawai
4:00-4:30 PM	**Simulation of high-pressure methane flames** G. Ribert; P. Domingo; X. Petit
2:00 PM-5:30 PM, Harbor C, **PC-17. Turbulent Combustion III - Large-Eddy Simulations**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Adam Comer, Adam.L.Comer@gmail.com, ; Co-Chair: Joseph Oefelein, oefelei@sandia.gov, Sandia National Laboratories	
2:00-2:30 PM	**Modeling and Simulation of Bluff Body Stabilized Turbulent Premixed Flames** A.L. Comer; C. Huang; B.A. Rankin; M.E. Harvazinski; V. Sankaran
2:30-3:00 PM	**LES Model Assessment for High Speed Combustion** C.H. Patton; T. Wignall; J.R. Edwards; T. Echekki
3:00-3:30 PM	**Simulation of the Cold Flow in a Ramp-Cavity Combustor Using a DSEM-LES/FMDF Hybrid Scheme** J. Komperda; Z. Ghiasi; D. Li; F. Mashayek; A. Irannejad; F.A. Jaberi
3:30-4:00 PM	**Large Eddy Simulation of a Supercritical Fuel Jet in Cross Flow using GPU-Acceleration** K.C. Gottiparthi; R. Sankaran; J.C. Oefelein
4:00-4:30 PM	**Large eddy simulation of a turbulent premixed jet flame using flamelet -generated manifolds** W. Song; B. Lee; H.G. Im; A. Donini; A. Fancello; J.A. van Oijen; L.H. de Goey
4:30-5:00 PM	**Flamelet Modeling Studies of a Continuously Variable Resonance Combustor** T. Pant; C. Huang; C. Han; S.V. Sardeshmukh; W.E. Anderson; H. Wang
5:00-5:30 PM	**Experimental and numerical investigation into the propagation of entropy waves in a small-scale rig** A. Giusti; N. Worth; E. Mastorakos; A. Dowling
2:00 PM-5:30 PM, Ocean Beach, **PDL-12. Plasma Propulsion**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Subrata Roy, roy@ufl.edu, University of Florida; Co-Chair: Kunning Xu, gabe.xu@uah.edu,	
2:00-2:30 PM	**Synchronized Measurement of Plasma Characteristics In a Hall Effect Thruster** D.A. Cunningham; D. Liu; C. Hartsfield; C. Mullins; C. Farnell; J.D. Williams; W.A. Hargus
2:30-3:00 PM	**Empirical Determination of Performance Characteristics for Busek 1cm Micro Radio-Frequency Ion Propulsion System** C. Muilenburg; D. Liu

3:00-3:30 PM	**Performance Analysis of a Microwave Microplasma MicroThruster Using a Split Ring Resonator Microplasma Source** B.R. Searcy; K.G. Xu; R. Dextre
3:30-4:00 PM	**Confined versus Unconfined Analysis of Split Ring Resonator Microplasma Source in a Microwave Electrothermal Thruster** R. Dextre; K.G. Xu
4:00-4:30 PM	**Design of Magnetoplasmadynamic Thruster Incorporating Friction Stir Welding Technique** P. Johnson
2:00 PM-5:30 PM, Balboa B, **SCS-06. Spacecraft Solar Array Structures II**, Technical Paper, **3rd AIAA Spacecraft Structures Conference**, Co-Chair: Juan Fernandez, lofaso@hotmail.com, ; Chair: Richard Pappa, richard.s.pappa@nasa.gov, NASA Langley Research Center	
2:00-2:30 PM	**UltraFlex and MegaFlex – Advancements in Highly Scalable Solar Power** D.M. Murphy; M.I. Eskenazi; M.E. McEachen; J.W. Spink
2:30-3:00 PM	**Shear Between Straight Ribs in Spirally Stowed Sheets** G. Greschik
3:00-3:30 PM	**The Wrapped Architecture for Large Photo-Voltaic Arrays** G. Greschik
3:30-4:00 PM	**Ultralight Structures for Space Solar Power Satellites** M. Arya; N. Lee; S. Pellegrino
4:00-4:30 PM	**Robust, Highly Scalable Solar Array System** W.H. Francis; B. Davis; M. Lake
4:30-5:00 PM	**MakerSat: In-Space Additive Manufacturing of Large Truss Structures Using the Trusselator™ Technology** R.P. Hoyt; J. Slostad; J. Cushing; T. Moser
2:00 PM-5:30 PM, Balboa C, **SD-12. System ID**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Vikram Hrishikeshavan, vikram.h1@gmail.com, University of Maryland; Co-Chair: William Welsh, wwelsh@sikorsky.com, Sikorsky Aircraft Corporation	
2:00-2:30 PM	**Identification of Nonlinear Aeroelastic Behavior of a Wing with Pitching and Plunging Freeplay via Higher-Order Spectra Analysis** M. Candon; H. Ogawa; R. Carrese; P. Marzocca; W.A. Silva
2:30-3:00 PM	**Dynamic Beam Solutions for Real-Time Simulation and Control Development of Flexible Rockets** W. Su; C. King; S. Clark; E.D. Griffin; J.D. Suhey; M.G. Wolf
3:00-3:30 PM	**Flight Shape Estimation of Very Flexible Unmanned Aerial Vehicle** Z. Pang; C.E. Cesnik
3:30-4:00 PM	**Efficient Clustering Algorithm Using Modal Assurance Criterion for System Identification** Z. Wang; D. Sarhaddi; P. Chen

4:00-4:30 PM	**Operational Modal Analysis of a Rotating Cantilever Beam Using High -Speed Digital Image Correlation** S.S. Rizo-Patron; J. Sirohi
4:30-5:00 PM	**Modeling of Artificial Hair Sensors for Vibration Control of Flexible Wings** W. Su; G.W. Reich
2:00 PM-5:30 PM, Gaslamp A, **SD-13. Flutter**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Theodore Bartkowicz, ted.bartkowicz@boeing.com, Boeing Defense, Space & Security; Chair: Alok Sinha, axs22@psu.edu, The Pennsylvania State University	
2:00-2:30 PM	**Classical aeroelastic stability analysis of large composite wind turbine blades** T. Farsadi; A. Kayran
2:30-3:00 PM	**Wind Tunnel Flutter Testing of a Highly Swept All-Movable Wing with a Control Surface** D.M. Pitt; B. Sexton; K. Byun
3:00-3:30 PM	**Development and Wind Tunnel Test of W-WING Whirl Flutter Aeroelastic Demonstrator** J. Cecrdle; J. Malecek; O. Vich; P. Malinek
3:30-4:00 PM	**Time to Flutter of a Maneuvering Viscoelastic Goland Wing** C. Merrett
4:00-4:30 PM	**Uncertainties in vibratory mode shapes and their effect on flutter speeds** D.M. Pitt; P. Bansal
4:30-5:00 PM	**Optimization of High Altitude Long Endurance (HALE) Vehicle Subject to Flutter Speed Constraint** K. Roughen; M. Baker; J. Robinson; Z. Liu
5:00-5:30 PM	**Experimental investigation of an airfoil response under stall-induced pitching oscillations** F.D. Marques; R.M. Vasconcellos; D.d. Pereira
2:00 PM-5:30 PM, Coronado A, **SOF-08/UMS-09/IS-12. Assurance of Autonomy Symposium IV**, Workshop, **AIAA Infotech @ Aerospace (non-paper sessions)**, Brat Guillaume, guillaume.p.brat@nasa.gov	
2:00 PM-5:30 PM, La Jolla A, **STR-14. Composite Laminate Optimization**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Mostafa Rassaian, mostafa.rassaian@boeing.com, Boeing Engineering Operations & Technology; Chair: Robert Taylor, taylorrm@yahoo.com, Optimal Structures, LLC.	
2:00-2:30 PM	**Aeroelastic Tailoring of Blended Composite Structures using Lamination Parameters** T. Macquart; N. Werter; R. De Breuker
2:30-3:00 PM	**Gradient-Based Optimization of Postbuckled, Steered-Fiber Aircraft Shell Using Equivalent Static Loads** T. Ungwattanapanit; S. Kamath; H. Baier
3:00-3:30 PM	**Damping Optimization of Symmetrically Laminated Plates with Shear Deformation using Lamination Parameters** M. Kameyama; A. Takahashi

3:30-4:00 PM	**Stacking sequence constraints in non-conventional composite laminate optimisation** D. Peeters; M. Abdalla
4:00-4:30 PM	**Optimization of variable stiffness composite plates with cut-outs subjected to compression, tension and shear using an adjoint formulation** M.J. Van Tooren; A. Elham
2:00 PM-5:30 PM, La Jolla B, **STR-15. Buckling, Fatigue, and Fracture of Structures II**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Brett Bednarcyk, brett.a.bednarcyk@nasa.gov, NASA Glenn Research Center; Co-Chair: Michael Mohaghegh, michael.mohaghegh@boeing.com, Boeing Commercial Airplanes	
2:00-2:30 PM	**A Discontinuous Shell Element for the Delamination Analysis of Composite Laminates** S. Yazdani; W. Rust; P. Wriggers
2:30-3:00 PM	**Buckling Considerations in the Design of Monolithic Machined Aluminum Structures** J.A. Tucker; S.G. Russell; B.E. Mueller
3:00-3:30 PM	**Efficient and robust shell design of space launcher vehicle structures** L. Friedrich; M. Ruess; K. Schröder
3:30-4:00 PM	**Post-Buckling Load Redistribution of Stiffened Panels in Aircraft Wingbox Structures** M. Mert; A. Kayran
4:00-4:30 PM	**Vibration and Buckling of Quadrilateral Variable Stiffness Laminated Composite Plates** M.C. Henson; B.P. Wang
4:30-5:00 PM	**Parametric Study of Stiffener Variables on Post-Buckling Response of Frame-Stiffened Composite Panels** G.J. Sanz-Douglass; S. Venkataraman
2:00 PM-5:30 PM, Harbor G, **TP-10. Experimental Measurements and Techniques in Heat Transfer and Related Physical Phenomena**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Ingmar Schoegl, ischoegl@lsu.edu, Louisiana State University; Co-Chair: William Tsai, wtsai@csum.edu, Cal Maritime	
2:00-2:30 PM	**Investigation of Ablative Properties through Advanced Video Analysis: Improving Infrared Measurement through Image-to-Object Calibration** J.R. Hunt; J.H. Koo
2:30-3:00 PM	**An Experimental Investigation on the Convective Heat Transfer Process over an Ice Roughened Airfoil** Y. Liu; H. Hu
3:00-3:30 PM	**Geometry and Test-Time Effects on Hypervelocity Shock-Boundary Layer Interaction** A.M. Knisely; J.M. Austin
3:30-4:00 PM	**Thermal Sensitivity Analysis of Avionic and Environmental Control Subsystems to Variations in Flight Condition** A.B. Jones; T.G. Childs; R. Chen; A. Murray
4:00-4:30 PM	**Spectral, Directional Emittance at Elevated Temperatures for Various Materials** M. Winter; R. Bickel; D. Sekulic; H. Koch; B.D. Butler; H. Fu

2:00 PM-5:30 PM, Regatta C, **UMS-10. Unmanned Systems: Detect-and-Avoid I**, Technical Paper, **AIAA Infotech @ Aerospace**, Chair: Vincent Schultz, Vincent.P.Schultz@nasa.gov, NASA Langley Research Center; Co-Chair: Richard Stansbury, stansbur@erau.edu, Embry-Riddle Aeronautical University	
2:00-2:30 PM	**Minimum Required Sensing Range for UAS Sense and Avoid Systems** L.R. Sahawneh; J. Spencer; R.W. Beard; K. Warnick
2:30-3:00 PM	**Ranging of Aircraft Using Wide-baseline Stereopsys** K.T. Rigby; C. Reinholtz; T. Wilson
3:00-3:30 PM	**Inexpensive, Efficient, Light-weight Vision-based Collision Avoidance System for Small Unmanned Aerial Vehicles** A.J. Harmsen; M.X. Liu
3:30-4:00 PM	**Collision Avoidance System using Stereoscopic Vision for Unmanned Aerial Systems** S. Bhandari; T. Srinivasan; J. Gray; M. Torstenbo; J. Corral; N. Brown; N. McDorman; J. Wood; A. Raheja
4:00-4:30 PM	**Vision-Based Proportional Navigation for UAS Collision Avoidance** M. Clark; R.J. Prazenica
4:30-5:00 PM	**Collision Avoidance System Effectiveness on Low Performance Unmanned Aircraft** E.H. Londner
2:00 PM-5:30 PM, Harbor H, **WE-10. Wind Energy: Wind Plant Aerodynamics and Atmospheric Inflow**, Technical Paper, **34th Wind Energy Symposium**, Chair: Jay Sitaraman, jsitaraman@gmail.com	
2:00-2:30 PM	**Large Eddy Simulation of 3 X 3 wind turbine array using Actuator Line model with spectral elements** T. Chatterjee; Y. Peet
2:30-3:00 PM	**Effect of Inversion-Layer Height and Coriolis Forces on Developing Wind-Farm Boundary Layers** D. Allaerts; J. Meyers
3:00-3:30 PM	**A Modeling Framework for Wind Farm Analysis: Farm Scale Simulations and Inflow Models for LES** A.S. Ghate; S.K. Lele
3:30-4:00 PM	**Coupled Aero-Elastic Multi-Body Simulation of Two-bladed Wind Turbines in Wake Arrays** B. Luhmann; F. Beyer; P. Cheng
4:00-4:30 PM	**Measuring power output intermittency and unsteady loading in a micro wind farm model** J. Bossuyt; C. Meneveau; J. Meyers
2:00 PM-5:30 PM, Harbor I, **WE-11. Wind Energy: Offshore Wind Systems**, Technical Paper, **34th Wind Energy Symposium**, Chair: Jason Jonkman, jason.jonkman@nrel.gov, National Renewable Energy Laboratory	
2:00-2:30 PM	**A Comprehensive Aero-Hydro-Structural Analysis of a 5-MW Offshore Wind Turbine System: Towards Cost-Effective Deployment of Offshore Wind Turbines in Maryland** S. Smith; A. Syed; D. Chen; M. Yu; W. Zhu; R. Liu; M.S. Aggour

2:30-3:00 PM	**On the Development of a Semi-Submersible Offshore Floating Platform and Mooring System for a 13.2 MW Wind Turbine** J. Liu; E. Thomas; L. Manuel; D. Griffith; K. Ruehl; M.F. Barone
3:00-3:30 PM	**Long-Term Loads on a Large Offshore Wind Turbine Supported by a Semi-Submersible Platform** E. Thomas; J. Liu; A. Goyal; L. Manuel
3:30-4:00 PM	**An Aeroelastic Perspective of Floating Offshore Wind Turbine Wake Formation and Instabilities** S. Rodriguez; J.W. Jaworski
4:00-4:30 PM	**An Experimental Investigation on the Aeromechanic Performance and Wake Characteristics of a Wind Turbine Model Subjected to Pitch Motions** H. Hu; M. Khosravi; P. Sarkar
4:30-5:00 PM	**uncertainty quantification of the levelized cost of energy for a 20 mw research wind turbine model** T. Ashuri; T. Zhang; D. Qian; M. Rotea
3:30 PM-4:00 PM, Exposition Hall, **NW-15. Thursday Afternoon Networking Coffee Break**, Networking, **Forum Event**	
5:30 PM-7:30 PM, Seaport FG, **NW-16. Women at SciTech Happy Hour and Keynote**, Networking, **Forum Event**	

Friday, January 08, 2016

Time	Session or Event Info
7:00 AM-7:30 AM, Session Room Foyers, **NW-17. Friday Early Morning Coffee Break**, Networking, **Forum Event**	
7:30 AM-8:00 AM, Session Rooms, **SB-05. Friday Morning Speakers' Briefing**, Speakers' Briefing, **Forum Event**	
8:00 AM-9:00 AM, Seaport A-E, **PLNRY-05. Friday Morning Plenary** **Commercial Use of Unmanned Systems**, Plenary, **Forum Event**	
9:00 AM-12:30 PM, Bankers Hill, **ACD-13. Aircraft Design Optimization**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Hernando Jimenez, hernando.jimenez@asdl.gatech.edu, Georgia Institute of Technology; Co-Chair: Steve Komadina, steve.komadina@ngc.com, Northrop Grumman Aerospace Systems	
9:00-9:30 AM	**Aircraft Design for Best Value** P.M. Bevilaqua
9:30-10:00 AM	**Multifidelity Conceptual Design and Optimization of Strut-Braced Wing Aircraft using Physics Based Methods** A. Variyar; T.D. Economon; J.J. Alonso
10:00-10:30 AM	**Aircraft Design Optimization with Artificial Intelligence** N. Cavus

10:30-11:00 AM	**Low-Boom / Low-Drag Design Optimization of Innovative Supersonic Transport Configuration** B. Naohiko; W. Yamazaki; K. Kusunose
11:00-11:30 AM	**Signomial Programming Models for Aircraft Design** P.G. Kirschen; E. Burnell; W. Hoburg
9:00 AM-12:30 PM, Cortez Hill A, **AFM-14. Aeroserovelastic (ASE) Control, Modeling, Simulation, and Optimization**, Technical Paper, **AIAA Atmospheric Flight Mechanics Conference**, Co-Chair: Curtis Hanson, curtis.e.hanson@nasa.gov, NASA-Dryden Flight Research Center; Chair: Francis Priolo, fpriolo@meicompany.com, Millennium Engineering and Integration Company	
9:00-9:30 AM	**Control of Limit Cycle Oscillation Amplitudes in Nonlinear Aerelastic Systems using Nonlinear Normal Modes** H. Shukla; M. Patil
9:30-10:00 AM	**Control Surface Buffet Load Measurement using Aircraft Actuators** B.P. Danowsky; P.C. Schulze
10:00-10:30 AM	**Adaptive Feedback Control for Gust Loads Alleviation: from Simulation to Wind Tunnel Test** Y. Wang; F. Li; A. Da Ronch
10:30-11:00 AM	**High Fidelity Aeroservoelastic Model Reduction Methods** P.C. Schulze; B.P. Danowsky; T. Lieu
9:00 AM-12:30 PM, Harbor A, **AFM-15. Flight Test and System Identification II**, Technical Paper, **AIAA Atmospheric Flight Mechanics Conference**, Chair: Jared Grauer, jared.a.grauer@nasa.gov, NASA Langley Research Center; Co-Chair: Zachary Putnam, zputnam@illinois.edu, University of Illinois at Urbana-Champaign	
9:00-9:30 AM	**A Methodology for the Robust Design Optimization of Flight Dynamic System Identification Experiments** J.W. Dykes; D.N. Mavris
9:30-10:00 AM	**Parameter Covariance for Aircraft Aerodynamic Modeling using Recursive Least Squares-EndFragment-->** J.A. Grauer
10:00-10:30 AM	**Real-Time Global Nonlinear Aerodynamic Modeling for Learn-To-Fly** E.A. Morelli
10:30-11:00 AM	**Online Physical Model Identification for Database-driven Safe Fight Envelope Prediction of Damaged Aircraft** Y. Zhang; C.C. de Visser; Q. Chu
11:00-11:30 AM	**Two-point Aerodynamic Model Identification from Dynamic Wind Tunnel Tests** J.N. Dias; R.d. Girardi
11:30-12:00 PM	**Comparison of Time and Frequency Domain Identification of a Fixed-Wing UAV** O. Simsek; S.A. Haser; E.H. Orhan; O. Tekinalp
12:00-12:30 PM	**External Stores Grouping for Aero Database Update** T. Khadeeja Nusrath; J. Singh; A. Saraf

9:00 AM-12:30 PM, Harbor D, **AMT-09. Surface Pressure and Skin Friction Measurements**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Christian Klein, christian.klein@dlr.de, DLR - German Aerospace Center; Co-Chair: Jonathan Naughton, naughton@uwyo.edu, University of Wyoming	
9:00-9:30 AM	**Skin-Friction Measurements Using a Luminescent Oil-Film and Molecular Tagging Velocimetry** N.M. Husen; L.K. Rajendran; T. Liu; J. Sullivan
9:30-10:00 AM	**Characterization of a sapphire optical wall shear stress sensor for high-temperature applications** D.A. Mills; D. Blood; M. Sheplak
10:00-10:30 AM	**Unsteady PSP Measurements on a Rectangular Cube** N. Roozeboom; S.M. Murman; L. Diosady; N.J. Burnside; J.C. Ross
10:30-11:00 AM	**Polymer/Ceramic PSP with Reduced Surface Roughness for Unsteady Pressure Measurement in Transonic Flow** Y. Sugioka; D. Numata; K. Asai; S. Koike; K. Nakakita; T. Nakajima
11:00-11:30 AM	**Comparison of Blur Elimination Techniques for PSP Images of Rotating Surfaces** A. Pandey; J.W. Gregory; S. Stanfield; J.W. Crafton
11:30-12:00 PM	**Pressure/Temperature Distribution on the Surface of a Free-Flight Object Measured by PSP/TSP** M. Ishii; H. Goya; T. Miyazaki; H. Sakaue
9:00 AM-12:30 PM, Americas Cup D, **APA-41. Applied CFD & Numerical Correlations with Experimental Data IV**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Kedar Chitale, kedar.chitale@gmail.com, Rensselaer Polytechnic Institute	
9:00-9:30 AM	**A global time integration approach for realistic unsteady flow computations** P. Eliasson; T. Lundquist; J. Nordstrom
9:30-10:00 AM	**Validation of Steady RANS Simulations Conducted on the High Maneuverability Airframe Using Magnetic Resonance Velocimetry Water Channel Testing** M. Wells; C. Snow; C.J. Coyle; A. Coulter; J. Spirnak; E. Youn; M. Benson; C. Elkins; S.I. Silton
10:00-10:30 AM	**Validation of a Transonic Lattice-Boltzmann Method on the NASA Common Research Model** B. Konig; E. Fares
10:30-11:00 AM	**Stability Derivative Computation of Tailless Aircraft using Variable-Fidelity Aerodynamic Analysis for Control Performance Analysis** J. Park; J. Choi; Y. Jo; S. Choi
11:00-11:30 AM	**Flight Behaviors of a Complex Projectile using a Coupled CFD-based Simulation Technique: Open-loop Control** J. Sahu; F. Fresconi
9:00 AM-12:30 PM, Coronado D, **APA-42. Aerodynamic-Structural Dynamics Interactions II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Crystal Pasiliao, crystal.pasiliao@us.af.mil, AFRL/RWWV; Chair: Vasisht Venkatesh, vasisht.venkatesh@pw.utc.com,	

9:00-9:30 AM	**Aero-Structural Design Optimization of Adaptive Shock Control Bumps** E.R. Jinks; P.J. Bruce; M.J. Santer
9:30-10:00 AM	**An Immersed Boundary Method for Solving the Compressible Navier-Stokes Equations with Fluid-Structure Interaction** C. Brehm; M.F. Barad; E. Sozer; C.C. Kiris
10:00-10:30 AM	**Analysis and Computational Study of The Aerodynamics, Aeroelasticity And Flight Dynamics of Flapping Wing Ornithopter Using Linear Approximation** H.H. Djojodihardjo
10:30-11:00 AM	**A Parametric Study of Factors Affecting Transonic Shock Oscillation** N.F. Giannelis; G.A. Vio
9:00 AM-12:30 PM, Americas Cup C, **APA-43. Lowspeed Flow Environment and UAV Integration**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Douglas Hunsaker, doug.hunsaker@gmail.com, Blucraft, LLC	
9:00-9:30 AM	**Design and Development of a 3D Printed Unmanned Aerial Vehicle** C. Banfield; J. Kidd; J.D. Jacob
9:30-10:00 AM	**Numerical Simulations of Parachute Aerodynamic Characteristics under Severe Weather** T. Wan; C. Cheng; R. Huo
10:00-10:30 AM	**Stabilization of Helicopter Sling Loads with Passive and Active Control Surfaces** D. Cyr; P. Guarino; J. Hitchen; R. Morar; J. Sperry; R.V. Cowlagi; D.J. Olinger; D.J. Nyren
9:00 AM-12:30 PM, Coronado E, **APA-44. Special Session: Low Boom Activities**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Susan Cliff, susan.e.cliff@nasa.gov, NASA-Ames; Chair: Kenrick Waithe, kenrickwaithe@gmail.com, Gulfstream Aerospace Corporation	
9:00-9:30 AM	**A New F-Function for the Low-Boom Aircraft Design with Trim Requirement** Y. Kasuga; K. Yoshida; H. Ishikawa
9:30-10:00 AM	**Multi-fidelity Low-boom Design Based on Near-field Pressure Signature** A. Ueno; M. Kanamori; Y. Makino
10:00-10:30 AM	**Computational and Experimental Study of Supersonic Nozzle Flow and Aft-Deck Interactions** W.E. Bruce; M.B. Carter; A.A. Elmiligui; C.S. Winski; S. Nayani; R.S. Castner
10:30-11:00 AM	**Wind Tunnel Model Design for Sonic Boom Studies of Nozzle Jet Flow with Shock Interactions** S.E. Cliff; M.F. Denison; S. Moini-Yekta; D.E. Morr; D.A. Durston
11:00-11:30 AM	**Numerical Examination of Shock Generator Geometries and Nozzle Plume Effects on Pressure Signature** J. Pearl; M.B. Carter; A.A. Elmiligui; C.S. Winski; S. Nayani
11:30-12:00 PM	**A Space Marching Method for Sonic Boom Near Field Predictions** H. Shen; D. Lazzara

9:00 AM-12:30 PM, Americas Cup B, **APA-45. Airfoil/Wing/Configuration Aerodynamics III**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Matthew Conway, matt.conway.1618@gmail.com, The Aerospace Corporation; Chair: Carl Tilmann, carl.tilmann@us.af.mil, Air Force Research Laboratory	
9:00-9:30 AM	**Beyond the Elliptical Span Load: Optimizing Minimum Induced Drag Using Enhanced Leading Edge Suction** T.T. Takahashi; C.A. Barchfeld
9:30-10:00 AM	**Aerodynamic Performance of a Small-Scale Wingsail Vessel** M.R. Anderson
10:00-10:30 AM	**Effects of Wake Shapes on High-Lift System Aerodynamic Predictions** W. Bissonnette; G. Bramesfeld
10:30-11:00 AM	**Aerodynamic Design of Transonic Natural-Laminar-Flow (NLF) Wing via Surrogate-based Optimization** Z. Han; J. Chen; Z. Zhu; W. Song
11:00-11:30 AM	**Post-Stall Performance Improvement through Bio-inspired Passive Covert Feathers** A. Altman; G. Allemand
9:00 AM-12:30 PM, Regatta A, **DA-02. Avionics Technologies for Safe and Efficient Vehicle Operation in National Airspace**, Technical Paper, **AIAA Infotech @ Aerospace**, Co-Chair: Bernd Korn, bernd.korn@dlr.de, DLR - German Aerospace Center ; Co-Chair: Maarten Uijt De Haag, uijtdeha@ohio.edu, Ohio University	
9:00-9:30 AM	**Evaluating Technologies for Improved Airplane State Awareness and Prediction** S.D. Young; M. Uijt De Haag; T. Daniels; E. Evans; K.H. Shish; S. Schuet; T. Etherington; D. Kiggins
9:30-10:00 AM	**Assessing Dual Sensor Enhanced Flight Vision Systems to Enable Equivalent Visual Operations** L.J. Kramer; T.J. Etherington; K. Severance; R.E. Bailey; S.P. Williams; S.J. Harrison
10:00-10:30 AM	**The Use of Enhanced Vision Systems for See-and-Avoid During Surface Operations** R.E. Bailey
9:00 AM-12:30 PM, Balboa C, **DSC-06. Aeroelasticity**, Technical Paper, **15th Dynamics Specialists Conference**, Chair: Dale Pitt, dale.m.pitt@boeing.com, Boeing Engineering Operations & Technology; Co-Chair: Robert Scott, robert.c.scott@nasa.gov, NASA Langley Research Center	
9:00-9:30 AM	**Modeling and Simulation of Flexible Jet Transport Aircraft with Aeroelastically Tailored High-Aspect-Ratio Wings** R.C. Kitson; C. Lupp; C.E. Cesnik
9:30-10:00 AM	**Aeroelastic Ground Wind Loads Analysis Tool for Launch Vehicles** T.G. Ivanco
10:00-10:30 AM	**Aeroelasticity of Flexible Airfoils with Arbitrary Camber Deformations** W. Su; C. King

10:30-11:00 AM	**Nonlinear transient Fluid/Structure interaction approach using surrogate models: Industrial application to aircraft fairing vibration excited by engine efflux.** E. Bosco; A. Lucchetti; S. Trapier; F. Di Vincenzo; J. Morlier; N. Gourdain
11:00-11:30 AM	**Status of the KTH-NASA Wind-Tunnel Test for Acquisition of Transonic Nonlinear Aeroelastic Data** W.A. Silva; U. Ringertz; D. Eller; D. Keller
9:00 AM-12:30 PM, Pier, **FD-54. CFD: Overset Methods,** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Co-Chair: Marshall Galbraith, Marshall.Galbraith@gmail.com, ; Co-Chair: Scott Sherer, Scott.Sherer@us.af.mil, US Air Force	
9:00-9:30 AM	**High-Order Overset Interpolation via Weighted Least-Square Polynomials Reconstruction for Finite Volume CFD** J. Le Gouez
9:30-10:00 AM	**Deformable Overset Grid for Unsteady Aerodynamic Simulation** T. Xiao; N. Qin; D. Luo; S. Deng
10:00-10:30 AM	**A Multi-Solver Overset Mesh Approach for 3D Mixed Element Variable Order Discretizations** M.J. Brazell; A. Kirby; J. Sitaraman; D.J. Mavriplis
10:30-11:00 AM	**A implicit, discontinuous Galerkin Chimera solver using automatic differentiation** N.A. Wukie; P.D. Orkwis
11:00-11:30 AM	**A mixed overset grid/immersed boundary approach for CFD simulations of complex geometries** S. Péron; C. Benoit; V. Gleize; I. Mary; M. Terracol
11:30-12:00 PM	**Recent Developments of the Navier Stokes Multi Block (NSMB) CFD solver.** Y. Hoarau; D. Pena; J.B. Vos; D. Charbonier; A. Gehri; M. Braza; T. Deloze; E. Laurendeau
9:00 AM-12:30 PM, Harbor E, **FD-55. High-Speed Flow Methods & Simulations,** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Co-Chair: Karthikeyan Duraisamy, karthik.du@gmail.com, University of Michigan, Ann Arbor; Co-Chair: Ryan Gosse, ryan.gosse.1@us.af.mil, WPAFB	
9:00-9:30 AM	**Shape Optimization of a Blunt Body in Hypersonic Rarefied and Reacting Flow for Reducing Both Drag and Heat Transfer** G. Huang; S. Gardner; E. Zishka; C. Seager; R.K. Agarwal
9:30-10:00 AM	**Numerical Investigation of the Near-Field of a Supersonic Multistream Jet** C.M. Stack; D.V. Gaitonde
10:00-10:30 AM	**Recovery of Freestream Acoustic Disturbances from Stagnation Pressure Spectrum in Hypersonic Flow** R.S. Chaudhry; G.V. Candler
10:30-11:00 AM	**Simulation of Hypersonic Flows using a Particle-based Ellipsoidal Statistical Bhatnagar-Gross-Krook Method** O. Tumuklu; D.A. Levin

11:00-11:30 AM	**Construction Methodology of Weighted Upwind Compact Scheme** Z. Wang; H. Al-Dujaly; C. Liu
11:30-12:00 PM	**A Decoupled Method for the Roe FDS Scheme in the Reacting Gas Path of FUN3D** K.B. Thompson; P.A. Gnoffo
9:00 AM-12:30 PM, Harbor F, **FD-56. Incompressible Flow Transition**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Edward White, ebw@tamu.edu, Texas A&M University	
9:00-9:30 AM	**The Effect of Acoustic Forcing on Instabilities and Breakdown in Swept-Wing Flow Over a Backward-Facing Step** J.L. Eppink; O. Shishkov; R.W. Wlezien; R.A. King; M.M. Choudhari
9:30-10:00 AM	**Self-Contradictions in Classical and Current Turbulence Theory and New Turbulence Genearation Theory** C. Liu
10:00-10:30 AM	**The Interaction of a Swept-Wing Boundary Layer with Surface Excrescences** T.I. Saeed; M.S. Mughal; J. Morrison
10:30-11:00 AM	**A Quantitative Investigation of Surface Roughness Effects on Airfoil Boundary Layer Transition Using Infrared Thermography** T. Beeby; J. Ackermann; C.M. Langel; R. Chow; C.P. Van Dam; T. Raffius
11:00-11:30 AM	**Evaluation of Miniature Vortex Generators for Flow Control in Falkner–Skan Boundary Layers** R.S. Downs; B. Fallenius; J. Fransson; H. Mårtensson
11:30-12:00 PM	**New Vortex Identification Method and Vortex Ring Development Analysis in Boundary Layer Transition** C. Liu; Y. Wang; J. Tang
9:00 AM-12:30 PM, Cove, **FD-57. Pitching/Heaving/Flapping Surfaces**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Bharathram Ganapathisubramani, G.Bharath@soton.ac.uk, University of Southampton; Co-Chair: Keith Moored, kmoored@lehigh.edu, Lehigh University	
9:00-9:30 AM	**Lift Enhancement of High Angle of Attack Airfoils Using Periodic Pitching** S.T. Dawson; M. Hemati; D.C. Floryan; C.W. Rowley
9:30-10:00 AM	**On Optimal Oscillating-Foil Power Generation in Free and Constrained Flow** F. Karakas; B. Zaloglu; I. Fenercioglu; C. Hoke; J. Young; J. Lai; M.F. Platzer
10:00-10:30 AM	**Proper Orthogonal Decomposition Analysis of 3-D Wake Structures in a Pitching-Rolling Plate** C. Li; H. Dong; Z. Liang
10:30-11:00 AM	**A Vortex Sheet/Point Vortex Dynamical Model For Unsteady Separated Flows** D. Darakananda; J. Eldredge; T. Colonius; D.R. Williams
11:00-11:30 AM	**Effects of Structural Motion on the Aerodynamics of the X-56A Airfoil** C. Mertens; S. Pineda; M. Agate; J.C. Little; A. Gross; H.F. Fasel

11:30-12:00 PM	**Transient aerodynamics of large transverse gusts and geometrically similar maneuvers** G.M. Perrotta; A.R. Jones
9:00 AM-12:30 PM, Promenade B, **FD-58. Separated Fluid Flows**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Ryan Schmit, ryan.schmit@us.af.mil, USAF AFRL	
9:00-9:30 AM	**Hydrodynamic Wave Generation inside a Rectangular Cavity** R.F. Schmit
9:30-10:00 AM	**Stereoscopic Particle Image Velocimetry measurement of transonic flow over three-dimensional open cavities of complex geometry** E.P. Demauro; S.J. Beresh; J.L. Wagner; J. Henfling; R. Spillers
10:00-10:30 AM	**The Effect of Inflow Mach Number on the Reattachment in Subsonic Flow over a Backward-Facing Step** D. Li; Z. Ghiasi; J. Komperda; F. Mashayek
10:30-11:00 AM	**PIV Investigation in the Centreline Plane of a Pressure-Induced Turbulent Separation Bubble.** M.T. Abdelouahab; J. Weiss
11:00-11:30 AM	**Wave Packets Interacting with Laminar Separated Flow in Non-Equilibrium** O. Marxen
9:00 AM-12:30 PM, Promenade A, **FD-59. Vortex Flows III: Dynamical Systems Methods**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Melissa Green, greenma@syr.edu, Syracuse University; Co-Chair: Douglas Smith, douglas.r.smith@navy.mil, Air Force Office of Scientific Research AFOSR	
9:00-9:30 AM	**Spatiotemporal analysis of fluctuating base pressure and velocity in a blunt trailing edge wake** H.A. Clark; P. Lavoie
9:30-10:00 AM	**Correlation of the Surface Pressure Distribution on a Circular Cylinder with Objective Identification of Vortex Formation and Shedding** M. Rockwood; M.A. Green
10:00-10:30 AM	**Detection of Near Wall Flow Features Using Surface Pressure Data** C.R. Marks; R. Sondergaard
10:30-11:00 AM	**Comparing leading and trailing edge vortex circulation history with vortex identification and tracking methods** Y. Huang; M.A. Green
11:00-11:30 AM	**Numerical Investigation of Flow Asymmetry Around Slender Body at High Angles of Attack** I.M. AlQadi; E. Eljack
11:30-12:00 PM	**Numerical Analysis of a Trailing Edge with Triangular Serrations Using Dynamic Mode Decomposition** N. Thomareis; G. Papadakis
9:00 AM-12:30 PM, Coronado B, **GNC-37. Invited Session: Flight Experience of Cassini Spacecraft Attitude Control at Saturn**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Chair: Thomas Burk, thomas.a.burk@jpl.nasa.gov, Jet Propulsion Laboratory; Co-Chair: Julie Webster, julie.l.webster@jpl.nasa.gov, Jet Propulsion Laboratory	

9:00-9:30 AM	**Video Presentation** Ring World 4 - New Results from the Cassini Mission at Saturn
9:30-10:00 AM	**The Cassini Reaction Wheels: Drag and Spin-Rate Trends from an Aging Interplanetary Spacecraft at Saturn** T.S. Brown
10:00-10:30 AM	**Risk Assessment of Cassini Sun Sensor Performance Degradation due to Hypervelocity Impact Of Ring Dust Particles** A.Y. Lee
10:30-11:00 AM	**Thruster-Specific Force Estimation and Trending of Cassini Hydrazine Thrusters at Saturn** J. Stupik; T.A. Burk
11:00-11:30 AM	**Cassini Operational Sun Sensor Risk Management During Proximal Orbit Saturn Ring Plane Crossings** D.M. Bates
11:30-12:00 PM	**Trending Main Engine Assembly (MEA) Cover Actuator Performance using Cassini Attitude Control Flight Data** L.G. Andrade
12:00-12:30 PM	**Extended Bright Bodies – Flight and Ground Software Challenges on the Cassini Mission at Saturn** T.S. Sung; T.A. Burk
9:00 AM-12:30 PM, Hillcrest A, **GNC-38. Vision-Based Sensing and Optical Navigation**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Chair: Lorenzo Pollini, lpollini@dsea.unipi.it, University of Pisa; Co-Chair: Svenja Woicke, s.woicke@tudelft.nl	
9:00-9:30 AM	**A Vision-aided Nonlinear Observer for Fixed-wing UAV Navigation** J. Hosen; H.H. Helgesen; L. Fusini; T.I. Fossen; T. Johansen
9:30-10:00 AM	**Position-Based Visual Servoing for Target Tracking by a Quadrotor UAV** M.G. Popova; H.H. Liu
10:00-10:30 AM	**Interplanetary Optical Navigation** V.H. Adams; M.A. Peck
10:30-11:00 AM	**Robust Measurement Planning for Intersatellite Laser Ranging** M. Salvoldi; D. Choukroun
11:00-11:30 AM	**Detection and Identification of Objects Using Point Cloud Data for Pose Estimation** A. Suqi; T.W. Lim
11:30-12:00 PM	**Vision Navigation Sensor (VNS) with Adaptive Electronically Steerable Flash LIDAR (ESFL)** R. Rohrschneider; C. Weimer; J. Masciarelli; M. Lieber; C. Adkins; J.L. Dombert
12:00-12:30 PM	**Enhancing Inertial Navigation with Structure from Motion Trajectory Estimates** J. Tharp; B.G. Woolley
9:00 AM-12:30 PM, Hillcrest C, **GNC-39. Flight Control of Unmanned Vehicles**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Co-Chair: Michael Gros, michael.gros@ifr.uni-stuttgart.de, Institute of Flight Mechanics and Flight Control; Co-Chair: David Schmidt, dschmidt@uccs.edu, Retired f/University of Colorado	

9:00-9:30 AM	**Autonomous Waypoint Transitioning and Loitering for UnmannedAerial Vehicles via Hybrid Control** D.W. Smith; R. Sanfelice
9:30-10:00 AM	**Stability Augmentation and Active Flutter Suppression of a Flexible Flying-Wing Drone** D.K. Schmidt
10:00-10:30 AM	**UAV Collision Avoidance based on the Solution of the Suicidal Pedestrian Differential Game** I. Exarchos; P. Tsiotras; M. Pachter
10:30-11:00 AM	**Unified Approach for Velocity Control and Flight State Transition of Unmanned Tiltwing Aircraft** P. Hartmann; C. Meyer; D. Moormann
11:00-11:30 AM	**Robust Design of Close Formation Flight Control via Uncertainty and Disturbance Estimator** Q. Zhang; H.H. Liu
9:00 AM-12:30 PM, Cortez Hill B, **GNC-40. Intelligent and Cooperative Control in Aerospace Applications**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Chair: Joseph Connolly, Joseph.W.Connolly@nasa.gov, NASA Glenn Research Center	
9:00-9:30 AM	**A Cooperative Pursuit Strategy for a High Speed Evader** V. Makkapati; M. Kothari
9:30-10:00 AM	**Collective Circular Motion and Cooperative Circumnavigation for Nonholonomic Mobile Robots Using Range-based Measurements** Y. Cao; D. Casbeer; D. Milutinovic; D. Kingston
10:00-10:30 AM	**Analysis of UAV Kinematic Constraints for Rigid Formation Flying** V.R. Challa; A. Ratnoo
10:30-11:00 AM	**Scalable Cooperative Control Algorithms For the Weapon Target Assignment Problem** K. Volle; J.D. Rogers; K. Brink
11:00-11:30 AM	**Optimal Continuous-Time Job Scheduling for Multiple Low Earth Orbit Satellites** D. Cho; H. Kim; H. Choi
11:30-12:00 PM	**A Beam Rider Concept For Three Point Aerial Rendezvous Guidance** P. Anjaly; A. Ratnoo
12:00-12:30 PM	**MAV Waypoint Guidance with Arrival Angle and Time Scheduling Constraints** A. Saleem; A. Ratnoo
9:00 AM-12:30 PM, Hillcrest B, **GNC-41. Missile and Entry Vehicle Guidance**, Technical Paper, **AIAA Guidance, Navigation, and Control Conference**, Co-Chair: Philippe Vernis, philippe.vernis@astrium.eads.net, AIRBUS Defence and Space; Chair: Scott Wells, Scott_Wells@raytheon.com, Raytheon Missile Systems	
9:00-9:30 AM	**A Composite Guidance for Dual Range AAM with Side Jet Control** D. Taur
9:30-10:00 AM	**Inverse Optimal Sliding Mode Guidance Law against Maneuvering Targets** S. He; D. Lin; J. Wang

10:00-10:30 AM	**Nonlinear Impact Angle Control Guidance Law for Stationary Targets** U.H. Ates
10:30-11:00 AM	**Precision Munition Guidance and Estimation of Target Position in 2-D** S. Sreeja; H. Hablani
11:00-11:30 AM	**A Pitch Controlled Impact-Angle-Constrained Guidance Law for Surface-to-Surface Missiles** S. Varma; H. Parwana; M. Kothari
11:30-12:00 PM	**Onboard Trajectory Generation for Entry Vehicles via Adaptive Multivariate Pseudospectral Interpolation** M. Sagliano; E. Mooij; S. Theil
9:00 AM-12:30 PM, Hillcrest D, **GT-09. Ground Test Methodologies and CFD Integration**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Chris Jorgens, chris.jorgens@boeing.com, The Boeing Company; Co-Chair: Stephen Ryle, sryle@lswt.com, San Diego Wind Tunnel	
9:00-9:30 AM	**Migration and deposition characteristics of lunar dust on the optical element surface in the simulated electrostatic environment** Q. Chen; X. Chen
9:30-10:00 AM	**Numerical Simulation of a Complete Low-Speed Wind Tunnel Circuit** S. Nayani; W.L. Sellers; A.F. Tinetti; S.E. Brynildsen; E.L. Walker
10:00-10:30 AM	**Hypersonic Boundary Layer Transition Experiments in Hypervelocity Ballistic Range G** T. Swanson; D. Daniel
10:30-11:00 AM	**Wind Tunnel Manoeuvre Rig: A Multi-DOF Test Platform for Model Aircraft** S.A. Araujo-Estrada; Z. Gong; M.H. Lowenberg; S. Neild; M. Goman
9:00 AM-12:30 PM, Gaslamp B, **GTE-15. Combustion III**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Jay Gore, gore@purdue.edu, Purdue University; Co-Chair: Sunil James, Sunil.James@Honeywell.com, Honeywell Inc.	
9:00-9:30 AM	**Flamelet Generated Manifolds for Partially Premixed, Highly Stretched and Non-Adiabatic Combustion in Gas Turbines** N. Klarmann; T. Sattelmayer; W. Geng; F. Magni
9:30-10:00 AM	**Emission Characteristics of A P&W Axially Staged Sector Combustor** Z.J. He; K. Kopp-Vaughan; C. Wey; C.T. Chang; A.K. Cheung; C. Lee; A.D. Surgenor
10:00-10:30 AM	**Enhancing Flow Migration and Reducing Emissions in Full Annular Ultra Compact Combustor** N.A. Gilbert; A.E. Cottle; M.D. Polanka; L.P. Goss
10:30-11:00 AM	**LES of a sooting flame in a pressurized swirl combustor** H. Koo; V. Raman; M.E. Mueller; K. Geigle

11:00-11:30 AM	**Estimation and Comparison of Particle Number Emission Factors for Petroleum-based and Camelina Biofuel Blends used in a Honeywell TFE-109 Turbofan Engine** J.J. Shila; M.E. Johnson
11:30-12:00 PM	**Effects of Fuel Distribution Around a V-Gutter Flame Stabilizer** M.D. Pinchak; J. Vrabel; E.J. Gutmark
9:00 AM-12:30 PM, Old Town A, **GTE-16. Numerical Tools,** Technical Paper, **54th AIAA Aerospace Sciences Meeting,** Chair: Tom I-Ping Shih, tomshih@purdue.edu, Purdue University; Co-Chair: Paul Tucker, pgt23@cam.ac.uk, The Whittle Laboratory	
9:00-9:30 AM	**Impact of the Specific Heat Ratio On the Noise Generation in a High-Temperature Supersonic Jet** J. Liu; A.T. Corrigan; K. Kailasanath; B.D. Taylor
9:30-10:00 AM	**Unsteady Simulations of the Wellborn Diffusing S-Duct** R.A. Watson; P.G. Tucker; K. Menzies
10:00-10:30 AM	**Effect of Labyrinth Seal Configurations on Leakage Performance using LES** Y. Dai; J.C. Tyacke; P.G. Tucker
10:30-11:00 AM	**Novel Design and Fabrication of JetCat P90 Diffuser using Parametric Design and Optimization Tools** J.R. Holden; T.M. Caley; B. Heberling; C. Cantor; E. Wesseling; A.A. Hamed; M.G. Turner; P.J. Litke; N.D. Grannan
11:00-11:30 AM	**Wavepacket modeling from full-scale military jet noise beamforming analyses** B.M. Harker; T.B. Neilsen; K.L. Gee; A.T. Wall; M.M. James
11:30-12:00 PM	**Hierarchical Immersed Boundary Method with Smeared Geometry** T. Cao; P. Hield; P.G. Tucker
9:00 AM-12:30 PM, Regatta B, **IS-13. Intelligent Integrated Systems Health Management,** Technical Paper, **AIAA Infotech @ Aerospace,** Chair: Jorge Figueroa, Fernando.Figueroa-1@nasa.gov, NASA Stennis Space Center; Co-Chair: Chetan Kulkarni, chetan.s.kulkarni@nasa.gov, NASA Ames Research Center	
9:00-9:30 AM	**Predicting Real-Time Safety Margins in the National Airspace System** I. Roychoudhury; L. Spirkovska; M. Daigle; S. Sankararaman; E. Balaban; C.S. Kulkarni; S. Poll; K. Goebel
9:30-10:00 AM	**End-of-discharge and End-of-life Prediction in Lithium-ion Batteries with Electrochemistry-based Aging Models** M. Daigle; C.S. Kulkarni
10:00-10:30 AM	**Review of Proactive Safety Metrics for Rotorcraft Operations and Improvements Using Model-Based Parameter Synthesis and Data Fusion** A.P. Payan; A. Gavrilovski; H. Jimenez; D.N. Mavris
10:30-11:00 AM	**A Generic Modeling Process to Support Functional Fault Model Development** W.A. Maul; J. Hemminger; R. Oostdyk; R. Bis
11:00-11:30 AM	**Analysis of Helicopter Maintenance Risk from Accident Data** A.H. Rao; N. Fala; K. Marais

9:00 AM-12:30 PM, Golden Hill A, **MST-14. Rotorcraft Modeling and Simulation Technologies**, Technical Paper, **AIAA Modeling and Simulation Technologies Conference**, Chair: Martin Sekula, martin.k.sekula@nasa.gov, NASA-Langley Research Center; Co-Chair: Mark White, mdw@liv.ac.uk, The University of Liverpool	
9:00-9:30 AM	**Coupled Flight Dynamics and CFD Simulations of Rotorcraft/Terrain Interactions** I. Oruc; J.F. Horn; J. Shipman
9:30-10:00 AM	**Control Augmentation Strategies for Helicopters used as Personal Aerial Vehicles** C. Gerboni; A. Joos; F.M. Nieuwenhuizen; W. Fichter; H. Buelthoff
10:00-10:30 AM	**An Investigation of Task Specific Motion Cues for Rotorcraft Simulators** M. White; S. Manso; S. Hodge
10:30-11:00 AM	**Implementation and Validation of a 6 Degrees-of-Freedom Nonlinear Helicopter Model** C. Gerboni; F.M. Nieuwenhuizen; H. Buelthoff
11:00-11:30 AM	**CFD Validation of a Designed Quad-Rotor** C. Zhou; D.P. Schrage
9:00 AM-12:30 PM, Golden Hill B, **MST-15. Computational Methods II**, Technical Paper, **AIAA Modeling and Simulation Technologies Conference**, Chair: David Gingras, dgingras@bihrle.com, Bihrle Applied Research Inc.; Co-Chair: Marilyn Smith, marilyn.smith@aerospace.gatech.edu, Georgia Institute of Technology	
9:00-9:30 AM	**Aerodynamic Influences on the Modeling and Simulation of Instabilities on Dynamic Tethered Loads** O. Nabipour; J. Clinton; T. Ma; D. Prosser; M. Smith
9:30-10:00 AM	**Mesh Adaptation and Optimization for Discontinuous Galerkin Methods Using a Continuous Mesh Model** A. Rangarajan; A. Balan; G. May
10:00-10:30 AM	**Numerical Analysis of an External Store Separation From an Airplane** A.A. Osman; A.M. Aly; E.E. Khalil; O.E. Abdelattif
10:30-11:00 AM	**Function Extrapolation of Noisy Data using Converging Lines** Y. Zhang; N. Kim; C. Park; R.T. Haftka
9:00 AM-9:30 AM, Session Room Foyers, **NW-18. Friday Late Morning Networking Coffee Break**, Networking, **Forum Event**	
9:00 AM-12:30 PM, Harbor B, **PC-18. Rocket & Air-Breathing Combustion II**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Bruce Chehroudi, chehroudib@aol.com, European Research Council (ERC); Co-Chair: Venkatramanan Raman, ramanvr@umich.edu, University of Michigan	
9:00-9:30 AM	**Study of the Combustion of Beeswax and Beeswax With Aluminum Powder in Hybrid Propellant Rocket Engine** V.I. Naoumov; H. Nguyen; B. Alcalde
9:30-10:00 AM	**Performance Characterization of Ionic-Liquid Monopropellant Thrusters Using a Standardized Test Matrix** B. Morgan; D. Liu

10:00-10:30 AM	**Formulation of Equations to Describe the Thermomechanical Response of a Gas to Transient, Spatially Resolved Thermal Energy Addition: Applications to LPRE Stability Physics** D.R. Kassoy
10:30-11:00 AM	**Numerical Investigation of Rocket Engine Combusting Flowfields** G. Ranuzzi; L. Cutrone; D. Cardillo; M. Invigorito
11:00-11:30 AM	**Numerical Simulations of a Single Injector Gaseous Methane Rocket Combustion Chamber** R. Keller; P.M. Gerlinger
11:30-12:00 PM	**Modeling Fuel Film Cooling on Rocket Engine Walls** J. Bills; D.S. Crowe; J. Rutledge; E. Coy
12:00-12:30 PM	**Effect of Nozzle Spacing on NOx Emissions and Lean Operability** B.J. Dolan; R. Villalva Gomez; S. Pack; E.J. Gutmark
9:00 AM-12:30 PM, Harbor C, **PC-19. Turbulent Combustion IV**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Joseph Miller, miller.joseph.d@gmail.com, Air Force Research Laboratory	
9:00-9:30 AM	**On Radiative Heat Transfer Modeling in Numerical Simulation of a Heavy Duty Steam Generator** M. Darbandi; B. Abrar; M. Barezban; G.E. Schneider; Y. Shamsaei; M. Nematollahi
9:30-10:00 AM	**Radiation-Based Validation of Combustion Simulations and Comparison to Heat Release in Rocket Engines** M. Schulze; T. Fiala; T. Sattelmayer
10:00-10:30 AM	**Adjoint-based sensitivity analysis of localized ignition in a non-premixed hydrogen-air mixing layer** J. Capecelatro; R. Vishnampet; D.J. Bodony; J.B. Freund
10:30-11:00 AM	**An Integrated Predictive Simulation Model for the Plasma-Assisted Ignition of a Fuel Jet in a Turbulent Crossflow** L.L. Massa; J.B. Freund
11:00-11:30 AM	**Numerical Investigation of Transverse Forcing in a Multi-Element, Shear-Coaxial, High Pressure Combustor** P. Tudisco; R. Ranjan; S. Menon
11:30-12:00 PM	**Experimental Investigation of the Response of Premixed and Non-premixed Turbulent Flames to Acoustic Forcing.** A. Kypraiou; N. Worth; E. Mastorakos
9:00 AM-12:30 PM, Ocean Beach, **PDL-13. Numerical Modeling of Plasmas**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Laxminarayan Raja, lraja@mail.utexas.edu, University of Texas at Austin ; Co-Chair: Michael White, michael.white.44.ctr@us.af.mil, Ohio Aerospace Institute	
9:00-9:30 AM	**Numerical simulation of DC glow discharges for shock wave modification** K. Kourtzanidis; L.L. Raja; S. Coumar; V. Lago

9:30-10:00 AM	**Premixed combustion simulations with a self-consistent plasma model for initiation.** H. Sitaraman; R. Grout
10:00-10:30 AM	**Magnetized Electron Flow Calculation Using a Hyperbolic System** R. Kawashima; K. Komurasaki; T. Schönherr; H. Koizumi
10:30-11:00 AM	**Hypersonic BL Transition and Separation Control by Transient Electrical Discharge** A. Houpt; F.H. Falempin; S.B. Leonov
11:00-11:30 AM	**Experimental and Kinetic Modeling Studies of Novel Carbon Monoxide Gas Lasers** K. Frederickson; M. Yurkovich; E. Jans; A. Chernukho; Z. Eckert; J. Rich; I.V. Adamovich
11:30-12:00 PM	**Investigating the Influence of DBD Plasma Actuators on the Skin Friction in Integral Boundary Layer Formulation** S.R. Bal; R. Balbino Dos Santos Pereira ; G. L. de Oliveira Andrade ; D. Ragni
9:00 AM-12:30 PM, Balboa B, **SCS-07. Packaging and Deployment of Spacecraft Structures,** Technical Paper, **3rd AIAA Spacecraft Structures Conference,** Chair: Gregory Davis, Gregory.L.Davis@jpl.nasa.gov, Jet Propulsion Laboratory; Co-Chair: Mark Thomson, Mark.W.Thomson@jpl.nasa.gov	
9:00-9:30 AM	**In-Space Structural Assembly: Applications and Technology** W.K. Belvin; W.R. Doggett; J.J. Watson; J.T. Dorsey; J.E. Warren; T.C. Jones; E.E. Komendera; T. Mann; L.M. Bowman
9:30-10:00 AM	**Methods for Characterizing the Reliability of Deployable Modules for Large Optical Reflectors** K. Hogstrom; S. Pellegrino
10:00-10:30 AM	**Starshade Mechanical Architecture & Technology Effort** D. Webb; B. Hirsch; V. Bach; J.F. Sauder; S. Bradford; M. Thomson
10:30-11:00 AM	**Starshade Deployable Inner Disk Structure Design and Development** B. Hirsch; D. Webb; M. Thomson
11:00-11:30 AM	**Deployment Properties with Gravity Compensation Devices for Boom-Membrane Integrated Wrapped Structures** H. Furuya; T. Yokomatsu; H. Sakamoto; Y. Satou
11:30-12:00 PM	**Novel Folding Methods for Deterministic Deployment of Common Space Structures** D. Kling; S.K. Jeon; J. Banik
12:00-12:30 PM	**Structural Dynamic Response of Deployable Thin Shell Reflector in Folded Configuration** O. Soykasap; S. Karakaya; A. Gayretli; Y. Akcin
9:00 AM-12:30 PM, Gaslamp A, **SD-14. Dynamic Loads, Response, and Vibration II,** Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference,** Co-Chair: William Schneider, William.F.Schneider@lmco.com, Lockheed Martin Aeronautics; Co-Chair: Bruce Willis, bruce.d.willis@gmail.com, Jacobs Technology	
9:00-9:30 AM	**Substructure Versus Property-Level Dispersed Modes Calculation** E.C. Stewart; J. Peck; C. Fulcher; T.J. Bush

9:30-10:00 AM	**Acoustic Analysis of A Partially Open Spacecraft Cavity using Multi-Domain Boundary Element Method** D. Inoyama; R. Agarwal; T. Stoumbos
10:00-10:30 AM	**Assessing Sine and Random Stresses and Fatigue Life** M. Baker
10:30-11:00 AM	**Non-Stationary Random Vibration Analysis Using Multi-Correlated Random Processes Excitations** Y. Li; S.B. Mulani; R.K. Kapania; S. Wu; Q. Fei
11:00-11:30 AM	**Statistical Energy Analysis: Applying the Enropy Concept to Coupled Rods and Beams** D. Tufano; Z. Sotoudeh
9:00 AM-12:30 PM, La Jolla A, **STR-16. Special Session: Stiffened, Stitched Composite Structures**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Chair: Andrew Lovejoy, andrew.e.lovejoy@nasa.gov, NASA-Langley Research Center; Co-Chair: Adam Przekop, adam.przekop@nasa.gov, NASA Langley Research Center	
9:00-9:30 AM	**Testing of a Stitched Composite Large-Scale Pressure Box** D.C. Jegley; M. Rouse; A. Przekop; A.E. Lovejoy
9:30-10:00 AM	**Testing and Analysis of a Composite Non-Cylindrical Aircraft Fuselage Structure, Part I: Ultimate Design Loads** A. Przekop; D.C. Jegley; A.E. Lovejoy; M. Rouse; H.T. Wu
10:00-10:30 AM	**Testing and Analysis of a Composite Non-Cylindrical Aircraft Fuselage Structure, Part II: Severe Damage** A. Przekop; D.C. Jegley; A.E. Lovejoy; M. Rouse; H.T. Wu
10:30-11:00 AM	**Imparting Barely Visible Impact Damage to a Stitched Composite Large-Scale Pressure Box** A.E. Lovejoy; A. Przekop
11:00-11:30 AM	**Compressive Loading and Modeling of Stitched Composite Stiffeners** F.A. Leone; D.C. Jegley; K.A. Linton
11:30-12:00 PM	**Tension and Bending Testing of an Integral T-cap for Stitched Composite Airframe Joints** A.E. Lovejoy; F.A. Leone
9:00 AM-12:30 PM, La Jolla B, **STR-17. Impact Damage in Composites**, Technical Paper, **57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference**, Co-Chair: Troy Mann, t.mann@nasa.gov, NASA-Langley Research Center; Chair: Vipul Ranatunga, padmasiri.ranatunga.1@us.af.mil, Air Force Research Laboratory	
9:00-9:30 AM	**Low Velocity Impact Test and Analysis of Laminated Structures** M.A. Falugi
9:30-10:00 AM	**Modeling Axial Impact Response of Sandwich Panels using Probability-Based Finite Element Analysis** W. Ji; A.M. Waas
10:00-10:30 AM	**Correlating Impact, Micro CT Inspection, and Residual Strength of Carbon/Epoxy Rods** D.W. Jensen; L. Stanford

10:30-11:00 AM	**Prediction of Low-Velocity Face-on Impact Response of Composite Laminates using High-Fidelity Finite Element Modeling Techniques** S.I. Thorsson; A. Yoshimura; A.M. Waas; M. Rassaian
9:00 AM-12:30 PM, Harbor G, **TP-11. Thermal Systems and Devices: Cryogenics, Thermal Management, and Microdevices**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Co-Chair: Michael Martin, michael.j.martin2@gmail.com, Louisiana State University; Chair: Andrew Williams, andrew.williams.24@us.af.mil, Air Force Reseach Laboratory	
9:00-9:30 AM	**Cavitation Instabilities in an Inducer Using Heated Water as a Cryogenic Simulant** D. Jackson; J. Schwille; J. Davitian; C. Lettieri; V. Wang; Z. Spakovszky
9:30-10:00 AM	**Pulse Chilldown Tests of a Tank-to-Tank Liquid Hydrogen Propellant Transfer Line** J.W. Hartwig; E. Rame; J. McQuillen
10:00-10:30 AM	**Numerical Simulation for Ice Accretion on Rotating Cowling Considering Water Film Shedding** Z. Mu; X. Shen; G. Lin; X. Bu
10:30-11:00 AM	**Thermo-Mechanical Simulation of Crooke's Cantilevers in the Free-Molecular Flow Regime** M.J. Martin; W. Schmieder
11:00-11:30 AM	**Hydraulic-Powered Forced Convection Heat Transfer** E. Van Wijk; J. Valdes ; K. Pope; Y.S. Muzychka
11:30-12:00 PM	**A Study into Refrigeration Cycle Working Fluids using an Air Cycle Machine Environmental Control System** T.G. Childs; A.B. Jones; R. Chen; A. Murray
9:00 AM-12:30 PM, Harbor H, **TP-12. Special Session: University Space Systems Programs and Microgravity Flight Activities**, Technical Paper, **54th AIAA Aerospace Sciences Meeting**, Chair: Eric Silk, eric.a.silk@nasa.gov, NASA-Goddard Space Flight Center; Co-Chair: Patrick Yee, patrick.p.yee@aero.org, The Aerospace Corporation	
9:00-9:30 AM	**From ISS to Mars: Twenty Years of University of Kentucky Student Microgravity and Space Systems Experiments** S.W. Smith; J. Rexroat
9:30-10:00 AM	**Kentucky Re-entry Universal Payload System** J.M. Cooper; J.K. Stieha; A.M. Fowler; A. Martin
10:00-10:30 AM	**Oral Presentation. Virginia Tech Spaceflight Programs** J. Black; G.D. Earle; R.W. McGwier
10:30-11:00 AM	**Oral Presentation. The University of Tennessee Space Institute: Historic Accomplishments and New Horizons for Space Related Research** T.M. Moeller; J.D. Schmisseur
11:00-11:30 AM	**Oral Presentation. Astronautical Engineering at USC: Ten Years After** M. Gruntman
11:30-12:00 PM	**Small Probe Flight Testing of Thermal Protection Systems in Simulated Earth Entries** A.T. Sidor; T.R. Anderson; R.D. Braun

9:00 AM-12:30 PM, Regatta C, **UMS-11. Unmanned Systems: Detect-and-Avoid II**, Technical Paper, **AIAA Infotech @ Aerospace**, Co-Chair: Richard Christiansen, richsc1@aol.com, Sierra Lobo, Inc.; Chair: Richard Stansbury, stansbur@erau.edu, Embry-Riddle Aeronautical University	
9:00-9:30 AM	**Optimization-Based Path Planning for Separation Assurance on Small Unmanned Aircraft** M. Duffield; A. Ning; T.W. McLain
9:30-10:00 AM	**Unmanned Aircraft System Sense and Avoid Integrity and Continuity: Uncertainty in Aircraft Dynamics** M.B. Jamoom; M. Joerger; B. Pervan
10:00-10:30 AM	**Path-Planning around Obstacles for a Quadrotor UAV Using the RRT Algorithm for Indoor Environments** S. Bhandari; T. Srinivasan
10:30-11:00 AM	**UAV Collision Avoidance using a Predictive Rapidly-Exploring Random Tree (RRT)** S. Bhandari; J. Farinella; C. Lay
9:00 AM-12:30 PM, Harbor I, **WE-12. Wind Energy: Wind Plant Optimization**, Technical Paper, **34th Wind Energy Symposium**, Chair: Matthew Lackner, lackner@ecs.umass.edu, University of Massachusetts	
9:00-9:30 AM	**Towards Wind Farm Layout Design Using Sensitivity Derivatives Obtained from a Parabolic Method** A. Mittal; K. Sreenivas; W. Briley; L.K. Taylor
9:30-10:00 AM	**Adjoint Optimization of wind Farm Layouts for Systems Engineering Analysis** R. King; P. Hamlington; K. Dykes; P. Graf
10:00-10:30 AM	**Reduced order model for optimization of power production from a wind farm** G. Iungo; F. Viola; U. Ciri; S. Leonardi; M. Rotea
10:30-11:00 AM	**Wind Farm Modeling and Control Using Dynamic Mode Decomposition** J.R. Annoni; J. Nichols; P.J. Seiler