AVIATION 2015

22–26 JUNE 2015

DALLAS, TX

PUSHING THE BOUNDARIES OF THE IMAGINABLE: LEVERAGING THE AVIATION ECOSYSTEM

FINAL PROGRAM

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AIAA

Shaping the Future of Aerospace

14-315

Q

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Welcome

Welcome to Dallas and to AIAA AVIATION 2015! We are excited to share this week's program with you as we explore recent progress and the most pressing issues facing aviation today. This year's theme is "Pushing the Boundaries of the Imaginable: Leveraging the Aviation Ecosystem." More than just a simple slogan, we think this theme provides a good overview of the various sessions planned for you this week.

Tom Enders will set the tone for us with his opening keynote addressing how the aviation industry can remain a dynamic player in pushing technology forward. Ed Bolton and Bill Ayer will discuss how NextGen will provide the foundation for advancing aviation in the future while engaging the myriad stakeholders that are a part of our ecosystem. Charlie Bolden will share the ways by which NASA historically has and will continue to push boundaries in aviation for the benefit of the entire community. Greg Touhill will discuss one of the more pressing issues of the day – cybersecurity and the importance of securing our ecosystem. Finally, Kurt Erbacher will look back at the design, development, and testing of the award-winning G650, one of the newest airplanes to hit the market while advancing the state of the art.

The Forum 360 sessions will provide several opportunities for our community to interact with customers, regulators, and technology leaders in focused, intimate conversations. Two sessions will allow leaders from airlines to discuss issues of importance to them with our design community. Unmanned systems continue to make headlines and we will discuss the challenges facing this sector internationally. Following Administrator Bolden's discussion of NASA's aeronautics strategy, we will hear from the center directors responsible for executing those plans. The challenges of widely deploying green aviation technologies to substantially reduce the environmental impact of aviation will be addressed by international experts. The future of supercomputing and particle image velocimetry will be discussed, with an emphasis on their role in advancing the future of aerospace technology. We will also have focused sessions on complex aerospace systems that will tackle the most important system development issues facing chief engineers, program managers, and systems engineers today.

As you would expect, with over 1,500 presentations, our technical program is second to none. The scope, breadth, and depth of the cutting-edge aviation and aerospace research being presented is material that you will be unable to find anywhere else. We thank the Forum Organizing and Technical Program Committees and the AIAA staff for their hard work to assemble this first-class program. We hope you will too.

AVIATION 2015 will energize, inspire, and sustain our community's efforts to keep the aviation ecosystem on the glide path to advanced efficiency, safety, and security. We thank you for making the choice to be here with us this week, and we are confident you will find the experience to be a worthwhile one.

AVIATION 2015 is proud to feature the following conferences:

21st AIAA/CEAS Aeroacoustics Conference

31st AIAA Aerodynamic Measurement Technology and Ground Testing Conference

33rd AIAA Applied Aerodynamics Conference

AIAA Atmospheric Flight Mechanics Conference

7th AIAA Atmospheric and Space Environments Conference

15th AIAA Aviation Technology, Integration, and Operations Conference

AIAA Balloon Systems Conference

AIAA Complex Aerospace Systems Exchange

22nd AIAA Computational Fluid Dynamics Conference

AIAA Flight Testing Conference

45th AIAA Fluid Dynamics Conference

22nd AIAA Lighter-Than-Air Systems Technology Conference

16th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference

AIAA Modeling and Simulation Technologies Conference

46th AIAA Plasmadynamics and Lasers Conference

45th AIAA Thermophysics Conference

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Cees Bil, RMIT University

Kapil Sheth, NASA Ames Research Center

Karen Marais, Purdue University

Scot Campbell, Massachusetts Institute of Technology

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Hernando Jimenez, Georgia Institute of Technology

Danielle (Dani) Soban, Queen's University Belfast

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Brian McGrath, The Johns Hopkins University Applied Physics Laboratory

Khaled Abdol-Hamid, NASA Langley Research Center

Zifeng Yang, Wright State University

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Nashat Ahmad, NASA Langley Research Center

Matthew Pruis, Northwest Research Associates Inc.

Atmospheric Flight Mechanics
Soumyo (Som) Dutta, NASA Langley Research Center

Kevin Cunningham, NASA Langley Research Center

Balloon Systems
Debora Fairbrother, NASA

Complex Aerospace Systems Exchange (CASE)
Sophia Bright, The Boeing Company

Computational Fluid Dynamics
Krzysztof (Chris) Fidkowski, University of Michigan

Flight Testing
Karl Garman, Federal Aviation Administration

Fluid Dynamics
Jill Klentzman, Baylor University

Green Engineering
Andrew Gibson, Empirical Systems Aerospace

Ground Testing
Benjamin Mills, Aerospace Testing Alliance

Lighter than Air Systems
Rajkumar S. Pant, Indian Institute of Technology Bombay

Modeling and Simulation Technologies
Gano Broto Chatterji, NASA Ames Research Center

Multidisciplinary Analysis and Optimization
Eliot Winer, Iowa State University

Vijay Kalivarapu, Iowa State University

Plasmadynamics and Lasers
Azer Yalin, Colorado State University

Thermophysics
Chad Boyack, Raytheon Missile Systems

Elliott Short, Raytheon Missile Systems

Technical Discipline Group Representatives

TAC Information Systems Group
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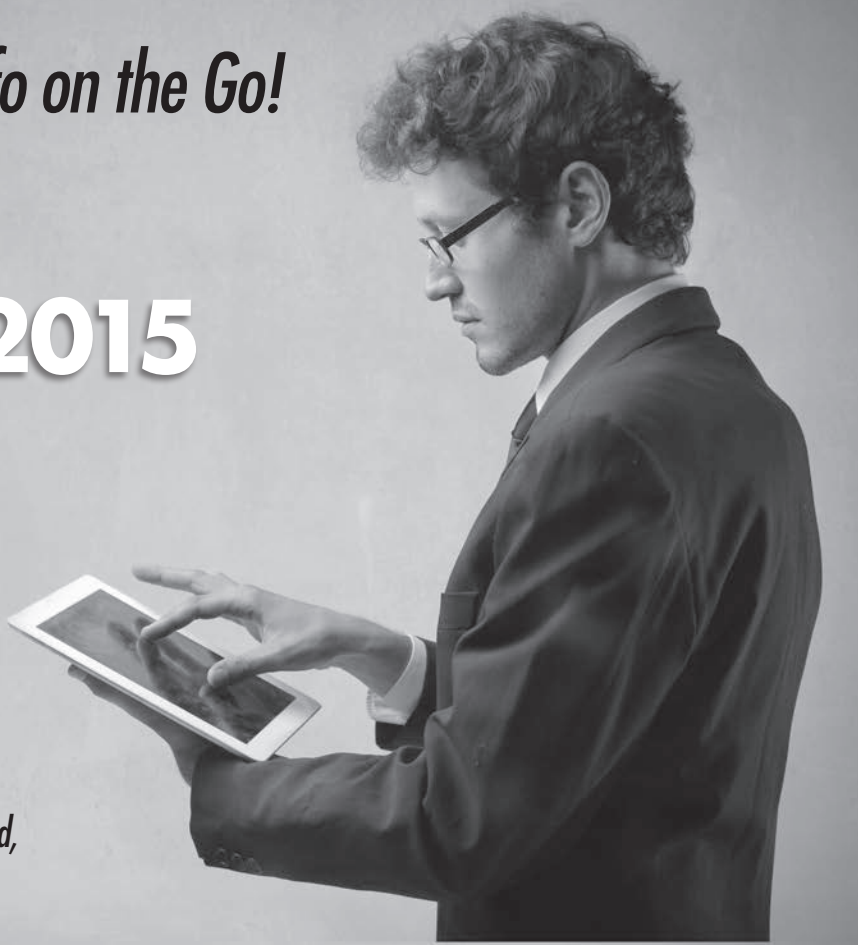

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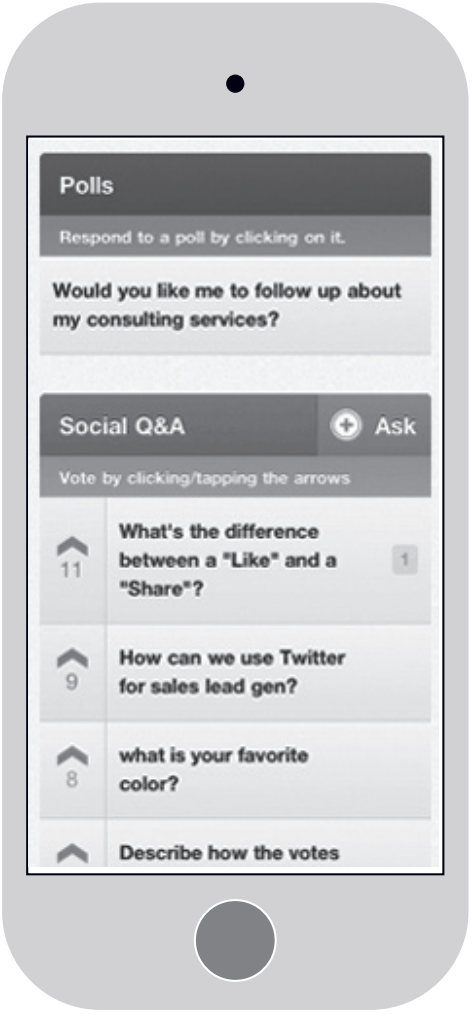

Getting Your Question Answered is as EASY as 1-2-3!

1. Click the "Ask" button to submit a question.
2. Check out the questions that other attendees are asking.
3. If you see a question that you want answered, click on the arrow on the left. The most popular questions automatically rise to the top.

Participate in Session Polls

1. If Polls are available they will appear at the top of the page. Simply click/tap on a Poll to respond.
2. Choose your response(s) and hit "submit".
3. After responding you will be able to see the results on your own device!*

   ** Some Poll results may be hidden*

AIAA
Shaping the Future of Aerospace

Forum Overview

	MONDAY 22 June			TUESDAY 23 June				
0730 hrs	Speakers' Briefing			Speakers' Briefing				
0800 hrs	Plenary Keynote			Plenary Panel				
0830 hrs								
0900 hrs	Networking Break	Technical Sessions		Networking Break in Exposition Hall	Technical Sessions			Exposition Hall Open
0930 hrs			Forum 360			Forum 360		
1000 hrs								
1030 hrs								
1100 hrs								
1130 hrs								
1200 hrs								
1230 hrs	Networking Lunch on Own			Awards Luncheon: Celebrating Achievements in Aerospace Sciences		Networking Lunch on Own		
1300 hrs								
1330 hrs								
1400 hrs		Technical Sessions	Forum 360		Technical Sessions	Forum 360	CFD Flow Visualization Showcase	Exposition Hall Open
1430 hrs								
1500 hrs								
1530 hrs	Networking Break			Networking Break in Exposition Hall				
1600 hrs								
1630 hrs				Plasmadynamics and Lasers Award Lecture				
1700 hrs								
1730 hrs	Fluid Dynamics Award Lecture		Speed Geek Networking Event and Reception	Reception in Exposition Hall				
1800 hrs								
1830 hrs		Rising Leaders in Aerospace Reception						
1900 hrs								
1930 hrs								
2000 hrs								
2030 hrs								
2100 hrs								
2130 hrs								
2200 hrs								

Forum Overview

	WEDNESDAY 24 June	THURSDAY 25 June	FRIDAY 26 June
0730 hrs	Speakers' Briefing	Speakers' Briefing	Speakers' Briefing
0800 hrs	Plenary Keynote	Plenary Keynote	Plenary Keynote
0830 hrs			
0900 hrs	Networking Break in Exposition Hall	Networking Break in Exposition Hall	Networking Break
0930 hrs	Technical Sessions; Forum 360; Exposition Hall Open	Technical Sessions; Forum 360; Exposition Hall Open	Technical Sessions
1000 hrs			
1030 hrs			
1100 hrs			
1130 hrs			
1200 hrs			
1230 hrs	Luncheon in Exposition Hall	Awards Luncheon: Celebrating Achievements in Aircraft and Atmospheric Systems	
1300 hrs		Networking Lunch on Own	
1330 hrs			
1400 hrs	Technical Sessions; Forum 360; Exposition Hall Open	Technical Sessions; Forum 360; Rising Leaders in Aerospace Panel	
1430 hrs			
1500 hrs			
1530 hrs	Networking Break in Exposition Hall	Networking Break	
1600 hrs	Rising Leaders in Aerospace Leadership Exchange/Speed Networking		
1630 hrs	Aerodynamics Award Lecture		
1700 hrs			
1730 hrs	Aeroacoustics Lecture; Thermophysics Award Lecture	Wright Brothers Lectureship in Aeronautics	
1800 hrs			
1830 hrs			
1900 hrs	Aeroacoustics Awards Banquet		
1930 hrs			
2000 hrs			
2030 hrs			
2100 hrs			
2130 hrs			
2200 hrs			

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Keynote Speakers and Plenary Sessions

Get the big picture on aviation from the thought leaders in the field during these high-level discussions and presentations.

Monday, 22 June

0800–0900 hrs **Chantilly Ballroom West**

Opening Keynote: Are We Moving Fast Enough?

Tom Enders, Chief Executive Officer, Airbus Group

Tuesday, 23 June

0800–0900 hrs **Chantilly Ballroom West**

NextGen: A Model of Stakeholder Engagement

Bill Ayer, Retired Chairman and CEO, Alaska Air Group

Edward L. Bolton Jr., Assistant Administrator for NextGen, Federal Aviation Administration

Wednesday, 24 June

0800–0900 hrs **Chantilly Ballroom West**

NASA and the Future of Aerospace

Charles F. Bolden Jr., Administrator, National Aeronautics and Space Administration

Thursday, 25 June

0800–0900 hrs **Chantilly Ballroom West**

DHS's Perspectives on Cybersecurity in Aviation

Gregory J. Touhill, Deputy Assistant Secretary for Cybersecurity and Communications, Department of Homeland Security

Friday, 26 June

0800–0900 hrs **Chantilly Ballroom West**

The G650 Design, Development, and Test

Kurt Erbacher, Vice President, G650 Aircraft Program, Gulfstream Aerospace Corporation

Forum 360

FORUM 360°

These conversations will cover a spectrum of timely topics including programs, systems, policy, operations, applications, platforms and more!

Monday, 22 June

0930–1200 hrs **Grand Ballroom E**

The Voice of the Customer — Designing the Right Aircraft

Moderator: **Christopher Stonehouse,** Senior Vice President, Customer Services, Airbus Americas, Inc.

Panelists:

Jack Arehart, President of MRO Services, Delta TechOps

William "Bill" Meehan, Chief Operating Officer, Frontier Airlines, Inc.

Bart Roberts, Vice President, Flight Operations, JetBlue Airways

David Seymour, Senior Vice President, Technical Operations, American Airlines

1400–1700 hrs **Grand Ballroom E**

Whatever Happened to the Four-Year Airplane?

Moderator: **Craig Willis,** Group Head for Systems Verification, Gulfstream G500/G600 Program, Gulfstream Aerospace Corporation

Panelists:

Catherine Ferrie Kilmain, Executive Vice President of Engineering, Bell Helicopter

Eric Schrock, Deputy Director, Technology Development and Product Integration, Lockheed Martin Corporation

Tuesday, 23 June

0930–1200 hrs **Grand Ballroom E**

Day in the Life of Operations – Effectively Managing Disruption

Moderator: **Neil Planzer,** Vice President, Air Traffic Management, Boeing Commercial Airplanes

Panelists:

Tim Campbell, Senior Vice President, Air Operations, American Airlines

Jim Crites, Executive Vice President of Operations, DFW International Airport

Brian Quigley, Managing Director Flight Operations, United Airlines

Dan Smiley, Vice President for System Operations, Federal Aviation Administration Air Traffic Office

1400–1630 hrs **Grand Ballroom E**

International UAS Integration Forum

Moderator: **Rob Hughes,** Northrop Grumman, Inc

Panelists:

Cees Bil, Associate Professor, School of Aerospace, Mechanical and Manufacturing Engineering, RMIT University

Chuck Johnson, Vice President of Operations, The Padina Group

Marty Rogers, University of Alaska-Fairbanks

Marshall Jackson, Project Manager – Aviation Safety Audits, Office of Inspector General, U.S. Department of Transportation

Randy Willis, FAA, Co-Chair of ICAO RPAS (Remotely Piloted Aircraft Systems)

Dale Richards, Senior Research Fellow, Human Factors, Faculty of Engineering & Computing, Coventry University

Forum 360

Wednesday, 24 June

0930–1200 hrs **Grand Ballroom E**

NACA to NASA: Embarking on the Next 100 Years of Excellence and Innovation in Aeronautics and Beyond

Moderator: **Robert Pearce,** Director, Strategy, Architecture & Analysis, Aeronautics Research Mission Directorate, NASA Headquarters

Panelists:

David Bowles, Center Director (Acting), NASA Langley Research Center

Thomas Edwards, Deputy Center Director, NASA Ames Research Center

Janet Kavandi, Deputy Director, NASA Glenn Research Center

David McBride, Center Director, NASA Armstrong Flight Research Center

Jaiwon Shin, Associate Administrator, Aeronautics Research Mission Directorate, NASA Headquarters

1400–1630 hrs **Grand Ballroom E**

Energy/Environment Panel — The Challenges of Green Aviation

Moderator: **Marty Bradley,** Technical Fellow, Boeing Commercial Airplanes

Panelists:

Ricky Curran, Faculty of Aerospace Engineering, Delft University of Technology

Jay E. Dryer, Director, Advanced Air Vehicles Program Office (Acting), Aeronautics Research Mission Directorate, NASA Headquarters

Askin Isikveren, Head of Visionary Aircraft Concepts, Bauhaus Luftfahrt

Leslie Perkins, Director, Energy Office, Air Force Research Laboratory

Jeanne Yu, Environmental Director, Boeing Commercial Airplanes

1400–1730 hrs **Grand Ballroom D**

System Complexity: Government Needs and Practical Research Results

Keynote Speaker: **Kristen Baldwin,** Principal Deputy DASD (SE), Department of Defense

Moderators:

Frank Serna, Principal Director, Strategic Imperatives, Draper Laboratory

Anna-Marie McGowan, Aeronautics Research Directorate, NASA Langley Research Center

Panelists:

Jeffrey P. Holland, Director of Research and Development and Chief Scientist, U.S. Army Corps of Engineers

David Neyland, Consultant

Thursday, 25 June

0930–1200 hrs **Grand Ballroom E**

The Impact of Particle Image Velocimetry on Aerospace Technology

Moderator: **Steven Beresh,** Distinguished Member of the Technical Staff, Sandia National Laboratories

Panelists:

Ronald J. Adrian, Regent's Professor and Ira A. Fulton Professor of Mechanical and Aerospace Engineering, Arizona State University

Susan Gorton, Project Manager, Revolutionary Vertical Lift Technology Project, NASA Langley Research Center

Fulvio Scarano, Full Professor and Chair of Aerodynamics, Delft University of Technology

Miguel Visbal, Principal Research Aerospace Engineer and Team Leader of Multidisciplinary Computational Aerodynamics, Aerospace Systems Directorate, Air Force Research Laboratory

1400–1630 hrs **Grand Ballroom E**

Supercomputing: Roadmap and Its Future Role in Aerospace Engineering

Moderator: **Doug Cline,** Technical Lead, High Performance Computing, Lockheed Martin Aeronautics

Panelists:

Jef Dawson, Applications Manager, Cray, Inc.

William Gropp, Thomas M. Siebel Chair, Department of Computer Science and Director, Parallel Computing Institute, University of Illinois at Urbana-Champaign

Brian Mitchell, Senior Principal Engineer, GE Global Research

Mark Seager, Intel Fellow, CTO, High Performance Computing Ecosystem, Intel Corporation

CASE
Complex Aerospace Systems Exchange

As the name implies, CASE is an exchange of ideas among professionals on some of the most pertinent issues of the day facing the aerospace industry and the field of systems engineering.

Monday, 22 June

0900–1200 hrs **Batik A-B**

Academic Roundtable

Expanding on the theme from Sunday, this session is the second day activity of the 2015 CASE Academic Workshop. It will offer rapid-fire discussions of current research efforts in systems knowledge and competency.

Facilitators:

Franz-Josef Kahlen, Ph.D., Associate Professor, Department of Mechanical Engineering, University of Cape Town, Cape Town, South Africa

Shannon Flumerfelt, Ph.D., Associate Professor, Educational Leadership, Director of Lean Thinking for Schools, Pawley Learning Institute, Oakland University, Michigan

Anabela Alves, Ph.D., Assistant Professor, Departamento de Produção e Sistemas Escola de Engenharia da Universidade do Minho, Centro Interdisciplinar de Tecnologias, da Produção e da Energia (CITPE), Campus de Azurém, Portugal

1400–1700 hrs **Grand Ballroom E**

Whatever Happened to the Four-Year Airplane?

This panel will explore the challenges facing aerospace professionals who are directly engaged in leading, developing, producing, and supporting the industry's most advanced vehicles and systems in the context of a "four-year aircraft" theme. We continue to push the limits of technology to deliver greater performance in all segments of aerospace, in an environment that is increasingly risk averse. These challenges have pushed us to longer development cycles and exponential growth in budgets. In addition, new technical disciplines (e.g., cyber) are being integrated into legacy and emerging systems, while subsystems are gaining in both complexity and interdependency. In the context of this environment, our panel will address how the aerospace industry should position itself to meet the challenges of reducing the cost and schedule and approach a "four-year aircraft" cycle in our increasingly complex world.

Moderator: **Craig Willis,** Group Head for Systems Verification, Gulfstream G500/G600 Program, Gulfstream Aerospace Corporation

Panelists:

Catherine Ferrie Kilmain, Executive Vice President of Engineering, Bell Helicopter

Eric Schrock, Deputy Director, Technology Development and Product Integration, Lockheed Martin Corporation

1730–1900 hrs **Morocco**

CASE Networking Social

Sponsored by Boeing Commercial Airplanes

Tuesday, 23 June

0930–1200 hrs **Grand Ballroom D**

Applied Complexity Workshop

Participants can learn how to embrace and thrive within technically, socially, and organizationally complex environments. Participants will be immersed in a three-pronged approach to learning, with industry examples, applied theory, and interactive practice. Please join us for this engagement, and bring your own experiences to share and a desire to strengthen your complex systems engineering thinking.

Panelists:

Paul C. Lambertson, Systems Engineering & Integration Team 777X, Boeing Commercial Airplanes

Steve Holt, Engineering Integrated Strategy, Airplane Level Engineering Integration, The Boeing Company

Jim Blohowiak, 777X Airplane Level Integration Team, The Boeing Company

Alison Lauderbach, 777X Airplane Level Integration Team, The Boeing Company

1400–1530 hrs **Steuben**

Concept Development of Complex Systems

This panel addresses the phase of development that includes activities from the beginning of decision activities for building new systems to the transition to the product design at milestone "B" (DoD) or the end of Phase B for NASA.

Session Chairs:

Steven D'Urso, Program Coordinator and Lecturer, Aerospace Systems Engineering, University of Illinois at Urbana-Champaign

Mat French, Electrical Systems Engineer, Rolls-Royce Corporation

Panelists:

Rick Mange, F-35 PNR Program Manager, Lockheed Martin Aeronautics

Robert (Rob) Simons, Technical Fellow, The Boeing Company

Jason Merret, Technical Specialist, Gulfstream Aerospace Performance Engineering, Gulfstream Aerospace Corporation

1545–1730 hrs **Steuben**

Product Design for Complex Systems Across the Supply Chain

This session will focus on the challenges and enabling technologies for product design across a supply chain. In particular, the session will address the layered chain consisting of OEM/airframer, Tier 1, Tier 2, and the approaches for designing complex systems that handle the integration aspects. Methods and model-based tool approaches will be discussed in terms of existing capabilities, gaps, and future trends.

Session Chairs:

Eelco Scholte, Manager, Advanced Methods – Electric Systems, UTC Aerospace Systems

Carmen Schooley, Manager, Systems Engineering and Integration, Gulfstream Aerospace Corporation

Panelists:

Fernando Dones, Technical Fellow, The Boeing Company

Bernard Dion, CTO, ANSYS

Brenda Nuhfer, Program Manager, UTC/Pratt & Whitney

Wednesday, 24 June

0900–1045 hrs **Grand Ballroom D**

Integration and Test

This panel focuses on the Integration & Test phase of development. Planning for integration activities of complex systems is inherently different from traditional systems engineering integration planning activities. Decisions about the systems under development have to consider not only the technical and programmatic viewpoints but also the political, societal, operational, and economic viewpoints. Definition of performance measures, found intrinsic in the plan, with trans-disciplinary implications will be discussed. A scenario for integration of UAS in the NAS will be used as a benchmark for current views and life-cycle challenges.

Session Chairs:

Mat French, Electrical Systems Engineer, Rolls-Royce Corporation

Hernando Jiminez, Research Engineer II at Aerospace Systems Design Laboratory, Georgia Institute of Technology

David Loda, Executive Director, NCPS Research, LLC

Panelists:

Jim Murphy, Project Engineer for Integrated Test and Evaluation for the Unmanned Aircraft System Integration, NASA Ames Research Center

David Maroney, Principal Systems Engineer, The Mitre Corporation

1045–1230 hrs **Grand Ballroom D**

Entry into Service/End of Life

This panel focuses on the complexities that arise once a system enters service throughout the life of the system. If these complexities are considered and incorporated into the system development phase, more robust products can be developed and higher customer satisfaction can be achieved.

Session Chair: **Jeff Jepson,** Senior Systems Engineer GNC / Guidance Design & Performance, Raytheon Missile Systems

Panelists:

Tim Adama, Chief Engineer of Factories, Raytheon Missile Systems

Ed Dolanski, President and CEO, Aviall

Jim Gallagher, EIS Program Manager, Gulfstream Aerospace Corporation

1400–1730 hrs **Grand Ballroom D**

System Complexity: Government Needs and Practical Research Results

This panel is arranged around two application domains – defense systems and unmanned air systems in the national airspace – and two engineering practice needs – rapid system development and new theory complex systems engineering. The expectation is that the audience will take away both a cogent statement of needs and challenges along with a concise description of new techniques that show promise to meet the stated needs and challenges.

Keynote Speaker: **Kristen Baldwin,** Principal Deputy DASD (SE), Department of Defense

Moderators:

Frank Serna, Principal Director, Strategic Initiatives, Draper Laboratory

Anna-Maria McGowan, Aeronautics Research Directorate, NASA Langley Research Center

Panelists:

Jeffrey P. Holland, Director of Research and Development and Chief Scientist, U.S. Army Corps of Engineers

David Neyland, Consultant

RISING LEADERS in AEROSPACE

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The multidimensional program features a leadership exchange/speed mentoring, panel session, Q&A with top industry leaders, and multiple opportunities for networking. These exciting and energetic activities will provide access to top aerospace leaders and their perspectives with subject matter relevant to your career.

Program Agenda

Networking Reception

Monday, 22 June **Emerald**
1830–1930 hrs

The reception will kick off the Rising Leaders in Aerospace events and is a perfect opportunity for young leaders to mingle with others who will be participating in AIAA AVIATION 2015 as attendee, presenter, or veteran professional. Come meet other participants in a casual environment. You're bound to see them again.

Leadership Exchange/Speed Networking

Wednesday, 24 June **Metropolitan Ballroom**
1530–1700 hrs

Get your questions answered! Senior Mentors will include:

Russ Althof, Chief Engineer, Raytheon Missile Systems

Cees Bil, Professor, Royal Melbourne Institute of Technology

Dave Bowles, Center Director (Acting), NASA Langley Research Center

Ed Feltrop, Engineer Specialist, Cessna Aircraft Company

Susan Gorton, Rotary Wing Project, NASA Langley Research Center

Peter Hartwich, Engineering Manager, Boeing Defense, Space and Security

Janice Kavandi, Deputy Director, NASA Glenn Research Center

Jeff Jepson, Senior Multi-Disciplined Engineer I, Raytheon Missile Systems

Samantha A. Magill, Academic Affairs and Inclusion & Diversity, Honda Aircraft Company

Sandy Magnus, Executive Director, AIAA

David McBride, Center Director, NASA Armstrong Flight Research Center

Charles Smith, Center Director (Acting), NASA Ames Research Center

John Valasek, Professor/Director, Vehicle Systems & Control Laboratory, Texas A&M University

Panel Discussion: Transitioning to Leadership

Thursday, 25 June **Emerald**
1400–1530 hrs

As engineers and aerospace professionals gain experience, there is often the opportunity to do more with the company. Promotions are often a result, but so are management opportunities.

As you transition from an engineer on a project to an engineer leading a project, what changes? How about when you are made manager of a department or a division, are there skill sets that you need to hone? What if you are looking to eventually become a chief officer, how can you plan for and make those transitions?

This panel will address the changes that accompany moving into a management role, the different skill sets that will need to be acquired, and the changes you can expect in your daily work routine.

If you have management or leadership aspirations, come and listen to advice from esteemed panelists.

Moderator: **Ben Marchionna,** Systems Engineer, Lockheed Martin Skunk Works

Panelists:

Russ Althof, Chief Engineer, Raytheon Missile Systems

Douglas Stanley, President and Executive Director, National Institute of Aerospace

Frederick Wieland, Director, Air Traffic Management, Intelligent Automation Systems, Inc.

Special Sessions and Events

Speed Geek Networking Event and Reception

Monday, 22 June **Chantilly Ballroom Foyer**
1730–1830 hrs, reception to follow 1830–1900 hrs

This casual, high-energy session will give you the opportunity to engage one-on-one with speakers and get a glimpse of things to come in the week ahead at AIAA AVIATION 2015. You'll travel from speaker to speaker in small groups, listen to a 5-minute overview of their topic, and then have five minutes to have your questions answered.

Open to all conference attendees, but space is limited to the first 500 participants.

Sponsored by:

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CFD Flow Visualization Showcase

Tuesday, 23 June **Chantilly Ballroom Foyer**
1400–1600 hrs

The CFD Flow Visualization Showcase will be held in the foyer area outside the Exposition Hall. Authors of papers containing CFD visualizations will describe their work and the significance of their animation as it plays on a large-screen monitor. Multiple visualizations will be shown during each of the four 30-minute time slots during the event. At the conclusion of the event, awards will be presented for Most Artistic Flow Visualization Animation, Most Quantitatively Descriptive Flow Visualization Animation, and Most Comprehensive Flow Visualization Animation. The visualizations of the three winners will be displayed on a monitor in the Exposition Hall during the remainder of the exposition.

Aeroacoustics Awards Reception and Banquet

Wednesday, 24 June **Imperial Ballroom**
1900 hrs

The Aeroacoustics Awards Reception and Banquet will begin with a cash bar social period at 1900 hrs, followed by the awards ceremony and banquet where the AIAA and CEAS Aeroacoustics Awards will be presented. The winner of the Aeroacoustics Student Paper Competition also will be recognized. Please join us and celebrate the achievements of your peers. Tickets will be available on site, as space is available.

Networking Events

Understanding the importance of networking with colleagues new and old, a series of activities have been planned that will help you connect with current colleagues and new acquaintances.

Student Welcome Reception

Sunday, 21 June **Emerald**
1800–1930 hrs

Mingle with your peers and hear from AIAA Executive Director Sandy Magnus. This reception provides you with the opportunity to meet your fellow students and learn more about the opportunities available to you as an AIAA student member.

Networking Coffee Breaks

Networking coffee breaks allow even more time for making new contacts, continuing discussions from sessions, visiting the Exposition Hall, or checking emails and voicemails to keep in touch with the office while you are at the forum. Networking coffee breaks will be held at the following locations and times:

Monday, 22 June	**0900–0930 hrs and 1530–1600 hrs; Meeting Room Foyers**
Tuesday, 23 June	**0900–0930 hrs and 1530–1600 hrs; Exposition Hall**
Wednesday, 24 June	**0900–0930 hrs and 1530–1600 hrs; Exposition Hall**
Thursday, 25 June	**0900–0930 hrs (Exposition Hall) and 1530–1600 hrs (Meeting Room Foyers)**
Friday, 26 June	**0900–0930 hrs Meeting Room Foyers**

Reception in the Exposition Hall

Tuesday, 23 June **Chantilly Ballroom East**
1730–1900 hrs

Take this opportunity to engage new contacts and refresh old ones. A ticket for the reception is required and included in the registration fee where indicated. Additional tickets for guests may be purchased on site, as space is available.

Luncheon in the Exposition Hall

Wednesday, 24 June **Chantilly Ballroom East**
1230–1400 hrs

A ticket is required and included in the registration fee where indicated.

Recognition Events

AIAA celebrates our industry's discoveries and achievements from the small but brilliantly simple innovations that affect everyday life to the major discoveries and missions that fuel our collective human drive to explore and accomplish amazing things.

Monday, 22 June

1730–1830 hrs **Grand Ballroom D**

Fluid Dynamics Award Lecture

Searching for Truthiness in Computational Fluid Dynamics

Philip Roe, Professor, Department of Aerospace Engineering, University of Michigan

Tuesday, 23 June

1230–1400 hrs **Chantilly Ballroom West**

Awards Luncheon: Celebrating Achievements in Aerospace Sciences

A ticket for the luncheon is required and included in the registration fee where indicated. Additional tickets for guests may be purchased on site, as space is available.

The following awards will be presented:

Aeroacoustics Award

Nigel Peake

Professor, Applied Mathematics
University of Cambridge
"For significant contributions to the understanding and prediction of turbomachinery noise generation and scattering."

Aerodynamics Award

Russell M. Cummings

Professor of Aeronautics
U.S. Air Force Academy
"For a career devoted to predicting and understanding the vortical flowfields about aircraft at high angles of attack and during maneuvers."

Fluid Dynamics Award

Philip Roe

Professor, Department of Aerospace Engineering
University of Michigan
"For seminal contributions to the design of numerical algorithms for simulations of compressible flows."

Plasmadynamics and Lasers Award

Philip E. Cassady

Senior Technical Fellow (retired)
The Boeing Company
"For distinguished contributions to the development of aero-optics and high power laser fluid dynamics."

Thermophysics Award

Sumanta Acharya

Ring Chair & Professor, Mechanical Engineering Department
University of Memphis
"For significant contributions to gas turbine heat transfer and aerodynamics, investigation of novel cooling schemes and application of emerging computational methodologies for gas turbine cooling."

Certificates of Merit:

Aerodynamic Measurement Technology Best Paper

AIAA 2015-1696, "Pressure Monitoring using Hybrid fs/ps Rotational CARS," Sean Kearney, Sandia National Laboratories, and Paul Danehy, NASA Langley Research Center.

Applied Aerodynamics Best Paper

AIAA 2014-2139, "Uncertainty Quantification and Certification Prediction of Low-Boom Supersonic Aircraft Configurations," Thomas K. West, Missouri University of Science and Technology; Bryan W. Reuter, University of Texas at Austin; Eric L. Walker, Bill Kleb, and Michael A. Park, NASA Langley Research Center.

David Weaver Best Student Paper

AIAA 2014-2247, "Microscale Simulations of Porous TPS Materials: Application to Permeability," Eric C. Stern, Ioannis Nompeli, Thomas Schwartzentruber and Graham Candler, University of Minnesota.

Fluid Dynamics Best Paper

AIAA Paper 2015-1518, "Large Eddy Simulation of a Three-Dimensional Compression Ramp Shock-Turbulent Boundary Layer Interaction," David Dawson and Sanjiva Lele, Stanford University.

Ground Testing Best Paper

AIAA 2014-2800, "Skin Friction Sensor Validation for High-Speed, High-Enthalpy Flow Applications," Ryan Meritt and Joseph Schetz, Virginia Polytechnic Institute and State University.

Modeling and Simulation Best Paper

AIAA 2014-2206, "Transfer of Training on the Vertical Motion Simulator," Peter Zaal, NASA Ames Research Center; Jeffrey Schroeder, Federal Aviation Administration; and William Chung, SAIC.

(continued)

Recognition Events

Certificates of Merit (continued)

Plasmadynamics and Lasers Best Paper

AIAA 2015-0935, "Electric Field Measurements in a Dielectric Barrier Nanosecond Pulse Discharge with Sub-nanosecond Time Resolution," Benjamin Goldberg and Walter Lempert, Ohio State University; and Sean O'Byrne, University of New South Wales at the Australian Defence Force Academy.

Plasmadynamics and Lasers Best Student Paper

AIAA 2015-0679, "A Latency-Tolerant Architecture for Airborne Adaptive Optic Systems," William R. Burns, Eric J. Jumper and Stanislav Gordeyev, University of Notre Dame.

Thermophysics Best Paper

AIAA 2015-0213, "NASA Langley Experimental Aerothermodynamic Contributions to Slender and Winged Hypersonic Vehicles," Scott Berry and Karen Berger, NASA Langley Research Center.

1630–1730 hrs **Grand Ballroom D**

Plasmadynamics and Lasers Award Lecture

From Plasmadynamics and Shock Tubes to Aero-Optics and Laser Radar: An Aerospace Career

Philip E. Cassady, Senior Technical Fellow (retired), The Boeing Company

Wednesday, 24 June

1630–1730 hrs **Chantilly Ballroom West**

Aerodynamics Award Lecture

Still Trying to Understand Aircraft Vortices

Russell M. Cummings, Professor of Aeronautics, U.S. Air Force Academy

1730–1830 hrs **Grand Ballroom E**

Thermophysics Award Lecture

Aerodynamics and Heat Transfer in Gas Turbine Cooling-Recent Advances

Sumanta Acharya, Ring Chair & Professor, Mechanical Engineering Department, University of Memphis

1730–1830 hrs **Chantilly Ballroom West**

Aeroacoustics Lecture

Fan Broadband Noise Generation and Suppression

Edmane Envia, Acoustics Branch, NASA Glenn Research Center

Thursday, 25 June

1230–1400 hrs **Chantilly Ballroom West**

Awards Luncheon: Celebrating Achievements in Aircraft and Atmospheric Systems

A ticket for the luncheon is required and included in the registration fee where indicated. Additional tickets for guests may be purchased on site, as space is available.

The following awards will be presented:

Aircraft Design Award

Darold B. Cummings
Aerospace Consultant
Boeing Technical Fellow (retired)

"*For a career demonstrating exceptional skill and creativity in the configuration and design of aircraft, and inspiring future generations of aircraft designers.*"

Elmer A. Sperry Award

Michael Sinnett, Vice President, Product Development, and the Boeing 787-8 Development Team, Seattle, Washington

"*For pioneering engineering advances including lightweight composite wing and monolithic composite fuselage construction and advanced systems that have led to significant improvements in fuel efficiency, reduced carbon emission, reduced maintenance costs and increased passenger comfort.*"

Certificates of Merit:

Aircraft Design Best Paper

AIAA 2014-3012, "A Requirements-driven Methodology for Integrating Subsystem Architecture Sizing and Analysis into the Conceptual Aircraft Design Phase," Imon Chakraborty, David Trawick, and Dimitri Mavris, Georgia Institute of Technology; Mathias Emeneth, PACE Americas Inc.; and Alexander Schneegans, PACE GmbH.

Multidisciplinary Design Optimization Best Paper

AIAA-2014-3274, "Aerostructural Optimization of the Common Research Model Configuration," Gaetan Kenway and Joaquim Martins, University of Michigan; and Graeme Kennedy, Georgia Institute of Technology.

1730–1830 hrs **Chantilly Ballroom West**

Wright Brothers Lectureship in Aeronautics

Development and Testing of the X-47B

Pablo Gonzalez II, UCAS-D Program Manager, Northrop Grumman Aerospace Systems

ITAR Information

ITAR-Restricted Sessions

On Tuesday, a limited number of oral presentations and papers will be presented in "U.S. Only" technical sessions. In addition to your forum registration, a separate registration process is required to attend these restricted sessions. Please see the detailed information on the ITAR Registration Grid below to determine your individual requirements.

Access to ITAR Sessions: Presenting a Paper, Chairing a Session, or Attending an ITAR-Restricted Presentation

Admittance to the restricted technical program is controlled by the U.S. International Traffic in Arms Regulations (ITAR). All attendees, presenters, and session chairs will need to register for the conference, and then visit the ITAR registration desk to complete the additional processes. Anyone wishing to enter the restricted session room MUST abide by the procedures and submission of verified documents mandated by the DoD. No Exceptions!

Availability of Manuscripts from ITAR-Restricted Sessions

For those who are registered to attend the sessions, a DVD containing the papers from the ITAR sessions will be available for purchase on site at the forum for $25. Those purchasing the DVD must be available to pick it up on Wednesday, 24 June 2015. All DVDs must be picked up in person. There will be no sale or distribution of these papers after the event.

ITAR Electronics Policy

No phones, computers (other than the presenter), iPads, cameras, or other electronic devices with cameras or recording capabilities will be permitted into the ITAR session room. There will be a check-in desk in front of the room where you can check these devices.

Important session information for all attendees wishing to present or attend ITAR papers

AIAA Shaping the Future of Aerospace

AIAA Restricted Papers – ITAR Regulations Session Admittance Policy
(Revised 10/19/2012)

Several papers scheduled to be presented at this conference will be restricted papers governed by ITAR (U.S. International Traffic in Arms Regulations). If you plan to attend any presentations restricted by ITAR, you must bring proof of citizenship PLUS the other verification documents as shown below. Please note that only U.S. Citizens and U.S. Resident Aliens can be considered for attendance at these restricted presentations. Admittance to restricted sessions and access to restricted technical papers is implemented and controlled by ITAR .
All restricted session attendees (including speakers and session chairs for these sessions) MUST abide by the procedures and submittal of verification documents as noted below **– NO EXCEPTIONS**:

ATTENDEE CLASSIFICATION	IDENTIFICATION & PROOF OF EMPLOYMENT REQUIREMENTS
U.S. Government Employees	1. Proof of U.S. Citizenship (for example, passport, birth certificate, voters registration card, naturalization papers), **AND** 2. Personal photographic identification: U.S. Government/Military Photo ID badge, such as CAC card
U.S. Citizens	1. Proof of U.S. Citizenship (for example, passport, birth certificate, voters registration card, naturalization papers), **AND** 2. Personal photographic identification (passport, driver's license, etc.), **AND** 3. Certification credentials based on DD Form 2345 (see below for details)
Resident Aliens (U.S.)	1. Resident Alien Card, **AND** 2. Personal photographic identification (passport, driver's license, etc.), **AND** 3. Certification credentials based on DD Form 2345 (see below for details)

DD Form 2345 individual certification credentials (required for U.S. & Resident Aliens) MUST be from one of the following:

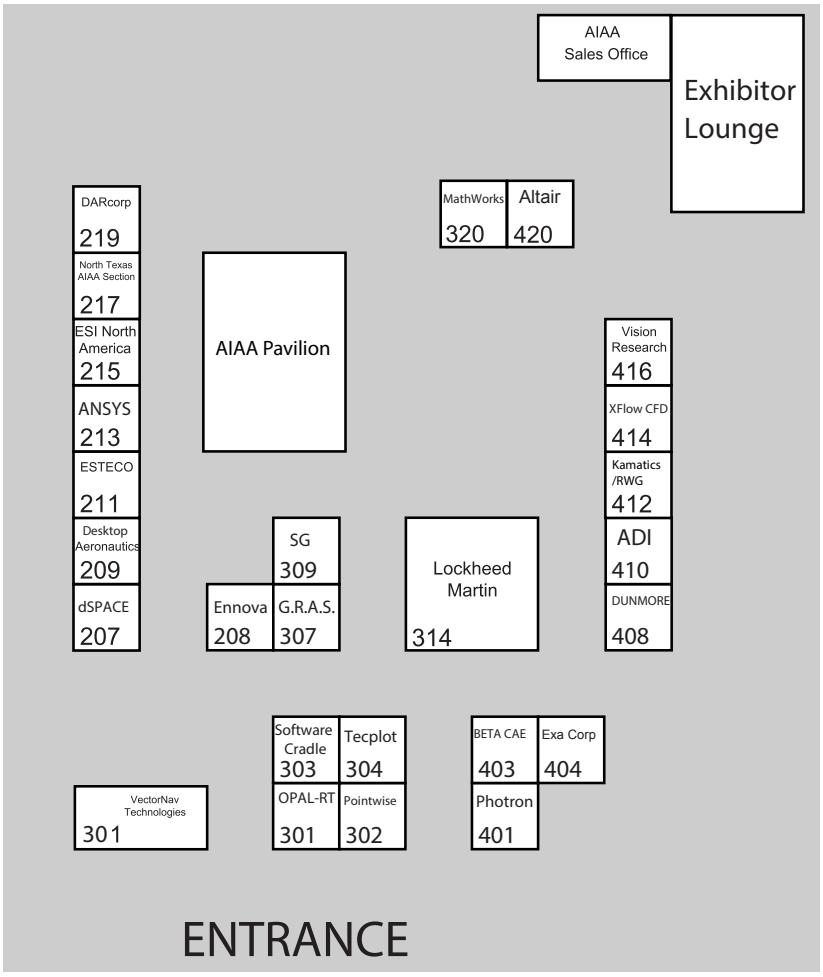
1. Copy of an approved and active DD2345 for the individual, **OR**
2. Copy of an approved and active DD2345 for the individual's employer PLUS evidence of current employment status with that employer (corporate ID, business card, etc.), **OR**
3. A listing of the individual's employer in the most recent DoD quarterly Qualified U.S. Contractor Access List PLUS evidence of current employment status with that employer (corporate ID, business card, etc.).

DD Form 2345 may be downloaded and completed online in order to apply for approval to be listed on the Qualified U.S. Contractor List, www.dlis.dla.mil/jcp. Allow at least 4-6 week (or longer) prior to the AIAA technical conference dates for you to receive the approval and be listed on the Qualified U.S. Contractor List.

How to get your ITAR Clearance:
Bring all of the above listed identification, proof of employment and certification credentials to the AIAA ITAR Registration Desk in the AIAA Registration area. Your documents will be verified and you will be provided with a stamp indicating your ITAR clearance. Photo ID will be checked against your ITAR badge before admittance is granted to any ITAR presentation.

Please be advised that all policies and procedures MUST be followed or admittance to restricted sessions will not be permitted.

Exposition Hall



Exhibitors by Booth Number

217	AIAA North Texas Section
420	Altair
213	ANSYS
410	Applied Dynamics International (ADI)
403	BETA CAE Systems USA, Inc.
219	DARcorporation
209	Desktop Aeronautics
207	dSPACE
408	DUNMORE Corporation
208	Ennova Technologies, Inc.
215	ESI North America
211	ESTECO
404	Exa Corporation
307	G.R.A.S. Sound & Vibration
412	Kamatics/RWG
314	Lockheed Martin
320	MathWorks
301	OPAL-RT Technologies
401	Photron
302	Pointwise, Inc.
309	SG - Space & Ground Engineering Solutions
303	Software Cradle
304	Tecplot Inc.
301	VectorNav Technologies
416	Vision Research
414	XFlow CFD

Exposition Hall

The Exposition Hall is the hub of activity during this event—from seeing exhibitor displays to enjoying networking breaks and other functions. All the major networking events are held in the Exposition Hall to give attendees and exhibitors an opportunity to connect with partners, industry thought leaders, and collaborators who can help move your business forward. The Exposition Hall is located in the Chantilly Ballroom East.

Exposition Hall Hours

Tuesday, 23 June	**0900–1230 hrs**
	1400–1600 hrs
Reception*	**1730–1900 hrs**
Wednesday, 24 June	**0900–1200 hrs**
	1230–1600 hrs
Thursday, 25 June	**0900–1200 hrs**

**A ticket is required and included in the registration fee where indicated*

30% Off All Books at AIAA AVIATION 2015

AIAA Publications is offering a special show discount on all titles featured at AVIATION 2015. Attendees can take advantage of a 30% discount off the list price of all books for sale at the AIAA Bookstore located in the AIAA Pavilion. This show special will only be available during the forum! Take advantage of these super savings and visit the AIAA Bookstore!

AIAA Pavilion

Stop by the AIAA Pavilion, located in the Exposition Hall, to browse publications and merchandise, learn about your membership benefits, and meet AIAA staff.

Exhibitors

AIAA North Texas Section 217

Altair 420

1820 E Big Beaver Road
Troy, MI 48083
www.altair.com
yancy@altair.com

Altair is a leader in developing simulation-driven designs for leading aerospace customers. Our world-class optimization methods provide designs that are lower weight, higher quality, and have better performance vs. traditional designs.

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ANSYS, Inc. develops and globally markets engineering simulation software used by designers and engineers across the aerospace and defense industry. Our open and flexible simulation solutions enable users to simulate design performance using an open platform for fast, efficient and cost-effective product development.

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Applied Dynamics helps companies make better use of simulation assets through all stages of product development, verification testing, demonstration, training, and maintenance. Our user base includes more than 50% of the Fortune 500 aerospace and defense companies and extends into marine, power systems, oil & gas, and the automotive industry.

BETA CAE Systems USA, Inc. 403

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BETA CAE Systems is an engineering services company that distributes & supports the industry leading ANSA & META software. ANSA is CAE pre-processing tool for FE & CFD Analysis, for full-model build, from CAD to solver input file, in one integrated environment. META is a post-processor for analyzing results from ANSYS, NASTRAN, ABAQUS, LS-DYNA, PAMCRASH, RADIOSS, MADYMO, FLUENT, STAR CCM, CFD++ & other solvers.

DARcorporation 219

1440 Wakarusa Drive
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Jordan.ashley@darcorp.com

DARcorporation (Design, Analysis and Research Corporation) is an aeronautical engineering firm, located in Lawrence, Kansas, that has been offering aeronautical engineering consulting services, software and books since 1991.

Desktop Aeronautics Inc. 209

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Desktop Aeronautics is a software company that licenses tools for the aerodynamic design and analysis of aerospace vehicles. Our flagship product, GoCart, is an intuitive aerial vehicle design tool built around NASA's renowned Cartesian Euler CFD solver, Cart3D. Our customers include major players from the aerospace industry and academia.

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DUNMORE is a manufacturer of engineered films and tapes for aerospace, supplying multilayer insulation materials to the aerospace industry for over twenty-five years. With a highly technical product base of over 400 certified products, DUNMORE is the trusted source for engineered aerospace films and tapes.

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ESI's 1,000 Virtual Prototyping and Mfg Simulation specialists serve clients in over 40 countries. For over 40 years, ESI's simulation software suite has been used to tackle the toughest Acoustics, Crash, VR, Composites, Casting, Welding, Forming, and CFD engineering challenges—earning the slogan "We get it right." For more info: www.esi-group.com

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Exa Corporation offers a full suite of CFD/CAE simulation design optimization software applications with aerodynamic, thermal and aeroacoustic simulation capabilities in addition to engineering consulting services. Exa's products and services enable engineers to integrate simulation early in the design process, therefore creating competitive designs, shortening product design cycles and speeding time-to-market.

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G.R.A.S. has concentrated its efforts and expertise on the development and production of front-end acoustic products. This includes in principle all products necessary for the precise and reliable measurement, and recording of acoustic signals, from the transducer to the input of the A/D converter. The main line of instrumentation includes a broad range of standard measurement microphones and preamplifiers, all designed and manufactured in accordance with international standards.

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Lockheed Martin is principally engaged in the research, design, development, manufacture, integration and sustainment of advance technology systems, products and services.

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OPAL-RT: From Imagination… to Real-Time. OPAL-RT TECHNOLOGIES is a world leading developer of open, Real-Time Digital Simulators and Hardware-in-the-Loop testing equipment for electrical, electro-mechanical and power electronics systems. Our simulators are used by engineers and researchers at leading manufacturers, utilities, universities and research centers around the world.

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SG Company provides integrated engineering solutions for air/space-based earth monitoring systems and develops special techniques for UAS (Unmanned Aerial Systems) earth observation applications in various disciplines.

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Software Cradle is a leading provider of Computational Fluid Dynamics (CFD) software including SC/Tetra (unstructured mesh), scSTREAM (general purpose Cartesian mesh), and Heat Designer (Cartesian mesh for electronics). Since inception in 1984, Cradle has established itself as a major innovator for advancing the role of simulation in engineering design.

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Tecplot visualization tools—for simulations, analyses, and experiments—provide insight and understanding into the mechanisms inside your data. Information critical in pinpointing problems, optimizing designs, and explaining physical observations.

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Vision Research designs and manufactures high-speed digital imaging systems with unsurpassed light-sensitivity, image resolution, acquisition speed and image quality. Marketed under the Phantom®brand,these cameras enable users to visualize and analyze physical phenomena when it's too fast to see, and too important not to™.

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XFlow™ CFD is the next-generation, meshless CFD package for modeling external aerodynamics of fixed-wing and rotorcraft aircraft. XFlow supports complex motion of complicated moving parts to model dynamic effects of control surface motion in flight, high-lift (take-off and landing) configurations and/or separation of munitions or separable stores.

General Information

AIAA Registration and Information Center Hours

The AIAA Registration and Information Center will be located on the Ballroom Level at the Hyatt Regency. Hours are as follows:

Sunday, 21 June	**1500–1900 hrs**
Monday, 22 June – Thursday, 25 June	**0700–1730 hrs**
Friday, 26 June	**0700–1200 hrs**

Wi-Fi Internet Access On Site

AIAA is providing limited Wi-Fi service for attendees to use while on site. To keep this service available and optimized for all attendees, please do not download files larger than 2MB, create multiple sessions across multiple devices, or download multiple files in one session. If you receive an error message that an AIAA server is blocking your current IP address, please inform the AIAA registration desk.

Social Media Kiosks

Throughout the forum, social media kiosks will display content shared by forum attendees! Look for your tweets or instagrams to be displayed on the screens. AIAA is also hosting a competition where the user who has posted the most tweets during the forum will win a prize.

Conference Proceedings

Proceedings for the forum will be available online. The cost is included in the registration fee where indicated. Online proceedings will be available on 22 June 2015. Attendees who register in advance for the online proceedings will be provided with instructions on how to access them. Those registering on site will be provided with instructions at that time.

Proceedings:

1. To view proceedings visit **www.aiaa.org** >ARC>Meeting Papers.
   a. Log in with the link at the top right of the page.
   b. Select the appropriate conference from the list.
   c. **Search for individual papers** with the **Quick Search toolbar** in the upper-right corner of the page:
      i. By paper number: Click the "Paper Number" link, select the conference year, and enter the paper number.
      ii. Use the Search textbox to find papers by author, title, or keyword. The Advanced Search link provides additional search information and options.
2. All manuscript files submitted at least four days prior to the conference are currently in the proceedings. Files submitted after that date, both original and revised manuscripts, will not be available until the final proceedings update, which may take up to 15 business days after the last day of the conference.
3. Direct any questions concerning access to proceedings and/or ARC to **arcsupport@aiaa.org.**

Manuscript Revisions:

1. Manuscript revision is open for all presenting authors from 0900 hrs Eastern Time, Monday, 22 June, through 2000 hrs Eastern Time, Wednesday, 8 July.
2. Revisions submitted for manuscripts already online **will not refresh until after the proceedings have been updated**, which may take up to 15 business days after the last day of the conference.

General Information

Certificate of Attendance

Certificates of Attendance are available for attendees who request documentation at the forum itself. The Certificates of Attendance will be available for attendees to print at a self-service station at the registration desk starting Wednesday, 24 June. AIAA offers this service to better serve the needs of the professional community. Claims of hours or applicability toward professional education requirements are the responsibility of the participant.

Employment Opportunities

AIAA members can post and browse resumes, browse job listings, and access other online employment resources by visiting the AIAA Career Center at **http://careercenter.aiaa.org.** Additionally, a message board will be available for postings in the Exposition Hall.

Membership

AIAA is your vital lifelong link to the collective creativity and brainpower of the aerospace profession and a champion for its achievements – and nonmembers who pay the full conference registration fee will receive their first year's AIAA membership at no additional cost! Students who are not yet members may apply their registration fee toward their first year's student member dues. (Free membership is not included in discounted group-rate registration.)

AIAA Foundation

Since 1996 the AIAA Foundation has provided programs and support for educators and students. Through classroom grants, scholarships, awards, design competitions, and student conferences, the AIAA Foundation has encouraged students in grades K-12 and at the university level to discover the aerospace industry and become the next generation of scientists and engineers. Please consider making a donation so that the Foundation can continue to provide the resources needed to support aerospace education and to recognize innovation at all levels. For more information and to donate online, please visit www.aiaafoundation.org.

AIAA FOUNDATION

Invest In The Future

Young Professional Guide for Gaining Management Support

Young professionals have the unique opportunity to meet and learn from some of the most important people in the business by attending conferences and participating in AIAA activities. A detailed online guide, published by the AIAA Young Professional Committee, is available to help you gain support and financial backing from your company. The guide explains the benefits of participation, offers recommendations, and provides an example letter for seeking management support and funding, and shows you how to get the most out of your participation. The online guide can be found on the AIAA website at **www.aiaa.org/YPGuide.**

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General Information

Author and Session Chair Information

Speakers' Briefings in Session Rooms

Authors who are presenting papers will meet with session chairs and co-chairs in their session rooms for a short 30-minute briefing on the day of their sessions to exchange bios and review final details prior to the session. Please attend on the day of your session(s). Laptops preloaded with the Speaker Briefing preparation slides will be provided in each session room. Speaker's Briefing schedule is as follows:

Monday 22 June–Friday 26 June, 0730 hrs

Speakers' Practice Room

Speakers who wish to practice their presentations may do so in the Peridot room. A sign-up sheet will be posted on the door. In consideration of others, please limit practice time to 30-minute increments.

Session Chair Reports

All session chairs are asked to complete a session chair report to evaluate their session for future planning. AIAA has partnered with Canvas Solutions to provide an electronic Session Chair Report form. You can download the FREE mobile app in your App Store, AppWorld, or Marketplace by searching for "Canvas Solutions, Inc." The mobile app is free, so please be sure to download it. Detailed instructions will be provided in the session rooms. If you do not have a tablet or a smartphone, simply use the report form as a guide and enter your session chair report information at the session chair reporting computer station located on site near the AIAA registration area. Report data will be collected and used for future planning purposes, including session topics and room allocations. Please submit your session chair report **electronically** by Friday, 26 June 2015.

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Each session room will be preset with the following: one LCD projector, one screen, one microphone and sound system (if necessitated by room size), and one laser pointer. **Laptop computers will also be provided.** You may also use your own computer. Any additional audiovisual equipment requested onsite will be at cost to the presenter. Please note that AIAA does not provide security in the session rooms and recommends that items of value not be left unattended

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If a written paper is not submitted by the final manuscript deadline, authors will not be permitted to present the paper at the forum. Also, if the paper is not presented at the forum, it will be withdrawn from the proceedings. It is the responsibility of those authors whose papers or presentations are accepted to ensure that a representative attends the conference to present the paper. These policies are intended to improve the quality of the program for attendees..

Journal Publication

Authors of appropriate papers are encouraged to submit them for possible publication in one of the Institute's archival journals: *AIAA Journal*; *Journal of Aircraft*; *Journal of Guidance, Control, and Dynamics*; *Journal of Propulsion and Power*; *Journal of Spacecraft and Rockets*; *Journal of Thermophysics and Heat Transfer*; or *Journal of Aerospace Information Systems* (formerly *Journal of Aerospace Computing, Information, and Communication*). You may now submit your paper online at **http://mc.manuscriptcentral.com/aiaa.**

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Committee Meetings

Time	Title	Location
	Sunday, 21 June 2015	
0900-1600	**CASE Academics**	Batik A & B
1400-1500	**GTTC Steering Subcommittee**	Miro
1400-1500	**APATC New Member Orientation**	Dardanelles
1430-1500	**APATC Liaisons Subcommittee**	Fleur de lis A
1500-1600	**APATC Education Subcommittee**	Milan
1500-1600	**APATC Honors and Awards Subcommittee**	Ming
1500-1600	**APATC Membership and Nominations Subcommittee**	Inverness
1500-1600	**APATC Planning Subcommittee**	Lalique
1500-1600	**APATC Publicity and Publications Subcommittee**	Edelweiss
1500-1600	**GTTC Introduction/Overview**	Miro
1600-1700	**GTTC Program Subcommittee**	Miro
1600-1700	**APATC Technical Activities Meeting**	Edelweiss
1600-1700	**FDTC Higher Order Methods WG**	Dardanelles
1700-1800	**APATC Steering Committee**	Ming
1700-1800	**GTTC Conferences Subcommittee**	Miro
1730-1830	**FDTC New Member Orientation**	Fleur de lis A
1730-2100	**Atmospheric Flight Mechanics TC**	Dardanelles
1800-1900	**GTTC Publications Subcommittee**	Miro
1800-2100	**Applied Aerodynamics TC**	Metropolitan
1830-2000	**FDTC Steering Committee**	Fleur de lis A
1900-2000	**GTTC Education and Student Activities Subcommittee**	Miro
1900-2100	**FDTC Transition DG**	Cardinal A
1900-2100	**TAC Aircraft and Atmospheric Systems Group**	Cardinal B
2000-2100	**GTTC Awards Subcommittee**	Miro
2000-2100	**AMTTC Conference Subcommittee**	Milan
	Monday, 22 June 2015	
0800-1200	**GTTC WT Model Attitude and Deformation Measurement WG**	Dardanelles
1100-1400	**General Aviation TC**	Morocco
1200-1400	**Aircraft Electric Propulsion Path Forward**	Batik B
1200-1400	**Aviation MDO SPC**	Dardanelles
1300-1500	**GTTC FoGT Experimental and Computational Aero Development Coordination**	Cardinal A & B
1500-1600	**FDTC Reduced Order Modeling DG**	Dardanelles
1600-1700	**TPTC New Member Meeting**	Cooper
1600-1700	**FDTC Flow Control - Barriers/Challenges to Tech Trans**	Cardinal A
1630-1800	**Atmospheric and Space Environments TC**	Batik A
1700-1900	**Computational Fluid Dynamics Committee on Standards**	Batik B
1730-1830	**GTTC Committee on Standards**	Cardinal A
1730-1830	**APATC Low Boom DG**	Cooper
1730-1900	**APATC Validation of Numerical Models DG**	Dardanelles
1830-1930	**AMTTC Awards Subcommittee**	Batik A
1830-2030	**APATC Rotorcraft Simulations and Performance Predictions DG**	Cardinal B

Committee Meetings

Time	Title	Location
	Monday, 22 June 2015 (continued)	
1900-2100	**TAC Aerospace Sciences Group**	Batik B
1900-2100	**FDTC Computational Fluid Dynamics Subcommittee**	Dardanelles
1900-2100	**FDTC Flow Control and Fluid Applications Subcommittee**	Cardinal A
1900-2100	**FDTC Fundamentals of Flow Phenomena Subcommittee**	Cooper
1900-2200	**Aircraft Design TC**	Monte Carlo
	Tuesday, 23 June 2015	
0800-1600	**GTTC Internal Balance WG**	Cooper
0800-1600	**GTTC Dual Flow Reference Nozzle WG - Day 1**	Batik A
0930-1200	**DETC Subcommittee**	Batik B
1400-1500	**Journal of Thermophysics and Heat Transfer**	Malta
1500-1600	**TPTC Awards Subcommittee**	Cardinal A
1500-1600	**TPTC Publications Subcommittee**	Dardanelles
1600-1700	**TPTC Conferences Subcommittee**	Cardinal A
1600-1700	**TPTC Best Paper Subcommittee**	Batik B
1700-1800	**TPTC Nominations Subcommittee**	Cardinal A
1700-1800	**TPTC Education Subcommittee**	Cooper
1730-1900	**FDTC Low Re DG**	Dardanelles
1800-1900	**FDTC Free Shear Layer Mixing Layer Control DG**	Batik A
1800-1900	**TPTC Publicity Subcommittee**	Cooper
1800-2100	**Design Engineering TC**	Batik B
1900-2000	**APATC Low Reynolds Number Aerodynamics DG**	Dardanelles
1900-2200	**Air Transportation Systems TC**	Monte Carlo
1900-2200	**MVCETC Meshing 2030 Subcommittee**	Batik A
1900-2200	**Fluid Dynamics TC**	Cardinal A & B
1900-2200	**Thermophysics TC**	Monet Ballroom
1900-2200	**Plasmadynamics and Lasers TC**	Rosetta
1930-2130	**Aeroacoustics TC**	Miro
2000-2300	**Aerodynamic Measurement Technology TC**	Cooper
	Wednesday, 24 June 2015	
0800-1200	**GTTC Future of Ground Testing WG**	Cardinal A & B
0800-1200	**GTTC Dual Flow Reference Nozzle WG - Day 2**	Cooper
1200-1600	**GTTC Uncertainty Analysis WG**	Cooper
1500-1600	**AVIATION 2016 Technical Program Committee**	Dardanelles
1730-1900	**GTTC Student Meet and Greet**	Stemmons A
1730-1830	**FDTC Large Eddy Simulation DG**	Monte Carlo
1730-1830	**Green Engineering PC**	Malta
1800-1900	**FDTC Future of Fluids Subcommittee**	Cooper
1800-1900	**FDTC Turbulence Model Benchmarking WG**	Cardinal A
1830-2000	**Plasma Aerodynamics DG**	Cardinal B
1830-1930	**AMTTC Nominations Subcommittee**	Edelweiss
1830-2000	**FDTC Non-Equilibrium DG**	Dardanelles
1830-2200	**Multidisciplinary Design Optimization TC**	Batik A & B
1900-2000	**FDTC Solver Technology for Turbulent Flows**	Cardinal A
1900-2200	**V/STOL Aircraft Systems TC**	Cooper
1900-2200	**Meshing, Visualization and Computational Environments TC**	Fleur de lis B

Committee Meetings

Time	Title	Location
	Thursday, 25 June 2015	
0900-1100	**CASE Planning Committee**	Monte Carlo
0900-1700	**GTTC Wind Tunnel Flow Quality WG**	Cooper
1600-1730	**APATC Missile and Projectile Aeroprediction DG**	Dardanelles
1730-1830	**AMTTC Conferences Subcommittee**	Milan
1800-2100	**Ground Testing TC**	Cardinal A & B
1800-2100	**Transformational Flight PC**	Batik A & B
1830-2130	**Modeling and Simulation TC**	Cooper
1900-2200	**Flight Testing TC**	Coral

Sessions at a Glance

Abbreviation	Title	Date	Start Time	Location
	Aeroacoustics			
3-AA-1	**Airframe Noise I**	22-Jun	0900 hrs	Fleur-de-lis A
4-AA-2	**Jet Noise Prediction I**	22-Jun	0900 hrs	Fleur-de-lis B
5-AA-3	**Jet Noise Modeling I**	22-Jun	0900 hrs	Inverness
6-AA-4	**CAA Numerical Techniques I**	22-Jun	0900 hrs	Lalique
7-AA-5	**Duct Acoustics I**	22-Jun	0900 hrs	Obelisk A
37-AA-6	**Open Rotor I**	22-Jun	1400 hrs	Fleur-de-lis A
38-AA-7	**Trailing Edge Noise I**	22-Jun	1400 hrs	Fleur-de-lis B
39-AA-8	**Jet Noise Prediction II**	22-Jun	1400 hrs	Inverness
40-AA-9	**Jet Noise Measurements I**	22-Jun	1400 hrs	Lalique
41-AA-10	**CAA Sound Generation I**	22-Jun	1400 hrs	Obelisk A
77-AA-11	**Fan Noise**	23-Jun	0900 hrs	Fleur-de-lis A
78-AA-12	**Duct Acoustics II**	23-Jun	0900 hrs	Fleur-de-lis B
79-AA-13	**Trailing Edge Noise II**	23-Jun	0900 hrs	Inverness
80-AA-14	**Jet Noise Prediction III**	23-Jun	0900 hrs	Lalique
81-AA-15	**CAA Numerical Techniques II**	23-Jun	0900 hrs	Obelisk A
112-AA-16	**CAA Sound Generation II**	23-Jun	1400 hrs	Fleur-de-lis A
113-AA-17	**CAA Propagation and Scattering I**	23-Jun	1400 hrs	Fleur-de-lis B
114-AA-18	**General Acoustics I**	23-Jun	1400 hrs	Inverness
115-AA-19	**Airframe Noise II**	23-Jun	1400 hrs	Lalique
116-AA-20	**Duct Acoustics III**	23-Jun	1400 hrs	Obelisk A
151-AA-21	**Turbomachinery and Core Noise**	24-Jun	0900 hrs	Fleur-de-lis B
152-AA-22	**General Acoustics II**	24-Jun	0900 hrs	Inverness
153-AA-23	**Jet Noise Near Field and Jet Noise Reduction**	24-Jun	0900 hrs	Lalique
154-AA-24	**CAA Propagation and Scattering II**	24-Jun	0900 hrs	Obelisk A
155-AA-25	**Benchmark Problems for Airframe Noise Computations III (BANC-III) Summary (Invited)**	24-Jun	0900 hrs	Fleur-de-lis A
185-AA-26	**Combustion Noise**	24-Jun	1400 hrs	Fleur-de-lis B
186-AA-27	**Arrays Method Panel Session**	24-Jun	1400 hrs	Fleur-de-lis A
187-AA-28	**Open Rotor II**	24-Jun	1400 hrs	Inverness
188-AA-29	**Airframe Noise III**	24-Jun	1400 hrs	Lalique
189-AA-30	**Jet Noise Measurements II**	24-Jun	1400 hrs	Obelisk A
226-AA-31	**Interior Noise**	25-Jun	0900 hrs	Edelweiss
227-AA-32	**Jet Noise Measurements III**	25-Jun	0900 hrs	Fleur-de-lis A
228-AA-33	**Jet Noise Modeling II**	25-Jun	0900 hrs	Fleur-de-lis B
229-AA-34	**CAA Numerical Techniques III**	25-Jun	0900 hrs	Inverness
230-AA-35	**Airframe Noise IV**	25-Jun	0900 hrs	Lalique
231-AA-36	**General Acoustics III**	25-Jun	0900 hrs	Obelisk A
259-AA-37	**Landing Gear Noise**	25-Jun	1400 hrs	Edelweiss
260-AA-38	**Fluid-Structure Interaction**	25-Jun	1400 hrs	Fleur-de-lis A
261-AA-39	**Fluid Acoustic Phenomena**	25-Jun	1400 hrs	Fleur-de-lis B
262-AA-40	**Advanced Testing Techniques**	25-Jun	1400 hrs	Inverness
263-AA-41	**CAA Numerical Techniques IV**	25-Jun	1400 hrs	Lalique
264-AA-42	**Fan Broadband Noise Prediction**	25-Jun	1400 hrs	Obelisk A

Sessions at a Glance

Abbreviation	Title	Date	Start Time	Location
	Aircraft Design			
42-ACD-1	**Aircraft Design for Environmental Impact Reduction**	22-Jun	1400 hrs	Miro
82-ACD-2	**Aircraft Design Methods and Tools**	23-Jun	0900 hrs	Wyeth
117-ACD-3	**Aircraft Performance Studies**	23-Jun	1400 hrs	Wyeth
156-ACD-4	**General Aviation**	24-Jun	0900 hrs	Morocco
190-ACD-5	**Design of Unconventional Aircraft Configurations**	24-Jun	1400 hrs	Morocco
232-ACD-6	**Conceptual Aircraft Design Working Group (CADWG21) Panel**	25-Jun	0900 hrs	Wyeth
265-ACD-7	**Aircraft Subsystems, Integration, and Architectures**	25-Jun	1400 hrs	Wyeth
293-ACD-8	**Aeronautic Discipline Considerations in Aircraft Design**	26-Jun	0900 hrs	Miro
	Atmospheric Flight Mechanics			
8-AFM-1	**Aircraft Flight Dynamics, Control, Handling Qualities and Performance I**	22-Jun	0900 hrs	Plum Blossom A
9-AFM-2	**Aeroservoelastic (ASE) Modeling**	22-Jun	0900 hrs	Plum Blossom B
43-AFM-3	**Unmanned Aircraft Systems I**	22-Jun	1400 hrs	Plum Blossom A
44-AFM-4	**Planetary Entry and Aeroassist Technology**	22-Jun	1400 hrs	Plum Blossom B
83-AFM-5	**Aircraft Flight Dynamics, Control, Handling Qualities and Performance II**	23-Jun	0900 hrs	Plum Blossom A
84-AFM-6	**Aeroservoelastic (ASE) and Aerodynamic Prediction Methods**	23-Jun	0900 hrs	Plum Blossom B
118-AFM-7	**Flight Test, System Identification, and Parameter Estimation**	23-Jun	1400 hrs	Plum Blossom A
119-AFM-8	**Launch Vehicles, Missiles, and Projectile Flight Mechanics**	23-Jun	1400 hrs	Plum Blossom B
157-AFM-9	**Unmanned Aircraft Systems II**	24-Jun	0900 hrs	Plum Blossom A
	Aerodynamic Measurement Technology and Ground Testing			
10-AMT-1/GT-1	**Hap Arnold's New Horizon: The Future Role of Ground Test in High Speed System Development**	22-Jun	0900 hrs	Obelisk B
11-AMT-2/GT-2	**Line of Sight and Density Measurement**	22-Jun	0900 hrs	Edelweiss
45-AMT-3/GT-3	**Advances in Test Methodology and CFD Integration**	22-Jun	1400 hrs	Obelisk B
46-AMT-4/GT-4	**Surface and Inflow Sensing**	22-Jun	1400 hrs	Edelweiss
85-AMT-5/GT-5	**Model Attitude, Deformation, and Data Acquisition Techniques**	23-Jun	0900 hrs	Obelisk B
86-AMT-6/GT-6	**Spatially-Resolved Spectroscopic Techniques**	23-Jun	0900 hrs	Edelweiss
120-AMT-7/GT-7	**Design of Experiment**	23-Jun	1400 hrs	Obelisk B
121-AMT-8/FD-14/ TP-6/GT-8	**Molecular-Based Optical Diagnostics for Hypersonic Nonequilibrium Flows**	23-Jun	1400 hrs	Topaz
158-AMT-9/GT-9	**Ground Test Facility Improvements I**	24-Jun	0900 hrs	Obelisk B
159-AMT-10/GT-10	**Particle-Based Velocimetry Applications and Developments**	24-Jun	0900 hrs	Topaz
191-AMT-11/GT-11	**Ground Test Facility Improvements II**	24-Jun	1400 hrs	Obelisk B
192-AMT-12/GT-12	**The Impact of PIV on Aerospace Technology I**	24-Jun	1400 hrs	Edelweiss
266-AMT-13/GT-13	**The Impact of PIV on Aerospace Technology II**	25-Jun	1400 hrs	Topaz
280-FT-2/GT-14	**Optimization Techniques in Flight Test/Ground Test**	25-Jun	1400 hrs	Obelisk B
294-AMT-14/GT-15	**Aerodynamic Measurement Systems: Calibration and Monitoring**	26-Jun	0900 hrs	Topaz
	Applied Aerodynamics			
12-APA-1	**Aerodynamic-Structure Dynamics Interaction**	22-Jun	0900 hrs	Stemmons C
13-APA-2	**Aerodynamic Design Methodologies I**	22-Jun	0900 hrs	Carpenter Ballroom
14-APA-3	**Special Session: Low Boom Activities I**	22-Jun	0900 hrs	Stemmons A
15-APA-4	**Propeller/Rotorcraft/Wind Turbine Aerodynamics I**	22-Jun	0900 hrs	Stemmons B
47-APA-5	**Applied CFD & Numerical Correlations with Experimental Data I**	22-Jun	1400 hrs	Stemmons B
48-APA-6	**Unmanned, Bio-Inspired, Solar Powered Aerial Vehicle Designs I**	22-Jun	1400 hrs	Carpenter Ballroom

Sessions at a Glance

Abbreviation	Title	Date	Start Time	Location
	Applied Aerodynamics (continued)			
49-APA-7	**Special Session: Aerodynamic-Structural Modeling, Optimization, and Test Techniques for Flexible Wing Technology I**	22-Jun	1400 hrs	Stemmons A
50-APA-8	**Flow Control Applications & Demonstrations (Active & Passive) I**	22-Jun	1400 hrs	Stemmons C
87-APA-9	**High Angle of Attack and High Lift Aerodynamics**	23-Jun	0900 hrs	Stemmons C
88-APA-10	**Wind Tunnel and Flight Testing**	23-Jun	0900 hrs	Carpenter Ballroom
89-APA-11	**Special Session: Low Boom Activities II**	23-Jun	0900 hrs	Stemmons A
90-APA-12	**Weapons Aerodynamics: Missile/Projectile/Guided-Munitions, Carriage and Store Separation I**	23-Jun	0900 hrs	Stemmons B
122-APA-13	**Applied CFD & Numerical Correlations with Experimental Data II**	23-Jun	1400 hrs	Stemmons B
123-APA-14	**Special Session: Historically Significant/Influential Papers in Applied Aerodynamics**	23-Jun	1400 hrs	Carpenter Ballroom
124-APA-15	**Special Session: Aerodynamic-Structural Modeling, Optimization, and Test Techniques for Flexible Wing Technology II**	23-Jun	1400 hrs	Stemmons A
125-APA-16	**Flow Control Applications & Demonstrations (Active & Passive) II**	23-Jun	1400 hrs	Stemmons C
160-APA-17	**Special Session: Hybrid CFD Method Assessments for F-16XL Aircraft Aerodynamics**	24-Jun	0900 hrs	Stemmons A
161-APA-18	**Aerodynamic Design Methodologies II**	24-Jun	0900 hrs	Carpenter Ballroom
162-APA-19	**Propeller/Rotorcraft/Wind Turbine Aerodynamics II**	24-Jun	0900 hrs	Stemmons B
180-PDL-8/APA-20	**Plasma Aerodynamics & Flow Control IV**	24-Jun	0900 hrs	Stemmons C
193-APA-21	**Transonic & Supersonic Aerodynamics**	24-Jun	1400 hrs	Stemmons A
194-APA-22	**VSTOL/STOL Aerodynamics**	24-Jun	1400 hrs	Carpenter Ballroom
195-APA-23	**Weapons Aerodynamics: Missile/Projectile/Guided-Munitions, Carriage and Store Separation II**	24-Jun	1400 hrs	Stemmons B
233-APA-25	**Applied CFD & Numerical Correlations with Experimental Data III**	25-Jun	0900 hrs	Stemmons B
234-APA-26	**Unmanned, Bio-Inspired, Solar Powered Aerial Vehicle Designs II**	25-Jun	0900 hrs	Carpenter Ballroom
235-APA-27	**Airfoil/Wing/Configuration Aerodynamics**	25-Jun	0900 hrs	Stemmons C
236-APA-28	**Unsteady Aerodynamics I**	25-Jun	0900 hrs	Stemmons A
267-APA-29	**Innovative Aerodynamic Concepts & Designs**	25-Jun	1400 hrs	Carpenter Ballroom
268-APA-30	**Low Speed, Low Reynolds Number Aerodynamics**	25-Jun	1400 hrs	Grand Ballroom A
269-APA-31	**Vortical/Vortex Flow**	25-Jun	1400 hrs	Stemmons B
270-APA-32	**Unsteady Aerodynamics II**	25-Jun	1400 hrs	Stemmons A
271-APA-33	**Flow Control Applications & Demonstrations (Active & Passive) III**	25-Jun	1400 hrs	Stemmons C
295-APA-34	**Icing or Roughness Effects on Vehicle Aerodynamics**	26-Jun	0900 hrs	Stemmons C
296-APA-35	**Aerodynamic Design Methodologies III**	26-Jun	0900 hrs	Carpenter Ballroom
297-APA-37	**Propeller/Rotorcraft/Wind Turbine Aerodynamics III**	26-Jun	0900 hrs	Stemmons B
	Atmospheric and Space Environments			
163-ASE-1	**Numerical Weather Prediction (Invited)**	24-Jun	0900 hrs	Plum Blossom B
196-ASE-2	**Aircraft Icing and Atmospheric Hazards**	24-Jun	1400 hrs	Plum Blossom B
237-ASE-3	**Aircraft Wake Turbulence I (Invited)**	25-Jun	0900 hrs	Plum Blossom B
272-ASE-4	**Aircraft Wake Turbulence II (Invited)**	25-Jun	1400 hrs	Plum Blossom B
273-ASE-5	**Atmospheric and Space Environments**	25-Jun	1400 hrs	Plum Blossom A

Sessions at a Glance

Abbreviation	Title	Date	Start Time	Location
	Aviation Technology, Integration, and Operations			
16-ATIO-1	**Terminal & Surface Operations I**	22-Jun	0900 hrs	Manchester
17-ATIO-2	**Separation Assurance**	22-Jun	0900 hrs	Ming
18-ATIO-3	**Trajectory Optimization**	22-Jun	0900 hrs	Milan
19-ATIO-4	**Transformational Flight - Rapid Concept to Flight**	22-Jun	0900 hrs	Metropolitan Ballroom
51-ATIO-5	**Terminal & Surface Operations II**	22-Jun	1400 hrs	Manchester
52-ATIO-6	**Fleet and Route Planning**	22-Jun	1400 hrs	Ming
53-ATIO-7	**Systems Engineering and Analysis**	22-Jun	1400 hrs	Milan
54-ATIO-8	**Transformational Flight - Enabling the Next Billion Dollar Aviation Market through Autonomy**	22-Jun	1400 hrs	Metropolitan Ballroom
91-ATIO-9	**Terminal & Surface Operations III**	23-Jun	0900 hrs	Manchester
92-ATIO-10	**ATM I - Trajectory Enhancements**	23-Jun	0900 hrs	Milan
93-ATIO-11	**Transformational Flight - On-Demand Mobility**	23-Jun	0900 hrs	Metropolitan Ballroom
126-ATIO-12	**ATM II - Air Traffic Analysis**	23-Jun	1400 hrs	Milan
127-ATIO-13	**Transformational Flight - Advanced Concepts**	23-Jun	1400 hrs	Metropolitan Ballroom
128-ATIO-14	**Product Design and Support**	23-Jun	1400 hrs	Manchester
164-ATIO-15	**ATM III - Modeling in ATM**	24-Jun	0900 hrs	Metropolitan Ballroom
165-ATIO-16	**Transformational Flight - Autonomy I**	24-Jun	0900 hrs	Monet Ballroom
166-ATIO-17	**Human Factors in Aviation Operations**	24-Jun	0900 hrs	Milan
197-ATIO-18	**ATM IV - Economic/Benefits Analysis**	24-Jun	1400 hrs	Ming
198-ATIO-19	**Terminal & Surface Operations IV**	24-Jun	1400 hrs	Milan
199-ATIO-20	**Transformational Flight - Autonomy II**	24-Jun	1400 hrs	Monet Ballroom
238-ATIO-21	**En Route Operations**	25-Jun	0900 hrs	Milan
239-ATIO-22	**ATM V - Performance Assessment**	25-Jun	0900 hrs	Morocco
240-ATIO-23	**Transformational Flight - Electric Propulsion**	25-Jun	0900 hrs	Monet Ballroom
274-ATIO-24	**UAS Integration & Operations I**	25-Jun	1400 hrs	Ming
275-ATIO-25	**ATM VI - Management of NAS Resources**	25-Jun	1400 hrs	Morocco
276-ATIO-26	**Transformational Flight - Unconventional VTOL Configurations**	25-Jun	1400 hrs	Monet Ballroom
298-ATIO-27	**ATM VII - Weather Impact**	26-Jun	0900 hrs	Morocco
299-ATIO-28	**Future Concepts**	26-Jun	0900 hrs	Wyeth
300-ATIO-29	**UAS Integration & Operations II**	26-Jun	0900 hrs	Ming
	Balloon Systems			
167-BAL-1	**Balloon Systems I**	24-Jun	0900 hrs	Steuben
200-BAL-2	**Balloon Systems II**	24-Jun	1400 hrs	Steuben
	Complex Aerospace Systems Exchange (CASE)			
20-CASE-1	**Academic Roundtable**	22-Jun	0900 hrs	Batik
59-F360-2/CASE-2	**Whatever Happened to the Four-Year Airplane?**	22-Jun	1400 hrs	Grand Ballroom E
72-CASE-3	**CASE Networking Social**	22-Jun	1730 hrs	Morocco
94-CASE-4	**Applied Complexity Workshop**	23-Jun	0900 hrs	Grand Ballroom D
129-CASE-5	**CASE Session I & II**	23-Jun	1400 hrs	Steuben
168-CASE-6	**CASE Session II & III**	24-Jun	0900 hrs	Grand Ballroom D
207-F360-7/CASE-7	**System Complexity : Government Needs and Practical Research Results**	24-Jun	1400 hrs	Grand Ballroom D

Sessions at a Glance

Abbreviation	Title	Date	Start Time	Location
	Computational Fluid Dynamics			
21-CFD-1	**Unstructured High-Order Methods I**	22-Jun	0900 hrs	Grand Ballroom A
22-CFD-2	**Unsteady Flow Simulations**	22-Jun	0900 hrs	Grand Ballroom B
23-CFD-3	**Meshing Techniques I**	22-Jun	0900 hrs	Coral
24-CFD-4	**LES, DNS, and Hybrid RANS-LES I**	22-Jun	0900 hrs	Emerald
55-CFD-5	**Unstructured High-Order Methods II**	22-Jun	1400 hrs	Grand Ballroom A
56-CFD-6	**Novel Discretizations**	22-Jun	1400 hrs	Grand Ballroom B
57-CFD-7	**Interdisciplinary CFD I**	22-Jun	1400 hrs	Coral
58-CFD-8	**Turbulence Modeling and Uncertainty Quantification**	22-Jun	1400 hrs	Emerald
95-CFD-9	**Adaptive High-Order Methods**	23-Jun	0900 hrs	Grand Ballroom A
96-CFD-10	**Turbulent Flow Simulations I**	23-Jun	0900 hrs	Grand Ballroom B
97-CFD-11	**Meshing Techniques II**	23-Jun	0900 hrs	Coral
98-CFD-12	**LES, DNS, and Hybrid RANS-LES II**	23-Jun	0900 hrs	Emerald
130-CFD-13	**Flux Reconstruction Methods**	23-Jun	1400 hrs	Grand Ballroom A
131-CFD-14	**Adjoints and Error Estimation**	23-Jun	1400 hrs	Grand Ballroom B
132-CFD-15	**Time Integration Methods**	23-Jun	1400 hrs	Coral
133-CFD-16	**RANS Modeling**	23-Jun	1400 hrs	Emerald
134-CFD-37	**CFD Flow Visualization Showcase**	23-Jun	1400 hrs	Chantilly Ballroom Foyer
169-CFD-17	**Advances in High-Order Methods**	24-Jun	0900 hrs	Grand Ballroom A
170-CFD-18	**Current Trends in CFD Research I (Invited)**	24-Jun	0900 hrs	Grand Ballroom B
171-CFD-19	**LES, DNS, and Hybrid RANS-LES III**	24-Jun	0900 hrs	Coral
172-CFD-20	**Turbulence Model Validation (Invited)**	24-Jun	0900 hrs	Emerald
201-CFD-21	**Discontinuous Galerkin Methods**	24-Jun	1400 hrs	Grand Ballroom A
202-CFD-22	**Future of Fluids: Next Generation CFD (Invited)**	24-Jun	1400 hrs	Grand Ballroom B
203-CFD-23	**Parallel Computing and Novel Architectures**	24-Jun	1400 hrs	Plum Blossom A
204-CFD-24	**Design Optimization**	24-Jun	1400 hrs	Coral
205-CFD-25	**Turbulent Flow Simulations II**	24-Jun	1400 hrs	Emerald
241-CFD-26	**Unstructured High-Order Methods III**	25-Jun	0900 hrs	Grand Ballroom A
242-CFD-27	**Current Trends in CFD Research II (Invited)**	25-Jun	0900 hrs	Grand Ballroom B
243-CFD-28	**Incompressible and Low Speed Flows**	25-Jun	0900 hrs	Plum Blossom A
244-CFD-29	**High-Speed and Reacting Flows**	25-Jun	0900 hrs	Coral
245-CFD-30	**Inflow Turbulence for Wall-Bounded LES (Invited)**	25-Jun	0900 hrs	Emerald
301-CFD-31	**Visualization for CFD 2030**	26-Jun	0900 hrs	Grand Ballroom A
302-CFD-32	**Post-Processing and Model Reduction**	26-Jun	0900 hrs	Grand Ballroom B
303-CFD-33	**Interdisciplinary CFD II**	26-Jun	0900 hrs	Plum Blossom A
304-CFD-34	**Multiphase and Nonequilibrium Flows**	26-Jun	0900 hrs	Coral
305-CFD-35	**Overset and Cartesian Grid Methods**	26-Jun	0900 hrs	Plum Blossom B
306-CFD-36	**LES, DNS, and Hybrid RANS-LES IV**	26-Jun	0900 hrs	Emerald

Sessions at a Glance

Abbreviation	Title	Date	Start Time	Location
	Fluid Dynamics			
25-FD-1	**Wing Aerodynamics**	22-Jun	0900 hrs	Govenors Lecture Hall
26-FD-2	**Fundamental Fluid Flows**	22-Jun	0900 hrs	Senators Lecture Hall
27-FD-3	**Combustion and Heat Transfer**	22-Jun	0900 hrs	Topaz
28-FD-4	**Boundary Layer Transition: Hypersonic Flows**	22-Jun	0900 hrs	Sapphire
33-PDL-1/FD-5	**Plasma Aerodynamics & Flow Control I**	22-Jun	0900 hrs	Monet Ballroom
60-FD-6/PDL-2	**Plasma Aerodynamics & Flow Control II**	22-Jun	1400 hrs	Govenors Lecture Hall
61-FD-7	**Boundary Layer Transition - Progress and Challenges**	22-Jun	1400 hrs	Sapphire
62-FD-8	**Vortex Flows**	22-Jun	1400 hrs	Senators Lecture Hall
63-FD-9	**Active and Passive Flow Control**	22-Jun	1400 hrs	Topaz
99-FD-10	**Boundary-Layer Transition**	23-Jun	0900 hrs	Sapphire
100-FD-11	**Unsteady Wing Aerodynamics I**	23-Jun	0900 hrs	Govenors Lecture Hall
101-FD-12	**Airfoil Separation Control**	23-Jun	0900 hrs	Senators Lecture Hall
102-FD-13	**Shock-Dominated Flows**	23-Jun	0900 hrs	Topaz
121-AMT-8/FD-14/ TP-6/GT-8	**Molecular-Based Optical Diagnostics for Hypersonic Nonequilibrium Flows**	23-Jun	1400 hrs	Topaz
136-FD-15	**Unsteady Wing Aerodynamics II**	23-Jun	1400 hrs	Govenors Lecture Hall
137-FD-16	**Boundary Layer Transition: Crossflow**	23-Jun	1400 hrs	Sapphire
138-FD-17	**Boundary Layer and Bluff Body Control**	23-Jun	1400 hrs	Senators Lecture Hall
139-FD-18	**Turbulence Modeling**	23-Jun	1400 hrs	Edelweiss
173-FD-19	**Turbomachinery - Turbines**	24-Jun	0900 hrs	Senators Lecture Hall
174-FD-20	**Shock Wave / Boundary Layer Interactions**	24-Jun	0900 hrs	Edelweiss
175-FD-22	**Unsteady Flows - Cavity and Shear Flows**	24-Jun	0900 hrs	Govenors Lecture Hall
208-FD-23	**Unsteady Wing Aerodynamics III**	24-Jun	1400 hrs	Govenors Lecture Hall
209-FD-24	**Boundary Layer Transition: Receptivity and Control**	24-Jun	1400 hrs	Sapphire
210-FD-25	**Flow Control Technologies - Barriers/Challenges to Tech Transition**	24-Jun	1400 hrs	Topaz
211-FD-26	**Turbulence Simulations**	24-Jun	1400 hrs	Senators Lecture Hall
246-FD-27	**Turbulence Analysis**	25-Jun	0900 hrs	Govenors Lecture Hall
247-FD-28	**Transition Open Forum**	25-Jun	0900 hrs	Sapphire
248-FD-29	**Flow Control - Aerodynamics**	25-Jun	0900 hrs	Senators Lecture Hall
278-FD-30	**Hypersonic and Chemically-Reacting Flows**	25-Jun	1400 hrs	Sapphire
279-FD-31	**Flow Control - Vortical Flows**	25-Jun	1400 hrs	Senators Lecture Hall

Sessions at a Glance

Abbreviation	Title	Date	Start Time	Location
	Flight Testing			
249-FT-1	**Flight Testing**	25-Jun	0900 hrs	Obelisk B
280-FT-2/GT-14	**Optimization Techniques in Flight Test/Ground Test**	25-Jun	1400 hrs	Obelisk B
	Green Engineering			
281-GEPC-1	**Overview of NASA Advanced Air Vehicles Program**	25-Jun	1400 hrs	Metropolitan Ballroom
	ITAR Sessions			
103-ITAR-1	**ITAR - Hypersonic Flow Phenomena (Invited)**	23-Jun	0900 hrs	Morocco
140-ITAR-2	**ITAR - Aircraft Design and Modeling**	23-Jun	1400 hrs	Morocco
	Lighter-Than-Air Systems			
250-LTA-1	**Lighter-than-Air Systems & Technologies I**	25-Jun	0900 hrs	Steuben
282-LTA-2	**Lighter-than-Air Systems & Technologies II**	25-Jun	1400 hrs	Steuben
	Multidisciplinary Analysis and Optimization			
29-MAO-1	**Vehicle Design Applications I**	22-Jun	0900 hrs	Madrid
64-MAO-2	**Vehicle Design Applications II**	22-Jun	1400 hrs	Madrid
104-MAO-3	**Applications I**	23-Jun	0900 hrs	Madrid
141-MAO-4	**Applications II**	23-Jun	1400 hrs	Madrid
176-MAO-5	**Emerging Methods I**	24-Jun	0900 hrs	Madrid
212-MAO-6	**Emerging Methods II**	24-Jun	1400 hrs	Madrid
213-MAO-7	**Metamodeling I**	24-Jun	1400 hrs	Manchester
251-MAO-8	**Metamodeling II**	25-Jun	0900 hrs	Manchester
252-MAO-9	**Shape and Topology I**	25-Jun	0900 hrs	Madrid
283-MAO-10	**Shape and Topology II**	25-Jun	1400 hrs	Madrid
284-MAO-11	**Uncertainty I**	25-Jun	1400 hrs	Manchester
307-MAO-12	**Shape and Topology III**	26-Jun	0900 hrs	Madrid
308-MAO-13	**Uncertainty II**	26-Jun	0900 hrs	Manchester
	Modeling and Simulation Technologies			
30-MST-1	**Unmanned Aerial Vehicle Systems**	22-Jun	0900 hrs	Travertine
31-MST-2	**Aviation Systems Human Factors**	22-Jun	0900 hrs	Wyeth
65-MST-3	**Air Traffic Management**	22-Jun	1400 hrs	Travertine
66-MST-4	**Guidance, Control, and Dynamics I**	22-Jun	1400 hrs	Wyeth
105-MST-5	**Guidance, Control, and Dynamics II**	23-Jun	0900 hrs	Travertine
142-MST-6	**Shadow Mode Assessment using Realistic Technologies for National Airspace System (SMART NAS) Test Bed Development (Invited)**	23-Jun	1400 hrs	Travertine
177-MST-7	**Flight Simulation**	24-Jun	0900 hrs	Travertine
178-MST-8	**Computational Methods for Fluid Dynamics and Heat Transfer Simulations**	24-Jun	0900 hrs	Wyeth
214-MST-9	**Airframe Damage and Health Monitoring**	24-Jun	1400 hrs	Travertine
215-MST-10	**Sensor and Communications Systems**	24-Jun	1400 hrs	Wyeth
253-MST-11	**Aircraft Systems Design, Verification and Validation**	25-Jun	0900 hrs	Travertine
285-MST-12	**Propulsion Systems**	25-Jun	1400 hrs	Travertine

Sessions at a Glance

Abbreviation	Title	Date	Start Time	Location
	Plasmadynamics and Lasers			
33-PDL-1/FD-5	**Plasma Aerodynamics & Flow Control I**	22-Jun	0900 hrs	Monet Ballroom
60-FD-6/PDL-2	**Plasma Aerodynamics & Flow Control II**	22-Jun	1400 hrs	Govenors Lecture Hall
67-PDL-3	**Plasma Computational Methods I**	22-Jun	1400 hrs	Monet Ballroom
107-PDL-4	**Plasma Assisted Combustion**	23-Jun	0900 hrs	Miro
143-PDL-6	**Plasma Diagnostics I**	23-Jun	1400 hrs	Miro
144-PDL-7	**Plasma Aerodynamics & Flow Control III**	23-Jun	1400 hrs	Monet Ballroom
180-PDL-8/APA-20	**Plasma Aerodynamics & Flow Control IV**	24-Jun	0900 hrs	Stemmons C
181-PDL-9/TP-8	**Plasma Diagnostics II**	24-Jun	0900 hrs	Miro
216-TP-10/PDL-10	**Plasma Computational Methods II**	24-Jun	1400 hrs	Miro
255-PDL-12	**Aero-Optics Plasma Diagnostics**	25-Jun	0900 hrs	Miro
286-PDL-13	**Plasma Aerodynamics & Flow Control V**	25-Jun	1400 hrs	Miro
	Thermophysics			
34-TP-1	**Ablation I**	22-Jun	0900 hrs	Rosetta
35-TP-2	**Heat Transfer I**	22-Jun	0900 hrs	Steuben
68-TP-3	**Ablation II**	22-Jun	1400 hrs	Rosetta
69-TP-4	**Aerothermodynamics I**	22-Jun	1400 hrs	Steuben
108-TP-5	**Plasma and Arc Jet Testing, Diagnostics and Computational Methods**	23-Jun	0900 hrs	Rosetta
121-AMT-8/FD-14/ TP-6/GT-8	**Molecular-Based Optical Diagnostics for Hypersonic Nonequilibrium Flows**	23-Jun	1400 hrs	Topaz
145-TP-7	**Heat Transfer II**	23-Jun	1400 hrs	Rosetta
181-PDL-9/TP-8	**Plasma Diagnostics II**	24-Jun	0900 hrs	Miro
182-TP-9	**Aerothermodynamics II**	24-Jun	0900 hrs	Rosetta
216-TP-10/PDL-10	**Plasma Computational Methods II**	24-Jun	1400 hrs	Miro
217-TP-11	**Aerothermodynamics III**	24-Jun	1400 hrs	Rosetta
256-TP-12	**Detailed Molecular Process Modeling**	25-Jun	0900 hrs	Rosetta
288-TP-13	**DSMC**	25-Jun	1400 hrs	Rosetta

Monday, 22 June 2015		
1-SB-1 0730 - 0800 hrs	Speakers' Briefing	Session Rooms

Monday, 22 June 2015		
2-PLNRY-1 0800 - 0900 hrs	Opening Keynote	Chantilly Ballroom West

Are We Moving Fast Enough?
Tom Enders
Chief Executive Officer
Airbus Group

Monday, 22 June 2015						
3-AA-1	Airframe Noise I					Fleur-de-lis A
Chaired by: D. LOCKARD, NASA-Langley Research Center						
0900 hrs AIAA-2015-2200 **Aeroacoustic and Aerodynamic Performances of an Aerofoil Subjected to Sinusoidal Leading Edges** T. Chong, S. Siddiqi, Brunel University, Uxbridge, United Kingdom	0930 hrs AIAA-2015-2201 **Aerodynamic and Aeroacoustic Performance of Serrated Airfoils** X. Liu, M. Azarpeyvand, R. Theunissen, University of Bristol, Bristol, United Kingdom	1000 hrs AIAA-2015-2202 **Broadband noise reduction through leading edge serrations on realistic aerofoils** C. Paruchuri, N. Subramanian, P. Joseph, C. Vanderwel, J. Kim, B. Ganapathisubramani, University of Southampton, Southampton, United Kingdom	1030 hrs AIAA-2015-2203 **Airfoil noise prediction from 2D3C PIV data** L. de Santana, Catholic University of Leuven, Leuven, Belgium; C. Schram, von Kármán Institute for Fluid Dynamics, Rhode-Saint-Genèse, Belgium; W. Desmet, Catholic University of Leuven, Leuven, Belgium	1100 hrs AIAA-2015-2204 **Noise generation by turbulence interacting with an aerofoil with a serrated leading edge** J. Mathews, N. Peake, University of Cambridge, Cambridge, United Kingdom	1130 hrs AIAA-2015-2205 **Detailed experimental investigation of the aeroacoustic field around a Controlled-Diffusion airfoil** T. Padois, P. Laffay, A. Idier, S. Moreau, University of Sherbrooke, Sherbrooke, Canada	1200 hrs AIAA-2015-2206 **2D high-lift airfoil noise measurements in an aerodynamic wind tunnel** V. Fleury, J. Bulte, R. Davy, E. Manoha, ONERA, Châtillon, France; M. Pott-Pollenske, German Aerospace Center (DLR), Braunschweig, Germany

Monday, 22 June 2015						
4-AA-2	Jet Noise Prediction I					Fleur-de-lis B
Chaired by: P. MORRIS, Pennsylvania State University						
0900 hrs AIAA-2015-2207 **Assessment of Jet-plate Interaction Noise Using the Lattice Boltzmann Method** F. da Silva, C. Deschamps, A. da Silva, Federal University of Santa Catarina, Florianópolis, Brazil; L. Simões, Embraer, São José dos Campos, Brazil	0930 hrs AIAA-2015-2208 **Installation noise of a turbofan jet engine under an airfoil** G. Brichet, M. Koenig, Safran Group, Moissy-Cramayel, France; C. Bailly, École Centrale de Lyon, Ecully, France	1000 hrs AIAA-2015-2209 **Large-eddy simulation of supersonic planar jets impinging on a flat plate at an angle of 60 to 90 degrees** R. Gojon, C. Bogey, O. Marsden, École Centrale de Lyon, Ecully, France	1030 hrs AIAA-2015-2210 **Large-eddy simulation of underexpanded round jets impinging on a flat plate 4 to 9 radii downstream from the nozzle** R. Gojon, C. Bogey, O. Marsden, École Centrale de Lyon, Ecully, France	1100 hrs AIAA-2015-2211 **Noise Characteristics of a Four-Jet Impingement Device Inside a Broadband Engine Noise Simulator** C. Brehm, J. Housman, C. Kiris, NASA Ames Research Center, Moffett Field, CA; F. Hutcheson, NASA Langley Research Center, Hampton, VA	1130 hrs AIAA-2015-2212 **Simulation and stability analysis of a supersonic impinging jet at varying nozzle-to-wall distances** N. Hildebrand, J. Nichols, University of Minnesota, Twin Cities, Minneapolis, MN	1200 hrs AIAA-2015-2213 **Hybrid approach for the prediction of jet noise interaction and installation effects** Y. Yang, Y. Sun, C. Breard, Commercial Aircraft Corporation of China, Ltd. (COMAC), Shanghai, China

Monday, 22 June 2015						
5-AA-3	**Jet Noise Modeling I**					**Inverness**
Chaired by: C. BOGEY, Ecole Centrale de Lyon						
0900 hrs AIAA-2015-2214 **Real-time modelling of wavepackets in turbulent jets** K. Sasaki, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil; S. Piantanida, National Center for Scientific Research (CNRS), Poitiers, France; A. Cavalieri, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil; P. Jordan, National Center for Scientific Research (CNRS), Poitiers, France	0930 hrs AIAA-2015-2215 **Automatic Optimizer vs Human Optimizer for Low-Order Jet Noise Modelling** Y. Korolev, S. Karabasov, V. Toropov, Queen Mary University of London, London, United Kingdom	1000 hrs AIAA-2015-2216 **The prediction of the radiated pressure spectrum produced by jet-wing interaction** J. Vera, J. Lawrence, R. Self, M. Kingan, University of Southampton, Southampton, United Kingdom	1030 hrs AIAA-2015-2217 **Stochastic and nonlinear forcing of wavepackets in a Mach 0.9 jet** A. Towne, T. Colonius, California Institute of Technology, Pasadena, CA; P. Jordan, National Center for Scientific Research (CNRS), Poitiers, France; A. Cavalieri, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil; G. Brès, Cascade Technologies, Inc., Palo Alto, CA	1100 hrs AIAA-2015-2218 **Sensitivity of wavepackets in jets to non-linear effects: the role of the critical layer** G. Tissot, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil; M. Zhang, National Center for Scientific Research (CNRS), Poitiers, France; F. Lajús, A. Cavalieri, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil; P. Jordan, National Center for Scientific Research (CNRS), Poitiers, France; T. Colonius, California Institute of Technology, Pasadena, CA	1130 hrs AIAA-2015-2219 **Sensitivity analysis for subsonic jet using adjoint of non local stability equations** C. Airiau, T. Ansaldi, University of Toulouse, Toulouse, France	1200 hrs AIAA-2015-2220 **A Control Framework for Wavepackets in Turbulent Jets Using Time-Domain Transfer Functions** F. Silvestre, M. Caprecci, A. Cavalieri, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil; P. Jordan, École Nationale Supérieure des Mines de Saint-Étienne, Poitiers, France

Monday, 22 June 2015						
6-AA-4	**CAA Numerical Techniques I**					**Lalique**
Chaired by: W. SCHROEDER, RWTH AACHEN, Institute of Aerodynamics						
0900 hrs AIAA-2015-2221 **Experimental Validation of Aero-Vibro-Acoustic Analysis of Production Vehicles (Invited)** S. Caro, CD-adapco, Lyon, France	0930 hrs AIAA-2015-2222 **CAA Study of Airfoil Broadband Interaction Noise Using Stochastic Turbulent Vorticity Sources** T. Hainaut, G. Gabard, V. Clair, University of Southampton, Southampton, United Kingdom	1000 hrs AIAA-2015-2223 **CABARET GPU Solver for Fast-Turn-Around Flow and Noise Calculations** A. Markesteijn, V. Semiletov, S. Karabasov, Queen Mary University of London, London, United Kingdom	1030 hrs AIAA-2015-2224 **Assessment of Flap Side-Edge Fence Noise using SNGR Method** H. Yao, L. Davidson, Chalmers University of Technology, Göteborg, Sweden; S. Peng, Swedish Defense Research Agency (FOI), Stockholm, Sweden; L. Eriksson, Chalmers University of Technology, Göteborg, Sweden; M. Barbarino, F. Capizzano, Italian Aerospace Research Center (CIRA), Capua, Italy; et al.	1100 hrs AIAA-2015-2225 **Verification of a Viscous Computational Aeroacoustics Code using External Verification Analysis** D. Ingraham, D. Hixon, University of Toledo, Toledo, OH	1130 hrs AIAA-2015-2226 **Acoustic loads prediction for a commercial transport aircraft under ground and flight conditions** Y. Sun, Y. Yang, C. Breard, Commercial Aircraft Corporation of China, Ltd. (COMAC), Shanghai, China	

Monday, 22 June 2015						
7-AA-5	**Duct Acoustics I**					**Obelisk A**
Chaired by: W. EVERSMAN, Missouri University of Science and Technology						
0900 hrs AIAA-2015-2227 **Effect of viscosity on impedance eduction and validation** L. Zhou, H. Boden, Royal Institute of Technology (KTH), Stockholm, Sweden	0930 hrs AIAA-2015-2228 **Impedance Eduction in Sound Fields with Peripherally Varying Liners and Flow** W. Watson, M. Jones, NASA Langley Research Center, Hampton, VA	1000 hrs AIAA-2015-2229 **The Effective Impedance of a Finite-Thickness Viscothermal Boundary Layer Over an Acoustic Lining** D. Khamis, E. Brambley, University of Cambridge, Cambridge, United Kingdom	1030 hrs AIAA-2015-2230 **Acoustic Liner Drag: A Parametric Study of Conventional Configurations** B. Howerton, M. Jones, NASA Langley Research Center, Hampton, VA	1100 hrs AIAA-2015-2231 **Experimental Study of the Mechanisms of Sound Generation Due to an In-duct Orifice Plate** F. Tao, X. Zhang, P. Joseph, O. Stalnov, University of Southampton, Southampton, United Kingdom; M. Siercke, H. Scheel, Airbus, Hamburg, Germany	1130 hrs AIAA-2015-2232 **Duct spinning mode's particle velocity imaging on a cross plane outside the duct** W. Yu, Q. Wei, X. Huang, Peking University, Beijing, China	1200 hrs AIAA-2015-2233 **In-duct Beamforming Noise Source Estimation Mode Detection University of São Paulo Fan Rig** L. Caldas, L. Baccala, R. Cuenca, University of São Paulo, São Paulo, Brazil; R. Queiroz, Embraer, São José dos Campos, Brazil

Monday, 22 June 2015						
8-AFM-1	**Aircraft Flight Dynamics, Control, Handling Qualities and Performance I**					**Plum Blossom A**
Chaired by: E. GILLESPIE, United Space Alliance						
0900 hrs AIAA-2015-2234 **Benefits of Formation Flight of Extended Duration Considering Fuel Burn** W. Okolo, A. Dogan, University of Texas, Arlington, Arlington, TX; W. Blake, Air Force Research Laboratory, Wright-Patterson AFB, OH	0930 hrs AIAA-2015-2235 **Automatic Stall/Spin Detection in Fixed-Wing Aircraft** R. Bunge, F. Munera Savino, I. Kroo, Stanford University, Stanford, CA	1000 hrs AIAA-2015-2236 **Extracting Airplane Performance for a Fatal Accident in the Absence of a Flight Data Recorder** T. Burtch, National Transportation Safety Board, Washington, DC	1030 hrs AIAA-2015-2237 **Validation of a Model Based Structural Loads Monitoring System using the Flight Test Aircraft UW-9 Sprint** M. Montel, F. Thielecke, Hamburg University of Technology, Hamburg, Germany	1100 hrs AIAA-2015-2238 **Roll performance assessment of a light aircraft: flight tests and flight simulation** F. Nicolosi, A. De Marco, V. Sabetta, P. Della Vecchia, University of Naples "Federico II", Naples, Italy		

Monday, 22 June 2015						
9-AFM-2	**Aeroservoelastic (ASE) Modeling**					**Plum Blossom B**
Chaired by: T. ALEXEEV, University of California Davis and F. PRIOLO, Millennium Engineering and Integration Company						
0900 hrs AIAA-2015-2239 **Control of a Nonlinear Wing Section using Fly-by-Feel Sensing** V. Suryakumar, Y. Babbar, T. Strganac, Texas A&M University, College Station, TX; A. Mangalam, Tao of Systems Integration, Inc., Hampton, VA	0930 hrs AIAA-2015-2240 **Aeroelastic State-space Model Development Based on Frequency Response Identification and Integration with Flight Dynamics** T. Buttini, F. Moreira, Embraer, São José dos Campos, Brazil; F. Silvestre, R. A. da Silva, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil	1000 hrs AIAA-2015-2241 **Optimal Sizing and Configurations of the Control Surfaces for Active Aeroelastic Control** R. Brown, K. Singh, Miami University, Oxford, OH	1030 hrs AIAA-2015-2242 **Aeroelastic Tailoring for Maximizing Sailplane Average Cross-Country Speed** C. Lupp, C. Cesnik, University of Michigan, Ann Arbor, Ann Arbor, MI	1100 hrs AIAA-2015-2243 **Adaptive Feedforward Control Design for Gust Loads Alleviation of Highly Flexible Aircraft** Y. Wang, F. Li, China Academy of Aerospace Aerodynamics, Beijing, China; A. Da Ronch, University of Southampton, Southampton, United Kingdom	1130 hrs AIAA-2015-2244 **Delta Adaptive Flexible Motion Control for the X-56A Aircraft** K. Hashemi, University of Texas, Austin, Austin, TX; C. Pak, NASA Armstrong Flight Research Center, Edwards, CA; M. Akella, University of Texas, Austin, Austin, TX	1200 hrs AIAA-2015-2245 **Feedback Linearization based Control of Aeroelastic Systems represented in Modal Coordinates** H. Shukla, M. Patil, Virginia Polytechnic Institute and State University, Blacksburg, VA

Monday, 22 June 2015						
10-AMT-1/GT-1	**Hap Arnold's New Horizon: The Future Role of Ground Test in High Speed System Development**					**Obelisk B**
Chaired by: J. SCHMISSEUR and G. LISTON						
0900 hrs Oral Presentation **Envisioning the Future of the T&E Enterprise** M. Lewis, IDA, Washington, DC	0930 hrs Oral Presentation **Challenges and Opportunities in the Development of T&E Capabilities** J. Schmisseur, University of Tennessee, Tullahoma, Tullahoma, TN	1000 hrs Oral Presentation **Introduction to the AFRL High-Speed Experimentation Branch** G. Liston, Air Force Research Laboratory, Cleveland, OH	1030 hrs Oral Presentation **Development of Large-Scale Quiet Tunnels Supporting T&E** T. Juliano, Notre Dame University, Notre Dame, IN	1100 hrs Panel Discusssion **The Future of Ground Test within T&E** J. Schmisseur, University of Tennessee, Tullahoma, Tullahoma, TN		

Monday, 22 June 2015						
11-AMT-2/GT-2	**Line of Sight and Density Measurement**					**Edelweiss**
Chaired by: S. O'BYRNE, The University of New South Wales						
0900 hrs AIAA-2015-2246 **Analysis of Focused Laser Differential Interferometry** B. Schmidt, J. Shepherd, California Institute of Technology, Pasadena, CA	0930 hrs AIAA-2015-2247 **Simultaneous Measurements of Density Field and Wavefront Distortions in High Speed Jet Flows** J. George, T. Jenkins, C. Hess, J. Trolinger, MetroLaser, Inc., Laguna Hills, CA	1000 hrs AIAA-2015-2248 **Optical Measurements of Velocity, Density, and Mass Flux in a Supersonic Wind Tunnel** D. Plemmons, N. Galyen, Aerospace Testing Alliance, Arnold AFB, TN	1030 hrs AIAA-2015-2249 **A Time-Resolved Temperature Measurement System for Free-Piston Shock Tunnels** Y. Krishna, S. Sheehe, S. O'Byrne, University of New South Wales, Canberra, Australia			

Monday, 22 June 2015						
12-APA-1	Aerodynamic-Structure Dynamics Interaction					Stemmons C
Chaired by: J. AZEVEDO and C. PASILIAO, AFRL/RWWV						
0900 hrs AIAA-2015-2250 **Aerodynamic Damping and Stiffness Determination for Aircraft Wing Flutter Speed Analysis** K. Boo, S. Mansor, A. Abdul-Latif, University of Technology, Johor Bahru, Malaysia	0930 hrs AIAA-2015-2251 **Experimental Investigation of the Aeroelastic Behavior a NACA0018 Cyber-Physical FlexibleWing** C. Fagley, J. Seidel, T. McLaughlin, U.S. Air Force Academy, Colorado Springs, CO	1000 hrs AIAA-2015-2252 **Spectral Formulation-Based FSI and Coupled Sensitivity Analysis for Dyanmic Aeroelastic Problems** S. Yi, Korea Advanced Institute of Science and Technology, Daejeon, South Korea; R. Prasad, S. Choi, D. Im, Virginia Polytechnic Institute and State University, Blacksburg, VA; D. Lee, Korea Advanced Institute of Science and Technology, Daejeon, South Korea	1030 hrs AIAA-2015-2253 **Analyzing the Pitch Agility of an Ornithopter Undergoing Passive Compliant Element Induced Shape Change** Z. Hasnain, J. Hubbard, University of Maryland, College Park, College Park, MD; A. Wissa, University of Illinois, Urbana-Champaign, Urbana, IL			

Monday, 22 June 2015						
13-APA-2	Aerodynamic Design Methodologies I					Carpenter Ballroom
Chaired by: K. KARA, Khalifa University of Science, Technology & Research and J. MURRAY, Sandia National Laboratories						
0900 hrs AIAA-2015-2254 **Development of NOVA Aircraft Configurations for Large Engine Integration Studies** L. Wiart, O. Atinault, R. Grenon, B. Paluch, D. Hue, ONERA, Meudon, France	0930 hrs AIAA-2015-2255 **Aircraft directional stability prediction method by CFD** P. Della Vecchia, F. Nicolosi, D. Ciliberti, University of Naples "Federico II", Naples, Italy	1000 hrs AIAA-2015-2256 **Design of a Multi-Stage Axial Turbine within the scope of complete System Design, Manufacturing and Operation of a new Turbine Propulsion Simulator (TPS)** A. Krumme, German Aerospace Center (DLR), Göttingen, Germany; S. Hegen, German-Dutch Wind Tunnels, Marknesse, The Netherlands; R. Nahuis, National Aerospace Laboratory (NLR), Marknesse, The Netherlands	1030 hrs AIAA-2015-2257 **Fuselage Aerodynamic Prediction Methods** F. Nicolosi, P. Della Vecchia, D. Ciliberti, V. Cusati, L. Attanasio, University of Naples "Federico II", Naples, Italy	1100 hrs AIAA-2015-2258 **Investigation on continuously deflectable High-Lift Devices for a 3D High-Lift Configuration** D. Franke, German Aerospace Center (DLR), Braunschweig, Germany	1130 hrs AIAA-2015-2259 **Numerical study of UAS-S4 Éhecatl aerodynamic performance improvement obtained with the use of a morphing wing approach** S. Oliviu, A. Koreanschi, R. Botez, University of Québec, Montréal, Canada	

Monday, 22 June 2015						
14-APA-3	Special Session: Low Boom Activities I					Stemmons A
Chaired by: K. WAITHE, Gulfstream Aerospace Corporation and L. BANGERT, NASA Langley Research Center						
0900 hrs AIAA-2015-2260 **Under-Track CFD-Based Shape Optimization for a Low-Boom Demonstrator Concept** M. Wintzer, Analytical Mechanics Associates, Inc., Hampton, VA; I. Ordaz, NASA Langley Research Center, Hampton, VA	0930 hrs AIAA-2015-2261 **Full-Carpet Design of a Low-Boom Demonstrator Concept** I. Ordaz, NASA Langley Research Center, Hampton, VA; M. Wintzer, Analytical Mechanics Associates, Inc., Hampton, VA; S. Rallabhandi, National Institute of Aerospace, Hampton, VA	1000 hrs Oral Presentation **Sonic Boom Variation of a Wing-Body-Tail-Nacelle Configuration** M. Park, NASA Langley Research Center, Hampton, VA	1030 hrs AIAA-2015-2262 **Numerical Simulations of Shock/Plume Interaction Using Structured Overset Grids** J. Housman, C. Kiris, NASA Ames Research Center, Moffett Field, CA	1100 hrs AIAA-2015-2263 **Cart3D Analysis of Plume and Shock Interaction Effects on Sonic Boom** R. Castner, NASA Glenn Research Center, Cleveland, OH		

Monday, 22 June 2015						
15-APA-4	**Propeller/Rotorcraft/Wind Turbine Aerodynamics I**					**Stemmons B**
Chaired by: M. CALVERT, U.S. Army AMRDEC and D. O'BRIEN, US Army RDECOM						
0900 hrs AIAA-2015-2264 **Experimental Evaluation of Open Propeller Aerodynamic Performance and Aero-acoustic Behavior** C. Wisniewski, A. Byerley, W. Heiser, U.S. Air Force Academy, Colorado Springs, CO; K. Van Treuren, T. Liller, Baylor University, Waco, TX; N. Wisniewski, Rose Hulman Institute of Technology, Terre Haute, IN	0930 hrs AIAA-2015-2265 **Slipstream Measurements of Small-Scale Propellers at Low Reynolds Numbers** R. Deters, G. Ananda Krishnan, M. Selig, University of Illinois, Urbana-Champaign, Urbana, IL	1000 hrs AIAA-2015-2266 **The Influence of Airfoil Shape, Reynolds Number and Chord Length on Small Propeller Performance and Noise** C. Wisniewski, A. Byerley, W. Heiser, U.S. Air Force Academy, Colorado Springs, CO; K. Van Treuren, T. Liller, Baylor University, Waco, TX	1030 hrs AIAA-2015-2267 **Designing Small Propellers for Optimum Efficiency and Low Noise Footprint** C. Wisniewski, A. Byerley, W. Heiser, U.S. Air Force Academy, Colorado Springs, CO; K. Van Treuren, T. Liller, Baylor University, Waco, TX	1100 hrs AIAA-2015-2268 **A Parabolic Method for Accurate and Efficient Wind Farm Simulation** A. Mittal, K. Sreenivas, W. Briley, L. Taylor, University of Tennessee, Chattanooga, Chattanooga, TN	1130 hrs AIAA-2015-2269 **Blade Resolved Simulation for a Wind Farm** W. Hassan, K. Sreenivas, A. Mittal, L. Taylor, L. Hereth, University of Tennessee, Chattanooga, Chattanooga, TN	

Monday, 22 June 2015						
16-ATIO-1	**Terminal & Surface Operations I**					**Manchester**
Chaired by: S. CAMPBELL, MIT Lincoln Laboratory						
0900 hrs AIAA-2015-2270 **A Robust and Practical Decision Support Tool for Integrated Arrival-Departure-Surface Traffic Management** A. Saraf, V. Felipe, Saab Sensis Corporation, Campbell, CA; B. Sawhill, NextGen Aerosciences LLC, Williamsburg, VA	0930 hrs AIAA-2015-2271 **Identification of Local and Propagated Queuing Effects at Major Airports** H. Idris, Engility Corporation, Billerica, MA	1000 hrs AIAA-2015-2272 **Taxi Time Prediction at Charlotte Airport Using Fast-Time Simulation and Machine Learning Techniques** H. Lee, W. Malik, University of California, Santa Cruz, Moffett Field, CA; B. Zhang, B. Nagarajan, American Airlines, Fort Worth, TX; Y. Jung, NASA Ames Research Center, Moffett Field, CA	1030 hrs AIAA-2015-2273 **A Stochastic Scheduler for Integrated Arrival, Departure, and Surface Operations in Los Angeles** M. Xue, University of California, Santa Cruz, Moffett Field, CA; S. Zelinski, NASA Ames Research Center, Moffett Field, CA	1100 hrs AIAA-2015-2274 **Optimization of Airport Surface Operations Under Uncertainty** C. Bosson, D. Sun, Purdue University, West Lafayette, IN		

Monday, 22 June 2015						
17-ATIO-2	**Separation Assurance**					**Ming**
Chaired by: M. WILCOXEN, U.S. Air Force						
0900 hrs AIAA-2015-2275 **Conflict Detection Performance Analysis for Function Allocation Using Time-Shifted Recorded Traffic Data** N. Guerreiro, J. Maddalon, T. Lewis, G. Hagen, NASA Langley Research Center, Hampton, VA	0930 hrs AIAA-2015-2276 **Strategic time-based metering that assures separation for integrated operations in a terminal airspace** A. Sadovsky, M. Jastrzebski, NASA Ames Research Center, Moffett Field, CA	1000 hrs AIAA-2015-2277 **Conflict Alerts for Aircraft Conducting Visual Approaches** H. Tang, NASA Ames Research Center, Moffett Field, CA				

Monday, 22 June 2015						
18-ATIO-3	**Trajectory Optimization**					**Milan**
Chaired by: H. ARNESON						
0900 hrs AIAA-2015-2278 **The String Stability of a Trajectory-Based Interval Management Algorithm in the Midterm Airspace** K. Swieringa, NASA Langley Research Center, Hampton, VA	0930 hrs AIAA-2015-2279 **Computational Approaches to Simulation and Optimization of Global Aircraft Trajectories** H. Ng, University of California, Santa Cruz, Moffett Field, CA; B. Sridhar, NASA Ames Research Center, Moffett Field, CA	1000 hrs AIAA-2015-2280 **Branch & Bound-Based Algorithm for Aircraft VNAV Profile Reference Trajectory Optimization** A. Murrieta Mendoza, B. Beuze, L. Ternisien, R. Botez, University of Québec, Montréal, Canada	1030 hrs AIAA-2015-2281 **Aircraft Trajectories Optimization By Genetic Algorithms To Reduce Flight Cost Using A Dynamic Weather Model** R. Félix Patrón, M. Schindler, R. Botez, University of Québec, Montréal, Canada	1100 hrs AIAA-2015-2282 **Trajectory optimization algorithm for a constant altitude cruise flight with a required time of arrival constraint** A. Liv, R. Dancila, R. Botez, University of Québec, Montréal, Canada		

Monday, 22 June 2015		
19-ATIO-4 0900 - 1100 hrs	Transformational Flight - Rapid Concept to Flight	Metropolitan Ballroom

Moderator: William Fredericks, NASA Langley Research Center

Panelists:

Neal Willford
Textron Aviation

Mark Page
Dzyne Technologies

JoeBen Bevirt
Joby Aviation

Starr Ginn
NASA Armstrong Research Center

Monday, 22 June 2015		
20-CASE-1 0900 - 1200 hrs	Academic Roundtable	Batik

Expanding on the theme from Sunday, this session is the second day activity of the 2015 CASE Academic Workshop. It will offer rapid-fire discussions of current research efforts in systems knowledge and competency.

Facilitators:

Franz-Josef Kahlen, Ph.D.
Associate Professor, Department of Mechanical Engineering
University of Cape Town, Cape Town, South Africa

Shannon Flumerfelt, Ph.D.
Associate Professor, Educational Leadership, Director of Lean Thinking for Schools,
Pawley Learning Institute, Oakland University, Michigan

Anabela Alves, Ph.D.
Assistant Professor, Departamento de Produção e Sistemas Escola de Engenharia da Universidade do Minho, Centro Interdisciplinar de Tecnologias, da Produção e da Energia (CITPE)
Campus de Azurém, Portugal

Monday, 22 June 2015						
21-CFD-1	Unstructured High-Order Methods I					Grand Ballroom A
Chaired by: S. MURMAN, NASA Ames Research Center and A. KATZ						
0900 hrs AIAA-2015-2283 **High-Order Strand Grid Methods for Shock Turbulence Interaction** O. Tong, A. Katz, Utah State University, Logan, UT; J. Sitaraman, U.S. Army, Moffett Field, CA	0930 hrs AIAA-2015-2284 **Higher-order Unstructured Finite Volume Methods for Turbulent Aerodynamic Flows** A. Jalali, C. Ollivier Gooch, University of British Columbia, Vancouver, Canada	1000 hrs AIAA-2015-2285 **A Spectral-Element Approach for the Eikonal Equation** S. Murman, L. Diosady, NASA Ames Research Center, Moffett Field, CA	1030 hrs AIAA-2015-2286 **High order subcell finite volume method in solving hyperbolic conservation laws** J. Pan, Y. Ren, Tsinghua University, Beijing, China			

Monday, 22 June 2015						
22-CFD-2	Unsteady Flow Simulations					Grand Ballroom B
Chaired by: Y. WANG and D. REASOR, Air Force Research Laboratory						
0900 hrs AIAA-2015-2287 **Unsteady Simulations of Shockwave-Boundary Layer Interaction Induced Transonic Shockwave Oscillations using Unstructured Grids** K. Bhamidipati, D. Reasor, 412th Test Wing, Edwards AFB, CA; C. Pasiliao, Air Force Research Laboratory, Eglin AFB, FL	0930 hrs AIAA-2015-2288 **Effect of Cavity Flow on Landing Gear Aerodynamic Loads** U. Oza, Z. Hu, X. Zhang, University of Southampton, Southampton, United Kingdom	1000 hrs AIAA-2015-2289 **Numerical Investigation of the Detaching Vortical Flow at Rotating Cylinders with Thom Discs** R. Ritz, T. Schomberg, O. Wünsch, University of Kassel, Kassel, Germany; M. Ruetten, R. Kessler, German Aerospace Center (DLR), Göttingen, Germany	1030 hrs AIAA-2015-2290 **Symmetrical and non-symmetrical 3D wing deformation of flapping micro aerial vehicles** W. Tay, National university of Singapore, Singapore, Singapore	1100 hrs AIAA-2015-2291 **Numerical Investigation of the Starting Process in a Long-test-duration Hypervelocity Shock Tunnel** Y. Wang, Z. Hu, Z. Jiang, Chinese Academy of Sciences, Beijing, China		

Monday, 22 June 2015						
23-CFD-3	**Meshing Techniques I**					**Coral**
Chaired by: D. THOMPSON, Mississippi State University and B. JOLLY, US Air Force						
0900 hrs AIAA-2015-2292 **Comparing Anisotropic Output-Based Grid Adaptation Methods by Decomposition** M. Park, NASA Langley Research Center, Hampton, VA; A. Loseille, French National Institute for Research in Computer Science and Control (INRIA), Le Chesnay, France; J. Krakos, T. Michal, The Boeing Company, St. Louis, MO	0930 hrs AIAA-2015-2293 **meshCurve: An Automated Low-Order to High-Order Mesh Generator** J. Ims, Z. Duan, Z. Wang, University of Kansas, Lawrence, Lawrence, KS	1000 hrs AIAA-2015-2294 **Target-Edge Based Orthogonal Anisotropic Mesh** J. Zuniga Vazquez, C. Ollivier Gooch, University of British Columbia, Vancouver, Canada	1030 hrs AIAA-2015-2295 **Automated Massively Refinement Technique for Multi-block Structured Grids Based on NURBS Volume** H. Koizumi, S. Tsutsumi, R. Takaki, Japan Aerospace Exploration Agency (JAXA), Sagamihara, Japan; K. Yamamoto, Japan Aerospace Exploration Agency (JAXA), Mitaka, Japan; H. Ito, M. Abe, Ryoyu Systems, Nagoya, Japan; et al.	1100 hrs AIAA-2015-2296 **Construction of Prism and Hex Layers from Anisotropic Tetrahedra** J. Steinbrenner, Pointwise, Inc., Fort Worth, TX		

Monday, 22 June 2015						
24-CFD-4	**LES, DNS, and Hybrid RANS-LES I**					**Emerald**
Chaired by: A. SESCU, Mississippi State University and W. MCMULLAN, University of Leicester						
0900 hrs AIAA-2015-2297 **High Order Numerical Methods for the Dynamic SGS Model of Turbulent Flows with Shocks** D. Kotov, Bay Area Environmental Research Institute, Petaluma, CA; H. Yee, A. Wray, NASA Ames Research Center, Moffett Field, CA; B. Sjogreen, Lawrence Livermore National Laboratory, Livermore, CA	0930 hrs AIAA-2015-2298 **Large Eddy Simulation of Supersonic Impinging Jets by Adaptive, Explicit Filtering** S. Patel, J. Mathew, Indian Institute of Science, Bangalore, India	1000 hrs AIAA-2015-2299 **Resolved Scalar Mixing in Large Eddy Simulations of a Low Reynolds Number Plane Mixing Layer** J. Haywood, A. Sescu, Mississippi State University, Mississippi State, MS	1030 hrs AIAA-2015-2300 **Resolved Scalar Mixing in Large Eddy Simulations of a Low Reynolds Number Plane Mixing Layer** S. Hug, W. McMullan, University of Leicester, Leicester, United Kingdom	1100 hrs AIAA-2015-2301 **LES Simulation Inflow conditions for Outlet Guide Vane and Prediffuser Flows** J. Li, Nanjing University of Aeronautics and Astronautics, Nanjing, China; G. Page, J. McGuirk, Loughborough University, Loughborough, United Kingdom		

Monday, 22 June 2015						
25-FD-1	**Wing Aerodynamics**					**Govenors Lecture Hall**
Chaired by: D. YOUNG, Raytheon Missile Systems and U. KAUL, NASA ARC						
0900 hrs AIAA-2015-2302 **The Origin of Lift Revisited: I. A Complete Physical Theory** T. Liu, Western Michigan University, Kalamazoo, MI; J. Wu, J. Zhu, L. Liu, Peking University, Beijing, China	0930 hrs AIAA-2015-2303 **The Origin of Lift Revisited: II. Physical Processes of Airfoil-Circulation Formation in Starting Flow** J. Zhu, S. Zou, L. Liu, J. Wu, Peking University, Beijing, China; T. Liu, Western Michigan University, Kalamazoo, MI	1000 hrs AIAA-2015-2304 **The Steady Aerodynamics of Quiet Airfoils with Porosity Gradients** R. Hajian, J. Jaworski, Lehigh University, Bethlehem, PA	1030 hrs AIAA-2015-2305 **Lift and Drag in Two-Dimensional Steady Viscous and Compressible Flow: I. Far-Field Formulae Analysis and Numerical Confirmation** J. Zhu, L. Liu, Peking University, Beijing, China; T. Liu, Western Michigan University, Kalamazoo, MI; Y. Shi, W. Su, J. Wu, Peking University, Beijing, China	1100 hrs AIAA-2015-2306 **Lift and Drag in Two-Dimensional Steady Viscous and Compressible Flow: II. Fundamental Solution Theory** L. Liu, J. Wu, Peking University, Beijing, China; T. Liu, Western Michigan University, Kalamazoo, MI	1130 hrs AIAA-2015-2307 **Effects of Perturbation on the Flow over Nonslender Delta Wings** C. Canpolat, B. Sahin, Cukurova University, Adana, Turkey; S. Yayla, Yuzuncu Yil University, Van, Turkey; H. Akilli, Cukurova University, Adana, Turkey	1200 hrs AIAA-2015-2308 **Interaction of Multiple Vortices over a Double Delta Wing** X. Zhang, Z. Wang, I. Gursul, University of Bath, Bath, United Kingdom

Monday, 22 June 2015						
26-FD-2	Fundamental Fluid Flows					Senators Lecture Hall
Chaired by: G. DALE, Air Force Research Laboratory and M. GREEN, Syracuse University						
0900 hrs AIAA-2015-2309 **Evolution of Stratified Boundary-Free Shear Flows Under Stokes-Ekman Forcing** M. Jones, E. Paterson, Virginia Polytechnic Institute and State University, Blacksburg, VA	0930 hrs AIAA-2015-2310 **Numerical and Experimental Investigation of Wind Turbine Wakes** X. Huang, RWTH Aachen University, Aachen, Germany; S. Vey, Technical University of Berlin, Berlin, Germany; M. Meinke, W. Schroeder, RWTH Aachen University, Aachen, Germany; G. Pechlivanoglou, C. Nayeri, Technical University of Berlin, Berlin, Germany; et al.	1000 hrs AIAA-2015-2311 **Evidence of complex flow structures in a converging-diverging nozzle caused by a recessed step at the nozzle throat** M. Carmine, R. Cheli, F. Cozzi, A. Spinelli, M. Zocca, A. Guardone, Technical University of Milan, Milan, Italy	1030 hrs AIAA-2015-2312 **Numerical Study of the Transient Deformation and Drag Characteristics of a Decelerating Droplet** Q. Qu, P. Ma, P. Liu, Beihang University, Beijing, China; S. Li, Beijing Institute of Mechanical and Electrical Engineering, Beijing, China; R. Agarwal, Washington University in St. Louis, St. Louis, MO			

Monday, 22 June 2015						
27-FD-3	Combustion and Heat Transfer					Topaz
Chaired by: J. CHOI, Georgia Institute of Technology and I. LEYVA						
0900 hrs AIAA-2015-2313 **An Experimental Study of Global Characteristics of Turbulent Diffusion Jet Flames for Fuels of Complex Chemistry** A. Ramachandran, V. Narayanaswamy, North Carolina State University, Raleigh, NC	0930 hrs AIAA-2015-2314 **Comparison of Theoretical and Semi-Empirical Solutions for Dissipation Coefficient in a Low Reynolds Number Compressor Cascade** F. Kok, R. Myose, Wichita State University, Wichita, KS; S. Hayashibara, Embry-Riddle Aeronautical University, Prescott, AZ	1000 hrs AIAA-2015-2315 **On autoignition-dominated supersonic combustion** N. Cymbalist, P. Dimotakis, California Institute of Technology, Pasadena, CA	1030 hrs AIAA-2015-2316 **Flow Fields of Manipulated Shear Layers of a Turbulent Jet Flame** H. Nawroth, C. Paschereit, Technical University of Berlin, Berlin, Germany			

Monday, 22 June 2015						
28-FD-4	Boundary Layer Transition: Hypersonic Flows					Sapphire
Chaired by: J. JEWELL, Air Force Research Laboratory and K. CASPER						
0900 hrs AIAA-2015-2317 **Instability and Transition Experiments in the Boeing/AFOSR Mach 6 Quiet Tunnel** G. McKiernan, B. Chynoweth, S. Schneider, Purdue University, West Lafayette, IN	0930 hrs AIAA-2015-2318 **Numerical Investigation of Nonlinear Wave-packets in a Hypersonic High-Enthalpy Boundary-Layer on a 5 deg Sharp Cone** L. Salemi, H. Fasel, University of Arizona, Tucson, Tucson, AZ	1000 hrs AIAA-2015-2319 **Correlation of HIFiRE-5 Flight Data With Computed Pressure and Heat Transfer** J. Jewell, J. Miller, R. Kimmel, Air Force Research Laboratory, Wright-Patterson AFB, OH	1030 hrs AIAA-2015-2320 **Linear stability of high-speed boundary layer flows at varying Prandtl numbers** A. Ramachandran, B. Saikia, K. Sinha, Indian Institute of Technology Bombay, Mumbai, India; R. Govindarajan, Tata Institute of Fundamental Research, Hyderabad, India			

Monday, 22 June 2015						
29-MAO-1	**Vehicle Design Applications I**					**Madrid**
Chaired by: R. KOLONAY, Air Force Research Laboratory/RQVC/WPAFB and V. KALIVARAPU, Iowa State University						
0900 hrs AIAA-2015-2321 **Parallel allocation-mission optimization of a 128-route network** J. Hwang, J. Martins, University of Michigan, Ann Arbor, Ann Arbor, MI	0930 hrs AIAA-2015-2322 **Multi-Objective Design and Path Planning Optimization of Unmanned Aerial Vehicles (UAVs)** E. Rudnick-Cohen, S. Azarm, J. Herrmann, University of Maryland, College Park, College Park, MD	1000 hrs AIAA-2015-2323 **Control Power Optimization using Artificial Intelligence for Hybrid Wing Body Aircraft** R. Chhabra, Virginia Polytechnic Institute and State University, Blacksburg, VA; S. Mulani, University of Alabama, Tuscaloosa, Tuscaloosa, AL; R. Kapania, J. Schetz, Virginia Polytechnic Institute and State University, Blacksburg, VA	1030 hrs AIAA-2015-2324 **Control Focused Multidisciplinary Design Optimization of Tailless Fighter Aircraft** C. Meckstroth, University of Dayton, Dayton, OH; W. Blake, Air Force Research Laboratory, Wright-Patterson AFB, OH	1100 hrs AIAA-2015-2325 **Hybrid Wing Body (HWB) Aircraft Design and Optimization using Stitched Composites** V. Li, The Boeing Company, Huntington Beach, CA	1130 hrs AIAA-2015-2326 **A Multi-Fidelity, Multi-Disciplinary Analysis and Optimization Framework for the Design of Morphing UAV Wing** A. Ciarella, C. Tsotskas, M. Hahn, Aircraft Research Association, Ltd., Bedford, United Kingdom; N. Werter, R. De Breuker, Delft University of Technology, Delft, The Netherlands; C. Beaverstock, Swansea University, Swansea, United Kingdom; et al.	1200 hrs AIAA-2015-2327 **Multi-Disciplinary and Multi-Objective Optimization of an Unconventional Aircraft Concept** S. Gemma, F. Mastroddi, University of Rome "La Sapienza", Rome, Italy

Monday, 22 June 2015						
30-MST-1	**Unmanned Aerial Vehicle Systems**					**Travertine**
Chaired by: B. LANDRUM and M. PATIL, Virginia Tech						
0900 hrs AIAA-2015-2328 **Experimental Characterization of Butterfly in Climbing Flight** J. Cranford, University of Alabama, Huntsville, Huntsville, AL; N. Slegers, George Fox University, Newberg, OR; B. Landrum, University of Alabama, Huntsville, Huntsville, AL	0930 hrs AIAA-2015-2329 **Nondeterministic Simulation for Probability of Loss of Control Prediction for Unmanned Aircraft Systems** L. Hale, M. Patil, C. Roy, Virginia Polytechnic Institute and State University, Blacksburg, VA	1000 hrs AIAA-2015-2330 **Optimal selection of UAV for ground target tracking** J. Narkiewicz, A. Kopyt, P. Radyisyewski, T. Malecki, Warsaw University of Technology, Warsaw, Poland	1030 hrs AIAA-2015-2331 **Dynamic Resource Allocation for Sharing Multi-UAV Services** B. Kaddouh, W. Crowther, P. Hollingsworth, University of Manchester, Manchester, United Kingdom	1100 hrs AIAA-2015-2332 **Optimal Object Location by a Fleet of Various UAVs** A. Kopyt, J. Narkiewicz, T. Malecki, P. Radyisyewski, Warsaw University of Technology, Warsaw, Poland	1130 hrs AIAA-2015-2333 **Modeling and Control of Tethered Unmanned Multicopters in Hovering Flight** D. Ferreira de Castro, J. Santos, M. Batista, D. Antônio dos Santos, L. Góes, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil	1200 hrs AIAA-2015-2334 **MAV Pose Measurement algorithm Based on Visual Systems** Q. Zeng, J. Liu, Y. Wang, Nanjing University of Aeronautics and Astronautics, Nanjing, China

Monday, 22 June 2015						
31-MST-2	**Aviation Systems Human Factors**					**Wyeth**
Chaired by: D. CARTMELL, Boeing Engineering Operations & Technology and S. ROBINSON, UC Davis						
0900 hrs AIAA-2015-2335 **Formal Extensions to the Intent-Based Mode Confusion Detection Framework** J. Suraj Nandiganahalli, I. Hwang, Purdue University, West Lafayette, IN	0930 hrs AIAA-2015-2336 **The Rapidly Reconfigurable Research Cockpit** R. Joyce, S. Robinson, University of California, Davis, Davis, CA	1000 hrs AIAA-2015-2337 **Flight Crew Response to Unexpected Events: A Simulator Experiment** J. Field, National Aerospace Laboratory (NLR), Amsterdam, The Netherlands; L. Fucke, B. Correia Grácio, The Boeing Company, Madrid, Spain; M. Varney, Airbus, Toulouse, France	1030 hrs AIAA-2015-2338 **Influence of coupled sidesticks on the pilot monitoring's awareness during flare** A. Uehara, D. Niedermeier, German Aerospace Center (DLR), Braunschweig, Germany	1100 hrs Oral Presentation **Ergonomic evaluation of different principles of position indication and control plane in field** M. Zhelonkin, Y. Dubov, V. Zhelonkin, O. Tkachenko, TsAGI, Zhukovsky, Russia	1130 hrs AIAA-2015-2339 **Equation-System Representation Model for Pneumatic Seat Design Used for Vibration Isolation In Air and Ground Transport** E. Ayyad, W. Culbreth, D. Reynolds, University of Nevada, Las Vegas, Las Vegas, NV	1200 hrs Oral Presentation **An approach to establish case base of motions for layout optimization** Y. Zhang, Y. Sun, L. Liu, Nanjing University of Aeronautics and Astronautics, Yangzhou, China

Monday, 22 June 2015		
32-NW-1 **0900 - 0930 hrs**	**Networking Coffee Break**	**Meeting Room Foyers**

Monday, 22 June 2015						
33-PDL-1/FD-5	**Plasma Aerodynamics & Flow Control I**					**Monet Ballroom**
Chaired by: M. STANEK, AFRL/RQVI						
0900 hrs AIAA-2015-2340 **Numerical Simulations of Disturbances in Shear Flows Introduced by NS-DBD Plasma Actuators** I. Popov, G. Correale, S. Hulshoff, Delft University of Technology, Delft, The Netherlands	0930 hrs AIAA-2015-2341 **Nanosecond Dielectric Barrier Discharge Plasma Actuator Flow Control of Compressible Dynamic Stall** M. Frankhouser, J. Gregory, Ohio State University, Columbus, OH	1000 hrs AIAA-2015-2342 **Aerodynamic Control Effect of Surface DC Plasma Discharge at Mach-7 Hypersonic Flow** Y. Watanabe, University of Tokyo, Bunkyo, Japan; K. Suzuki, University of Tokyo, Kashiwa, Japan	1030 hrs AIAA-2015-2343 **Effect of Pulsed Plasma Jets on Boundary Layer Recovery Downstream of a Reflected Shock Wave-Boundary Layer Interaction** B. Greene, N. Clemens, University of Texas, Austin, Austin, TX; P. Magari, D. Micka, M. Ueckermann, Creare, Inc., Hannover, NH	1100 hrs AIAA-2015-2344 **Single Nanosecond Dielectric Barrier Discharge and Pulsed Sliding Discharge Applied to Separation Control Along a NACA 0015 Airfoil** K. Bayoda, N. Benard, E. Moreau, National Center for Scientific Research (CNRS), Futuroscope, France	1130 hrs AIAA-2015-2345 **Shock-Trapping Capability of a Cavity in a Supersonic Flow** N. Webb, M. Samimy, Ohio State University, Columbus, OH	1200 hrs AIAA-2015-2346 **Pressure Investigations over a Conical Forebody under Duty-Cycled Plasma Actuations** J. Zhao, X. Meng, J. Wang, Northwestern Polytechnical University, Xi'an, China; F. Liu, S. Luo, University of California, Irvine, Los Angeles, CA

Monday, 22 June 2015						
34-TP-1	**Ablation I**					**Rosetta**
Chaired by: D. KUNTZ, Sandia National Laboratories and D. PYTEL, Lockheed Martin Space Systems						
0900 hrs AIAA-2015-2347 **Evaluation of Finite-Rate Gas/ Surface Interaction Models for a Carbon Based Ablator** Y. Chen, NASA Ames Research Center, Moffett Field, CA; T. Gokcen, ERC, Inc., Moffett Field, CA	0930 hrs AIAA-2015-2348 **Comparison of Carbon Ablative Shock-Layer Radiation with High Surface Temperatures** S. Lewis, R. Morgan, T. Mcintyre, University of Queensland, St. Lucia, Australia; C. Alba, R. Greendyke, Air Force Institute of Technology, Wright-Patterson AFB, OH	1000 hrs AIAA-2015-2349 **Stagnation-Line Simulations of Meteor Ablation** B. Dias, A. Turchi, T. Magin, von Kármán Institute for Fluid Dynamics, Rhode-Saint-Genèse, Belgium				

Monday, 22 June 2015						
35-TP-2	**Heat Transfer I**					**Steuben**
Chaired by: M. KIO, National Space Research & Development Agency and A. WILLIAMS, Air Force Reseach Laboratory						
0900 hrs AIAA-2015-2350 **Diffusion Penetration Time for Transient Conduction** R. McMasters, Virginia Military Institute, Lexington, VA; F. de Monte, University of L'Aquila, L'Aquila, Italy; J. Beck, S. Nallapaneni, Michigan State University, E. Lansing, MI; D. Amos, Sandia National Laboratories, Albuquerque, NM; A. Haji-Sheikh, University of Texas, Arlington, Arlington, TX	0930 hrs AIAA-2015-2351 **Comparisons of Computations with Experiments for Electron Transpiration Cooling at High Enthalpies** K. Hanquist, I. Boyd, University of Michigan, Ann Arbor, Ann Arbor, MI	1000 hrs AIAA-2015-2352 **Heat and Mass Transfer Analysis of a Film Evaporative MEMS Tuneable Array Thruster** W. O'Neill, A. Cofer, A. Weaver, A. Alexeenko, Purdue University, West Lafayette, IN	1030 hrs AIAA-2015-2353 **Thermal Model for Sintered Cylindrical Evaporators of Loop Heat Pipes(2150991)** M. Mantelli, J. Florez Mera, F. Milanese, Federal University of Santa Catarina, Florianópolis, Brazil	1100 hrs AIAA-2015-2354 **Study of the Minimum Anti-icing Energy Based on Icing Limit State** Y. Zhao, S. Chang, Y. Bo, M. Leng, Beihang University, Beijing, China	1130 hrs AIAA-2015-2355 **Studies on thermal conductivity prediction of fiber reinforced material with microscopic structure identification** J. Hua, Nanjing University of Aeronautics and Astronautics, Nanjing, China	

Monday, 22 June 2015		
36-F360-1 **0930 - 1200 hrs**	**The Voice of the Customer - Designing the Right Aircraft**	**Grand Ballroom E**

Moderator: Christopher Stonehouse, Senior Vice President, Customer Services, Airbus Americas, Inc.

Panelists:

Jack Arehart	**William "Bill" Meehan**	**Bart Roberts**	**David Seymour**
President of MRO Services	Chief Operating Officer	Vice President, Flight Technical Operations	Senior Vice President, Technical Operations
Delta TechOps	Frontier Airlines, Inc.	JetBlue Airways	American Airlines

Monday, 22 June 2015						
37-AA-6	**Open Rotor I**					**Fleur-de-lis A**
Chaired by: A. LYRINTZIS						
1400 hrs AIAA-2015-2356 **Aerodynamic and Aeroacoustic Effects of Pylon Trailing Edge Blowing on Pusher Propeller Installation** T. Sinnige, K. Lynch, D. Ragni, G. Eitelberg, L. Veldhuis, Delft University of Technology, Delft, The Netherlands	1430 hrs AIAA-2015-2357 **Hybrid Use of CFD and Analytical Methods for the Prediction of Advanced Open Rotor Tone Noise** C. Ekoule, M. Kingan, A. McAlpine, Southampton University, Southampton, United Kingdom; N. Sohoni, Cambridge University, Cambridge, United Kingdom; A. Parry, Rolls-Royce Group plc, Derby, United Kingdom	1500 hrs AIAA-2015-2358 **The Effects of Swirl Recovery Vanes on Single-Rotation Propeller Aerodynamics and Aeroacoustics** T. Sinnige, J. van Kuijk, K. Lynch, D. Ragni, G. Eitelberg, L. Veldhuis, Delft University of Technology, Delft, The Netherlands	1530 hrs AIAA-2015-2359 **Aircraft Open Rotor Technology: Analysis from an Operational Perspective** G. Busch, M. Hassan, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1600 hrs AIAA-2015-2360 **Optimal Propeller Design for Quiet Aircraft using Numerical Analysis** B. Humpert, R. Gaeta, J. Jacob, Oklahoma State University, Stillwater, OK	1630 hrs AIAA-2015-2361 **Sound Radiation from a Rotor Partially Immersed in a Turbulent Boundary Layer** S. Glegg, A. Buono, J. Grant, F. Lachowski, Florida Atlantic University, Boca Raton, FL; W. Devenport, W. Alexander, Virginia Polytechnic Institute and State University, Blacksburg, VA	

Monday, 22 June 2015						
38-AA-7	**Trailing Edge Noise I**					**Fleur-de-lis B**
Chaired by: R. EWERT, DLR - German Aerospace Center						
1400 hrs AIAA-2015-2362 **A Trailing-Edge Noise Model for Serrated Edges** B. Lyu, University of Cambridge, Cambridge, United Kingdom; M. Azarpeyvand, University of Bristol, Bristol, United Kingdom; S. Sinayoko, University of Southampton, Southampton, United Kingdom	1430 hrs AIAA-2015-2363 **Effect of serrated trailing edge on boundary layer instability noise** J. Serpieri, S. Pröbsting, M. Gupta, F. Scarano, Delft University of Technology, Delft, The Netherlands	1500 hrs AIAA-2015-2364 **The Effects of Suction and Blowing on Tonal Noise Generation by Blunt Trailing Edges** W. Ramirez, W. Wolf, University of Campinas, Campinas, Brazil	1530 hrs AIAA-2015-2365 **Bio-Inspired Trailing Edge Noise Control** I. Clark, W. Alexander, W. Devenport, Virginia Polytechnic Institute and State University, Blacksburg, VA; S. Glegg, Florida Atlantic University, Boca Raton, FL; J. Jaworski, Lehigh University, Bethlehem, PA; C. Daly, University of Cambridge, Cambridge, United Kingdom; et al.	1600 hrs AIAA-2015-2366 **Numerical and experimental investigation of a beveled trailing edge flow and noise field** W. van der Velden, S. Pröbsting, A. de Jong, A. van Zuijlen, Delft University of Technology, Delft, The Netherlands; Y. Guan, S. Morris, University of Notre Dame, Notre Dame, IN	1630 hrs AIAA-2015-2367 **On the robustness of the TNO model for aerofoil self-noise prediction** C. Paruchuri, O. Stalnov, P. Joseph, C. Vanderwel, B. Ganapathisubramani, University of Southampton, Southampton, United Kingdom; R. Leung, Defence Science and Technology Laboratory, Southampton, United Kingdom	1700 hrs AIAA-2015-2368 **Impact of Wall Permeability on Trailing-Edge Noise at High Reynolds Number** S. Koh, M. Meinke, W. Schroeder, RWTH Aachen University, Aachen, Germany

Monday, 22 June 2015						
39-AA-8	**Jet Noise Prediction II**					**Inverness**
Chaired by: D. MCLAUGHLIN, Retired						
1400 hrs AIAA-2015-2369 **Recent progress in numerical simulations for jet noise computation using LES on fully unstructured meshes** N. Lupoglazoff, F. Vuillot, ONERA, Châtillon, France	1430 hrs AIAA-2015-2370 **Jet Noise Prediction with Eddy Relaxation Source Model** A. Neifeld, N. Reiche, J. Dierke, R. Ewert, German Aerospace Center (DLR), Braunschweig, Germany	1500 hrs AIAA-2015-2371 **Jet Noise Prediction using a Permeable FW-H Solver** A. West, CD-adapco, London, United Kingdom; M. Caraeni, CD-adapco, Lebanon, NH	1530 hrs AIAA-2015-2372 **Parametric Study of Jet Nozzles Using a RANS-Based Jet Noise Prediction Tool** B. Venkatesh, R. Self, University of Southampton, Southampton, United Kingdom	1600 hrs AIAA-2015-2373 **Large Eddy Simulation of a Tactical Aircraft Exhaust Nozzle with Free-stream and Wall Turbulence** D. Dahl, J. Nichols, University of Minnesota, Minneapolis, Minneapolis, MN		

Monday, 22 June 2015						
40-AA-9	**Jet Noise Measurements I**					**Lalique**
Chaired by: S. MILLER, NASA						
1400 hrs AIAA-2015-2374 **Noise Reduction with Fluidic Inserts in Supersonic Jets Exhausting Over a Simulated Aircraft Carrier Deck** R. Powers, D. McLaughlin, P. Morris, Pennsylvania State University, State College, PA	1430 hrs AIAA-2015-2375 **Acoustic Emissions from F-35 Aircraft during Ground Run-Up** M. James, A. Salton, J. Downing, Blue Ridge Research and Consulting, LLC, Asheville, NC; K. Gee, T. Neilsen, B. Reichman, Brigham Young University, Provo, UT; et al.	1500 hrs AIAA-2015-2376 **Spatiotemporal Correlation Analysis of Jet Noise from a High-Performance Military Aircraft** B. Harker, T. Neilsen, K. Gee, Brigham Young University, Provo, UT; M. James, Blue Ridge Research and Consulting, LLC, Asheville, NC; A. Wall, Air Force Research Laboratory, Wright-Patterson AFB, OH	1530 hrs AIAA-2015-2377 **Acoustical Environment of an F-35B During Vertical Landings** B. Reichman, Brigham Young University, Provo, UT; J. Downing, M. James, Blue Ridge Research and Consulting, LLC, Asheville, NC; A. Aubert, Naval Air Warfare Center, Patuxent River, MD; R. McKinley, A. Wall, Air Force Research Laboratory, Wright-Patterson AFB, OH; et al.	1600 hrs AIAA-2015-2378 **Source characterization of full-scale jet noise using vector intensity** T. Stout, K. Gee, T. Neilsen, A. Wall, Brigham Young University, Provo, UT; M. James, Blue Ridge Research and Consulting, LLC, Asheville, NC	1630 hrs AIAA-2015-2379 **Investigation of multi-lobed fighter jet noise sources using acoustical holography and partial field decomposition methods** A. Wall, Air Force Research Laboratory, Wright-Patterson AFB, OH; K. Gee, T. Neilsen, Brigham Young University, Provo, UT; S. McInerny, University of Louisiana, Lafayette, Lafayette, LA; M. James, Blue Ridge Research and Consulting, LLC, Asheville, NC	

Monday, 22 June 2015						
41-AA-10	**CAA Sound Generation I**					**Obelisk A**
Chaired by: C. TAM, Florida State Univeristy						
1400 hrs AIAA-2015-2380 **Hydrodynamic instability and shear layer effect on the sound emission of a turbulent jet flame** S. Schlimpert, S. Koh, A. Feldhusen, B. Roidl, M. Meinke, W. Schroeder, RWTH Aachen University, Aachen, Germany	1430 hrs AIAA-2015-2381 **Assessing Acoustic Source Forcing Tools for Launch Vehicle Jet Noise Prediction** A. Sescu, E. Collins, Mississippi State University, Mississippi State, MS; R. Harris, CFD Research Corporation, Huntsville, AL; E. Luke, Mississippi State University, Mississippi State, MS	1500 hrs AIAA-2015-2382 **Numerical Investigation of Indirect Noise Generation by Accelerated Vorticity** W. Ullrich, Technical University of Munich, Garching, Germany; F. Bake, German Aerospace Center (DLR), Berlin, Germany; N. Kings, National Center for Scientific Research (CNRS), Châtenay-Malabry, France; T. Sattelmayer, Technical University of Munich, Garching, Germany	1530 hrs AIAA-2015-2383 **Extension of the Random Particle Mesh method to periodic turbulent flows for fan broadband noise prediction** A. Wohlbrandt, S. Guerin, German Aerospace Center (DLR), Berlin, Germany; R. Ewert, German Aerospace Center (DLR), Braunschweig, Germany	1600 hrs AIAA-2015-2384 **A study of mechanisms of sound generation by airfoils using flow-acoustic correlations** A. Sano, A. Cavalieri, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil; W. Wolf, University of Campinas, Campinas, Brazil		

Monday, 22 June 2015						
42-ACD-1	**Aircraft Design for Environmental Impact Reduction**					**Miro**
Chaired by: D. WELLS, NASA Langley Research Center						
1400 hrs AIAA-2015-2385 **Effect of Wing Loading and Fuel Type on Optimal Cruise Altitude for Civil Aircraft** A. Wortmann, M. Hoogreef, R. Vos, Delft University of Technology, Delft, The Netherlands	1430 hrs AIAA-2015-2386 **Assessing Taxiing Trade Spaces from Aircraft, Airport, and Airline Perspectives** I. Chakraborty, M. LeVine, M. Hassan, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1500 hrs AIAA-2015-2387 **Utilising Secondary Airports for RPT Operations: A Business Case** C. Bil, A. Gebreegziabher, RMIT University, Melbourne, Australia	1530 hrs AIAA-2015-2388 **Greenhouse Gas Impacts of On-Demand Electric Aircraft** T. Thompson, LMI, McLean, VA	1600 hrs AIAA-2015-2389 **Aircraft Noise Reduction Technology and Airport Noise Analysis for General Aviation Revitalization** S. Min, D. Lim, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1630 hrs AIAA-2015-2390 **The Clean Sky programme: environmental benefits at aircraft level** M. Brunet, S. Aubry, R. Lafage, ONERA, Toulouse, France	

Monday, 22 June 2015						
43-AFM-3	**Unmanned Aircraft Systems I**					**Plum Blossom A**
Chaired by: K. HOFFLER, Adaptive Aerospace Group, Inc. and S. D'SOUZA, NASA-ARC						
1400 hrs AIAA-2015-2391 **Evaluation of Energy Required for Flight by a UAV Fitted with a Variable-Span Wing Performing a Given Mission Profile** P. Santos, P. Gamboa, University of Beira Interior, Covilha, Portugal	1430 hrs AIAA-2015-2392 **Attitude and altitude stabilization of quad rotor using parameter estimation and self-tuning controller** T. Dief, S. Yoshida, Kyushu University, Kasuga, Japan; M. Abdelhady, Cairo University, Giza, Egypt	1500 hrs AIAA-2015-2393 **Quickness Criteria for Large Unmanned Aircraft in Non-Precision Aggressive and Non-Aggressive Maneuvers** K. Greene, D. Kunz, Air Force Institute of Technology, Wright-Patterson AFB, OH	1530 hrs AIAA-2015-2394 **An Assessment of Unmanned Aircraft System Level-Turn Maneuver Performance Requirements In Relation to a Quantified Well-Clear Definition** D. Jack, K. Hoffler, S. Johnson, Adaptive Aerospace Group, Inc., Hampton, VA	1600 hrs AIAA-2015-2395 **Objective Function Development for Optimized Path Guidance for Rotorcraft Shipboard Recovery** J. Tritschler, Naval Air Systems Command, Patuxent River, MD; J. Horn, Pennsylvania State University, State College, PA	1630 hrs AIAA-2015-2396 **Wake Vortex Detection with UAV Close Formation Flight** H. Chao, University of Kansas, Lawrence, Lawrence, KS; Y. Gu, West Virginia University, Morgantown, WV; P. Tian, Z. Zheng, University of Kansas, Lawrence, Lawrence, KS; M. Napolitano, West Virginia University, Morgantown, WV	1700 hrs AIAA-2015-2397 **Flight Test Evaluation of Pilot Control Interfaces for Remotely Piloted Vehicles** R. Olson, National Test Pilot School, Mojave, CA

Monday, 22 June 2015						
44-AFM-4	**Planetary Entry and Aeroassist Technology**					**Plum Blossom B**
Chaired by: S. DUTTA, NASA Langley Research Center and C. KARLGAARD, Analytical Mechanics Associates Inc						
1400 hrs AIAA-2015-2398 **Improvements to Entry Terminal Point Controller for Mars Atmospheric Entry** Y. Zheng, H. Cui, Y. Tian, Harbin Institute of Technology, Harbin, China	1430 hrs AIAA-2015-2399 **Optimization of Interior Point Cost Functions Using Indirect Methods** T. Antony, M. Grant, Purdue University, West Lafayette, IN; M. Bolender, Air Force Research Laboratory, Wright-Patterson AFB, OH	1500 hrs AIAA-2015-2401 **Rapid, Robust Trajectory Design Using Indirect Optimization Methods** M. Grant, Purdue University, West Lafayette, IN; M. Bolender, Air Force Research Laboratory, Wright-Patterson AFB, OH	1530 hrs AIAA-2015-2402 **Minimum Terminal Energy Optimizations of Hypersonic Vehicles Using Indirect Methods** M. Grant, Purdue University, West Lafayette, IN; M. Bolender, Air Force Research Laboratory, Wright-Patterson AFB, OH			

Monday, 22 June 2015						
45-AMT-3/GT-3	**Advances in Test Methodology and CFD Integration**					**Obelisk B**
Chaired by: S. DUNN, Jacobs Technology and S. COLE, NASA Langley Research Center						
1400 hrs AIAA-2015-2403 **Development of a Transonic Gust Rig for Simulation of Vertical Gusts on Half-models** N. Allen, M. Quinn, Aircraft Research Association, Ltd., Bedford, United Kingdom	1430 hrs AIAA-2015-2404 **F-35 Conventional Mode Jet-Effects Testing Methodology** M. McWaters, Lockheed Martin Corporation, Fort Worth, TX	1500 hrs AIAA-2015-2405 **Motion measurement of a wind tunnel model by stereovision technique** B. Martinez, D. Bidino, M. Bastide, C. Demeautis, F. Leopold, P. Wey, French-German Research Institute of Saint-Louis (ISL), Saint-Louis, France	1530 hrs AIAA-2015-2406 **Experimental Investigations about Heat Transfer Characteristics of Irregular Impingement Jet Arrays in Typical Active Clearance Control System** F. Liu, M. Junkui, Nanjing University of Aeronautics and Astronautics, Nanjing, China			

Monday, 22 June 2015						
46-AMT-4/GT-4	**Surface and Inflow Sensing**					**Edelweiss**
Chaired by: Z. ZHANG, University of Tennessee and T. IOPPOLO, Southern Methodist University						
1400 hrs AIAA-2015-2407 **Shear Stress Sensing with Elastic Microfence Structures** A. Cisotto, F. Palmieri, NASA Langley Research Center, Hampton, VA; Y. Lin, National Institute of Aerospace, Hampton, VA; A. Saini, J. Kim, T. Kim, North Carolina State University, Raleigh, NC; et al.	1430 hrs AIAA-2015-2408 **Development of a Sol-Gel Based Nanoporous unsteady Pressure Sensitive Paint and Validation in the Large Transonic Onera S2MA Windtunnel** Y. Michou, B. Deleglise, F. Lebrun, ONERA, Modane, France; E. Scolan, A. Grivel, R. Steiger, Swiss Center for Electronics and Microtechnology (CSEM), Neûchatel, Switzerland; et al.	1500 hrs AIAA-2015-2409 **A Counter-Propagating Laser Air Speed Sensor System for Aircraft** J. Kurtz, University of New South Wales, Canberra, Australia; S. Wittig, OHB System HB, Munich, Germany; S. O'Byrne, University of New South Wales, Canberra, Australia	1530 hrs AIAA-2015-2410 **Computational Modeling of Radiation Effects on Total Temperature Probes** J. Reardon, J. Schetz, K. Lowe, Virginia Polytechnic Institute and State University, Blacksburg, VA			

Monday, 22 June 2015						
47-APA-5	**Applied CFD & Numerical Correlations with Experimental Data I**					**Stemmons B**
Chaired by: D. FINLEY, Lockheed Martin Aeronautics and J. SLOTNICK, Boeing Engineering Operations & Technology						
1400 hrs AIAA-2015-2411 **Supersonic Projectile Steering using Micro-Actuators: Experimental and Numerical Study** M. Libsig, B. Martinez, C. Rey, T. Gauthier, P. Wey, C. Berner, French-German Research Institute of Saint-Louis (ISL), Saint-Louis, France; et al.	1430 hrs AIAA-2015-2412 **Effects of Tip Clearance on Miniature Gas Turbines Compressor Performance: A Numerical Approach** J. Xiang, J. Schluter, F. Duan, Nanyang Technological University, Singapore, Singapore	1500 hrs AIAA-2015-2413 **Numerical Simulation of Water Spray Caused by a Rolling Airplane Tire** Q. Qu, F. Zhang, P. Liu, Beihang University, Beijing, China; R. Agarwal, Washington University in St. Louis, St. Louis, MO				

Monday, 22 June 2015						
48-APA-6	**Unmanned, Bio-Inspired, Solar Powered Aerial Vehicle Designs I**					**Carpenter Ballroom**
Chaired by: L. UKEILEY, University of Florida						
1400 hrs AIAA-2015-2414 **Computational Studies for the Development of a Hybrid UAV/UUV** R. Ramamurti, J. Geder, D. Edwards, T. Young, Naval Research Laboratory, Washington, DC	1430 hrs AIAA-2015-2415 **Force Production by Wing Flapping: The Role of Stroke Angle of Attack and Local Reynolds Number** A. Rege, B. Dennis, K. Subbarao, University of Texas, Arlington, Arlington, TX	1500 hrs AIAA-2015-2416 **System Development for Wildfire SUAS** J. Jacob, D. Gabbert, M. Andalibi, Oklahoma State University, Stillwater, OK				

Monday, 22 June 2015						
49-APA-7	**Special Session: Aerodynamic-Structural Modeling, Optimization, and Test Techniques for Flexible Wing Technology I**					**Stemmons A**
Chaired by: N. NGUYEN, NASA-Ames Research Center and S. ANDERS						
1400 hrs AIAA-2015-2417 **Wind Tunnel Investigation of a Flexible Wing High-Lift Configuration with a Variable Camber Continuous Trailing Edge Flap Design** N. Nguyen, NASA Ames Research Center, Moffett Field, CA; N. Precup, E. Livne, University of Washington, Seattle, Seattle, WA; J. Urnes, The Boeing Company, St. Louis, MO; E. Dickey, The Boeing Company, Huntington Beach, CA; C. Nelson, The Boeing Company, Seattle, WA; et al.	1430 hrs AIAA-2015-2418 **Use of a Viscous Flow Simulation Code for Static Aeroelastic Analysis of a Wing at High-Lift Conditions** H. Akaydin, S. Moini-Yekta, J. Housman, N. Nguyen, NASA Ames Research Center, Moffett Field, CA	1500 hrs AIAA-2015-2419 **Optimization of an Aeroservoelastic Wing with Distributed Multiple Control Surfaces** B. Stanford, NASA Langley Research Center, Hampton, VA	1530 hrs AIAA-2015-2420 **Adaptive Aeroelastic Wing Shape Optimization for High-Lift Configurations** G. Fujiwara, University of Washington, Seattle, Seattle, WA; N. Nguyen, NASA Ames Research Center, Moffett Field, CA	1600 hrs AIAA-2015-2421 **Robust Optimization of Variable-Camber Continuous Trailing-Edge Flap System Action Using Stochastic Kriging** Y. Liu, J. Bai, Northwestern Polytechnical University, Xi'an, China; E. Livne, University of Washington, Seattle, Seattle, WA	1630 hrs AIAA-2015-2422 **A 3-D Drag Optimization Study of Variable Camber Continuous Trailing Edge Flap (VCCTEF) Using OVERFLOW** U. Kaul, N. Nguyen, NASA Ames Research Center, Moffett Field, CA	

Monday, 22 June 2015						
50-APA-8	**Flow Control Applications & Demonstrations (Active & Passive) I**					**Stemmons C**
Chaired by: J. GEORGE, Metrolaser Inc. and K. MULLENERS, Leibniz Universitaet Hannover						
1400 hrs AIAA-2015-2423 **Study of slanted perforated shapes in tabs for control of subsonic Jets** A. Reyaz Ahmed, KCG College of Technology, Chennai, India; S. Thanigaiarasu, Madras Institute of Technology, Chennai, India; S. Venkatraman, KCG College of Technology, Chennai, India; E. Srinivasan, Bharath University, Chennai, India; E. Rathakrishnan, Indian Institute of Technology Kanpur, Kanpur, India	1430 hrs AIAA-2015-2424 **Numerical Study of the Internal Flow Structures Inside the Sweeping Jet Actuator** K. Kara, Khalifa University, Abu Dhabi, United Arab Emirates	1500 hrs AIAA-2015-2425 **Effect of Spanwise Jet Spacing on Separation Control for Swept and Unswept Airfoils** M. Walker, K. Hipp, S. Benton, J. Bons, Ohio State University, Columbus, OH	1530 hrs AIAA-2015-2426 **Dynamic Flow Control over Aerodynamic Bodies using Phased Array Vectored Synthetic Jet Actuation** Z. Hasnain, R. Weinstein, L. Trollinger, J. Hubbard, A. Flatau, University of Maryland, College Park, College Park, MD	1600 hrs AIAA-2015-2427 **Stochastic analysis of aerodynamic forces acting on a self-adaptive camber airfoil in turbulent inflow** G. Kampers, Carl von Ossietzky University, Oldenburg, Germany; U. Cordes, C. Tropea, Technical University of Darmstadt, Darmstadt, Germany; M. Hoelling, J. Peinke, Carl von Ossietzky University, Oldenburg, Germany		

Monday, 22 June 2015						
51-ATIO-5	**Terminal & Surface Operations II**					**Manchester**
Chaired by: A. SARAF, Saab Sensis Corporation						
1400 hrs AIAA-2015-2428 **Scheduling and Delivering Aircraft to Departure Fixes in the NY Metroplex with Controller-Managed Spacing Tools** E. Chevalley, B. Parke, J. Kraut, N. Bienert, F. Omar, E. Palmer, NASA Ames Research Center, Moffett Field, CA	1430 hrs AIAA-2015-2429 **Stochastic Near-Optimal Control for Aircraft Arrival Sequencing and Conflict Resolution** Y. Matsuno, T. Tsuchiya, University of Tokyo, Bunkyo, Japan	1500 hrs AIAA-2015-2430 **Time Based Separation: A study into runway compression and time based separation** R. Curran, F. Herrema, W. Zhao, Delft University of Technology, Delft, The Netherlands; V. Treve, R. Graham, EUROCONTROL, Bretigny, France	1530 hrs AIAA-2015-2431 **Designing and Evaluating Advanced Approach Procedures for the Concept of Segmented Independent Parallel Approaches** C. Hanses, F. Knabe, B. Korn, German Aerospace Center (DLR), Braunschweig, Germany	1600 hrs AIAA-2015-2432 **Optimal Airspace Design for Continuous Climb Operation** E. Kim, S. Hong, K. Lee, Korea Aerospace University, Goyang, South Korea	1630 hrs AIAA-2015-2433 **Assessment of Delayed Deceleration Approach Opportunities at US Airports** T. Reynolds, M. McPartland, Y. Rodriguez, M. Sandberg, J. Venuti, Lincoln Laboratory, Massachusetts Institute of Technology, Lexington, MA	

Monday, 22 June 2015						
52-ATIO-6	**Fleet and Route Planning**					**Ming**
Chaired by: W. CROSSLEY, Purdue University						
1400 hrs AIAA-2015-2434 **Effects of Fuel Price on Total Fuel Burn and System Capacity- An Analysis of Advanced Engine and Airframe Technology and Airline Responses to Changes in Fuel Price** C. Murphy, B. Miller, Metron Aviation, Inc., Dulles, VA; L. Sherry, George Mason University, Fairfax, VA	1430 hrs AIAA-2015-2435 **Estimating the Fuel Saving Potential of Commercial Aircraft in Future Fleet-Development Scenarios** N. Randt, L. Wache, Technical University of Munich, Munich, Germany; C. Jessberger, K. Ploetner, Bauhaus Luftfahrt e.V., Munich, Germany	1500 hrs AIAA-2015-2436 **Enabling Technology Portfolio Selection through Quantitative Uncertainty Analysis** K. Gatian, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1530 hrs AIAA-2015-2437 **A Rapid Integrated Interdependent Fleet-Level Environmental Model** J. Bernardo, T. Zaidi, M. LeVine, H. Jimenez, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1600 hrs AIAA-2015-2438 **Modeling Airline Decisions on Route Planning Using Discrete Choice Models** Z. Sha, K. Moolchandani, A. Maheshwari, J. Thekinen, J. Panchal, D. DeLaurentis, Purdue University, West Lafayette, IN	1630 hrs AIAA-2015-2439 **Landscape Analysis Framework for Low Carbon Energy** P. Vascik, Massachusetts Institute of Technology, Cambridge, MA; R. Pearce, NASA Headquarters, Washington, DC; D. Rhodes, Massachusetts Institute of Technology, Cambridge, MA	

Monday, 22 June 2015						
53-ATIO-7	**Systems Engineering and Analysis**					**Milan**
Chaired by: P. HOLLINGSWORTH, The University of Manchester						
1400 hrs AIAA-2015-2440 **Knowledge Engineering - Formalizing the Engineering Science Discipline** X. Peng, B. Chudoba, University of Texas, Arlington, Arlington, TX	1430 hrs AIAA-2015-2441 **Paving the Way from the Past to the Future: AVD^{KBS}, a Software Development in Knowledge Engineering** X. Peng, B. Chudoba, University of Texas, Arlington, Arlington, TX	1500 hrs AIAA-2015-2442 **Parametric Assessment of Aviation Environmental Goals: Implications on R&D Decision Making** M. Hassan, A. Payan, S. O'Sullivan, H. Pfaender, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1530 hrs AIAA-2015-2443 **Selected Array of Technology and Systems Options for Ecologically Responsible Aviation** A. Isikveren, D. Empl, U. Kling, K. Ploetner, C. Pornet, Bauhaus Luftfahrt e.V., Ottobrunn, Germany			

Monday, 22 June 2015		
54-ATIO-8 1400 - 1600 hrs	Transformational Flight - Enabling the Next Billion Dollar Aviation Market through Autonomy	Metropolitan Ballroom

Moderator: Mark Ballin, NASA Langley Research Center

Panelists:

Danette Allen
Autonomy Incubator, NASA Langley Research Center

Nick Roy
MIT

Craig Woolsey
Virginia Tech

Monday, 22 June 2015						
55-CFD-5	Unstructured High-Order Methods II					Grand Ballroom A
Chaired by: H. HUYNH, NASA Glenn Research Center and A. JAMESON, Aeronautics and Astronautics						
1400 hrs AIAA-2015-2444 **A Survey of the Isentropic Euler Vortex Problem using High-Order Methods** S. Spiegel, H. Huynh, J. DeBonis, NASA Glenn Research Center, Cleveland, OH	1430 hrs AIAA-2015-2445 **High-Order Hyperbolic Residual-Distribution Schemes on Arbitrary Triangular Grids** A. Mazaheri, NASA Langley Research Center, Hampton, VA; H. Nishikawa, National Institute of Aerospace, Hampton, VA	1500 hrs AIAA-2015-2446 **High-Order Methods for Conservation Laws Employing Embedded Structured Element Method on Unstructured Hexahedral Grid** J. Choi, University of Maryland, College Park, College Park, MD	1530 hrs AIAA-2015-2447 **Stabilization of High-Order Methods for Unstructured Grids with Local Fourier Spectral Filtering: high-Re Simulations in Coarse Meshes** M. López-Morales, A. Jameson, Stanford University, Stanford, CA	1600 hrs AIAA-2015-2448 **A Class of Rosenbrock Methods for a Reconstructed Discontinuous Galerkin Method for the Unsteady Compressible Flows** X. Liu, H. Luo, North Carolina State University, Raleigh, NC; Y. Xia, Idaho National Laboratory, Idaho Falls, ID		

Monday, 22 June 2015						
56-CFD-6	Novel Discretizations					Grand Ballroom B
Chaired by: J. EKATERIN, IACM and M. CHOUDHARI, NASA-Langley Research Center						
1400 hrs AIAA-2015-2449 **Investigations of a New Scheme for Wave Propagation** D. Fan, P. Roe, University of Michigan, Ann Arbor, Ann Arbor, MI	1430 hrs AIAA-2015-2450 **Active Flux for Advection Diffusion** H. Nishikawa, National Institute of Aerospace, Hampton, VA	1500 hrs AIAA-2015-2451 **Alternative Formulations for First-, Second-, and Third-Order Hyperbolic Navier-Stokes Schemes** H. Nishikawa, National Institute of Aerospace, Hampton, VA	1530 hrs AIAA-2015-2452 **Recent Progresses on a Meshless Euler Solver for Compressible Flows** Z. Duan, Z. Wang, University of Kansas, Lawrence, Lawrence, KS; B. Vu, NASA Kennedy Space Center, Cape Canaveral, FL	1600 hrs AIAA-2015-2453 **A Versatile Nonlinear Predictive Modeling Approach** M. Liou, NASA Glenn Research Center, Cleveland, OH; W. Yao, Queen's University, Belfast, United Kingdom	1630 hrs AIAA-2015-2454 **Dynamical selective filtering for the Lattice Boltzmann Method** S. Marie, National Conservatory of Arts and Crafts, Paris, France; X. Gloerfelt, Paris Institute of Technology, Paris, France	

Monday, 22 June 2015						
57-CFD-7	Interdisciplinary CFD I					Coral
Chaired by: L. MARTINELLI, Princeton University and S. EYI, Middle East Technical University						
1400 hrs AIAA-2015-2455 **CFD-based Gust Load Analysis for a Free-flying Flexible Passenger Aircraft in Comparison to a DLM-based Approach** L. Reimer, M. Ritter, R. Heinrich, W. Krüger, German Aerospace Center (DLR), Braunschweig, Germany	1430 hrs AIAA-2015-2456 **Influence of Wall Vibration on the Aero Performance of Transonic Diffuser** C. Yao, G. Zhang, F. Xu, Z. Liu, Harbin Institute of Technology, Harbin, China	1500 hrs AIAA-2015-2457 **Numerical Analysis of Synthetic Jet in Crossflow** A. Gupte, A. Pradeep, P. Mujumdar, Indian Institute of Technology Bombay, Mumbai, India	1530 hrs AIAA-2015-2458 **Performances of Newton and Preconditioned Newton-GMRES Methods in Hypersonic Flow Solutions** Y. Muslubas, S. Eyi, Middle East Technical University, Ankara, Turkey			

Monday, 22 June 2015						
58-CFD-8	**Turbulence Modeling and Uncertainty Quantification**					**Emerald**
Chaired by: D. YODER, NASA Glenn Research Center and K. DURAISAMY, Stanford University						
1400 hrs AIAA-2015-2459 **Quantification of Turbulence Modeling Uncertainties Using Full Field Inversion** E. Parish, K. Duraisamy, University of Michigan, Ann Arbor, Ann Arbor, MI	1430 hrs AIAA-2015-2460 **Machine Learning Methods for Data-Driven Turbulence Modeling** Z. Zhang, K. Duraisamy, University of Michigan, Ann Arbor, Ann Arbor, MI	1500 hrs AIAA-2015-2461 **Uncertainty Quantification of Turbulence Model Closure Coefficients for Transonic Wall-Bounded Flows** J. Schaefer, T. West, S. Hosder, Missouri University of Science and Technology, Rolla, MO; C. Rumsey, J. Carlson, W. Kleb, NASA Langley Research Center, Hampton, VA	1530 hrs AIAA-2015-2462 **A Scale-Adaptive Variant of the Spalart-Allmaras Eddy-Viscosity Model** J. Coder, Pennsylvania State University, State College, PA	1600 hrs AIAA-2015-2463 **PANS Simulations of Turbulent Separated Flow over a Wall-mounted Hump** D. Higuera Caubilla, University of Toulouse, Toulouse, France; P. Razi, Texas A&M University, College Station, TX; S. Sekhar, N. Mansour, NASA Ames Research Center, Moffett Field, CA; S. Girimaji, Texas A&M University, College Station, TX	1630 hrs AIAA-2015-2464 **A logarithmic formulation for low-Reynolds number turbulence models with adaptive wall-functions** L. Frazza, A. Hay, D. Pelletier, École Polytechnique de Montréal, Montréal, Canada	

Monday, 22 June 2015		
59-F360-2/CASE-2 **1400 - 1700 hrs**	**Whatever Happened to the Four-Year Airplane?**	**Grand Ballroom E**

Moderator: Craig Willis, Group Head for Systems Verification, Gulfstream G500/G600 Program, Gulfstream Aerospace Corporation

Panelists:

Catherine Ferrie Kilmain
Executive Vice President of Engineering
Bell Helicopter

Eric Schrock
Deputy Director, Technology Development and Product Integration
Lockheed Martin Corporation

Monday, 22 June 2015						
60-FD-6/PDL-2	**Plasma Aerodynamics & Flow Control II**					**Govenors Lecture Hall**
Chaired by: D. WILLIAMS, Illinois Institute of Technology and J. LITTLE, The University of Arizona						
1400 hrs AIAA-2015-2465 **PIV and Electric Characterization of a Plasma Synthetic Jet Actuator** F. Laurendeau, F. Chedevergne, O. Léon, ONERA, Toulouse, France	1430 hrs AIAA-2015-2466 **Adjoint Optimization of the Spatial Profile of Steady Energy Deposition for Supersonic Drag Reduction** R. Miles, C. Limbach, Princeton University, Princeton, NJ	1500 hrs AIAA-2015-2467 **Modeling of Saw-tooth DBD Plasma Actuators for Flow Control Simulations** P. Milan, F. Demers, H. Vo, École Polytechnique de Montréal, Montréal, Canada	1530 hrs AIAA-2015-2468 **Ns-DBD plasma actuator induced density gradient on a laminar boundary layer** R. Winkel, G. Correale, Delft University of Technology, Delft, The Netherlands	1600 hrs AIAA-2015-2469 **Contribution of large-scale vortex and fine-scale turbulent structure in separated flow control using DBD plasma actuator** K. Asano, University of Tokyo, Sagamihara, Japan; K. Asada, Ohio State University, Columbus, OH; H. Kato, University of Tokyo, Sagamihara, Japan; M. Sato, T. Nonomura, K. Fujii, Japan Aerospace Exploration Agency (JAXA), Sagamihara, Japan	1630 hrs AIAA-2015-2470 **Flow control over a backward facing step by ns-DBD plasma actuator** G. Correale, Delft University of Technology, Delft, The Netherlands	

Monday, 22 June 2015						
61-FD-7	**Boundary Layer Transition - Progress and Challenges**					**Sapphire**
Chaired by: M. MALIK, NASA-Langley Research Center and M. ROGERS, NASA-Ames Research Center						
1400 hrs AIAA-2015-2471 **Receptivity: The Inspiration of Mark Morkovin (Invited)** H. Reed, W. Saric, Texas A&M University, College Station, TX	1430 hrs AIAA-2015-2472 **Boundary-Layer Transition Prediction for Laminar Flow Control (Invited)** J. Crouch, The Boeing Company, Seattle, WA	1500 hrs Oral Presentation **Hypersonic Boundary-Layer Transition: Towards Mechanism-Based Prediction Methods (Invited)** S. Schneider, Purdue University, West Lafayette, IN	1530 hrs AIAA-2015-2473 **Receptivity of Hypersonic Boundary Layers to Acoustic and Vortical Disturbances (Invited)** P. Balakumar, NASA Langley Research Center, Hampton, VA	1600 hrs AIAA-2015-2474 **Extending the Gamma-Rethetat Correlation based Transition Model for Crossflow Effects (Invited)** R. Langtry, The Boeing Company, Seattle, WA	1630 hrs AIAA-2015-2475 **CFD Transition Modeling: Blending Classical Methods with Modern Tools (Invited)** J. Coder, M. Maughmer, Pennsylvania State University, State College, PA	1700 hrs AIAA-2015-2476 **Development and Application of Transition Prediction Techniques in an Unstructured CFD Code (Invited)** A. Krumbein, N. Krimmelbein, C. Grabe, German Aerospace Center (DLR), Cologne, Germany

Monday, 22 June 2015						
62-FD-8	**Vortex Flows**					**Senators Lecture Hall**
Chaired by: Z. ZHENG, The University of Kansas and R. GORDNIER, Air Force Reseach Laboratory						
1400 hrs AIAA-2015-2477 **Vortex Breakdown of Compressible Swirling Flows in a Finite-Length Straight Circular Pipe** Z. Rusak, J. Choi, Rensselaer Polytechnic Institute, Troy, NY; S. Wang, University of Auckland, Auckland, New Zealand	1430 hrs AIAA-2015-2478 **Numerical Study of the Formation of Concentric Vortex Rings** V. Sadri, P. Krueger, Southern Methodist University, Dallas, TX	1500 hrs AIAA-2015-2479 **Rotating Cylindrical Bodies at Low Re** M. Callender, Middle Tennessee State University, Murfreesboro, TN	1530 hrs AIAA-2015-2480 **Investigation of the flow dynamics in a channel constricted by periodic hills** X. Gloerfelt, Paris Institute of Technology, Paris, France; P. Cinnella, University of Salento, Lecce, Italy	1600 hrs AIAA-2015-2481 **Temporal Evolution of Turbulent Eddies in a Compressible Jet in Crossflow Measured using Pulse-Burst PIV** S. Beresh, J. Wagner, J. Henfling, R. Spillers, B. Pruett, Sandia National Laboratories, Albuquerque, NM		

Monday, 22 June 2015						
63-FD-9	**Active and Passive Flow Control**					**Topaz**
Chaired by: K. GRANLUND, Air Force Research Laboratory and M. AMITAY, Rensselaer Polytechnic Institute						
1400 hrs AIAA-2015-2482 **Interactions of a Dynamic Vortex Generator with a Cross-flow: A Numerical Study** R. Cummings, Rensselaer Polytechnic Institute, Troy, NY; D. Clingman, The Boeing Company, Seattle, WA; O. Sahni, Rensselaer Polytechnic Institute, Troy, NY	1430 hrs AIAA-2015-2483 **Interactions of a Dynamic Vortex Generator with a Cross-flow: An Experimental Study** C. Leong, E. Cruz, Rensselaer Polytechnic Institute, Troy, NY; D. Clingman, The Boeing Company, Seattle, WA; M. Amitay, Rensselaer Polytechnic Institute, Troy, NY	1500 hrs AIAA-2015-2484 **Flow Control in a Diffuser at Transonic Conditions** J. Gartner, M. Amitay, Rensselaer Polytechnic Institute, Troy, NY	1530 hrs AIAA-2015-2485 **The Effects of Sweeping Jet Actuator Parameters on Flow Separation Control** M. Koklu, NASA Langley Research Center, Hampton, VA			

Monday, 22 June 2015						
64-MAO-2	**Vehicle Design Applications II**					**Madrid**
Chaired by: S. CHOI, Virginia Polytechnic Institute and State University and S. FERGUSON, North Carolina State University						
1400 hrs AIAA-2015-2486 **The Value of Semi-Empirical Analysis Models in Aircraft Design** S. Brandt, M. Post, U.S. Air Force Academy, Colorado Springs, CO; D. Hall, DHC Engineering, San Mateo, CA; F. Gilliam, Lipscomb University, Nashville, TN; T. Jung, T. Yechout, U.S. Air Force Academy, Colorado Springs, CO	1430 hrs AIAA-2015-2487 **Coupled Adjoint Aerostructural Wing Optimization Using Quasi-Three-Dimensional Aerodynamic Analysis** A. Elham, Delft University of Technology, Delft, The Netherlands; M. van Tooren, University of South Carolina, Columbia, Columbia, SC	1500 hrs AIAA-2015-2488 **Optimal variable stiffness distribution for a composite plate with a row of holes subjected to tension/shear load cases** M. van Tooren, University of South Carolina, Columbia, Columbia, SC; A. Elham, Delft University of Technology, Delft, The Netherlands; R. Harik, University of South Carolina, Columbia, Columbia, SC	1530 hrs AIAA-2015-2489 **Simulation-Based Optimal Sensor/Actuator Positioning on a Fin-Like Structure** N. Pedramasl, M. Sahin, Middle East Technical University, Cankaya, Turkey; E. Acar, TOBB University of Economics and Technology, Sogutozu, Turkey	1600 hrs AIAA-2015-2490 **Concurrent Optimization of a Feed-Forward Gust Loads Controller and Minimization of Wing Box Structural Mass on an Aircraft with Active Winglets** A. Wildschek, Airbus, Ottobrunn, Germany	1630 hrs AIAA-2015-2491 **Free-Form Aerodynamic Wing Optimization Using Mathematically-Derived Design Variables** D. Poole, C. Allen, T. Rendall, University of Bristol, Bristol, United Kingdom

Monday, 22 June 2015						
65-MST-3	**Air Traffic Management**					**Travertine**
Chaired by: J. SMITH						
1400 hrs AIAA-2015-2492 **Scalable Multidimensional Uncertainty Evaluation Approach to Strategic Air Traffic Flow Management** J. Xie, Y. Wan, University of North Texas, Denton, TX	1430 hrs AIAA-2015-2493 **Understanding Air Transportation Market Dynamics using a Search Algorithm for Calibrating Travel Demand and Price** V. Kumar, B. Horio, A. DeCicco, S. Hasan, V. Stouffer, LMI, McLean, VA; J. Smith, NASA Langley Research Center, Hampton, VA; et al.	1500 hrs AIAA-2015-2494 **Development of an ATC Tower Simulator to Simulate Ground Operations** Z. Chua, University of Toulouse, Toulouse, France; F. Andre, M. Cousy, French Civil Aviation University, Toulouse, France	1530 hrs AIAA-2015-2495 **Multi-Agent Based Air Traffic Simulation System** Z. Yue, D. Sui, Y. Lin, J. Zhang, Nanjing University of Aeronautics and Astronautics, Nanjing, China	1600 hrs AIAA-2015-2496 **Estimating Benefits of Aviation Alternative Fuels at the System, Route, and Airport Level** B. Miller, C. Murphy, Metron Aviation, Inc., Dulles, VA; C. Villa, A. Filizola, National Civil Aviation Agency (ANAC), Brasilia, Brazil		

Monday, 22 June 2015						
66-MST-4	**Guidance, Control, and Dynamics I**					**Wyeth**
Chaired by: R. BOTEZ, Ecole de Technologie Superieure						
1400 hrs AIAA-2015-2497 **A New Method for Tuning PI Gains for Position Control of BLDC Motor Based Wing Morphing Actuators** R. Botez, S. Khan, University of Québec, Montréal, Canada	1430 hrs AIAA-2015-2498 **Longitudinal Stability Augmentation of Seaplanes in Planing** K. Ito, Ghent University, Ghent, Belgium; T. Hirayama, Yokohama National University, Yokohama, Japan; T. Sakurai, Hiyoh Aircraft Manufacturing and Development Company, Tokyo, Japan; T. Dhaene, Ghent University, Ghent, Belgium	1500 hrs AIAA-2015-2499 **Control validation of a morphing wing in an open loop architecture** M. Tchatchueng Kammegne, D. Nguyen, R. Botez, University of Québec, Montréal, Canada	1530 hrs AIAA-2015-2500 **A Comparative Study of a Pseudo-Five Degree of Freedom and an Adjoint Model Against a Six Degree of Freedom Model for Fidelity Assessment** E. Sezer, M. Nalci, ROKETSAN Missile Industries, Inc., Ankara, Turkey; A. Kutay, Middle East Technical University, Ankara, Turkey			

Monday, 22 June 2015						
67-PDL-3	**Plasma Computational Methods I**					**Monet Ballroom**
Chaired by: M. WHITE, Ohio Aerospace Institute						
1400 hrs AIAA-2015-2501 **A Non-iterative Hyperbolic, First-order Conservation Law Approach to Divergence-free Solutions to Maxwell's Equations** R. Thompson, T. Moeller, University of Tennessee, Tullahoma, Tullahoma, TN	1430 hrs AIAA-2015-2502 **Equivalent Electrical Circuit for a 1D Plasma Engine** N. Ramesh, Sri Jagadguru Chandrashekaranatha Swamiji Institute of Technology, Chickballapur, India; P. Moses John Christy Appolo, T. Sheshadri, Indian Institute of Science, Bengaluru, India	1500 hrs AIAA-2015-2503 **Investigations of Flow over a Hemisphere using Numerical Simulations** C. Tam, T. Madden, Air Force Research Laboratory, Kirtland AFB, NM; B. Thurow, Auburn University, Auburn, AL	1530 hrs AIAA-2015-2504 **CFD Validation of PIV-based Estimation of DBD Plasma-Actuation Force** Q. Zhai, Z. Zhang, J. Cai, Northwestern Polytechnical University, Xi'an, China; F. Liu, S. Luo, University of California, Irvine, Los Angeles, CA			

Monday, 22 June 2015						
68-TP-3	**Ablation II**					**Rosetta**
Chaired by: N. DOUGHERTY, ERC Incorporated and A. HASHEMI, Lockheed Martin Space Systems						
1400 hrs AIAA-2015-2505 **Effects of Water Presence on Low Temperature Phenomenon in Porous TPS Materials** D. Smith, A. Omidy, H. Weng, University of Kentucky, Lexington, Lexington, KY; T. White, ERC, Inc., Moffett Field, CA; A. Martin, University of Kentucky, Lexington, Lexington, KY	1430 hrs AIAA-2015-2506 **A Multi-Dimensional Finite Element Based Solver for Decomposing and Non-Decomposing Thermal Protection Systems** M. Howard, B. Blackwell, Sandia National Laboratories, Albuquerque, NM	1500 hrs AIAA-2015-2507 **Thermal Protection System Mass Estimating Relationships For Blunt-Body, Earth Entry Spacecraft** S. Sepka, ERC, Inc., Moffett Field, CA; J. Samareh, NASA Langley Research Center, Hampton, VA	1530 hrs AIAA-2015-2508 **Development and Qualification of Lightweight Ablator Aeroshell BBM for Martian Mission** K. Fujita, T. Suzuki, T. Aoki, T. Ogasawara, Y. Ishida, Japan Aerospace Exploration Agency (JAXA), Chofu, Japan			

Monday, 22 June 2015						
69-TP-4	**Aerothermodynamics I**					**Steuben**
Chaired by: C. JOHNSTON, NASA-Langley Research Center						
1400 hrs AIAA-2015-2509 **Modeling Fidelity for Oxygen Nonequilibrium Thermochemistry in Reflected Shock Tube Flows** K. Neitzel, D. Andrienko, I. Boyd, University of Michigan, Ann Arbor, Ann Arbor, MI	1430 hrs AIAA-2015-2510 **State Specific Modeling of the Energy Transfer in Nitrogen Shocks using High Fidelity Models** T. Zhu, Z. Li, N. Parsons, Pennsylvania State University, State College, PA; D. Levin, M. Panesi, University of Illinois, Urbana-Champaign, Urbana, IL	1500 hrs AIAA-2015-2511 **DSMC Modeling of Nonequilibrium Electronic Excitation and Emission for Hypersonic Sensor Applications** J. Burt, E. Josyula, Air Force Research Laboratory, Wright-Patterson AFB, OH	1530 hrs AIAA-2015-2512 **Measurement of Ultraviolet Radiative Heating Augmentation in HIEST Reflected Shock Tunnel** B. Cruden, A. Brandis, ERC, Inc., Moffett Field, CA; J. Grinstead, J. Olejniczak, NASA Ames Research Center, Moffett Field, CA; L. Kirk, R. Lillard, NASA Johnson Space Center, Houston, TX; et al.	1600 hrs AIAA-2015-2513 **Comparison of Two Hybrid RC-Models for Prediction of Nonequilibrium Radiation from Strong Shock Waves** S. Surzhikov, Russian Academy of Sciences, Moscow, Russia	1630 hrs AIAA-2015-2514 **Radiative Heat Flux from Metallic Species in Free Piston Shock Tunnel HIEST** S. Nomura, H. Takayanagi, K. Fujita, H. Tanno, Japan Aerospace Exploration Agency (JAXA), Chofu, Japan	

Monday, 22 June 2015		
70-NW-2 **1530 - 1600 hrs**	**Networking Coffee Break**	**Meeting Room Foyers**

Monday, 22 June 2015		
71-AIAA-1 **1730 - 1900 hrs**	**Speed Geek Networking Event and Reception**	**Chantilly Ballroom Foyer**
This casual, high-energy session will give you the opportunity to engage one-on-one with speakers and get a glimpse of things to come in the week ahead at AIAA AVIATION 2015. You'll travel from speaker to speaker in small groups, listen to a 5-minute overview of their topic, and then have five minutes to have your questions answered. Open to all conference attendees, but space is limited to the first 500 participants. Sponsored by: Lockheed Martin		

Monday, 22 June 2015		
72-CASE-3 **1730 - 1900 hrs**	**CASE Networking Social**	**Morocco**
Sponsored by Boeing Commercial Airplanes		

Monday, 22 June 2015		
73-LEC-1 **1730 - 1830 hrs**	**Fluid Dynamics Award Lecture**	**Grand Ballroom D**
Searching for Truthiness in Computational Fluid Dynamics **Philip Roe** Professor, Department of Aerospace Engineering University of Michigan		

Monday, 22 June 2015		
74-RLA-1 **1830 - 1930 hrs**	**Rising Leaders in Aerospace Networking Reception**	**Emerald**
The reception will kick off the Rising Leaders in Aerospace events and is a perfect opportunity for young leaders to mingle with others who will be participating in AIAA AVIATION 2015 as attendee, presenter, or veteran professional Come meet other participants in a casual environment. You're bound to see them again.		

Tuesday, 23 June 2015		
75-SB-2 0730 - 0800 hrs	Speakers' Briefing	Session Rooms

Tuesday, 23 June 2015		
76-PLNRY-2 0800 - 0900 hrs	Plenary Panel	Chantilly Ballroom West

NextGen: A Model of Stakeholder Engagement

Bill Ayer
Retired Chairman and CEO
Alaska Air Group

Edward L. Bolton Jr.
Assistant Administrator for NextGen
Federal Aviation Administration

Tuesday, 23 June 2015						
77-AA-11	Fan Noise					Fleur-de-lis A
Chaired by: S. GLEGG, Florida Atlantic University						
0900 hrs AIAA-2015-2515 **Extrapolation of RANS flow data for improved analytical fan tone prediction** R. Jaron, A. Moreau, S. Guerin, German Aerospace Center (DLR), Berlin, Germany	0930 hrs AIAA-2015-2516 **System Noise Prediction of the DGEN 380 Turbofan Engine** J. Berton, NASA Glenn Research Center, Cleveland, OH	1000 hrs AIAA-2015-2517 **Fan noise scaling of static data using semi-analytical methods and assessment against experimental data** V. Blandeau, V. Pastorelli, Airbus, Toulouse, France; A. Moreau, S. Guerin, German Aerospace Center (DLR), Berlin, Germany	1030 hrs AIAA-2015-2518 **Validation of a Moving-Body High-Order Immersed Boundary Method for the Multiple Pure Tone Noise Generated by Supersonic Rotor Cascades** B. Pimenta, R. Bobenrieth Miserda, University of Brasília, Brasília, Brazil	1100 hrs AIAA-2015-2519 **Effect of Stator Vane Sweep on High Frequency Fan Noise and Comparison with Experiment** A. Kozlov, H. Atassi, University of Notre Dame, Notre Dame, IN		

Tuesday, 23 June 2015						
78-AA-12	Duct Acoustics II					Fleur-de-lis B
Chaired by: C. YEN, Jacobs Technology						
0900 hrs AIAA-2015-2520 **Aero-Acoustic Performance of Adaptive Nacelle Inlet** F. Majić, G. Efraimsson, C. O'Reilly, Royal Institute of Technology (KTH), Stockholm, Sweden	0930 hrs AIAA-2015-2521 **Theoretical Study of Sound Propagation in Lined Duct with Rigid Splices Using Wiener-Hopf Method** X. Liu, H. Jiang, X. Huang, Peking University, Beijing, China	1000 hrs AIAA-2015-2522 **Sound Propagation in Lined Annular Ducts with Mean Swirling Flow** A. Maldonado, R. Astley, J. Coupland, G. Gabard, University of Southampton, Southampton, United Kingdom; D. Sutliff, NASA Glenn Research Center, Cleveland, OH	1030 hrs AIAA-2015-2523 **Upstream Radiation from Supersonic Buried-nozzle Jets via Scattering at the Shroud Edge** A. Samanta, Indian Institute of Science, Bangalore, India; J. Freund, University of Illinois, Urbana-Champaign, Urbana, IL	1100 hrs AIAA-2015-2524 **Numerical Predictions of Mode Reflections in an Open Circular Duct: Comparison with Theory** M. Dahl, NASA Glenn Research Center, Cleveland, OH; D. Hixon, University of Toledo, Toledo, OH		

Tuesday, 23 June 2015						
79-AA-13	Trailing Edge Noise II					Inverness
Chaired by: J. GALLMAN, Gulfstream Aerospace Corporation						
0900 hrs AIAA-2015-2525 **Prediction of Porous Trailing Edge Noise Reduction via Acoustic Perturbation Equations and Volume Averaging** B. Fassmann, C. Rautmann, R. Ewert, J. Delfs, German Aerospace Center (DLR), Braunschweig, Germany	0930 hrs AIAA-2015-2526 **Prediction of Broadband Trailing-Edge Noise Based on Blake Model and Amiet Theory** O. Stalnov, C. Paruchuri, P. Joseph, University of Southampton, Southampton, United Kingdom	1000 hrs AIAA-2015-2527 **Parametric Investigations of Tonal Trailing-Edge Noise Generation by Low-Reynolds Number Airfoils. Part I - Experimental Studies** G. Yakhina, M. Roger, École Centrale de Lyon, Lyon, France; L. Nguyen, V. Golubev, Embry-Riddle Aeronautical University, Daytona Beach, FL	1030 hrs AIAA-2015-2528 **Parametric Investigations of Tonal Trailing-Edge Noise Generation by Low-Reynolds Number Airfoils. Part II - Numerical Studies** L. Nguyen, W. Hiner, S. Salehian, V. Golubev, R. Mankbadi, Embry-Riddle Aeronautical University, Daytona Beach, FL; G. Yakhina, École Centrale de Lyon, Lyon, France; et al.	1100 hrs AIAA-2015-2529 **A Model for Jet-Surface Interaction Noise Using Physically Realizable Upstream Turbulence Conditions** M. Afsar, Imperial College London, London, United Kingdom; S. Leib, Ohio Aerospace Institute, Cleveland, OH	1130 hrs AIAA-2015-2530 **On the Adjoint-based Control of Trailing-Edge Turbulence and Noise Minimization via Porous Material** B. Zhou, N. Gauger, Technical University of Kaiserslautern, Kaiserslautern, Germany; S. Koh, M. Meinke, W. Schroeder, RWTH Aachen University, Aachen, Germany	1200 hrs AIAA-2015-2531 **Experimental Validation of a Semi-Analytical Trailing-Edge Noise Model Including Broadband Scattering** K. Kucukcoskun, J. Christophe, C. Schram, von Kármán Institute for Fluid Dynamics, Rhode-Saint-Genèse, Belgium; S. Moreau, University of Sherbrooke, Sherbrooke, Canada

Tuesday, 23 June 2015						
80-AA-14	**Jet Noise Prediction III**					**Lalique**
Chaired by: N. MURRAY, The University of Mississippi						
0900 hrs AIAA-2015-2532 **Analysis of Intermittency of Supersonic Jet Noise with Synchronized LES** U. Sasidharan Nair, L. Agostini, D. Gaitonde, Ohio State University, Columbus, OH	0930 hrs AIAA-2015-2533 **Aeroacoustic Analysis of a Helicopter Engine Jet Including a Realistic Nozzle Geometry** M. Cetin, S. Koh, M. Meinke, W. Schroeder, RWTH Aachen University, Aachen, Germany	1000 hrs AIAA-2015-2534 **Large-scale structure evolution and sound generation in a hotjet** F. Feng, Q. Wang, China Academy of Aerospace Aerodynamics, Beijing, China	1030 hrs AIAA-2015-2535 **Large eddy simulation for jet noise: the importance of getting the boundary layer right** G. Brès, Cascade Technologies, Inc., Palo Alto, CA; V. Jaunet, M. Le Rallic, P. Jordan, National Center for Scientific Research (CNRS), Poitiers, France; T. Colonius, California Institute of Technology, Pasadena, CA; S. Lele, Stanford University, Stanford, CA	1100 hrs AIAA-2015-2536 **Empiricism-free noise calculation from LES solution based on Goldstein generalized acoustic analogy: volume noise sources and meanflow effects** V. Semiletov, S. Karabasov, A. Chintagunta, A. Markesteijn, Queen Mary University of London, London, United Kingdom	1130 hrs AIAA-2015-2537 **Spatial stability characteristics of non-circular jets** F. Lajús, Federal University of Santa Catarina, Florianópolis, Brazil; A. Cavalieri, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil; C. Deschamps, Federal University of Santa Catarina, Florianópolis, Brazil	

Tuesday, 23 June 2015						
81-AA-15	**CAA Numerical Techniques II**					**Obelisk A**
Chaired by: X. LI, Beihang University						
0900 hrs AIAA-2015-2538 **Coupled Overset Unstructured Discontinuous Galerkin Method for Launch Environment Acoustics Prediction (Invited)** R. Harris, CFD Research Corporation, Huntsville, AL; E. Collins, A. Sescu, E. Luke, Mississippi State University, Mississippi State, MS	0930 hrs AIAA-2015-2539 **Optimized Explicit Dissipation Operators for Computational Aeroacoustics** N. Mansouri, D. Hixon, University of Toledo, Toledo, OH	1000 hrs AIAA-2015-2540 **DRP schemes perform poorly for decaying or growing oscillations** E. Brambley, University of Cambridge, Cambridge, United Kingdom	1030 hrs AIAA-2015-2541 **Towards Cascade Trailing-Edge Noise Modeling Using a Mode-Matching Technique** M. Roger, École Centrale de Lyon, Ecully, France; S. Moreau, GAUS, Sherbrooke, Canada	1100 hrs AIAA-2015-2542 **Zero-Average Source Terms for Multidimensional Nonlinear Disturbance Equations** D. Hixon, University of Toledo, Toledo, OH		

Tuesday, 23 June 2015						
82-ACD-2	**Aircraft Design Methods and Tools**					**Wyeth**
Chaired by: A. CHAPUT, University of Texas at Austin						
0900 hrs AIAA-2015-2543 **Student Air Vehicle Design and Analysis - A Systems Engineering Model Based Approach** A. Chaput, University of Texas, Austin, Austin, TX	0930 hrs AIAA-2015-2544 **Update on HCDstruct - A Tool for Hybrid Wing Body Conceptual Design and Structural Optimization** F. Gern, NASA Langley Research Center, Hampton, VA	1000 hrs AIAA-2015-2545 **Simultaneous Aircraft Design and Trip Assignment under Design Parameter and Demand Uncertainty** P. Govindaraju, W. Crossley, Purdue University, West Lafayette, IN	1030 hrs AIAA-2015-2546 **Virtual flight testing in an aircraft sizing and optimization process** P. Schmollgruber, N. Bartoli, ONERA, Toulouse, France; Y. Gourinat, University of Toulouse, Toulouse, France	1100 hrs AIAA-2015-2547 **User Defined Components in the OpenVSP Parametric Geometry Tool** R. McDonald, California Polytechnic State University, San Luis Obispo, CA; J. Gloudemans, Self, San Mateo, CA	1130 hrs AIAA-2015-2548 **Development of an Interactive Wave Drag Capability for the OpenVSP Parametric Geometry Tool** M. Waddington, R. McDonald, California Polytechnic State University, San Luis Obispo, CA	

Tuesday, 23 June 2015						
83-AFM-5	**Aircraft Flight Dynamics, Control, Handling Qualities and Performance II**					**Plum Blossom A**
Chaired by: M. GRANT, Purdue University						
0900 hrs AIAA-2015-2549 **Damage Mitigating on a Large Rotorcraft using Load Alleviating Flight Control Laws** D. Caudle, J. Horn, E. Keller, Pennsylvania State University, State College, PA; C. Thaiss, C. McColl, Technical Data Analysis, Inc., Marietta, GA	0930 hrs AIAA-2015-2550 **Aerobatic Maneuvers of a Conventional and Compound Rotorcraft - Flight Path Generation and Dynamic Simulation** A. Thorsen, J. Horn, Pennsylvania State University, State College, PA	1000 hrs AIAA-2015-2551 **Propeller Torque Effect on Cruise Trim of Standard and Mass-Actuated Airplane** S. Erturk, A. Dogan, University of Texas, Arlington, Arlington, TX	1030 hrs AIAA-2015-2552 **Energy Gain From an Atmosphere in Motion - Dynamic Soaring and Regen-electric Flight Compared** J. Barnes, Pelican Aero Group, San Pedro, CA	1100 hrs AIAA-2015-2553 **Interactions of Aircraft Design and Control: Actuators Sizing and Optimization for an Unstable Blended Wing-Body** Y. Denieul, D. Alazard, J. Bordeneuve, University of Toulouse, Toulouse, France; C. Toussaint, ONERA, Toulouse, France; G. Taquin, Airbus, Toulouse, France	1130 hrs AIAA-2015-2554 **Finite Series Based Model Reference Adaptive Control** R. Gezer, ROKETSAN Missile Industries, Inc., Ankara, Turkey; A. Kutay, Middle East Technical University, Ankara, Turkey	

Tuesday, 23 June 2015						
84-AFM-6	**Aeroservoelastic (ASE) and Aerodynamic Prediction Methods**					**Plum Blossom B**
Chaired by: A. DA RONCH, University of Southampton and T. RICHARDSON, University of Bristol						
0900 hrs AIAA-2015-2555 **Adaptive Chebyshev Neural Control of a Multi-Input Aeroelastic System Despite Gust Load** P. Ghorawat, University of Nevada, Las Vegas, Las Vegas, NV; K. Lee, Catholic Kwandong University, Gangnung, South Korea; S. Singh, University of Nevada, Las Vegas, Las Vegas, NV	0930 hrs AIAA-2015-2556 **Modeling and Simulation for Autonomous Aerial Refueling Using a Probe-Drogue System** H. Wang, X. Dong, J. Liu, J. Wang, Air Force Engineering University, Xi'an, China	1000 hrs AIAA-2015-2557 **Pilot In The Loop Aeroservoelastic Simulation In Support To The Conceptual Design Of A Fly By Wire Airplane** F. Bocola, V. Muscarello, G. Quaranta, P. Masarati, Technical University of Milan, Milano, Italy	1030 hrs AIAA-2015-2558 **Aero structural modeling of a wing using CATIA V5 and XFLR5 software and experimental validation using the Price- Païdoussis wing tunnel** D. Communier, M. Salinas, O. Carranza Moyao, R. Botez, University of Québec, Montréal, Canada	1100 hrs AIAA-2015-2559 **On the Calculation of Pitch Damping Stability Derivatives of Aircrafts Using Unsteady Sensitivity Equations** C. Guo, Y. Ren, Tsinghua University, Beijing, China		

Tuesday, 23 June 2015						
85-AMT-5/GT-5	**Model Attitude, Deformation, and Data Acquisition Techniques**					**Obelisk B**
Chaired by: R. GUYTON, USAF Wright Lab						
0900 hrs AIAA-2015-2560 **Temperature Measurement at the Exit of Annular Combustor with Slinger in Turbojet Engine** D. Liu, J. Jin, F. Wang, W. Jin, Beihang University, Beijing, China	0930 hrs AIAA-2015-2561 **NASA Data Acquisition System Software Development for Rocket Propulsion Test Facilities** P. Hebert, D. Davis, M. Turowski, W. Holladay, NASA Stennis Space Center, Stennis, MS; P. Marshall, M. Duncan, Arctic Slope Regional Corporation (ASRC), Stennis, MS; et al.	1000 hrs Oral Presentation **New Wings level Yaw Capability in the AEDC PWT 16T Tunnel** B. Mills, Arnold Engineering Development Complex, Tullahoma, TN	1030 hrs Oral Presentation **Model Deformation Measurements on a Flexible Wing** R. Guyton, Air Force Research Laboratory, Wright-Patterson AFB, OH	1100 hrs AIAA-2015-2562 **Model Deformation Measurement Capabilities at ETW** H. Quix, J. Semmelmann, M. Wright, European Transonic Windtunnel, Cologne, Germany		

Tuesday, 23 June 2015						
86-AMT-6/GT-6	**Spatially-Resolved Spectroscopic Techniques**					**Edelweiss**
Chaired by: R. BURNS and A. CUTLER, The George Washington University						
0900 hrs AIAA-2015-2563 **WIDECARS Spectra Fitting in a Premixed Ethylene-Air Flame** A. Cutler, E. Gallo, L. Cantu, George Washington University, Washington, DC	0930 hrs AIAA-2015-2564 **Density Scaling and Calibration of FLEET Temperature Measurements** N. Calvert, A. Dogariu, M. Edwards, R. Miles, Princeton University, Princeton, NJ	1000 hrs AIAA-2015-2565 **Precision of FLEET Velocimetry using High-Speed CMOS Camera Systems** C. Peters, Princeton University, Princeton, NJ; P. Danehy, B. Bathel, NASA Langley Research Center, Hampton, VA; N. Jiang, Spectral Energies, LLC, Dayton, OH; N. Calvert, R. Miles, Princeton University, Princeton, NJ	1030 hrs AIAA-2015-2566 **Application of FLEET Velocimetry in the NASA Langley 0.3-Meter Transonic Cryogenic Tunnel** R. Burns, National Institute of Aerospace, Hampton, VA; P. Danehy, S. Jones, NASA Langley Research Center, Hampton, VA; B. Halls, N. Jiang, Spectral Energies, LLC, Dayton, OH	1100 hrs AIAA-2015-2567 **Design and Application of Filtered Rayleigh Scattering Experiments for Mixing Studies of New Strut Injectors for Scramjets** C. Ground, D. Thumiah, L. Maddalena, University of Texas, Arlington, Arlington, TX		

Tuesday, 23 June 2015						
87-APA-9	**High Angle of Attack and High Lift Aerodynamics**					**Stemmons C**
Chaired by: D. LACY, Boeing Commercial Airplanes and P. HARTWICH, Boeing Research & Technology						
0900 hrs AIAA-2015-2568 **High Angle of Attack Flight of a Subscale Aerobatic Aircraft** O. Dantsker, M. Selig, University of Illinois, Urbana-Champaign, Urbana, IL	0930 hrs AIAA-2015-2569 **Pressure Measurements of Burst Wakes Over a Three-Element Airfoil** B. Pomeroy, M. Selig, University of Illinois, Urbana-Champaign, Urbana, IL	1000 hrs Oral Presentation **Development Status of the High Lift Common Research Model (HL-CRM): A Representative High Lift Configuration for Transonic Transports** D. Lacy, The Boeing Company, Everett, WA; E. Dickey, A. Sclafani, The Boeing Company, Huntington Beach, CA	1030 hrs AIAA-2015-2570 **Stall Maneuver Simulation of an elastic Transport Aircraft based on Flight Test Data** D. Rohlmann, S. Keye, German Aerospace Center (DLR), Braunschweig, Germany	1100 hrs AIAA-2015-2571 **Numerical Investigation of the Dynamic Behavior of a High-Lift Configuration with Circulation Control** D. Keller, R. Rudnik, German Aerospace Center (DLR), Braunschweig, Germany	1130 hrs AIAA-2015-2572 **Wall modeled large eddy simulation of the VFE-2 delta wing** C. Zwerger, S. Hickel, C. Breitsamter, N. Adams, Technical University of Munich, Munich, Germany	

Tuesday, 23 June 2015						
88-APA-10	**Wind Tunnel and Flight Testing**					**Carpenter Ballroom**
Chaired by: J. PINIER, NASA Langley Research Center and G. GATLIN, NASA Langley Research Center						
0900 hrs AIAA-2015-2573 **Analysis of Single Hole Simulated Battle Damage on a Wing Using Particle Image Velocimetry** M. Almond, P. Render, A. Walker, Loughborough University, Loughborough, United Kingdom	0930 hrs AIAA-2015-2574 **Windspeed and Flow Angle Measurement by Tracking of a Laser-Induced Breakdown Spark** M. Rennie, M. Nguyen, S. Gordeyev, E. Jumper, University of Notre Dame, Notre Dame, IN; A. Cain, Innovative Technology Applications Company, LLC, Chesterfield, MO; T. Hayden, U.S. Air Force Academy, Colorado Springs, CO	1000 hrs AIAA-2015-2575 **Low Speed Wind Tunnel Investigation of a Circulation Control Wing for Enhanced Lift** K. Kanistras, P. Saka, K. Valavanis, N. Vitzilaios, M. Rutherford, University of Denver, Denver, CO	1030 hrs AIAA-2015-2576 **Design of a swept wing wind tunnel model for study of cross-flow instability** J. Serpieri, M. Kotsonis, Delft University of Technology, Delft, The Netherlands	1100 hrs AIAA-2015-2577 **Numerical Replication and Improvement of Wind Tunnel Tests for Design and Off-Design Operating Points of Wind Turbine Airfoils** T. Kuhn, ENERCON GmbH, Bremen, Germany; A. Altmikus, ENERCON GmbH, Aurich, Germany; N. Balaresque, Deutsche WindGuard GmbH, Varel, Germany; M. Lippert, University of Applied Sciences, Kiel, Germany	1130 hrs AIAA-2015-2578 **Development, Startup Operations and Tests of a Propeller Wind Tunnel Test Rig** S. Speck, S. Herbst, H. Kim, F. Stein, M. Hornung, Technical University of Munich, Garching, Germany	1200 hrs AIAA-2015-2579 **Study of the flow field near the AOA sensor of an A320 aircraft** J. Katz, San Diego State University, San Diego, CA

Tuesday, 23 June 2015						
89-APA-11	**Special Session: Low Boom Activities II**					**Stemmons A**
Chaired by: S. CLIFF, NASA-Ames and K. WAITHE, Gulfstream Aerospace Corporation						
0900 hrs AIAA-2015-2580 **Design of Optimum Equivalent-Area Target for High-Fidelity Low-Boom Aircraft Design** C. Ocheltree, S. Choi, Virginia Polytechnic Institute and State University, Blacksburg, VA	0930 hrs AIAA-2015-2581 **Feasibility of Supersonic Aircraft Concepts for Low-Boom and Flight Trim Constraints** W. Li, NASA Langley Research Center, Hampton, VA	1000 hrs AIAA-2015-2582 **Uncertainty Analysis and Robust Design of Low-Boom Concepts using Atmospheric Adjoints** S. Rallabhandi, National Institute of Aerospace, Hampton, VA	1030 hrs AIAA-2015-2583 **Rise Time Prediction of Sonic Boom by Full-Field Simulation with Thermal Nonequilibrium** R. Yamashita, K. Suzuki, University of Tokyo, Kashiwa, Japan	1100 hrs AIAA-2015-2584 **Free Flight Measurement of Aircraft Model using Aero Ballistic Range** A. Iwakawa, D. Furukawa, Y. Aoki, A. Sasoh, Nagoya University, Nagoya, Japan		

Tuesday, 23 June 2015						
90-APA-12	**Weapons Aerodynamics: Missile/Projectile/Guided-Munitions, Carriage and Store Separation I**					**Stemmons B**
Chaired by: C. PASILIAO, AFRL/RWWV and C. ROSEMA, US Army AMRDEC						
0900 hrs AIAA-2015-2585 **Flight Behaviors of a Complex Projectile using a Coupled CFD-based Simulation Technique: Free Motion** J. Sahu, F. Fresconi, Army Research Laboratory, Aberdeen Proving Ground, MD	0930 hrs AIAA-2015-2586 **Effect of Canard Deflection on Fin Performance of a Fin-Stabilized Projectile** S. Silton, Army Research Laboratory, Aberdeen Proving Ground, MD; C. Coyle, U.S. Military Academy, West Point, NY	1000 hrs AIAA-2015-2587 **Enhanced Body Vortex Modeling Within Missile Datcom** J. Doyle, C. Rosema, Army Aviation and Missile Research Development and Engineering Center, Redstone Arsenal, AL	1030 hrs AIAA-2015-2588 **A Comparison of Predictive Methodologies for Missile Configurations with Strakes** C. Rosema, Army Aviation and Missile Research Development and Engineering Center, Redstone Arsenal, AL	1100 hrs AIAA-2015-2589 **Delayed Detached Eddy Simulation of Projectile Flows** J. Gan, G. Zha, University of Miami, Coral Gables, FL		

Tuesday, 23 June 2015						
91-ATIO-9	**Terminal & Surface Operations III**					**Manchester**
Chaired by: A. SARAF, Saab Sensis Corporation						
0900 hrs AIAA-2015-2590 **Identifying Key Issues and Potential Solutions for Integrated Arrival, Departure, Surface Operations by Surveying Stakeholder Preferences** B. Aponso, R. Coppenbarger, Y. Jung, NASA Ames Research Center, Moffett Field, CA; C. O'Connor, G. Lohr, NASA Langley Research Center, Hampton, VA; L. Quon, NASA Ames Research Center, Moffett Field, CA; et al.	0930 hrs AIAA-2015-2591 **Integration of Uncertain Ramp Area Aircraft Trajectories and Generation of Optimal Taxiway Schedules at Charlotte Douglas (CLT) Airport** J. Coupe, D. Milutinovic, University of California, Santa Cruz, Santa Cruz, CA; W. Malik, UARC at NASA Ames Research Center, Moffett Field, CA; Y. Jung, NASA Ames Research Center, Moffet Field, CA	1000 hrs AIAA-2015-2592 **The effects of Electric Taxi Systems on airport surface congestion** P. Roling, P. Sillekens, R. Curran, Delft University of Technology, Delft, The Netherlands; W. Wilder, KLM Royal Dutch Airlines, Schiphol, The Netherlands	1030 hrs AIAA-2015-2593 **Punctuality as KPI for Performance Based Airport Management** S. Loth, S. Helm, German Aerospace Center (DLR), Braunschweig, Germany	1100 hrs AIAA-2015-2594 **Determining Airport Airside Capacity Utilization: A Demand-Driven Approach** C. Schinwald, M. Hornung, Technical University of Munich, Munich, Germany	1130 hrs AIAA-2015-2595 **Integration of a Routing Tool in an Advanced Airport Controller Working Position** M. Ellejmi, EUROCONTROL, Brussels, Belgium; B. Weiss, F. Schmitt, S. Straub, Deutsche Flugsicherung GmbH (DFS), Frankfurt, Germany	

Tuesday, 23 June 2015						
92-ATIO-10	**ATM I - Trajectory Enhancements**					**Milan**
Chaired by: S. ROY, Washington State Univ						
0900 hrs AIAA-2015-2596 **Impact of Airspace Charges on Transatlantic Aircraft Trajectories** B. Sridhar, NASA Ames Research Center, Moffett Field, CA; H. Ng, University of California, Santa Cruz, Moffett Field, CA; F. Linke, German Aerospace Center (DLR), Hamburg, Germany; N. Chen, NASA Ames Research Center, Moffett Field, CA	0930 hrs AIAA-2015-2597 **Presentation of three methods results comparison for Vertical Navigation VNAV trajectory optimization for the Flight Management System FMS** B. Beulze, B. Dancila, R. Botez, University of Québec, Montréal, Canada	1000 hrs AIAA-2015-2598 **Simple Tool for Aircraft Noise-Reduction Route Design** J. Li, N. Chen, B. Sridhar, H. Ng, NASA Ames Research Center, Moffett Field, CA	1030 hrs AIAA-2015-2599 **Trajectory Accuracy Sensitivity to Modeling Factors** S. Torres, Lockheed Martin Corporation, Rockville, MD	1100 hrs AIAA-2015-2600 **Trajectory Inefficiency Metric for Measuring Operational Performance of Flights in the National Airspace System** S. Tsao, R. Mayer, A. Mahashabde, MITRE Corporation, McLean, VA		

Tuesday, 23 June 2015						
93-ATIO-11	**Transformational Flight - On-Demand Mobility**					**Metropolitan Ballroom**
Chaired by: B. GERMAN, Georgia Institute of Technology						
0900 hrs Oral Presentation **On-Demand Mobility: Aviation's Future Path to High Speed Regional Mobility** M. Moore, NASA Langley Research Center, Hampton, VA	0930 hrs Oral Presentation **On-Demand Mobility Technical Pathway: Enabling Ease of Use and Safety** K. Goodrich, M. Moore, NASA Langley Research Center, Hampton, VA	1000 hrs Oral Presentation **On-Demand Mobility Technical Pathway: Enabling Low Community Noise, Low Operating Costs, Robust Control, and Ride Quality** M. Moore, NASA Langley Research Center, Hampton, VA				

Tuesday, 23 June 2015		
94-CASE-4 **0900 - 1200 hrs**	**Applied Complexity Workshop**	**Grand Ballroom D**

Participants can learn how to embrace and thrive within technically, socially, and organizationally complex environments. Participants will be immersed in a three-pronged approach to learning, with industry examples, applied theory, and interactive practice. Please join us for this engagement, and bring your own experiences to share and a desire to strengthen your complex systems engineering thinking.

Panelists:

Paul C. Lambertson
Systems Engineering & Integration Team 777X
Boeing Commercial Airplanes

Steve Holt
Engineering Integrated Strategy, Airplane Level Engineering Integration
The Boeing Company

Jim Blohowiak
777X Airplane Level Integration Team
The Boeing Company

Alison Lauderbach
777X Airplane Level Integration Team
The Boeing Company

Tuesday, 23 June 2015						
95-CFD-9	**Adaptive High-Order Methods**					**Grand Ballroom A**
Chaired by: G. MAY, RWTH Aachen and S. ALLMARAS, MIT						
0900 hrs AIAA-2015-2601 **A Unifying Computational Framework for Adaptive High-Order Finite Element Methods** M. Woopen, A. Balan, G. May, RWTH Aachen University, Aachen, Germany	0930 hrs AIAA-2015-2602 **An Output-Based Adaptive Hybridized Discontinuous Galerkin Method on Deforming Domains** K. Fidkowski, University of Michigan, Ann Arbor, Ann Arbor, MI	1000 hrs AIAA-2015-2603 **An Adjoint-Based hp-Adaptive Petrov-Galerkin Method for Turbulent Flows** B. Reza Ahrabi, W. Anderson, J. Newman, University of Tennessee, Chattanooga, Chattanooga, TN	1030 hrs AIAA-2015-2604 **An Adaptive Simplex Cut-Cell Method for High-Order Discontinuous Galerkin Discretizations of Conjugate Heat Transfer Problems** S. Ojeda, H. Sun, S. Allmaras, D. Darmofal, Massachusetts Institute of Technology, Cambridge, MA	1100 hrs AIAA-2015-2605 **Improving High-Order Finite Element Approximation Through Geometrical Warping** D. Sanjaya, K. Fidkowski, University of Michigan, Ann Arbor, Ann Arbor, MI	1130 hrs AIAA-2015-2606 **Hp-Adaptivity on Anisotropic Meshes for Hybridized Discontinuous Galerkin Scheme** A. Balan, M. Woopen, G. May, RWTH Aachen University, Aachen, Germany	

Tuesday, 23 June 2015						
96-CFD-10	**Turbulent Flow Simulations I**					**Grand Ballroom B**
Chaired by: S. POROSEVA, The University of New Mexico and S. TIMME, The University of Liverpool						
0900 hrs AIAA-2015-2607 **Delayed Detached-Eddy Simulation of Shock Buffet on Half Wing-Body Configuration** F. Sartor, S. Timme, University of Liverpool, Liverpool, United Kingdom	0930 hrs AIAA-2015-2608 **Flow Control of a Rotating Cylinder by the Use of a Structured Surface: A Visualization of Flow Structures** T. Schomberg, R. Ritz, O. Wünsch, University of Kassel, Kassel, Germany; M. Ruetten, R. Kessler, German Aerospace Center (DLR), Göttingen, Germany	1000 hrs AIAA-2015-2609 **Simulations of Incompressible Separated Turbulent Flows around Two-Dimensional Bodies with URANS Models in OpenFOAM** A. Porteous, R. Habbit, J. Colmenares, S. Poroseva, University of New Mexico, Albuquerque, Albuquerque, NM; S. Murman, NASA Ames Research Center, Moffett Field, CA	1030 hrs AIAA-2015-2610 **Jet pump optimization through Reynolds averaged Navier-Stokes Simulation Analysis** G. Gherman, I. Malael, COMOTI Romanian Research & Development Institute for Gas Turbines, Bucharest, Romania; M. Mihaescu, Royal Institute of Technology (KTH), Stockholm, Sweden; I. Porumbel, COMOTI Romanian Research & Development Institute for Gas Turbines, Bucharest, Romania			

Tuesday, 23 June 2015						
97-CFD-11	**Meshing Techniques II**					**Coral**
Chaired by: M. PARK, NASA-Langley Research Center and D. THOMPSON, Mississippi State University						
0900 hrs AIAA-2015-2611 **Comparison of r-Adaptation Techniques for 2-D CFD Applications** W. Tyson, J. Derlaga, A. Choudhary, C. Roy, Virginia Polytechnic Institute and State University, Blacksburg, VA	0930 hrs AIAA-2015-2612 **Implementation of Ball-Center Spring Analogy Mesh Deformation Technique with CFD Design Optimization** Y. Yang, S. Özgen, Middle East Technical University, Ankara, Turkey	1000 hrs AIAA-2015-2613 **Anisotropic Non-Uniform Block-Based Adaptive Mesh Refinement for Three-Dimensional Inviscid and Viscous Flows** L. Freret, C. Groth, University of Toronto, Toronto, Canada	1030 hrs AIAA-2015-2614 **A shifting discontinuous-grid-block lattice Boltzmann method for moving boundary simulations** N. Arora, A. Gupta, Indian Institute of Technology Delhi, New Delhi, India; W. Shyy, Hong Kong University of Science and Technology, Hong Kong, Hong Kong	1100 hrs AIAA-2015-2615 **Numerical simulation of an X-wing flapping wing MAV by means of a deforming overset grid method** S. Deng, Delft University of Technology, Delft, The Netherlands; T. Xiao, Nanjing University of Aeronautics and Astronautics, Nanjing, China; M. Percin, B. van Oudheusden, H. Bijl, B. Remes, Delft University of Technology, Delft, The Netherlands		

Tuesday, 23 June 2015						
98-CFD-12	**LES, DNS, and Hybrid RANS-LES II**					**Emerald**
Chaired by: N. BISEK, Air Force Reseach Laboratory and A. SESCU, Mississippi State University						
0900 hrs AIAA-2015-2616 **Simulation of Boundary Layer flows over Biofouled Surfaces** J. Sadique, X. Yang, C. Meneveau, R. Mittal, Johns Hopkins University, Baltimore, MD	0930 hrs AIAA-2015-2617 **The Effect of Initial Conditions on Streamwise Vortices in the Plane Turbulent Mixing Layer** W. McMullan, S. Garrett, University of Leicester, Leicester, United Kingdom	1000 hrs AIAA-2015-2618 **Turbulent inflow generation in square duct at supersonic Mach number** C. Roussel, F. Alizard, F. Grasso, Paris Institute of Technology, Paris, France	1030 hrs AIAA-2015-2619 **Further Studies of Adverse Pressure Gradient Effects in Turbulent Channel Flows** A. Jesus, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil; L. Schiavo, University of Campinas, Campinas, Brazil; J. Azevedo, Aeronautics and Space Institute (IAE), São José dos Campos, Brazil; J. Laval, National Center for Scientific Research (CNRS), Villeneuve d'Ascq, France			

Tuesday, 23 June 2015						
99-FD-10	**Boundary-Layer Transition**					**Sapphire**
Chaired by: E. MARINEAU, AEDC White Oak and J. KLENTZMAN, Baylor University						
0900 hrs AIAA-2015-2620 **Turbulent Density Fluctuations in Thermal Boundary Layers Studied via Molecular Rayleigh scattering** J. Panda, NASA Ames Research Center, Moffett Field, CA	0930 hrs AIAA-2015-2621 **Automatic transition prediction in an industrial Navier-Stokes solver using higher-order finite elements** R. Gross, F. Chalot, J. Courty, M. Mallet, D. Tran, Dassault Group, Saint Cloud, France; D. Arnal, ONERA, Toulouse, France; et al.	1000 hrs AIAA-2015-2622 **Large-Eddy Simulation of Transitional Flows on a Compressor Blade** Z. Wang, Aviation Industry Corporation of China (AVIC), Shanghai, China	1030 hrs AIAA-2015-2623 **A local scattering approach for the effect of abrupt changes on boundary-layer instability and transition: a numerical method** Z. Huang, Tianjin University, Tianjin, China; X. Wu, Imperial College London, London, United Kingdom	1100 hrs AIAA-2015-2624 **Numerical Simulation of Three-Dimensional Wave Packet in Supersonic Flow over a Compression Corner** A. Novikov, Moscow Institute of Physics and Technology, Zhukovsky, Russia; I. Egorov, TsAGI, Zhukovsky, Russia; A. Fedorov, Moscow Institute of Physics and Technology, Zhukovsky, Russia	1130 hrs AIAA-2015-2625 **Computations of Disturbance Amplification Behind Isolated Roughness Elements and Comparison with Measurements** M. Choudhari, F. Li, NASA Langley Research Center, Hampton, VA; M. Bynum, AMA Research Associates, Hampton, VA; M. Kegerise, R. King, NASA Langley Research Center, Hampton, VA	1200 hrs AIAA-2015-2626 **Acoustic radiation due to scattering of T-S wave by nonlinear roughness in subsonic boundary layer flows** M. Dong, Tianjin University, Tianjin, China; X. Wu, Imperial College London, London, United Kingdom

Tuesday, 23 June 2015						
100-FD-11	**Unsteady Wing Aerodynamics I**					**Govenors Lecture Hall**
Chaired by: K. MOORED, Lehigh University and M. RINGUETTE, University at Buffalo						
0900 hrs AIAA-2015-2627 **Development of coherent structures within the laminar separation bubble of a NACA0018 airfoil** J. Kurelek, A. Lambert, S. Yarusevych, University of Waterloo, Waterloo, Canada	0930 hrs AIAA-2015-2628 **Analyzing Vortex Dynamics in the Laminar Separation Bubble vis Surface Pressure Measurements** A. Lambert, S. Yarusevych, University of Waterloo, Waterloo, Canada	1000 hrs AIAA-2015-2629 **Analysis of cruise flight of the calliope hummingbird** J. Song, H. Luo, Vanderbilt University, Nashville, TN; B. Tobalske, University of Montana, Missoula, Missoula, MT; T. Hedrick, University of North Carolina, Chapel Hill, Chapel Hill, NC	1030 hrs AIAA-2015-2630 **Topology and Flow Structures of Three-Dimensional Separation Bubbles: The Effect of Aspect Ratio** S. Hosseinverdi, R. Jacobi, H. Fasel, University of Arizona, Tucson, Tucson, AZ			

Tuesday, 23 June 2015						
101-FD-12	**Airfoil Separation Control**					**Senators Lecture Hall**
Chaired by: M. VISBAL, USAF AFRL/RQVA and K. TAIRA, Florida State University						
0900 hrs AIAA-2015-2631 **Modeling Lift Hysteresis with a Modified Goman-Khrabrov Model on Pitching Airfoils** D. Williams, Illinois Institute of Technology, Chicago, IL; F. Reissner, Technical University of Berlin, Berlin, Germany; D. Greenblatt, H. Muehler-Vahl, Technion-Israel Institute of Technology, Haifa, Israel; C. Strangfeld, Technical University of Berlin, Berlin, Germany	0930 hrs AIAA-2015-2632 **Surface vorticity flux analysis in separation control on NACA 0012 airfoil** P. Munday, K. Taira, Florida State University, Tallahassee, FL	1000 hrs AIAA-2015-2633 **Measurements of 3-D Stall Cells on 2-D Airfoil** E. Demauro, H. Dell'Orso, V. Sivaneri, B. Tuna, M. Amitay, Rensselaer Polytechnic Institute, Troy, NY	1030 hrs AIAA-2015-2634 **Interactions of a Low Aspect Ratio Dynamic Pin with a Laminar Boundary Layer** S. Gildersleeve, C. Leong, M. Amitay, Rensselaer Polytechnic Institute, Troy, NY	1100 hrs AIAA-2015-2635 **Simulation of a Laminar-Flow Compatible High-Lift Configuration with Flow Control** D. Rizzetta, M. Visbal, Air Force Research Laboratory, Wright-Patterson AFB, OH	1130 hrs AIAA-2015-2636 **Global stability analysis of a compressible turbulent flow around a high-lift configuration** M. Iorio, Airbus, Madrid, Spain; L. Gonzalez, Technical University of Madrid, Madrid, Spain; A. Martinez, Airbus, Filton, United Kingdom	

Tuesday, 23 June 2015						
102-FD-13	**Shock-Dominated Flows**					**Topaz**
Chaired by: M. GAMBA, University of Michigan and J. POGGIE, USAF AFRL/RBAC						
0900 hrs AIAA-2015-2637 **Assessing Blast Loading Within Obstacle Arrays** D. Mott, Naval Research Laboratory, Washington, DC; T. Young, Berkeley Research Associates, Beltsville, MD; D. Schwer, P. Matic, Naval Research Laboratory, Washington, DC	0930 hrs AIAA-2015-2638 **Study of Bow-Shock Instabilities in front of Hemispherical Shell at Hypersonic Mach Number 7** A. Vashishtha, University of Tokyo, Kashiwa, Japan; Y. Watanabe, University of Tokyo, Bunkyo, Japan; K. Suzuki, University of Tokyo, Kashiwa, Japan	1000 hrs AIAA-2015-2639 **HIFiRE-1 Turbulent Shock Boundary Layer Interaction -Flight Data and Computations** R. Kimmel, Air Force Research Laboratory, Wright-Patterson AFB, OH; D. Prabhu, ERC, Inc., Moffett Field, CA	1030 hrs AIAA-2015-2640 **Numerical Simulation Exploring Supersonic Flow Over a Wall-Mounted Half-Cylinder Turret** P. Morgan, Ohio Aerospace Institute, Dayton, OH; M. Visbal, Air Force Research Laboratory, Wright-Patterson AFB, OH	1100 hrs AIAA-2015-2641 **Numerical Investigation of Shock-induced Laminar Separation Bubble in Supersonic Flows** J. Sivasubramanian, H. Fasel, University of Arizona, Tucson, Tucson, AZ	1130 hrs AIAA-2015-2642 **On unsteady shock wave reflections from wedges with straight and concave tips** F. Alzamora Previtali, E. Timofeev, McGill University, Montréal, Canada; H. Kleine, University of New South Wales at the Australian Defence Force Academy, Canberra, Australia	

Tuesday, 23 June 2015						
103-ITAR-1	**ITAR - Hypersonic Flow Phenomena (Invited)** ITAR					**Morocco**
Chaired by: K. CASPER						
0900 hrs Oral Presentation **HTV-2 Boundary Layer Transition - Summary and Lessons Learned** R. Kimmel, Air Force Research Laboratory, Wright-Patterson AFB, OH	0930 hrs Oral Presentation **STABL-3D Software Overview** H. Johnson, GoHypersonic, Inc., Minneapolis, MN	1000 hrs Oral Presentation **Mach 10 Boundary Layer Transition Experiments on Sharp and Blunted Cones** E. Marineau, D. Lewis, J. Lafferty, G. Moraru, Arnold Engineering Development Center, Silver Spring, MD	1030 hrs Oral Presentation **Stability Analysis of Hypersonic Flows Using STABL-3D** B. Wheaton, Johns Hopkins University Applied Physics Laboratory, Laurel, MD; H. Johnson, GoHypersonic, Inc., Dayton, OH; R. Wagnild, Sandia National Laboratories, Albuquerque, NM			

Tuesday, 23 June 2015						
104-MAO-3	**Applications I**					**Madrid**
Chaired by: A. NAJAFI, ANSYS, Inc. and P. PIPERNI, Bombardier Inc						
0900 hrs AIAA-2015-2646 **Optimization of System Evolvability Under Uncertainty** J. Watson, J. Allen, C. Mattson, Brigham Young University, Provo, UT; S. Ferguson, North Carolina State University, Raleigh, NC	0930 hrs AIAA-2015-2647 **An Application of Conceptual Design and Multidisciplinary Analysis Transitioning to Detailed Design Stages** A. Renner, F. Thompson, V. Kalivarapu, E. Winer, J. Oliver, Iowa State University, Ames, IA; B. Gilmore, Deere & Company, Moline, IL; et al.	1000 hrs AIAA-2015-2648 **Geometry Driven High Fidelity Stability Derivatives Obtained Using Automated CFD Analysis Process** N. Bhagat, Wright State University, Beavercreek, OH; E. Alyanak, Air Force Research Laboratory, Wright-Patterson AFB, OH; D. Allison, Optimal Flight Sciences, LLC, Dayton, OH	1030 hrs AIAA-2015-2649 **Application of automatic algorithm generation to air-to-air refueling scheduling** R. Entz, G. Scherer Schwening, R. Fernandes de Oliveira, Airbus, Munich, Germany	1100 hrs AIAA-2015-2650 **Multidisciplinary and Multilevel Aircraft Design Methodology Using Enhanced Collaborative Optimization** P. Albuquerque, P. Gamboa, M. Silvestre, University of Beira Interior, Covilha, Portugal	1130 hrs AIAA-2015-2651 **Development of a Java-based framework for aircraft preliminary design and optimization** F. Nicolosi, A. De Marco, L. Attanasio, D. Gambardella, University of Naples “Federico II”, Naples, Italy	

Tuesday, 23 June 2015						
105-MST-5	**Guidance, Control, and Dynamics II**					**Travertine**
Chaired by: T. ALEXEEV, University of California Davis and J. KNOWLES, Loughborough University						
0900 hrs AIAA-2015-2652 **Semi-Implicit Numerical Simulations of Nonlinear Dynamics of Beams, Plates, and Shells** T. Alexeev, Siemens Energy, Inc., Boulder, CO; M. Hafez, University of California, Davis, Davis, CA	0930 hrs AIAA-2015-2653 **A Bifurcation Study of a Dynamic Model of a Nose Landing Gear Mechanism Subjected to External Disturbances** J. Knowles, Loughborough University, Loughborough, United Kingdom; E. Coetzee, Airbus, Bristol, United Kingdom	1000 hrs AIAA-2015-2654 **Multi-Fidelity Simulation of Cargo Airdrop: From the Payload Bay to the Ground** T. Jann, S. Geisbauer, N. Bier, German Aerospace Center (DLR), Braunschweig, Germany; W. Krüger, H. Schmidt, German Aerospace Center (DLR), Göttingen, Germany	1030 hrs AIAA-2015-2655 **Control Enhanced and Parameterized Load Relief technology for a Launch Vehicle** W. Yang, S. Tang, Z. Xu, Northwestern Polytechnical University, Xi’an, China	1100 hrs AIAA-2015-2656 **The mode switch control research of small-type parallel TBCC engine based on SQP method** Q. Xiaojie, W. Su, Y. Tang, Aviation Industry Corporation of China (AVIC), Wuxi, China		

Tuesday, 23 June 2015		
106-NW-3 0900 - 0930 hrs	Networking Coffee Break	Chantilly Ballroom East

Tuesday, 23 June 2015						
107-PDL-4	Plasma Assisted Combustion					Miro
Chaired by: K. XU, University of Alabama in Huntsville						
0900 hrs AIAA-2015-2657 **Electron Temperature in a Methane-Air Flame under a DC Electric Field** S. Jacobs, K. Xu, University of Alabama, Huntsville, Huntsville, AL	0930 hrs AIAA-2015-2658 **Laser-Induced Heating Using a Non-Resonant Dual-Pulse Approach with Application to Laser Ignition** C. Dumitrache, C. Rose, A. Yalin, Colorado State University, Fort Collins, CO	1000 hrs AIAA-2015-2659 **Magnetic positioning of the electric discharge in the volume of supersonic flow** A. Firsov, Russian Academy of Sciences, Moscow, Russia; S. Leonov, University of Notre Dame, Notre Dame, IN	1030 hrs AIAA-2015-2660 **Towards Laser Ignition by Rapid Heating of Water Vapor** C. Dumitrache, A. Yalin, Colorado State University, Fort Collins, CO	1100 hrs AIAA-2015-2661 **Multiphysics simulations of plasma-assisted combustion dynamics in a direct-coupled microwave reactor** A. Palla, J. Zimmerman, D. Carroll, CU Aerospace, Champaign, IL; C. Mitsingas, S. Hammack, T. Lee, University of Illinois, Urbana-Champaign, Urbana, IL	1130 hrs AIAA-2015-2662 **Investigation of Thermal Cycling Property of Thermal Barrier Coatings with Laser Deposited Mesh Structure** S. Shi, W. Chen, Z. Hong, D. Gao, Aviation Industry Corporation of China (AVIC), Shanghai, China	

Tuesday, 23 June 2015						
108-TP-5	Plasma and Arc Jet Testing, Diagnostics and Computational Methods					Rosetta
Chaired by: M. WINTER, University of Kentucky and P. YEE, The Aerospace Corporation						
0900 hrs AIAA-2015-2663 **Arc Jet Facility Test Condition Predictions Using the ADSI Code** G. Palmer, D. Prabhu, ERC, Inc., Huntsville, AL; I. Terrazas-Salinas, NASA Ames Research Center, Moffett Field, CA	0930 hrs AIAA-2015-2664 **Comparisons of PICA In-depth Material Performance and Ablator Response Modeling from MEDLI Arc Jet Tests** D. Smith, University of Kentucky, Lexington, Lexington, KY; T. White, ERC, Inc., Moffett Field, CA; A. Martin, University of Kentucky, Lexington, Lexington, KY	1000 hrs AIAA-2015-2665 **Enabling the Statistical Calibration of Active Nitridation of Graphite by Atomic Nitrogen** P. Bauman, State University of New York, Buffalo, NY	1030 hrs AIAA-2015-2666 **Side Arm Reactor Study of Copper Catalysis** D. Driver, NASA Ames Research Center, Moffett Field, CA; S. Sepka, ERC, Inc., Moffett Field, CA	1100 hrs AIAA-2015-2667 **Consolidating NASA's Arc-Jet** J. Balboni, T. Gokcen, F. Hui, P. Graube, P. Morrissey, NASA Ames Research Center, Moffett Field, CA; R. Lewis, NASA Johnson Space Center, Houston, TX	1130 hrs AIAA-2015-2668 **Physico-Chemistry of CN in the Boundary Layer of Graphite in Nitrogen Plasmas** B. Helber, T. Alessandro, O. Chazot, M. Thierry, von Kármán Institute for Fluid Dynamics, Rhode-Saint-Genèse, Belgium	

Tuesday, 23 June 2015		
109-F360-3 0930 - 1200 hrs	Day in the Life of Operations - Effectively Managing Disruption	Grand Ballroom E

Moderator: Neil Planzer, Vice President, Air Traffic Management, Boeing Commercial Airplanes

Panelits:

Tim Campbell
Senior Vice President, Air Operations
American Airlines

Jim Crites
Executive Vice President of Operations
DFW International Airport

BrianQuigley
Managing Director Flight Operations
United Airlines

Dan Smiley
Vice President for Systems Operations, Federal Aviation Administration Air Traffic Office

Tuesday, 23 June 2015		
111-LNCH-1 1230 - 1400 hrs	Awards Luncheon: Celebrating Achievements in Aerospace Sciences	Chantilly Ballroom West

A ticket is required and included in the conference registration fee where indicated.

Tuesday, 23 June 2015						
112-AA-16	**CAA Sound Generation II**					**Fleur-de-lis A**
Chaired by: J. DELFS, DLR - German Aerospace Center						
1400 hrs AIAA-2015-2669 **Prediction of low-speed fan trailing-edge noise based on RANS and on scale resolved simulations** G. Grasso, J. Christophe, C. Schram, von Kármán Institute for Fluid Dynamics, Rhode-Saint-Genèse, Belgium	1430 hrs AIAA-2015-2670 **Synthetic Turbulence Methods for Leading Edge Noise Predictions** F. Gea-Aguilera, X. Zhang, X. Chen, J. Gill, University of Southampton, Southampton, United Kingdom; T. Nodé-Langlois, Airbus, Toulouse, France	1500 hrs AIAA-2015-2671 **Prediction of Slat Broadband Noise with RANS Results** B. Bai, X. Li, Y. Guo, Beihang University, Beijing, China; F. Thiele, Technical University of Berlin, Berlin, Germany	1530 hrs AIAA-2015-2672 **Towards high-lift noise from Fast Multipole BEM with anisotropic synthetic turbulence sources** N. Reiche, M. Lummer, R. Ewert, German Aerospace Center (DLR), Braunschweig, Germany	1600 hrs AIAA-2015-2673 **Compact Assumption Applied to the Monopole Term of Farassat's Formulation** L. Lopes, NASA Langley Research Center, Hampton, VA	1630 hrs AIAA-2015-2674 **Centrifugal Compressor: The Sound of Surge** E. Sundström, M. Mihaescu, Royal Institute of Technology (KTH), Stockholm, Sweden	

Tuesday, 23 June 2015						
113-AA-17	**CAA Propagation and Scattering I**					**Fleur-de-lis B**
Chaired by: S. CARO, CD-Adapco						
1400 hrs AIAA-2015-2675 **Direct and inverse uncertainty quantification of acoustic refraction phenomena through a shear layer** P. Cinnella, Università del Salento, Lecce, Italy; X. Gloerfelt, X. Merle, Paris Institute of Technology, Paris, France	1430 hrs AIAA-2015-2676 **Stabilized Time-domain Impedance Model and the Application in Bypass Duct Noise Simulations** X. Liu, X. Huang, Peking University, Beijing, China	1500 hrs AIAA-2015-2677 **Evaluation and Development of Non-Reflective Boundary Conditions for Aeroacoustic Simulations** J. Gill, R. Fattah, X. Zhang, University of Southampton, Southampton, United Kingdom	1530 hrs AIAA-2015-2678 **Implementation of a surface based coupling approach in a high-order DG aeroacoustics propagation solver** M. Muriel Gracia, W. De Roeck, W. Desmet, Catholic University of Leuven, Leuven, Belgium	1600 hrs AIAA-2015-2679 **Acoustic Scattering Matrices for Higher-Order Modes for Simple Orifice Configurations with Flow** C. Temmler, M. Schulze, T. Sattelmayer, Technical University of Munich, Munich, Germany	1630 hrs AIAA-2015-2680 **Numerical assessment of the scattering of acoustic waves by turbulent structures** V. Clair, G. Gabard, University of Southampton, Southampton, United Kingdom	1700 hrs AIAA-2015-2681 **Enhancements of a time-domain equivalent source method for acoustic scattering** S. Swift, G. Blaisdell, Purdue University, West Lafayette, IN; A. Lyrintzis, Embry-Riddle Aeronautical University, Daytona Beach, FL

Tuesday, 23 June 2015						
114-AA-18	**General Acoustics I**					**Inverness**
Chaired by: C. BAILLY, Ecole Centrale de Lyon						
1400 hrs AIAA-2015-2682 **Sound and Distortion Produced by a Braking Rotor Operating in a Planar Boundary Layer with Application to Wind Turbines** H. Murray, D. Wisda, W. Alexander, M. Nelson, W. Devenport, Virginia Polytechnic Institute and State University, Blacksburg, VA; S. Glegg, Florida Atlantic University, Boca Raton, FL	1430 hrs AIAA-2015-2683 **Nozzle-to-Ground Distance Effect on Nondominated Solutions of Multiobjective Aeroacoustic Flame Deflector Design Problem** T. Tatsukawa, T. Nonomura, A. Oyama, K. Fujii, Japan Aerospace Exploration Agency (JAXA), Kanagawa, Japan	1500 hrs AIAA-2015-2684 **The Acoustic Environment of the NASA Glenn 9- by 15-Foot Low-Speed Wind Tunnel** D. Stephens, NASA Glenn Research Center, Cleveland, OH	1530 hrs AIAA-2015-2685 **Sonic Boom Assessment of a Hypersonic Transport Vehicle with Advanced Numerical Methods** D. Luquet, R. Marchiano, F. Coulouvrat, Pierre and Marie Curie University, Paris, France; I. Salah El Din, ONERA, Meudon, France; A. Loseille, French National Institute for Research in Computer Science and Control (INRIA), Le Chesnay, France			

Tuesday, 23 June 2015						
115-AA-19	**Airframe Noise II**					**Lalique**
Chaired by: C. DOOLAN, The University of Adelaide						
1400 hrs AIAA-2015-2686 **Aeroacoustic Simulations of a Simplified High-Lift Device Accounting for Installations Effects** P. Salas, S. Moreau, University of Sherbrooke, Sherbrooke, Canada	1430 hrs AIAA-2015-2687 **Aerodynamic Noise Simulation of an Airfoil in a Periodically Fluctuating Freestream** Y. Yauwenas, N. Ahmed, University of New South Wales, Kensington, Australia	1500 hrs AIAA-2015-2688 **Wall Pressure Spectra on a DU96-W-180 Profile From Low to Pre-Stall Angles of Attack** A. Suryadi, M. Herr, German Aerospace Center (DLR), Braunschweig, Germany	1530 hrs AIAA-2015-2689 **Suppression of spurious noise sources in airfoil self-noise measurements** M. Tuinstra, National Aerospace Laboratory (NLR), Emmeloord, The Netherlands; P. Sijtsma, Pieter Sijtsma Advanced AeroAcoustics, Wezep, The Netherlands	1600 hrs AIAA-2015-2690 **A parametric experimental study of jet-flap interaction noise for a realistic small-scale swept wing model** I. Belyaev, G. Faranosov, N. Ostrikov, TsAGI, Moscow, Russia; G. Paranin, OJS Irkut Corporation, Moscow, Russia	1630 hrs AIAA-2015-2691 **Airframe Shielding of Noncompact Aviation Noise Sources: Theory and Experiment** N. Ostrikov, S. Denisov, TsAGI, Moscow, Russia	1700 hrs AIAA-2015-2692 **Assessment of Conceptual Noise Reduction Devices for A Main Landing Gear using SNGR Method** H. Yao, L. Davidson, Chalmers University of Technology, Göteborg, Sweden; S. Peng, Swedish Defense Research Agency (FOI), Stockholm, Sweden; F. Capizzano, M. Barbarino, G. Mingione, Italian Aerospace Research Center (CIRA), Capua, Italy

Tuesday, 23 June 2015						
116-AA-20	**Duct Acoustics III**					**Obelisk A**
Chaired by: C. ROYALTY, Honeywell International, Inc.						
1400 hrs AIAA-2015-2693 **Modeling of Broadband Liners Applied to the Advanced Noise Control Fan** D. Nark, M. Jones, NASA Langley Research Center, Hampton, VA; D. Sutliff, NASA Glenn Research Center, Cleveland, OH	1430 hrs AIAA-2015-2694 **Design Optimization of Broadband Acoustic Liners Through Finite Element Efficacy Studies** K. Mitchell, Virginia Polytechnic Institute and State University, Blacksburg, VA	1500 hrs AIAA-2015-2695 **Effect of Porosity and Joint Bias-grazing Flow on the Acoustic Damping Performance of Double- and Single-layer Perforated Liners** C. Ji, D. Zhao, S. Li, X. Li, Nanyang Technological University, Singapore, Singapore	1530 hrs AIAA-2015-2696 **Nonlinear impedance modeling of resonator with high intensity incident acoustic wave** J. Xu, X. Li, Y. Guo, Beihang University, Beijing, China	1600 hrs AIAA-2015-2697 **Evaluation of Variable-Depth Liner Configurations for Increased Broadband Noise Reduction** M. Jones, W. Watson, D. Nark, B. Howerton, NASA Langley Research Center, Hampton, VA		

Tuesday, 23 June 2015						
117-ACD-3	**Aircraft Performance Studies**					**Wyeth**
Chaired by: C. BIL, RMIT University and W. ANEMAAT, DARcorporation						
1400 hrs AIAA-2015-2698 **The Impact of ATTCS on Reduced-Thrust Takeoff Field Performance** T. Takahashi, Arizona State University, Tempe, AZ	1430 hrs AIAA-2015-2699 **Uncertainty Modeling and Assessment in Aircraft Evacuation Simulation** R. Silva, D. Ferrari, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil; L. Santos, Embraer, São José dos Campos, Brazil	1500 hrs AIAA-2015-2700 **Simulated Tiltrotor Aircraft Operation in Close Proximity to a Building in Wind and Ground-Effect Conditions** L. Young, NASA Ames Research Center, Moffett Field, CA	1530 hrs AIAA-2015-2701 **Optimal Climb Trajectories Through Explicit Simulation** T. Takahashi, Arizona State University, Tempe, AZ	1600 hrs AIAA-2015-2702 **Design for Resilience in Autonomous Systems: Lessons Learned from Controlled Flight into Stall Accidents** L. Sherry, George Mason University, Fairfax, VA	1630 hrs AIAA-2015-2703 **Adaptive and Intelligent power control allocation and scheduling for a More Electric Aircraft** S. Lazarus, Eaton Corporation, Pune, India; S. Frischemeier, M. Holland, J. Skinner, A. Smith, Eaton Corporation, Jackson, MS	

Tuesday, 23 June 2015						
118-AFM-7	**Flight Test, System Identification, and Parameter Estimation**					**Plum Blossom A**
Chaired by: J. GRAUER, NASA Langley Research Center and J. BRANDON, NASA-Langley Research Center						
1400 hrs AIAA-2015-2704 **A New Formulation of the Filter-Error Method for Aerodynamic Parameter Estimation in Turbulence** J. Grauer, E. Morelli, NASA Langley Research Center, Hampton, VA	1430 hrs AIAA-2015-2705 **Unsteady and Post-Stall Model Identification Using Dynamic Stall Maneuvers** J. Dias, Brazilian Air Force, São José dos Campos, Brazil	1500 hrs AIAA-2015-2706 **Modeling and Simulation of a Quadrotor using Curve Fitting Method** D. Kaya, A. Kutay, Middle East Technical University, Ankara, Turkey	1530 hrs AIAA-2015-2707 **Nonlinear Aerodynamic Modeling from Flight Data at High Angles of Attack Using Neural-Gauss-Newton Method** R. Kumar, PEC University of Technology, Chandigarh, India; A. Ghosh, Indian Institute of Technology Kanpur, Kanpur, India			

Tuesday, 23 June 2015						
119-AFM-8	**Launch Vehicles, Missiles, and Projectile Flight Mechanics**					**Plum Blossom B**
Chaired by: T. LAVIN, Sandia National Laboratories and F. FRESCONI, US Army Research Lab						
1400 hrs AIAA-2015-2708 **Delivery of Modular Lethality via a Parent-Child Concept** F. Fresconi, M. Fermen-Coker, Army Research Laboratory, Aberdeen Proving Ground, MD	1430 hrs AIAA-2015-2709 **An Adaptive Parameter Cooperative Guidance Law for Multiple flight vehicles** Z. Enjiao, T. Chao, S. Wang, M. Yang, Harbin Institute of Technology, Harbin, China	1500 hrs AIAA-2015-2710 **Flight Dynamics Numerical Computation of a Sounding Rocket Including Elastic Deformation Model** E. Oliveira, Aeronautics and Space Institute (IAE), São José dos Campos, Brazil; P. Gasbarri, University of Rome "La Sapienza", Rome, Italy; I. Milagre da Fonseca, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil	1530 hrs AIAA-2015-2711 **Aerothermoelastic Reduced-Order Model of a Hypersonic Vehicle** R. Klock, C. Cesnik, University of Michigan, Ann Arbor, Ann Arbor, MI	1600 hrs AIAA-2015-2712 **Demonstration of Launch Vehicle Slosh Instability on a Pole-Cart Platform** J. Pei, P. Rothhaar, NASA Langley Research Center, Hampton, VA		

Tuesday, 23 June 2015						
120-AMT-7/GT-7	**Design of Experiment**					**Obelisk B**
Chaired by: G. GARRARD, Aerospace Testing Alliance (ATA) and D. YODER						
1400 hrs AIAA-2015-2713 **Case Studies for the Statistical Design of Experiments Applied to Powered Rotor Wind Tunnel Tests** A. Overmeyer, P. Martin, P. Tanner, S. Commo, NASA Langley Research Center, Hampton, VA	1430 hrs Oral Presentation **Comparison between DOE and Traditional 1-Factor at a Time Calibration of a Transonic Wind Tunnel** G. Garrard, M. Mills, Arnold Engineering Development Complex, Tullahoma, TN					

Tuesday, 23 June 2015						
121-AMT-8/FD-14/TP-6/GT-8	**Molecular-Based Optical Diagnostics for Hypersonic Nonequilibrium Flows**					**Topaz**
Chaired by: P. DANEHY, NASA Langley Research Center and M. WINTER, University of Kentucky						
1400 hrs Oral Presentation **Introduction and Application Considerations for Optical Diagnostics in Hypersonic Nonequilibrium Flows** P. Danehy, NASA Langley Research Center, Hampton, VA	1430 hrs Oral Presentation **Introduction to Emission Spectroscopy for Hypersonic Nonequilibrium Flows** M. Winter, University of Kentucky, Lexington, Lexington, KY	1500 hrs Oral Presentation **Introduction to Absorption Spectroscopy for Hypersonic Nonequilibrium Flows** S. O'Byrne, University of New South Wales, Canberra, Australia	1530 hrs Oral Presentation **Introduction to Molecular Tagging Velocimetry for Hypersonic Nonequilibrium Flows** B. Bathel, NASA Langley Research Center, Hampton, VA	1600 hrs Oral Presentation **Introduction to Laser Induced Fluorescence Spectroscopy for Hypersonic Nonequilibrium Flows** C. Johansen, University of Calgary, Calgary, Canada	1630 hrs Oral Presentation **Introduction to Raman Rayleigh Spectroscopy for Hypersonic Nonequilibrium Flows** P. Danehy, NASA Langley Research Center, Hampton, VA	1700 hrs Oral Presentation **Introduction to CARS Spectroscopy for Hypersonic Nonequilibrium Flows** A. Cutler, George Washington University, Washington, DC

Tuesday, 23 June 2015						
122-APA-13	**Applied CFD & Numerical Correlations with Experimental Data II**					**Stemmons B**
Chaired by: N. HARIHARAN, CREATE-AV and C. SHENG, University of Toledo						
1400 hrs AIAA-2015-2714 **CFD Analysis of Counter-Rotating Open Rotors Using a Rotating Actuator Disk Model** M. Malick, R. Agarwal, Washington University in St. Louis, St. Louis, MO	1430 hrs AIAA-2015-2715 **Numerical Simulation of Compressible Flow in a Diffusing S-duct with and without Vortex Generators** S. Kamali, B. Reza Ahrabi, R. Webster, K. Sreenivas, University of Tennessee, Chattanooga, Chattanooga, TN	1500 hrs AIAA-2015-2716 **Massively separated turbulent flow simulation around non-rotating MEXICO blade by means of RANS and DDES approaches in OpenFOAM** Y. Zhang, A. van Zuijlen, G. van Bussel, Delft University of Technology, Delft, The Netherlands	1530 hrs AIAA-2015-2717 **Wind Tunnel Wall Interference Effects on an Oscillating Aerofoil in the Stall Regime** J. Cheng, M. Lowenberg, University of Bristol, Bristol, United Kingdom; X. Wang, J. Yu, Nanjing University of Science and Technology, Nanjing, China			

Tuesday, 23 June 2015						
123-APA-14	**Special Session: Historically Significant/Influential Papers in Applied Aerodynamics**					**Carpenter Ballroom**
Chaired by: B. MCGRATH, JHU/Applied Physics Laboratory and J. PINIER, NASA Langley Research Center						
1400 hrs Oral Presentation **Thoughts on working with AMO Smith (Invited)** R. Liebeck, The Boeing Company, Huntington Beach, CA		1500 hrs Oral Presentation **The Spalart-Allmaras Turbulence Model Paper of 1992 (Invited)** P. Spalart, The Boeing Company, Seattle, WA; S. Allmaras, Massachusetts Institute of Technology, Cambridge, MA	1600 hrs AIAA-2015-2718 **Origins and Further Development of the Jameson-Schmidt-Turkel Scheme (Invited)** A. Jameson, Stanford University, Stanford, CA			

Tuesday, 23 June 2015						
124-APA-15	**Special Session: Aerodynamic-Structural Modeling, Optimization, and Test Techniques for Flexible Wing Technology II**					**Stemmons A**
Chaired by: W. SILVA, NASA-Langley Research Center and B. STANFORD, NASA Langley Research Center						
1400 hrs AIAA-2015-2719 **Ongoing Fixed Wing Research within the NASA Langley Aeroelasticity Branch** R. Bartels, P. Chwalowski, C. Funk, J. Heeg, J. Hur, M. Sanetrik, NASA Langley Research Center, Hampton, VA; et al.	1430 hrs AIAA-2015-2720 **Analysis of Limit Cycle Oscillation Data from the Aeroelastic Test of the SUGAR Truss-Braced Wing Model** R. Bartels, R. Scott, NASA Langley Research Center, Hampton, VA	1500 hrs AIAA-2015-2721 **Computational Aeroelastic Analyses of a Low-Boom Supersonic Configuration** W. Silva, M. Sanetrik, P. Chwalowski, NASA Langley Research Center, Hampton, VA	1530 hrs AIAA-2015-2722 **Unsteady Aeroservoelastic Modeling of Flexible Wing Generic Transport Aircraft with Variable Camber Continuous Trailing Edge Flap** E. Tal, Delft University of Technology, Delft, The Netherlands; N. Nguyen, NASA Ames Research Center, Moffett Field, CA	1600 hrs AIAA-2015-2723 **Optimization for Load Alleviation of Truss-Braced Wing Aircraft With Variable Camber Continuous Trailing Edge Flap** S. Lebofsky, E. Ting, K. Trinh, Stinger Ghaffarian Technologies, Inc., Mountain View, CA; N. Nguyen, NASA Ames Research Center, Moffett Field, CA	1630 hrs AIAA-2015-2724 **Measurement and Modeling of Aeroelastic Response under Gust** Y. Babbar, V. Suryakumar, T. Strganac, Texas A&M University, College Station, TX; A. Mangalam, Tao of Systems Integration, Inc., Hampton, VA	

Tuesday, 23 June 2015						
125-APA-16	**Flow Control Applications & Demonstrations (Active & Passive) II**					**Stemmons C**
Chaired by: M. OL, US Air Force Reseach Laboratory and G. ZHA, University of Miami						
1400 hrs AIAA-2015-2725 **Simulation and Surrogate-Based Design of Rectangular Vortex Generators for Tiltrotor Aircraft Wings** R. Bevan, D. Poole, C. Allen, T. Rendall, University of Bristol, Bristol, United Kingdom	1430 hrs AIAA-2015-2726 **Multipoint Design of Vortex Generators on a Swept Infinite-Wing under Cruise and Critical Condition** N. Namura, K. Shimoyama, S. Obayashi, Tohoku University, Sendai, Japan	1500 hrs AIAA-2015-2727 **Flow Control in a Mach 4.0 Inlet by Slotted Wedge-shaped Vortex Generators** D. Varma, S. Saurav, S. Ghosh, Indian Institute of Technology Madras, Chennai, India	1530 hrs AIAA-2015-2728 **Wind Tunnel Experiments with Active Flow Control for an Outer Wing Model** V. Ciobaca, J. Wild, German Aerospace Center (DLR), Braunschweig, Germany; M. Bauer, T. Grund, Technical University of Berlin, Berlin, Germany; C. Huehne, P. Scholz, Technical University of Braunschweig, Braunschweig, Germany; et al.	1600 hrs AIAA-2015-2729 **Passive Flow Control Applied to a NACA23012 Airfoil In A Subsonic Flow** N. Findanis, University of New South Wales, Sydney, Australia	1630 hrs AIAA-2015-2730 **Computations of Active Open-Loop Flow Control on a Fluttering Wing** J. Seidel, C. Fagley, T. McLaughlin, U.S. Air Force Academy, Colorado Springs, CO	

Tuesday, 23 June 2015						
126-ATIO-12	**ATM II - Air Traffic Analysis**					**Milan**
Chaired by: A. RAO, Purdue University						
1400 hrs AIAA-2015-2731 **A Wavelet Analysis Approach for Categorizing Air Traffic Behavior** M. Drew, University of California, Santa Cruz, Moffett Field, CA; K. Sheth, NASA Ames Research Center, Moffett Field, CA	1430 hrs AIAA-2015-2732 **Application of Data Mining in Air Traffic Forecasting** J. Busquets, City University London, London, United Kingdom; A. Evans, University College London, London, United Kingdom; E. Alonso, City University London, London, United Kingdom	1500 hrs AIAA-2015-2733 **Identification of Aircraft Conflict ResolutionTypes from Recorded Flight Data** S. Shin, K. Kim, I. Hwang, Purdue University, West Lafayette, IN				

Tuesday, 23 June 2015						
127-ATIO-13	**Transformational Flight - Advanced Concepts**					**Metropolitan Ballroom**
Chaired by: N. BORER, NASA Langley Research Center						
1400 hrs Oral Presentation **NASA GL-10 Tilt-Wing Tilt-Tail Concept** W. Fredericks, NASA Langley Research Center, Hampton, VA	1430 hrs Oral Presentation **LEAPTech Distributed Electric Propulsion Integration Concept** M. Moore, NASA Langley Research Center, Hampton, VA	1500 hrs Oral Presentation **Comparison of Computational Aerodynamics Tools for Predicting Low-Speed Performance of a Distributed Propeller Concept** M. Patterson, N. Borer, NASA Langley Research Center, Hampton, VA; B. German, Georgia Institute of Technology, Atlanta, GA	1530 hrs Oral Presentation **The Samson Switchblade Multi-Mode Aircraft Concept** S. Bousfield, Samson Aircraft, Auburn, CA	1600 hrs Oral Presentation **Hoverless VTOL Hyper Commuter Mission Concept** M. Moore, NASA Langley Research Center, Hampton, VA	1630 hrs AIAA-2015-2734 **Predicting the Aero Loads Behind a Propeller in the Presence of a Wing Using Flightstream** V. Ahuja, R. Hartfield, Flightstream, Auburn, AL	1700 hrs AIAA-2015-2735 **Centrifugally Stiffened Rotor: A Complete Derivation of the Plant Model with Nonlinear Dynamics** J. Selfridge, G. Tao, University of Virginia, Charlottesville, Charlottesville, VA

Tuesday, 23 June 2015						
128-ATIO-14	**Product Design and Support**					**Manchester**
Chaired by: A. CHAPUT, University of Texas at Austin						
1400 hrs AIAA-2015-2736 **Value Driven Conceptual Design of Unmanned Air System for Defense Applications** E. Papageorgio, M. Eres, J. Scanlan, University of Southampton, Southampton, United Kingdom	1430 hrs AIAA-2015-2737 **Monte Carlo based Robust MDO applied to Aircraft Conceptual Design: a technical-financial coupling optimization strategy** D. Bianchi, T. Orra, Embraer, São José dos Campos, Brazil; P. Paglione, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil	1500 hrs AIAA-2015-2738 **Development and Application of a Parametric Design Tool for Design Iterations of Large Turboprop Aircraft** M. Kügler, N. Randt, Technical University of Munich, Munich, Germany	1530 hrs AIAA-2015-2739 **3D Printed Parts for Quick Turnaround Aircraft Projects and Legacy Issues** U. Rehmanjan, Qantas Airways, Ltd., Sydney, Australia	1600 hrs AIAA-2015-2740 **UGV and UAV Cooperation for Constructing Probabilistic Threat Exposure Map (PTEM)** O. Daskiran, H. Sevil, A. Dogan, B. Huff, University of Texas, Arlington, Arlington, TX	1630 hrs AIAA-2015-2741 **Toward Efficient Model-Based Development of Aerospace Applications** I. Amundson, L. Shipton, A. Liu, M. Nowak, Eaton Corporation, Cleveland, OH	1700 hrs AIAA-2015-2742 **Reliability Analysis of the Integrated Modular Avionics System Using AADL and GSPN** P. Wang, F. Yan, R. Liu, C. Zhao, Z. Ma, Civil Aviation University of China, Tianjin, China

Tuesday, 23 June 2015		
129-CASE-5 **1400 - 1730 hrs**	**CASE Session I & II**	**Steuben**

1400-1530 hrs

Concept Development of Complex Systems

This panel addresses the phase of development that includes activities from the beginning of decision activities for building new systems to the transition to the product design at milestone "B" (DoD) or the end of Phase B for NASA.

Session Chairs: Steven D'Urso, Program Coordinator and Lecturer, Aerospace Systems Engineering, University of Illinois at Urbana-Champaign and Mat French, Electrical Systems Engineer, Rolls-Royce Corporation

Panelists:

Rick Mange
F-35 PNR Program Manager
Lockheed Martin Aeronautics

Robert (Rob) Simons
Technical Fellow
The Boeing Company

Jason Merret
Technical Specialist, Gulfstream Aerospace Performance Engineering
Gulfstream Aerospace Corporation

1545-1730 hrs

Product Design for Complex Systems Across the Supply Chain

This session will focus on the challenges and enabling technologies for product design across a supply chain. In particular, the session will address the layered chain consisting of OEM/airframer, Tier 1, Tier 2, and the approaches for designing complex systems that handle the integration aspects. Methods and model-based tool approaches will be discussed in terms of existing capabilities, gaps, and future trends.

Session Chairs: Eelco Scholte, Manager, Advanced Methods - Electric Systems, UTC Aerospace Systems and Carmen Schooley, Manager, Systems Engineering and Integration, Gulfstream Aerospace Corporation

Panelists:

Fernando Dones
Technical Fellow
The Boeing Company

Bernard Dion
CTO
ANSYS

Brenda Nuhfer
Program Manager
UTC/Pratt & Whitney

Tuesday, 23 June 2015						
130-CFD-13	**Flux Reconstruction Methods**					**Grand Ballroom A**
Chaired by: Z. WANG, University of Kansas and B. VERMEIRE, McGill University						
1400 hrs AIAA-2015-2743 **On the Utility of High-Order Methods for Unstructured Grids: A Comparison Between PyFR and Industry Standard Tools** B. Vermeire, F. Witherden, P. Vincent, Imperial College London, London, United Kingdom	1430 hrs AIAA-2015-2744 **De-Aliasing through Over-Integration Applied to the Flux Reconstruction and Discontinuous Galerkin Methods** S. Spiegel, H. Huynh, J. DeBonis, NASA Glenn Research Center, Cleveland, OH	1500 hrs AIAA-2015-2745 **Fully-conservative High-order FR Scheme on Moving and Deforming Grids** Y. Abe, University of Tokyo, Sagamihara, Japan; T. Haga, T. Nonomura, K. Fujii, Japan Aerospace Exploration Agency (JAXA), Sagamihara, Japan	1530 hrs AIAA-2015-2746 **A WENO-type Limiter for 4th Order Constrained Derivative Flux Reconstruction Method** Z. Sun, F. Xiao, Tokyo Institute of Technology, Yokohama, Japan			

Tuesday, 23 June 2015						
131-CFD-14	**Adjoints and Error Estimation**					**Grand Ballroom B**
Chaired by: C. ROY, Virginia Tech and C. OLLIVIER GOOCH, University of British Columbia						
1400 hrs AIAA-2015-2747 **Accuracy of Discretization Error Estimation by the Error Transport Equation on Unstructured Meshes - Nonlinear Systems of Equations** G. Yan, C. Ollivier Gooch, University of British Columbia, Vancouver, Canada	1430 hrs AIAA-2015-2748 **Comparison of Truncation Error Estimators for Defect Correction and Output Error Estimation in the Unstructured Mesh Finite Volume Method** M. Sharbatdar, C. Ollivier Gooch, University of British Columbia, Vancouver, Canada	1500 hrs AIAA-2015-2749 **Stabilisation of Discrete Adjoint Solvers for Incompressible Flow** Y. Wang, S. Akbarzadeh, J. Mueller, Queen Mary University of London, London, United Kingdom	1530 hrs AIAA-2015-2750 **Fixed point discrete adjoint of SIMPLE-like solvers** S. Akbarzadeh, Y. Wang, J. Mueller, Queen Mary University of London, London, United Kingdom	1600 hrs AIAA-2015-2751 **Convergence Acceleration Using Convergence Error Estimation** S. Eyi, Middle East Technical University, Ankara, Turkey		

Tuesday, 23 June 2015						
132-CFD-15	**Time Integration Methods**					**Coral**
Chaired by: X. WANG, Air Force Research Laboratory, Wright-Patterson AFB and J. NORDSTROM, Linköping University						
1400 hrs AIAA-2015-2752 **Optimal Runge-Kutta Schemes for High-order Spatial and Temporal Discretizations** N. Mundis, ERC, Inc., Edwards AFB, CA; A. Edoh, University of California, Los Angeles, Los Angeles, CA; V. Sankaran, Air Force Research Laboratory, Edwards AFB, CA	1430 hrs AIAA-2015-2753 **Application of Dual Time Stepping to Fully Implicit Runge Kutta Schemes for Unsteady Flow Calculations** A. Jameson, Stanford University, Stanford, CA	1500 hrs AIAA-2015-2754 **Assessment of time implicit discretizations for the computation of turbulent compressible flows** P. Cinnella, Università del Salento, Lecce, Italy; C. Cedric, Paris Institute of Technology, Paris, France	1530 hrs AIAA-2015-2755 **A Mapped Chebyshev Pseudospectral Method for Unsteady Flow Analysis** D. Im, S. Choi, J. McClure, J. Choi, F. Skies, Virginia Polytechnic Institute and State University, Blacksburg, VA	1600 hrs AIAA-2015-2756 **Unsteady Solutions of Non-Linear Differential Equations Using Walsh Function Series** P. Gnoffo, NASA Langley Research Center, Hampton, VA	1630 hrs AIAA-2015-2757 **Investigation of Efficient High-Order Implicit Runge-Kutta Methods Based on Generalized Summation-by-Parts Operators** P. Boom, D. Zingg, University of Toronto, Toronto, Canada	

Tuesday, 23 June 2015						
133-CFD-16	**RANS Modeling**					**Emerald**
Chaired by: P. HARTWICH, Boeing Research & Technology and J. CARLSON, Computational Aerosciences Branch						
1400 hrs AIAA-2015-2758 **Node-Centered Wall Function Models for the Unstructured FLow Code Fun3D** J. Carlson, V. Vatsa, J. White, NASA Langley Research Center, Hampton, VA	1430 hrs AIAA-2015-2759 **Analysis of a low Reynolds differential Reynolds stress model in homogeneous shear flow with respect to numerical stability** C. Morsbach, German Aerospace Center (DLR) , Cologne, Germany	1500 hrs AIAA-2015-2760 **Extension of the SU2 open source CFD code to the simulation of turbulent flows of fuids modelled with complex thermophysical laws** S. Vitale, Delft University of Technology, Delft, The Netherlands; G. Gori, Technical University of Milan, Milan, Italy; M. Pini, Delft University of Technology, Delft, The Netherlands; A. Guardone, Technical University of Milan, Milan, Italy; T. Economon, F. Palacios, Stanford University, Palo Alto, CA; et al.	1530 hrs AIAA-2015-2761 **Turbulent Flow Simulations on Unstructured Grids using a Reynolds Stress Models** Y. Mor-Yossef, Israeli CFD Center, Caesarea Industrial Park, Israel	1600 hrs AIAA-2015-2762 **Recent Improvement of a Correlation-Based Transition Turbulence Model for Simulating Three-Dimensional Boundary Layers** J. Choi, O. Kwon, Korea Advanced Institute of Science and Technology, Daejeon, South Korea	1630 hrs AIAA-2015-2763 **Proper orthogonal decomposition closure models for Burgers and Navier-Stokes Equations** H. Imtiaz, I. Akhtar, M. Saif Ullah Khalid, National University of Sciences and Technology, Rawalpindi, Pakistan	

Tuesday, 23 June 2015		
134-CFD-37 **1400 - 1600 hrs**	**CFD Flow Visualization Showcase**	**Chantilly Ballroom Foyer**
The CFD Flow Visualization Showcase will be held in the foyer area outside the Exposition Hall. Authors of papers containing CFD visualizations will describe their work and the significance of their animation as it plays on a large-screen monitor. Multiple visualizations will be shown during each of the four 30-minute time slots during the event. At the conclusion of the event, awards will be presented for, Most Artistic Flow Visualization Animation, Most Quantitatively Descriptive Flow Visualization Animation, Most Comprehensive Flow Visualization Animation. The visualizations of the three winners will be displayed on a monitor in the Exposition Hall during the remainder of the exposition.		

Tuesday, 23 June 2015		
135-F360-4 1400 - 1630 hrs	International UAS Integration Forum	Grand Ballroom E

Moderator: Rob Hughes, Northrop Grumman, Inc.

Panelists:

Cees Bil
Associate Professor, School of Aerospace, Mechanical and Manufacturing Engineering
RMIT University

Chuck Johnson
Vice President of Operations
The Padina Group

Marty Rogers
University of Alaska-Fairbanks

Marshall Jackson
Project Manager - Aviation Safety Audits
Office of Inspector General
U.S. Department of Transportation

Randy Willis
FAA, Co-Chair of ICAO RPAS
(Remotely Piloted Aircraft Systems)

Dale Richards
Senior Research Fellow, Human Factors
Faculty of Engineering & Computing
Coventry University, United Kingdom

Tuesday, 23 June 2015						
136-FD-15	Unsteady Wing Aerodynamics II					Govenors Lecture Hall
Chaired by: K. TAIRA, Florida State University and B. JOLLY, US Air Force						
1400 hrs AIAA-2015-2764 **Aeromechanics of Membrane Wings in Ground-Effect** R. Bleischwitz, R. De Kat, B. Ganapathisubramani, University of Southampton, Southampton, United Kingdom	1430 hrs AIAA-2015-2765 **The Influence of Streamline Curvature on Low Aspect Ratio Rotating Wings** C. Kroninger, A. Harrington, M. Munson, Army Research Laboratory, Aberdeen Proving Ground, MD	1500 hrs AIAA-2015-2766 **Effect of Turbulence Modeling on Hovering Rotor Flows** S. Yoon, N. Chaderjian, T. Pulliam, T. Holst, NASA Ames Research Center, Moffett Field, CA	1530 hrs AIAA-2015-2767 **A Data-Driven Modeling Framework for Predicting Forces and Pressures on a Rapidly Pitching Airfoil** S. Dawson, N. Schiavone, C. Rowley, Princeton University, Princeton, NJ; D. Williams, Illinois Institute of Technology, Chicago, IL	1600 hrs AIAA-2015-2768 **Nonlinear Characterization of Flow over Oscillating Elliptic Airfoils** M. Khalid, I. Akhtar, National University of Sciences and Technology, Islamabad, Pakistan; H. Dong, University of Virginia, Charlottesville, Charlottesville, VA; N. Ahsan, Institute of Space Technology, Islamabad, Pakistan	1630 hrs AIAA-2015-2769 **Intermittency Behaviour in the Flow Past an Oscillating Airfoil** S. Badrinath, S. Sarkar, Indian Institute of Technology Madras, Chennai, India	1700 hrs AIAA-2015-2770 **Analysis of Deflected Vortex Street Produced by an Oscillating Airfoil** S. Badrinath, S. Sarkar, Indian Institute of Technology Madras, Chennai, India

Tuesday, 23 June 2015						
137-FD-16	Boundary Layer Transition: Crossflow					Sapphire
Chaired by: M. BORG, Air Force Research Laboratory and T. JULIANO, University of Notre Dame						
1400 hrs AIAA-2015-2771 **Direct Numerical Simulation of Transition due to Traveling Crossflow Vortices** F. Li, M. Choudhari, NASA Langley Research Center, Hampton, VA; L. Duan, Missouri University of Science and Technology, Rolla, MO	1430 hrs AIAA-2015-2772 **EPIC: NPSE Analysis of Hypersonic Crossflow Instability on Yawed Straight Circular Cone** N. Oliviero, T. Kocian, A. Moyes, H. Reed, Texas A&M University, College Station, TX	1500 hrs AIAA-2015-2773 **Secondary Instability of Stationary Crossflow Vortices on an Inclined Cone at Mach 6** C. Ward, R. Henderson, S. Schneider, Purdue University, West Lafayette, IN	1530 hrs AIAA-2015-2774 **Experimental study of crossflow instability on a Mach 6 yawed cone** S. Craig, W. Saric, Texas A&M University, College Station, TX	1600 hrs AIAA-2015-2775 **Computational Investigation of Step Excrescence Sensitivity in a Swept-Wing Boundary Layer** M. Tufts, H. Reed, B. Crawford, G. Duncan, W. Saric, Texas A&M University, College Station, TX	1630 hrs AIAA-2015-2776 **The Effect of Backward-facing Step Height on Instability Growth and Breakdown in Swept-Wing Boundary-Layer Transition** J. Eppink, NASA Langley Research Center, Hampton, VA; R. Wlezien, Iowa State University, Ames, IA; R. King, M. Choudhari, NASA Langley Research Center, Hampton, VA	

Tuesday, 23 June 2015						
138-FD-17	Boundary Layer and Bluff Body Control					Senators Lecture Hall
Chaired by: Z. ZHANG, University of Tennessee and J. LIN, NASA-Langley Research Center						
1400 hrs AIAA-2015-2777 **Control of Afterbody Vortices by Blowing** R. Jackson, Z. Wang, I. Gursul, University of Bath, Bath, United Kingdom	1430 hrs AIAA-2015-2778 **Simplified model for flow-heating effect on wave drag of blunt bodies and its validation** E. Schülein, German Aerospace Center (DLR), Göttingen, Germany	1500 hrs AIAA-2015-2779 **The effects of Mach and Reynolds number on the flow mixing properties of micro-ramp vortex generators in a supersonic boundary layer** R. Giepman, A. Srivastava, F. Schrijer, B. van Oudheusden, Delft University of Technology, Delft, The Netherlands	1530 hrs AIAA-2015-2780 **Experimental investigation of boundary layer tripping devices for shock wave - boundary layer control** R. Giepman, R. Louman, F. Schrijer, B. van Oudheusden, Delft University of Technology, Delft, The Netherlands	1600 hrs AIAA-2015-2781 **Control of Shock Wave Boundary Layer Interaction using Laser Pulse Energy Depositions** A. Iwakawa, T. Tamba, P. Son, T. Shoda, A. Sasoh, Nagoya University, Nagoya, Japan		

Tuesday, 23 June 2015						
139-FD-18	**Turbulence Modeling**					**Edelweiss**
Chaired by: C. RUMSEY, NASA-Langley Research Center and G. BLAISDELL, Purdue University						
1400 hrs AIAA-2015-2782 **Stretched-Vortex based Subgrid-scale Modeling of Variable-Density Flows** G. Sidharth, G. Candler, University of Minnesota, Minneapolis, Minneapolis, MN; P. Dimotakis, California Institute of Technology, Pasadena, CA	1430 hrs AIAA-2015-2783 **DNS/LES Simulations of Separated Flows at High Reynolds Numbers** P. Balakumar, NASA Langley Research Center, Hampton, VA; G. Park, Stanford University, Palo Alto, CA	1500 hrs AIAA-2015-2784 **Bayesian Calibration of a RANS Model with a Complex Response Surface - A Case Study with Jet-in-Crossflow Configuration** J. Ray, S. Lefantzi, Sandia National Laboratories, Livermore, CA; S. Arunajatesan, L. DeChant, Sandia National Laboratories, Albuquerque, NM	1530 hrs AIAA-2015-2785 **Extension of Wray-Agarwal Turbulence Model for Flow Over Rough Surfaces** T. Wray, R. Agarwal, Washington University in St. Louis, St. Louis, MO	1600 hrs AIAA-2015-2786 **An Improved Version of One-Equation RAS Turbulence Model** M. Rahman, Aalto University, Helsinki, Finland; R. Agarwal, Washington University in St. Louis, St. Louis, MO; M. Lampinen, T. Siikonen, Aalto University, Helsinki, Finland		

Tuesday, 23 June 2015						
140-ITAR-2	**ITAR - Aircraft Design and Modeling** ITAR					**Morocco**
Chaired by: K. CASPER						
1400 hrs AIAA-2015-2787 **Development and Testing of a Solar Powered Aircraft** J. Jacob, Oklahoma State University, Stillwater, OK; J. Grimsley, S. Atkins, Design Intelligence, Inc., Norman, OK	1430 hrs AIAA-2015-2788 **Airfield Lifting Loads a CFD/Full Scale Rotary Wing Test Study** F. Zajaczkowski, J. Tarter, T. Bagwell, Applied Research Laboratory, State College, PA					

Tuesday, 23 June 2015						
141-MAO-4	**Applications II**					**Madrid**
Chaired by: R. KHIRE, United Technologies Research Center and E. WINER, Iowa State University						
1400 hrs AIAA-2015-2789 **Design Space Exploration of Wingbox Substructures Configuration Using SPANDSET** C. Potter, Georgia Institute of Technology, Atlanta, GA; S. Russell, Triumph Aerostructures, Dallas, TX; V. Kim, Z. Liu, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1430 hrs AIAA-2015-2790 **High-Fidelity Aerostructural Otimization Considering Buffet Onset** G. Kenway, J. Martins, University of Michigan, Ann Arbor, Ann Arbor, MI	1500 hrs AIAA-2015-2791 **Aeroelastic Tailoring Study of an N+2 Low-boom Supersonic Commercial Transport Aircraft** C. Pak, NASA Armstrong Flight Research Center, Edwards, CA	1530 hrs AIAA-2015-2792 **Optimal Mission Path for the Uninhabited Loyal Wingman** C. Humphreys, R. Cobb, D. Jacques, J. Reeger, Air Force Institute of Technology, Wright-Patterson AFB, OH	1600 hrs AIAA-2015-2793 **Multidisciplinary Analysis of a Box-Wing Aircraft Designed for a Regional-Jet Mission** S. Andrews, R. Perez, Royal Military College of Canada, Kingston, Canada		

Tuesday, 23 June 2015						
142-MST-6	**Shadow Mode Assessment using Realistic Technologies for National Airspace System (SMART NAS) Test Bed Development (Invited)**					**Travertine**
Chaired by: K. PALOPO, NASA Ames Research Center and G. CHATTERJI, NASA Ames Research Center						
1400 hrs AIAA-2015-2794 **Shadow Mode Assessment using Realistic Technologies for the National Airspace System (SMART NAS) Test Bed Development (Invited)** K. Palopo, NASA Ames Research Center, Moffett Field, CA; G. Chatterji, University of California, Santa Cruz, Moffett Field, CA; M. Guminsky, P. Glaab, NASA Langley Research Center, Hampton, VA	1430 hrs AIAA-2015-2795 **Design Challenges for a Shadow Mode Assessment Tool for Air Traffic Management (Invited)** R. Hoffman, Metron Aviation, Inc., Dulles, VA; J. Krozel, Innovation Laboratory, Inc., Portland, OR; D. Miller, J. Smith, Metron Aviation, Inc., Dulles, VA	1500 hrs AIAA-2015-2796 **Platform As A Service (PAAS) Architecture for NASA's SMART NAS (Invited)** P. Cobb, M. Blake, Crown Consulting, Inc., Arlington, VA	1530 hrs AIAA-2015-2797 **Architecture Development for Shadow Mode Assessments of Air Traffic Management Technologies (Invited)** P. Kostiuk, Robust Analytics, Gambrills, MD	1600 hrs AIAA-2015-2798 **A Data Exchange and Transformation System for SMART NAS (Invited)** P. Cobb, Crown Consulting, Inc., Arlington, VA; M. Garland, Mosaic ATM, Leesburg, VA	1630 hrs AIAA-2015-2799 **Parallel Simulation of Agent-Based Model for Air Traffic Network** Y. Kim, O. Pinon-Fischer, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1700 hrs AIAA-2015-2800 **An Integrated Framework for Modeling Air Carrier Behavior, Policy, and Impacts in the U.S. Air Transportation System** B. Horio, V. Kumar, V. Stouffer, S. Hasan, A. DeCicco, LMI, Tysons Corner, VA; J. Smith, NASA Langley Research Center, Hampton, VA; et al.

Tuesday, 23 June 2015						
143-PDL-6	**Plasma Diagnostics I**					**Miro**
Chaired by: C. DUMITRACHE, Colorado State University						
1400 hrs AIAA-2015-2801 **Composition-Independent Temperature and Pressure Measurements using Lineshape Scaling Information from Kr PLIF** D. Zelenak, F. Kidd, V. Narayanaswamy, North Carolina State University, Raleigh, NC	1430 hrs AIAA-2015-2802 **Computational and Experimental Laser Differential Interferometry for Supersonic Turbulent Boundary-Layer Flow** N. Bisek, M. Brown, Air Force Research Laboratory, Wright-Patterson AFB, OH	1500 hrs AIAA-2015-2803 **Understanding the Impact of Buffer Gases on the Radar REMPI Diagnostic** T. Chng, R. Miles, Princeton University, Princeton, NJ	1530 hrs AIAA-2015-2804 **Wavefront Measurements of a Supersonic Boundary Layer Using a Laser-Induced Breakdown Spark** M. Nguyen, M. Rennie, S. Gordeyev, E. Jumper, University of Notre Dame, Notre Dame, IN; A. Cain, Innovative Technology Applications Company, LLC, Chesterfield, MO; T. Hayden, U.S. Air Force Academy, Colorado Springs, CO	1600 hrs AIAA-2015-2805 **Langmuir Probe Diagnostics of an Atmospheric-Pressure Microplasma** L. Blair, K. Xu, University of Alabama, Huntsville, Huntsville, AL		

Tuesday, 23 June 2015						
144-PDL-7	**Plasma Aerodynamics & Flow Control III**					**Monet Ballroom**
Chaired by: T. MOELLER, University of Tennessee Space Institute						
1400 hrs AIAA-2015-2806 **Investigation of Cathodic-Arc-Jet Influence on Cross Flow using Particle Image Velocimetry** I. Kronhaus, Technion–Israel Institute of Technology, Haifa, Israel	1430 hrs AIAA-2015-2807 **Dynamics of Charge Transfer in Atmospheric Pressure Barrier Discharge at Single and Alternative Polarities of Supplying Voltage** S. Leonov, University of Notre Dame, Notre Dame, IN	1500 hrs AIAA-2015-2808 **Effect of New Electron Impact Ionization on the Aerodynamic Heating Environment for Super-Orbital Reentry Vehicles** H. Otsu, Ryukoku University, Otsu, Japan; K. Yamada, T. Abe, Japan Aerospace Exploration Agency (JAXA), Sagamihara, Japan	1530 hrs AIAA-2015-2809 **Numerical Study on Performance Improvement Mechanism of Tri-Electrode Plasma Actuator** H. Nishida, M. Tamura, Tokyo University of Agriculture and Technology, Koganei, Japan; T. Matsuno, Tottori University, Tottori, Japan	1600 hrs AIAA-2015-2810 **Effect of Voltage and Frequency on Starting Repetitive Nanosecond Pulsed DBD** X. Han, H. Li, X. Meng, Northwestern Polytechnical University, Xi'an, China; F. Liu, S. Luo, University of California, Irvine, Los Angeles, CA		

Tuesday, 23 June 2015						
145-TP-7	**Heat Transfer II**					**Rosetta**
Chaired by: E. SHORT, Raytheon Company and E. KHALIL, Cairo University						
1400 hrs AIAA-2015-2811 **Response of porous foams filled with phase change material under transient heating** G. Jackson, K. Smith, P. Mccarthy, T. Fisher, Purdue University, West Lafayette, IN	1430 hrs AIAA-2015-2812 **Evaluation of different Turbulence Models for analysis of Jet Impingement in Gas Turbine Blades** B. Upalkar, M. Ricklick, Embry-Riddle Aeronautical University, Daytona Beach, FL	1500 hrs AIAA-2015-2813 **Benchmarking of Computational Models For Adiabatic Film-Cooling Effectiveness For Large Spacing Compound Angle Full Coverage Film Cooling Arrays** S. Martinez, M. Ricklick, Embry-Riddle Aeronautical University, Daytona Beach, FL	1530 hrs AIAA-2015-2814 **Numerical Analysis of Film Cooling Characteristic on a Turbine Non-axisymmetric Contoured Endwall** Q. Pan, H. Tang, J. Bai, Aviation Industry Corporation of China (AVIC), Shanghai, China	1600 hrs AIAA-2015-2815 **POD Analysis of the Transient Flow Field at Pulse Engine Exhaust Region** W. Cai, C. Yang, B. Qi, H. Ma, L. Yu, X. Chen, Nanjing University of Science and Technology, Nanjing, China	1630 hrs AIAA-2015-2816 **Fluid flow and heat transfer in a rotating two-pass square channel with smooth walls and axial inward/outward flow** J. Bai, Q. Pan, Aviation Industry Corporation of China (AVIC), Shanghai, China	1700 hrs AIAA-2015-2817 **Numerical and experimental analysis of heat transfer of piccolo tube jet impingement on a concave surface** Y. Bo, S. Chang, Y. Zhao, M. Leng, Beihang University, Beijing, China

Tuesday, 23 June 2015		
146-NW-4 **1530 - 1600 hrs**	**Networking Coffee Break**	**Chantilly Ballroom East**

Tuesday, 23 June 2015		
147-LEC-2 **1630 - 1730 hrs**	**Plasmadynamics and Lasers Award Lecture**	**Grand Ballroom D**

From Plasmadynamics and Shock Tubes to Aero-Optics and Laser Radar: An Aerospace Career

Philip E. Cassady

Senior Technical Fellow (Retired)

The Boeing Company

Tuesday, 23 June 2015		
148-NW-5 1730 - 1900 hrs	Reception in the Exposition Hall	Chantilly Ballroom East
A ticket is required and included in the conference registration fee where indicated.		

Wednesday

Wednesday, 24 June 2015		
149-SB-3 0730 - 0800 hrs	Speakers' Briefing	Session Rooms

Wednesday, 24 June 2015		
150-PLNRY-3 0800 - 0900 hrs	Plenary Keynote	Chantilly Ballroom West
NASA and the Future of Aerospace **Charles F. Bolden Jr.** Administrator National Aeronautics and Space Administration		

Wednesday, 24 June 2015						
151-AA-21	Turbomachinery and Core Noise					Fleur-de-lis B
Chaired by: H. ATASSI, University of Notre Dame						
0900 hrs AIAA-2015-2818 **Entropy Noise Generation and Reduction in a Heated Nozzle Flow** K. Knobloch, T. Werner, F. Bake, German Aerospace Center (DLR), Berlin, Germany	0930 hrs AIAA-2015-2819 **Dynamic Temperature and Pressure Measurements in the Core of a Propulsion Engine** W. Schuster, Honeywell International, Inc., Phoenix, AZ; L. Hultgren, NASA Glenn Research Center, Cleveland, OH	1000 hrs AIAA-2015-2820 **Broadband indirect noise generation by accelerated vorticity** N. Kings, L. Enghardt, F. Bake, German Aerospace Center (DLR), Berlin, Germany	1030 hrs AIAA-2015-2821 **Linear Analysis of Engine Core Noise Using a Hybrid Modeling Approach** J. O'Brien, J. Kim, M. Ihme, Stanford University, Stanford, CA	1100 hrs AIAA-2015-2822 **Acoustic Comparison of Different Turbine Exit Guide Vane Designs - Part 1: Design Philosophy and Numerical Predictions** D. Broszat, M. Höger, MTU Aero Engines, Munich, Germany; A. Marn, T. Selic, F. Schönleitner, F. Heitmeir, Graz University of Technology, Graz, Austria	1130 hrs AIAA-2015-2823 **Acoustic Comparison of Different Turbine Exit Guide Vane Designs Part 2: Experimental Analysis** A. Marn, T. Selic, F. Schönleitner, S. Zerobin, Graz University of Technology, Graz, Austria; D. Broszat, M. Höger, MTU Aero Engines, Munich, Germany; et al.	1200 hrs AIAA-2015-2824 **Experimental Study on the Turbomachinery Trailing Edge Noise Reduction Based on Linear Cascade Test with Phased Array** W. Qiao, L. Wang, W. Chen, F. Tong, L. Ji, Northwestern Polytechnical University, Xi'an, China

Wednesday, 24 June 2015						
152-AA-22	General Acoustics II					Inverness
Chaired by: S. RIZZI, NASA Langley Research Center						
0900 hrs AIAA-2015-2825 **On a mode-matching technique for sound generation and transmission in a linear cascade of outlet guide vanes** S. Bouley, B. François, M. Roger, École Centrale de Lyon, Ecully, France; S. Moreau, University of Sherbrooke, Sherbrooke, Canada	0930 hrs AIAA-2015-2826 **Noise control by a rotating rod in a rod-airfoil configuration** L. Siozos-Rousoulis, G. Ghorbaniasl, C. Lacor, Vrije Universiteit Brussel, Brussels, Belgium	1000 hrs AIAA-2015-2827 **Acoustic effects of a rotationally oscillating rod in a rod-airfoil configuration** L. Siozos-Rousoulis, G. Ghorbaniasl, C. Lacor, Vrije Universiteit Brussel, Brussels, Belgium	1030 hrs AIAA-2015-2828 **Active Control of Fan Tones by means of Trailing Edge Blowing** L. Enghardt, P. Kausche, A. Moreau, German Aerospace Center (DLR), Berlin, Germany; T. Carolus, University of Siegen, Siegen, Germany	1100 hrs AIAA-2015-2829 **Acoustic Resonance Phenomena in a Three-Dimensional Cascade Interacting with Oncoming Unsteady Wakes** H. Kodama, IHI Corporation, Nishitama, Japan; M. Namba, Kyusyu University, Fukuoka, Japan	1130 hrs AIAA-2015-2830 **Aerofoil geometry effects on turbulence interaction noise** C. Paruchuri, J. Gill, N. Subramanian, P. Joseph, C. Vanderwel, X. Zhang, University of Southampton, Southampton, United Kingdom; et al.	1200 hrs AIAA-2015-2831 **Wall-Mounted Finite Airfoil Noise Production and Prediction** D. Moreau, C. Doolan, University of New South Wales, Sydney, Australia; W. Alexander, T. Meyers, W. Devenport, Virginia Polytechnic Institute and State University, Blacksburg, VA

Wednesday, 24 June 2015						
153-AA-23	**Jet Noise Near Field and Jet Noise Reduction**					**Lalique**
Chaired by: A. PILON, Lockheed Martin Aeronautics						
0900 hrs AIAA-2015-2832 **On Theoretical Broadband Shock-Associated Noise Near-Field Cross-Spectra** S. Miller, NASA Langley Research Center, Hampton, VA	0930 hrs AIAA-2015-2833 **Near-field Pressure Waveform Analysis of an Excited Mach 0.9 Jet** C. Kuo, M. Crawley, M. Samimy, Ohio State University, Columbus, OH	1000 hrs AIAA-2015-2834 **Measuring shear layer growth rates in aeroacoustically forced axisymmetric supersonic jets** D. Edgington-Mitchell, O. Amili, D. Honnery, J. Soria, Monash University, Melbourne, Australia	1030 hrs AIAA-2015-2835 **Impact of Chevrons on Noise Source Characteristics In Imperfectly Expanded Jet Flows** J. Liu, A. Corrigan, K. Kailasanath, Naval Research Laboratory, Washington, DC; E. Gutmark, University of Cincinnati, Cincinnati, OH	1100 hrs AIAA-2015-2836 **Effect of Inverted Triangular Tabs on Mitigation of Jet Noise from Axisymmetric Convergent Nozzles** A. Subramanyam, K. Natarajan, National Aerospace Laboratories, Bangalore, India	1130 hrs AIAA-2015-2837 **An Investigation of Twin Supersonic Jets' Near-field** J. Cluts, C. Kuo, M. Samimy, Ohio State University, Columbus, OH	1200 hrs AIAA-2015-2838 **Acoustic source analysis of a supersonic rectangular chevron jet** J. Kreitzman, J. Nichols, University of Minnesota, Minneapolis, Minneapolis, MN

Wednesday, 24 June 2015						
154-AA-24	**CAA Propagation and Scattering II**					**Obelisk A**
Chaired by: M. ROGER, Ecole Centrale de Lyon						
0900 hrs AIAA-2015-2839 **CAA analysis of a Wing Section with Flap Side-Edges Based on Hybrid RANS-LES Computation** S. Peng, L. Tysell, Swedish Defense Research Agency (FOI), Stockholm, Sweden; H. Yao, L. Davidson, L. Eriksson, Chalmers University of Technology, Göteborg, Sweden	0930 hrs AIAA-2015-2840 **Prediction of Far-Field Wind Turbine Noise Propagation with Parabolic Equation** S. Lee, General Electric Company, Niskayuna, NY	1000 hrs AIAA-2015-2841 **Numerical simulation of spectral broadening of an acoustic wave by a spatially growing turbulent mixing layer** I. Bennaceur, D. Mincu, I. Mary, M. Terracol, ONERA, Châtillon, France; L. Larcheveque, D. Pierre, Aix-Marseille University, Marseille, France	1030 hrs AIAA-2015-2842 **Comparison of Computational Aeroacoustics Prediction of Vortical Gust Scattering by a 2D Stator with Flat Plate Theory** C. Durand, D. Hixon, University of Toledo, Toledo, OH	1100 hrs AIAA-2015-2843 **Numerical and Analytical Investigation of Orthogonal Blade/Vortex Interaction Noise** F. Falissard, P. Zehner, ONERA, Châtillon, France; M. Roger, École Centrale de Lyon, Ecully, France; X. Gloerfelt, Arts Metiers ParisTech, Paris, France		

Wednesday, 24 June 2015						
155-AA-25	**Benchmark Problems for Airframe Noise Computations III (BANC-III) Summary (Invited)**					**Fleur-de-lis A**
Chaired by: M. CHOUDHARI, NASA-Langley Research Center						
0900 hrs Oral Presentation **An Overview of Contributions on Nose Landing Gear Configuration for BANC-III Workshop** M. Khorrami, NASA Langley Research Center, Hampton, VA	0930 hrs AIAA-2015-2844 **Assessment of Slat Noise Predictions for 30P30N High-Lift Configuration from BANC-III Workshop** M. Choudhari, D. Lockard, NASA Langley Research Center, Hampton, VA	1000 hrs AIAA-2015-2845 **Variability in the Propagation Phase of CFD-Based Noise Prediction: Summary of Results from Category 8 of the BANC-III Workshop** L. Lopes, NASA Langley Research Center, Hampton, VA; S. Redonnet, ONERA, Toulouse, France; T. Imamura, University of Tokyo, Tokyo, Japan; T. Ikeda, Japan Aerospace Exploration Agency (JAXA), Chofu, Japan; N. Zawodny, NASA Langley Research Center, Hampton, VA; G. Cunha, ONERA, Toulouse, France	1030 hrs AIAA-2015-2846 **Summary of the LAGOON Solutions from the Benchmark problems for Airframe Noise Computations-III Workshop** E. Manoha, ONERA, Châtillon, France; B. Caruelle, Airbus, Toulouse, France	1100 hrs AIAA-2015-2847 **Broadband Trailing-Edge Noise Predictions — Overview of BANC-III Results** M. Herr, R. Ewert, C. Rautmann, German Aerospace Center (DLR), Braunschweig, Germany; M. Kamruzzaman, ENERCON GmbH, Aurich, Germany; D. Bekiropoulos, University of Stuttgart, Stuttgart, Germany; R. Arina, Technical University of Turin, Torino, Italy; et al.		

Wednesday, 24 June 2015						
156-ACD-4	**General Aviation**					**Morocco**
Chaired by: M. ORR, Boeing Commercial Airplanes						
0900 hrs AIAA-2015-2848 **Identifying High-Risk Occurrence Chains in Helicopter Operations from Accident Data** A. Rao, K. Marais, Purdue University, West Lafayette, IN	0930 hrs AIAA-2015-2849 **Pilot Perception and Use of ADS-B In Traffic and Weather Services (TIS-B and FIS-B)** S. Silva, L. Jensen, R. Hansman, Massachusetts Institute of Technology, Cambridge, MA	1000 hrs AIAA-2015-2850 **Implementataion and Validation of an Internal Combustion Engine and Propeller Model for General Aviation Aircraft Performance Studies** E. Harrison, S. Min, H. Jimenez, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1030 hrs AIAA-2015-2851 **Identifying Phases of Flight in General Aviation Operations** N. Fala, V. Goblet, K. Marais, Purdue University, West Lafayette, IN	1100 hrs AIAA-2015-2852 **Pilot-Friendliness Considerations for Personal Air Vehicle Flight Control Systems** I. Chakraborty, B. Lozano, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1130 hrs AIAA-2015-2853 **Development of Aerodynamic Modeling and Calibration Methods for General Aviation Aircraft Performance Analysis - a Survey and Comparison of Models** S. Min, E. Harrison, H. Jimenez, D. Mavris, Georgia Institute of Technology, Atlanta, GA	

Wednesday, 24 June 2015						
157-AFM-9	**Unmanned Aircraft Systems II**					**Plum Blossom A**
Chaired by: T. FIELDS, University of Missouri and G. SHAH, NASA-Langley Research Center						
0900 hrs AIAA-2015-2854 **Unsteady Aerodynamics Modeling for a Flexible Unmanned Air Vehicle** A. Kotikalpudi, H. Pfifer, G. Balas, University of Minnesota, Minneapolis, Minneapolis, MN	0930 hrs AIAA-2015-2855 **A Comparison of Filters for UAS-Based Localization of Stationary RF Sources** M. Stachura, Black Swift Technologies, LLC, Boulder, CO; N. Wagle, E. Frew, University of Colorado, Boulder, Boulder, CO	1000 hrs AIAA-2015-2856 **Robust Three-Dimensional Characterization of a Complex Atmosphere at High Resolution using Multi-Agent Windmappers** C. Montalvo, J. Richardson, J. Marshall, University of South Alabama, Mobile, AL	1030 hrs AIAA-2015-2857 **Nonlinear Model Predictive Control Applied to Trajectory Tracking for Unmanned Aerial Vehicles** K. Subbarao, C. Tule, P. Ru, University of Texas, Arlington, Arlington, TX	1100 hrs AIAA-2015-2858 **A Launch System Design Methodology for Small Unmanned Aircraft Applications** A. Patterson, A. Arena, Oklahoma State University, Stillwater, OK	1130 hrs AIAA-2015-2859 **Feasibility Study of Closed Cycle Propulsion for Unmanned Aerial Systems** T. Hays, A. Arena, Oklahoma State University, Stillwater, OK	

Wednesday, 24 June 2015						
158-AMT-9/GT-9	**Ground Test Facility Improvements I**					**Obelisk B**
Chaired by: R. RHEW, NASA-Langley Research Center and S. SIMERLY, NASA Glenn Research Center						
0900 hrs AIAA-2015-2860 **Development of a Research Facility to Study the Flow Field in an APU-Style Inlet** F. Lou, W. Murray, N. Key, Purdue University, West Lafayette, IN	0930 hrs AIAA-2015-2861 **Development and Testing of an Unsteady Low-Speed Wind Tunnel** D. Greenblatt, Technion–Israel Institute of Technology, Haifa, Israel	1000 hrs AIAA-2015-2862 **Expansion of the AEDC H2 Arc Heater Facility Test Envelope Using Cold-Air Mixing** G. Hammock, Arnold Engineering Development Complex, Arnold AFB, TN	1030 hrs AIAA-2015-2863 **Experiments with the Model Test Apparatus Installed in the AFIT Low Speed Tunnel** J. Lancaster, M. Reeder, Air Force Institute of Technology, Wright-Patterson AFB, OH; M. Sytsma, Air Force Research Laboratory, Eglin AFB, FL; P. Rowe, RE2, Inc., Pittsburgh, PA; R. Cobb, Air Force Institute of Technology, Wright-Patterson AFB, OH	1100 hrs AIAA-2015-2864 **Upgrades to the Texas A&M Oran W. Nicks Low-Speed Wind Tunnel for M=0.4 Operation** A. Herring, D. Kutz, L. Brown, E. White, Texas A&M University, College Station, TX	1130 hrs Oral Presentation **NASA Langley Aeroacoustic Wind Tunnel Capability Moving Forward** M. Doty, F. Hutcheson, H. Haskin, P. Quinto, D. Smith, NASA Langley Research Center, Hampton, VA	

Wednesday, 24 June 2015						
159-AMT-10/GT-10	**Particle-Based Velocimetry Applications and Developments**					**Topaz**
Chaired by: K. LOWE, Virginia Tech and C. GOYNE, University of Virginia						
0900 hrs AIAA-2015-2865 **Velocity Measurements in an Unseeded Turbojet Engine Exhaust Using Planar Doppler Velocimetry** T. Jenkins, MetroLaser, Inc., Laguna Hills, CA; J. Seitzman, S. Adusumilli, Georgia Institute of Technology, Atlanta, GA	0930 hrs AIAA-2015-2866 **Stereoscopic PIV measurements in a turbofan engine inlet with tailored swirl distortion** M. Nelson, K. Lowe, W. O'Brien, C. Kirk, Virginia Polytechnic Institute and State University, Blacksburg, VA	1000 hrs AIAA-2015-2867 **Multi-stereo PIV measurement of propeller wake flow in industrial facility** M. Novara, R. Geisler, A. Schroeder, German Aerospace Center (DLR), Göttingen, Germany	1030 hrs AIAA-2015-2868 **Application of Particle Image Velocimetry and Laser Induced Fluorescence in a cooling duct flow** H. Rochlitz, P. Scholz, Technical University of Braunschweig, Braunschweig, Germany	1100 hrs AIAA-2015-2869 **Biological Flow Measurement using Optical Flow Method** Z. Yang, H. Yu, G. Huang, B. Ludwig, Wright State University, Beavercreek, OH	1130 hrs AIAA-2015-2870 **Development and characterization of an inexpensive LED-based light source for high-frame-rate schlieren imaging** D. Lincoln, K. Murari, C. Johansen, University of Calgary, Calgary, Canada	

Wednesday, 24 June 2015						
160-APA-17	**Special Session: Hybrid CFD Method Assessments for F-16XL Aircraft Aerodynamics**					**Stemmons A**
Chaired by: J. LUCKRING, NASA-Langley Research Center and A. RIZZI, KTH Royal Institute Technology						
0900 hrs AIAA-2015-2871 **Free-Flight High AoA Flows Simulation at Sub- and Transonic Speeds - F-16XL (CAWAPI-3)** S. Hitzel, Airbus, Manching, Germany	0930 hrs AIAA-2015-2872 **F-16XL Hybrid Reynolds-Averaged Navier-Stokes/Large Eddy Simulation on Unstructured Grids** M. Park, A. Elmiligui, K. Abdol-Hamid, NASA Langley Research Center, Hampton, VA	1000 hrs AIAA-2015-2873 **Numerical Simulation of the F-16XL at Full-Scale Flight Test Conditions Using a Near-Body Off-Body CFD Approach** S. Morton, D. McDaniel, CREATE Kestrel Team, Eglin AFB, FL	1030 hrs AIAA-2015-2874 **Hybrid RANS-LES Simulations of F-16XL Aircraft in Low-speed High-alpha Flight** M. Tomac, A. Rizzi, Royal Institute of Technology (KTH), Stockholm, Sweden; A. Jirasek, P. Eliasson, Swedish Defense Research Agency (FOI), Stockholm, Sweden	1100 hrs AIAA-2015-2875 **Numerical Simulation of the F-16XL at Full-Scale Flight Test Conditions Using Delayed Detached-Eddy Simulation** A. Lofthouse, R. Cummings, U.S. Air Force Academy, Colorado Springs, CO	1130 hrs AIAA-2015-2876 **A Synthesis of Hybrid CFD Results for F-16XL Aircraft Aerodynamics** J. Luckring, NASA Langley Research Center, Hampton, VA	

Wednesday, 24 June 2015						
161-APA-18	**Aerodynamic Design Methodologies II**					**Carpenter Ballroom**
Chaired by: J. LATZ, Northrop Grumman Aerospace Systems and D. FINLEY, Lockheed Martin Aeronautics						
0900 hrs AIAA-2015-2877 **Improvements in the New Unsteady Far-Field Drag Breakdown Method and Application to Complex Cases** H. Toubin, D. Bailly, M. Costes, ONERA, Meudon, France	0930 hrs AIAA-2015-2878 **Aerodynamic shape optimization of BWB aircraft based on multizone collaborative optimization design method** Z. Gao, K. Zhao, C. Wang, Northwestern Polytechnical University, Xi'an, China	1000 hrs AIAA-2015-2879 **Design of A High-Performance Tailless MAV Through Planform Optimization** M. Bronz, G. Hattenberger, French Civil Aviation University, Toulouse, France	1030 hrs AIAA-2015-2880 **Aerodynamic Optimization of Integrated Wing-Engine Geometry using an Unstructured Vorticity Solver** L. King, R. Hartfield, Auburn University, Auburn, AL; V. Ahuja, Research in Flight, Auburn, AL			

Wednesday, 24 June 2015						
162-APA-19	**Propeller/Rotorcraft/Wind Turbine Aerodynamics II**					**Stemmons B**
Chaired by: J. FARNSWORTH, University of Colorado Boulder and M. POST, USAF Academy						
0900 hrs AIAA-2015-2881 **Development of UGS Monocopter: Platform Design and Trajectory Tracking** S. Srigrarom, K. Lee, S. Chng, M. Bin Abdul Malik, University of Glasgow, Glasgow, United Kingdom	0930 hrs AIAA-2015-2882 **A study of separation on airfoils undergoing pitch, surge and combined motions** R. Dunne, B. McKeon, California Institute of Technology, Pasadena, CA	1000 hrs AIAA-2015-2883 **Computational Investigation of Coaxial Rotor Interactional Aerodynamics in Steady Forward Flight** B. Passe, A. Sridharan, J. Baeder, University of Maryland, College Park, College Park, MD	1030 hrs AIAA-2015-2884 **Computational Investigations of Transient Loads and Blade Deformations on Coaxial Rotor Systems** R. Singh, H. Kang, Army Research Laboratory, Aberdeen Proving Ground, MD; J. Sirohi, University of Texas, Austin, Austin, TX	1100 hrs AIAA-2015-2885 **Rotor Dynamic Wake Inflow Modelling in State-Space Format** M. Gennaretti, R. Gori, J. Serafini, G. Bernardini, F. Cardito, Roma Tre University, Rome, Italy	1130 hrs AIAA-2015-2886 **Validation of Installation Effect Predictions through Simulations of Contra-Rotating Open Rotors at Low-Speed Flight Conditions** A. Stuermer, German Aerospace Center (DLR), Braunschweig, Germany	1200 hrs AIAA-2015-2887 **A New Whirl Flutter Analysis Method** Y. Yang, G. Huang, D. Zhao, C. Tang, Aviation Industry Corporation of China (AVIC), Xi'an, China

Wednesday, 24 June 2015						
163-ASE-1	**Numerical Weather Prediction (Invited)**					**Plum Blossom B**
Chaired by: N. AHMAD, NASA Langley Research Center and D. GHOSH						
0900 hrs AIAA-2015-2888 **Challenges and Opportunities in Modeling of the Global Atmosphere** Z. Janjic, National Oceanic and Atmospheric Administration, College Park, MD		1000 hrs AIAA-2015-2889 **Well-Balanced Formulation of Gravitational Source Terms for Conservative Finite-Difference Atmospheric Flow Solvers** D. Ghosh, E. Constantinescu, Argonne National Laboratory, Lemont, IL	1030 hrs AIAA-2015-2890 **Use of Numerical Weather Prediction Models for NextGen ATC Wind Impact Studies (Invited)** S. Troxel, T. Reynolds, Lincoln Laboratory, Massachusetts Institute of Technology, Lexington, MA	1100 hrs AIAA-2015-2891 **Simulations of orographic flows using unstructured and structured meshes (Invited)** J. Szmelter, Loughborough University, Loughborough, United Kingdom; P. Smolarkiewicz, European Centre for Medium-Range Forecasting, Reading, United Kingdom; A. Wyszogrodzki, National Research Institute, Warsaw, Poland		

Wednesday, 24 June 2015						
164-ATIO-15	ATM III - Modeling in ATM					Metropolitan Ballroom
Chaired by: S. LANDRY, Purdue University						
0900 hrs AIAA-2015-2892 **A System Dynamics Approach towards ANSP Modeling** M. Kreuz, M. Schultz, German Aerospace Center (DLR), Braunschweig, Germany	0930 hrs AIAA-2015-2893 **Modeling Approach for Resilience Engineering of the Future ATM System** R. Palumbo, A. Errico, D. Pascarella, F. Gargiulo, E. Filippone, Italian Aerospace Research Center (CIRA), Capua, Italy	1000 hrs AIAA-2015-2894 **Risk-based Causal Modeling of Airborne Loss of Separation** S. Geuther, A. Shih, NASA Langley Research Center, Hampton, VA	1030 hrs AIAA-2015-2895 **A Data-Driven Quantitative Framework for Safety Assessment of Air Traffic Control System** A. Oztekin, Hi-Tec Systems, Inc., Egg Harbor Twp, NJ	1100 hrs AIAA-2015-2896 **Assessing Air Traffic Control System Safety with System Controllability** J. Guo, K. Marais, S. Landry, Purdue University, West Lafayette, IN		

Wednesday, 24 June 2015						
165-ATIO-16	Transformational Flight - Autonomy I					Monet Ballroom
Chaired by: B. ALLEN, NASA Langley Research Center						
0900 hrs AIAA-2015-2897 **Who's got the bridge? Towards Safe, Robust Autonomous Operations - "Data, you've got the bridge." - First Officer Thomas "Will" Riker Star Trek: The Next Generation:: Coming of Age (1988)** B. Allen, C. Cross, H. Fan, W. Fehlman, L. Hempley, M. Motter, NASA Langley Research Center, Hampton, VA; et al.	0930 hrs AIAA-2015-2898 **Towards an Open, Distributed Software Architecture for UxS Operations - "It's difficult to work in groups when you're omnipotent," - Q Star Trek: The Next Generation:: Deja Q (1990)** C. Cross, H. Fan, W. Fehlman, L. Hempley, M. Motter, J. Neilan, NASA Langley Research Center, Hampton, VA; et al.	1000 hrs AIAA-2015-2899 **Reinforcement Learning with Autonomous Small Unmanned Aerial Vehicles in Cluttered Environments - "After all these years among humans, you still haven't learned to smile."** L. Tran, C. Cross, M. Motter, J. Neilan, G. Qualls, P. Rothhaar, NASA Langley Research Center, Hampton, VA; et al.	1030 hrs Oral Presentation **"His actions indicate two-dimensional thinking" - Deciding to Go Around via Machine Learning** M. Motter, J. High, C. Cross, H. Fan, W. Fehlman, L. Hempley, NASA Langley Research Center, Hampton, VA; et al.			

Wednesday, 24 June 2015						
166-ATIO-17	Human Factors in Aviation Operations					Milan
Chaired by: L. BOWERS, Purdue University						
0900 hrs AIAA-2015-2900 **A Model for Situational Awareness in Aircraft Upset Prevention and Recovery** K. Schlimm, Aviation Performance Solutions, LLC, Mesa, AZ	0930 hrs AIAA-2015-2901 **Analysis of Eye-Tracking Data with Regards to the Complexity of Flight Deck Information Automation and Management - Inattentional Blindness, System State Awareness, and EFB Usage** E. Dill, S. Young, NASA Langley Research Center, Hampton, VA	1000 hrs AIAA-2015-2902 **Threat and Error Management Applied to Loss of Control - Inflight** D. Carroll, Aviation Performance Solutions, LLC, Mesa, AZ	1030 hrs AIAA-2015-2903 **Evaluating Intensity as a NextGen Controller Function for Increased Traffic Scenarios** C. Surakitbanharn, S. Landry, Purdue University, West Lafayette, IN	1100 hrs AIAA-2015-2904 **A Comparison of an Intensity Control Measure Versus Dynamic Density to Capture Complexity Within a Sector** C. Surakitbanharn, C. Surakitbanharn, S. Landry, Purdue University, West Lafayette, IN	1130 hrs AIAA-2015-2905 **Tactile Feedback and Situation Awareness - Improving Adherence to an Envelope in Sidestick-Controlled Fly-by-Wire Aircrafts** F. Schmidt-Skipiol, Technical University of Braunschweig, Braunschweig, Germany	1200 hrs AIAA-2015-2906 **Modeling the Air Traffic Controller's Direct-to Operation Using Logistic Regression** S. Hong, S. Jung, K. Lee, Korea Aerospace University, Goyang, South Korea

Wednesday, 24 June 2015						
167-BAL-1	Balloon Systems I					Steuben
Chaired by: J. NOTT, Nott Technology LLC						
0900 hrs AIAA-2015-2907 **The NASA Balloon Program - Positioning For the Future** D. Fairbrother, NASA Goddard Space Flight Center, Greenbelt, MD	0930 hrs AIAA-2015-2908 **The French balloon program 2013 - 2015** A. Vargas, V. Dubourg, D. Vassaux, French Space Agency (CNES), Toulouse, France	1000 hrs Oral Presentation **Balloon Systems Application** T. Gerber, Applied Technology Associates, Albuquerque, NM	1030 hrs AIAA-2015-2909 **Qualification of the NASA Super Pressure Balloon** H. Cathey, New Mexico State University, Wallops Island, VA; J. Tuttle, D. Fairbrother, M. Said, NASA Goddard Space Flight Center, Wallops Island, VA	1100 hrs AIAA-2015-2910 **Non-Linear Analysis of the NASA Super Pressure Balloons: Implementation of a Large Strain Material Model** A. Bown, D. Wakefield, Tensys Dynamics, Ltd., Bath, United Kingdom	1130 hrs AIAA-2015-2911 **Returning to Hydrogen Gas : a Strategic Decision to Continue Achievement of Stratospheric Balloons Flights** J. Gary, French Space Agency (CNES), Aire sur l'Adour, France; B. Dellery, G. Letrenne, S. Venel, A. Vargas, French Space Agency (CNES), Toulouse, France	1200 hrs AIAA-2015-2912 **Suitability of ADS-B as a Beacon for Stratospheric Balloon Platforms and Payloads** T. Lachenmeier, R. Dewey, Near Space Corporation, Tillamook, OR

Wednesday, 24 June 2015		
168-CASE-6 **0900 - 1230 hrs**	**CASE Session II & III**	**Grand Ballroom D**

0900-1045 hrs

Integration and Test

This panel focuses on the Integration & Test phase of development. Planning for integration activities of complex systems is inherently different from traditional systems engineering integration planning activities. Decisions about the systems under development have to consider not only the technical and programmatic viewpoints but also the political, societal, operational, and economic viewpoints. Definition of performance measures, found intrinsic in the plan, with trans-disciplinary implications will be discussed. A scenario for integration of UAS in the NAS will be used as a benchmark for current views and life cycle challenges.

Session Chairs: Mat French, Electrical Systems Engineer, Rolls-Royce Corporation, Hernando Jiminez, Research Engineer II at Aerospace Systems Design Laboratory, Georgia Institute of Technology and David Loda, Executive Director, NCPS Research, LLC

Panelists:

Jim Murphy
Project Engineer for Integrated Test and Evaluation for the Unmanned Aircraft System Integration
NASA Ames Research Center

David Maroney
Principal Systems Engineer
The Mitre Corporation

1045-1230 hrs

Entry into Service/End of Life

This panel focuses on the complexities that arise once a system enters service throughout the life of the system. If these complexities are considered and incorporated into the system development phase, more robust products can be developed and higher customer satisfaction can be achieved.

Session Chair: Jeff Jepson, Senior Systems Engineer GNC / Guidance Design & Performance, Raytheon Missile Systems

Panelists:

Tim Adama
Chief Engineer of Factories
Raytheon Missile Systems

Ed Dolanski
President and CEO
Aviall

Jim Gallagher
EIS Program Manager
Gulfstream Aerospace Corporation

Wednesday, 24 June 2015						
169-CFD-17	**Advances in High-Order Methods**					**Grand Ballroom A**
Chaired by: D. ZINGG, University of Toronto and P. ROE, University of Michigan						
0900 hrs AIAA-2015-2913 **New Approaches to Limiting** P. Roe, T. Lung, J. Maeng, University of Michigan, Ann Arbor, Ann Arbor, MI	0930 hrs AIAA-2015-2914 **New Diagonal-Norm Summation-by-Parts Operators for the First Derivative with Increased Order of Accuracy** D. Del Rey Fernández, D. Zingg, University of Toronto, Toronto, Canada	1000 hrs AIAA-2015-2915 **Development of Generalized Summation-by-Parts Operators for the Second Derivative with Variable Coefficients** D. Del Rey Fernández, D. Zingg, University of Toronto, Toronto, Canada	1030 hrs AIAA-2015-2916 **A Finite Difference WENO Scheme Maintaining Velocity, Pressure and Temperature Equilibrium in Multicomponent Compressible Fluid Analysis** T. Nonomura, Japan Aerospace Exploration Agency (JAXA), Sagamihara, Japan; D. Terakado, University of Tokyo, Sagamihara, Japan; K. Fujii, Japan Aerospace Exploration Agency (JAXA), Sagamihara, Japan			

Wednesday, 24 June 2015						
170-CFD-18	**Current Trends in CFD Research I (Invited)**					**Grand Ballroom B**
Chaired by: H. HUYNH, NASA Glenn Research Center and Z. WANG, University of Kansas						
0900 hrs Oral Presentation **Comparison of Output Error Estimation for Finite Element Discretizations of Convection-dominated Flows (Invited)** H. Carson, S. Allmaras, M. Galbraith, D. Darmofal, Massachusetts Institute of Technology, Cambridge, MA	0930 hrs Oral Presentation **Novel Adaptive Mechanics for High-Order Unstructured CFD (Invited)** K. Fidkowski, University of Michigan, Ann Arbor, Ann Arbor, MI	1000 hrs AIAA-2015-2917 **Investigation of Unstructured Higher-Order Methods for Unsteady flow and Moving Domains** J. Newman, W. Anderson, University of Tennessee, Chattanooga, Chattanooga, TN	1030 hrs Oral Presentation **High-order Discontinuous Galerkin Simulations on Domains with Large Deformations (Invited)** P. Persson, University of California, Berkeley, Berkeley, CA	1100 hrs Oral Presentation **Probing Complex Unsteady Flow Physics Using a High-Fidelity Computational Framework (Invited)** M. Visbal, Air Force Research Laboratory, Wright-Patterson AFB, OH		

Wednesday, 24 June 2015						
171-CFD-19	**LES, DNS, and Hybrid RANS-LES III**					**Coral**
Chaired by: J. BAEDER, University of Maryland and C. GROTH, University of Toronto						
0900 hrs AIAA-2015-2918 **Aerodynamic Characteristics of SC1095 Airfoil using Hybrid RANS-LES Methods Implemented into a GPU Accelerated Navier-Stokes Solver** N. Jain, J. Baeder, University of Maryland, College Park, College Park, MD	0930 hrs AIAA-2015-2919 **Applications of the integral Wall Model in LES of flow over surfaces including resolved and subgrid roughness** X. Yang, J. Sadique, C. Meneveau, R. Mittal, Johns Hopkins University, Baltimore, MD	1000 hrs AIAA-2015-2920 **An Embedded LES-RANS Solver for Aerodynamic Simulations** K. Anupindi, R. Sandberg, University of Southampton, Southampton, United Kingdom	1030 hrs AIAA-2015-2921 **Assessment of Hybrid RANS/LES Methods For Gas-Turbine Combustor-Relevant Turbulent Flows** J. West, C. Groth, University of Toronto, Toronto, Canada; J. Hu, Pratt & Whitney, Mississauga, Canada			

Wednesday, 24 June 2015						
172-CFD-20	**Turbulence Model Validation (Invited)**					**Emerald**
Chaired by: C. RUMSEY, NASA-Langley Research Center and B. SMITH, Lockheed Martin Aeronautics						
0900 hrs AIAA-2015-2922 **Modification of the k-kl Two Equation Turbulence Model for Improved Jet Flow Predictions (Invited)** B. Smith, Lockheed Martin Corporation, Fort Worth, TX	0930 hrs AIAA-2015-2923 **LagRST Model Predictions of a Wingtip Vortex Flowfield (Invited)** M. Olsen, NASA Ames Research Center, Moffett Field, CA; R. Lillard, NASA Johnson Space Center, Houston, TX; T. Coakley, NASA Ames Research Center, Moffett Field, CA	1000 hrs AIAA-2015-2924 **Second-Moment RANS Model Verification and Validation using the Turbulence Modeling Resource Website (Invited)** B. Eisfeld, German Aerospace Center (DLR), Braunschweig, Germany; C. Rumsey, NASA Langley Research Center, Hampton, VA	1030 hrs AIAA-2015-2925 **Assessment of g-Equation Formulation for a Second-Moment Reynolds Stress Turbulence Model (Invited)** V. Togiti, B. Eisfeld, German Aerospace Center (DLR), Braunschweig, Germany	1100 hrs AIAA-2015-2926 **Application of an Elliptic Blending Reynolds Stress Model in Attached and Separated flows (Invited)** M. Stoellinger, R. Roy, University of Wyoming, Laramie, Laramie, WY; N. Ashton, University of Manchester, Manchester, United Kingdom	1130 hrs AIAA-2015-2927 **Recent Developments on the Turbulence Modeling Resource Website (Invited)** C. Rumsey, NASA Langley Research Center, Hampton, VA	

Wednesday, 24 June 2015						
173-FD-19	**Turbomachinery - Turbines**					**Senators Lecture Hall**
Chaired by: Z. RUSAK, Rensselaer Polytechnic Institute and Q. WANG, MIT						
0900 hrs AIAA-2015-2928 **Data Processing Techniques for Measurements Collected from a Single Slanted Hot-Wire for Turbomachinery Applications** R. Berdanier, N. Key, Purdue University, West Lafayette, IN	0930 hrs AIAA-2015-2929 **Flowfield and Film Performance Measurements of Axial Shaped Cooling Holes on a Flat Plate** D. Getsinger, J. Dees, G. Rodebaugh, General Electric Company, Niskayuna, NY	1000 hrs AIAA-2015-2930 **Visualization of Secondary Flow Structures Caused by Rotating Instability: Synchronized Stereo High-Speed PIV and Unsteady Pressure Measurements** B. Pardowitz, German Aerospace Center (DLR), Berlin, Germany; J. Peter, Technical University of Berlin, Berlin, Germany; U. Tapken, German Aerospace Center (DLR), Berlin, Germany; P. Thamsen, Technical University of Berlin, Berlin, Germany; L. Enghardt, German Aerospace Center (DLR), Berlin, Germany	1030 hrs AIAA-2015-2931 **Design Optimization of Profiled Endwall with Consideration of Cooling and Rim Seal Flow Effects** H. Tang, S. Liu, H. Luo, Aviation Industry Corporation of China (AVIC), Shanghai, China			

Wednesday, 24 June 2015						
174-FD-20	**Shock Wave / Boundary Layer Interactions**					**Edelweiss**
Chaired by: N. CLEMENS, The University of Texas at Austin and D. GAITONDE, The Ohio State University						
0900 hrs AIAA-2015-2932 **Experimental Investigation of Unsteadiness of Swept-Ramp Shock/Boundary Layer Interactions at Mach 2** L. Vanstone, M. Saleem, S. Seckin, N. Clemens, University of Texas, Austin, Austin, TX	0930 hrs AIAA-2015-2933 **Effects of Sweep on Impinging Oblique Shock-Turbulent Boundary Layer Interaction** R. Dawson, C. Pederson, J. Little, University of Arizona, Tucson, Tucson, AZ	1000 hrs AIAA-2015-2934 **Experimental Investigation of shock-induced corner boundary layer separation** A. Hegde, V. Narayanaswamy, North Carolina State University, Raleigh, NC	1030 hrs AIAA-2015-2935 **Experimental and Numerical Study of Shock-Wave Boundary Layer Interactions on an Axisymmetric Body** G. Robertson, R. Kumar, Florida State University, Tallahassee, FL; T. Eymann, S. Morton, CREATE Kestrel Team, Eglin AFB, FL	1100 hrs AIAA-2015-2936 **An Experimental Investigation of the Effect of Boundary Layer on an Internal Compression Inlet** H. Tabanli, K. Yuceil, Istanbul Technical University, Istanbul, Turkey		

Wednesday, 24 June 2015						
175-FD-22	**Unsteady Flows - Cavity and Shear Flows**					**Govenors Lecture Hall**
Chaired by: K. CASPER and K. GRANLUND, Air Force Research Laboratory						
0900 hrs AIAA-2015-2937 **Relationship between Acoustic Tones and Flow Structure in Transonic Rectangular Cavity Flow** J. Wagner, K. Casper, S. Beresh, B. Pruett, R. Spillers, J. Henfling, Sandia National Laboratories, Albuquerque, NM	0930 hrs AIAA-2015-2938 **Modal Decomposition of Pressure Data in Cavity Flows** K. Casper, S. Arunajatesan, Sandia National Laboratories, Albuquerque, NM	1000 hrs AIAA-2015-2939 **Comparison of High-Order and Low-Order Methods for Large-Eddy Simulation of a Compressible Shear Layer** M. Mankbadi, J. DeBonis, N. Georgiadis, NASA Glenn Research Center, Cleveland, OH	1030 hrs AIAA-2015-2940 **Reduced Order Modeling of a Dielectric Barrier Discharge Controlled Shear Layer using Minimum Basis Rotations** J. Chabot, E. Caraballo, Miami University, Oxford, OH; J. Little, University of Arizona, Tucson, Tucson, AZ	1100 hrs AIAA-2015-2941 **Shear-Thinning Properties of Blood in Large Arteries** F. Kok, R. Myose, K. Hoffmann, Wichita State University, Wichita, KS		

Wednesday, 24 June 2015						
176-MAO-5	**Emerging Methods I**					**Madrid**
Chaired by: E. WINER, Iowa State University and V. LI, Boeing Engineering Operations & Technology						
0900 hrs AIAA-2015-2942 **Multidisciplinary Design Space Exploration Using Additive Manufacturing and Rapid Prototype Testing** A. Friedman, P. Raj, Virginia Polytechnic Institute and State University, Blacksburg, VA; E. Alyanak, Air Force Research Laboratory, Wright-Patterson AFB, OH	0930 hrs AIAA-2015-2943 **Arnoldi-based Sampling for High-dimensional Optimization using Imperfect Data** J. Hicken, A. Ashley, Rensselaer Polytechnic Institute, Troy, NY	1000 hrs AIAA-2015-2944 **Multi-Domain Diversity Preservation to Mitigate Particle Stagnation and Enable Better Pareto Coverage in Mixed-Discrete Particle Swarm Optimization** W. Tong, Syracuse University, Syracuse, NY; S. Chowdhury, A. Messac, Mississippi State University, Mississippi State, MS	1030 hrs AIAA-2015-2945 **An MDO advisory system supported by knowledge-based technologies** M. Hoogreef, G. La Rocca, Delft University of Technology, Delft, The Netherlands			

Wednesday, 24 June 2015						
177-MST-7	**Flight Simulation**					**Travertine**
Chaired by: K. BILIMORIA						
0900 hrs AIAA-2015-2946 **Motion Parameter Selection for Flight Simulators** K. Bilimoria, S. Reardon, NASA Ames Research Center, Moffett Field, CA	0930 hrs AIAA-2015-2947 **AVES SDK: Bridging the Gap between Simulator and Flight Systems Designer** T. Gerlach, U. Durak, German Aerospace Center (DLR), Braunschweig, Germany	1000 hrs AIAA-2015-2948 **Model-Based Testing for Objective Fidelity Evaluation of Engineering and Research Flight Simulators** U. Durak, German Aerospace Center (DLR), Braunschweig, Germany; A. Schmidt, T. Pawletta, University of Wismar, Wismar, Germany				

Wednesday, 24 June 2015						
178-MST-8	**Computational Methods for Fluid Dynamics and Heat Transfer Simulations**					**Wyeth**
Chaired by: M. KOKALY and B. JAFFREZIC						
0900 hrs AIAA-2015-2949 **Aerodynamics Flight Mechanics Approach on Compact Domains for Air Vehicle Separation** B. Jaffrezic, M. Ruetten, H. Rosemann, German Aerospace Center (DLR), Göttingen, Germany	0930 hrs AIAA-2015-2950 **Investigation of the effect of grid size on external store separation trajectory using CFD** A. Osman, A. Aly, Cairo University, Cairo, Egypt; I. El baialy, Qatar University, Doha, Qatar; O. Abdellatif, Banha University, Cairo, Egypt; E. Khalil, Cairo University, Cairo, Egypt	1000 hrs AIAA-2015-2951 **Strength Analysis and Optimization Technique for Thermal Protection System using 3 Dimensional Element Model** W. Yan, Aviation Industry Corporation of China (AVIC), Beijing, China; X. Luo, Aviation Industry Corporation of China (AVIC), Chengdu, China; D. Cui, Aviation Industry Corporation of China (AVIC), Beijing, China	1030 hrs AIAA-2015-2952 **Thermal simulation and experiments for a stratospheric balloon gondola** Q. Liu, Chinese Academy of Sciences, Beijing, China; Z. Li, Y. Yang, J. Cai, Academy of Opto-Electronics, Chinese Academy of Sciences, Beijing, China	1100 hrs AIAA-2015-2953 **Real Time Multiple Fidelity Physics Based Simulation of Aircraft Environmental Control System** B. Sasanapuri, ANSYS, Inc., Pune, India		

Wednesday, 24 June 2015		
179-NW-6 **0900 - 0930 hrs**	**Networking Coffee Break**	**Chantilly Ballroom East**

Wednesday, 24 June 2015						
180-PDL-8/APA-20	**Plasma Aerodynamics & Flow Control IV**					**Stemmons C**
Chaired by: T. DOUVILLE, TLG Aerospace, LLC.						
0900 hrs AIAA-2015-2954 **Plasma Laminar-Separation-Bubble Control over Airfoil at Low Reynolds Numbers** X. Meng, X. Yan, H. Hu, Northwestern Polytechnical University, Xi'an, China; F. Liu, S. Luo, University of California, Irvine, Irvine, CA	0930 hrs AIAA-2015-2955 **Pressures over a Conical Forebody under Repetitive Nanosecond Pulse SDBD Actuations** D. Zhang, X. Meng, J. Wang, Northwestern Polytechnical University, Xi'an, China; F. Liu, S. Luo, University of California, Irvine, Los Angeles, CA	1000 hrs AIAA-2015-2956 **Starting Flow by Repetitive Nanosecond Pulsed DBD Actuation at Microseconds and Milliseconds in Quiescent Air** H. Hu, H. Li, X. Meng, J. Wang, Northwestern Polytechnical University, Xi'an, China; F. Liu, S. Luo, University of California, Irvine, Los Angeles, CA	1030 hrs AIAA-2015-2957 **Multi-Input Genetic Algorithm for Experimental Optimization of the Reattachment Downstream of a Backward-Facing-Step with Surface Plasma Actuator** N. Benard, National Center for Scientific Research (CNRS), Futuroscope, France; J. Pons-Prat, J. Periaux, G. Bugeda, CIMNE, Barcelona, Spain; J. Bonnet, E. Moreau, National Center for Scientific Research (CNRS), Futuroscope, France	1100 hrs AIAA-2015-2958 **The Effect of Plasma Clouds on Aerodynamic Performance of Subsonic/Supersonic Inlets** D. Mei, Aviation Industry Corporation of China (AVIC), Shenyang, China; Y. Fan, C. Jiang, Beihang University, Beijing, China		

Wednesday, 24 June 2015						
181-PDL-9/TP-8	**Plasma Diagnostics II**					**Miro**
Chaired by: N. HARADA, Nagaoka University of Technology and J. BURT, Universal Technology Corporation						
0900 hrs AIAA-2015-2959 **Planar Two-Photon LIF Measurements of Atomic Species in a High-Temperature Inductively Couple Plasma Environment** J. Meyers, D. Fletcher, University of Vermont, Burlington, Burlington, VT	0930 hrs AIAA-2015-2960 **Particle Vaporization Velocimetry for LPG Diffusion Flames** L. Tolomelli, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil	1000 hrs AIAA-2015-2961 **Investigation of Non-Equilibrium Nitrogen Plasmas** A. Lutz, D. Fletcher, University of Vermont, Burlington, Burlington, VT	1030 hrs AIAA-2015-2962 **Hybrid fs/ps coherent anti-Stokes Raman scattering in a non-equilibrium environment initiated by a ns laser spark** C. Dedic, J. Michael, T. Meyer, Iowa State University, Ames, IA	1100 hrs AIAA-2015-2963 **Non-Equilibrium Analysis of Emission Spectroscopy Data Taken in the Freestream of the NASA IHF Arc Jet Facility** M. Winter, C. Srinivasan, R. Charnigo, University of Kentucky, Lexington, Lexington, KY	1130 hrs AIAA-2015-2964 **Quantitative Measurements of Electron Number Density and Threshold for Laser Induced Breakdown in Air** L. Su, Y. Wu, J. Sawyer, Z. Zhang, University of Tennessee, Knoxville, Knoxville, TN	

Wednesday, 24 June 2015						
182-TP-9	**Aerothermodynamics II**					**Rosetta**
Chaired by: A. MARTIN, University of Kentucky						
0900 hrs AIAA-2015-2965 **Shock Radiation Tests for Saturn and Uranus Entry Probes** B. Cruden, D. Bogdanoff, ERC, Inc., Moffett Field, CA	0930 hrs AIAA-2015-2966 **Heat Transfer Measurements on the Afterbody of Spheres in Hypersonic Free-Flight in Air and Carbon Dioxide** M. Wilder, NASA Ames Research Center, Moffett Field, CA; D. Bogdanoff, D. Saunders, ERC, Inc., Moffett Field, CA	1000 hrs AIAA-2015-2967 **Shape Optimization of a Blunt Body in Reacting Hypersonic flow in Thermal Non-Equilibrium for Reducing Both Drag and Heat Transfer** E. Zishka, R. Agarwal, Washington University in St. Louis, St. Louis, MO	1030 hrs AIAA-2015-2968 **Fugine cycle theory: predicting high efficiency of the supermultijet-convergence engine working from startup to hypersonic scram mode** K. Naitoh, Y. Tanaka, T. Tamura, T. Okamoto, Y. Nojima, K. Yamagishi, Waseda University, Shinjuku, Japan			

Wednesday, 24 June 2015		
183-F360-5 **0930 - 1200 hrs**	**NACA to NASA: Embarking on the Next 100 Years of Excellence and Innovation in Aeronautics and Beyond**	**Grand Ballroom E**

Moderator: Robert Pearce, Director, Strategy, Architecture & Analysis, Aeronautics Research Mission Directorate, NASA Headquarters

Panelists:

David Bowles	**Thomas Edwards**	**Janet Kavandi**	**David McBride**	**Jaiwon Shin**
Center Director (Acting) NASA Langley Research Center	Deputy Center Director NASA Ames Rsearch Center	Deputy Director NASA Glenn Research Center	Center Director NASA Armstrong Flight Research Center	Associate Administrator, Aeronautics Research Mission Directorate NASA Headquarters

Wednesday, 24 June 2015		
184-LNCH-2 **1230 - 1400 hrs**	**Luncheon in the Exposition Hall**	**Chantilly Ballroom East**
A ticket is required and included in the conference registration fee where indicated.		

Wednesday, 24 June 2015						
185-AA-26	**Combustion Noise**					**Fleur-de-lis B**
Chaired by: J. MENDOZA, United Technologies Research Center						
1400 hrs AIAA-2015-2969 **On the spectrum of combustion noise** C. Tam, Florida State University, Tallahassee, FL	1430 hrs AIAA-2015-2970 **Modelling of combustion noise spectrum using temporal correlations of heat release rate from turbulent premixed flames** Y. Liu, University of Surrey, Guildford, United Kingdom; T. Echekki, North Carolina State University, Raleigh, NC	1500 hrs AIAA-2015-2971 **Numerical investigation of combustion noise generation in a full annular combustion chamber** T. Livebardon, CERFACS, Toulouse, France; S. Moreau, University of Sherbrooke, Sherbrooke, Canada; T. Poinsot, CERFACS, Toulouse, France; E. Bouty, Turbomeca, Bordes, France	1530 hrs AIAA-2015-2972 **Transfer Functions of Acoustic, Entropy and Vorticity Waves in an Annular Model Combustor and Nozzle for the Prediction of the Ratio Between Indirect and Direct Combustion Noise** W. Ullrich, T. Sattelmayer, Technical University of Munich, Garching, Germany	1600 hrs AIAA-2015-2973 **Efficient Full 3D Turbulent Combustion Noise Simulation Based on Stochastic Sound Sources** F. Grimm, German Aerospace Center (DLR), Stuttgart, Germany; R. Ewert, J. Dierke, German Aerospace Center (DLR), Braunschweig, Germany; B. Noll, M. Aigner, German Aerospace Center (DLR), Stuttgart, Germany	1630 hrs AIAA-2015-2974 **A 2D-axisymmetric analytical model for the estimation of indirect combustion noise in nozzle flows** J. Zheng, M. Huet, ONERA, Châtillon, France; A. Giauque, National Center for Scientific Research (CNRS), Ecully, France; F. Cléro, ONERA, Châtillon, France; S. Ducruix, National Center for Scientific Research (CNRS), Châtenay-Malabry, France	

Wednesday, 24 June 2015						
186-AA-27	**Arrays Method Panel Session**					**Fleur-de-lis A**
Chaired by: C. BAHR, NASA-Langley Research Center						
1400 hrs AIAA-2015-2975 **Development of New Wall-mounted and Strut-mounted Phased Microphone Arrays for Acoustic Measurements in Closed Test-section Wind Tunnels** W. Horne, N. Burnside, NASA Ames Research Center, Moffett Field, CA	1430 hrs AIAA-2015-2976 **Decorrelation of Acoustic Wave Propagation through the Shear Layer in Open Jet Wind Tunnel** D. Ernst, C. Spehr, T. Berkefeld, German Aerospace Center (DLR), Göttingen, Germany	1500 hrs AIAA-2015-2977 **An Approach to Estimate the Reliability of Microphone Array Methods** G. Herold, E. Sarradj, Brandenburg University of Technology, Cottbus, Germany	1530 hrs AIAA-2015-2978 **Pletharrays for Aeroacoustic Phased Array Applications** J. Underbrink, The Boeing Company, Seattle, WA	1600 hrs AIAA-2015-2979 **Estimating the sound power radiated by a nozzle-based source in a test cell using a phased array** B. Tester, K. Holland, University of Southampton, Southampton, United Kingdom	1630 Discussion	

Wednesday, 24 June 2015						
187-AA-28	**Open Rotor II**					**Inverness**
Chaired by: W. DEVENPORT, Virginia Tech						
1400 hrs AIAA-2015-2980 **Open-Rotor Noise Assessment with CFD/CAA Chaining** A. Chelius, T. Le Garrec, D. Mincu, ONERA, Châtillon, France	1430 hrs AIAA-2015-2981 **Flow Distortion and Noise Produced by a Thrusting Rotor Ingesting a Planar Turbulent Boundary Layer** D. Wisda, H. Murray, W. Alexander, M. Nelson, W. Devenport, Virginia Polytechnic Institute and State University, Blacksburg, VA; S. Glegg, Florida Atlantic University, Boca Raton, FL	1500 hrs AIAA-2015-2982 **Computation of Rotor Noise Generation in Grid Turbulence Using Large-Eddy Simulation** J. Wang, K. Wang, M. Wang, University of Notre Dame, Notre Dame, IN	1530 hrs AIAA-2015-2983 **Broadband noise for rotating blades: analysis of acceleration effects in the time and frequency domains** S. Sinayoko, University of Southampton, Southampton, United Kingdom	1600 hrs AIAA-2015-2984 **A 3D analytical approach for Open rotor Blade Vortex Interaction(BVI) tonal noise** S. Moreau, M. Quaglia, Sherbrooke University, Sherbrooke, Canada; R. Fernando, Safran Group, Moissy-Cramayel, France	1630 hrs AIAA-2015-2985 **Analytical Prediction of the Pylon-Wake Effect on the Tonal Noise radiated by the Front-Rotor of CROR Propulsion Systems** N. Jaouani, Sogeti High Tech, Issy Les Moulineaux, France; M. Roger, École Centrale de Lyon, Lyon, France; T. Nodé-Langlois, Airbus, Toulouse, France; G. Serre, Sogeti High Tech, Issy Les Moulineaux, France	1700 hrs AIAA-2015-2986 **Comparison of rotor noise measurement results in large-scale and small-scale anechoic facilities** I. Belyaev, V. Kopiev, R. Skvortsov, I. Pankratov, TsAGI, Moscow, Russia; V. Titarev, Russian Academy of Sciences, Moscow, Russia; M. Zaytsev, TsAGI, Moscow, Russia

Wednesday, 24 June 2015						
188-AA-29	**Airframe Noise III**					**Lalique**
Chaired by: S. NOELTING, EXA						
1400 hrs AIAA-2015-2987 **An Assessment of Flap and Main Landing Gear Noise Abatement Concepts** M. Khorrami, W. Humphreys, D. Lockard, NASA Langley Research Center, Hampton, VA	1430 hrs AIAA-2015-2988 **Evaluation of Airframe Noise Reduction Concepts via Simulations Using a Lattice Boltzmann Approach** E. Fares, D. Casalino, Exa GmbH, Stuttgart, Germany; M. Khorrami, NASA Langley Research Center, Hampton, VA	1500 hrs AIAA-2015-2989 **A Comparative Study of Simulated and measured Gear-Flap Flow Interaction** M. Khorrami, NASA Langley Research Center, Hampton, VA; R. Mineck, Self, Yorktown, VA; E. Fares, Exa GmbH, Stuttgart, Germany; C. Yao, L. Jenkins, NASA Langley Research Center, Hampton, VA	1530 hrs AIAA-2015-2990 **Comparison of Computational and Experimental Microphone Array Results for an 18%-Scale Aircraft Model** D. Lockard, W. Humphreys, M. Khorrami, NASA Langley Research Center, Hampton, VA; E. Fares, D. Casalino, Exa GmbH, Stuttgart, Germany; P. Ravetta, AVEC, Inc., Blacksburg, VA	1600 hrs AIAA-2015-2991 **Characterization of Flap Edge Noise Radiation from a High-Fidelity Airframe Model** W. Humphreys, M. Khorrami, D. Lockard, D. Neuhart, C. Bahr, NASA Langley Research Center, Hampton, VA	1630 hrs AIAA-2015-2992 **On the Connection between Flap Side-Edge Noise and Tip Vortex Dynamics** D. Casalino, E. Fares, B. Duda, A. Hazir, Exa GmbH, Stuttgart, Germany; M. Khorrami, NASA Langley Research Center, Hampton, VA	1700 hrs AIAA-2015-2993 **Simulations of LAGOON landing-gear noise using Lattice Boltzmann Solver** A. Sengissen, J. Giret, Airbus, Toulouse, France; C. Coreixas, J. Boussuge, CERFACS, Toulouse, France

Wednesday, 24 June 2015						
189-AA-30	**Jet Noise Measurements II**					**Obelisk A**
Chaired by: D. JUVE, Ecole Centrale de Lyon						
1400 hrs AIAA-2015-2994 **Dual-plane, time-resolved, stereo PIV for wavepacket eduction in a turbulent subsonic jet** V. Jaunet, P. Braud, F. Boissonneau, P. Jordan, National Center for Scientific Research (CNRS), Poitiers, France; A. Cavalieri, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil	1430 hrs AIAA-2015-2995 **Adaptation of the Azimuthal Decomposition Technique to Jet Noise Measuerements of an Aircraft Engine in the Ground Tests** V. Kopiev, I. Belyaev, G. Faranosov, M. Zaytsev, TsAGI, Moscow, Russia; A. Aleksentsev, Y. Bersenev, OJSC Aviadvigatel, Perm, Russia; et al.	1500 hrs AIAA-2015-2996 **On the systematic error in measurements of jet noise flight effects using open jet wind tunnels** U. Michel, CFD Software GmbH, Berlin, Germany	1530 hrs AIAA-2015-2997 **Role of Nozzle's Proximity to Plenum Chambers or Other Non-line-of-sight Devices on Measured Jet Noise** A. Karon, D. Dickey, K. Ahuja, Georgia Institute of Technology, Atlanta, GA	1600 hrs AIAA-2015-2998 **Scattering of turbulent-jet wavepackets by a swept trailing edge** S. Piantanida, V. Jaunet, P. Jordan, J. Huber, National Center for Scientific Research (CNRS), Poitiers, France; A. Cavalieri, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil; W. Wolf, University of Campinas, Campinas, Brazil	1630 hrs AIAA-2015-2999 **Investigating the feedback path in a jet-surface resonant interaction** K. Zaman, A. Fagan, J. Bridges, C. Brown, NASA Glenn Research Center, Cleveland, OH	

Wednesday, 24 June 2015						
190-ACD-5	**Design of Unconventional Aircraft Configurations**					**Morocco**
Chaired by: M. LOGAN, NASA Langley Research Center						
1400 hrs AIAA-2015-3000 **An Investigation into the Design of an Efficient In Ground Effect Flying Vehicle Planform** V. Mirochnitchenko, T. Takahashi, Arizona State University, Tempe, AZ	1430 hrs AIAA-2015-3001 **Advanced General Aviation Concept Study for a Roadable Aircraft** D. Lim, C. Justin, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1500 hrs AIAA-2015-3002 **Morphing Strategy Design for Variable-Wing Aircraft** R. Shi, J. Peng, Tsinghua University, Beijing, China	1530 hrs AIAA-2015-3003 **A Methodology for Multi-Disciplinary Analysis of the Box Wing Concept** I. Roy Salam, C. Bil, RMIT University, Melbourne, Australia	1600 hrs AIAA-2015-3004 **The Hoops on the Way to a Supersonic Business Jet (Performance Drivers for a Commercially Viable Product)** L. Gonzalez-Linero, Embry-Riddle Aeronautical University, Daytona Beach, FL		

Wednesday, 24 June 2015						
191-AMT-11/GT-11	**Ground Test Facility Improvements II**					**Obelisk B**
Chaired by: R. RHEW, NASA-Langley Research Center and J. HOPF, Aerospace Testing Alliance						
1400 hrs AIAA-2015-3005 **Lyapunov-Based Nonlinear Control of Wind Tunnel Supersonic Nozzle Contour** M. Sadraey, Daniel Webster College, Nashua, NH	1430 hrs AIAA-2015-3006 **Development and Demonstration of A Continuous Beta Sweep Test & Analysis Technique(CBSTAT) Rig** K. Xie, F. Wang, N. Chen, L. Chen, Q. Shen, China Academy of Aerospace Aerodynamics, Beijing, China	1500 hrs AIAA-2015-3007 **Wind Tunnel Testing of Variable Camber Compliant Wing with Multiple Load Cell Test Fixture** L. Zientarski, C. Marks, University of Dayton, Dayton, OH; J. Joo, Air Force Research Laboratory, Wright-Patterson AFB, OH	1530 hrs AIAA-2015-3008 **Comparison of Freejet Data between a Contoured and Conical Nozzle in the AEDC H1 Facility** G. Hammock, Arnold Engineering Development Complex, Arnold AFB, TN	1600 hrs Oral Presentation **Overview of Uncertainty Analysis Activities at NASA Glenn's Aeropropulsion Facilities** J. Stephens, E. Hubbard, NASA Langley Research Center, Hampton, VA	1630 hrs AIAA-2015-3009 **Reactivation of the NTF 3000 Ton Liquid Nitrogen Tank from Ambient Condition** S. Dunn, NASA Langley Research Center, Hampton, VA	

Wednesday, 24 June 2015						
192-AMT-12/GT-12	**The Impact of PIV on Aerospace Technology I**					**Edelweiss**
Chaired by: S. BERESH, Sandia National Laboratories and K. LOWE, Virginia Tech						
1400 hrs Oral Presentation **Application of Particle Image Velocimetry at NASA for Rotorcraft Research (Invited)** L. Jenkins, G. Yamauchi, NASA Langley Research Center, Hampton, VA	1430 hrs Oral Presentation **PIV for helicopter aerodynamics (Invited)** M. Raffel, German Aerospace Center (DLR), Cologne, Germany	1500 hrs Oral Presentation **Time-resolved PIV in the buffeting regime of ARIANE V (Invited)** F. Scarano, Delft University of Technology, Delft, The Netherlands	1530 hrs Oral Presentation **Subsonic Wake Characterization of the Orion Capsule using PIV in the Ames UPWT 11-foot Wind Tunnel (Invited)** J. Heineck, NASA Ames Research Center, Moffett Field, CA	1600 hrs Oral Presentation **Industrial Applications of PIV in JAXA Large-Scale Wind Tunnels (Invited)** H. Kato, S. Koike, Japan Aerospace Exploration Agency (JAXA), Tokyo, Japan	1630 hrs Oral Presentation **Recent Applications of PIV in Large NRC Wind Tunnels** F. de Souza, National Research Council Canada, Ottawa, Canada	1700 hrs Oral Presentation **Applications of PIV measurements in the ONERA large wind tunnels (Invited)** Y. Michou, ONERA, Chambery, France

Wednesday, 24 June 2015						
193-APA-21	**Transonic & Supersonic Aerodynamics**					**Stemmons A**
Chaired by: M. JURKOVICH, US Air Force						
1400 hrs AIAA-2015-3010 **Numerical Study of Counterflowing Jet Effects on Supersonic Slender-Body Configurations** B. Venkatachari, National Institute of Aerospace, Hampton, VA; M. Mullane, University of Alabama, Birmingham, Birmingham, AL; G. Cheng, University of Alabama, Tuscaloosa, Tuscaloosa, AL; C. Chang, NASA Langley Research Center, Hampton, VA	1430 hrs AIAA-2015-3011 **Flow Physics of a Three-Dimensional Rounded Contour Bump in a Mach 1.3 Supersonic Free-stream** K. Lo, K. Kontis, University of Glasgow, Glasgow, United Kingdom	1500 hrs AIAA-2015-3012 **Supersonic Air Flows Around Some Geometrical Primitives** M. Kotov, I. Kryukov, L. Ruleva, S. Solodovnikov, S. Surzhikov, Russian Academy of Sciences, Moscow, Russia				

Wednesday, 24 June 2015						
194-APA-22	**VSTOL/STOL Aerodynamics**					**Carpenter Ballroom**
Chaired by: M. CALVERT, U.S. Army AMRDEC						
1400 hrs AIAA-2015-3013 **The LIFT! Project - Modular, Electric Vertical Lift System with Ground Power Tether** M. Duffy, A. Samaritano, The Boeing Company, Ridley Park, PA	1430 hrs AIAA-2015-3014 **Numerical Investigation and Validation for Open Rotor Hover Performance** Q. Zhao, C. Sheng, University of Toledo, Toledo, OH					

Wednesday, 24 June 2015						
195-APA-23	**Weapons Aerodynamics: Missile/Projectile/Guided-Munitions, Carriage and Store Separation II**					**Stemmons B**
Chaired by: K. DENISSEN, Sandia National Labs						
1400 hrs AIAA-2015-3015 **CFD Aerodynamic Characterization of a High Maneuverability Airframe** C. Coyle, U.S. Military Academy, West Point, NY; S. Silton, Army Research Laboratory, Aberdeen Proving Ground, MD	1430 hrs AIAA-2015-3016 **Development and Validation of a RANS-based Airdrop Simulation Approach** S. Geisbauer, German Aerospace Center (DLR), Braunschweig, Germany; H. Schmidt, German Aerospace Center (DLR), Göttingen, Germany	1500 hrs AIAA-2015-3017 **Cavity-Store Interaction under Supersonic Freestream Conditions** J. Merrick, M. Reeder, Air Force Institute of Technology, Wright-Patterson AFB, OH	1530 hrs AIAA-2015-3018 **Loads and Acoustics Prediction on Deployed Weapons Bay Doors** E. Sheta, R. Harris, CFD Research Corporation, Huntsville, AL; E. Luke, Mississippi State University, Mississippi State, MS; L. Ukeiley, University of Florida, Gainesville, Gainesville, FL			

Wednesday, 24 June 2015						
196-ASE-2	**Aircraft Icing and Atmospheric Hazards**					**Plum Blossom B**
Chaired by: W. VAUGHAN, William W Vaughan Consultant and J. OWENS, NASA (Retired)						
1400 hrs AIAA-2015-3019 **A model for in-flight ice accretion based on the exact solution of the unsteady Stefan problem** G. Gori, M. Zocca, A. Guardone, Technical University of Milan, Milan, Italy	1430 hrs AIAA-2015-3020 **Quasi-Unsteady Icing Simulation of an Oscillating Airfoil** H. Fouladi, McGill University, Montréal, Canada; C. Aliaga, Newmerical Technologies International, Montréal, Canada; W. Habashi, McGill University, Montréal, Canada	1500 hrs AIAA-2015-3021 **Convective Enhancement of Icing Roughness Elements in Stagnation Region Flows** M. Hughes, S. McClain, Baylor University, Waco, TX; M. Vargas, A. Broeren, NASA Glenn Research Center, Cleveland, OH	1530 hrs AIAA-2015-3022 **Sensor Suite Development for a Weather UAV** J. Hathaway, A. Avery, J. Jacob, Oklahoma State University, Stillwater, OK	1600 hrs AIAA-2015-3023 **Sensitivity Analysis of Wake Vortex Parameters Measured by Doppler Lidar** T. Misaka, S. Obayashi, Tohoku University, Sendai, Japan; A. Stephan, F. Holzäpfel, T. Gerz, German Aerospace Center (DLR), Oberpfaffenhofen, Germany		

Wednesday, 24 June 2015						
197-ATIO-18	**ATM IV - Economic/Benefits Analysis**					**Ming**
Chaired by: S. HASAN, LMI						
1400 hrs AIAA-2015-3024 **Identifying benefit mechanisms for NextGen technologies and concepts** S. Landry, D. Peng, Purdue University, West Lafayette, IN	1430 hrs AIAA-2015-3025 **Assessing Departure Efficiency at U.S. Airports: a Comparison of Methods** S. Tsao, J. DeArmon, S. Agbolosu-Amison, A. Mahashabde, MITRE Corporation, McLean, VA	1500 hrs AIAA-2015-3026 **Airfare Determinants on the Kangaroo Route (Australia-UK Market): A Case Study of the Influences of Airlines, Alliances and Airports** H. Yang, Civil Aviation Flight University of China, Guanghan, China	1530 hrs AIAA-2015-3027 **Concept and Benefits of PBN-Enabled Parallel Approach Operations** R. Mayer, B. Crow, D. Zondervan, MITRE Corporation, McLean, VA; J. Allerdice, Federal Aviation Administration, Peachtree City, GA			

Wednesday, 24 June 2015						
198-ATIO-19	**Terminal & Surface Operations IV**					**Milan**
Chaired by: R. CURRAN, Delft Technical University of Technology						
1400 hrs AIAA-2015-3028 **Optimization of Push Back Time Windows That Ensure Conflict Free Ramp Area Aircraft Trajectories** J. Coupe, D. Milutinovic, University of California, Santa Cruz, Santa Cruz, CA; W. Malik, University of California, Santa Cruz, Moffett Field, CA; Y. Jung, NASA Ames Research Center, Moffett Field, CA	1430 hrs AIAA-2015-3029 **Development of Generic Ground Tracks of Performance Based Navigation Operations for Fleet-Level Airport Noise Analysis** A. Wilson, M. LeVine, J. Bernardo, M. Kirby, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1500 hrs AIAA-2015-3030 **Implementing a Combined Arrival, Departure, and Surface Scheduler for a Metroplex** F. Wieland, W. Krueger, W. Peng, Y. Zhang, A. Tyagi, C. Ye, Intelligent Automation, Inc., Rockville, MD; et al.	1530 hrs AIAA-2015-3031 **A framework for the classification and prioritization of arrival and departure routes in Multi-Airport Systems Terminal Manoeuvring Areas** S. Sidiropoulos, A. Majumdar, K. Han, W. Schuster, W. Ochieng, Imperial College London, London, United Kingdom			

Wednesday, 24 June 2015						
199-ATIO-20	**Transformational Flight - Autonomy II**					**Monet Ballroom**
Chaired by: B. ALLEN, NASA Langley Research Center						
1400 hrs AIAA-2015-3032 **Using Multimodal Input for Autonomous Decision Making for Unmanned Systems - "What it needs in order to evolve, is a human quality. Our capacity to leap beyond logic." - Capt. Kirk, Star Trek: The Motion Picture** J. Neilan, C. Cross, H. Fan, W. Fehlman, L. Hempley, M. Motter, NASA Langley Research Center, Hampton, VA; et al.	1430 hrs AIAA-2015-3033 **Collaborating with Autonomous Agents** A. Trujillo, NASA Langley Research Center, Hampton, VA; H. Fan, Analytical Mechanics Associates, Inc., Hampton, VA; L. Hempley, C. Cross, Northrop Grumman Corporation, Hampton, VA; W. Fehlman, M. Motter, NASA Langley Research Center, Hampton, VA; et al.	1500 hrs AIAA-2015-3034 **A Flexible Flight Control System for Rapid GNC and Distributed Control Deployment** P. Rothhaar, C. Cross, H. Fan, W. Fehlman, L. Hempley, M. Motter, NASA Langley Research Center, Hampton, VA; et al.	1530 hrs AIAA-2015-3035 **Operating in "Strange New Worlds" and Measuring Success - Test and Evaluation in Complex Environments** G. Qualls, C. Cross, H. Fan, W. Fehlman, L. Hempley, M. Motter, NASA Langley Research Center, Hampton, VA; et al.	1600 hrs AIAA-2015-3036 **State of the Art of Autonomous Platforms and Human-Machine Systems: Only a Fool Would Stand In the Way of Progress** V. Stouffer, LMI, McLean, VA; K. Goodrich, NASA Langley Research Center, Hampton, VA		

Wednesday, 24 June 2015						
200-BAL-2	**Balloon Systems II**					**Steuben**
Chaired by: J. RAND, Winzen Engineering Inc						
1400 hrs AIAA-2015-3037 **Balloon Aspect of StratEx World Record Skydive** J. Nott, Nott Technology, Santa Barbara, CA	1430 hrs AIAA-2015-3038 **Recent Improvements to the Design and Manufacture of High Altitude Zero-Pressure Balloons** J. Marsh, Columbia Scientific Balloon Facility, Palestine, TX; M. Giles, Raven Aerostar, Sulphur Springs, TX	1500 hrs AIAA-2015-3039 **The Wallops Arc Second Pointer - A Balloon Borne Fine Pointing System** D. Stuchlik, NASA Goddard Space Flight Center, Greenbelt, MD	1530 hrs AIAA-2015-3040 **Current Status of a NASA High-Altitude Balloon-Based Observatory for Planetary Science** D. Varga, NASA Glenn Research Center, Cleveland, OH; E. Young, Southwest Research Institute, Boulder, CO	1600 hrs AIAA-2015-3041 **Technology Development for the ExaVolt Antenna (EVA). 1/20-Scale Deployment Test** F. Baginski, George Washington University, Washington, DC; P. Gorham, University of Hawaii, Honolulu, Honolulu, HI; D. Fairbrother, M. Said, S. Lang, NASA Wallops Flight Facility, Wallops Island, VA	1630 hrs AIAA-2015-3042 **Shape Analysis of the 1/20-Scale ExaVolt Antenna Test Balloon** F. Baginski, George Washington University, Washington, DC; K. Brakke, Susquehanna University, Selinsgrove, PA; K. Zhao, George Washington University, Washington, DC	1700 hrs AIAA-2015-3043 **An Undergraduate Student Instrumentation Project (USIP) to Develop New Instrument Technology to Study the Auroral Ionosphere and Stratospheric Ozone Layer Using Ultralight Balloon Payloads** E. Bering, R. Gamblin, University of Houston, Houston, TX

Wednesday, 24 June 2015						
201-CFD-21	**Discontinuous Galerkin Methods**					**Grand Ballroom A**
Chaired by: C. SCHROCK, Air Firce Research Laboratory and L. DIOSADY, NASA Ames Research Center						
1400 hrs AIAA-2015-3044 **General element shapes within a tensor-product higher-order space-time discontinuous-Galerkin formulation** L. Diosady, S. Murman, NASA Ames Research Center, Moffett Field, CA	1430 hrs AIAA-2015-3045 **High-order Discontinuous Galerkin Methods Applied to Multiphase Flows** M. Henry de Frahan, E. Johnsen, University of Michigan, Ann Arbor, Ann Arbor, MI	1500 hrs AIAA-2015-3046 **An Adaptive Explicit 3D Discontinuous Galerkin Solver for Unsteady Problems** A. Kirby, D. Mavriplis, University of Wyoming, Laramie, Laramie, WY; A. Wissink, Army Aviation and Missile Research Development and Engineering Center, Moffett Field, CA	1530 hrs AIAA-2015-3047 **A Hybrid Reconstructed Discontinuous Galerkin and Continuous Galerkin method for Incompressible Flows** A. Pandare, H. Luo, North Carolina State University, Raleigh, NC			

Wednesday, 24 June 2015						
202-CFD-22	**Future of Fluids: Next Generation CFD (Invited)**					**Grand Ballroom B**
Chaired by: M. MALIK, NASA-Langley Research Center and A. KHODADOUST, Boeing Engineering Operations & Technology						
1400 hrs Oral Presentation **Impacting Design with Large Eddy Simulation (Invited)** P. Moin, Stanford University, Stanford, CA; F. Ham, Cascade Technologies, Inc., Palo Alto, CA	1430 hrs AIAA-2015-3048 **Next-Generation CFD for Hypersonic and Aerothermal Flows (Invited)** G. Candler, University of Minnesota, Minneapolis, Minneapolis, MN	1500 hrs AIAA-2015-3049 **Scaling Limits for PDE-Based Simulation (Invited)** P. Fischer, University of Illinois, Urbana-Champaign, Urbana, IL	1530 hrs AIAA-2015-3050 **PyFR: Next-Generation High-Order Computational Fluid Dynamics on Many-Core Hardware (Invited)** P. Vincent, F. Witherden, A. Farrington, G. Ntemos, B. Vermeire, J. Park, Imperial College London, London, United Kingdom; et al.	1600 hrs AIAA-2015-3051 **Towards high-fidelity aerospace design in the age of extreme scale supercomputing (Invited)** Q. Wang, Massachusetts Institute of Technology, Cambridge, MA	1630 hrs AIAA-2015-3052 **Opportunities and Challenges for Multi-Disciplinary Analysis and Optimization at Exascale (Invited)** J. Alonso, Stanford University, Stanford, CA	1700 hrs AIAA-2015-3053 **CFD for Next Generation Hardware: Experiences with Proxy Applications** K. Franko, T. Fisher, P. Lin, S. Bova, Sandia National Laboratories, Albuquerque, NM

Wednesday, 24 June 2015						
203-CFD-23	**Parallel Computing and Novel Architectures**					**Plum Blossom A**
Chaired by: L. LUO, North Carolina State University and C. STONE, Computational Science and Engineering						
1400 hrs AIAA-2015-3054 **Parallel Techniques for Navier-Stokes Solver based on 4th Order Modified Runge-Kutta Scheme with TVD** H. Shah, Wichita State University, Wichita, KS	1430 hrs AIAA-2015-3055 **Optimization of A Fine-grained BILU by CUDA Inter-block Synchronization** L. Luo, J. Edwards, H. Luo, F. Mueller, North Carolina State University, Raleigh, NC	1500 hrs AIAA-2015-3056 **GPU Parallelization of a High Order Immersed Boundary Method Fluid Solver** A. Jost, J. Zhang, Florida Institute of Technology, Melbourne, FL; T. Jackson, University of Florida, Gainesville, Gainesville, FL	1530 hrs AIAA-2015-3057 **A Hybrid CPU-GPU Parallel Octree Direct Simulation Monte Carlo Approach** R. Jambunathan, D. Levin, University of Illinois, Urbana-Champaign, Urbana, IL	1600 hrs AIAA-2015-3058 **High-Performance 3D Multi-Disciplinary Fluid/Thermal Prediction using Combined Multi-Core/Multi-GPGPU Computer Systems** C. Stone, Computational Science and Engineering, LLC, Chicago, IL; R. Davis, University of California, Davis, Davis, CA	1630 hrs AIAA-2015-3059 **Comparison Of Acceleration Techniques on CFD Open-Source Software for Aerospace Applications** L. Mangani, G. Romanelli, University of Applied Sciences and Arts, Luzern, Switzerland; A. Gaddai, Technical University of Milan, Milan, Switzerland; E. Casartelli, University of Applied Sciences and Arts, Luzern, Switzerland	

Wednesday, 24 June 2015						
204-CFD-24	**Design Optimization**					**Coral**
Chaired by: L. TAO, GE Global Research						
1400 hrs AIAA-2015-3060 **Adjoint-Based Optimization of a Hypersonic Inlet** H. Kline, Stanford University, Stanford, CA; F. Palacios, The Boeing Company, Everett, WA; T. Economon, J. Alonso, Stanford University, Stanford, CA	1430 hrs AIAA-2015-3061 **Aerodynamic Shape Optimization for Natural Laminar Flow Using a Discrete-Adjoint Approach** R. Rashad, D. Zingg, University of Toronto, Toronto, Canada	1500 hrs AIAA-2015-3062 **A Continuous Sensitivity Equation of Arbitrary High Order** C. Belley, A. Hay, D. Pelletier, École Polytechnique de Montréal, Montréal, Canada	1530 hrs AIAA-2015-3063 **Design optimization of a high bypass ratio fan rotor against water ingestion** S. Qiu, D. Yang, Aviation Industry Corporation of China (AVIC), Shanghai, China	1600 hrs AIAA-2015-3064 **Design and Optimization of a Supersonic Business Jet** F. Kiyici, S. Aradag, TOBB University of Economics and Technology, Ankara, Turkey		

Wednesday, 24 June 2015						
205-CFD-25	**Turbulent Flow Simulations II**					**Emerald**
Chaired by: F. VERGINE and L. DUAN, Missouri University of Science and Technology						
1400 hrs AIAA-2015-3065 **Investigation of a Twinjet Configuration with and without Flow Control** K. Goparaju, D. Gaitonde, S. Bhaumik, Ohio State University, Columbus, OH	1430 hrs AIAA-2015-3066 **Numerical Simulations of Single and Tandem Wheels for Aerodynamic Loads Prediction** S. Spagnolo, X. Zhang, Z. Hu, D. Angland, University of Southampton, Southampton, United Kingdom	1500 hrs AIAA-2015-3067 **RANS Simulations of a Channel Flow with a New Velocity/Pressure-Gradient Model** S. Poroseva, J. Colmenares, University of New Mexico, Albuquerque, Albuquerque, NM; S. Murman, NASA Ames Research Center, Moffett Field, NM	1530 hrs AIAA-2015-3068 **High-Fidelity Computational Assessment of the Performance of a Vertical Axis Wind Turbine** J. Sudani, R. Prasad, M. Damodaran, Indian Institute of Technology Gandhinagar, Ahmedabad, India			

Wednesday, 24 June 2015		
206-F360-6 **1400 - 1630 hrs**	**The Challenges of Green Aviation**	**Grand Ballroom E**

Moderator: Marty Bradley, Technical Fellow, Boeing Commercial Airplanes

Panelists:

Ricky Curran
Faculty of Aerospace Engineering
Delft University of Technology

Jay E. Dryer
Director, Advanced Air Vehicles Program Office (Acting)
Aeronautics Research Mission Directorate
NASA Headquarters

Askin Isikveren
Head of Visionary Aircraft Concepts
Bauhaus Luftfahrt

Leslie Perkins
Director, Energy Office
Air Force Research Laboratory

Jeanne Yu
Environmental Director
Boeing Commercial Airplanes

Wednesday, 24 June 2015		
207-F360-7/CASE-7 **1400 - 1730 hrs**	**System Complexity : Government Needs and Practical Research Results**	**Grand Ballroom D**

This panel is arranged around two application domains - defense systems and unmanned air systems in the national airspace - and two engineering practice needs - rapid system development and new theory complex systems engineering. The expectation is that the audience will take away both a cogent statement of needs and challenges along with a concise description of new techniques that show promise to meet the stated needs and challenges.

Keynote Speaker
Kristen Baldwin
Principal Deputy DASD (SE), Department of Defense

Moderators: Frank Serna, Principal Director, Strategic Initiatives, Draper Laboratory and Anna-Maria McGowan, Aeronautics Research Directorate, NASA Langley Research Center

Panelists:

Jeffrey P. Holland
Director of Research and Development and Chief Scientist
U.S. Army Corps of Engineers

David Neyland
Consultant

Wednesday, 24 June 2015						
208-FD-23	**Unsteady Wing Aerodynamics III**					**Govenors Lecture Hall**
Chaired by: S. YARUSEVYCH, University of Waterloo and H. LUO, Vanderbilt University						
1400 hrs AIAA-2015-3069 **Numerical Simulation of Circular Cylinders and Wing Sections in Unsteady Motion** A. Gross, J. Zhou, New Mexico State University, Las Cruces, NM; H. Fasel, University of Arizona, Tucson, AZ	1430 hrs AIAA-2015-3070 **The effect of the blade chord length on the aerodynamics of the MAV scale cycloidal propeller under hovering status** Y. Hu, H. Zhang, Northwestern Polytechnical University, Xi'an, China	1500 hrs AIAA-2015-3071 **Unsteady Thick Airfoil Aerodynamics: Experiments, Computation, and Theory** D. Greenblatt, Technion-Israel Institute of Technology, Haifa, Israel; C. Rumsey, NASA Langley Research Center, Hampton, VA; H. Mueller-Vahl, Technion-Israel Institute of Technology, Haifa, Israel; C. Stangfeld, Technical University of Berlin, Berlin, Germany	1530 hrs AIAA-2015-3072 **Impact of a Vortical Gust on the Aerodynamics of a Finite Aspect-Ratio Wing** R. Gordnier, M. Visbal, Air Force Research Laboratory, Wright-Patterson AFB, OH	1600 hrs AIAA-2015-3073 **Transient Encounters of a NACA0012 Wing with a Streamwise-Oriented Vortex** D. Garmann, M. Visbal, Air Force Research Laboratory, Wright-Patterson AFB, OH	1630 hrs AIAA-2015-3074 **Flow Visualization and Force Measurements on Accelerated Revolving Flat Plates at Low Reynolds Numbers** M. Percin, B. van Oudheusden, Delft University of Technology, Delft, The Netherlands	

Wednesday, 24 June 2015						
209-FD-24	**Boundary Layer Transition: Receptivity and Control**					**Sapphire**
Chaired by: E. WHITE, Texas A&M University and A. CHOU, NASA Langley Research Center						
1400 hrs AIAA-2015-3075 **On the Effect of Small Steps on Pre-transitional Streamwise Elongated Streaks** A. Sescu, Mississippi State University, Mississippi State, MS; M. Afsar, Imperial College London, London, United Kingdom; V. Sassanis, Mississippi State University, Mississippi State, MS	1430 hrs AIAA-2015-3076 **Time-Frequency Analysis of Boundary Layer Instabilities Generated by Freestream Laser Perturbations** A. Chou, NASA Langley Research Center, Hampton, VA; S. Schneider, Purdue University, West Lafayette, IN	1500 hrs AIAA-2015-3077 **Numerical Simulation of Hypersonic Boundary-Layer Instability in a Real Gas with Two-Dimensional Surface Roughness** C. Mortensen, X. Zhong, University of California, Los Angeles, Los Angeles, CA	1530 hrs AIAA-2015-3078 **Leading-Edge Receptivity to Acoustic Waves for High-Speed Flows over a Blunt Wedge** A. Cerminara, N. Sandham, University of Southampton, Southampton, United Kingdom	1600 hrs AIAA-2015-3079 **Swept-Wing Boundary-Layer Receptivity to Steady Free-Stream Disturbances** H. Kurz, M. Kloker, University of Stuttgart, Stuttgart, Germany	1630 hrs AIAA-2015-3080 **Delaying transition in rotating boundary-layer flows** P. Griffiths, University of Birmingham, Birmingham, United Kingdom; S. Garrett, University of Leicester, Leicester, United Kingdom; S. Stephen, University of New South Wales, Sydney, Australia	

Wednesday, 24 June 2015		
210-FD-25 **1400 - 1730 hrs**	**Flow Control Technologies - Barriers/Challenges to Tech Transition**	**Topaz**

Chaired by: G. DALE, Air Force Research Laboratory and D. SMITH, Air Force Office of Scientific Research AFOSR

The session will focus on the hurdles to transitioning flow control technology to platforms based on major case studies. Panel members will present lessons learned and recommendations on flow control technology transitions (approx. 15 minutes each), covering both successful and unsuccessful transitions. A moderated Q&A session will follow the presentations. Session outcome is intended to offer a path forward to fostering more technology transition for flow control.

Moderator: Lou Cattafesta, Eminent Scholar and Professor, Florida State University

Panelists:

Edward Whalen	**Richard Wlezien**	**Ronald Joslin**	**Fay Collier**
Flow Control Actuation Manager	Professor and Chair of Aerospace Engineering	Program Officer	Project Manager
Boeing Research and Technology	Iowa State University	Office of Naval Research	NASA Environmentally Responsible Aviation

Wednesday, 24 June 2015						
211-FD-26	**Turbulence Simulations**					**Senators Lecture Hall**
Chaired by: P. SPALART, Boeing Commercial Airplanes and E. JOHNSEN, University of Michigan						
1400 hrs AIAA-2015-3081 **A numerical study of turbulence in boxes with no-slip walls and of varying volume-to-surface ratios** E. Johnsen, University of Michigan, Ann Arbor, Ann Arbor, MI; P. Movahed, University of Illinois, Urbana-Champaign, Urbana, IL; D. Dowling, University of Michigan, Ann Arbor, Ann Arbor, MI	1430 hrs AIAA-2015-3082 **Surface Roughness Effects in Hypersonic Turbulent Boundary Layers** J. Poggie, Air Force Research Laboratory, Wright-Patterson AFB, OH	1500 hrs AIAA-2015-3083 **Application of the Wray-Agarwal Model to Compressible Flows** T. Wray, R. Agarwal, Washington University in St. Louis, St. Louis, MO	1530 hrs AIAA-2015-3084 **Tetrahedral-Mesh Simulation of Turbulent Flows with the Space-Time Conservative Schemes** C. Chang, NASA Langley Research Center, Hampton, VA; B. Venkatachari, National Institute of Aerospace, Hampton, VA; G. Cheng, University of Alabama, Tuscaloosa, Tuscaloosa, AL			

Wednesday, 24 June 2015						
212-MAO-6	**Emerging Methods II**					**Madrid**
Chaired by: B. MESMER, University of Alabama and J. HICKEN, Rensselaer Polytechnic Institute						
1400 hrs AIAA-2015-3085 **Increasing Feasibility of the Self-Organizing Map as a Design Tool through a Novel Convergence Heuristic** T. Richardson, E. Winer, Iowa State University, Ames, IA	1430 hrs AIAA-2015-3086 **Incorporation of Coupling Strength Models in a Value-based Systems Engineering framework for optimization** H. Kannan, E. Tibor, Iowa State University, Ames, IA; B. Mesmer, University of Alabama, Huntsville, Huntsville, AL; C. Bloebaum, Iowa State University, Ames, IA	1500 hrs AIAA-2015-3087 **SUAVE: An Open-Source Environment for Multi-Fidelity Conceptual Vehicle Design** T. Lukaczyk, A. Wendorff, M. Colonno, T. Economon, J. Alonso, Stanford University, Stanford, CA; T. Orra, Embraer, São José dos Campos, Brazil; et al.	1530 hrs AIAA-2015-3088 **A Full-Space Method with Matrix Aggregates for Stress-Constrained Structural Optimization** G. Kennedy, Georgia Institute of Technology, Atlanta, GA	1600 hrs AIAA-2015-3089 **Reducing Induced Drag and Maneuver Loads by Active Aeroelastic Alteration** J. Lin, Control Research Corporation, Lexington, MA	1630 hrs AIAA-2015-3090 **Integrated Multidisciplinary Aircraft Design Process Supported by a Decentral MDO Framework** F. Daoud, S. Deinert, R. Maierl, Ö. Petersson, Airbus, Manching, Germany	

Wednesday, 24 June 2015						
213-MAO-7	**Metamodeling I**					**Manchester**
Chaired by: S. CHOWDHURY, Mississippi State University and P. PIPERNI, Bombardier Inc						
1400 hrs AIAA-2015-3091 **A Methodology to Create Approximate Models of Load Envelopes Under Uncertainty** D. Rancourt, S. Ghosh, D. Mavris, Georgia Institute of Technology, Atlanta, GA; S. Coggon, Airbus, Filton, United Kingdom	1430 hrs AIAA-2015-3092 **Principal Component Analysis Assisted Surrogate Modeling (PCA-SM) of Correlated Loads for Uncertainty Analysis of Design Load Envelopes** S. Ghosh, D. Rancourt, D. Mavris, Georgia Institute of Technology, Atlanta, GA; S. Coggon, Airbus, Filton, United Kingdom	1500 hrs AIAA-2015-3093 **Auxiliary Air Inlet Design: Non-Linearity, Surrogate Modeling and Optimization Aspects** A. Lombardi, L. Santos, Embraer, São José dos Campos, Brazil; D. Ferrari, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil	1530 hrs AIAA-2015-3094 **HDMR-based Surrogate Model for High Dimensional Aerodynamic Design Problems** Z. Gao, C. Wang, Northwestern Polytechnical University, Xi'an, China	1600 hrs AIAA-2015-3095 **A Sequential Maximin Latin Hypercube Sampling Method And Its Application to Aircraft Design** D. Wu, T. Long, Y. Wang, L. Liu, Beijing Institute of Technology, Beijing, China		

Wednesday, 24 June 2015						
214-MST-9	**Airframe Damage and Health Monitoring**					**Travertine**
Chaired by: V. MUKHOPADHYAY, NASA Langley Research Center						
1400 hrs AIAA-2015-3096 **Composite Structure Modeling and Analysis of Advanced Aircraft Fuselage Concepts** V. Mukhopadhyay, M. Sorokach, NASA Langley Research Center, Hampton, VA	1430 hrs AIAA-2015-3097 **Numerical Simulation and Analysis of the Aircraft Pilot Seat Impact Resistance** X. Zhang, X. Jinwu, M. Li, Beihang University, Beijing, China; Y. Ren, Hunan University, Changsha, China	1500 hrs AIAA-2015-3098 **Sensitivity Analysis towards Probabilistic Re-Entry Modeling of Spacecraft and Space Debris** P. Mehta, University of Strathclyde, Glasgow, United Kingdom; A. Walker, Los Alamos National Laboratory, Los Alamos, NM; M. Brown, University of New South Wales at the Australian Defence Force Academy, Canberra, Australia; E. Minisci, M. Vasile, University of Strathclyde, Glasgow, United Kingdom	1530 hrs AIAA-2015-3099 **A Vehicle Management End-to-End Testing and Analysis Platform for Validation of Mission and Fault Management Algorithms to Reduce Risk for NASA's Space Launch System** L. Trevino, J. Patterson, D. Teare, S. Johnson, NASA Marshall Space Flight Center, Huntsville, AL			

Wednesday, 24 June 2015						
215-MST-10	**Sensor and Communications Systems**					**Wyeth**
Chaired by: J. ZAMBRANO and Y. CHENG, AVIC Computing Technique Research Institute						
1400 hrs AIAA-2015-3100 **Simulation/Optimization Modeling for Robust Satellite Data Unit for Airborne Network** J. Zambrano, O. Yeste-Ojeda, R. Landry, University of Québec, Montréal, Canada	1430 hrs AIAA-2015-3101 **Parallel Image Detail Enhancement For Real-time Applications** Y. Cheng, W. Niu, Aviation Industry Corporation of China (AVIC), Xi'an, China; Z. Zhai, Northwestern Polytechnical University, Xi'an, China; L. Zhang, Aviation Industry Corporation of China (AVIC), Xi'an, China	1500 hrs AIAA-2015-3102 **The Key algorithm Research of Enhanced Vision System Base on Embedded Parallel Computing** X. Jianchun, Aviation Industry Corporation of China (AVIC), Xi'an, China				

Wednesday, 24 June 2015						
216-TP-10/PDL-10	**Plasma Computational Methods II**					**Miro**
Chaired by: K. STEPHANI, University of Illinois at Urbana-Champaign and T. MOELLER, University of Tennessee Space Institute						
1400 hrs AIAA-2015-3103 **Computational Simulations of TP3 Arc-Jet Facility Flow** T. Gokcen, ERC, Inc., Moffett Field, CA; J. Balboni, NASA Ames Research Center, Moffett Field, CA; A. Alunni, ERC, Inc., Moffett Field, CA	1430 hrs AIAA-2015-3104 **Simulation of Plasma Flow Control: A New Computationally Efficient Approach** B. Parent, Pusan National University, Busan, South Korea; S. Macheret, Purdue University, West Lafayette, IN; M. Shneider, Princeton University, Princeton, NJ	1500 hrs AIAA-2015-3105 **MG-local-PCA Method for the Reduction of a Collisional-Radiative Argon Plasma Mechanism** A. Bellemans, T. Magin, von Kármán Institute for Fluid Dynamics, Rhode-Saint-Genèse, Belgium; G. Degrez, A. Parente, University of Brussels, Brussels, Belgium	1530 hrs AIAA-2015-3106 **Reduced-Order Models of Low-Temperature Gas Discharges in Glow Mode** E. Cisneros, L. Massa, University of Texas, Arlington, Arlington, TX	1600 hrs AIAA-2015-3107 **Enthalpy Characterization and Assessment of Copper Catalysis Determination in Inductively Coupled Plasma Facility** A. Viladegut, von Kármán Institute for Fluid Dynamics, Rhode-Saint-Genèse, Belgium	1630 hrs AIAA-2015-3108 **Numerical Simulation of Two-Dimensional Structure of Glow Discharge in Molecular Hydrogen** S. Surzhikov, D. Storozhev, Russian Academy of Sciences, Moscow, Russia	

Wednesday, 24 June 2015						
217-TP-11	**Aerothermodynamics III**					**Rosetta**
Chaired by: T. LAM, The Aerospace Corporation						
1400 hrs AIAA-2015-3109 **Global Aeroheating Measurements of Shock-Shock Interactions on a Swept Cylinder** M. Mason, S. Berry, NASA Langley Research Center, Hampton, VA	1430 hrs AIAA-2015-3110 **Aerothermodynamic Characteristics of 16-22 km/s Earth Entry** C. Johnston, NASA Langley Research Center, Hampton, VA; A. Brandis, ERC, Inc., Moffett Field, CA	1500 hrs AIAA-2015-3111 **Radiative Heating on the After-Body of Martian Entry Vehicles** A. Brandis, B. Cruden, T. White, D. Saunders, ERC, Inc., Moffett Field, CA; C. Johnston, NASA Langley Research Center, Hampton, VA	1530 hrs AIAA-2015-3112 **Coupled Flow, Radiation, and Ablation Simulations of Atmospheric Entry Vehicles using the Hybrid Statistical Narrow Band Model** J. Scoggins, L. Soucasse, von Kármán Institute for Fluid Dynamics, Rhode-Saint-Genèse, Belgium; P. Riviere, A. Soufiani, École Centrale de Paris, Paris, France; T. Magin, von Kármán Institute for Fluid Dynamics, Rhode-Saint-Genèse, Belgium			

Wednesday, 24 June 2015		
218-NW-7 **1530 - 1600 hrs**	**Networking Coffee Break**	**Chantilly Ballroom East**

Wednesday, 24 June 2015		
219-RLA-2 **1530 - 1700 hrs**	**Rising Leaders in Aerospace: Leadership Exchange/Speed Networking**	**Metropolitan Ballroom**

Get your questions answered! Senior Mentors will include:

Russ Althof
Chief Engineer
Raytheon Missile Systems

Cees Bil
Professor, Royal Melbourne Institute of Technology

Dave Bowles
Center Director (Acting)
NASA Langley Research Center

Ed Feltrop
Engineer Specialist
Cessna Aircraft Company

Susan Gorton
Rotary Wing Project
NASA Langley Research Center

Peter Hartwich
Engineering Manager
Boeing Defense, Space and Security

Janice Kavandi
Deputy Director
NASA Glenn Research Center

Jeff Jepson
Senior Multi-Disciplined Engineer I
Raytheon Missile Systems

Samantha A. Magill
Academic Affairs and Inclusion & Diversity
Honda Aircraft Company

Sandy Magnus
Executive Director
AIAA

David McBride
Center Director
NASA Armstrong Flight Research Center

Charles Smith
Center Director (Acting)
NASA Ames Research Center

John Valasek
Professor/Director, Vehicle Systems & Control Laboratory
Texas A&M University

Wednesday, 24 June 2015		
220-LEC-3 **1630 - 1730 hrs**	**Aerodynamics Award Lecture**	**Chantilly Ballroom West**

Still Trying to Understand Aircraft Vortices
Russell M. Cummings
Professor of Aeronautics
Department of Aeronautics
U.S. Air Force Academy

Wednesday, 24 June 2015		
221-LEC-4 **1730 - 1830 hrs**	**Aeroacoustics Lecture**	**Chantilly Ballroom West**

Fan Broadband Noise Generation and Suppression
Edmane Envia
Aeroacoustics Branch
NASA Glenn Research Center

Wednesday, 24 June 2015		
222-LEC-5 1730 - 1830 hrs	**Thermophysics Award Lecture**	**Grand Ballroom E**

Aerodynamics and Heat Transfer in Gas Turbine Cooling-Recent Advances
Sumanta Acharya
Ring Chair & Professor
Mechanical Engineering Department
University of Memphis

Wednesday, 24 June 2015		
223-BANQ-1 1900 - 2030 hrs	**Aeroacoustics Awards Reception and Banquet**	**Imperial Ballroom**

The Aeroacoustics Awards Reception and Banquet will begin with a cash bar social period at 1900 hrs, followed by the awards ceremony and banquet where the AIAA and CEAS Aeroacoustics Awards will be presented. The winner of the Aeroacoustics Student Paper Competition also will be recognized. Please join us and celebrate the achievements of your peers. Tickets will be available at on site as space is available.

Thursday

Thursday, 25 June 2015		
224-SB-4 0730 - 0800 hrs	**Speakers' Briefing**	**Session Rooms**

Thursday, 25 June 2015		
225-PLNRY-4 0800 - 0900 hrs	**Plenary Keynote**	**Chantilly Ballroom West**

DHS's Perspectives on Cybersecurity in Aviation
Gregory J. Touhill
Deputy Assistant Secretary for Office of Cybersecurity and Communications
Department of Homeland Security

Thursday, 25 June 2015					
226-AA-31	**Interior Noise**				**Edelweiss**
Chaired by: N. AGARWAL, Boeing Defense, Space & Security					
0900 hrs Oral Presentation **Poroelastic Acoustic Meta Materials (Invited)** C. Fuller, Virginia Polytechnic Institute and State University, Blacksburg, VA	1000 hrs AIAA-2015-3113 **Low Frequency Noise Reduction Using Poro-Elastic Acoustic Metamaterials** A. Slagle, C. Fuller, Virginia Polytechnic Institute and State University, Blacksburg, VA	1030 hrs AIAA-2015-3114 **Identification of sources of noise in the cabin and the definition of the local passage of sound energy through fuselage based on the results of in-flight measurements of the Superjet** R. Abdrashitov, Sukhoi Civil Aircraft Company, Moscow, Russia; A. Golubev, TsAGI, Zhukovsky, Russia	1100 hrs AIAA-2015-3115 **Fuselage Excitation During Cruise Flight Conditions: Measurement and Prediction of Pressure Point Spectra** A. Klabes, M. Herr, C. Appel, German Aerospace Center (DLR), Braunschweig, Germany; M. Bouhaj, Airbus Operations GmbH, Hamburg, Germany	1130 hrs AIAA-2015-3116 **Effect of pressure gradients on turbulent boundary layer vortical structures and wall-pressure fluctuations** M. Alaoui, X. Gloerfelt, Paris Institute of Technology, Paris, France; O. Collery, M. Etchessahar, Airbus, Toulouse, France	1200 hrs AIAA-2015-3117 **Effect of pressure gradients on turbulent boundary layer noise and wall-pressure fluctuations** E. Cohen, X. Gloerfelt, Paris Institute of Technology, Paris, France

Thursday, 25 June 2015						
227-AA-32	**Jet Noise Measurements III**					**Fleur-de-lis A**
Chaired by: D. PAPAMOSCHOU, University of California Irvine						
0900 hrs AIAA-2015-3118 **Installed jet-flap impingement tonal noise** J. Lawrence, R. Self, University of Southampton, Southampton, United Kingdom	0930 hrs AIAA-2015-3119 **Noise measurements of high aspect ratio distributed exhaust systems** J. Bridges, M. Wernet, NASA Glenn Research Center, Cleveland, OH	1000 hrs AIAA-2015-3120 **Measurements and Predictions of the Noise from Three-Stream Jets** B. Henderson, S. Leib, NASA Glenn Research Center, Cleveland, OH	1030 hrs AIAA-2015-3121 **Flow Field and Acoustic Investigations of the Launch Vehicle Environment during Lift-off** K. Natarajan, L. Venkatakrishnan, National Aerospace Laboratories, Bangalore, India	1100 hrs AIAA-2015-3122 **An Experimental Study of Coaxial Jets Using Acoustic PIV and LDA Methods (CoJeN)** C. Mead, Aero Acoustics, Ltd., Elstead, United Kingdom; C. Wrighton, QinetiQ, Farnborough, United Kingdom; K. Britchford, Rolls-Royce Group plc, Derby, United Kingdom	1130 hrs AIAA-2015-3123 **Experimental and numerical study of the noise generation in an outflow butterfly valve** A. Chauvin, Y. Pasco, M. Sanjose, G. Lobel, A. Marsan, S. Moreau, University of Sherbrooke, Sherbrooke, Canada; et al.	

Thursday, 25 June 2015						
228-AA-33	**Jet Noise Modeling II**					**Fleur-de-lis B**
Chaired by: C. BROWN, NASA Glenn Research Center						
0900 hrs AIAA-2015-3124 **Nonlinear interaction analysis of subsonic jet instabilities with forced eigenmodes using PSE** M. Itasse, J. Brazier, O. Léon, G. Casalis, ONERA, Toulouse, France	0930 hrs AIAA-2015-3125 **Linear Stability Implications of Mean Flow Variations in Turbulent Jets Issuing from Serrated Nozzles** A. Sinha, Indian Institute of Technology Bombay, Mumbai, India; T. Colonius, California Institute of Technology, Pasadena, CA	1000 hrs AIAA-2015-3126 **On the Comparison of the Long Penetration Mode (LPM) Supersonic Counterflowing Jet to the Supersonic Screech Jet** R. Farr, NASA Marshall Space Flight Center, Huntsville, AL; C. Chang, NASA Langley Research Center, Hampton, VA; J. Jones, AI Signal Research, Inc., Huntsville, AL; N. Dougherty, ERC, Inc., Huntsville, AL	1030 hrs AIAA-2015-3127 **Theoretical Modelling Of Broadband Shock Associated Noise in Asymmetric Jets** A. Kalyan, S. Karabasov, Queen Mary University of London, London, United Kingdom	1100 hrs AIAA-2015-3128 **Empirical Models for the Shielding and Reflection of Jet Mixing Noise by a Surface** C. Brown, NASA Glenn Research Center, Cleveland, OH	1130 hrs AIAA-2015-3129 **Computational modelling of jet-wing interaction: the effect of asymmetries from the jet inflow conditions and the wing** V. Semiletov, Queen Mary University of London, London, United Kingdom; P. Yakovlev, North-Eastern Federal University, Yakutsk, Russia; S. Karabasov, Queen Mary University of London, London, United Kingdom; G. Faranosov, V. Kopiev, TsAGI, Moscow, Russia	1200 hrs AIAA-2015-3130 **Refraction Effect in Correlation Model of Quadrupole Noise Sources in Turbulent Jet** V. Kopiev, S. Chernyshev, TsAGI, Moscow, Russia

Thursday, 25 June 2015						
229-AA-34	**CAA Numerical Techniques III**					**Inverness**
Chaired by: S. ARUNAJATESAN, Sandia National Labs						
0900 hrs AIAA-2015-3131 **A study of accuracy on numerical methods for nonuniform meshes (Invited)** F. Hu, Old Dominion University, Norfolk, VA; A. Fernando, Norfolk State University, Norfolk, VA	0930 hrs AIAA-2015-3132 **Aeroacoustic Calculations of the 30P30N High-lift Airfoil using Hybrid RANS/LES methods: Modeling and Grid Resolution Effects** M. Terracol, E. Manoha, ONERA, Châtillon, France; M. Murayama, K. Yamamoto, Japan Aerospace Exploration Agency (JAXA), Tokyo, Japan	1000 hrs AIAA-2015-3133 **A direct-hybrid method for computational aeroacoustics** M. Schlottke, H. Cheng, V. Pauz, M. Meinke, W. Schroeder, RWTH Aachen University, Aachen, Germany	1030 hrs AIAA-2015-3134 **Hybrid MacCormack-type Schemes for Computational Aeroacoustics** S. Yazdani, D. Hixon, University of Toledo, Toledo, OH	1100 hrs AIAA-2015-3135 **Development of compressible large-eddy simulations combining high-order schemes and wall modeling** S. Le Bras, CERFACS, Toulouse, France; H. Deniau, ONERA, Toulouse, France; C. Bogey, École Centrale de Lyon, Ecully, France; G. Daviller, CERFACS, Toulouse, France		

Thursday, 25 June 2015						
230-AA-35	**Airframe Noise IV**					**Lalique**
Chaired by: T. VAN DE VEN, Gulfstream						
0900 hrs AIAA-2015-3136 **Influence of Spanwise Boundary Conditions on Slat Noise Simulations** D. Lockard, M. Choudhari, P. Buning, NASA Langley Research Center, Hampton, VA	0930 hrs AIAA-2015-3137 **LEISA2: an experimental database for the validation of numerical predictions of slat unsteady flow and noise** E. Manoha, ONERA, Châtillon, France; M. Pott-Pollenske, German Aerospace Center (DLR), Braunschweig, Germany	1000 hrs AIAA-2015-3138 **Experimental study of the effect of a small 2D excrescence placed on the slat cove surface of an airfoil on its acoustic noise** F. Amaral, D. Souza, C. Pagani, M. Medeiros, University of São Paulo, São José dos Campos, Brazil	1030 hrs AIAA-2015-3139 **Slat Noise Prediction using Hybrid RANS-LES methods on Structured and Unstructured Grids** N. Ashton, University of Manchester, Manchester, United Kingdom; A. West, CD-adapco, London, United Kingdom; F. Mendonca, Self, London, United Kingdom	1100 hrs AIAA-2015-3140 **Large-Scale Studies on Slat Noise Reduction** M. Herr, M. Pott-Pollenske, R. Ewert, B. Dirk, J. Siebert, J. Delfs, German Aerospace Center (DLR), Braunschweig, Germany; et al.	1130 hrs AIAA-2015-3141 **Study on Noise Generation from Slat Tracks Using a High-Lift Wing Model** M. Murayama, Y. Yokokawa, Y. Ito, K. Yamamoto, T. Takaishi, H. Ura, Japan Aerospace Exploration Agency (JAXA), Mitaka, Japan	1200 hrs AIAA-2015-3142 **On the Noise Generation of Krueger Leading Edge Devices** M. Pott-Pollenske, J. Wild, German Aerospace Center (DLR), Braunschweig, Germany

Thursday, 25 June 2015						
231-AA-36	**General Acoustics III**					**Obelisk A**
Chaired by: C. SCHRAM						
0900 hrs AIAA-2015-3143 **Experimental Application of Aeroacoustic Time-Reversal** A. Mimani, D. Moreau, C. Doolan, University of Adelaide, Adelaide, Australia	0930 hrs AIAA-2015-3144 **Experimental Investigation of the Unsteady Pressure on a Hydrofoil due to the Ingestion of Turbulence and Hydro-elastic Motion** M. Catlett, J. Anderson, Naval Surface Warfare Center, West Bethesda, MD	1000 hrs AIAA-2015-3145 **An Experimental Study of Composite Materials for the Design of Quiet UAVs** J. Callicoat, R. Gaeta, J. Jacob, Oklahoma State University, Stillwater, OK	1030 hrs AIAA-2015-3146 **On the Relevance of Convection Effects for a Laser-Generated Sound Source** K. Rossignol, J. Delfs, L. Rossian, F. Boden, German Aerospace Center (DLR), Braunschweig, Germany	1100 hrs AIAA-2015-3147 **Flow Noise Generation of Cylinders with Soft Porous Cover** T. Geyer, E. Sarradj, G. Herold, Brandenburg University of Technology, Cottbus, Germany	1130 hrs AIAA-2015-3148 **An experimental investigation of wall pressure fluctuations beneath pressure gradients** E. Salze, C. Bailly, O. Marsden, E. Jondeau, D. Juve, École Centrale de Lyon, Ecully, France	

Thursday, 25 June 2015		
232-ACD-6 **0900 - 1200 hrs**	**Conceptual Aircraft Design Working Group (CADWG21) Panel**	**Wyeth**
Chaired by: W. ANEMAAT, DARcorporation and T. TAKAHASHI, Arizona State University		

The Need of Community-Accepted Public Domain / Open Source Sizing Codes

Panelists:

Clif Davis	**Jason Welstead**	**Joaquim Martins**	**Mark Page**	**Steve Komadina**	**Rob McDonald**
Lockheed Martin Aeronautics	NASA Langley	University of Michigan	DZYNE Technologies	Northrop-Grumman	CalPoly

Thursday, 25 June 2015						
233-APA-25	**Applied CFD & Numerical Correlations with Experimental Data III**					**Stemmons B**
Chaired by: K. ABDOL-HAMID, NASA Langley Research Center and A. SCLAFANI, Boeing Engineering Operations & Technology						
0900 hrs AIAA-2015-3149 **Time-Accurate Unsteady Pressure Loads Simulated for the Space Launch System at Wind Tunnel Conditions** S. Alter, G. Brauckmann, W. Kleb, C. Streett, C. Glass, D. Schuster, NASA Langley Research Center, Hampton, VA	0930 hrs AIAA-2015-3150 **Continuous Radial Jet in Annular Cross-flow** P. Rajput, I. Kalkhoran, NYU Polytechnic School of Engineering, Brooklyn, NY	1000 hrs AIAA-2015-3151 **Simulation of a Flapping Wing UAV using a Coupled CFD-Control Tool** J. Geder, R. Ramamurti, K. Viswanath, Naval Research Laboratory, Washington, DC	1030 hrs AIAA-2015-3152 **Output-Based Adaptive Meshing Applied to Space Launch System Booster Separation Analysis** D. Dalle, Science and Technology Corporation, Moffett Field, CA; S. Rogers, NASA Ames Research Center, Moffett Field, CA	1100 hrs AIAA-2015-3153 **Improvement of CFD results of NASA CRM by on-line mesh deformation using modal analysis of a wing** P. Vrchota, A. Prachar, Aerospace Research and Test Establishment, Prague, Czech Republic		

Thursday, 25 June 2015						
234-APA-26	**Unmanned, Bio-Inspired, Solar Powered Aerial Vehicle Designs II**					**Carpenter Ballroom**
Chaired by: M. OL, US Air Force Reseach Laboratory and A. MITTAL, The University of Tennessee at Chattanooga						
0900 hrs AIAA-2015-3154 **Dynamical Characterization of a Bio-Inspired Wing with Passively Actuated Edges** C. Planck, F. Siala, J. Liburdy, Oregon State University, Corvallis, OR	0930 hrs AIAA-2015-3155 **Numerical Simulation of a Flapping Wing in Ansys-Fluent Based on the Fruit Fly Wing Kinematics** B. Nieto, X. Alfonso, K. Basto, J. Escobar, University of San Buenaventura, Bogota, Colombia	1000 hrs AIAA-2015-3156 **Aerodynamics of Southern Hawker Dragonfly: Aeshna cyanea** S. Srigrarom, C. Thipyopas, Kasetsart University, Bangkok, Thailand	1030 hrs AIAA-2015-3157 **Development and Analysis of Gull Inspired UAV Flapping Wing** D. Kumar, T. Goyal, S. Vemuri, P. Mohite, S. Kamle, Indian Institute of Technology Kanpur, Kanpur, India	1100 hrs AIAA-2015-3158 **Development and Aero-structural Analysis of Light and Strong Carbon Fiber-CNT/PP Hummingbird Inspired MAV Wings** D. Kumar, S. Kumar, T. Goyal, P. Mohite, S. Kamle, Indian Institute of Technology Kanpur, Kanpur, India		

Thursday, 25 June 2015						
235-APA-27	**Airfoil/Wing/Configuration Aerodynamics**					**Stemmons C**
Chaired by: A. MCCOMAS, TLG Aerospace and J. GUGLIELMO, Boeing Defense, Space & Security						
0900 hrs AIAA-2015-3159 **Improved Stall Prediction for Swept Wings Using Low-Order Aerodynamics** P. Hosangadi, R. Paul, A. Gopalarathnam, North Carolina State University, Raleigh, NC	0930 hrs AIAA-2015-3160 **Modeling and Prediction of the Crossflow Transition Using Transition Transport Equations** J. Sa, S. Park, Konkuk University, Seoul, South Korea; K. Cho, Korea University of Science and Technology, Daejeon, South Korea; K. Jung, Agency for Defense Development, Daejeon, South Korea	1000 hrs AIAA-2015-3161 **On the resulting aerodynamic loss of combinations of localized surface roughness patches on a turbine blade** P. Gilge, K. Mulleners, Leibniz University, Hannover, Germany	1030 hrs AIAA-2015-3162 **Aero-Propulsive Coupling of an Embedded, Distributed Propulsion System** M. Kerho, Rolling Hills Research Corporation, El Segundo, CA	1100 hrs AIAA-2015-3163 **Aerodynamic Performance of the Adaptive Nacelle Inlet** F. Majić, G. Efraimsson, C. O'Reilly, Royal Institute of Technology (KTH), Stockholm, Sweden	1130 hrs AIAA-2015-3164 **Computational Assessment of Rainfall Effects on Aircraft Aerodynamic Characteristics** H. Sharma, S. Harshe, S. Vekaria, M. Singh, M. Damodaran, Indian Institute of Technology Gandhinagar, Ahmedabad, India; B. Khoo, National University of Singapore, Singapore, Singapore	

Thursday, 25 June 2015						
236-APA-28	**Unsteady Aerodynamics I**					**Stemmons A**
Chaired by: K. KARA, Khalifa University of Science, Technology & Research and J. RAULEDER, Technical University of Munich						
0900 hrs AIAA-2015-3165 **Measurements of Dynamic Interface Between Ship and Helicopter Air Wakes** C. Friedman, George Washington University, Washington, DC; M. Snyder, U.S. Naval Academy, Annapolis, MD	0930 hrs AIAA-2015-3166 **An Experimental Study of Added Mass on a Plunging Airfoil Oscillating with High Frequencies at High Angles of Attack** M. Zakaria, Virginia Polytechnic Institute and State University, Blacksburg, VA; D. Pereira, University of São Paulo, São Paulo, Brazil; S. Ragab, M. Hajj, Virginia Polytechnic Institute and State University, Blacksburg, VA; F. Marques, University of São Paulo, São Paulo, Brazil	1000 hrs AIAA-2015-3167 **Experimental-Based Unified Unsteady Nonlinear Aerodynamic Modeling For Two-Dimensional Airfoils** M. Zakaria, Virginia Polytechnic Institute and State University, Blacksburg, VA; H. Taha, University of California, Irvine, Irvine, CA; M. Hajj, A. Hussein, Virginia Polytechnic Institute and State University, Blacksburg, VA	1030 hrs AIAA-2015-3168 **Experimental Dynamic Stall study on a low Reynolds number airfoil** S. Algozino, J. Marañon Di Leo, J. Delnero, G. Capittini, National University of La Plata, La Plata, Argentina	1100 hrs AIAA-2015-3169 **Unsteady Aerodynamic Modeling of Rolling Parachutes Using the Indicial Method** M. Ghoreyshi, U.S. Air Force Academy, Colorado Springs, CO; K. Bergeron, Army Research, Development and Engineering Command, Natick, MA; J. Seidel, A. Lofthouse, R. Cummings, U.S. Air Force Academy, Colorado Springs, CO	1130 hrs AIAA-2015-3170 **Subsonic Indicial Aerodynamics for Unsteady Loads Calculation via Numerical and Analytical Methods: a Preliminary Assessment** M. Righi, Zurich University of Applied Sciences, Winterthur, Switzerland; M. Berci, University of Leeds, Leeds, United Kingdom; J. Koch, Zurich University of Applied Sciences, Winterthur, Switzerland	1200 hrs AIAA-2015-3171 **Implementation of Vortex-type Gust Model Through Boundary Conditions** E. Eljack, I. AlQadi, King Abdulaziz University, Jeedah, Saudi Arabia

Thursday, 25 June 2015						
237-ASE-3	**Aircraft Wake Turbulence I (Invited)**					**Plum Blossom B**
Chaired by: M. PRUIS, Northwest Research Associates Inc and N. AHMAD, NASA Langley Research Center						
0900 hrs AIAA-2015-3172 **Use of Simple Models to Determine Wake Vortex Categories for New Aircraft (Invited)** J. Hallock, Department of Transportation, Cambridge, MA; G. Greene, J. Tittsworth, P. Strande, Federal Aviation Administration, Washington, DC; F. Wang, Department of Transportation, Cambridge, MA	0930 hrs AIAA-2015-3173 **Multi-Model Ensemble Wake Vortex Prediction (Invited)** S. Koerner, German Aerospace Center (DLR), Oberpfaffenhofen, Germany; N. Ahmad, NASA Langley Research Center, Hampton, VA; F. Holzäpfel, German Aerospace Center (DLR), Oberpfaffenhofen, Germany; R. VanValkenburg, NASA Langley Research Center, Hampton, VA	1000 hrs AIAA-2015-3174 **Wind Impact on Single Vortices and Counter-Rotating Vortex Pairs in Ground Proximity (Invited)** F. Holzäpfel, N. Tchipev, A. Stephan, German Aerospace Center (DLR), Oberpfaffenhofen, Germany	1030 hrs AIAA-2015-3175 **Sensitivity Analysis of Aircraft Encounters with Deformed Wake Vortices (Invited)** D. Bieniek, R. Luckner, Technical University of Berlin, Berlin, Germany	1100 hrs AIAA-2015-3176 **Assessment of WakeMod 4: A New Standalone Wake Vortex Algorithm for Estimating Circulation Strength and Position (Invited)** D. Jacob, Coherent Research Group, Ormond Beach, FL; D. Lai, M. Pruis, D. Delisi, NorthWest Research Associates, Redmond, WA	1130 hrs AIAA-2015-3177 **Observations of Wake Vortices from Upward Looking Pulsed Doppler Lidar Data (Invited)** M. Pruis, D. Delisi, NorthWest Research Associates, Redmond, WA; D. Jacob, Coherent Research Group, Ormond Beach, FL	

Thursday, 25 June 2015						
238-ATIO-21	**En Route Operations**					**Milan**
Chaired by: M. KOCH, NASA Langley Research Center						
0900 hrs AIAA-2015-3178 **Controller Workload-based Calculation of Monitor Alert Parameters for En Route Sectors** B. Marr, K. Lindsay, MITRE Corporation, McLean, VA	0930 hrs AIAA-2015-3179 **Optimization of the Cruise Regime of Flight Airplane Trajectory using Deterministic Algorithms** M. Gautier, R. Botez, University of Québec, Montréal, Canada	1000 hrs AIAA-2015-3180 **Can ground-based separation accommodate very high en route traffic demand as well as advanced self-separation?** H. Blom, B. Bakker, National Aerospace Laboratory (NLR), Amsterdam, The Netherlands				

Thursday, 25 June 2015						
239-ATIO-22	**ATM V - Performance Assessment**					**Morocco**
Chaired by: D. DELAURENTIS, Purdue University						
0900 hrs AIAA-2015-3181 **Verifying Required Communication Performance in Air Traffic Management** D. Zeng, J. Gonda, MITRE Corporation, McLean, VA	0930 hrs AIAA-2015-3182 **Methodology to Define Delivery Accuracy Under Current Day ATC Operations** S. Sharma, J. Robinson III, NASA Ames Research Center, Moffett Field, CA	1000 hrs AIAA-2015-3183 **Investigation of Connectivity: Definition, Application, and Formulation** L. Bowers, L. Mockus, S. Tamaskar, D. DeLaurentis, Purdue University, West Lafayette, IN	1030 hrs AIAA-2015-3184 **Regional Sky Transit** B. Seeley, CAFE Foundation, Santa Rosa, CA	1100 hrs AIAA-2015-3185 **An Airport Assessment Approach in the Conceptual Design Stage** M. Weiss, N. Dzikus, German Aerospace Center (DLR), Hamburg, Germany	1130 hrs AIAA-2015-3186 **Modeling a Ramp Area Support System** A. Wing, W. Felder, R. Cloutier, Stevens Institute of Technology, Hoboken, NJ	1200 hrs AIAA-2015-3187 **Framework Development for Performance Evaluation of the Future National Airspace System** M. Hassan, A. Payan, H. Pfaender, D. Mavris, E. Garcia, J. Schutte, Georgia Institute of Technology, Atlanta, GA

Thursday, 25 June 2015						
240-ATIO-23	**Transformational Flight - Electric Propulsion**					**Monet Ballroom**
Chaired by: S. GINN, NASA						
0900 hrs Oral Presentation **HEIST LEAPTech Instrumentation Design, Development, and Initial Results** T. Foster, Empirical Systems Aerospace, Inc., Pismo Beach, CA	0930 hrs Oral Presentation **LEAPTech HEIST Power Architecture and Testing** S. Clarke, Y. Lin, A. Samuel, K. Papathakis, NASA Armstrong Flight Research Center, Edwards, CA	1000 hrs AIAA-2015-3188 **Comparison of CFD and Experimental Results of the LEAPTech Distributed Electric Propulsion Blown Wing** A. Stoll, Joby Aviation, Santa Cruz, CA	1030 hrs AIAA-2015-3189 **A Conceptual Approach to Flight-Training Mission and Cost Analysis of an All-Electric Aircraft Equipped with Regenerative Energy Devices** M. Olson, Georgia Institute of Technology, Atlanta, GA	1100 hrs AIAA-2015-3190 **Optimal Propeller Pitch Scheduling and Propeller--Airframe Matching for Conceptual Design** R. McDonald, California Polytechnic State University, San Luis Obispo, CA	1130 hrs AIAA-2015-3191 **Modeling and Test of the Efficiency of Electronic Speed Controllers for Brushless DC Motors** C. Green, R. McDonald, California Polytechnic State University, San Luis Obispo, CA	

Thursday, 25 June 2015						
241-CFD-26	**Unstructured High-Order Methods III**					**Grand Ballroom A**
Chaired by: R. HARRIS, CFD Research Corporation and B. JOLLY, US Air Force						
0900 hrs AIAA-2015-3192 **Development of Vertex-Centered, High-Order Schemes and Implementation in FUN3D** H. Yang, R. Harris, CFD Research Corporation, Huntsville, AL	0930 hrs AIAA-2015-3193 **A compact high order finite volume method for hyperbolic conservation laws on unstructured grids** Q. Wang, Y. Ren, Tsinghua University, Beijing, China; W. Li, Sun Yat-Sen University, Guangzhou, China	1000 hrs AIAA-2015-3194 **Locally-Defined High-Resolution Scheme for Shock-Capturing Problems on Unstructured Cartesian Grids** Y. Tamaki, T. Imamura, University of Tokyo, Tokyo, Japan	1030 hrs AIAA-2015-3195 **High-Order Compressible Flow Simulations with the Unstructured Spectral Difference Method** F. Moreira, C. Breviglieri, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil; J. Azevedo, Aeronautics and Space Institute (IAE), São José dos Campos, Brazil	1100 hrs AIAA-2015-3196 **A new high-order unstructured numerical scheme for large eddy simulation** Z. Xu, University of Science and Technology, Hefei, China; Q. Zhao, Chinese Academy of Sciences, Beijing, China; Q. Lin, University of Science and Technology, Hefei, China; J. Xu, Chinese Academy of Sciences, Beijing, China		

Thursday, 25 June 2015						
242-CFD-27	**Current Trends in CFD Research II (Invited)**					**Grand Ballroom B**
Chaired by: H. HUYNH, NASA Glenn Research Center and Z. WANG, University of Kansas						
0900 hrs Oral Presentation **Theoretical Aspects of High-Order Flux Reconstruction Schemes (Invited)** P. Vincent, Imperial College London, London, United Kingdom	0930 hrs AIAA-2015-3197 **Well Posed Problems and Boundary Conditions in Computational Fluid Dynamics (Invited)** J. Nordstrom, Linköping University, Linköping, Sweden	1000 hrs AIAA-2015-3198 **Opportunities for efficient high-order methods based on the summation-by-parts property (Invited)** J. Hicken, Rensselaer Polytechnic Institute, Troy, NY; D. Del Rey Fernández, D. Zingg, University of Toronto, Toronto, Canada	1030 hrs Oral Presentation **Role of Entropy-Residual in High-Order Numerical Methods for Gas-Dynamics Calculations: Shock Detector and Adaptation Indicator (Invited)** M. Ihme, Y. Lv, Stanford University, Stanford, CA	1100 hrs Oral Presentation **Large Eddy Simulations of Turbulent Flows Using Discontinuous High Order Methods (Invited)** Z. Wang, University of Kansas, Lawrence, Lawrence, KS	1130 hrs AIAA-2015-3199 **Multi-dimensional Limiting Strategy for Higher-order CFD Methods - Progress and Issue (Invited)** C. Kim, Seoul National University, Seoul, South Korea; J. Park, Imperial College London, London, United Kingdom	

Thursday, 25 June 2015						
243-CFD-28	**Incompressible and Low Speed Flows**					**Plum Blossom A**
Chaired by: M. YU, University of Maryland, Baltimore County and R. RAJAGOPALAN, Iowa State University						
0900 hrs AIAA-2015-3200 **High-Order Strand Grid Methods for Low Mach and Incompressible Flows** J. Thorne, A. Katz, Utah State University, Logan, UT	0930 hrs AIAA-2015-3201 **An Explicit Pressure-Based Algorithm for Incompressible Flows** D. Garrick, R. Rajagopalan, Iowa State University, Ames, IA	1000 hrs AIAA-2015-3202 **A Turbulent Low-Speed Preconditioner for Unsteady Flows About Wind Turbine Airfoils** R. Djeddi, K. Ekici, University of Tennessee, Knoxville, Knoxville, TN	1030 hrs AIAA-2015-3203 **Comparison of Pressure-Based Runge-Kutta Schemes for Unsteady Incompressible Flows** M. Fischels, R. Rajagopalan, Iowa State University, Ames, IA	1100 hrs AIAA-2015-3204 **Applying Non-Reflecting Boundary Conditions in Pressure-Based Solvers** V. Ivanov, B. Makarov, ANSYS, Inc., Lebanon, NH	1130 hrs AIAA-2015-3205 **Generalised SIMPLE-Based Pressure Correction Method for Unstructured Co-located Grids** V. Przulj, Ricardo Software, Shoreham by Sea, United Kingdom	1200 hrs AIAA-2015-3206 **Robustness to Inaccurate Initial Conditions in Low Mach Preconditioned Density-Based Methods** C. Falcão, University of Rio Grande do Sul, Porto Alegre, Brazil; F. Medeiros, Military Institute of Engineering (IME), Rio de Janeiro, Brazil; L. Alves, Fluminese Federal University (UFF), Niterói, Brazil

Thursday, 25 June 2015						
244-CFD-29	**High-Speed and Reacting Flows**					**Coral**
Chaired by: G. CANDLER, University of Minnesota and B. RATHAKRISHNAN, GE Global Research						
0900 hrs AIAA-2015-3207 **LES of reacting mixing layers: influence of inflow conditions and heat release** A. Kartha, P. Subbareddy, G. Candler, University of Minnesota, Minneapolis, Minneapolis, MN; P. Dimotakis, California Institute of Technology, Pasadena, CA	0930 hrs AIAA-2015-3208 **A Priori Analysis of a Compressible Flamelet Model using RANS Data for a Dual-Mode Scramjet Combustor** J. Quinlan, T. Drozda, NASA Langley Research Center, Hampton, VA; J. McDaniel, University of Virginia, Charlottesville, Charlottesville, VA; G. Lacaze, J. Oefelein, Sandia National Laboratories, Livermore, CA	1000 hrs AIAA-2015-3209 **Numerical Investigations of Pulsed Fuel Injection into Supersonic Crossflow** N. Williams, R. Thompson, T. Moeller, University of Tennessee, Tullahoma, Tullahoma, TN	1030 hrs AIAA-2015-3210 **Ignition Characteristics in Spatially Zero-, One- and Two-Dimensional Laminar Ethylene Flames** M. Evans, P. Medwell, Z. Tian, University of Adelaide, Adelaide, Australia; A. Frassoldati, A. Cuoci, A. Stagni, Technical University of Milan, Milan, Italy	1100 hrs AIAA-2015-3211 **IDDES simulation of supersonic combustion using flamelet modeling** H. Wang, Y. Piao, J. Niu, Tsinghua University, Beijing, China	1130 hrs AIAA-2015-3212 **Three Dimensional Flow Analysis of a Cavity-Based Scramjet Combustor** R. Rouzbar, S. Eyi, Middle East Technical University, Ankara, Turkey	

Thursday, 25 June 2015						
245-CFD-30	**Inflow Turbulence for Wall-Bounded LES (Invited)**					**Emerald**
Chaired by: N. BISEK, Air Force Reseach Laboratory and L. TAO, GE Global Research						
0900 hrs AIAA-2015-3213 **An Overview of Turbulent Inflow Boundary Conditions for Large Eddy Simulations (Invited)** N. Dhamankar, G. Blaisdell, Purdue University, West Lafayette, IN; A. Lyrintzis, Embry-Riddle Aeronautical University, Daytona Beach, FL	0930 hrs AIAA-2015-3214 **A Counter-Flow Force Based Method to Generate Equilibrium Turbulent Inflow Conditions (Invited)** D. Gaitonde, M. Waindim, M. Adler, Ohio State University, Columbus, OH	1000 hrs AIAA-2015-3215 **Generating Synthetic Inhomogeneous Turbulence from RANS Statistics (Invited)** P. Batten, U. Goldberg, O. Peroomian, S. Chakravarthy, Metacomp Technologies, Inc., Agoura Hills, CA	1030 hrs Q&A Panel Discussion			

Thursday, 25 June 2015						
246-FD-27	**Turbulence Analysis**					**Govenors Lecture Hall**
Chaired by: Z. ZHENG, The University of Kansas and S. SILTON, US Army Research Laboratory						
0900 hrs AIAA-2015-3216 **Single and Multiple-Point Analysis of Velocity Fluctuations in a Detonation-Turbulence Interaction** S. Hussein, F. Lu, University of Texas, Arlington, Arlington, TX	0930 hrs AIAA-2015-3217 **Nonlinear Time Series Analysis of Velocity over NACA 2412 Three-Dimensional Wing Using Large Eddy Simulation Data** P. Chakraborty, A. Roy, Indian Institute of Technology Kharagpur, Kolkata, India	1000 hrs AIAA-2015-3218 **Thermal non-equilibrium effects in turbulent compressible shear flows** A. Neville, I. Nompelis, P. Subbareddy, G. Candler, University of Minnesota, Minneapolis, Minneapolis, MN				

Thursday, 25 June 2015						
247-FD-28 **0900 - 1230 hrs**	**Transition Open Forum**					**Sapphire**
Chaired by: H. REED, Texas A&M University						

Thursday, 25 June 2015						
248-FD-29	**Flow Control - Aerodynamics**					**Senators Lecture Hall**
Chaired by: H. DONG, University of Virginia and E. WHALEN, Boeing Engineering Operations & Technology						
0900 hrs AIAA-2015-3219 **Three-dimensional Control via Mass Injection for Suppression of Cavity Oscillations** Y. Zhang, N. Arora, Y. Sun, L. Cattafesta, K. Taira, Florida State University, Tallahassee, FL; L. Ukeiley, University of Florida, Gainesville, Gainesville, FL	0930 hrs AIAA-2015-3220 **Propulsive Performance and Vortex Interactions of Multiple Tandem Foils Pitching In Line** C. Yuan, G. Liu, Y. Ren, H. Dong, University of Virginia, Charlottesville, Charlottesville, VA	1000 hrs AIAA-2015-3221 **On the Effect of Rigid Swept Surface Waves on Turbulent Drag** M. Denison, National Institute of Aerospace, Hampton, VA; S. Wilkinson, P. Balakumar, NASA Langley Research Center, Hampton, VA	1030 hrs AIAA-2015-3222 **Control of Tollmien-Schlichting Waves Using Piezoelectrically Driven Oscillating Surface** H. Dell'Orso, B. Tuna, M. Amitay, Rensselaer Polytechnic Institute, Troy, NY			

Thursday, 25 June 2015						
249-FT-1	**Flight Testing**					**Obelisk B**
Chaired by: K. GARMAN, Federal Aviation Administration and J. BRANDON, NASA-Langley Research Center						
0900 hrs AIAA-2015-3223 **A Framework for Applying the OODA Loop to Mission Control Room Execution** J. Newcamp, U.S. Air Force Academy, Colorado Springs, CO	0930 hrs AIAA-2015-3224 **Current Hypersonic and Space Vehicle Flight Test Instrumentation Challenges** J. Spravka, T. Jorris, 412th Test Wing, Edwards AFB, CA	1000 hrs AIAA-2015-3225 **Stall/Spin Flight Test Techniques with COTS Model Aircraft and Flight Data Systems** R. Bunge, F. Munera Savino, I. Kroo, Stanford University, Stanford, CA	1030 hrs AIAA-2015-3226 **Ground Minimum Control Speed (VMCG) Testing of Transport Aircraft** P. Bolds-Moorehead, V. Chaney, The Boeing Company, Seattle, WA; T. Lutz, S. Vaux, Airbus, Toulouse, France	1100 hrs AIAA-2015-3227 **Lateral-Directional Aerodynamic Model Identification of a Single-Engine Propeller Aircraft Using Partial Orthogonal Least Squares** J. Zanette, Brazilian Air Force, São José dos Campos, Brazil; F. Almeida, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil		

Thursday, 25 June 2015						
250-LTA-1	**Lighter-than-Air Systems & Technologies I**					**Steuben**
Chaired by: R. VAN TREUREN						
0900 hrs AIAA-2015-3228 **Design and Control of a Multi-vectored Thrust Airship** L. Chen, Y. Wen, H. Zhou, X. Wang, P. Zhou, D. Duan, Shanghai Jiao Tong University, Shanghai, China	0930 hrs AIAA-2015-3229 **Numerical Feasibility Analysis of the Extra-light Weight Structure Tensairity on Large Airships** A. Suñol, T. Yang, D. Vučinic, Vrije Universiteit Brussel, Brussels, Belgium	1000 hrs AIAA-2015-3230 **Computational Modelling of Aerodynamic Characteristics of Airships in Arbitrary Motion** A. Kanoria, K. Panchal, R. Dongre, M. Damodaran, Indian Institute of Technology Gandhinagar, Ahmedabad, India	1030 hrs AIAA-2015-3231 **Disturbance Rejection Based Path Following Control for A Stratospheric Airship with Actuator Saturation** K. Yan, Z. Zheng, M. Zhu, Z. Wu, Beihang University, Beijing, China	1100 hrs AIAA-2015-3232 **A Long Endurance, Highly Maneuverable, Collaborative, Unmanned Airborne System** W. King, D. Landrum, J. Alcorn, A. Jarzembski, University of Alabama, Huntsville, Huntsville, AL		

Thursday, 25 June 2015						
251-MAO-8	**Metamodeling II**					**Manchester**
Chaired by: B. ROTH, Walla Walla Univ and J. HICKEN, Rensselaer Polytechnic Institute						
0900 hrs AIAA-2015-3233 **Adaptive Switching of Variable-Fidelity Models in Population-based Optimization Algorithms** A. Mehmani, Syracuse University, Syracuse, NY; S. Chowdhury, A. Messac, Mississippi State University, Mississippi State, MS	0930 hrs AIAA-2015-3234 **Large-scale CFD Optimization based on the FFD Parametrization using the Multipoint Approximation Method in an HPC Environment** Y. Korolev, V. Toropov, Queen Mary University of London, London, United Kingdom; S. Shahpar, Rolls-Royce Group plc, Derby, United Kingdom	1000 hrs AIAA-2015-3235 **Adaptive Variable-Fidelity Aerodynamic Analysis and Design for Tailless Aircraft under Model-Form Uncertainty** Y. Jo, J. Park, C. Ocheltree, J. Choi, S. Choi, P. Raj, Virginia Polytechnic Institute and State University, Blacksburg, VA; et al.	1030 hrs AIAA-2015-3236 **Study of Hybrid Radial Basis Function for Design Optimization Problems** R. Shi, L. Liu, T. Long, J. Liu, Beijing Institute of Technology, Beijing, China			

Thursday, 25 June 2015						
252-MAO-9	**Shape and Topology I**					**Madrid**
Chaired by: J. MARTINS, University of Michigan and R. KOLONAY, Air Force Research Laboratory/RQVC/WPAFB						
0900 hrs AIAA-2015-3237 **Nonintrusive Continuum Sensitivity Analysis for Aerodynamic Shape Optimization** M. Kulkarni, R. Canfield, M. Patil, Virginia Polytechnic Institute and State University, Blacksburg, VA	0930 hrs AIAA-2015-3238 **Three-Dimensional Piecewise-Continuous Class-Shape Transformation of Wings** E. Olson, NASA Langley Research Center, Hampton, VA	1000 hrs AIAA-2015-3239 **Multi-objective shape optimization of aircraft cabin ventilation components using adjoint CFD** T. Köthe, S. Herzog, C. Wagner, German Aerospace Center (DLR), Göttingen, Germany	1030 hrs AIAA-2015-3240 **Development of a Consistent Discrete Adjoint Solver in an Evolving Aerodynamic Design Framework** T. Albring, M. Sagebaum, N. Gauger, Technical University of Kaiserslautern, Kaiserslautern, Germany	1100 hrs AIAA-2015-3241 **The Research on Geometry Modeling Method Based on Three-dimensional CST Parameterization Technology** H. Su, L. Gu, C. Gong, Northwestern Polytechnical University, Xi'an, China	1130 hrs AIAA-2015-3242 **Concurrent Subspace Optimization Design of Hypersonic Cruise Vehicle** C. Jing, S. Yuan-pei, China Aerodynamics Research and Development Center, Mianyang, China	

Thursday, 25 June 2015						
253-MST-11	**Aircraft Systems Design, Verification and Validation**					**Travertine**
Chaired by: G. CHATTERJI, NASA Ames Research Center						
0900 hrs AIAA-2015-3243 **ADDAM: An Object Oriented Data Model for an Aircraft Design Environment in MATLAB** S. Herbst, M. Hornung, Technical University of Munich, Munich, Germany	1000 hrs AIAA-2015-3245 **Dynamic model updating of a simulation casing based on experimental modal parameters** B. Jie, Q. Mei, C. Zhang, Aviation Industry Corporation of China (AVIC), Zhuzhou, China					

Thursday, 25 June 2015		
254-NW-8 **0900 - 0930 hrs**	**Networking Coffee Break**	**Chantilly Ballroom East**

Thursday, 25 June 2015						
255-PDL-12	**Aero-Optics Plasma Diagnostics**					**Miro**
Chaired by: R. MILES, Princeton University and M. RENNIE, University of Notre Dame						
0900 hrs AIAA-2015-3246 **Aero-Optical Measurements of High-Mach Supersonic Boundary Layers** S. Gordeyev, M. Rennie, University of Notre Dame, Notre Dame, IN; A. Cain, Innovative Technology Applications Company, LLC, Chesterfield, MO; T. Hayden, U.S. Air Force Academy, Colorado Springs, CO	0930 hrs AIAA-2015-3247 **Non-intrusive Velocity and Density Measurements in Subsonic Turbulent Boundary Layer** J. Sontag, S. Gordeyev, University of Notre Dame, Notre Dame, IN	1000 hrs AIAA-2015-3248 **Numerical Investigation of Aero-Optical Distortions over a Hemisphere-on-Cylinder Turret with Gaps** E. Mathews, K. Wang, M. Wang, E. Jumper, University of Notre Dame, Notre Dame, IN	1030 hrs AIAA-2015-3249 **Characterization of Flow Control Actuators Based on Spark Discharge Plasmas Using Particle Image Velocimetry** B. Singh, M. Belmouss, S. Bane, Purdue University, West Lafayette, IN	1100 hrs AIAA-2015-3250 **Investigation of shock / turbulent boundary interaction unsteadiness with various obstructions for aero-optics** M. White, Ohio Aerospace Institute, Dayton, OH; M. Visbal, Air Force Research Laboratory, Wright-Patterson AFB, OH		

Thursday, 25 June 2015						
256-TP-12	**Detailed Molecular Process Modeling**					**Rosetta**
Chaired by: R. WAGNILD, Sandia National Laboratories and T. SCHWARTZENTRUBER, University of Minnesota						
0900 hrs AIAA-2015-3251 **Vibrational Relaxation and Dissociation of Oxygen in Molecule-Atom Collisions** D. Andrienko, I. Boyd, University of Michigan, Ann Arbor, Ann Arbor, MI	0930 hrs AIAA-2015-3252 **Master Equation Study of Vibrational and Rotational Relaxation of Oxygen** D. Andrienko, I. Boyd, University of Michigan, Ann Arbor, Ann Arbor, MI	1000 hrs AIAA-2015-3253 **Characterization of Vibrational and Rotational Energy Transfer in N_2-N_2 Dissociative Collisions Using the Quasiclassical Trajectory Method** J. Bender, P. Valentini, I. Nompelis, T. Schwartzentruber, G. Candler, University of Minnesota, Minneapolis, Minneapolis, MN	1030 hrs AIAA-2015-3254 **Direct molecular simulation of high-temperature nitrogen dissociation due to both N-N2 and N2-N2 collisions** P. Valentini, T. Schwartzentruber, J. Bender, G. Candler, University of Minnesota, Minneapolis, Minneapolis, MN			

Thursday, 25 June 2015		
257-F360-8 **0930 - 1200 hrs**	**The Impact of Particle Image Velocimetry on Aerospace Technology**	**Grand Ballroom E**

Moderator: Steven Beresh, Distinguished Member of the Technical Staff, Sandia National Laboratories

Panelists:

Ronald J. Adrian
Regent's Professor and Ira A. Fulton Professor of Mechanical and Aerospace Engineering
Arizona State University

Susan Gorton
Project Manager, Revolutionary Vertical Lift Technology Project
NASA Langley Research Center

Fulvio Scarano
Full Professor and Chair of Aerodynamics
Delft University of Technology

Miguel Visbal
Principal Research Aerospace Engineer and Team Leader of Multidisciplinary Computational Aerodynamics, Aerospace Systems Directorate
Air Force Research Laboratory

Thursday, 25 June 2015		
258-LNCH-3 **1230 - 1400 hrs**	**Awards Luncheon: Celebrating Achievements in Aircraft and Atmospheric Systems**	**Chantilly Ballroom West**
A ticket is required and included in the conference registration fee where indicated.		

Thursday, 25 June 2015						
259-AA-37	**Landing Gear Noise**					**Edelweiss**
Chaired by: T. SPALT, NASA Langley Research Center						
1400 hrs AIAA-2015-3255 **Aeroacoustic Simulations of a Nose Landing Gear using FUN3D on Pointwise Unstructured Grids** V. Vatsa, M. Khorrami, NASA Langley Research Center, Hampton, VA; J. Rhoads, Pointwise, Inc., Fort Worth, TX; D. Lockard, NASA Langley Research Center, Hampton, VA	1430 hrs AIAA-2015-3256 **Nose landing gear flow and noise predictions on unstructured grid using a cell-centered Navier-Stokes code** F. De La Puente, L. Sanders, F. Vuillot, E. Manoha, ONERA, Châtillon, France	1500 hrs AIAA-2015-3257 **The Effect of Flow Circulation on the Scattering of Landing Gear Noise** T. Heffernon, D. Angland, X. Zhang, M. Smith, University of Southampton, Southampton, United Kingdom	1530 hrs AIAA-2015-3258 **The Effect of Strut Geometry on the Inter-Wheel Flow for a Two-Wheel Landing Gear** P. McCarthy, A. Ekmekci, University of Toronto, Toronto, Canada	1600 hrs AIAA-2015-3259 **Design of quieter landing gears through lattice-Boltzmann CFD simulations** T. Rougier, Safran Group, Vélizy-Villacoublay, France; Q. Bouvy, Safran Group, Gloucester, United Kingdom; D. Casalino, J. Appelbaum, Exa GmbH, Stuttgart, Germany; C. Kleinclaus, Exa GmbH, Munich, Germany		

Thursday, 25 June 2015						
260-AA-38	**Fluid-Structure Interaction**					**Fleur-de-lis A**
Chaired by: J. ALONSO-MIRALLES, UTC Aerospace Systems						
1400 hrs AIAA-2015-3260 **A fast numerical framework for acoustic scattering by 3D poroelastic plates** W. Wolf, University of Campinas, Campinas, Brazil; A. Cavalieri, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil	1430 hrs AIAA-2015-3261 **Noise Produced by Fabric and Wire Mesh Covered Panels in Low-Speed Anechoic Wind Tunnels** W. Alexander, W. Devenport, Virginia Polytechnic Institute and State University, Blacksburg, VA	1500 hrs AIAA-2015-3262 **Acoustic scattering by finite composite plates** A. Cavalieri, M. Donadon, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil; W. Wolf, University of Campinas, Campinas, Brazil	1530 hrs AIAA-2015-3263 **Experimental Investigation of Flow-Induced Panel Vibrations at Cruise Mach Number** T. Berkefeld, C. Spehr, K. Ehrenfried, S. Haxter, German Aerospace Center (DLR), Göttingen, Germany; S. Kroeber, Daimler AG, Stuttgart, Germany	1600 hrs AIAA-2015-3264 **Rod-Airfoil Interaction Noise Reduction Using Leading Edge Serrations** W. Chen, W. Qiao, L. Wang, F. Tong, Northwestern Polytechnical University, Xi'an, China; X. Wang, State Key Laboratory of Aerodynamics, Mianyang, China	1630 hrs AIAA-2015-3265 **Comparison of Analytical, Numerical, and Experimental Results for Unsteady Aerofoil Interaction Noise** L. Ayton, University of Cambridge, Cambridge, United Kingdom; J. Gill, University of Southampton, Southampton, United Kingdom; N. Peake, University of Cambridge, Cambridge, United Kingdom	

Thursday, 25 June 2015						
261-AA-39	**Fluid Acoustic Phenomena**					**Fleur-de-lis B**
Chaired by: K. AHUJA, Georgia Institute of Technology						
1400 hrs AIAA-2015-3266 **Non-linear System Identification Techniques for Determination of the Acoustic Properties of Perforates** H. Boden, Royal Institute of Technology (KTH), Stockholm, Sweden	1430 hrs AIAA-2015-3267 **Vortex Scattering Effects on Acoustic Wave Propagation** G. Ke, W. Li, Z. Zheng, University of Kansas, Lawrence, Lawrence, KS	1500 hrs AIAA-2015-3268 **Numerical Investigation of the Refraction Effects by Jet Flows in Anechoic Wind Tunnels, with Application to NASA/LaRC Quiet Flow Facility** S. Redonnet, J. Bulte, ONERA, Châtillon, France	1530 hrs AIAA-2015-3269 **On the mechanisms of noise reduction in aerofoil-turbulence interaction by using wavy leading edges** S. Haeri, J. Kim, P. Joseph, University of Southampton, Southampton, United Kingdom	1600 hrs AIAA-2015-3270 **Noise Radiation from a Cylindrical Embossment Immersed in Turbulent Boundary Layer Flow** B. Bryan, S. Glegg, Florida Atlantic University, Boca Raton, FL; M. Awasthi, W. Alexander, W. Devenport, Virginia Polytechnic Institute and State University, Blacksburg, VA		

Thursday, 25 June 2015						
262-AA-40	**Advanced Testing Techniques**					**Inverness**
Chaired by: J. UNDERBRINK						
1400 hrs AIAA-2015-3271 **Optimization of Microphone Locations for Acoustic Liner Impedance Eduction** M. Jones, W. Watson, NASA Langley Research Center, Hampton, VA; J. June, University of Florida, Gainesville, Gainesville, FL	1430 hrs AIAA-2015-3272 **Advanced Background Subtraction Applied to Aeroacoustic Wind Tunnel Testing** C. Bahr, NASA Langley Research Center, Hampton, VA; W. Horne, NASA Ames Research Center, Moffett Field, CA	1500 hrs AIAA-2015-3273 **Reducing the Effect of Transducer Mount Induced Noise on Aeroacoustic Wind Tunnel Testing Data with a New Transducer Mount Design** A. Herron, D. Reed, D. Nance, NASA Marshall Space Flight Center, Huntsville, AL	1530 hrs AIAA-2015-3274 **Beamforming-based noise level dereverberation solution for S1MA sonic wind-tunnel : metrology, methodology and validation** F. Mery, ONERA, Modane, France; R. Davy, V. Fleury, J. Bulte, M. Rey, ONERA, Châtillon, France	1600 hrs AIAA-2015-3275 **Impedance eduction of perforated plates at low Stouhal numbers and high bias flow Mach number** V. Popie, E. Piot, ONERA, Toulouse, France; S. Tordeux, French National Institute for Research in Computer Science and Control (INRIA), Pau, France; F. Simon, ONERA, Toulouse, France	1630 hrs AIAA-2015-3276 **Effects of Hologram Distance and Regularization Techniques on Various Methods of Nearfield Acoustic Holography Applied to Building Leakage Detection/Quantification** K. Chelliah, G. Raman, R. Muehleisen, Illinois Institute of Technology, Chicago, IL	

Thursday, 25 June 2015						
263-AA-41	**CAA Numerical Techniques IV**					**Lalique**
Chaired by: P. MORRIS, Pennsylvania State University						
1400 hrs AIAA-2015-3277 **Performance of the DGM for the Linearized Euler Equations With Non-Uniform Mean-Flow** M. Williamschen, G. Gabard, University of Southampton, Southampton, United Kingdom	1430 hrs AIAA-2015-3278 **Towards CAA Based Acoustic Wind Tunnel Corrections for Realistic Shear Layers** J. Jiao, J. Delfs, J. Dierke, German Aerospace Center (DLR), Braunschweig, Germany	1500 hrs AIAA-2015-3279 **High-Order Hybrid Cell-Centered Method for Computational Aeroacoustics** M. Wang, R. Fattah, D. Angland, X. Zhang, University of Southampton, Southampton, United Kingdom	1530 hrs AIAA-2015-3280 **A Spectral-BEM Formulation for Compact Sources Aeroacoustics** G. Bernardini, Roma Tre University, Rome, Italy; C. Testa, Italian Institute for Naval Hydrodynamic Research and Ship Model Basin, Rome, Italy; M. Gennaretti, Roma Tre University, Rome, Italy	1600 hrs AIAA-2015-3281 **A Stabilised High-Order Finite Element Model for the Linearised Euler Equations** K. Hamiche, H. Bériot, Siemens, Leuven, Belgium; G. Gabard, University of Southampton, Southampton, United Kingdom		

Thursday, 25 June 2015						
264-AA-42	**Fan Broadband Noise Prediction**					**Obelisk A**
Chaired by: E. ENVIA, NASA Glenn Research Center						
1400 hrs AIAA-2015-3282 **Harmonic and Broadband Separation of Noise from a Small Ducted Fan** A. Truong, D. Papamoschou, University of California, Irvine, Irvine, CA	1430 hrs AIAA-2015-3283 **Further Investigations Into a Low-Order Model of Fan Broadband Noise** S. Grace, Boston University, Boston, MA	1500 hrs Panel **Fan Broadband Noise Prediction Panel** E. Envia, NASA Glenn Research Center, Cleveland, OH; J. Coupland, University of Southampton, Southampton, United Kingdom				

Thursday, 25 June 2015						
265-ACD-7	**Aircraft Subsystems, Integration, and Architectures**					**Wyeth**
Chaired by: P. RAJ, Virginia Polytechnic Institute and State University and E. DIGIROLAMO, Lockheed Martin Aeronautics						
1400 hrs AIAA-2015-3284 **An Innovative All-Active Hybrid Actuation System** T. Röben, RWTH Aachen University, Aachen, Germany	1430 hrs AIAA-2015-3285 **Dynamic Reconfiguration mechanism for Distributed Integrated Modular Avionics System** Q. Gu, G. Wang, J. Wu, M. Wang, China National Aeronautical Radio Electronics Research Institute, Shanghai, China	1500 hrs AIAA-2015-3286 **Development of an Integrated UAS for Agricultural Imaging Applications** N. Goli, B. Landrum, University of Alabama, Huntsville, Huntsville, AL	1530 hrs AIAA-2015-3287 **Major Aircraft Subsystem Effects on Gas Turbine Performance in More Electric Aircraft Architectures** M. Ozcan, I. Chakraborty, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1600 hrs AIAA-2015-3288 **Design and Build of Swarm Quadrotor UAVs at UGS** S. Srigrarom, H. Lin, Z. Saw, J. Zhang, C. Lim, University of Glasgow, Singapore, Singapore		

Thursday, 25 June 2015						
266-AMT-13/GT-13	**The Impact of PIV on Aerospace Technology II**					**Topaz**
Chaired by: S. BERESH, Sandia National Laboratories and K. LOWE, Virginia Tech						
1400 hrs Oral Presentation **Use of PIV to anchor computational analysis of free shear and wall bounded flows (Invited)** D. Gaitonde, Ohio State University, Columbus, OH	1430 hrs Oral Presentation **Synergistic Interactions of High-Resolution CFD and PIV to Reveal Complex Unsteady Flow Physics (Invited)** M. Visbal, Air Force Research Laboratory, Wright-Patterson AFB, OH	1500 hrs Oral Presentation **PIV uncertainty: how good are PIV measurements? (Invited)** A. Sciacchitano, F. Scarano, Delft University of Technology, Delft, The Netherlands	1530 hrs Oral Presentation **Tomographic and time-resolved PIV: Adding dimensions to flow diagnostics (Invited)** K. Lynch, F. Scarano, Delft University of Technology, Delft, The Netherlands	1600 hrs Oral Presentation **PIV Applications in Supersonic Combustion Wind Tunnels at AFRL (Invited)** S. Peltier, C. Carter, Air Force Research Laboratory, Wright-Patterson AFB, OH	1630 hrs Oral Presentation **PIV in gas turbine combustion chambers: New insights into flow physics and its importance for combustor development** M. Stohr, I. Boxx, O. Lammel, K. Oberleithner, C. Arndt, W. Meier, German Aerospace Center (DLR), Stuttgart, Germany	1700 hrs Oral Presentation **A Tribute to Ron Adrian: Three Decades of PIV Innovation (Invited)** S. Gogineni, Spectral Energies, LLC, Dayton, OH

Thursday, 25 June 2015						
267-APA-29	**Innovative Aerodynamic Concepts & Designs**					**Carpenter Ballroom**
Chaired by: V. BHAGWANDIN, US Army Research Laboratory and J. LATZ, Northrop Grumman Aerospace Systems						
1400 hrs AIAA-2015-3289 **Evaluation of Adaptive Compliant Trailing Edge Technology** S. Wakayama, The Boeing Company, Huntington Beach, CA; E. White, The Boeing Company, Berkeley, MO	1430 hrs AIAA-2015-3290 **Determination of Section Aerodynamic Operating Condition on Wings and Rotor Blades From Leading-Edge Pressure Measurements** A. Saini, A. Gopalarathnam, North Carolina State University, Raleigh, NC	1500 hrs AIAA-2015-3291 **Parametric Study of Box-Wing Aerodynamics for Minimum Drag Under Stability and Maneuverability Constraints** S. Andrews, R. Perez, Royal Military College of Canada, Kingston, Canada	1530 hrs AIAA-2015-3292 **Optimization of the Aerodynamic Performance of Regional and Wide-Body-Class Blended Wing-Body Aircraft** T. Reist, D. Zingg, University of Toronto, Toronto, Canada	1600 hrs AIAA-2015-3293 **A novel aerodynamic surface for redirecting the boundary layer** E. Saheby, G. Huang, W. Qiao, W. Tang, Nanjing University of Aeronautics and Astronautics, Nanjing, China		

Thursday, 25 June 2015						
268-APA-30	**Low Speed, Low Reynolds Number Aerodynamics**					**Grand Ballroom A**
Chaired by: Z. YANG, Wright State University and A. JONES, University of Maryland						
1400 hrs AIAA-2015-3294 **Numerical investigation of finite-aspect ratio plate flows in ground effect** A. Medina, R. Singh, Army Research Laboratory, Aberdeen Proving Ground, MD	1430 hrs AIAA-2015-3295 **Propulsion of a Plunging Flexible Airfoil using a Torsion Spring Model** N. Arora, A. Gupta, Indian Institute of Technology Delhi, New Delhi, India; H. Aono, Japan Aerospace Exploration Agency (JAXA), Sagamihara, Japan; W. Shyy, Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong	1500 hrs AIAA-2015-3296 **Blade Element Momentum Modeling of Low-*Re* Small UAS Electric Propulsion Systems** M. McCrink, J. Gregory, Ohio State University, Columbus, OH	1530 hrs AIAA-2015-3297 **Stereoscopic PIV analysis on rotary plates in bursting** A. Medina, Army Research Laboratory, Aberdeen Proving Ground, MD; A. Jones, University of Maryland, College Park, College Park, MD			

Thursday, 25 June 2015						
269-APA-31	**Vortical/Vortex Flow**					**Stemmons B**
Chaired by: M. JURKOVICH, US Air Force and T. DOUVILLE, TLG Aerospace, LLC.						
1400 hrs AIAA-2015-3298 **Near Ground Aircraft Wake Dissipation with Obstacles** C. Wang, J. Schluter, Nanyang Technological University, Singapore, Singapore	1430 hrs AIAA-2015-3299 **Effects of Spinning Motion on the Trapped Vortex Combustors** S. Chen, R. Chue, J. Schluter, Nanyang Technological University, Singapore, Singapore; S. Yu, Singapore Institute of Technology, Singapore, Singapore	1500 hrs AIAA-2015-3300 **Trailing Vortex-Induced Loads During Close Encounters in Cruise** M. Mendenhall, D. Lesieutre, Nielsen Engineering & Research, Inc., Santa Clara, CA; M. Kelly, NASA Langley Research Center, Hampton, VA	1530 hrs AIAA-2015-3301 **Simulating Aircraft Wake Vortices with OVERFLOW** D. Schauerhamer, S. Robinson, University of California, Davis, Davis, CA	1600 hrs AIAA-2015-3302 **Investigation of propeller induced ground vortices by numerical and experimental methods** Y. Yang, L. Veldhuis, G. Eitelberg, Delft University of Technology, Delft, The Netherlands		

Thursday, 25 June 2015						
270-APA-32	**Unsteady Aerodynamics II**					**Stemmons A**
Chaired by: E. FELTROP, The Cessna Aircraft Company and K. VANDEN, USAF						
1400 hrs AIAA-2015-3303 **Effect of Bending-Oscillations on a Streamwise-Oriented Vortex Interaction** C. Barnes, M. Visbal, Air Force Research Laboratory, Wright-Patterson AFB, OH; G. Huang, Wright State University, Dayton, OH	1430 hrs AIAA-2015-3304 **Complex aero-engine intake ducts and dynamic distortion** D. MacManus, N. Chiereghin, D. Gil Prieto, P. Zachos, Cranfield University, Cranfield, United Kingdom	1500 hrs AIAA-2015-3305 **Flow distortion measurements in convoluted aero engine intakes** P. Zachos, D. MacManus, N. Chiereghin, Cranfield University, Cranfield, United Kingdom	1530 hrs AIAA-2015-3306 **Large Eddy Simulations of Supersonic Jet Flows for Aeroacoustic Applications** C. Junqueira-Junior, S. Yamouni, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil; J. Azevedo, Aeronautics and Space Institute (IAE), São José dos Campos, Brazil; W. Wolf, University of Campinas, Campinas, Brazil	1600 hrs AIAA-2015-3307 **Unsteady Aerodynamics Simulations of a Sedan-Type Road Vehicle during Sinusoidal Steering Input** T. Nakashima, Y. Morikawa, Hiroshima University, Higashi-Hiroshima, Japan; M. Tsubokura, Hokkaido University, Sapporo, Japan; Y. Okada, T. Nouzawa, Mazda Motor Corporation, Aki Gun, Japan	1630 hrs AIAA-2015-3308 **Coupled 6DoF motion and Aerodynamics Simulation of Road Vehicles in Crosswind gusts** H. Ishioka, Hokkaido University, Sapporo, Japan; K. Onishi, RIKEN Advanced Institute for Computational Science, Kobe, Japan; K. Nakasato, Nissan Motor Corporation, Yokohama, Japan; T. Nakashima, Hiroshima University, Higashi-Hiroshima, Japan; M. Tsubokura, Hokkaido University, Sapporo, Japan	1700 hrs AIAA-2015-3309 **An Unsteady Aerodynamic Model based on the Leading-Edge Stagnation Point** V. Suryakumar, Y. Babbar, T. Strganac, Texas A&M University, College Station, TX; A. Mangalam, Tao of Systems Integration, Inc., Hampton, VA

Thursday, 25 June 2015						
271-APA-33	**Flow Control Applications & Demonstrations (Active & Passive) III**					**Stemmons C**
Chaired by: C. TILMANN, Air Force Reseach Laboratory and S. SILTON, US Army Research Laboratory						
1400 hrs AIAA-2015-3310 **Nanosecond-SDBD Actuation over a Conical Forebody at Wind Speed 72 m/s and Angle of Attack 45 degree** J. Wang, H. Li, X. Meng, D. Zhang, Northwestern Polytechnical University, Xi'an, China; F. Liu, S. Luo, University of California, Irvine, Irvine, CA	1430 hrs AIAA-2015-3311 **Computational Evaluation of Flow Control for Enhanced Control Authority af a Vertical Tail** A. Shmilovich, Y. Yadlin, E. Whalen, The Boeing Company, Huntington Beach, CA	1500 hrs AIAA-2015-3312 **Techniques for the Design of Active Flow Control Systems in Heavy Vehicles** D. Manosalvas, T. Economon, F. Palacios, A. Jameson, Stanford University, Stanford, CA	1530 hrs AIAA-2015-3313 **Experimental investigation of Passive Load Reduction under dynamic inflow conditions** U. Cordes, K. Hufnagel, C. Tropea, Technical University of Darmstadt, Darmstadt, Germany; G. Kampers, M. Hölling, J. Peinke, University of Oldenburg, Oldenburg, Germany	1600 hrs AIAA-2015-3314 **Plenum design for compact fluidic effectors** J. Chard, A. Llopis-Pascual, W. Crowther, University of Manchester, Manchester, United Kingdom		

Thursday, 25 June 2015						
272-ASE-4	**Aircraft Wake Turbulence II (Invited)**					**Plum Blossom B**
Chaired by: Z. ZHENG, The University of Kansas and M. PRUIS, Northwest Research Associates Inc						
1400 hrs AIAA-2015-3315 **Effect of Atmospheric Sheets and Layers Near the Ground on Wake Vortex Transport and Decay (Invited)** M. Pruis, D. Delisi, NorthWest Research Associates, Redmond, WA; D. Jacob, Coherent Research Group, Ormond Beach, FL	1430 hrs AIAA-2015-3316 **Fast-time Wake Vortex Model Predictions Compared with Observations Behind Landing Aircraft Near the Ground (Invited)** M. Pruis, D. Delisi, NorthWest Research Associates, Redmond, WA; D. Jacob, Coherent Research Group, Ormond Beach, FL; D. Lai, NorthWest Research Associates, Redmond, WA	1500 hrs AIAA-2015-3317 **Wind and EDR Measurements with Scanning Doppler LIDARs for Preparing Future Weather Dependent Separation Concepts (Invited)** L. Thobois, R. Krishnamurthy, S. Loaec, J. Cariou, Leosphere, Orsay, France; A. Dolfi-Bouteyre, M. Valla, ONERA, Palaiseau, France	1530 hrs AIAA-2015-3318 **Evaluation of Fast-Time Wake Models using Denver 2006 Field Experiment Data** N. Ahmad, NASA Langley Research Center, Hampton, VA; M. Pruis, NorthWest Research Associates, Seattle, WA	1600 hrs AIAA-2015-3319 **Aerodynamic Simulation of Wake Encounter for Aircraft Close Formation Operations (Invited)** A. He, Z. Zheng, University of Kansas, Lawrence, Lawrence, KS		

Thursday, 25 June 2015						
273-ASE-5	Atmospheric and Space Environments					Plum Blossom A
Chaired by: W. VAUGHAN, William W Vaughan Consultant and R. SCULLY, NASA						
1400 hrs AIAA-2015-3320 **Lightning Protection for the Orion Space Vehicle** R. Scully, NASA Johnson Space Center, Houston, TX	1430 hrs AIAA-2015-3321 **Advanced Spacecraft Systems Emulation for Space Environment Qualification Testing** H. Rumann, Bastion Technologies, Inc., Houston, TX	1500 hrs AIAA-2015-3322 **Investigation of the Impact of Surface Blending and Ultraviolet Radiation Exposure on Elastomer Seal Leak Rate Performance for Space Seal Applications** S. Taylor, University of Toledo, Toledo, OH; J. Mather, C. Daniels, University of Akron, Akron, OH	1530 hrs AIAA-2015-3323 **Elastomer Seal Performance after Terrestrial Ultraviolet Radiation Exposure** C. Daniels, J. Mather, H. Oravec, University of Akron, Akron, OH; S. Taylor, University of Toledo, Toledo, OH; P. Dunlap, NASA Glenn Research Center, Cleveland, OH	1600 hrs AIAA-2015-3324 **Energy-Aware Path Optimization for Persistent Sampling of Severe Storms** W. Silva, E. Frew, University of Colorado, Boulder, Boulder, CO	1630 hrs AIAA-2015-3325 **Ride Quality Within Trail Aircraft In Formation Flight** W. Okolo, A. Dogan, University of Texas, Arlington, Arlington, TX; W. Blake, Air Force Research Laboratory, Wright-Patterson AFB, OH	1700 hrs AIAA-2015-3326 **Mathematical Modelling for Carbon Dioxide Equivalent Prediction of Greenhouse Gases Emitted from a Small Scale Turbojet Engine** Y. Şöhret, T. Karakoc, Anadolu University, Eskisehir, Turkey; N. Karakoç, Osmangazi University, Eskisehir, Turkey

Thursday, 25 June 2015						
274-ATIO-24	UAS Integration & Operations I					Ming
Chaired by: V. SCHULTZ, NASA Langley Research Center						
1400 hrs AIAA-2015-3327 **An Evaluation of Detect and Avoid (DAA) Displays for Unmanned Aircraft Systems: The Effect of Information Level and Display Location on Pilot Performance** L. Fern, R. Rorie, San Jose State University, Moffett Field, CA; J. Pack, Infoscitex Corporation, Dayton, OH; J. Shively, NASA Ames Research Center, Moffett Field, CA; M. Draper, Air Force Research Laboratory, Wright-Patterson AFB, OH	1430 hrs AIAA-2015-3328 **System Development for the NASA UAS Airspace Operations Challenge** S. Fehrenbach, Z. Barbeau, J. Jacob, G. Chowdhary, Oklahoma State University, Stillwater, OK	1500 hrs AIAA-2015-3329 **Platform-Independent Geofencing for Low Altitude UAS Operations** M. Stevens, B. Coloe, E. Atkins, University of Michigan, Ann Arbor, Ann Arbor, MI				

Thursday, 25 June 2015						
275-ATIO-25	ATM VI - Management of NAS Resources					Morocco
Chaired by: K. MARAIS, Purdue University						
1400 hrs AIAA-2015-3330 **Strategic Air Traffic Planning with Frechet Distance Aggregation and Rerouting** A. Bombelli, L. Soler, K. Mease, University of California, Irvine, Irvine, CA	1430 hrs AIAA-2015-3331 **Performance Impact of Improved Departure Time Prediction Relative to Sector Demand & Arrival Time Predictability** R. Curran, E. Konnemann, Delft University of Technology, Delft, The Netherlands; S. Mahlich, EUROCONTROL, Bretigny, France	1500 hrs AIAA-2015-3332 **Proactive and Reactive Management of Non-Weather Capacity Disruption Events in the National Airspace System: A Flow Modeling and Design Approach** S. Roy, Washington State University, Pullman, WA; Y. Wan, University of North Texas, Denton, TX	1530 hrs AIAA-2015-3333 **Probabilistic Time-Series Models for Ground Delay Program Decision Support** E. Vargo, C. Taylor, C. Wanke, MITRE Corporation, McLean, VA	1600 hrs AIAA-2015-3334 **Analytical Identification and Ranking of Choke Points in the National Airspace System** D. Long, S. Hasan, V. Stouffer, LMI, McLean, VA; K. Ramamoorthy, Saab Sensis Corporation, East Syracuse, NY; H. Idris, Engility Corporation, Billerica, MA; B. Ballard, GRA, Inc., Jenkintown, PA; et al.	1630 hrs AIAA-2015-3335 **Stakeholder Feedback-Based Identification, Ranking, and Causes of Choke Points in the National Airspace System** M. Alcabin, The Boeing Company, Seattle, WA; R. Golaszewski, GRA, Inc., Jenkintown, PA; W. Cotton, Cotton Aviation Enterprises, Lakeway, TX; V. Stouffer, LMI, McLean, VA; J. Musiak, The Boeing Company, Seattle, WA	

Thursday, 25 June 2015						
276-ATIO-26	**Transformational Flight - Unconventional VTOL Configurations**					**Monet Ballroom**
Chaired by: I. CHOUTAPALLI, The University of Texas - Pan American						
1400 hrs Oral Presentation **Flight Test Results for the DZYNE ROTORwing - A High Endurance VTOL Concept** M. Page, DZYNE Technologies, Irvine, CA	1430 hrs AIAA-2015-3336 **Design and Testing of the Joby Lotus Multifunctional Rotor VTOL UAV** P. Sinha, Transition Robotics, Inc., Santa Cruz, CA; A. Stoll, B. Goldsmith, Joby Aviation, Santa Cruz, CA	1500 hrs Oral Presentation **Design and Testing of the Joby S2 Electric VTOL PAV Propellers** A. Stoll, P. Pei, A. Clark, J. Bevirt, Joby Aviation, Santa Cruz, CA	1530 hrs AIAA-2015-3337 **Integration of Electric Propulsion in Efficient Heavy-Lift VTOL Concept** E. Demers Bouchard, D. Rancourt, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1600 hrs Oral Presentation **The Centrifugally Stiffened Rotor (CSR) VTOL Long Endurance Concept** M. Moore, NASA Langley Research Center, Hampton, VA		

Thursday, 25 June 2015		
277-F360-9 **1400 - 1630 hrs**	**Supercomputing: Roadmap and its Future Role in Aerospace Engineering**	**Grand Ballroom E**

Moderator: Doug Cline, Technical Lead, High Performance Computing, Lockheed Martin Aeronautics

Panelists:

William Gropp
Thomas M. Siebel Chair, Department of Computer Science and Director, Parallel Computing Institute
University of Illinois at Urbana-Champaign

Brian Mitchell
Senior Principal Engineer
GE Global Research

Mark Seager
Intel Fellow
CTO, High Performance Computing Ecosystem,
Intel Corporation

Jef Dawson
Applications Manager
Cray, Inc.

Thursday, 25 June 2015						
278-FD-30	**Hypersonic and Chemically-Reacting Flows**					**Sapphire**
Chaired by: B. WHEATON, The Johns Hopkins University Applied Physics Laboratory and J. SMITH, Sandia National Laboratories						
1400 hrs AIAA-2015-3338 **Starting Characteristics of the US Air Force Academy Mach 6 Ludwieg Tube** R. Decker, M. Semper, J. Anthony, R. Cummings, U.S. Air Force Academy, Colorado Springs, CO	1430 hrs AIAA-2015-3339 **Numerical Modeling and Simulation of Combustion Phenomena Related to Thermal Ignition and Flame Fronts** W. Tavernetti, M. Hafez, University of California, Davis, Davis, CA	1500 hrs AIAA-2015-3340 **Large-Eddy Simulation of Autoignition-Dominated Supersonic Combustion** G. Candler, P. Subbareddy, University of Minnesota, Minneapolis, Minneapolis, MN; N. Cymbalist, P. Dimotakis, California Institute of Technology, Pasadena, CA	1530 hrs AIAA-2015-3341 **A Numerical Scheme for Hypersonic Turbulent Flow** M. Righi, Zurich University of Applied Sciences, Winterthur, Switzerland			

Thursday, 25 June 2015						
279-FD-31	**Flow Control - Vortical Flows**					**Senators Lecture Hall**
Chaired by: M. YU, University of Maryland, Baltimore County and L. PACK MELTON, NASA-Langley Research Center						
1400 hrs AIAA-2015-3342 **Observations on the Mean and Turbulent Wake of a Micro-Ramp Array** E. Baydar, F. Lu, University of Texas, Arlington, Arlington, TX; J. Slater, NASA Glenn Research Center, Cleveland, OH	1430 hrs AIAA-2015-3343 **Mixing Layer: Numerical and Experimental Control Strategies** J. Little, University of Arizona, Tucson, Tucson, AZ; U. Kaul, NASA Ames Research Center, Moffett Field, CA	1500 hrs AIAA-2015-3344 **Effects of Pulse Energy on Shear Layer Control using Surface Plasma Discharges** D. Akins, A. Singh, J. Little, University of Arizona, Tucson, Tucson, AZ	1530 hrs AIAA-2015-3345 **Towards integral boundary layer modelling of vane-type vortex generators** D. Baldacchino, C. Simao Ferreira, G. van Bussel, Delft University of Technology, Delft, The Netherlands			

Thursday, 25 June 2015						
280-FT-2/GT-14	**Optimization Techniques in Flight Test/Ground Test**					**Obelisk B**
Chaired by: W. SCHUMAN, AF TSTA/AEDC and B. MILLS, AEDC/ ATA						
1400 hrs AIAA-2015-3346 **Optimized Calculation of Forces for Fullscale Aircraft Structure Fatigue Testing** C. He, Aviation Industry Corporation of China (AVIC), Xi'an, China	1430 hrs AIAA-2015-3347 **The design and test result of pressure distortion compensation device in Weight and Balance System** Y. Minqiang, C. Yue, Taiyuan Aero-Instruments Company, Ltd., Taiyuan, China	1500 hrs AIAA-2015-3348 **Evaluation of Low-Cost Autopilots for SUAS Operations** C. Brown, J. Jacob, Oklahoma State University, Stillwater, OK	1530 hrs AIAA-2015-3349 **Application of a small UAV fleet for demonstration of optimized mission** M. Kasprzyk, P. Bibik, M. Malinowski, J. Polaczek, K. Wronowski, Warsaw University of Technology, Warsaw, Poland			

Thursday, 25 June 2015						
281-GEPC-1	**Overview of NASA Advanced Air Vehicles Program**					**Metropolitan Ballroom**
Chaired by: B. ESKER and R. DEL ROSARIO, NASA Glenn Research Center						
1400 hrs Oral Presentation **Advanced Air Vehicles Program Overview** J. Dryer, B. Esker, NASA Headquarters, Washington, DC	1430 hrs Oral Presentation **NASA's Advanced Air Transport Technology Project** R. Del Rosario, NASA Glenn Research Center, Cleveland, OH; S. Anders, NASA Langley Research Center, Hampton, VA; N. Madavan, NASA Ames Research Center, Moffett Field, CA	1500 hrs Oral Presentation **Commercial Supersonic Technology Project Overview** P. Coen, NASA Langley Research Center, Hampton, VA; K. Civinskas, L. Povinelli, NASA Glenn Research Center, Cleveland, OH	1530 hrs Oral Presentation **Revolutionary Vertical Lift Technology Project** S. Gorton, NASA Langley Research Center, Hampton, VA; I. López, NASA Glenn Research Center, Cleveland, OH; C. Theodore, NASA Ames Research Center, Moffett Field, CA	1600 hrs Oral Presentation **Advanced Composites Project Overview** R. Young, S. Smeltzer, NASA Langley Research Center, Hampton, VA	1630 hrs Oral Presentation **NASA Aeronautics Evaluation and Test Capabilities Project** C. Mouring, NASA Langley Research Center, Hampton, VA; R. Colantonio, NASA Glenn Research Center, Cleveland, OH	

Thursday, 25 June 2015						
282-LTA-2	**Lighter-than-Air Systems & Technologies II**					**Steuben**
Chaired by: D. HORKHEIMER, Honeywell International, Inc.						
1400 hrs AIAA-2015-3350 **Lab-Scale Characterization of a Lighter-Than-Air Wind Energy System - Closing the Loop** J. Deese, T. Muyimbwa, N. Deodhar, C. Vermillion, P. Tkacik, University of North Carolina, Charlotte, Charlotte, NC	1430 hrs AIAA-2015-3351 **The 12M™ Tethered Aerostat System: Rapid Tactical Deployment for Surveillance Missions** J. Krausman, D. Miller, TCOM, L.P., Columbia, MD	1500 hrs AIAA-2015-3352 **Design and Flight Testing of an Autonomous Airship** J. Santos, D. Garcia, M. Cunha, L. Góes, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil; R. Pant, Indian Institute of Technology Mumbai, Mumbai, India	1530 hrs AIAA-2015-3353 **Diaphragm Testing of Fabric Components & Correlation to Analysis** K. Cromer, S. Petersen, TCOM, L.P., Columbia, MD			

Thursday, 25 June 2015						
283-MAO-10	**Shape and Topology II**					**Madrid**
Chaired by: B. MESMER, University of Alabama and V. KALIVARAPU, Iowa State University						
1400 hrs AIAA-2015-3354 **Volumetric Shape Parameterisation for Combined Aerodynamic Geometry and Topology Optimisation** J. Hall, D. Poole, T. Rendall, C. Allen, University of Bristol, Bristol, United Kingdom	1430 hrs AIAA-2015-3355 **A Discrete Adjoint Framework for Unsteady Aerodynamic and Aeroacoustic Optimization** B. Zhou, T. Albring, N. Gauger, Technical University of Kaiserslautern, Kaiserslautern, Germany; T. Economon, F. Palacios, J. Alonso, Stanford University, Stanford, CA	1500 hrs AIAA-2015-3356 **Towards shape optimization of steady-state fluid-structure interaction problems using vertex morphing** R. Najian Asl, D. Baumgärtner, K. Bletzinger, Technical University of Munich, Munich, Germany	1530 hrs AIAA-2015-3357 **Knowledge-based Integrated Wing Automation and Optimization for Conceptual Design** R. Munjulury, P. Berry, T. Melin, K. Amadori, P. Krus, Linköping University, Linköping, Sweden	1600 hrs AIAA-2015-3358 **Conceptual optimal design of environmentally friendly airliners: a review of available methodologies and their integration into a consistent framework for everyday use** P. Magalhaes, B. Mattos, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil	1630 hrs AIAA-2015-3359 **Robust and Reliability-Based Topology Optimization of Wing Bodies** D. Papadimitriou, C. Papadimitriou, University of Thessaly, Volos, Greece	

Thursday, 25 June 2015						
284-MAO-11	**Uncertainty I**					**Manchester**
Chaired by: R. KOLONAY, Air Force Research Laboratory/RQVC/WPAFB and P. PIPERNI, Bombardier Inc						
1400 hrs AIAA-2015-3360 **High-Fidelity Weight Estimation for Aircraft Conceptual Design Optimization** N. Nigam, S. Ayyalasomayajula, X. Qi, P. Chen, Intelligent Automation, Inc., Rockville, MD; J. Alonso, Stanford University, Stanford, CA	1430 hrs AIAA-2015-3361 **Surrogate-based Robust Shape Optimization for Vane Clusters** I. Arsenyev, F. Duddeck, Technical University of Munich, Munich, Germany; A. Fischersworring-Bunk, MTU Aero Engines, Munich, Germany					

Thursday, 25 June 2015						
285-MST-12	**Propulsion Systems**					**Travertine**
Chaired by: A. ELMILIGUI, NASA Langley Research Center						
1400 hrs AIAA-2015-3362 **One-dimensional Model of a Closed-loop Underwater Propulsion System** J. Lu, China Shipbuilding Industry Corporation Company, Ltd., Xi'an, China	1430 hrs AIAA-2015-3363 **Individual model identification for turbofan engine based on particle swarm optimization** J. Qian, F. Liu, Nanjing University of Aeronautics and Astronautics, Nanjing, China; X. Qiu, Aviation Motor Control System Institute, Wuxi, China	1500 hrs AIAA-2015-3364 **Numerical Study of Similarity and Dimensional Methods in Scaled Turbine Vane cooling performance experiment** Y. Liu, M. Junkui, G. Dilan, Nanjing University of Aeronautics and Astronautics, Nanjing, China				

Thursday, 25 June 2015						
286-PDL-13	**Plasma Aerodynamics & Flow Control V**					**Miro**
Chaired by: J. POGGIE, USAF AFRL/RBAC						
1400 hrs AIAA-2015-3365 **Numerical Study of Thermal Protection Using Magnetohydrodynamic Flow Control in Mars Entry Flight** T. Takahashi, Y. Shimosawa, K. Masuda, T. Fujino, University of Tsukuba, Tsukuba, Japan	1430 hrs AIAA-2015-3366 **Three-dimensional Numerical Simulation of Magnetohydrodynamic Flow Control in Reentry Flight** K. Masuda, Y. Shimosawa, University of Tsukuba, Tsukuba, Japan; S. Ogawa, T. Yoshino, Toshiba Corporation, Kawasaki, Japan; T. Fujino, University of Tsukuba, Tsukuba, Japan	1500 hrs AIAA-2015-3367 **Modeling DBD Plasma Actuators in Integral Boundary Layer Formulation for Application in Panel Methods** G. de Oliveira, R. Santos Pereira, D. Ragni, M. Kotsonis, Delft University of Technology, Delft, The Netherlands	1530 hrs AIAA-2015-3368 **Numerical Investigation of Several Alkali Metal Addition Methods for the Forced Elevation of the Starting Altitude in the Electrodynamic Aerobraking Declearation** H. Katsurayama, Yamaguchi University, Ube, Japan	1600 hrs AIAA-2015-3369 **Particle in Cell (PIC) simulations of plasma-electrode interactions for Reentry Blackout Alleviation** S. Krishnamoorthy, S. Close, Stanford University, Stanford, CA		

Thursday, 25 June 2015		
287-RLA-3 **1400 - 1530 hrs**	**Rising Leaders in Aerospace Panel Discussion: Transitioning to Leadership**	**Emerald**

This panel will address the changes that accompany moving into a management role, the different skill sets that will need to be acquired, and the changes you can expect in your daily work routine.

Moderator: Ben Marchionna, Systems Engineer, Lockheed Martin Skunk Works

Panelists:

Russ Althof
Chief Engineer
Raytheon Missile Systems

Douglas Stanley
President and Executive Director
National Institute of Aerospace

Frederick Wieland
Director, Air Traffic Management
Intelligent Automation Systems, Inc.

Thursday, 25 June 2015						
288-TP-13	**DSMC**					**Rosetta**
Chaired by: D. HASH, NASA - ARC						
1400 hrs AIAA-2015-3370 **DSMC Study of Carbon Fiber Oxidation in Ablative Thermal Protection Systems** A. Borner, NASA Ames Research Center, Moffett Field, CA; F. Panerai, University of Kentucky, Lexington, Lexington, KY; N. Mansour, NASA Ames Research Center, Moffett Field, CA	1430 hrs AIAA-2015-3371 **Sensitivity Analysis of DSMC Parameters for Ionizing, Radiating Hypersonic Flows** K. Higdon, D. Goldstein, P. Varghese, University of Texas, Austin, Austin, TX	1500 hrs AIAA-2015-3372 **DSMC Investigation of Nonequilibrium Effects in a H2-O2 Unstretched Diffusion Flame** I. Borges Sebastiao, A. Alexeenko, Purdue University, West Lafayette, IN	1530 hrs AIAA-2015-3373 **Calibration of DSMC parameters for transport processes in ionized air mixtures** K. Swaminathan Gopalan, K. Stephani, University of Illinois, Urbana-Champaign, Urbana, IL			

Thursday, 25 June 2015		
289-NW-9 **1530 - 1600 hrs**	**Networking Coffee Break**	**Meeting Room Foyers**

Thursday, 25 June 2015		
290-LEC-6 **1730 - 1830 hrs**	**Wright Brothers Lectureship in Aeronautics**	**Chantilly Ballroom West**

Development and Testing of the X-47B
Pablo Gonzalez, II
UCAS-D Program Manager
Northrop Grumman Aerospace Systems

Friday

Friday, 26 June 2015		
291-SB-5 **0730 - 0800 hrs**	**Speakers' Briefing**	**Session Rooms**

Friday, 26 June 2015		
292-PLNRY-5 **0800 - 0900 hrs**	**Plenary Keynote**	**Chantilly Ballroom West**

The G650 Design, Development, and Test
Kurt Erbacher
Vice President, G650 Aircraft Program
Gulfstream Aerospace Corporation

Friday, 26 June 2015						
293-ACD-8	**Aeronautic Discipline Considerations in Aircraft Design**					**Miro**
Chaired by: H. JIMENEZ, Georgia Institute of Technology						
0900 hrs AIAA-2015-3374 **Prediction of Wing Structural Mass for Transport Category Aicraft Conceptual Design** T. Takahashi, T. Lemonds, Arizona State University, Tempe, AZ	0930 hrs AIAA-2015-3375 **Effective L/D: A Theoretical Approach to the Measurement of Aero-Structural Efficiency in Aircraft Design** M. Guynn, NASA Langley Research Center, Hampton, VA	1000 hrs AIAA-2015-3376 **Revisiting Busemann: The Design Implications of Inconsistencies Found Within Simple Sweep Theory** T. Takahashi, S. Kamat, Arizona State University, Tempe, AZ	1030 hrs AIAA-2015-3377 **A Total Flight Envelope Approach to Conceptual Design Stability & Control** M. Swann, T. Takahashi, Arizona State University, Tempe, AZ	1100 hrs AIAA-2015-3378 **Feasibility Studies on a High-Altitude Captive Lighter-Than-Air Platform System** K. Chiba, S. Satoi, R. Hiramoto, S. Kase, R. Mitsuhashi, Hokkaido University of Science, Sapporo, Japan; J. Sasaki, Hokkaido Aerospace Science and Technology Incubation Center, Sapporo, Japan; et al.		

Friday, 26 June 2015						
294-AMT-14/GT-15	**Aerodynamic Measurement Systems: Calibration and Monitoring**					**Topaz**
Chaired by: R. RHEW, NASA-Langley Research Center and G. JONES, NASA-Langley Research Center						
0900 hrs Oral Presentation **Measurement System Calibration Fundamentals** R. Rhew, P. Parker, G. Jones, NASA Langley Research Center, Hampton, VA	0930 hrs AIAA-2015-3379 **Improved Regression Analysis of Temperature-Dependent Strain-Gage Balance Calibration Data** N. Ulbrich, Jacobs, Moffett Field, CA	1000 hrs AIAA-2015-3380 **Statistical Process Control Implemented for Long Term Study of Wind Tunnel Balance Calibrations** R. Callahan, D. Landman, Old Dominion University, Norfolk, VA; S. Commo, K. Lynn, NASA Langley Research Center, Hampton, VA	1030 hrs AIAA-2015-3381 **Analysis of Five-Hole Probe Calibration Parameters** S. Karahan, A. Kutay, Middle East Technical University, Ankara, Turkey	1100 hrs AIAA-2015-3382 **The Use of Absolute-Value Terms in Regression Modeling of Multi-Piece Force Balances (Invited)** M. Kammeyer, The Boeing Company, St. Louis, MO; N. Ulbrich, Jacobs, Moffett Field, CA		

Friday, 26 June 2015						
295-APA-34	**Icing or Roughness Effects on Vehicle Aerodynamics**					**Stemmons C**
Chaired by: G. WOO, General Electric Global Research and D. O'BRIEN, US Army RDECOM						
0900 hrs AIAA-2015-3383 **Data-Driven Low-Dimensional Modeling and Uncertainty Quantification for Airfoil Icing** A. DeGennaro, C. Rowley, L. Martinelli, Princeton University, Princeton, NJ	0930 hrs AIAA-2015-3384 **Aerodynamic Effects of Roughness on Wind Turbine Blade Sections** L. Joseph, J. Fenouil, A. Borgoltz, W. Devenport, Virginia Polytechnic Institute and State University, Blacksburg, VA	1000 hrs AIAA-2015-3385 **The Characteristics of SLD icing accretions and aerodynamic effects on high-lift configurations** C. Zhang, F. Wang, W. Kong, H. Liu, Shanghai Jiao Tong University, Shanghai, China				

Friday, 26 June 2015						
296-APA-35	**Aerodynamic Design Methodologies III**					**Carpenter Ballroom**
Chaired by: C. ROSEMA, US Army AMRDEC						
0900 hrs AIAA-2015-3386 **Experimental Validation of a Morphed Wing Geometry Using Small Wind Tunnel Testing** A. Koreanschi, S. Oliviu, R. Botez, University of Québec, Montréal, Canada	0930 hrs AIAA-2015-3387 **Stability Derivative Computation of Tailless Aircraft using Variable-Fidelity Aerodynamic Analysis and Wind-Tunnel Experiments** J. Park, C. Ocheltree, J. Choi, S. Choi, P. Raj, A. Friedman, Virginia Polytechnic Institute and State University, Blacksburg, VA	1000 hrs AIAA-2015-3388 **Aerodynamic performance study of high pressure zone capture wing configurations** K. Cui, G. Li, Y. Xiao, Chinese Academy of Sciences, Beijing, China				

Friday, 26 June 2015						
297-APA-37	**Propeller/Rotorcraft/Wind Turbine Aerodynamics III**					**Stemmons B**
Chaired by: K. MASSEY, DARPA/TTO and J. MURRAY, Sandia National Laboratories						
0900 hrs AIAA-2015-3389 **Sensitivity of Wind Turbine Airfoil Sections to Geometry Variations Inherent in Modular Blades** K. Brown, N. Molinaro, T. Meyers, A. Borgoltz, W. Devenport, Virginia Polytechnic Institute and State University, Blacksburg, VA; J. Luedke, General Electric Company, Greenville, SC; et al.	0930 hrs AIAA-2015-3390 **Configuration and Numerical Investigation of the Adaptive Camber Airfoil as Passive Load Alleviation Mechanism for Wind Turbines** D. Marten, Technical University of Berlin, Berlin, Germany; H. Spiegelberg, Technical University of Darmstadt, Darmstadt, Germany; G. Pechlivanoglou, C. Nayeri, C. Paschereit, Technical University of Berlin, Berlin, Germany; C. Tropea, Technical University of Darmstadt, Darmstadt, Germany	1000 hrs AIAA-2015-3391 **Extension of a Parabolic Method without Pressure Approximations for Wind Turbines in ABL Flows** A. Mittal, L. Taylor, K. Sreenivas, W. Briley, D. Nichols, University of Tennessee, Chattanooga, Chattanooga, TN	1030 hrs AIAA-2015-3392 **Experimental and Numerical Investigations of a Small Research Wind Turbine** S. Vey, D. Marten, G. Pechlivanoglou, C. Nayeri, C. Paschereit, Technical University of Berlin, Berlin, Germany	1100 hrs AIAA-2015-3393 **Optimization of Wind Turbine Airfoils Subject to Particle Erosion** G. Fiore, M. Selig, University of Illinois, Urbana-Champaign, Urbana, IL		

Friday, 26 June 2015						
298-ATIO-27	**ATM VII - Weather Impact**					**Morocco**
Chaired by: Y. JUNG, NASA Ames Research Center						
0900 hrs AIAA-2015-3394 **Dynamic Arrival Routes: A Trajectory-Based Weather Avoidance System for Merging Arrivals and Metering** C. Gong, D. Mcnally, NASA Ames Research Center, Moffett Field, CA	0930 hrs AIAA-2015-3395 **Initial Analysis of and Predictive Model Development for Weather Reroute Advisory Use** H. Arneson, NASA Ames Research Center, Moffett Field, CA	1000 hrs AIAA-2015-3396 **Benefits Analysis of Ground-Sourced Convective Weather Alerting in the Cockpit** S. Campbell, M. McPartland, M. Ishutkina, Lincoln Laboratory, Massachusetts Institute of Technology, Lexington, MA	1030 hrs AIAA-2015-3397 **Dynamic Wake Vortex Separation Combining with AMAN/DMAN Concept** N. Matayoshi, E. Yoshikawa, Japan Aerospace Exploration Agency (JAXA), Mitaka, Japan	1100 hrs AIAA-2015-3398 **Wind Information Uplink to Aircraft Performing Interval Management Operations** N. Ahmad, B. Barmore, K. Swieringa, NASA Langley Research Center, Hampton, VA	1130 hrs AIAA-2015-3399 **Wind Measurements with ground-based fiber-based wind Doppler LIDAR systems for aviation weather applications** L. Thobois, Leosphere, Orsay, France	

Friday, 26 June 2015						
299-ATIO-28	**Future Concepts**					**Wyeth**
Chaired by: K. MARAIS, Purdue University						
0900 hrs AIAA-2015-3400 **Achieving TASAR Operational Readiness** D. Wing, NASA Langley Research Center, Hampton, VA	0930 hrs AIAA-2015-3401 **A Preliminary Evaluation of Supersonic Transport Category Vehicle Operations in the National Airspace System** M. Underwood, M. Guminsky, NASA Langley Research Center, Hampton, VA	1000 hrs AIAA-2015-3402 **Improving Situation Awareness with a Traffic Management Portal** A. Staley, C. Bolczak, MITRE Corporation, McLean, VA	1030 hrs AIAA-2015-3403 **Dynamic Airspace Configuration in SESAR: building a smooth and dynamic opening scheme through airspace building blocks assessment** T. Dubot, S. Aubry, J. Bedouet, ONERA, Toulouse, France	1100 hrs AIAA-2015-3404 **The Impact of Mitigation Measures for System Capacity Constraints on the Future Air Transportation System** N. Dzikus, German Aerospace Center (DLR), Hamburg, Germany; S. Bartosch, RWTH Aachen University, Aachen, Germany; M. Schaefer, Federal Ministry of Transport and Digital Infrastructure, Bonn, Germany		

Friday, 26 June 2015						
300-ATIO-29	**UAS Integration & Operations II**					**Ming**
Chaired by: D. DELAURENTIS, Purdue University						
0900 hrs AIAA-2015-3405 **UAS Demand Generation Using Subject Matter Expert Interviews and Socio-economic Analysis** S. Ayyalasomayajula, R. Sharma, F. Wieland, Intelligent Automation, Inc., Rockville, MD; A. Trani, N. Hinze, T. Spencer, Virginia Polytechnic Institute and State University, Blacksburg, VA	0930 hrs AIAA-2015-3406 **Investigation of Simulated UAS Safety Incidents Using UAS Safety Analysis Model (USAM)** A. Tyagi, F. Wieland, Intelligent Automation, Inc., Rockville, MD; S. Toussaint, Coherent Technical Services, Inc., Lexington Park, MD; J. Luxhoj, LCR, LLC, Somerset, NJ	1000 hrs AIAA-2015-3407 **RPAS - ATM Integration Demonstration - Real-Time Simulation Results** E. Filippone, Italian Aerospace Research Center (CIRA), Capua, Italy				

Friday, 26 June 2015						
301-CFD-31	Visualization for CFD 2030					Grand Ballroom A
Chaired by: S. IMLAY, Tecplot, Inc						
0900 hrs AIAA-2015-3408 **Industrial Perspectives on Geometry Handling for Aerodynamics** N. Taylor, MBDA, Bristol, United Kingdom		1000 hrs AIAA-2015-3409 **The Path to and State of Geometry and Meshing in 2030: Panel Summary** J. Chawner, Pointwise, Inc., Fort Worth, TX; J. Dannenhoffer, Syracuse University, Syracuse, NY; S. Dey, Naval Research Laboratory, Washington, DC; W. Jones, NASA Langley Research Center, Hampton, VA; J. Slotnick, The Boeing Company, Huntington Beach, CA; N. Taylor, MBDA, Bristol, United Kingdom	1030 hrs Panel **Panel: The Path to CFD Visualization in 2030** **Moderator: Scott Imlay, Tecplot, Inc** S. Imlay, Tecplot, Inc., Snohomish, WA; E. Duque, Intelligent Light, Prescott, AZ; K. Colburn, Computation Engineering International, Inc., Houston, TX; G. Chen, University of Houston, Houston, TX		

Friday, 26 June 2015						
302-CFD-32	Post-Processing and Model Reduction					Grand Ballroom B
Chaired by: S. SPEER, Northrop Grumman Corporation						
0900 hrs AIAA-2015-3410 **EPIC - An Extract Plug-In Components Toolkit for In-Situ Data Extracts Architecture** E. Duque, `. Hiepler, Intelligent Light, Rutherford, NJ; R. Haimes, Massachusetts Institute of Technology, Cambridge, MA; C. Stone, Computational Science and Engineering, LLC, Chicago, IL; S. Gorrell, M. Jones, Brigham Young University, Provo, UT; et al.	0930 hrs AIAA-2015-3411 **Dynamic Mode Decomposition of Backward Facing Step Flow Simulation Data** T. Horchler, K. Mani, K. Hannemann, German Aerospace Center (DLR), Göttingen, Germany	1000 hrs AIAA-2015-3412 **Statistical Analysis and Model Reduction of Surface Pressure for Interaction of a Streamwise-Oriented Vortex with a Wing** A. Mohan, L. Agostini, D. Gaitonde, Ohio State University, Columbus, OH; D. Garmann, Air Force Research Laboratory, Wright-Patterson AFB, OH				

Friday, 26 June 2015						
303-CFD-33	Interdisciplinary CFD II					Plum Blossom A
Chaired by: P. SLABOCH and D. GONZALEZ, Naval Surface Warfare Center						
0900 hrs AIAA-2015-3413 **Computational Study of Active Flow Control of a Flow-Excited Helmholtz Resonator** J. Buehn, P. Slaboch, Saint Martin's University, Lacey, WA	0930 hrs AIAA-2015-3414 **Aeroelastic Response of Rocket Nozzles Subected to Combined Thrust and Side Loads** X. Zhao, Alabama A&M University, Huntsville, AL; S. Zhang, ESI Group, Huntsville, AL	1000 hrs AIAA-2015-3415 **Finite-Time Lyapunov Exponent Analysis of Intermittent Acoustic Events in a Round Jet** D. Gonzalez, Naval Surface Warfare Center, Indian Head, MD; D. Gaitonde, Ohio State University, Columbus, OH; M. Lewis, Science and Technology Policy Institute, Washington, DC	1030 hrs AIAA-2015-3416 **Numerical Simulation of the Interaction between Rim Seal and Main Annulus Flow in a Four Stage Low-Pressure Axial Turbine** Z. Wei tao, China Gas Turbine Establishment, Chengdu, China	1100 hrs AIAA-2015-3417 **Calculation of Airfoil Anti-icing Heat Load in SLD Conditions** Z. Wang, Nanjing University of Aeronautics and Astronautics, Nanjing, China		

Friday, 26 June 2015						
304-CFD-34	**Multiphase and Nonequilibrium Flows**					**Coral**
Chaired by: C. TSAI, Lockheed Martin Space Systems and R. AGARWAL, Washington University in St Louis						
0900 hrs AIAA-2015-3418 **Numerical simulation of a scramjet isolator with thermodynamic nonequilibrium** R. Fiévet, H. Koo, V. Raman, University of Michigan, Ann Arbor, Ann Arbor, MI	0930 hrs AIAA-2015-3419 **A Multiphase and Multiphysics CFD Technique for Fuel Spurt Prediction with Cavitation and Fluid-Structure Interaction** H. Yang, CFD Research Corporation, Huntsville, AL	1000 hrs AIAA-2015-3420 **Application of a Maximum-Entropy-Based 14-Moment Closure for Multi-Dimensional Non-Equilibrium Flows** B. Tensuda, University of Toronto, Toronto, Canada; J. McDonald, University of Ottawa, Ottawa, Canada; C. Groth, University of Toronto, Toronto, Canada	1030 hrs AIAA-2015-3421 **An ALE/FE formulation for high precision interface tracking in separated multiphase flows** A. Hay, S. Etienne, D. Pelletier, École Polytechnique de Montréal, Montréal, Canada	1100 hrs AIAA-2015-3422 **Simulation of the Separated flow over a Wall-Mounted Hump using Finite-Volume Based Lattice Boltzmann Method** B. Yagiz, G. Guzel, I. Koc, ASELSAN, Inc., Ankara, Turkey		

Friday, 26 June 2015						
305-CFD-35	**Overset and Cartesian Grid Methods**					**Plum Blossom B**
Chaired by: N. FOSTER, Applied Research Laboratory - Penn State and M. GHOREYSHI, United States Air Force Academy						
0900 hrs AIAA-2015-3423 **Three-Dimensional Dynamic Overset Method for Stabilized Finite Elements** C. Liu, J. Newman, W. Anderson, University of Tennessse, Chattanooga, Chattanooga, TN	0930 hrs AIAA-2015-3424 **Accuracy of High-Order CFD and Overset Interpolation in Finite Volume/Difference Codes** N. Foster, Pennsylvania State University, State College, PA	1000 hrs AIAA-2015-3425 **Advances in Distance-Based Hole Cuts on Overset Grids** W. Chan, S. Pandya, NASA Ames Research Center, Moffett Field, CA	1030 hrs AIAA-2015-3426 **Simulation Validation of Static and Forced Motion Flow Physics of a Canard Configured TransCruiser** M. Ghoreyshi, R. Korkis-Kanaan, A. Jirasek, A. Lofthouse, R. Cummings, U.S. Air Force Academy, Colorado Springs, CO	1100 hrs AIAA-2015-3427 **Sharp resolution of complex moving geometries using a multi-cut-cell viscous flow solver** L. Schneiders, C. Guenther, J. Grimmen, M. Meinke, W. Schroeder, RWTH Aachen University, Aachen, Germany	1130 hrs AIAA-2015-3428 **Integrating the Stanford University Unstructured Code (SU2) With Overset Grids** A. Kanoria, Indian Institute of Technology Gandhinagar, Gandhinagar, India; D. Chandar, Institute of High Performance Computing, Singapore, Singapore	1200 hrs AIAA-2015-3429 **A Comparative Study of Flow around a Circular Cylinder using Lattice Boltzmann Method** D. Hamane, O. Guerri, Renewable Energy Development Center Algeria, Bouzareah, Algeria; S. Larbi, Polytechnical School of Algiers, Elharache, Algeria

Friday, 26 June 2015						
306-CFD-36	**LES, DNS, and Hybrid RANS-LES IV**					**Emerald**
Chaired by: J. POGGIE, USAF AFRL/RBAC and B. THORNBER, The University of Sydney						
0900 hrs AIAA-2015-3430 **Impact of Computational Domain Size in Simulations of Homogeneous Decaying Turbulence and Mixing Layers** B. Thornber, University of Sydney, Sydney, Australia	0930 hrs AIAA-2015-3431 **Direct Numerical Simulation of Turbulent Flow Around a Surface Mounted Cube** A. Curley, M. Uddin, B. Peters, University of North Carolina, Charlotte, Charlotte, NC	1000 hrs AIAA-2015-3432 **Supersonic Corner Flow Predictions using the Quadratic Constitutive Relation** T. Leger, J. Poggie, Air Force Research Laboratory, Wright-Patterson AFB, OH	1030 hrs AIAA-2015-3433 **Assessment of novel DES approach with enhanced SGS modelling for prediction of separated flow over a delta wing** M. Fuchs, Technical University of Berlin, Berlin, Germany; C. Mockett, CFD Software GmbH, Berlin, Germany; J. Sesterhenn, F. Thiele, Technical University of Berlin, Berlin, Germany			

Friday, 26 June 2015						
307-MAO-12	**Shape and Topology III**					**Madrid**
Chaired by: B. ROTH, Walla Walla Univ and S. CHOI, Virginia Polytechnic Institute and State University						
0900 hrs AIAA-2015-3434 **Adjoint-Enhanced Multi-Level Optimization: Investigation of Algorithm Parameter Settings** Y. Tesfahunegn, S. Koziel, Reykjavik University, Reykjavik, Iceland; L. Leifsson, Iowa State University, Ames, IA	0930 hrs AIAA-2015-3435 **Discrete Adjoint Design Optimization Approach for Increasing Transonic Buffet Onset Angle-of-Attack** J. Thomas, E. Dowell, Duke University, Durham, NC	1000 hrs AIAA-2015-3436 **Aerodynamic Shape Optimization of a Truss-Braced-Wing Aircraft** D. Ivaldi, N. Secco, S. Chen, J. Hwang, J. Martins, University of Michigan, Ann Arbor, Ann Arbor, MI	1030 hrs AIAA-2015-3437 **Considerations about Wintip Devices Design of Transport Airplane** B. Mattos, A. Paula, P. Komatsu, Technological Institute of Aeronautics (ITA), São José dos Campos, Brazil			

Friday, 26 June 2015						
308-MAO-13	**Uncertainty II**					**Manchester**
Chaired by: S. CHOWDHURY, Mississippi State University and S. FERGUSON, North Carolina State University						
0900 hrs AIAA-2015-3438 **Multi-Objective Optimization Under Uncertainty** C. Liang, S. Mahadevan, Vanderbilt University, Nashville, TN	0930 hrs AIAA-2015-3439 **A Multi-Fidelity Approach to Quantification of Uncertainty in Stability and Control Databases for use in Stochastic Aircraft Simulations** A. Wendorff, J. Alonso, Stanford University, Stanford, CA; S. Bieniawski, The Boeing Company, Seattle, WA	1000 hrs AIAA-2015-3440 **Sculpting: A Fast, Interactive Method for Probabilistic Design Space Exploration and Margin Allocation** R. Cooke, Resources for the Future, Washington, DC; T. Zang, Zang M&S Consulting, LLC, Zebulon, NC; D. Mavris, J. Tai, Georgia Institute of Technology, Atlanta, GA	1030 hrs AIAA-2015-3441 **Multidisciplinary Uncertainty Quantification in Aeroelastic Analyses of Semi-Span Supersonic Transport Wing** M. Nikbay, P. Acar, Istanbul Technical University, Istanbul, Turkey	1100 hrs AIAA-2015-3442 **An Integrated Framework for Bayesian Uncertainty Quantification and Probabilistic Multi-Criteria Decision Making in Aero-Engine Preliminary Design** J. Gramatyka, M. Eres, J. Scanlan, University of Southampton, Southampton, United Kingdom; M. Moss, R. Bates, Rolls-Royce Group plc, Derby, United Kingdom	1130 hrs AIAA-2015-3443 **A Strategy for Probabilistic Margin Allocation in Aircraft Conceptual Design** T. Zang, Zang M&S Consulting, LLC, Zebulon, NC; S. Mahadevan, Vanderbilt University, Nashville, TN; J. Tai, D. Mavris, Georgia Institute of Technology, Atlanta, GA	

Friday, 26 June 2015		
309-NW-10 **0900 - 0930 hrs**	**Networking Coffee Break**	**Meeting Room Foyers**

Author/Session Chair Index

Notes

Technical Zones

AVIATION 2015 Technical Zones (see Venue Map)

The technical program, which consists of more than 1,500 papers in over 20 technical tracks, has been placed within the hotel in zones to keep related session topics and technical conferences together. Please visit one of the zones to listen to a technical paper that is of interest to you!

Zone 1

21st AIAA/CEAS Aeroacoustics Conference

31st AIAA Aerodynamic Measurement Technology and Ground Testing Conference

15th AIAA Aviation Technology, Integration, and Operations Conference

AIAA Balloon Systems Conference

AIAA Flight Testing Conference

22nd AIAA Lighter-Than-Air Systems Technology Conference

AIAA Modeling and Simulation Technologies Conference

45th AIAA Thermophysics Conference

Zone 2

15th AIAA Aviation Technology, Integration, and Operations Conference

AIAA Complex Aerospace Systems Exchange

45th AIAA Fluid Dynamics Conference

16th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference

46th AIAA Plasmadynamics and Lasers Conference

45th AIAA Thermophysics Conference

Zone 3

33rd AIAA Applied Aerodynamics Conference

Zone 4

31st AIAA Aerodynamic Measurement Technology and Ground Testing Conference

AIAA Atmospheric Flight Mechanics Conference

7th AIAA Atmospheric and Space Environments Conference

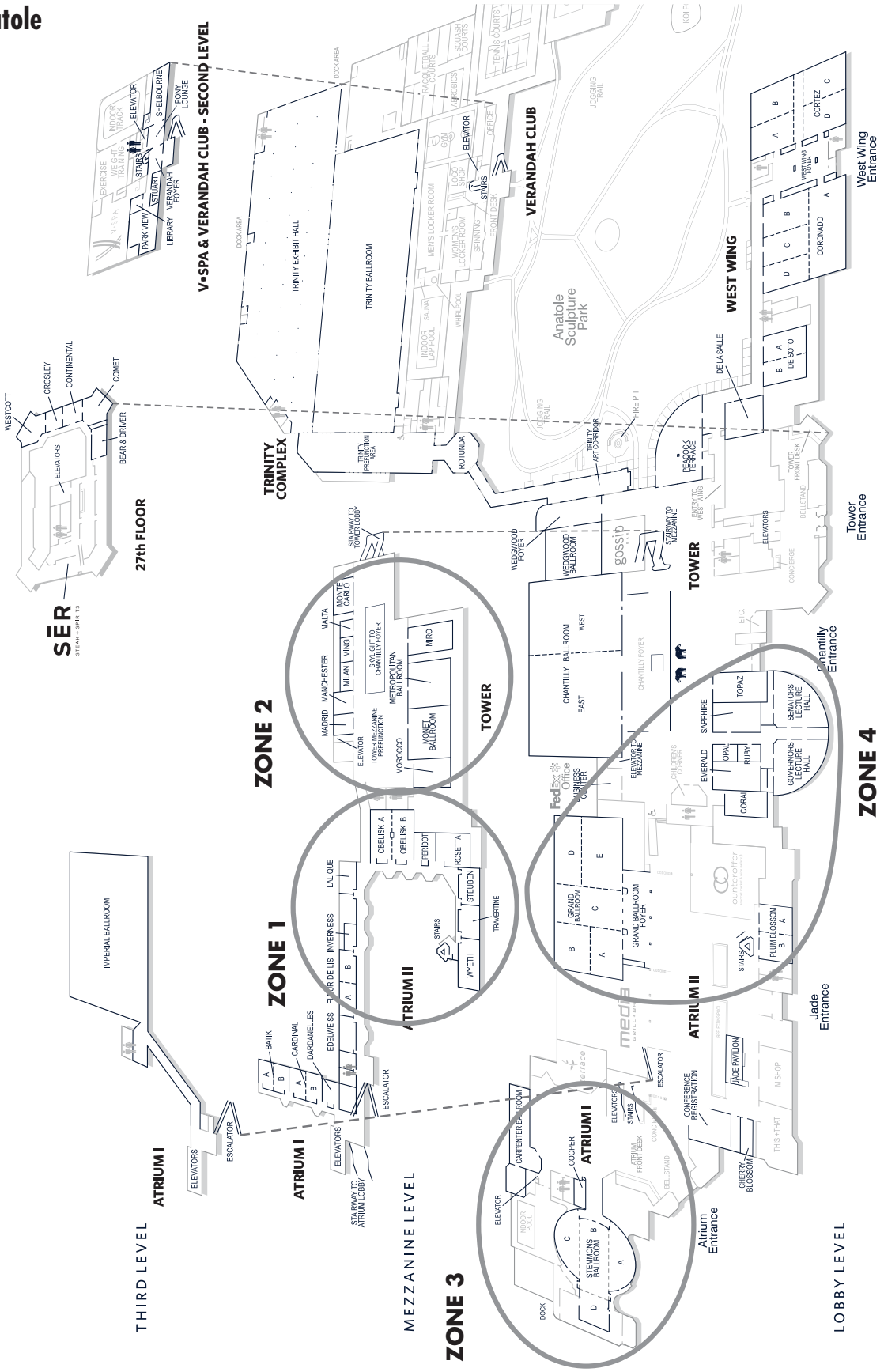
AIAA Complex Aerospace Systems Exchange

22nd AIAA Computational Fluid Dynamics Conference

45th AIAA Fluid Dynamics Conference

Venue Map

Hilton Anatole



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- 32nd AIAA Aerodynamic Measurement Technology and Ground Testing Conference
- 34th AIAA Applied Aerodynamics Conference
- AIAA Atmospheric Flight Mechanics Conference
- 8th AIAA Atmospheric and Space Environments Conference
- 16th AIAA Aviation Technology, Integration, and Operations Conference
- AIAA Flight Testing Conference
- 8th AIAA Flow Control Conference
- 46th AIAA Fluid Dynamics Conference
- 17th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference
- AIAA Modeling and Simulation Technologies Conference
- 47th AIAA Plasmadynamics and Lasers Conference
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