

DEFENSE



2015

10-12 MARCH 2015

LAUREL, MD



**Where Complex Defense
Challenges Meet Global
Solutions**

FINAL PROGRAM

www.aiaa-defense.org

#aiaaDefense



Missile Defense / Electronic Warfare / Cyber / C4ISR / Precision Weapon / Training

MISSION: A WORLD OF INNOVATION

FOR OVER 90 YEARS, RAYTHEON HAS ENABLED COUNTLESS MISSIONS BY REMAINING COMMITTED TO A SINGLE ONE: CUSTOMER SUCCESS. FROM THE DEPTHS OF THE OCEAN TO THE FARTHEST REACHES OF SPACE, FROM REMOTE BATTLEFIELDS TO THE VIRTUAL REALMS OF CYBERSPACE, RAYTHEON TECHNOLOGIES ARE DEPLOYED IN MORE THAN 80 COUNTRIES TO DELIVER INNOVATION IN ALL DOMAINS.



"Blue Marble" image of Earth captured by Raytheon's Visible Infrared Imaging Radiometer Suite.



See how Raytheon is driving success across the most challenging missions on Earth. Visit us at:

Raytheon.com



Raytheon

Customer Success Is Our Mission

DEFENSE 2015

Welcome

Welcome to the AIAA Defense and Security Forum (AIAA DEFENSE 2015) at the Johns Hopkins Applied Physics Laboratory! We're excited for you to explore the state of our nation's defense posture, learn how that posture is evolving to meet multiple threats to national security and economic stability, and discuss what we still must do to build a truly agile, adaptive, and resilient national defense operation.

The inaugural DEFENSE Forum will stimulate thought-provoking conversations among government leaders, civilian contractors, and academics, as we work toward finding solutions to the most pressing national security concerns—extremism, non-state actors, and geopolitical rivalries to disease, climate change, and cyber warfare. A full program of detailed technical discussions underpinning the high-level plenary and panel conversations will provide you the entire view of the state of the art in national defense strategies, systems, and technologies.

Combining the AIAA Missile Sciences Conference, AIAA Strategic and Tactical Missile Systems Conference, and the AIAA National Forum on Weapon System Effectiveness, AIAA DEFENSE 2015 guarantees cutting-edge, classified, technical research presentations and insightful conversations from industry executives, military leaders, and thought leaders about challenges and opportunities associated with defense acquisition, homeland security, missile systems, national defense strategy, smart weapons, and strike capability—as well as many other components of a strong national defense position.

Everyone involved in the planning for the AIAA DEFENSE Forum has worked to develop a robust, timely, and interesting program. We hope you take advantage of the many learning and networking opportunities throughout the week, and we thank you for making the choice to be here with us to take part in this important gathering.

**AIAA DEFENSE 2015 is
proud to feature the
following conferences:**

AIAA Missile Sciences Conference
AIAA Strategic and Tactical Missile Systems
Conference
AIAA National Forum on Weapon System
Effectiveness

Organizing Team

Executive Chairs

Robert (Bob) E. Fitzpatrick, Jr., Vice President of Business Development, Raytheon Missile Systems

Bernie Merwald, Vice President of Engineering, Raytheon Missile Systems

Forum Organizing Team

Robert Baker, Office of the Assistant Secretary of Defense for Research and Engineering

Edward Eiswirth, The Boeing Company

Basil Hassan, Sandia National Laboratories

Darren Hayashi, Raytheon Company

Stan Hlavka, Raytheon Missile Systems

Jim Makarsky, The Boeing Company

Kevin Massey, DARPA

Michelle Mathieson, Northrop Grumman Corporation

Laura McGill, Raytheon Missile Systems

Peter Montgomery, Jacobs Engineering

Otmar (Nick) Yakaboski, Air Force Life Cycle Management Center

Technical Program Team

Robert Addis, Lawrence Livermore National Laboratory

William Alban, The Boeing Company

Kari Anderson, Missile Defense Agency

Karen Barker, Office of the Secretary of Defense/Acquisition, Technology & Logistics

Jeff Bean, U.S. Air Force Nuclear Weapons Center

David Bernays, Legacy Engineering

Stephen Blanchette, Software Engineering Institute

Stuart Blashill, Naval Air Warfare Center

Allison Cash, People Tec

Gary Christy, The Boeing Company

Alex Edsall, Charles Stark Draper Laboratory

Raul Feinchtein, Johns Hopkins University Applied Physics Laboratory

Chip Ferguson, Test Resource Management Center

Frank Friedl, U.S. Air Force Research Laboratory

Mark Friedlander, Aerojet Rocketdyne

Rick Gamble, Aerospace Testing Alliance

Paul Huter, Lockheed Martin Company

Roger Kimmel, U.S. Air Force Research Laboratory

Brian Kiser, U.S. Naval Surface Weapons Center

James Keenan, U.S. Army Aviation and Missile Research Development and Engineering Center

Ira Kohlberg, Kohlberg Associates

Ron Kubinski, The Boeing Company

Capt. Mike Ladner, Program Executive Office for Integrated Warfare Systems

Diane L'Heureux, Lockheed Martin Space Systems Company

Michael Maglich, U.S. Navy/Strategic Systems Programs

David Mesa, U.S. Naval Weapons Center

Gordon Niva, Legacy Engineering

Michael Richman, U.S. Army Aviation and Missile Research, Development and Engineering Center

Robert Schmedake, The Boeing Company

Buford Shipley, The Boeing Company

Tumkur Shivananda, Northrop Grumman Corporation

John Snyder, Lockheed Martin Space Systems Company

James Walker, Southwest Research Institute

John Walsh, Northrop Grumman Corporation

John White, Sandia National Laboratories

Michael White, Johns Hopkins University Applied Physics Laboratory

David Whited, Missile Defense Agency



Contents

Welcome	3
Organizing Team	4
Contents	5
Forum Overview	6
Sponsors and Supporters	8
Keynote Speakers and Plenary Sessions	9
Networking Activities and Security Information	10
General Information	11
Technical Sessions at a Glance	12
Session Detail Matrix	14
Author/Session Chair Index	21
Venue Map	23



AIAA is the world's largest aerospace professional society, serving a diverse range of more than 30,000 individual members from 88 countries, and 95 corporate members. AIAA members help make the world safer, more connected, more accessible, and more prosperous. For more information, visit www.aiaa.org, or follow us on Twitter @AIAA.



Forum Overview

As part of its new slate of forums, AIAA is organizing a SECRET/U.S. Only event for technical, programmatic, and policy issues pertaining to aerospace in U.S. national security. The objective of the AIAA Defense and Security Forum (AIAA DEFENSE) is to create an unbiased, nonpartisan forum for defense officials to interact with industry partners, aerospace R&D community, and government decision- and policymakers.

During AIAA DEFENSE, leaders from U.S. government, military, industry, and academia will explore complex defense challenges in order to develop global solutions. The intersection between defense policy and technical advancements will be examined during interactive, “no holds barred” programmatic and technical discussions. Experts will present the latest innovative technological breakthroughs that will influence current and next-generation defense systems.

This inaugural forum brings together on the same stage the best long-standing AIAA technical conferences serving the weapons community, and high-level plenary session speakers. In addition to conference sessions and networking opportunities for attendees and speakers, it includes a reception, coffee breaks between sessions, and a luncheon on each day of the forum.

Plenary Sessions

Get the big picture from industry, academia, and government leaders when they share their perspectives on the new challenges, future opportunities, and emerging trends in the global aerospace industry. Plenary sessions examine some of the most critical issues in aerospace today.

Technical Program

This week you will:

- ▶ **Present** recent advances before a knowledgeable international audience
- ▶ **Educate** customers and providers on the latest research and product developments
- ▶ **Learn** about the latest technology and research in the field from industry experts
- ▶ **Discover** what lies ahead as senior industry leaders discuss their program and business challenges during keynote and panel sessions
- ▶ **Network** to engage new contacts and refresh old ones



Forum Overview

	TUESDAY 10 March	WEDNESDAY 11 March	THURSDAY 12 March
0700 hrs	Networking Coffee Break	Networking Coffee	Networking Coffee
0730 hrs			
0800 hrs	Welcome Remarks		
0830 hrs			
0900 hrs	Technical Superiority and Acquisition and Technology Transfer Keynotes	Hypersonics - Foreign Threats and Overview of U.S. Research Efforts Keynotes	Cybersecurity Keynotes
0930 hrs		Networking Coffee Break	Networking Coffee Break
1000 hrs	Technical Sessions: HTV-2 Aerodynamic Model Development	Technical Sessions: Boundary Layer Transition for Hypersonic Vehicles	Technical Sessions: Thermal and Mechanical Property Testing of the HTV-2 Carbon/Carbon Aeroshell
1030 hrs	Innovative Technology	Affordable Future Sea-Based Deterrent	Mission Planning and Assurance
1100 hrs	Cyber Systems	Missile Defense Interceptor Technologies	Hardware-in-Loop
1130 hrs	Autonomous/ISR	Tactical Missiles	Weapons Analysis
1200 hrs	Lunch	Lunch	Lunch
1230 hrs			
1300 hrs			
1330 hrs	Technical Sessions: AHW Aerodynamic Model Development	Technical Sessions: AHW Guidance and Control	Technical Sessions: Technology Development for Conventional Boost-Glide Strike Capabilities
1400 hrs	Air Force Strategic Missiles	Technology Enablers for Sea-Based Deterrent Evolution	Air Force Strategic Missiles
1430 hrs	Missile Defense	Asymmetric Missile Defense	Systems Design
	Tactical Missiles	System Performance	Innovative Technology
1500 hrs	Effects Modeling	Aerodynamic/Aerothermodynamic Analysis and Testing of Hypersonic Vehicles	Aerodynamic/Aerothermodynamic Wind Tunnel Testing of a Hypersonic Glide Body Configuration
1530 hrs	Networking Coffee Break	Networking Coffee Break	
1600 hrs	Acquisition and Technology Transfer Keynote		Wrap Up & Closing Remarks
1630 hrs		Strategic Strike Capabilities Keynotes	
1700 hrs			
1730 hrs	Welcome Reception		
1800 hrs			

Sponsors and Supporters

AIAA would like to thank the following organizations for their support of AIAA DEFENSE 2015:

Premier Sponsor

Raytheon

Networking Break Sponsor



Supporting Sponsor



Keynote Speakers and Plenary Sessions

Get the big picture on the defense and weapons community from the leading authorities in the field during these high-level discussions and presentations.

Tuesday, 10 March

0800 hrs Auditorium

Opening Keynotes

Technical Superiority

The Honorable Frank Kendall III, Under Secretary of Defense for Acquisition, Technology and Logistics, Department of Defense

Acquisition and Technology Transfer

Lt. Gen. Ellen Pawlikowski, Military Deputy, Office of the Assistant Secretary of the Air Force for Acquisition

1600 hrs Auditorium

Keynote

Acquisition and Technology Transfer

Gregory Hulcher, Director, Deterrence and Global Response, OUSD (AT&L)/ASD (A)/SSI

Wednesday, 11 March

0800 hrs Auditorium

Keynotes

Hypersonics – Foreign Threats and Overview of U.S. Research Efforts

CIA/WINPAC Representative

Steven Walker, Deputy Director, DARPA

1600 hrs Auditorium

Keynotes

Strategic Strike Capabilities

Lt. Gen. James Kowalski, Deputy Commander, U.S. Strategic Command

Michael Maglich, Technical Director, Strategic Systems Programs

Thursday, 12 March

0800 hrs Auditorium

Keynotes

Cybersecurity

Adm. Michael Rogers, Commander, U.S. Cyber Command, and Director, National Security Agency/Chief, Central Security Service (Invited)

Peter Christensen, Director, National Cyber Range at OSD AT&L, Test Resource Management Center

1600 hrs Auditorium

Wrap Up and Closing Remarks



Networking Activities and Security Information

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.

Coffee Breaks

Coffee breaks allow even more time for making new contacts, continuing discussions from sessions, or checking emails and voicemails to keep in touch with the office while you are at the forum. Coffee breaks will be located in the foyer:

Tuesday, 10 March	0700, 0930, and 1530 hrs
Wednesday, 11 March	0700, 0930, and 1530 hrs
Thursday, 12 March	0700, 0930, and 1530 hrs

Welcome Reception/Meet the Sponsors Reception

A reception will be held on Tuesday, 10 March, 1730 hrs, in the Kossiakoff Center. Take this opportunity to engage new contacts and refresh old ones, and meet with sponsor representatives at their designated tables.

Luncheon

Luncheons for conference attendees will be held daily in the Kossiakoff Center:

Tuesday, 10 March	1200–1300 hrs
Wednesday, 11 March	1200–1300 hrs
Thursday, 12 March	1200–1300 hrs

Security Information

Attendance at this forum is restricted to U.S. citizens who possess a final SECRET security clearance verified by the Security Office Coordinator.

Security Badge

A photo security badge is required for admittance to the conference sessions. Each attendee will be required to produce a driver's license, military I.D., or company photo I.D. prior to receiving a conference badge. Badges must be worn at the conference.

Security Restrictions

No electronic devices or electronic equipment of any kind—including cell phones, radios, PDAs, laptops, cameras, video/audio recording equipment, and two-way pagers—are allowed in the session rooms. One-way pagers must be placed on vibrate during the sessions.

Note-taking is not permitted in or around the conference sessions. Books, magazines, fliers, brochures, and other paper products will not be allowed in the session rooms.

Luggage, briefcases, and other large cases will not be allowed in the conference area. Please leave these items in your car, as storage is not available at the conference center. Small handbags, purses, and personal possessions will be inspected upon entry into the conference area. Security spot checks may be made at any time.



General Information

AIAA Registration and Information Center Hours

The AIAA Registration and Information Center will be located in the foyer of the Kossiakoff Center.

Tuesday, 10 March	0700–1830 hrs
Wednesday, 11 March	0700–1800 hrs
Thursday, 12 March	0700–1700 hrs

Meeting Site

The forum is being held at the Kossiakoff Center located on the Applied Physics Laboratory (APL) campus.

Parking

There is plenty of parking for forum attendees in the Kossiakoff Center parking lot on the lower level.

Certificate of Attendance

Certificates of Attendance are available for attendees who request documentation at the forum itself. Please request your copy at the AIAA Registration and Information Center. 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>.

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.)

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.

Nondiscriminatory Practices

AIAA accepts registrations irrespective of race, creed, sex, color, physical handicap, and national or ethnic origin.



Shaping the Future of Aerospace

AIAA is the world's largest aerospace professional society, serving a diverse range of more than 30,000 individual members from 88 countries, and 95 corporate members. AIAA members help make the world safer, more connected, more accessible, and more prosperous. For more information, visit www.aiaa.org, or follow us on Twitter @AIAA.

American Institute of Aeronautics and Astronautics

1801 Alexander Bell Drive, Suite 500
Reston, VA 20191-4344
703.264.7500 or 800.639.AIAA (2422)

Fax: 703.264.7657

custserv@aiaa.org

The Johns Hopkins University Center for Aerospace-Defense Research and Engineering (CADRE) serves the aerospace and defense industries as a U.S. national resource and nexus for scientifically based technical research, and analysis of energetics, explosives and propulsion systems. Formerly known as CPIAC, CADRE continues a 70 year legacy of connecting the public and private sector to advance scientific discovery through the application of technical research and analysis, laboratory experimentation for generating and publishing new data, open and classified conference planning, and team building. Information on CADRE products and services can be obtained by contacting CADRE at: Tel: (410) 992-7300; Email: cpiac@cpiac.jhu.edu; Web: www.cpiac.jhu.edu

Technical Sessions at a Glance

Abbreviation	Title	Date	Start Time	End Time	Location
Long Range Conventional Strike					
2-LRS-1	Long Range Conventional Strike I: HTV-2 Aerodynamic Model Development	10-Mar	1000 hrs	1200 hrs	Auditorium
7-LRS-2	Long Range Conventional Strike II: AHW Aerodynamic Model Development	10-Mar	1300 hrs	1530 hrs	Auditorium
15-LRS-3	Long Range Conventional Strike III: Boundary Layer Transition For Hypersonic Vehicles	11-Mar	1000 hrs	1200 hrs	Auditorium
21-LRS-4	Long Range Conventional Strike IV: AHW Guidance and Control	11-Mar	1300 hrs	1530 hrs	Auditorium
22-LRS-5	Long Range Conventional Strike V: Aerodynamic/Aerothermodynamic Analysis and Testing of Hypersonic Vehicles	11-Mar	1300 hrs	1530 hrs	Room 5
28-LRS-6	Long Range Conventional Strike VI: Thermal and Mechanical Property Testing of the HTV-2 Carbon/Carbon Aeroshell	12-Mar	1000 hrs	1200 hrs	Auditorium
33-LRS-7	Long Range Conventional Strike VII: Technology Development for Conventional Boost-Glide Strike Capabilities	12-Mar	1300 hrs	1530 hrs	Auditorium
34-LRS-8	Long Range Conventional Strike VIII: Aerodynamic/Aerothermodynamic Wind Tunnel Testing of a Hypersonic Glide Body Configuration	12-Mar	1300 hrs	1530 hrs	Room 5
Missile Defense					
8-MD-1	Missile Defense	10-Mar	1300 hrs	1530 hrs	Room 3
16-MD-2	Missile Defense Interceptor Technologies	11-Mar	1000 hrs	1200 hrs	Room 3
23-MD-3	Asymmetric Missile Defense	11-Mar	1300 hrs	1530 hrs	Room 3
Missile Systems					
9-MS-1	Effects Modeling	10-Mar	1300 hrs	1530 hrs	Room 7
17-MS-2	Lethality Modeling	11-Mar	1000 hrs	1200 hrs	Room 7
Non-Kinetic					
3-NK-1	Autonomous/ISR	10-Mar	1000 hrs	1200 hrs	Room 7
4-NK-2	Cyber Systems	10-Mar	1000 hrs	1200 hrs	Room 5
5-NK-3	Innovative Technology I	10-Mar	1000 hrs	1200 hrs	Room 3
29-NK-4	Hardware-in-Loop	12-Mar	1000 hrs	1200 hrs	Room 3
35-NK-5	Innovative Technology II	12-Mar	1300 hrs	1530 hrs	Room 3
Networking Activities					
6-NW-1	Luncheon	10-Mar	1200 hrs	1300 hrs	Lower Level
13-NW-2	Welcome Reception/Meet the Sponsors Reception	10-Mar	1730 hrs	1900 hrs	Lower Level
20-NW-3	Luncheon	11-Mar	1200 hrs	1300 hrs	Lower Level
32-NW-4	Luncheon	12-Mar	1200 hrs	1300 hrs	Lower Level

Technical Sessions at a Glance

Abbreviation	Title	Date	Start Time	End Time	Location
Plenary Sessions					
1-PLNY-1	Technical Superiority/Acquisition	10-Mar	0800 hrs	0945 hrs	Auditorium
12-PLNY-2	Acquisition and Technology Transfer	10-Mar	1600 hrs	1730 hrs	Auditorium
14-PLNY-3	Hypersonics – Foreign Threats and Overview of U.S. Research Efforts	11-Mar	0800 hrs	0930 hrs	Auditorium
26-PLNY-4	Strategic Strike Capabilities	11-Mar	1600 hrs	1730 hrs	Auditorium
27-PLNY-5	Cybersecurity	12-Mar	0800 hrs	0930 hrs	Auditorium
38-PLNY-6	Closing Plenary	12-Mar	1530 hrs	1630 hrs	Auditorium
Strategic					
10-STRAT-1	Air Force Strategic Missiles I	10-Mar	1300 hrs	1530 hrs	Room 1
18-STRAT-2	Affordable Future Sea-Based Deterrent	11-Mar	1000 hrs	1200 hrs	Room 1
36-STRAT-3	Air Force Strategic Missiles II	12-Mar	1300 hrs	1530 hrs	Room 1
24-STRAT-4	Technology Enablers for Sea-Based Deterrent Evolution	11-Mar	1300 hrs	1530 hrs	Room 1
Tactical					
11-TAC-1	Tactical Missiles I	10-Mar	1300 hrs	1530 hrs	Room 5
19-TAC-2	Tactical Missiles II	11-Mar	1000 hrs	1200 hrs	Room 5
25-TAC-4	System Performance	11-Mar	1300 hrs	1530 hrs	Room 7
30-TAC-5	Weapons Analysis	12-Mar	1000 hrs	1200 hrs	Room 7
31-TAC-6	Mission Planning and Assurance	12-Mar	1000 hrs	1200 hrs	Room 1
37-TAC-7	Systems Design	12-Mar	1300 hrs	1530 hrs	Room 7



Tuesday			
Tuesday, 10 March 2015			
1-PLNY-1 0800 - 0945 hrs	Opening Keynotes		Auditorium
<p>Welcome Remarks</p> <p><i>Technical Superiority</i></p> <p>The Honorable Frank Kendall III</p> <p>Under Secretary of Defense for Acquisition, Technology and Logistics, Department of Defense</p> <p><i>Acquisition and Technology Transfer</i></p> <p>Lt. Gen. Ellen Pawlikowski</p> <p>Military Deputy, Office of the Assistant Secretary of the Air Force for Acquisition</p>			
Tuesday, 10 March 2015			
2-IRS-1			
Chaired by: R. KIMMEL, USAF AFRL/RQHF and J. WHITE, Sandia National Laboratories			
1030 hrs Aerodynamic Parameter Estimation of HTV-2 Using Data from Flight 1 O. Murillo, T. Cox, NASA Armstrong Flight Research Center, Edwards, CA; G. Lindholm, Air Force Institute of Technology, Wright-Patterson AFB, OH	1030 hrs Aerodynamic and Flight Dynamic Analysis of HTV-2 Using Data from Flight 2 O. Murillo, M. Smith, T. Cox, NASA Armstrong Flight Research Center, Edwards, CA; S. Rexius, 412 Test Wing, Edwards AFB, CA	1100 hrs CFD Analysis of HTV-2 at CUBRC High-Enthalpy Test Conditions G. Candler, University of Minnesota, Minneapolis, MN; T. Drayton, GoHypersonic, Inc., Minneapolis, MN	1130 hrs Experimental Studies of High Temperature and Viscous Interaction Effects on the Control Surface Characteristics of the HTV-2 Configuration M. Holden, T. Wadhams, M. MacLean, CUBRC, Buffalo, NY
Tuesday, 10 March 2015			
3-NK-1			
Chaired by: I. KOHLBERG, Kohlberg Associates, Inc			
1000 hrs Theoretical Considerations for Advanced Autonomous Weapons Networks I. Kohlberg, Kohlberg Associates, Inc, Reston, VA	1030 hrs Payoff of Various ISR System Performance Levels in a Hostile Environment C. Cruz, University of Dayton, Dayton, OH; J. Zweber, Air Force Research Laboratory, Wright-Patterson AFB, OH		Room 7
Tuesday, 10 March 2015			
4-NK-2			
Chaired by: C. FERGUSON, Test Resource Management Center and S. BLANCHETTE, Software Engineering Institute			
1000 hrs Distributed Testing for CyberSecurity B. Kim, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1030 hrs National Cyber Range/Cybersecurity Test and Evaluation D. Troester, The MITRE Corporation, McLean, VA	1100 hrs Integrating Cyber Test Requirements into the Systems Engineering Life Cycle S. Jones, Edwards AFB, Lancaster, CA	1130 hrs Secure Software Coding L. Flynn, Carnegie Mellon University, Pittsburgh, PA
Tuesday, 10 March 2015			
5-NK-3			
Chaired by: M. LADNER, PEO Integrated Warfare Systems and M. WHITE, The Johns Hopkins University Applied Physics Laboratory			
1000 hrs Compressible Lattice-Boltzmann Method for Aeroacoustic Prediction J. Allredge, M. Stamanon, J. Thomas, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1030 hrs Boundary Layer Transition Calculations on a Family of Ballistic Reentry Vehicles D. Kuntz, J. Smith, R. Wagnild, D. Dinzl, Sandia National Laboratories, Albuquerque, NM	1100 hrs Coupled Models for Component Response due to Clear Air Reentry Random Vibration J. Smith, M. Mesh, R. Field, K. Hu, Sandia National Laboratories, Albuquerque, NM	1130 hrs Multi-Dimensional CFD/Ablation Predictions for Hypersonic Vehicles M. Howard, R. Wagnild, J. Smith, D. Kuntz, Sandia National Laboratories, Albuquerque, NM

Tuesday, 10 March 2015		Lower Level	
6-NW-1 1200 - 1300 hrs	Luncheon		
Tuesday, 10 March 2015			
7-LRS-2			
Chaired by: J. KEENAN, US Army AMRDEC and J. WHITE, Sandia National Laboratories			
1300 hrs Comparison of Pre-Flight Aerodynamic Model and Flight-Measured Aerodynamics for the AHW Flight 1A Hypersonic Glide Body M. Kniskern, T. Lavin, Sandia National Laboratories, Albuquerque, NM	1330 hrs Aerodynamic Ground Testing to Support the Development of the AHW Flight 2 Hypersonic Glide Body Aerodynamic Model T. Lavin, Sandia National Laboratories, Albuquerque, NM; J. Keenan, Army Aviation and Missile Research Development and Engineering Center, Huntsville, AL; J. Christensen, K. Casper, Sandia National Laboratories, Albuquerque, NM	1400 hrs Application of Computational Fluid Dynamics for Development of the AHW Flight 2 Hypersonic Glide Body Aerodynamic Model C. Bruner, Sandia National Laboratories, Albuquerque, NM; J. Keenan, Army Aviation and Missile Research Development and Engineering Center, Redstone Arsenal, AL	1430 hrs Sandia STARS III: A Novel Use of Grid Fins for a Depressed-Apogee, Boost Trajectory for AHW Flight 1A M. Kniskern, Sandia National Laboratories, Albuquerque, NM; M. Miller, Dynetics, Inc., Huntsville, AL; M. Plicher, T. Lavin, Sandia National Laboratories, Albuquerque, NM
1500 hrs A Novel Flight Safety Architecture Developed for the Depressed-Apogee, Boost Trajectory During AHW Flight 1A J. Christensen, M. Kniskern, Sandia National Laboratories, Albuquerque, NM	Auditorium		
Tuesday, 10 March 2015			
8-MD-1			
Chaired by: R. GAMBLE, Aerospace Testing Alliance and R. KUBINSKI, Boeing Defense, Space and Security			
1300 hrs Importance of "Truth" Data Collection on BMDS Flight Tests L. Maciel, Lincoln Laboratory, Massachusetts Institute of Technology, Lexington, MA	1330 hrs Missile Defense Countermeasures Design, Characterization and Execution J. Coombs, Lincoln Laboratory, Massachusetts Institute of Technology, Lexington, MA	1400 hrs RCS Modeling of Ballistic Missile Defense System Targets A. Dumanian, Lincoln Laboratory, Massachusetts Institute of Technology, Lexington, MA	1430 hrs Hyperspectral Near-Field Optical Cross Section Measurements of BMD Targets E. Hines, S. Prutzer, J. Swenson, T. Hall, S. Hsu, K. Bihari, Lincoln Laboratory, Massachusetts Institute of Technology, Lexington, MA
Room 3			
Tuesday, 10 March 2015			
9-MS-1			
Chaired by: B. KISER, US Navy NSWCDD			
1300 hrs An Evaluation of KEP Weapon Effectiveness Against CPGS Targets J. Elder, Modern Technology Solutions, Inc., Huntsville, AL; C. Botts, S. Burns, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1330 hrs Fast-running Response Modeling for Direct Hit Events Involving High Explosive Submunitions D. Hyans, A. Witzig, B. Mitchell, A. Cash, PeopleTec, Inc., Huntsville, AL; W. Black, Missile Defense Agency, Huntsville, AL	1400 hrs Post-Intercept Debris Modeling for Ballistic Missile Intercepts B. Sommers, PeopleTec, Inc., Huntsville, AL; W. Black, Missile Defense Agency, Huntsville, AL	
Effects Modeling			
Room 7			
Tuesday, 10 March 2015			
10-STRAT-1			
Chaired by: J. BEAN, Air Force Nuclear Weapons Center and T. SHIVANANDA, Northrop Grumman Aerospace Systems			
1300 hrs Minuteman Chaff: 45 Years Contributing to Deterrence Against an Evolving Threat J. Walsh, T. Langley, S. Buchanan, Northrop Grumman Corporation, El Segundo, CA	1330 hrs An Adaptable Development Capability for Strategic Guidance and Navigation Systems J. Burr, University of Massachusetts, Amherst, Amherst, MA	1400 hrs A Software Fix for the Gyro Equal Torquing Condition in a Two-Axis Gyro J. Dougherty, M. Brogliere, Northrop Grumman Corporation, San Bernardino, CA	1500 hrs Flight Performance Implications of Modifications to Hypersonic Reentry Vehicle Mass Properties L. Sproul, M. Omos, Northrop Grumman Corporation, San Bernardino, CA
Room 1			
Tuesday, 10 March 2015			
11-TAC-1			
Chaired by: M. FRIEDLANDER, Aerojet Rocketdyne and M. RICHMAN, AMRDEC			
1300 hrs Army Missile Science and Technology Overview M. Richman, Army Aviation and Missile Research Development and Engineering Center, Huntsville, AL	1330 hrs Chaotic Behavior in a Transonic Jet Interaction S. Beresh, J. Murray, S. Aouanizatou, Sandia National Laboratories, Albuquerque, NM	1430 hrs Airborne Railgun: Initial Concept Theory R. Gosse, Air Force Research Laboratory, Wright-Patterson AFB, OH	1500 hrs Sensor and Seeker Test Requirements Study Results T. Steiner, TRMC, Arlington, VA
Tactical Missiles I			
Room 5			

Tuesday, 10 March 2015		Acquisition and Technology Transfer	Auditorium
12-PLNY-2 1600 - 1700 hrs	<p style="text-align: center;"> Gregory Hulcher Director, Deterrence and Global Response, OUSD (AT&L)/ASD (A)/SSI </p>		
Lower Level			
Tuesday, 10 March 2015		Welcome Reception/Meet the Sponsors Reception	
13-NW-2 1700 - 1830 hrs			
Wednesday			
Wednesday, 11 March 2015		Hypersonics - Foreign Threats and Overview of U.S. Research Efforts	Auditorium
14-PLNY-3 0800 - 0930 hrs	<p style="text-align: center;"> CIA/WINPAC Representative Steven Walker Deputy Director, Defense Advanced Research Projects Agency </p>		
Wednesday, 11 March 2015		Long Range Conventional Strike III: Boundary Layer Transition For Hypersonic Vehicles	Auditorium
15-LRS-3 Chaired by: R. KIMMEL, USAF AFRL/RQHF and J. WHITE, Sandia National Laboratories			
1000 hrs	1100 hrs	1130 hrs	
HTV-2 Boundary Layer Transition - Summary and Lessons Learned R. Kimmel, Air Force Research Laboratory, Wright-Patterson AFB, OH; G. Candler, University of Minnesota, Minneapolis, Minneapolis, MN	Boundary Layer Transition on HTV-2 S. Berry, K. Berger, NASA Langley Research Center, Hampton, VA	Boundary Layer Stability Analysis of CPGS Vehicles R. Waginid, K. Casper, J. Smith, D. Kuntz, Sandia National Laboratories, Albuquerque, NM	
Wednesday, 11 March 2015		Missile Defense Interceptor Technologies	Room 3
16-MD-2 Chaired by: D. WHITED, Missile Defense Agency and B. SHIPLEY, Boeing Defense, Space & Security			
1000 hrs	1030 hrs		
Analysis and Testing of a Threat Engineering Characterization Package (TECP) Missile Propulsion System R. Springer, Johns Hopkins University Applied Physics Laboratory, Laurel, MD; R. Johnson, Office of Naval Intelligence, Washington, DC; A. Nedongadi, T. Wolf, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	Aerodynamic Analysis and Testing of a Threat Engineering Characterization Package (TECP) Missile R. Heisler, J. Smith, D. Van Wie, Johns Hopkins University Applied Physics Laboratory, Laurel, MD; R. Johnson, Office of Naval Intelligence, Washington, DC		

Wednesday, 11 March 2015		Room 7	
Lethality Modeling			
Chaired by: A. CASH, People Tec			
1000 hrs Closed Form Evaluation of Fragment Impact Conditions G. Ferguson, Modern Technology Solutions, Inc., Huntsville, AL	1030 hrs Adopting Jacob-Roslund HEI Model for Complex Covered Explosives G. Ferguson, Modern Technology Solutions, Inc., Huntsville, AL	1100 hrs Lagrangian Simulation of Load-Damage Patterns in Fluid-filled Vessel D. Stowe, S. Treadway, Covid Technologies, Inc., Mooresville, NC; A. Algoso, Covid Technologies, Inc., Alexandria, VA; J. Cogar, Covid Technologies, Inc., Mooresville, NC	1130 hrs Advanced Modeling Techniques to Predict Blast Pressures in Tunnel Facilities E. Piburn, Qualis Corporation, Huntsville, AL
Wednesday, 11 March 2015			
18-STRAT-2			
Chaired by: M. MAGLICH, Strategic Systems Programs; J. SNYDER, Lockheed Martin Space Systems and A. EDSALL, Draper Laboratory			
1000 hrs Design Concepts for Future Strategic Missiles S. Dunn, J. Zegarski, L. Swenson, P. Bridenbaugh, S. Miller, Lockheed Martin Corporation, Sunnyvale, CA	1030 hrs Quantifying the Effects of Strategic Ballistic Missile Commonality on Triad Reliability J. Monat, J. McCracken, C. Isom, K. Labbe, Systems Planning and Analysis, Inc., Alexandria, VA	1100 hrs System Enablers for Affordable Stewardship D. Keating, R. Bacon, Draper Laboratory, Cambridge, MA	1130 hrs Air Force/Navy Strategic Guidance Collaboration S. Donald, W. Iscoyeanes, Draper Laboratory, Cambridge, MA
Wednesday, 11 March 2015			
19-TAC-2			
Chaired by: S. BLASHILL, Naval Air Warfare Center and M. FRIEDLANDER, Aerojet Rocketdyne			
1000 hrs Technology Readiness Levels Adapted for Use in IM Development S. Bishill, Naval Air Warfare Center, China Lake, CA	1030 hrs New Trends in Celestial Sighting Techniques J. Laine, E. Waldron, B. Lane, P. Bohn, S. Smith, Draper Laboratory, Cambridge, MA	1100 hrs A Direct Attitude Control System for an Agile Missile D. Willman, Booz Allen Hamilton, Houston, TX	1130 hrs Targets and Countermeasures: Recent Threat Observations B. Sheeks, Lincoln Laboratory, Massachusetts Institute of Technology, Lexington, MA
Wednesday, 11 March 2015			
20-NW-3			
1200 - 1300 hrs Luncheon			
Wednesday, 11 March 2015			
21-LRS-4			
Chaired by: J. KEENAN, US Army AMRDEC and E. ESWIRTH, Boeing Defense, Space & Security			
1300 hrs Hypersonic Glide Guidance For AHW Flight 2 D. Oatka, Sandia National Laboratories, Albuquerque, NM	1330 hrs Optimal Terminal Guidance and Flight Configuration for the Hypersonic Glide Body During AHW Flight 2 M. Kniskern, D. Kozlowski, Sandia National Laboratories, Albuquerque, NM	1400 hrs Autopilot Design, Development, and Testing for the Advanced Hypersonic Weapon D. Kozlowski, Sandia National Laboratories, Albuquerque, NM	1430 hrs Multi-body Modeling and Control for Hypersonic Vehicle Applications J. Parish, Sandia National Laboratories, Albuquerque, NM
1500 hrs AHW Flight 2 Hypersonic Glide Body Modeling, Simulation, and Verification S. Kowalchuk, Sandia National Laboratories, Albuquerque, NM			
Wednesday, 11 March 2015			
22-LRS-5			
Chaired by: R. KIMMEL, USAF AFRL/RQHF and J. WHITE, Sandia National Laboratories			
1300 hrs Development of a Transient Thermal Analysis Software Toolset for Thermal Protection System Evaluation W. Conner, M. Robinson, J. Suttis, Kratos Defense & Security Solutions, Inc., Huntsville, AL; J. Gauden, E. Mathias, Exelis, Inc., Huntsville, AL	1330 hrs HTV-2 Remediation Aerothermal Analysis J. Sturges, Lockheed Martin Corporation, King of Prussia, PA	1400 hrs Vehicle and Base heating Pressure and Heat Transfer Measurements in Laminar and Turbulent flows Over Large Scale HTV-2 Configuration at Mach Numbers from 4 to 8 in LENS II T. Wadhams, M. Holden, M. MacLean, CUBRC, Buffalo, NY	1430 hrs AEDC Tunnel 9's Test Support of the HTV-2 Flight Anomaly Investigation, Return-to-Flight and Beyond J. Goblisch, J. Lafferty, Arnold Engineering Development Complex, Silver Spring, MD
1500 hrs HTV-2 Force Measurements with an Acceleration Compensated Piezo-Electric Balance for Vehicle Stability and Transient Load Measurements M. Holden, A. Duffene, M. MacLean, T. Wadhams, CUBRC, Buffalo, NY			

Wednesday, 11 March 2015		Asymmetric Missile Defense		Room 3
Chaired by: D. BERNAYS and G. NIVA, Legacy Engineering				
1300 hrs	1330 hrs	1400 hrs	1430 hrs	1500 hrs
Updates for An Integrated Architecture for Homeland Air and Missile Defense D. Bernays, Lincoln Laboratory, Massachusetts Institute of Technology, Lexington, MA	Elevated Sensors Providing Persistent Over the Horizon Surveillance and Fire Control D. Mirisola, P. Gierke, M. Morrison, Raytheon Company, Andover, MA	Boost Phase Intercept of Iranian and North Korean Missiles Using Interceptors from UAVs L. Caveny, Caveny Tech, LLC, Fort Washington, MD; D. Tietz, New Vistas International, LLC, Austin, TX; S. Elia, Aerofej Rocketdyne, Sacramento, CA	Sensor Resource Management for Multi-Target Tracking in Raid Scenario A. Verma, Knowledge Based Systems, Inc., College Station, TX; M. Akella, University of Texas, Austin, TX; P. Benjamin, Knowledge Based Systems, Inc., College Station, TX; G. Niva, Legacy Engineering, Irvine, CA	Ontological Sensor Management and Adaptable Real-time Tasking R. Wolf, M. Tafolla, ExoAnalytic Solutions, Inc., Mission Viejo, CA
Wednesday, 11 March 2015				
24-STRAT-4				
Chaired by: M. MAGLICH, Strategic Systems Programs; J. SNYDER, Lockheed Martin Space Systems and A. EDSALL, Draper Laboratory				
1300 hrs	1330 hrs	1400 hrs	1430 hrs	1500 hrs
Orchestrated Simulation through Modeling (OSM) M. Cummings, Naval Surface Warfare Center, Dahlgren, VA	Secured Computing Architecture A. Kriska, K. Adams, Naval Surface Warfare Center, Dahlgren, VA	Dynamic Overtset Grid Implementation in OpenFOAM K. Smith, D. Garber, J. Geiman, J. Jorgensen, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	Weather Reentry Interaction Planner (WRIP) J. Stahl, Naval Surface Warfare Center, Dahlgren, VA	Compressive Sensing Applications to Computed Tomography J. Miller, M. Voelker, J. Schwalbe, Johns Hopkins University Applied Physics Laboratory, Laurel, MD
Wednesday, 11 March 2015				
25-TAC-4				
Chaired by: J. WALKER, Southwest Research Institute				
1300 hrs	1330 hrs	1400 hrs	1430 hrs	
Survivability Enhancement of Low Altitude Cruise Missiles M. Pelosi, M. Brown, M. Assadullah, University of Maryland, University College, College Park, MD	Distributed Testing to Reduce Cost and Risk for Weapons System T&E N. Torrico, Test Resource Management Center, Alexandria, VA	Satellite Coverage as an Information Sifting and Monitoring Problem P. Conio, J. Dodd, Air Force Research Laboratory, Kirtland AFB, NM	Penetrating Weapon Survivability Envelope Study J. Perry, J. Wertz, E. Amborn, A. Oliphant, C. Doolittle, D. Truncellito, Applied Research Associates, Inc., Albuquerque, NM; et al.	
Wednesday, 11 March 2015				
26-PLNY-4				
1600 - 1730 hrs				
Strategic Strike Capabilities				
Lt. Gen. James Kowalski Deputy Commander, U.S. Strategic Command				
Michael Maglich Technical Director, Strategic Systems Programs				
Thursday				
Thursday, 12 March 2015				
27-PLNY-5				
0800 - 0930 hrs				
CyberSecurity				
Adm. Michael Rogers (Invited) Commander, U.S. Cyber Command and Director, National Security Agency/Chief, Central Security Service				
Peter Christensen Director, National Cyber Range at OSD AT&L, Test Resource Management Center				

Thursday, 12 March 2015		Long Range Conventional Strike VI: Thermal and Mechanical Property Testing of the HTV-2 Carbon/Carbon Aeroshell		Auditorium
Chaired by: R. KIMMEL, USAF AFRL/RQHF and J. WHITE, Sandia National Laboratories				
1000 hrs	Possible Mechanisms for the Falcon HTV-2 Carbon/Carbon Aeroshell Degradation in Flight	1030 hrs	Thermo-Mechanical Testing of Carbon-Carbon for High Speed Applications	
D. Glass, MASA, Langley Research Center, Hampton, VA; R. Drilling, Leidos, Reno, NV		J. Gouvin, A. Swanson, Air Force Research Laboratory, Wright-Patterson AFB, OH		
Thursday, 12 March 2015				
29-NK-4				
Chaired by: R. GAMBLE, Aerospace Testing Alliance and R. FAINCHEIN, The Johns Hopkins University Applied Physics Laboratory				
1000 hrs	Cryo-Vacuum Sensor Test Capability and Hardware-in-the-Loop Testing of Interceptor Systems in the AEDC Sensor Test Chambers	1100 hrs	The Value of Extensively Analyzing Video Imagery Data for an Interceptor System Mission Simulation Test	1130 hrs
H. Lowry, R. Nicholson, S. Steely, K. Mead, Aerospace Testing Alliance, Arnold AFB, TN		H. Home, Aerospace Testing Alliance, Arnold AFB, TN; R. Tischer, N. Smith, Arnold Engineering Development Complex, Arnold AFB, TN; R. Nicholson, D. Schwei, Aerospace Testing Alliance, Arnold AFB, TN		Agile IR Scene Projector Based on Carbon Nanotubes R. Frainchein, D. Brown, R. DiNello-Fass, Johns Hopkins University Applied Physics Laboratory, Laurel, MD
Thursday, 12 March 2015				
30-TAC-5				
Chaired by: R. ADDIS, Lawrence Livermore National Laboratory and D. MESA, U.S. Navy				
1000 hrs	Explosives and the Electromagnetic Environment	1100 hrs	Using Genetic Algorithms for Targeting and Weapon Evaluation	1130 hrs
M. Mohammed, USAF AFRL/CB, Eglin AFB, FL		J. Hanes, Applied Research Associates ECD, Val Paraiso, FL		Study of Weapon Alternatives to Address UXO Policy M. Lewis, T. DeFrank, U.S. Air Force, Eglin AFB, FL
Thursday, 12 March 2015				
31-TAC-6				
Chaired by: G. CHRISTY, Boeing and J. WALSH, Northrop Grumman Corporation				
1000 hrs	Resilience Architecting and Methodology Development for the Space Enterprise	1100 hrs	Mission Planning and Assurance	Room 1
N. Martin, T. Trussell, L. Bellegamba, K. Yang, S. Maguire, Space and Missile Systems Center (SMC), El Segundo, CA		Mission Planning and Analysis System (MPAS) Modernization - Shortening the Strategic Kill Chain		1130 hrs
Integrated Flight Planning and Weaponing for Rapid CPGS Mission Planning		S. Riese, B. Heydon, Johns Hopkins University Applied Physics Laboratory, Laurel, MD		OPIR Contribution to Battle Space Management for Homeland Defense Against MRBM Asymmetric Threats T. Trapp, Raytheon Company, Waltham, MA; J. Green, A. Whalen, The Boeing Company, Chicago, IL; A. Johnson, Raytheon Company, Waltham, MA
Thursday, 12 March 2015				
32-NW-4				
1200 - 1300 hrs				
Luncheon				
Thursday, 12 March 2015				
33-LRS-7				
Chaired by: F. FRIEDL, Air Force Research Laboratory and J. WHITE, Sandia National Laboratories				
1300 hrs	Conceptual Missile Design for Boost-Glide Systems	1400 hrs	Boost-Glide System Performance Envelope Analysis	1430 hrs
B. Wadley, Johns Hopkins University Applied Physics Laboratory, Laurel, MD		A. Nicholl, Johns Hopkins University Applied Physics Laboratory, Laurel, MD		KEP Warhead Parameter Sensitivities J. Miller, N. Brokloff, Johns Hopkins University Applied Physics Laboratory, Laurel, MD

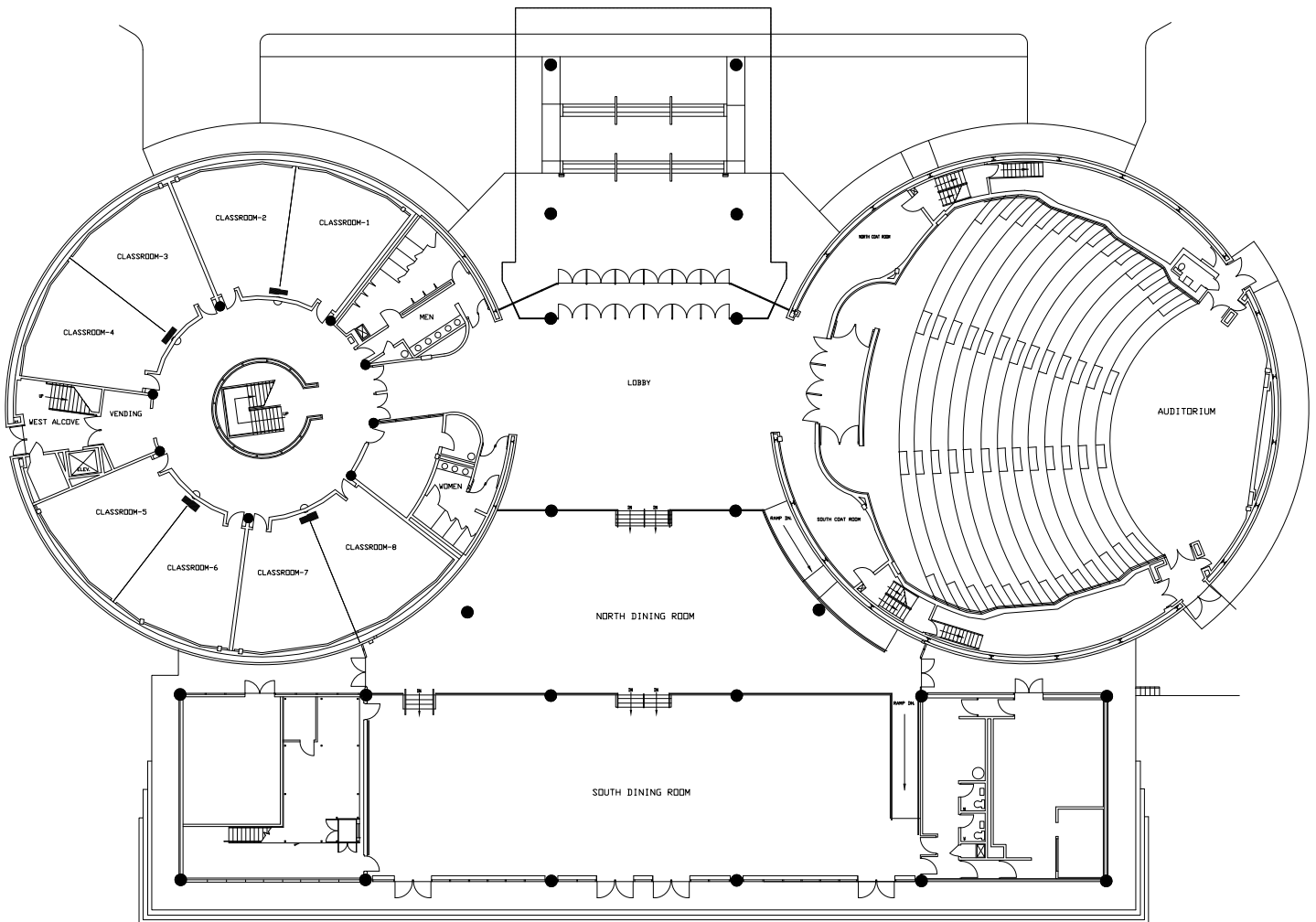
Thursday, 12 March 2015		Room 5	
34-LRS-8 Long Range Conventional Strike VIII: Aerodynamic/Aerothermodynamic Wind Tunnel Testing of a Hypersonic Glide Body Configuration			
Chaired by: R. GAMBLE, Aerospace Testing Alliance and W. ALBAN, The Boeing Company			
1300 hrs	1300 hrs	1400 hrs	1500 hrs
Experimental Studies of Boundary Layer Transition M. Conway, B. Williams, A. Voegelé, The Aerospace Corporation, El Segundo, CA	Aerothermodynamic Characterization at CUBRC LENS-I and CUBRC LENS-XX Tunnels B. Williams, M. Conway, A. Voegelé, The Aerospace Corporation, El Segundo, CA	Aerodynamic and Aerothermodynamic Characterization Testing at AEDC Tunnel 9 B. Williams, M. Conway, A. Voegelé, The Aerospace Corporation, El Segundo, CA	Aerodynamic and Aerothermodynamic Characterization Testing at AEDC VKF Tunnel A B. Williams, M. Conway, A. Voegelé, The Aerospace Corporation, El Segundo, CA
Thursday, 12 March 2015			
35-NK-5 Innovative Technology II			
Chaired by: M. LADNER, PEO Integrated Warfare Systems and M. WHITE, The Johns Hopkins University Applied Physics Laboratory			
1300 hrs	1300 hrs	1400 hrs	1500 hrs
Multiple Sensor Correlation and Discrimination of Closely Spaced Objects on a Ballistic Trajectory S. Jacanski, T. Lim, T. Severson, U.S. Naval Academy, Annapolis, MD	Development of a NEPE Propellant Applying Principles of Commonality J. Widener, ATK, Brigham City, UT	A Hybrid Approach to an Atom-Interferometer Based IMU D. Johnson, P. Sherman, D. Butts, R. Stoner, M. Chappara, S. Smith, Draper Laboratory, Cambridge, MA, et al.	
Thursday, 12 March 2015			
36-STRAT-3 Air Force Strategic Missiles II			
Chaired by: J. BEAN, Air Force Nuclear Weapons Center and T. SHIVANANDA, Northrop Grumman Aerospace Systems			
1300 hrs	1300 hrs	1400 hrs	1500 hrs
MK12A and MK21 Dynamic Finite Element Models and Modal Validation M. Boeckman, R. Eiland, Northrop Grumman Corporation, San Bernardino, CA	Model Based Design Influence on Solid Rocket Booster Testing Programs, Part I D. Richardson, B. Allen, ATK, Promontory, UT; S. Hyde, ATK, Brigham City, UT; B. Goldberg, D. Devries, ATK, Promontory, UT; M. Ewing, ATK, Brigham City, UT	Model Based Design Influence on Solid Rocket Booster Testing Programs, Part II D. Richardson, B. Allen, S. Hyde, B. Goldberg, D. Devries, M. Ewing, ATK, Promontory, UT	Flight Data Derived Reentry Plasma L. Sprou, K. Golden, M. Olinos, D. Miller, T. Shivananda, Northrop Grumman Corporation, San Bernardino, CA
Thursday, 12 March 2015			
37-TAC-7 Systems Design			
Chaired by: O. YAKABOSKI, United States Air Force and R. ADDIS, Lawrence Livermore National Laboratory			
1300 hrs	1300 hrs	1400 hrs	1500 hrs
Explosive Fill Analysis and Modeling (EFAM) E. Amborn, J. Perry, C. Sanchez, Applied Research Associates, Inc., Albuquerque, NM; J. Glenn, Air Force Lifecycle Management Center, Eglin AFB, FL; M. Gungler, Gungler Engineering, LLC, Niceville, FL	Survivability Modeling and Validation in DARPA's Adaptive Vehicle Make (AVM) Program J. Walker, S. Chocron, C. Anderson, Southwest Research Institute, San Antonio, TX; J. Riegel, R3 Technology, Inc., Springfield, VA; D. Pomeroy, E. Trillo, Southwest Research Institute, San Antonio, TX; et al.		
Thursday, 12 March 2015			
38-PLNY-6 Closing Plenary			
1530 - 1630 hrs			
Auditorium			

Author/Session Chair Index

- Adams, K., 24-STRAT4
 Addis, R., 30-IAC-5, 37-IAC-7
 Akella, M., 23-MD-3
 Alban, W., 34-IAC-8
 Alqosa, A., 17-MS-2
 Alldredge, J., 5-NK-3
 Allen, B., 36-STRAT-3
 Annborn, E., 25-IAC-4, 37-IAC-7
 Anderson, C., 37-IAC-7
 Anunigateson, S., 11-IAC-1
 Assadullah, M., 25-IAC-4
 Bacon, R., 18-STRAT-2
 Beam, J., 10-STRAT-1, 36-STRAT-3
 Bellagamba, L., 31-IAC-6
 Benjamin, P., 23-MD-3
 Beresh, S., 11-IAC-1
 Berger, K., 15-IAC-3
 Bernays, D., 23-MD-3
 Berry, S., 15-IAC-3
 Bhatti, K., 8-MD-1
 Black, W., 9-MS-1
 Blanchette, S., 4-NK-2
 Blushill, S., 19-IAC-2
 Boeckman, M., 36-STRAT-3
 Bohm, P., 19-IAC-2
 Borfs, C., 9-MS-1
 Bredenbaugh, P., 18-STRAT-2
 Broguiere, M., 10-STRAT-1
 Brookhoff, N., 33-IAC-7
 Brown, D., 29-NK-4
 Brown, M., 25-IAC-6
 Bruner, C., 7-IAC-2
 Buchanan, S., 10-STRAT-1
 Burns, S., 9-MS-1, 31-IAC-6
 Burt, J., 10-STRAT-1
 Butts, D., 35-NK-5
 Candler, G., 2-IAC-1, 15-IAC-3
 Cash, A., 9-MS-1, 17-MS-2
 Casper, K., 7-IAC-2, 15-IAC-3
 Conway, L., 23-MD-3
 Chaparral, M., 35-NK-5
 Chocron, S., 37-IAC-7
 Christensen, J., 7-IAC-2
 Christy, G., 31-IAC-6
 Coblish, J., 22-IAC-5
 Cogar, J., 17-MS-2
 Collier, W., 22-IAC-5
 Conway, M., 34-IAC-8
 Coombs, J., 8-MD-1
 Cox, T., 2-IAC-1
 Cruz, C., 3-NK-1
 Cummings, M., 24-STRAT-4
 Cuntio, P., 25-IAC-4
 Defrank, T., 30-IAC-5
 Detloff, S., 10-STRAT-1
 Davies, D., 36-STRAT-3
 DiNello-Fass, R., 29-NK-4
 Dinzi, D., 5-NK-3
 Dilling, R., 28-IAC-6
 Dodd, J., 25-IAC-4
 Donald, S., 18-STRAT-2
 Doolittle, C., 25-IAC-4
 Dougherty, J., 10-STRAT-1
 Drayno, I., 2-IAC-1
 Dufrene, A., 22-IAC-5
 Durnanian, A., 8-MD-1
 Dunn, S., 18-STRAT-2
 Edsall, A., 18-STRAT-2, 24-STRAT-4
 Eiland, R., 36-STRAT-3
 Eswirih, E., 21-IAC-4
 Elder, J., 9-MS-1
 Elio, S., 23-MD-3
 Ewing, M., 36-STRAT-3
 Fainchtein, R., 29-NK-4
 Ferguson, C., 4-NK-2
 Ferguson, G., 17-MS-2
 Field, R., 5-NK-3
 Flynn, L., 4-NK-2
 Friedl, E., IAC-7
 Friedlander, M., 11-IAC-1, 19-IAC-2
 Broguiere, M., 10-STRAT-1
 Brokloff, N., 33-IAC-7
 Brown, D., 29-NK-4
 Brown, M., 25-IAC-6
 Bruner, C., 7-IAC-2
 Buchanan, S., 10-STRAT-1
 Burns, S., 9-MS-1, 31-IAC-6
 Burt, J., 10-STRAT-1
 Butts, D., 35-NK-5
 Candler, G., 2-IAC-1, 15-IAC-3
 Cash, A., 9-MS-1, 17-MS-2
 Casper, K., 7-IAC-2, 15-IAC-3
 Conway, L., 23-MD-3
 Chaparral, M., 35-NK-5
 Chocron, S., 37-IAC-7
 Christensen, J., 7-IAC-2
 Christy, G., 31-IAC-6
 Coblish, J., 22-IAC-5
 Cogar, J., 17-MS-2
 Collier, W., 22-IAC-5
 Conway, M., 34-IAC-8
 Coombs, J., 8-MD-1
 Cox, T., 2-IAC-1
 Cruz, C., 3-NK-1
 Cummings, M., 24-STRAT-4
 Hu, K., 5-NK-3
 Hyams, D., 9-MS-1
 Hyde, S., 36-STRAT-3
 Ison, C., 18-STRAT-2
 Johnson, A., 11-IAC-1
 Johnson, D., 35-NK-5
 Johnson, R., 16-MD-2
 Jones, S., 4-NK-2
 Jorgensen, J., 24-STRAT-4
 Keating, D., 18-STRAT-2
 Keenan, J., 7-IAC-2, 21-IAC-4
 Kim, B., 4-NK-2
 Kimmel, R., 2-IAC-1, 15-IAC-3, 22-IAC-5, 28-IAC-6
 Kiser, B., 9-MS-1
 Kniskern, M., 7-IAC-2, 21-IAC-4
 Kohlberg, L., 3-NK-1
 Kowalchuk, S., 21-IAC-4
 Kozlowski, D., 21-IAC-4
 Krisko, A., 24-STRAT-4
 Kubinski, R., 8-MD-1
 Kuntz, D., 5-NK-3, 15-IAC-3
 Labbe, K., 18-STRAT-2
 Laczinski, S., 35-NK-5
 Ladner, M., 5-NK-3, 35-NK-5
 Lafferty, J., 22-IAC-5
 Laine, J., 19-IAC-2
 Lane, B., 19-IAC-2
 Langley, T., 10-STRAT-1
 Lavin, T., 7-IAC-2
 Lewis, M., 30-IAC-5
 Lim, T., 35-NK-5
 Lindholm, G., 2-IAC-1
 Lowry, H., 29-NK-4
 Lukyanets, A., 34-IAC-8
 Maciel, L., 8-MD-1
 MacLean, M., 2-IAC-1, 15-IAC-3, 22-IAC-5
 Maglich, M., 18-STRAT-2, 24-STRAT-4
 Maguire, S., 31-IAC-6
 Martin, N., 31-IAC-6
 Mathias, E., 22-IAC-5
 McCracken, J., 18-STRAT-2
 Mead, K., 29-NK-4
 Mesa, D., 30-IAC-5
 Mesh, M., 5-NK-3
 Middleton, A., 31-IAC-6
 Miller, D., 36-STRAT-3
 Miller, J., 24-STRAT-4, 33-IAC-7
 Miller, M., 7-IAC-2
 Miller, S., 18-STRAT-2
 Millman, D., 19-IAC-2
 Minsola, D., 23-MD-3
 Mitchell, B., 9-MS-1
 Mohammed, M., 30-IAC-5
 Monaf, J., 18-STRAT-2
 Morrison, M., 23-MD-3
 Murillo, O., 2-IAC-1
 Murray, J., 11-IAC-1
 Nedungadi, A., 16-MD-2
 Nicholl, A., 33-IAC-7
 Nicholson, R., 29-NK-4
 Niva, G., 23-MD-3
 Oliphant, A., 25-IAC-4
 Olmos, M., 10-STRAT-1, 36-STRAT-3
 Outka, D., 21-IAC-4
 Parish, J., 21-IAC-4
 Pelosi, M., 25-IAC-4
 Perry, J., 25-IAC-4, 37-IAC-7
 Piburn, E., 17-MS-2
 Pilcher, M., 7-IAC-2
 Pomeroy, D., 37-IAC-7
 Prutser, S., 8-MD-1
 Rexus, S., 2-IAC-1
 Richardson, D., 36-STRAT-3
 Richman, M., 11-IAC-1
 Riegel, J., 37-IAC-7
 Riess, S., 31-IAC-6
 Robinson, M., 22-IAC-5
 Sanchez, C., 37-IAC-7
 Schwalbe, J., 24-STRAT-4
 Schwer, D., 29-NK-4
 Severson, T., 35-NK-5
 Shanaman, M., 5-NK-3
 Sheeks, B., 19-IAC-2
 Sherman, P., 35-NK-5
 Shipley, B., 16-MD-2
 Shivamanda, T., 10-STRAT-1, 36-STRAT-3
 Singer-Barnard, S., 31-IAC-6
 Smith, J., 5-NK-3, 15-IAC-3, 16-MD-2
 Smith, K., 24-STRAT-4
 Smith, M., 2-IAC-1
 Smith, N., 29-NK-4
 Smith, S., 19-IAC-2, 35-NK-5
 Snyder, J., 18-STRAT-2, 24-STRAT-4
 Sommers, B., 9-MS-1
 Springer, R., 16-MD-2
 Sproul, L., 10-STRAT-1, 36-STRAT-3
 Stahl, J., 24-STRAT-4
 Steely, S., 29-NK-4
 Steiner, T., 11-IAC-1
 Stoner, R., 35-NK-5
 Stowe, D., 17-MS-2
 Sturges, J., 22-IAC-5
 Sturts, J., 22-IAC-5
 Swanson, A., 28-IAC-6
 Swenson, J., 8-MD-1
 Swenson, L., 18-STRAT-2
 Tafallo, N., 23-MD-3
 Thomas, J., 5-NK-3
 Tietz, D., 23-MD-3
 Tischar, R., 29-NK-4
 Torrico, N., 25-IAC-4
 Trapp, T., 31-IAC-6
 Trask, P., 31-IAC-6
 Treadway, S., 17-MS-2
 Trillo, E., 37-IAC-7
 Troester, D., 4-NK-2
 Truncellito, D., 25-IAC-4
 Trussell, T., 31-IAC-6
 Tscayoemes, W., 18-STRAT-2
 Van Wie, D., 16-MD-2
 Verma, A., 23-MD-3
 Voegelé, A., 34-IAC-8
 Voelker, M., 24-STRAT-4
 Wadhams, T., 2-IAC-1, 15-IAC-3, 22-IAC-5
 Wadswley, B., 33-IAC-7
 Wagnild, R., 5-NK-3, 15-IAC-3
 Waldron, E., 19-IAC-2
 Walker, J., 25-IAC-4, 37-IAC-7
 Walsh, J., 10-STRAT-1, 31-IAC-6
 Wertz, J., 25-IAC-4
 Whalen, A., 31-IAC-6
 White, J., 2-IAC-1, 7-IAC-2, 15-IAC-3, 22-IAC-5, 28-IAC-6, 33-IAC-7
 White, D., 16-MD-2
 Widener, J., 35-NK-5
 Williams, B., 34-IAC-8
 Witzig, A., 9-MS-1
 Wolf, R., 23-MD-3
 Wolf, T., 16-MD-2
 Yakoboski, O., 37-IAC-7
 Yung, K., 31-IAC-6
 Zegarski, J., 18-STRAT-2
 Zwebler, J., 3-NK-1



Venue Map



Participation is Power

Shaping the future of aerospace is no simple task.



"The ability to network with people from all over these different technical areas in one place in one location has just been terrific."

—Edgar G. Waggoner, Aeronautics Research Mission Directorate, NASA

AIAA forums and expositions are **catalysts for inspired idea exchange**, progressive problem solving, and industry innovation.

Shaping the future of aerospace takes passion, discussion, innovation, collaboration, and most importantly, **it takes YOU!**

AIAA Forums and Expositions

AVIATION 2015

22–26 June 2015, Dallas, Texas

Propulsion and Energy 2015

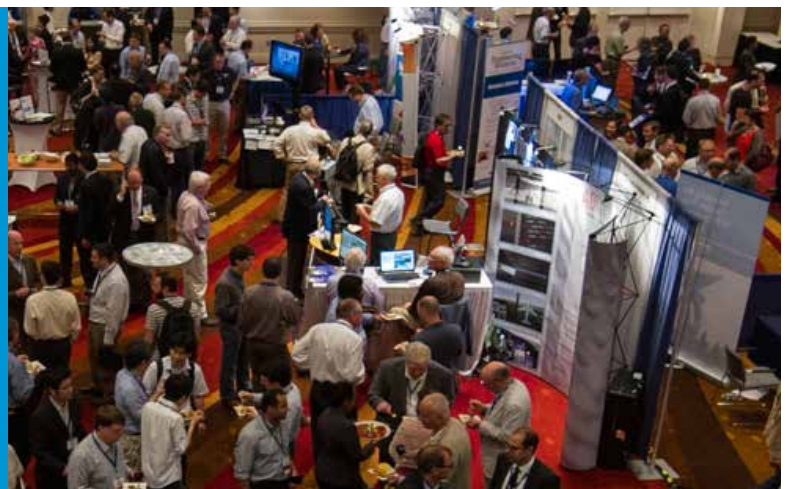
27–29 July 2015, Orlando, Florida

SPACE 2015

31 August–2 September 2015, Pasadena, California

SciTech 2016

4–8 January 2016, San Diego, California



Learn More!

aiaa.org/forums


Shaping the Future of Aerospace



Program Changes

Please note the time and session change for the following presentation:

- Multi-body Modeling and Control for Hypersonic Vehicle Applications (J. Parish)
 - **TIME CHANGE:** Now at 1130hrs in session 15-LRS-3 (Moved from 1430hrs in session 21-LRS-4)

For a variety of reasons, the following presentations will not be presented during the technical program:

Session 7-LRS-2

- Comparison of Pre-Flight Aerodynamic Model and Flight-Measured Aerodynamics for the AHW Flight 1A Hypersonic Glide Body (M.W. Kniskern; T. Lavin)
- Aerodynamic Ground Testing to Support the Development of the AHW Flight 2 Hypersonic Glide Body Aerodynamic Mode (T. Lavin; J. Keenan; J. Christensen; K.M. Casper)
- Application of Computational Fluid Dynamics for Development of the AHW Flight 2 Hypersonic Glide Body Aerodynamic Model (C.W. Bruner; J.A. Keenan)
- Sandia STARS III: A Novel Use of Grid Fins for a Depressed-Apogee, Boost Trajectory for AHW Flight 1A (M.W. Kniskern; M. Miller; M. Pilcher; T. Lavin)
- A Novel Flight Safety Architecture Developed for the Depressed-Apogee, Boost Trajectory During AHW Flight 1A (J. Christensen; M.W. Kniskern)

Session 8-MD-1

- Missile Defense Countermeasure Design, Characterization and Execution (J.Coombs)

Session 15-LRS-3

- Boundary Layer Stability Analysis of CPGS Vehicles (R. Wagnild; K.M. Casper; J.A. Smith; D.W. Kuntz)

Session 21-LRS-4

- Hypersonic Glide Guidance For AHW Flight 2 (D.E. Outka)
- Optimal Terminal Guidance and Flight Configuration for the Hypersonic Glide Body During AHW Flight 2 (M.W. Kniskern; D.M. Kozlowski)
- Autopilot Design, Development, and Testing for the Advanced Hypersonic Weapon (D.M. Kozlowski)
- AHW Flight 2 Hypersonic Glide Body Modeling, Simulation, and Verification (S.A. Kowalchuk)

Session 25-TAC-4

- Satellite Coverage as an Information Sifting and Monitoring Problem (P. Cunio, J. Dodd)

Session 31-TAC-6

- Resilience Architecting and Methodology Development for the Space Enterprise (N. Martin, T. Trussell, L. Bellagamba, K. Yung, S. Maguire)