

DEFENSE FORUM



8-10 MAY 2018

LAUREL, MD



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MISSILE DEFENSE

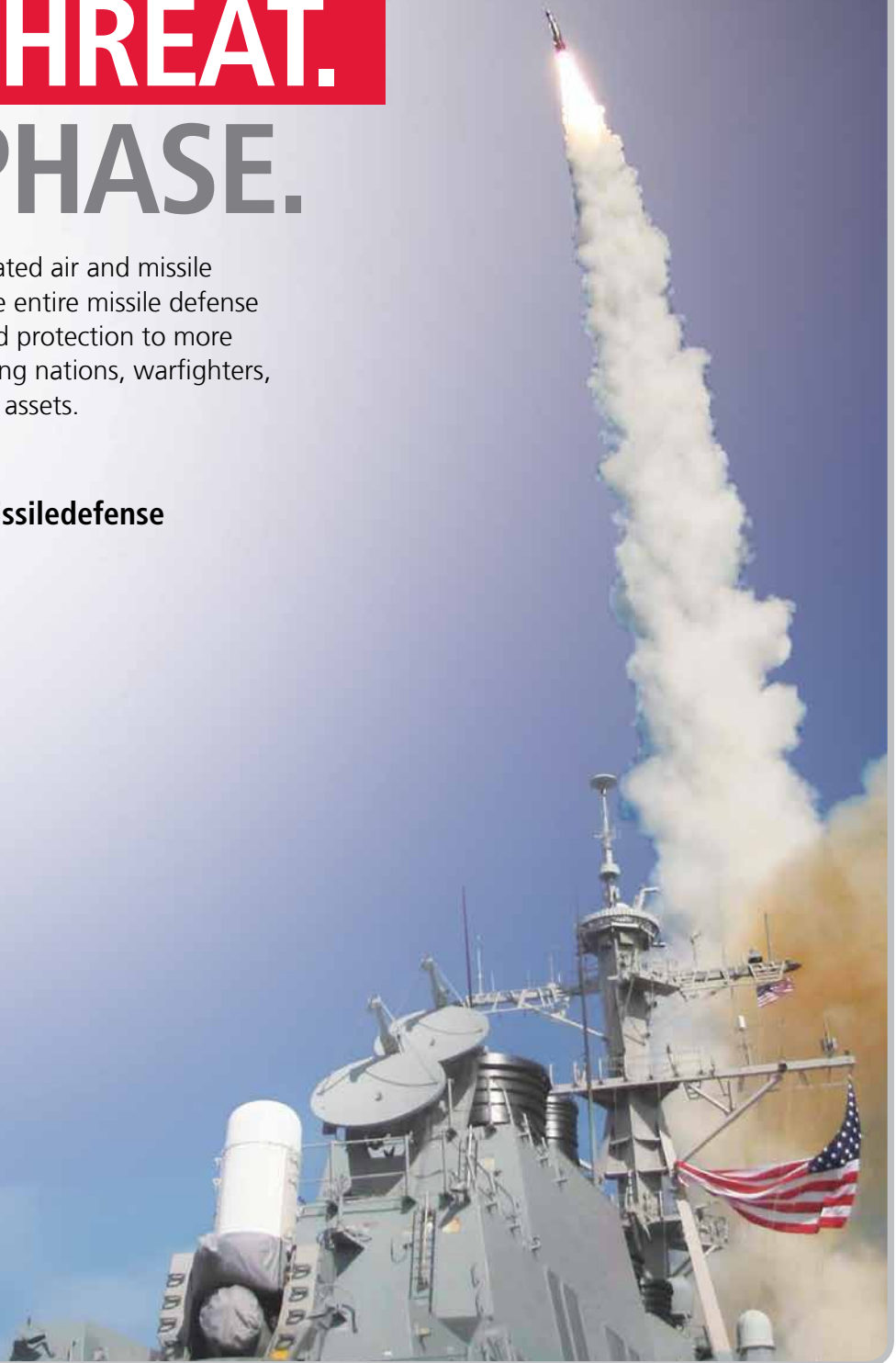
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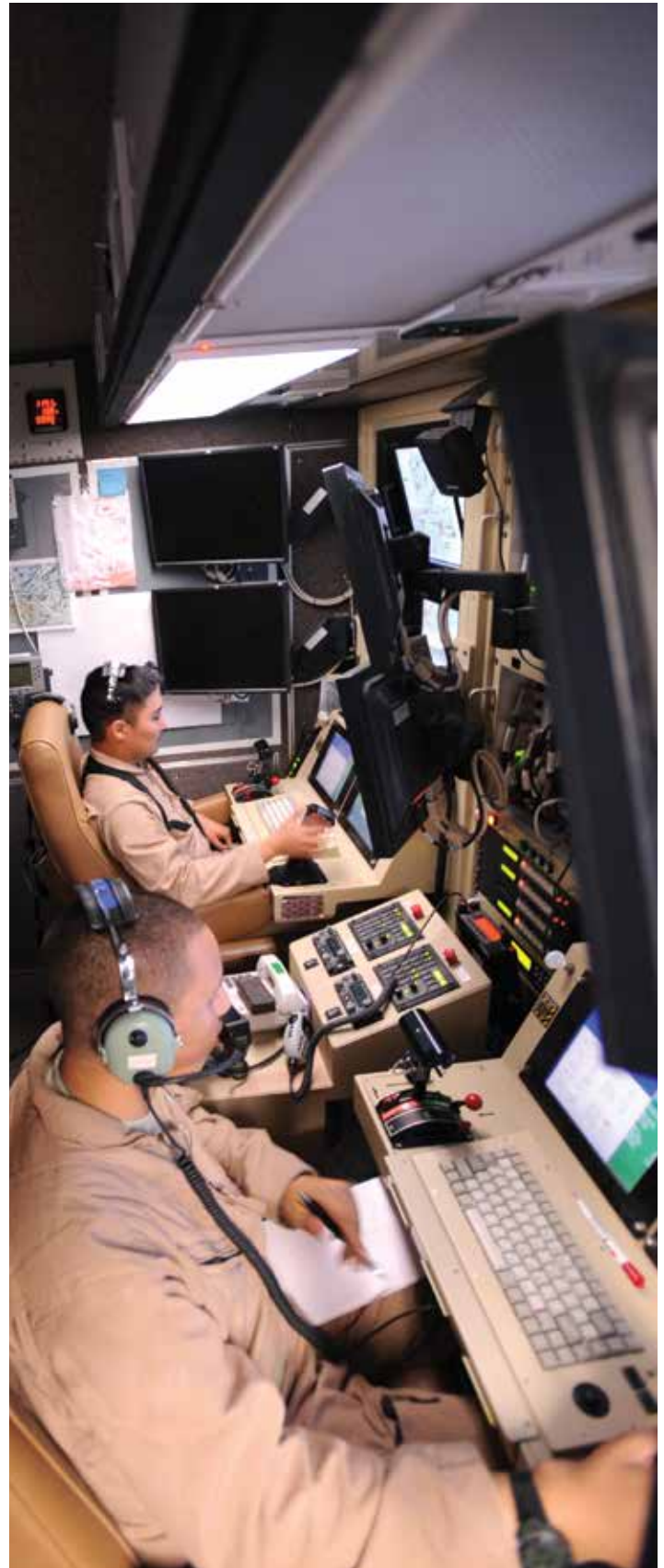
Organizing Committee

EXECUTIVE STEERING COMMITTEE

Jandria Alexander, Booz Allen Hamilton
Robert “Bob” Baker, Office of the Secretary of Defense
Hsiao-Hua Burke, MIT Lincoln Laboratory
Allison Cash, PeopleTec (*Forum Technical Program Chair*)
Mark Lewis, Institute for Defense Analyses
Kevin Massey, Raytheon Company (*Forum General Chair*)
Laura McGill, Raytheon Company (*Forum Executive Chair*)
Anthony “Tony” Mitchell, BAE Systems Technology Solutions

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Joseph McMorrow, Center for Countermeasures
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Michael White, Johns Hopkins University Applied Physics Laboratory
Omar (Nick) Yakaboski, U.S. Air Force



DEFENSE FORUM

EXECUTIVE STEERING COMMITTEE 2018 AIAA DEFENSE FORUM



Jandria Alexander
Booz Allen Hamilton



Robert "Bob" Baker
Office of the Secretary
of Defense



Hsiao-Hua Burke
MIT Lincoln Laboratory



Allison Cash
PeopleTec (Forum
Technical Program Chair)



Mark Lewis
Institute for Defense
Analyses



Kevin Massey
Raytheon Company
(Forum General Chair)



Laura McGill
Raytheon Company
(Forum Executive Chair)



Anthony "Tony" Mitchell
BAE Systems
Technology Solutions

Welcome to the 2018 AIAA Defense and Security Forum (AIAA DEFENSE Forum). We on the Executive Steering Committee are thrilled to be back at Johns Hopkins University Applied Physics Laboratory—the perfect venue for a forum such as this. With participants from across the aerospace community, we are confident that we will all come away with a better understanding of the complex state of our nation’s defense capabilities, challenges, programs, and systems.

This year it seems it’s all about speed and innovation. With the DoD’s renewed focus on increasing the speed—and shortening the time-to-market—for R&D, acquisition, and deployment, our current ways of doing business are evolving.

The AIAA DEFENSE Forum is focused on strategic, programmatic, technical topics and policy issues pertaining to aerospace, defense, and weapons systems. Leaders from U.S. government, military, industry, and academia can explore complex defense challenges and discuss solutions to these challenges and other national security issues in this secure environment. The intersection between defense policy and technical advancements will be examined during interactive and lively programmatic and technical discussions. Hypersonics, national security space, and cybersecurity trends, in particular, are sure to be the subject of a lot of discussions this year.

We think you will agree that the forum’s sessions facilitate conversations and collaboration among government leaders, civilian contractors, and academics as participants tackle some of the most important questions of the day including the current threat landscape and other areas that might flare-up in the near future. A full program of in-depth technical discussions will underscore the importance of these plenary sessions, providing an overview of, and drilldown on, the state of the art in national defense strategies, systems, and technologies. AIAA DEFENSE Forum provides opportunities to consider cutting-edge, classified, technical research presentations and insightful conversations about how to bolster our nation’s defensive posture.

Everyone involved in the planning of AIAA DEFENSE Forum has worked hard 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 being a part of this important gathering.

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AIAA would like to thank the following sponsors for their support of the 2018 AIAA DEFENSE Forum

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Forum Overview

	TUESDAY, 8 MAY	WEDNESDAY, 9 MAY	THURSDAY, 10 MAY	FRIDAY, 11 MAY
0730 hrs	Networking Coffee Break	Networking Coffee Break	Networking Coffee Break	Coffee and Donuts
0800 hrs	Welcome and Introductions Opening Plenary <i>Department of Defense Perspective</i>	Morning Plenary <i>National Space Council Perspective</i>	Morning Plenary <i>Conventional Prompt Strike Flight Experiment 1 (FE-1) Panel</i>	Aerospace Survivability Short Course continued <i>separate registration required</i>
0830 hrs				
0900 hrs				
0930 hrs	Networking Coffee Break	Networking Coffee Break	Networking Coffee Break	
1000 hrs	Technical Sessions: <i>ICT-01: Innovative Concepts & Technologies I</i> <i>MD-01: Missile Defense I</i> <i>SDA-01: System and Decision Analysis for National Security</i> <i>WSE-01: Test and Evaluation</i>	Technical Sessions: <i>AP-02: Advanced Prototypes I</i> <i>SMS-02: Sea-Based Strategic Missile Systems: Systems and Concepts</i> <i>WSE-02: Modeling and Simulation I</i>	Technical Sessions: <i>HYP-02: Hypersonics II</i> <i>HYP-03: Hypersonics III</i> <i>SMS-04: Ground-Based Strategic Missile Systems: Modeling & Analysis</i> <i>WSE-04: Modeling and Simulation II</i>	
1030 hrs				
1100 hrs				
1130 hrs				
1200 hrs	Lunch	Lunch		
1230 hrs				
1300 hrs	Technical Sessions: <i>AP-01: Advanced Prototypes I</i> <i>DEW-01: Directed Energy Weapons</i> <i>ICT-02: Innovative Concepts & Technologies II</i> <i>SMS-01: Ground-Based Strategic Missile Systems: Technology</i>	Technical Sessions: <i>HYP-01: Hypersonics I</i> <i>MD-02: Missile Defense II</i> <i>SMS-03: Sea-Based Strategic Missile Systems: Technologies</i> <i>WSE-04 Weapon Systems Performance</i>	Aerospace Survivability Short Course <i>separate registration required</i>	
1330 hrs				
1400 hrs				
1430 hrs				
1500 hrs				
1530 hrs	Networking Coffee Break	Networking Coffee Break		
1600 hrs	Afternoon Plenary <i>Defense Innovation Panel</i>	Afternoon Plenary <i>Resilient Space Communications Panel</i>		
1630 hrs				
1700 hrs				
1730 hrs				
1800 hrs	Welcome Reception			
1830 hrs				

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Plenary Sessions

TUESDAY, 8 MAY

0800-0930 HRS

AUDITORIUM

Opening Keynote

Come hear about priorities and ideas for innovation for the DoD, including strategies for hypersonics technology and missile defense development.

Michael D. Griffin, Under Secretary of Defense for Research and Engineering, Department of Defense

1600-1730 HRS

AUDITORIUM

Defense Innovation Panel

The Defense Innovation Panel will build on the opening keynote with discussions from those directly responsible for implementing defense innovative projects. Hear how these leaders plan to implement the vision for the future, and the new approaches they will take to make the vision a reality.

MODERATOR: Kevin Massey, Director, U.S. Business Development S&T, Raytheon Company

PANELISTS:

Tambrein Bates, Director, SOFWERX

Charles Beames, Executive Chairman and Chief Strategy Officer, York Space Systems

Col. David Robinson, U.S. Army, Senior Service Lead, DIUx

Scott Savoie, Senior Vice President, Contract & Procurement, Advanced Technology International

WEDNESDAY, 9 MAY

0800-0930 HRS

AUDITORIUM

Keynote Address

Gain insights into the ongoing deliberations of the National Space Council. Areas of discussion may include the efforts to highlight the importance of space as a warfighting domain, how government agencies are working together to increase the tempo of innovation, and the future vision for the national security space community.

Scott Pace, Executive Secretary, National Space Council

1600-1730 HRS

AUDITORIUM

Resilient Space Communications Panel

Featuring discussions on mitigation of cyber threats, protection of space ground infrastructure, space control experiments, and mitigation of jamming and detection threats.

MODERATOR: Scott Stadler, Head of the Communication Systems Division, MIT Lincoln Laboratory

PANELISTS:

Lawrence "Robbie" Robertson, Principal Research Aerospace Engineer, Space Vehicles Directorate, Air Force Research Laboratory

Merri Sanchez, Principal Advisor, Systems Engineering Division, Engineering Technology Group, The Aerospace Corporation

Leonard "Len" Schiavone, Mission Area Technology Director, Space and Airborne Systems, Raytheon Company

Michele Schuman, Group Leader for Advanced Satcom Systems & Operations, MIT Lincoln Laboratory

Angela Wallace, Vice President, Booz Allen Hamilton

THURSDAY, 10 MAY

0800-0930 HRS

AUDITORIUM

Conventional Prompt Strike Flight Experiment 1 Overview

This panel will provide an overview of Conventional Prompt Strike, and discussions on FE-1 Overview from the perspective of the U.S. Navy, FE-1 Range Operations from the perspective of the Army, as well as a discussion on Conventional Prompt Strike from the technology perspective.

MODERATOR: Gary Polansky, Integrated Military Systems, Sandia National Laboratories

PANELISTS:

Col. David Buchanan, Conventional Prompt Strike Program Manager, OSD/A&S/Space, Strategic and Intelligence Systems

David Plummer, Center Director, Integrated Military Systems, Sandia National Laboratories

Robert Strider, Army CPS Program Manager, U.S. Army Space and Missile Defense Command

Len Zentz, Navy CPS Program Manager, U.S. Navy Strategic System Programs

General and Security Information

Meeting Site

The forum is being held at the Kossiakoff Center located on the Johns Hopkins University Applied Physics Laboratory campus.

AIAA Registration and Information Center Hours

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

Tuesday, 8 May	0700–1830 hrs
Wednesday, 9 May	0700–1800 hrs
Thursday, 10 May	0700–1500 hrs

Parking

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

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 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. aiaa.org/member

Nondiscriminatory Practices

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



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

Security Restrictions

Electronic devices or electronic equipment of any kind—including cell phones, radios, personal fitness devices, PDAs, laptops, tablets, cameras, video/audio recording equipment, and two-way pagers and devices—are NOT 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 forum 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 forum area. Please leave these items in your car or hotel as storage is not available at the Kossiakoff 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.



American Institute of Aeronautics and Astronautics

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Sessions at a Glance

ABBREVIATION	TITLE	DATE	START TIME	LOCATION
Advanced Prototypes				
6-AP-1	Advanced Prototypes I	8-May	1300 hrs	Room 7/8
12-AP-2	Advanced Prototypes II	9-May	1000 hrs	Room 7/8
Directed Energy Weapons				
7-DEW-1	Directed Energy Weapons	8-May	1300 hrs	Room 3/4
Hypersonics				
15-HYP-1	Hypersonics I	9-May	1300 hrs	Auditorium
21-HYP-2	Hypersonics II	10-May	1000 hrs	Auditorium
22-HYP-3	Hypersonics III: Conventional Prompt Strike	10-May	1000 hrs	Room 7/8
Innovative Concepts and Technologies				
2-ICT-1	Innovative Concepts & Technologies I	8-May	1000 hrs	Room 5/6
8-ICT-2	Innovative Concepts & Technologies II	8-May	1300 hrs	Room 5/6
Missile Defense				
3-MD-1	Missile Defense I	8-May	1000 hrs	Auditorium
16-MD-2	Missile Defense II	9-May	1300 hrs	Room 3/4
Systems and Decision Analysis for National Security				
4-SDA-1	System and Decision Analysis for National Security	8-May	1000 hrs	Room 3/4
Strategic Missile Systems: Ground Based and Sea Based				
9-SMS-1	Ground-Based Strategic Missile Systems I: Technology	8-May	1300 hrs	Auditorium
13-SMS-2	Sea-Based Strategic Missile Systems I: Systems and Concepts	9-May	1000 hrs	Auditorium
17-SMS-3	Sea-Based Strategic Missile Systems II: Technologies	9-May	1300 hrs	Room 5/6
23-SMS-4	Ground-Based Strategic Missile Systems II: Modeling & Analysis	10-May	1000 hrs	Room 3/4
Weapon Systems Effectiveness				
5-WSE-1	Weapon Systems Effectiveness - T&E	8-May	1000 hrs	Room 7/8
14-WSE-2	Weapon Systems Effectiveness - M&S I	9-May	1000 hrs	Room 3/4
24-WSE-3	Weapon Systems Effectiveness - M&S II	10-May	1000 hrs	Room 5/6
18-WSE-4	Weapon Systems Performance	9-May	1300 hrs	Room 7/8



Program

Tuesday	
Tuesday, 8 May 2018	
1-PLNRY-1 0800 - 0930 hrs	Opening Plenary Michael D. Griffin Under Secretary of Defense for Research and Engineering Department of Defense
Auditorium	
Tuesday, 8 May 2018	
2-ICT-1	
Innovative Concepts & Technologies I	
Chaired by: U. SHANKAR, The Johns Hopkins University Applied Physics Laboratory and M. FRIEDLANDER, Aerojet Rocketdyne	
1000 hrs AIAA-Defense2018-9000 Distributed Control of Sensors in a Robotic Swarm B. O'Connor, M. Rutschmann, A. Probe, E. Piron, A. Ard, T. Wheatley, Emergent Space Technologies, Inc., Austin, TX	1030 hrs AIAA-Defense2018-9001 Conceptual Study to Establish the Feasibility and Utility of Hypersonically Deployed Aerial Electronics Packages with Applications Across the Defense Sector. A. Sanders, Johns Hopkins University Applied Physics Laboratory, Laurel, MD
1100 hrs AIAA-Defense2018-9002 Design and Experimental Characterization of an Exo-Atmospheric Jet Vane Thrust Vector Control System for High-Enthalpy Environments D. Frederick, Sandia National Laboratories, Albuquerque, NM; T. Hendricks, Exo-Atmospheric Technologies, LLC, Oconomowoc, WI	1130 hrs AIAA-Defense2018-9003 Projectile Deployed Sensor for Battle Damage Assessment R. Heisler, Johns Hopkins University Applied Physics Laboratory, Laurel, MD
Room 5/6	
Tuesday, 8 May 2018	
3-MD-1	
Missile Defense I	
Chaired by: R. GAMBLE, QuantTech Corporation and D. FOX, Orbital ATK	
1000 hrs AIAA-Defense2018-9004 Recent Ballistic Missile Threat Observations J. Coombs, B. Sheeks, Lincoln Laboratory, Massachusetts Institute of Technology, Lexington, MA	1030 hrs AIAA-Defense2018-9005 Optical Data Collection and Analysis E. Peterson, J. Vornheim, D. Hunter, Lincoln Laboratory, Massachusetts Institute of Technology, Lexington, MA
1100 hrs AIAA-Defense2018-9006 Detection and Tracking of Missile Targets Against Earth Background Using Space-Based IR Sensors S. Hsu, H. Burke, T. Cheng, J. Ohazo, S. Prutzer, Lincoln Laboratory, Massachusetts Institute of Technology, Lexington, MA	1130 hrs AIAA-Defense2018-9007 Development of a Solar/Lunar Exclusion Test Capability to Complement Interceptor Sensor Testing in the AEDC Space Systems Test Facilities H. Lowry, S. Steely, National Aerospace Solutions, LLC, Arnold AFB, TN
Auditorium	
Tuesday, 8 May 2018	
4-SDA-1	
System and Decision Analysis for National Security	
Chaired by: J. LAFFLEUR, Sandia National Laboratories	
1000 hrs AIAA-Defense2018-9008 A Rapid Nuclear Hedge Sizing and Analysis Tool B. Steinfieldt, Sandia National Laboratories, Livermore, CA	1030 hrs AIAA-Defense2018-9009 Text Mining of Military Readiness Data K. Townsend, S. Patton, C. Prescott, K. Bruns, J. Blackburn, Johns Hopkins University Applied Physics Laboratory, Laurel, MD
1100 hrs AIAA-Defense2018-9010 Insights into the Component Decision Making Process in Complex, High Reliability Systems: A Commonality Perspective B. Steinfieldt, J. Gilbride, Sandia National Laboratories, Livermore, CA; S. Templin, M. Wallace, U.S. Naval Academy, Annapolis, MD	1130 hrs AIAA-Defense2018-9011 Surveilling the US Stockpile: A Tour of Sandia National Laboratories' Weapon Evaluation Test Lab A. Garner, Sandia National Laboratories, Albuquerque, NM
Room 3/4	

Tuesday, 8 May 2018		Weapon Systems Effectiveness - T&E		Room 7/8
5-WSE-1	Chaired by: R. ADDIS, Lawrence Livermore National Laboratory and J. WALKER, Southwest Research Institute			
1000 hrs AIAA-Defense2018-9012 Integrating Data from System and Subsystems in Weapon System Test and Evaluation J. Spall, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1030 hrs AIAA-Defense2018-9013 March 18 Capability Upgrade to the AEDC Hypervelocity Wind Tunnel No. 9 J. Lafferty, Arnold Engineering Development Complex, Silver Spring, MD	1100 hrs AIAA-Defense2018-9014 GoTR: A Large-Scale Explosives Experiment to Generate Tailored Optical Signatures for Novel Sensor Validation J. Rudolph, N. Kolb, Sandia National Laboratories, Albuquerque, NM	1130 hrs AIAA-Defense2018-9015 Post-Flight HFIRE-1 Ground Tests at Matching Freestream Conditions with Freestream Fluctuation Measurements for Hypersonic Flight Boundary Layer Transition Prediction T. Wadhams, CUBRC, Buffalo, NY	
Tuesday, 8 May 2018				
6-AP-1	Chaired by: A. SCOURAS, MIT Lincoln Laboratory and H. BURKE, MIT Lincoln Laboratory			Room 7/8
Advanced Prototypes I				
1300 hrs AIAA-Defense2018-9016 Low-Swap Thermal Management Enabled by Additive Manufacturing A. Scouras, Lincoln Laboratory, Massachusetts Institute of Technology, Lexington, MA	1330 hrs AIAA-Defense2018-9017 Adaptive Power System for Managing Large Dynamic Loads – Test Results T. Boehmer, D. Temkin, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1400 hrs AIAA-Defense2018-9018 Advanced Thermal Management for Airborne Prototype Systems W. Flaherty, R. Fontaine, Lincoln Laboratory, Massachusetts Institute of Technology, Lexington, MA	1430 hrs AIAA-Defense2018-9019 Frequency Agile Photonic Front End J. Kalkavage, N. Bos, R. Schmid, J. Song, T. Clark, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	
Tuesday, 8 May 2018				
7-DEW-1	Chaired by: M. NEICE			Room 3/4
Directed Energy Weapons				
1300 hrs AIAA-Defense2018-9020 HPM Interrogation with Detailed Diagnostics for cUAS Applications T. Fields, J. Reizelman, J. Lancaster, A. Canuso, University of Missouri-Kansas City, Kansas City, MO	1330 hrs AIAA-Defense2018-9021 AIAA Directed Energy Systems Integration (DESI) Committee Overview D. Miller, Lockheed Martin Corporation, Palmdale, CA	1400 hrs AIAA-Defense2018-9068 Directed Energy, Airborne Tech Transition G. Christy, The Boeing Company, St Louis, MO		
Tuesday, 8 May 2018				
8-ICT-2	Chaired by: R. GAMBLE, QuantifTech Corporation and U. SHANKAR, The Johns Hopkins University Applied Physics Laboratory			Room 5/6
Innovative Concepts & Technologies II				
1300 hrs AIAA-Defense2018-9022 Avatar: Realtime Point Cloud Data Collection, Control and Virtual Reality Visualization R. Mathur, A. Probe, T. Wheatley, B. O'Connor, Emergent Space Technologies, Inc., Laurel, MD	1330 hrs AIAA-Defense2018-9023 Department of Defense Weapon System Cost Savings Utilizing Innovative Acquisition Processes and Techniques D. McLellan, H. Razlansari, J. Laveman, 53rd Test Support Squadron, Tyndall AFB, FL	1400 hrs AIAA-Defense2018-9024 Next Generation Autonomous—Collaborative Strike K. Neace, R. Finlayson, Johns Hopkins University Applied Physics Laboratory, Laurel, MD		
Tuesday, 8 May 2018				
9-SMS-1	Chaired by: M. OLIVOS, Northrop Grumman Corporation and J. BEAN, ICBM Systems Directorate—Air Force Nuclear Weapon Center			Auditorium
Ground-Based Strategic Missile Systems I: Technology				
1300 hrs AIAA-Defense2018-9061 Thunderpipe Blast Wave Simulation Utilizing US3D J. Hilde, A. Benvenuto, Lockheed Martin Corporation, King of Prussia, PA	1330 hrs AIAA-Defense2018-9027 Minuteman III Integration Test Bed (ITB) Enhancements D. Hammel, D. Turner, Lockheed Martin Corporation, King of Prussia, PA	1400 hrs AIAA-Defense2018-9028 Software Defined Radio (SDR) Radar Systems M. Moran, T. Ward, Lockheed Martin Corporation, King of Prussia, PA		

Tuesday, 8 May 2018		Defense Innovation Panel		Auditorium	
10-PLNRY-2 1600 - 1730 hrs	<p>Panelists:</p> <p>Tambrein Bates Director SOFWERX</p> <p>Chuck Beames Executive Chairman & Chief Strategy Officer York Space Systems</p> <p>Col. David Robinson U.S. Army, Senior Service Lead DIIx</p> <p>Scott Savoie Senior Vice President, Contracts & Procurement Advanced Technology International</p>				
Wednesday					
Wednesday, 9 May 2018		Wednesday Morning Plenary		Auditorium	
11-PLNRY-3 0800 - 0930 hrs	<p>Panelists:</p> <p>Scott Pace Executive Secretary National Space Council</p>				
Advanced Prototypes II					
Wednesday, 9 May 2018		Advanced Prototypes II		Room 7/8	
Chaired by: A. SCOURAS, MIT Lincoln Laboratory and H. BURKE, MIT Lincoln Laboratory					
1000 hrs AIAA-Defense2018-9029 Additively Manufactured Heat Exchangers A. Norloff, Lincoln Laboratory, Massachusetts Institute of Technology, Lexington, MA	1030 hrs AIAA-Defense2018-9030 High-Bandwidth Maritime Link Demonstration using Laser Communications M. O'Toole, J. Jurez, D. Nicholas, K. Patel, J. Riggins, K. Souza, Johns Hopkins University Applied Physics Laboratory, Laurel, MD; et al.	1100 hrs AIAA-Defense2018-9031 Leveraging Augmented Reality to Experience Design Intelligence For Advanced Prototyping D. Hahne, A. Fagan, R. Bernardino, A. Tucker, B. Schreurs, N. DeMatr, Johns Hopkins University Applied Physics Laboratory, Laurel, MD; et al.	1130 hrs AIAA-Defense2018-9032 Reverse Engineering Embedded Firmware (REEF) Laboratory Case Study A. Roach, M. Balardi, M. Kay, Naval Surface Warfare Center, Crane, IN		
Wednesday, 9 May 2018					
13-SMS-2		Sea-Based Strategic Missile Systems I: Systems and Concepts		Auditorium	
Chaired by: S. VAN DYK, U.S. Navy Strategic Systems Programs and A. EDSALL, Draper Laboratory and D. WEAVER, Lockheed Martin Missiles & Fire Control					
1000 hrs AIAA-Defense2018-9033 System of Systems (SoS) Mission Modeling R. Wiseman, Naval Surface Warfare Center, Crane, IN	1030 hrs AIAA-Defense2018-9034 Quantitative Methods for Trade-Space Exploration C. Grubb, Systems Planning and Analysis, Inc., Alexandria, VA	1100 hrs AIAA-Defense2018-9035 Physics Based Threat Assessment W. Kahle, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1130 hrs AIAA-Defense2018-9036 Future of Strategic Deterrence: SSBN Based Fractionated Missiles M. Webber, Lockheed Martin Corporation, Sunnyvale, CA		
Wednesday, 9 May 2018					
14-WSE-2		Weapon Systems Effectiveness - M&I		Room 3/4	
Chaired by: O. YAKABOSKI, USAF AFMC and E. JEPSON, Raytheon Missile Systems					
1000 hrs AIAA-Defense2018-9037 SM-2 Intercept Debris Modeling in Multi-Missile Engagement G. Eisler, Johns Hopkins University Applied Physics Laboratory, Laurel, MD; A. Nelson, A. Corner, D. Chitwood, Covid Technologies, Inc., Mooresville, NC	1030 hrs AIAA-Defense2018-9038 PULSEbox: A High Fidelity, Real-Time, Certified-Threat Scene Generator P. Grossman, Systems Engineering Group, Inc., Columbia, MD	1100 hrs AIAA-Defense2018-9039 Coupled mission and system analysis using Multidisciplinary Design Analysis and Optimization M. Kenny, C. Wagner, M. Boff, Northrop Grumman Corporation, San Bernardino, CA			

Wednesday, 9 May 2018		Hypersonics I		Auditorium
Chaired by: A. KOTTAPALLI, Lockheed Martin Corporation and M. WHITE, Johns Hopkins University, Applied Physics Laboratory				
1300 hrs AIAA-Defense2018-9040 Experiments and Simulations of the Unsteady Flow in Forward Facing Cavities at Angles of Attack S. Wenz, C. Ward, J. Suh, E. Marquart, Raytheon Company, Tucson, AZ	1330 hrs AIAA-Defense2018-9041 Boundary-Layer Instability on a Slender Cone with Highly Swept Fins F. Turbeville, S. Schneider, Purdue University, West Lafayette, IN; N. Bitter, Sandia National Laboratories, Albuquerque, NM	1400 hrs AIAA-Defense2018-9042 Influence of the Conjugate Heating on the HIFRE-6 Internal Flow Path using High-Fidelity Simulations N. Bisek, Air Force Research Laboratory, Wright-Patterson AFB, OH	1430 hrs AIAA-Defense2018-9043 A Review of Current CUBRC/LENS Capabilities and Recent Ground Testing of Full Scale Hypersonic Missiles at Fully Duplicated Flight Conditions at Velocities from 3,000 to 14,000 ft/s in the LENS Hypervelocity Tunnels M. Holden, CUBRC, Buffalo, NY	
Wednesday, 9 May 2018				
16-MD-2				
Chaired by: R. GAMBLE, QuantTech Corporation and A. SCOURAS, MIT Lincoln Laboratory				
1300 hrs AIAA-Defense2018-9046 Space Based Interceptor Assessment C. Krenke, J. Gans, Lincoln Laboratory, Massachusetts Institute of Technology, Lexington, MA	1330 hrs AIAA-Defense2018-9047 BPI Defeat of Nuclear EMP by Adding Interceptors to Airborne ISR L. Corvey, Corvey Tech, LLC, Dunkirk, MD; M. Salim, SRM Consulting, LLC, Sun Lakes, AZ	1400 hrs AIAA-Defense2018-9048 Novel munition design for low-collateral damage weapons M. Anderson, K. Teope, U.S. Air Force Academy, Colorado Springs, CO		
Wednesday, 9 May 2018				
17-SMS-3				
Chaired by: S. VAN DYK, U.S. Navy Strategic Systems Programs and A. EDSALL, Draper Laboratory and D. WEAVER, Lockheed Martin Missiles & Fire Control				
1300 hrs AIAA-Defense2018-9049 Trident D5 Optimized Aerospike Design Performance Study P. Bhandari, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1330 hrs AIAA-Defense2018-9050 An Optical Phased Array Star Tracker B. Lane, S. Spector, J. Laine, H. Clevenston, L. Benney, J. Brown, Draper Laboratory, Cambridge, MA	1400 hrs AIAA-Defense2018-9051 Evaluation of the Inherent Radiation Tolerance of State-of-the-Art Commercial-Off-the-Shelf Microelectronics M. Godlage, M. Kay, A. Duncan, A. Roach, A. Williams, D. Bruce, Naval Surface Warfare Center, Crane, IN; et al.	1430 hrs AIAA-Defense2018-9052 Investigating organizational radiation effects test facility infrastructure capacity in a constrained environment M. Halstead, Naval Surface Warfare Center, Crane, IN	
Wednesday, 9 May 2018				
18-WSE-4				
Chaired by: O. YAKABOSKI, USAF AFMC and P. DUNN, Thornton Tomasetti Weidlinger Applied Science				
1300 hrs AIAA-Defense2018-9053 A Novel, Extensible Software Architecture for End-Game Lethality Analysis R. Parks, Missile Defense Agency, Huntsville, AL; A. Cash, B. Mitchell, D. Hyams, PeopleIec, Inc., Huntsville, AL	1330 hrs AIAA-Defense2018-9054 A Combined Experimental/Computational Program for Predicting Complex Damage Scenes with Fast-Running Models D. Elliott, Army Aviation and Missile Research Development and Engineering Center, Huntsville, AL; A. Cash, B. Mitchell, D. Hyams, PeopleIec, Inc., Huntsville, AL	1400 hrs AIAA-Defense2018-9055 Small Diameter Bomb II Testing and Evaluation Procedures and Methodologies C. Sircar, 780th Flight Test Squadron, Eglin AFB, FL	1430 hrs AIAA-Defense2018-9056 Employing the Unique Characteristics of the BLU-129/B A. Paulsen, Lawrence Livermore National Laboratory, Livermore, CA	

Wednesday, 9 May 2018		Resilient Space Communications Panel		Auditorium
19-PLNRY-4 1600 - 1730 hrs	Moderator: Scott Stadler, MIT Lincoln Laboratory Panelists: Lawrence "Robbie" Robertson Principal Research Aerospace Engineer Space Vehicles Directorate Air Force Research Laboratory Merrri Sanchez Principal Advisor Systems Engineering Division Engineering Technology Group The Aerospace Corporation Leonard "Len" Schiavone Mission Area Technology Director Space and Airborne Systems Raytheon Company Michele Schuman Group Leader Advanced Satcom Systems & Operations MIT Lincoln Laboratory Angela Wallace Vice President Booz Allen Hamilton			
Thursday				
Thursday, 10 May 2018		Conventional Prompt Strike Flight Experiment One (FE-1)		Auditorium
20-PLNRY-5 0800 - 0930 hrs	Moderator: Gary Polonsky, Integrated Military Systems, Sandia National Laboratories Panelists: Col. David Buchanan Conventional Prompt Strike Program Manager OSD/A&S/Space, Strategic and Intelligence Systems David Plummer Center Director Integrated Military Systems Sandia National Laboratories Robert Strider Army CPS Program Manager US Army Space and Missile Defense Command Len Zentz Navy CPS Program Manager US Navy Strategic System Programs			
Thursday, 10 May 2018				
21-HYP-2		Hypersonics II		Auditorium
Chaired by: A. KOTIAPALLI, Lockheed Martin Corporation and M. WHITE, Johns Hopkins University, Applied Physics Laboratory				
1000 hrs AIAA-Defense 2018-9057 The Need for Speed D. Van Wie, D. Wilkening, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1030 hrs AIAA-Defense 2018-9058 Turbine Based Combined Cycle Hypersonic Platform J. Smith, Johns Hopkins University Applied Physics Laboratory, Laurel, MD; A. Cowling, NASA Langley Research Center, Hampton, VA; S. D'Alessio, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1100 hrs AIAA-Defense 2018-9059 Development of the Tactical Boost Glide Government Reference Vehicle J. Carson, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1130 hrs AIAA-Defense 2018-9060 Development and Application of Hypersonic Aerothermodynamic Signature Prediction Tools T. Deschenes, J. Quenneville, J. Grot, J. Cline, Spectral Sciences, Inc., Burlington, MA	
Thursday, 10 May 2018		Hypersonics III: Conventional Prompt Strike		Room 7/8
1. FE-1 Aerodynamics and Flight Mechanics Marc Kniskern, Tucker Lavin, and Chris Bruner Sandia National Laboratories Jim Keenan US Army Aviation and Missile Research, Development, and Engineering Center				
2. FE-1 Navigation Subsystem Design and Performance Shan Mohiuddin, Anthony Bogner, and Robert Grace Charles Stark Draper Laboratory				
3. FE-1 Glide Body Guidance and Control Flight Performance Julie Parish, Jason Firth, and David Kozlowski Sandia National Laboratories				
4. FE-1 TPS Performance Overview Bruce Moylan and Carter Johnson US Army Aviation and Missile Research, Development, and Engineering Center				

Thursday, 10 May 2018		Ground-based Strategic Missile Systems II: Modeling & Analysis		Room 3/4
Chaired by: M. OLMOS, Northrop Grumman Corporation and J. BEAN, ICBM Systems Directorate - Air Force Nuclear Weapon Center				
1000 hrs AIAA-Defense2018-9026 Aging Effects on ICBM Reentry System Components D. Vacek, Lockheed Martin Corporation, King of Prussia, PA	1030 hrs AIAA-Defense2018-9062 MK21 Hostile Environment Analysis using Finite Element Analysis (FEA) T. Bitzer, Lockheed Martin Corporation, King of Prussia, PA	1100 hrs AIAA-Defense2018-9063 Computation of Dynamic Derivative Using Computational Fluid Dynamics M. Lively, Northrop Grumman Corporation, San Bernardino, CA	1130 hrs AIAA-Defense2018-9064 Development of the aerodynamic database for a flight vehicle using high-fidelity CFD simulation of the vehicle rigid body motion R. Hariharan, M. Olmos, Northrop Grumman Corporation, San Bernardino, CA	
Thursday, 10 May 2018				
24-WSE-3		Weapon Systems Effectiveness - M&S II		Room 5/6
Chaired by: R. ADDIS, Lawrence Livermore National Laboratory and P. DUNN, Thornton Tomasetti Weidlinger Applied Science				
1000 hrs AIAA-Defense2018-9065 Threat Analysis of an Emerging Ballistic Missile System M. Ferguson, H. Teplitz, Systems Engineering Group, Inc., Columbia, MD	1030 hrs AIAA-Defense2018-9066 Hypersonic Threat Defense Performance Analysis, Modeling and Simulation J. Uzdziński, S. Hobohm, R. Null, T. Roy, T. Stevens, Lockheed Martin Corporation, Arlington, VA	1100 hrs AIAA-Defense2018-9067 Additive manufacturing of energetic materials K. Sullivan, J. Gambino, A. Cash, H. Springer, Lawrence Livermore National Laboratory, Livermore, CA		

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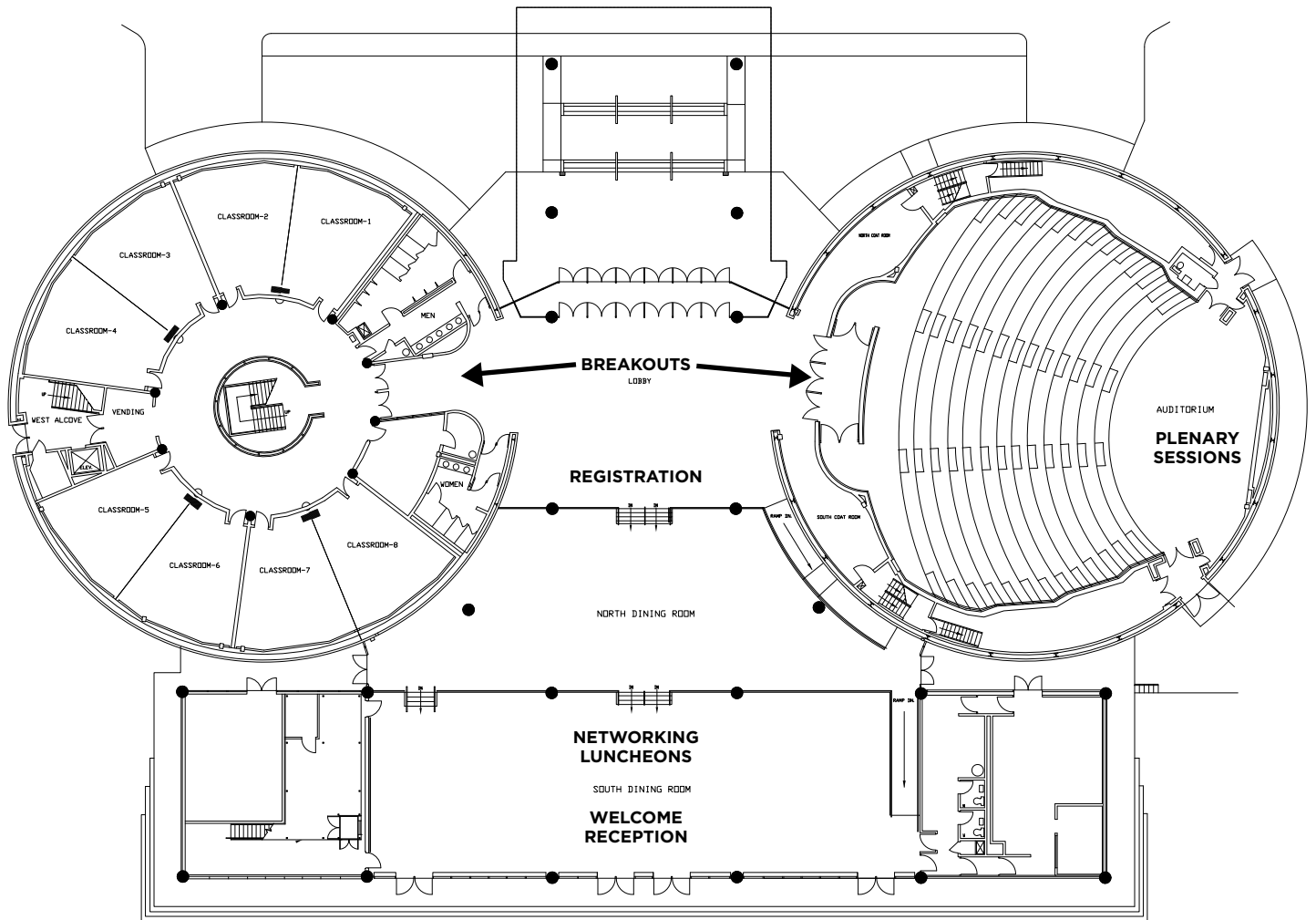
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