STRATEGIC COMPETITION:
IN IT TO WIN IT

DEFENSE FORUM

11–13 APRIL 2023 | LAUREL, MD

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WELCOME TO DEFENSE FORUM

The 2023 AIAA DEFENSE Forum Executive Steering Committee (ESC) and Technical Program Committee (TPC) are excited to welcome you to the AIAA DEFENSE Forum. We have worked hard to put together the high-level, technical and in-depth discussions centered around the theme **STRATEGIC COMPETITION: IN IT TO WIN IT**. We hope the program, the defense industry leaders, topics, and discussions inspire you.

We welcome your feedback! Should you have any questions or comments, please see the AIAA staff at the registration desk, or talk with any of the ESC or TPC members. Enjoy the forum and make it a great week!

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AIAA SHAPING THE FUTURE OF AEROSPACE

The American Institute of Aeronautics and Astronautics (AIAA) is the world's largest aerospace technical society. With nearly 30,000 individual members from 91 countries, and 100 corporate members, AIAA brings together industry, academia, and government to advance engineering and science in aviation, space, and defense. For more information, visit aiaa.org, or follow us on Twitter @AIAA.

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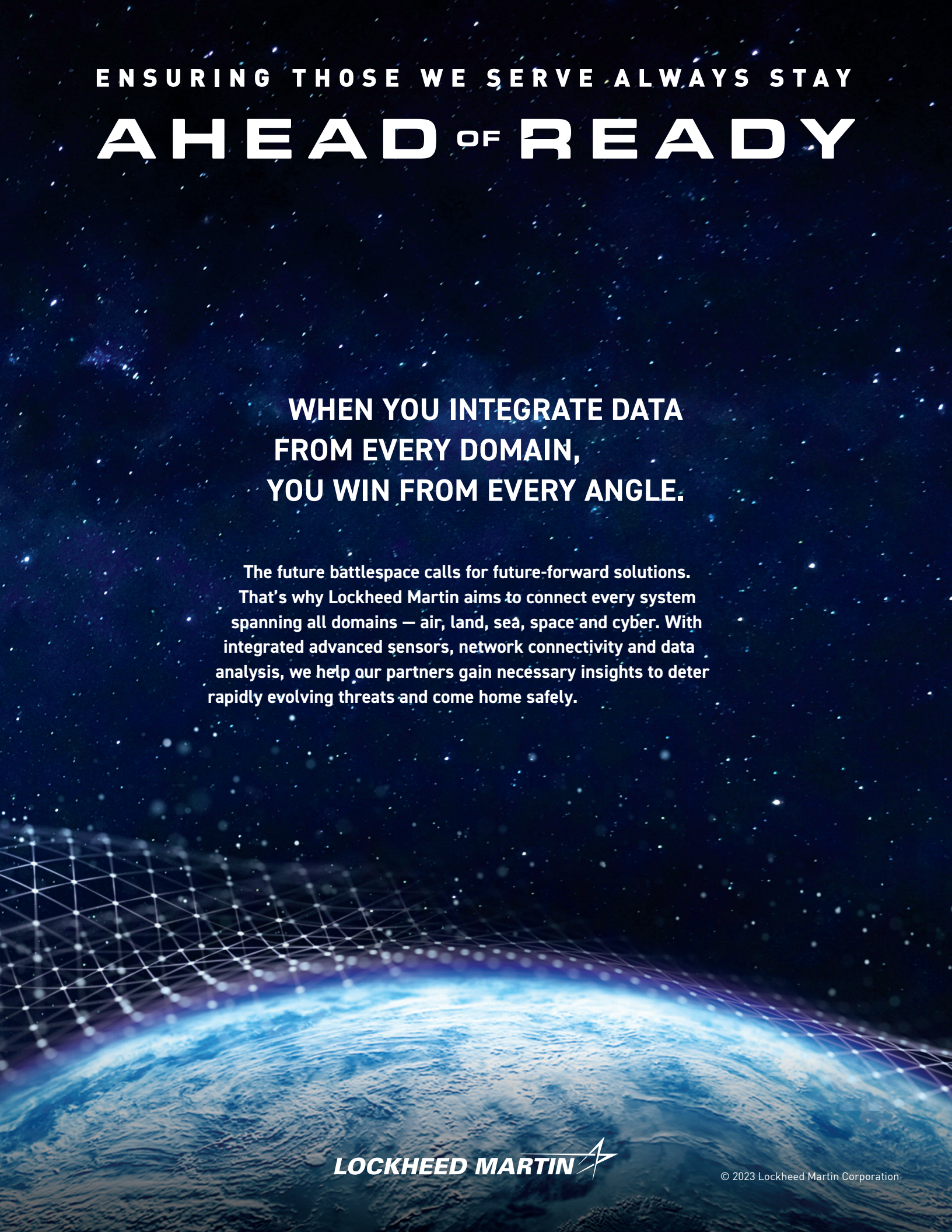
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FORUM OVERVIEW

	TUESDAY 11	WEDNESDAY 12	THURSDAY 13	FRIDAY 14
0730 hrs	Continental Breakfast	Continental Breakfast	Continental Breakfast	Continental Breakfast
0800 hrs	Keynote China: Growing Defense Threat Keynote Thomas Browning	Keynote Panel: Hypersonics Leaders	Keynote: Lessons Learned from Ukraine Christine Michienzi Keynote: Pivoting to INDOPACOM Thomas Wiley	Aerospace Survivability Course 0800–1700 *SECRET/NoForn* ***Separate Registration Required*** ***Please see the AIAA Registration Desk for details and questions.***
0830 hrs				
0900 hrs				
0930 hrs	Networking Coffee Break	Networking Coffee Break	Networking Coffee Break	
1000 hrs	AMD01: Air & Missile Defense I SDA01: System and Decision Analysis for National Security SMS01: Strategic Missile Systems I - Engineering SYS01: Space Access and Space Systems I WSE01: System Performance, Modeling and Simulation I	AP01: Advanced Prototypes DEW01: High Energy Laser Lethality HYP01: High-Maneuverability and Hypersonic Systems and Technologies I SMS03: Strategic Missile Systems III - Lifecycle Considerations WSE03: Test and Evaluation	AUT02: Autonomy, Collaborative Engagement and Machine Intelligence II DEW03: AFRL SHiELD Test Results GNC01: Guidance, Navigation, Control and Estimation I HYP03: High-Maneuverability and Hypersonic Systems and Technologies III TAC01: Tactical Missiles I	
1030 hrs				
1100 hrs				
1130 hrs				
1200 hrs	Lunch Available	Lunch Available	Lunch Available	
1230 hrs				
1300 hrs	AMD02: Air & Missile Defense II SMS02: Strategic Missile Systems II - GN&C SUR01: Survivability SYS02: Space Access and Space Systems II WSE02: Morphing Weapon System Development	AUT01: Autonomy, Collaborative Engagement and Machine Intelligence I DEW02: High Energy Laser Technologies HYP02: High-Maneuverability and Hypersonic Systems and Technologies II SMS04: Strategic Missile Systems IV - Flight Dynamics WSE04: System Performance, Modeling and Simulation II	AUT03: Autonomy, Collaborative Engagement and Machine Intelligence III HYP04: High-Maneuverability and Hypersonic Systems and Technologies IV DEW04: HEL on ICE GNC02: Guidance, Navigation, Control and Estimation II TAC02: Tactical Missiles II	
1330 hrs				
1400 hrs				
1430 hrs				
1500 hrs				
1530 hrs	Networking Coffee Break	Networking Coffee Break	Keynote Panel: Acquisition Success Stories	
1600 hrs	Keynote Panel: Out-Innovating Our Competitors	Keynote Panel: Building and Transitioning Enduring Advantages Through Science and Technology		
1630 hrs				
1700 hrs				
1730 hrs	Networking Reception	AIAA Rising Leaders Happy Hour Kloby's Smokehouse Laurel, MD		
1800 hrs				
1830 hrs				
1900 hrs				

GROW Technical Career Development

CONNECT Networking

DISCOVER High Level

GENERAL & SECURITY INFORMATION

Keeping you safe at AIAA DEFENSE Forum

By registering for this event, you agree to adhere to any health and safety requirements in place now or adjusted between now and during the event imposed by a governmental authority, the event facility, or AIAA.

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You agree to not attend this or any AIAA event, and you agree to promptly depart any event at which you are already in attendance, if you feel ill or had recent exposure to a COVID-19 case.

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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 or higher verified by the Security Office Coordinator.

Security Badge

A security conference badge 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. Badges and a photo ID will be checked prior to entering any restricted areas of 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.

PROCEEDINGS AND JOURNAL ARTICLES

AIAA and the Defense Technical Information Center (DTIC) are excited to offer two opportunities for you to publish your work from the forum:

1. Conference Proceedings

DTIC will share proceedings from the AIAA DEFENSE Forum on a separate DTIC webpage dedicated to the forum (page creation by DoD Techipedia). More than 750,000 users access information available on the DTIC website.

- Presentations must be submitted directly to DTIC; go to **https://discover.dtic.mil/submit-documents/** and follow the instructions.
  - Once materials have been successfully submitted, you will receive an accession number from DTIC
  - Please provide the accession number to AIAA: email **tobeyj@aiaa.org**
- Timeline:
  - Presentations due to DTIC: COB 5 May 2023
  - Proceedings will be available in early June

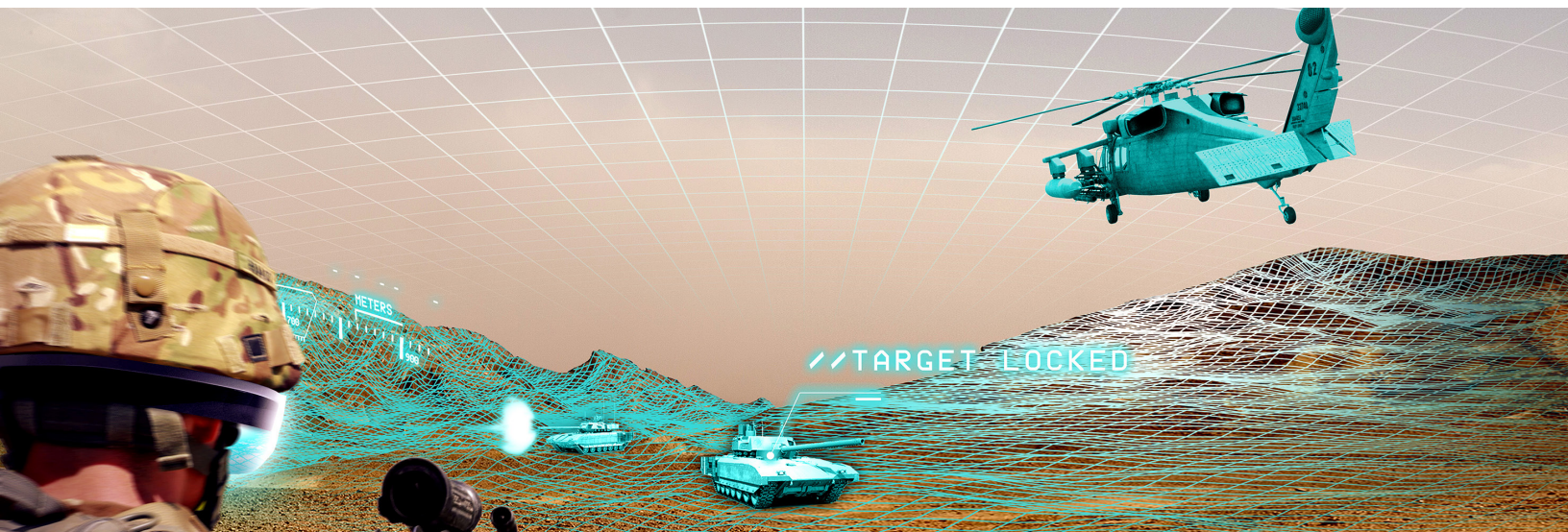
2. Journal of DoD Research and Engineering (JDR&E)

AIAA DEFENSE presenters are encouraged to submit their classified and controlled unclassified research to the Journal of DoD Research and Engineering (JDR&E). JDR&E ensures rigorous peer review of all published scientific research in technical research areas that advance the development of priority technologies and support the department's focus on building a more lethal force. It is available to authorized users across the U.S. government, particularly the Department of Defense (DoD). As a secure and controlled-access publication, the JDR&E protects militarily critical innovations while building connections throughout the DoD research and engineering community. The journal is distributed to more than 65,000 DTIC users.

- All submitters must be registered before submission (**https://reg.dtic.mil/DTICRegistration/rejournal**).
- To submit a NIPR article, visit the JDR&E Workflow at **https://rejournal.dtic.mil/journal/faces/idea/viewIdeaList.faces**.
- To submit a SIPR article, visit the JDR&E classified site at **https://www.dodtechipedia.smil.mil/dodwiki/x/HgAFD**.

To participate, or if you have any questions, contact **tobeyj@aiaa.org**.

Image courtesy Raython Technologies



KEYNOTE SESSIONS

All sessions are in the Auditorium.

TUESDAY, 11 APRIL

0800–0845 hrs

Keynote: China: Growing Defense Threat

SPEAKER: Senior Defense Intelligence Analyst, China Mission Group, Defense Intelligence Agency

0845–0930 hrs

Keynote

SPEAKER: **Thomas Browning,** Deputy Chief Technology Officer for Mission Capabilities, Office of the Under Secretary of Defense for Research and Engineering

1600–1730 hrs

Keynote Panel: Out-Innovating Our Competitors

MODERATOR: **Laura McGill**, Deputy Laboratories Director, Nuclear Deterrence and Chief Technology Officer, Sandia National Laboratories

PANELISTS:

Kevin Cohen, Special Advisor, U.S. European Command

Martin Lindsey, Science and Technology Division Chief (J85), U.S. Indo-Pacific Command

Lisa R. Sanders, Director, Science and Technology for Special Operations Forces, Acquisition, Technology and Logistics, U.S. Special Operations Command

Donna Cowell Senft, Chief Scientist, Air Force Global Strike Command

WEDNESDAY, 12 APRIL

0800–0930 hrs

Keynote Panel: Hypersonics Leaders

MODERATOR: **Mark Lewis**, Executive Director, Emerging Technologies Institute, National Defense Industrial Association

PANELISTS:

Glenn Case, Founder and Chief Technology Officer, Hermeus

Dennis Helmich, Director, Integrated Military Systems, Sandia National Laboratories

John Otto, Senior Director, Advanced Hypersonic Weapons, Raytheon Missiles and Defense

Kerri Phillips, Chief Scientist, Air and Missile Defense Sector, Johns Hopkins University Applied Physics Laboratory

Robie Samanta Roy, Senior Advisor to Stratolaunch

1600–1730 hrs

Keynote Panel: Building and Transitioning Enduring Advantages Through Science and Technology

MODERATOR: **Katherine Rink**, Head of the Air, Missile, and Maritime Defense Technology Division, MIT Lincoln Laboratory

PANELISTS:

Timothy J. Bunning, Chief Technology Officer, Air Force Research Laboratory

CAPT Randy Cruz, USN, Assistant Chief of Naval Research

THURSDAY, 13 APRIL

0800–0845 hrs

Keynote: How the Battlefield Is Changing: Lessons Learned from Ukraine

SPEAKER: **Christine Michienzi**, Senior Technology Advisor to the Under Secretary of Defense for Acquisition and Sustainment

0845–0930 hrs

Keynote: Pivoting to INDOPACOM

SPEAKER: **Thomas Wiley**, Senior Director, Advanced Integrated Mission Solutions, Raytheon Missiles & Defense

1530–1700 hrs

Keynote Panel: Acquisition Success Stories

MODERATOR: **Tony Mitchell**, Vice President, Advanced Technology and Strategy, CAES

PANELISTS:

Lisa Henke, Deputy General Manager and Senior Technical Director, Air and Space Programs, Maxar

Andrew Nuss, Program Manager, DARPA Tactical Technology Office

Sandip "Sonny" Sarkar, Air and Space Lead, Palantir

DEFENSE MEETINGS

All committee meetings will be held in the Kossiakoff Center Classrooms.

WEDNESDAY, 12 APRIL

1800 hrs

Missile Systems TC

POC: **Dustin Otten**
dustin.otten@lmco.com

1830 hrs

Airborne Directed Energy Systems IOC

POC: **Dale Parkes**
dale.a.parkes@boeing.com

1830 hrs

Weapons Systems Effectiveness TC

POC: **Tim Wadhams**
wadhams@cubrc.org

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SCITECH FORUM

8–12 JANUARY 2024 | ORLANDO, FL

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The world's largest event for aerospace R&D is returning to Orlando to redefine what is possible in our industry. The Call for Content is your opportunity to leave your mark on the forum. Submit a paper or propose a collaborative session today.

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- Applied Aerodynamics
- Fluid Dynamics
- Guidance, Navigation, and Control
- Intelligent Systems
- Propellants and Combustion

ANSWER THE CALL

The Call for Content closes 25 May 2023, 2000 hrs ET

aiaa.org/scitech/content

2024 AIAA DEFENSE FORUM CALL FOR PRESENTATIONS

Call for presentations opens 15 May 2023 and closes 17 August 2023.

To view the full call for presentations, please visit aiaa.org/defense.
Additional topics, and session volunteers, are welcome.
Email tobeyj@aiaa.org

ADVANCED PROTOTYPES

Innovative engineering solutions are necessary to field advanced systems that provide the DoD with new and improved capabilities in both modern and future mission spaces. Novel approaches to thermal management, structural and aerodynamic design, power and control devices, optics, manufacturing processes, and other related areas can help make conceptual systems a reality. Briefings are solicited for a session highlighting hardware; the engineering, manufacturing, and assembly challenges associated with building and fielding advanced prototypes in areas of interest to the DoD. Briefings about enabling technologies as well as advanced platforms are invited.

AIR AND MISSILE DEFENSE

Air and missile defense requirements continue to broaden as new threats emerge on land, sea, air, and space. Technical briefings are sought on existing, newly deployed, and emerging concepts for missile defense. Effective air and missile defense assimilates a wide range of capabilities across the air and missile defense timeline and system, and, as such, briefings are requested on threat detection and characterization, air and missile defense subsystems such as interceptors or command/control, and integrated air and missile defense systems to defeat multiple threat types. Other innovative topics not included in the subtopic list will also be considered.

AUTONOMY, COLLABORATIVE ENGAGEMENT, MACHINE INTELLIGENCE, ROBOTIC AND UNCREWED SYSTEMS

Autonomous and uncrewed systems offer new capabilities and game-changing opportunities for the U.S. military. Applications for these systems include C3, ISR, weapons systems platforms, and ground/air safety. Policies and technologies are needed to define operational space and tools and testing are needed to characterize performance limits and competence.

DIRECTED ENERGY WEAPONS

Directed energy (DE) weapons are emerging for defense applications. This session will look at DE capabilities that can be implemented in an airborne environment, for both defensive and offensive operations. Presentations are solicited for laser DEW, RF and microwave DEW, and any other form of airborne DEWs. In addition to the weapon source technology, other technologies as they relate to airborne DE are important such as: primer power, thermal management, beam control, beam propagation, command and control, sensors, and lethality. Of particular interest are DEW systems, how DEWs fit within a system of systems concept, and how DEWs affect operational scenarios.

GUIDANCE, NAVIGATION, CONTROL, AND ESTIMATION

Current and future defense systems rely more than ever on advanced guidance, navigation, control, and estimation to achieve precision, reliability and autonomy in challenging adversarial environments. Unmanned platforms, missiles, spacecraft, and even manned vehicles, ground support systems, and data networks are achieving unprecedented levels of performance and robustness by leveraging breakthroughs in components, machine learning, computer vision, cooperative/distributed algorithms, autonomous navigation, optimal guidance, feedback control, sensor fusion, and other technical areas. Presentations describing such advances in algorithms, software, and hardware are solicited, as are presentations on alternative position, navigation and timing (PNT), novel applications, improvements to existing systems, field test results, and lessons learned.

HIGH-MANEUVERABILITY AND HYPERSONIC SYSTEMS AND TECHNOLOGIES

Presentations are solicited addressing hypersonic and high-speed flight systems and technologies, including systems that utilize a significant phase of hypersonic flight within the atmosphere including hypersonic ISR vehicles, hypersonic cruise missiles, gun-launched hypervelocity projectiles, and hypersonic boost-glide vehicles. There is interest in concepts using sustained air-breathing propulsion,

rocket-boosted vehicles with significant unpowered glide capabilities, and innovative hybrid propulsion systems. There is particular interest in key enabling air vehicle technologies as well as end-to-end system concepts that bring revolutionary military capabilities to the warfighter and the enabling technologies necessary for mission success with high-speed systems.

SPACE ACCESS AND SPACE SYSTEMS

Access to, and freedom of operations in, space is critical to national security. Space systems are in the defense news daily, spanning topics from acquisition to user services to resiliency and survivability. Space systems are the basis for U.S. assured access to space, consisting of launch vehicles, spacecraft, payloads, ground support equipment, launch operations and ranges and test hardware used in ground testing and operations. Space systems also include operations centers to maintain space vehicles or spacecraft on orbit. With current defense reliance on non-U.S. space systems, and the failures of certified space systems, assured access to space is a growing concern. The size and type of space systems is changing, and the defense community is increasingly leveraging commercial capabilities. Space systems require rigorous developmental test and evaluation due to the harsh launch, landing and operational space environment, and must function from the first time to every time called upon. Emphasis is on rapid and effective fielding of space assets and compressed space acquisition cycles.

STRATEGIC MISSILE SYSTEMS

Presentations are solicited for strategic missile systems focusing on future requirements, development of new technical and operational concepts, modernization and sustainment of existing weapon systems, lowering life cycle costs, and application of innovative engineering and manufacturing processes. Challenges include lowering future cost of ownership, mitigating technology obsolescence and industrial base evolution, providing flexibility, diversity, responsiveness, accuracy, and survivability for long-term effectiveness, and assuring safety, security and reliability. Technical presentations are solicited for engineering, science and technology developments applicable to fire control and launch systems, missiles, and reentry vehicles.

SURVIVABILITY

The Survivability Technical Committee (SURTC) promotes the research and development of new technologies that define the state of the art in survivability. Survivability is the capability of a system to avoid or withstand a hostile environment (manmade or otherwise). Therefore, the survivability discipline forms part of the systems engineering process and is affected by all other engineering disciplines, such as materials (e.g., armor applications), and structures (e.g., resilient structures). The SURTC is looking to the future as game-changers emerge and revolutionize the discipline, and is particularly interested in advanced materials and structures for survivability.

SYSTEM AND DECISION ANALYSIS FOR NATIONAL SECURITY

National security decision makers often turn to system-level decision analyses to help them evaluate the differences in cost, risk, and benefit of alternative future options. These analyses usually include some of the following elements: definition of objectives, criteria, and metrics; brainstorming, definition, and enumeration of alternative systems or approaches; modeling and evaluation of alternatives against criteria; and conversion of multicriteria analyses into overall alternative evaluations and recommendations. This topic area seeks to bring together professionals from throughout the defense industry to share methods, lessons learned, and insights in system-level decision analysis gained during national security work.

SYSTEM PERFORMANCE MODELING AND SIMULATION

Measurement, analysis, modeling and simulation is critical to understanding the capabilities and limitations of our systems across the battlespace. Briefings are solicited for new and innovative analysis techniques, high fidelity and fast-running models, component and system simulations, algorithms, threat/target modeling techniques, technology development, and design maturity. Systems of interest span kinetic, hypersonic and directed energy weapons across the Army, Navy, Air Force, and Missile Defense Agency.

TACTICAL MISSILES

Presentations are solicited on advances in the research, development, test, and evaluation of Joint, Army, Navy, and Air Force tactical missiles. Papers may address components or systems. Papers are solicited for sessions on tactical surface-to-surface, air-to-air, and air-to-ground missile systems. This topic area is intended to bring together technology developers and customers of all types to share not only new technology developments and results from analysis, simulation, and testing, but also operational lessons learned. Papers may address testing, design, and or analyses of systems, subsystems, components, software, or algorithms.

TEST AND EVALUATION

Testing and evaluation, from phenomenology to operational, provides confirmation of the effectiveness of our weapon systems and anchors our models and simulations. There have been many recent efforts to modernize testing infrastructures and develop low cost, high value techniques. This technical area invites participants in those efforts to highlight their achievements, results and plans by providing presentations highlighting recent test events and development efforts. Of particular interest are papers discussing new test venues, equipment, techniques, novel instrumentation and data collection methods for flight, ground, arena, gun, wind tunnel, and anechoic chamber tests. Additionally, data management, utilization and performance criteria development, and lessons learned are also of interest.

WEAPON SYSTEM OPERATIONAL PERFORMANCE

Assessing operational performance of weapon systems ensures mission success for the warfighter and cost effectiveness for the DoD. This topic area focuses on force level, mission level, and weapon system performance assessment.

Mark your calendar for future AIAA forums and events!

AVIATION FORUM

12-16 June 2023 | San Diego, CA
aiaa.org/aviation

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23–25 October 2023 | Las Vegas, NV
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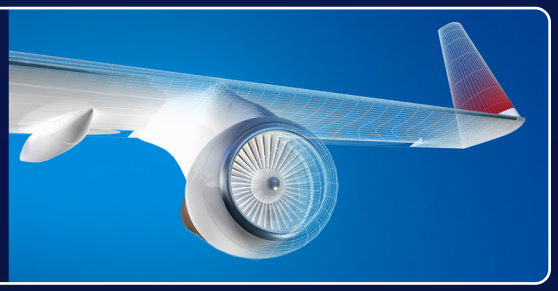
SCITECH FORUM

8–12 January 2024 | Orlando, FL
aiaa.org/scitech



DEFENSE FORUM

16–18 April 2024 | Laurel, MD
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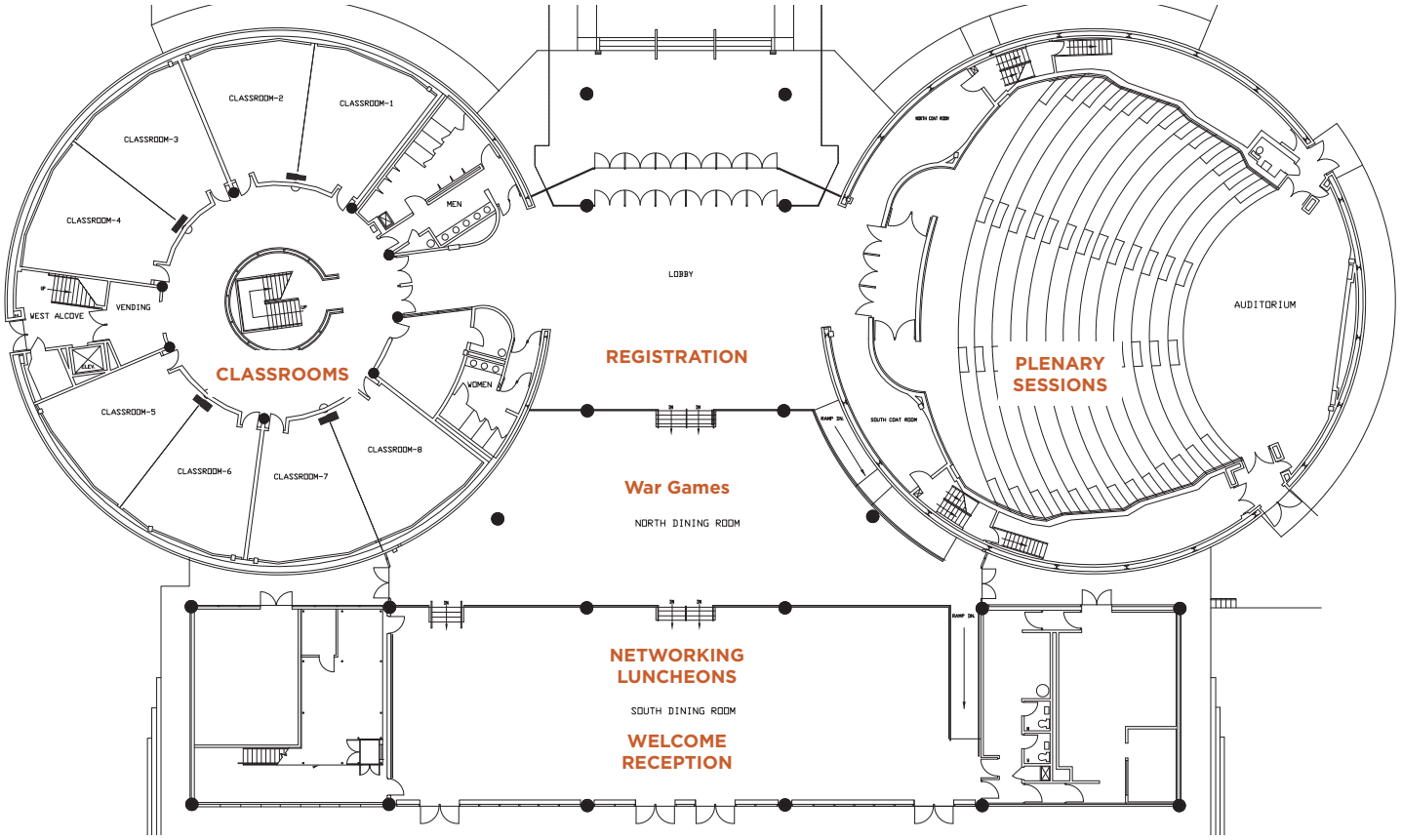
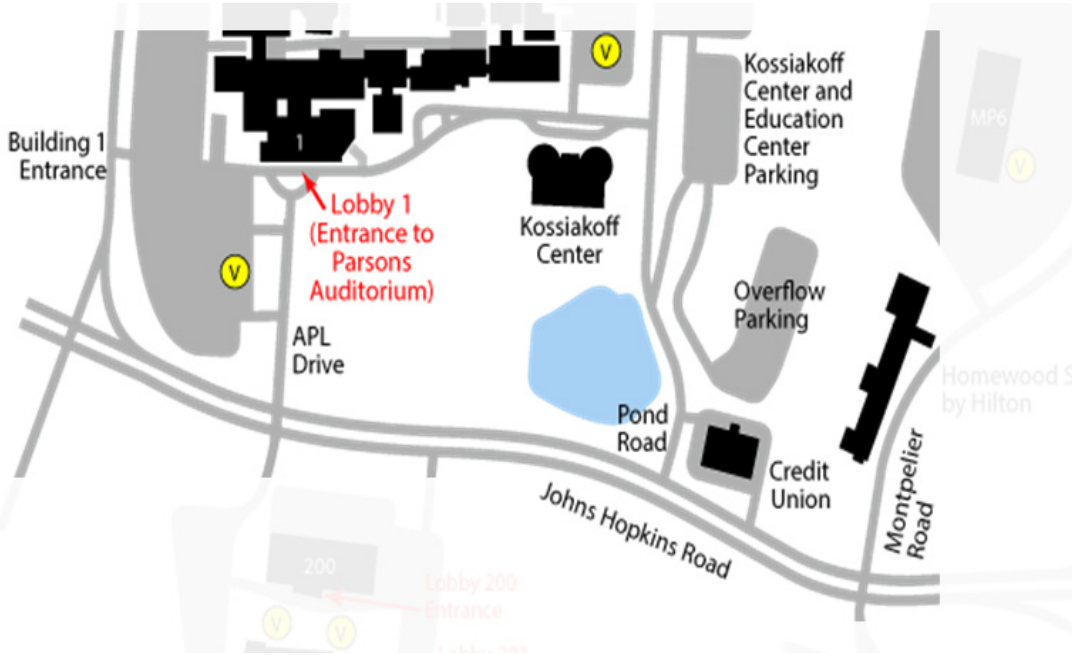


ENTRANCE TO PARSONS AUDITORIUM



Tuesday

Tuesday, 11 April 2023		
1-KEY01 & KEY02 0800 - 0930 hrs	Keynotes: China: Growing Defense Threat OUSD R&E	Auditorium

Speakers:

Senior Defense Intelligence Analyst
China Mission Group (CMG)
Defense Intelligence Agency

Thomas Browning
Deputy Chief Technology Officer for Mission Capabilities
Office of the Under Secretary of Defense for Research and Engineering

Tuesday, 11 April 2023				
2-AMD01	Air & Missile Defense I			Parsons Auditorium
Chaired by: D. FOX, Lockheed Martin Missiles and Fire Control and R. GAMBLE, Axient Corporation				
1000 hrs AIAA-Defense2023-9000 **Integrated Air and Missile Defense Requirements Prioritization** J. Boulware, Joint Chiefs of Staff, Washington, D.C.	1030 hrs AIAA-Defense2023-9002 **Optical Sensor Suite for Anchoring Solid Rocket Motor Debris Models** S. Ashley, D. Crawford, T. Van Hoorebeke, C. Moradi, Control Vision, Inc., Tucson, AZ			

Tuesday, 11 April 2023				
3-SDA01	System and Decision Analysis for National Security			Classroom 3/4
Chaired by: B. STEINFELDT, Sandia National Labs and K. LABBE, Navy Strategic Systems Program and J. LAFLEUR, Sandia National Laboratories				
1000 hrs AIAA-Defense2023-9003 **Defense Net Technical Assessment Methodology for Critical Technology Areas** C. Ohlandt, RAND Corp Washington Office, Arlington, VA	1030 hrs AIAA-Defense2023-9004 **R&D for Strategic Deterrence** T. Troyano, Systems Planning Analysis Inc, Alexandria, VA	1100 hrs AIAA-Defense2023-9005 **Risk Management Framework for National Security Modeled in the Process Management Tool Vdot** J. Herdy, CFD Research Corporation, Huntsville, AL	1130 hrs AIAA-Defense2023-9006 **Continuous Universal Targeting of Advanced Threats in Highly Contested Environments** M. LoPresto, G. Mitzel, A. Newman, S. Laprise, J. Dunne, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	

Tuesday, 11 April 2023				
4-SMS01	Strategic Missile Systems I - Engineering			Classroom 5/6
Chaired by: S. VAN DYK, Navy Strategic Systems Programs and A. EDSALL, The Charles Stark Draper Laboratory, Inc. and R. THOMAS, Lockheed Martin				
1000 hrs AIAA-Defense2023-9008 **Digital Twin Development for the Submarine Underwater Launcher Subsystem** M. Belisle, A. Vanderwyst, J. Haderlie, Northrop Grumman Corp, Sunnyvale, CA	1030 hrs AIAA-Defense2023-9009 **Digital Engineering for High Consequence / High Assurance Systems** S. Donald, General Dynamics Mission Systems Inc, Fairfax, VA	1100 hrs AIAA-Defense2023-9010 **An Affordable Novel Technique of Characterizing Shielding Materials for Strategic Programs** G. Lum, Lockheed Martin Space Systems, Sunnyvale, CA		

Tuesday, 11 April 2023				
5-SYS01	Space Access and Space Systems I			Classroom 7/8
Chaired by: M. MCFARLAND, Raytheon Missiles & Defense				
1000 hrs AIAA-Defense2023-9011 **Launch Site Identification for Tactically Responsive Space Access: Impact of Austere Sites** T. Sitter, Air Force Research Laboratory, Albuquerque, NM	1030 hrs AIAA-Defense2023-9013 **In-Space Propulsive Requirements for the Logistics of Surge Servicing in the GEO Belt** F. O'Brien, Air Force Research Laboratory, Albuquerque, NM	1100 hrs AIAA-Defense2023-9014 **The Space Development Agency's Transport Layer** H. Kleinwaks, M. Rich, T. Boudreaux, F. Turner, Government of the United States of America, Washington, D.C.		

Tuesday, 11 April 2023				
6-WSE01	System Performance Modeling and Simulation I			Auditorium
Chaired by: O. YAKABOSKI, USAF AFMC and S. CHOCRON, Southwest Research Institute				
1000 hrs AIAA-Defense2023-9017 **Leveraging an Industry and National Lab Partnership to Produce Accelerated and Highly Useful Hypersonic Concepts** K. Dry, Parsons Corporation, Pasadena, CA	1030 hrs AIAA-Defense2023-9018 **HOT for Hypersonics: 6DOF Sounding Rocket Aerodynamic Model Development** E. Dreyer, C. Smith, M. Kniskern, Sandia National Laboratories, Albuquerque, NM	1100 hrs AIAA-Defense2023-9019 **Unsteady Balance Development: Comparison of CFD and Wind-Tunnel Data for Small Store in Supersonic Cavity** M. Frede, University of Dayton Research Institute, Dayton, OH; R. Speth, S. Sherer, I. Maatz, Air Force Research Laboratory, Wright-Patterson AFB, OH		

Tuesday, 11 April 2023				
7-AMD02	Air & Missile Defense II			Parsons Auditorium
Chaired by: D. FOX, Lockheed Martin Missiles and Fire Control and R. GAMBLE, Axient Corporation				
1300 hrs AIAA-Defense2023-9020 **(U) An Adaptive Algorithm for Interceptor Weapon System Threat Trajectory Prediction (TTP)** P. Iwaskiw, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1330 hrs AIAA-Defense2023-9021 **Design Optimization of High-Altitude Debris Cloud Generation for Air Defense Applications** A. Moore, J. Hansen, R. Bettinger, Air Force Institute of Technology, Wright-Patterson AFB, OH	1400 hrs AIAA-Defense2023-9022 **Laydown and Targeting for Layered Defense Integrated with HPM Weapons** E. Krulewich, C. Seagraves, A. Stark, N. Peterson, T. Fields, University of Missouri-Kansas City, Kansas City, MO	1430 hrs AIAA-Defense2023-9023 **Continued Analysis of Missile Intercept Lethality and Debris Fall** M. Harmon, Lockheed Martin Missiles and Fire Control, Dallas, TX	

Tuesday, 11 April 2023				
8-SMS02	Strategic Missile Systems II - GN&C			Classroom 5/6
Chaired by: S. VAN DYK, Navy Strategic Systems Programs and A. EDSALL, The Charles Stark Draper Laboratory, Inc. and R. THOMAS, Lockheed Martin				
1300 hrs AIAA-Defense2023-9025 **Mission Planning for Celestial Navigation Applications** M. Carpenter, K. Wu, Charles Stark Draper Laboratory Inc, Cambridge, MA	1330 hrs AIAA-Defense2023-9026 **Next Generation Solid State Accelerometer For Strategic Performance** J. Ung, A. Saltzman, Charles Stark Draper Laboratory Inc, Cambridge, MA	1400 hrs AIAA-Defense2023-9027 **IFOG Miniturization and Small Form Factor IFOG IMU's for Strategic Applications** A. Saltzman, T. McCarthy, Charles Stark Draper Laboratory Inc, Cambridge, MA	1430 hrs AIAA-Defense2023-9028 **Wafer Based Interferemetric Stellar Imager** A. Saltzman, H. Clevenson, M. Moebius, Charles Stark Draper Laboratory Inc, Cambridge, MA	

Tuesday, 11 April 2023				
9-SUR01	Survivability			Classroom 3/4
Chaired by: J. KOKKAT, Johns Hopkins University Applied Physics Laboratory and J. HANSEN, University of Michigan				
1300 hrs AIAA-Defense2023-9029 **Modeling High-Energy Laser Survivability: An Overview of Testing and Modeling from the MSAS Program** K. Brady, M. Perini, SURVICE Engineering, Dayton, OH	1330 hrs AIAA-Defense2023-9030 **Mechanical Behavior of Glass Laminate Interlayers of Interest for Armor Applications** A. Maisano, B. Trethewey, C. Chung, A. Yuan, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1400 hrs AIAA-Defense2023-9031 **Testing of Carbon-Carbon at High Strain Rates and High Temperatures using the Plate-Impact Technique** I. Chocron, R. Enriquez-Vargas, Southwest Research Institute, San Antonio, TX; T. Moore, Fibertek Inc, Herndon, VA; J. Walker, Southwest Research Institute, San Antonio, TX; E. O'Hare, M. Barsotti, Protection Engineering Consultants, San Antonio, TX; et al.	1430 hrs AIAA-Defense2023-9033 **Drop Testing and Durability Assessment of Printed Hybrid Electronic (PHE) Assemblies Under Extreme (50,000+ G) Acceleration Levels** H. Richards, H. Abusalma, A. Dasgupta, University of Maryland at College Park, College Park, MD; H. Tsang, US Army Research Laboratory, Adelphi, MD; A. Bujanda, J. Yu, Army Research Laboratory Aberdeen Proving Ground, Aberdeen Proving Ground, MD	

Tuesday, 11 April 2023				
10-SYS02	Space Access and Space Systems II			Classroom 7/8
Chaired by: M. MCFARLAND, Raytheon Missiles & Defense				
1300 hrs AIAA-Defense2023-9035 **Theater Persistent Coverage Analysis** V. Ong, Air Force Research Laboratory, Albuquerque, NM	1330 hrs AIAA-Defense2023-9036 **Pole-Sitter Based Space Domain Awareness for Earth Orbiting Objects** R. Ewart, Space Systems Command, El Segundo, CA; P. Lai, E. Plotke, LinQuest Corp, Los Angeles, CA	1400 hrs AIAA-Defense2023-9037 **In-Space Developmental Test Platform Using Small Satellites** R. Ewart, United States Space Force, El Segundo, CA; P. Lai, E. Plotke, LinQuest Corp, Los Angeles, CA	1430 hrs AIAA-Defense2023-9038 **Anti-Satellite Warfare Impacts on Submarine Operations – a Submariner's Perspective** E. Hanlon, Naval Postgraduate School, Monterey, CA	

Tuesday, 11 April 2023				
11-WSE02	Morphing Weapon System Development			Auditorium
Chaired by: T. WADHAMS, CUBRC, Inc. and N. MUESCHKE, Southwest Research Institute				
1300 hrs AIAA-Defense2023-9039 **AFRL Articulated Missile Overview** B. Dickinson, Air Force Research Laboratory, Munitions Directorate, Eglin AFB, FL	1330 hrs AIAA-Defense2023-9040 **Analysis of Articulated Interceptor Performance Compared to Alternatives** A. Williams, Missile Defense Agency, Fort Belvoir, VA	1400 hrs AIAA-Defense2023-9041 **Advancement of Articulation Technology with Supersonic Sled Tests** T. Mason, Air Force Research Laboratory Munitions Directorate, Eglin AFB, FL	1430 hrs AIAA-Defense2023-9042 **Design and Optimization of a Morphing Missile Mechanism** R. Beblo, R. Call, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH; T. Cruz-Gonzalez, C. Dunn, E. Lang, University of Dayton Research Institute, Dayton, OH; J. Miller, Booz Allen Hamilton Inc, McLean, VA; et al.	1500 hrs AIAA-Defense2023-9043 **Design and Optimization of High-Temperature Load-Bearing Skins for Cylindrical Morphing Missile Bodies** L. Rueschhoff, Air Force Research Laboratory Materials & Manufacturing Directorate, Wright-Patterson AFB, OH

Tuesday, 11 April 2023		
12-KEY03 1600 - 1730 hrs	Keynote Panel: Out-Innovating Our Competitors	Auditorium

Moderator: Laura McGill, Deputy Laboratories Director, Nuclear Deterrence and Chief Technology Officer, Sandia National Laboratories

Panelists:

Kevin Cohen
Special Advisor
U.S. European Command

Martin Lindsey
Science and Technology Division Chief
(J85)
U.S. Indo-Pacific Command

Lisa Sanders
Director, Science and Technology for
Special Operations Forces
Acquisition, Technology and Logistics
U.S. Special Operations Command

Donna Cowell Senft,
Chief Scientist
Air Force Global Strike Command

Wednesday

Wednesday, 12 April 2023		
13-KEY04 0800 - 0930 hrs	Keynote Panel: Hypersonics Leaders	Auditorium

Moderator: Mark Lewis, Executive Director, Emerging Technologies Institute, National Defense Industrial Association

Panelists:

Glenn Case
Founder and Chief
Technology Officer
Hermeus

Kerri Phillips
Chief Scientist
Air and Missile Defense Sector
Johns Hopkins University Applied
Physics Laboratory

John Otto
Senior Director
Advanced Hypersonic Weapons
Raytheon Missiles
& Defense

Dennis Helmich
Director, Integrated
Military Systems
Sandia National
Laboratories

Robie Samanta Roy
Senior Advisor
Stratolaunch

Wednesday, 12 April 2023				
14-AP01	Advanced Prototypes			Parsons Auditorium
Chaired by: A. SCOURAS, MIT Lincoln Laboratory and D. NEWMAN, Boeing Defense, Space & Security				
1000 hrs AIAA-Defense2023-9045 **Developing a Custom Acoustically Quiet UAV for HPM Attacks** S. Seagraves, T. Fields, University of Missouri Kansas City, Kansas City, MO	1030 hrs AIAA-Defense2023-9046 **Airborne HPM Electronic Attack Flight Testing** T. Fields, R. Allen, University of Missouri-Kansas City, Kansas City, MO	1100 hrs AIAA-Defense2023-9047 **Solid-State HPM Array Demonstrator Design and Effects Testing** T. Fields, R. Allen, University of Missouri-Kansas City, Kansas City, MO	1130 hrs AIAA-Defense2023-9048 **Variable Emissivity Material Advancements for Space Satellite Applications** V. Lawdensky, Air Force Research Laboratory, Albuquerque, NM	

Wednesday, 12 April 2023				
15-DEW01	High Energy Laser Lethality			Classroom 3/4
Chaired by: M. NEICE, Directed Energy Professional society and G. WOOD, Johns Hopkins University Applied Physics Laboratory				
1000 hrs AIAA-Defense2023-9049 **Aviation Target Analysis and Testing of Threat Aimpoints** G. Romanczuk, United States Army Space and Missile Defense Command, Huntsville, AL; J. West, C. Scaduto, C. Sivley, Radiance Technologies Inc, Huntsville, AL	1030 hrs AIAA-Defense2023-9050 **UAS Wing HEL Lethality Assessment** N. Flores, United States Army Space and Missile Defense Command, Huntsville, AL; D. Duffin, Radiance Technologies Inc, Huntsville, AL; C. LaMar, United States Army Space and Missile Defense Command, Huntsville, AL	1100 hrs AIAA-Defense2023-9052 **The Development of Intelligent Vulnerability Estimates** C. LaMar, US Army Space and Missile Defense Command, Redstone Arsenal, AL	1130 hrs AIAA-Defense2023-9129 **ASCM Seeker Vulnerability to High Energy Lasers** R. Mcgilvery, C. Lobmeyrvonhohenleiten, Naval Surface Warfare Center, Dahlgren, VA	

Wednesday, 12 April 2023				
16-HYP01	High-Maneuverability and Hypersonic Systems and Technologies I			Auditorium
Chaired by: K. GOULD, MIT Lincoln Laboratory and A. KOTTAPALLI, Lockheed Martin Space Systems				
1000 hrs AIAA-Defense2023-9053 **Predictions of the Vibrational Response of Ballistic Systems in Hypersonic Weather Environments** S. Beresh, B. Robbins, P. Coffin, L. DeChant, E. Roesler, Sandia National Laboratories, Albuquerque, NM	1030 hrs AIAA-Defense2023-9054 **Boundary Layer Stability Analysis of HTV-2 Wind Tunnel and Flight Test Conditions** J. Reardon, J. Sturges, Lockheed Martin Corp, Valley Forge, PA	1100 hrs AIAA-Defense2023-9055 **Protoype flight test of a hypersonic payload** K. Gould, S. Kodali, A. Mankame, R. Fontaine, Massachusetts Institute of Technology Lincoln Laboratory, Lexington, MA	1130 hrs AIAA-Defense2023-9056 **Characterization of the Aerothermal Environment of Hypersonic Sounding Rockets** K. Casper, Sandia National Laboratories, Albuquerque, NM	1200 hrs AIAA-Defense2023-9057 **CUBRC Hypersonic Ground Test Capability Enhancements and Demonstrations** T. Wadhams, A. Dufrene, R. Parker, Z. Carr, CUBRC, Buffalo, NY

Wednesday, 12 April 2023				
17-SMS03	Strategic Missile Systems III - Lifecycle Considerations			Classroom 5/6
Chaired by: A. EDSALL, The Charles Stark Draper Laboratory, Inc. and M. OLMOS, Northrop Grumman Corporation and R. THOMAS, Lockheed Martin				
1000 hrs AIAA-Defense2023-9058 **Sea-Based Low Size, Weight, and Power Telemetry Recorder** C. Budman, N. Niewoehner, J. Kresge, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1030 hrs AIAA-Defense2023-9059 **The Enhanced Inert Head Flight Test Reentry Body** C. Budman, K. Jones, D. Groysman, T. Magnani, T. Esho, N. Spivak, Johns Hopkins University Applied Physics Laboratory, Laurel, MD			

Wednesday, 12 April 2023				
18-WSE03	Test and Evaluation			Classroom 7/8
Chaired by: A. CASH, Dynetics, Inc. and N. MUESCHKE, Southwest Research Institute				
1000 hrs AIAA-Defense2023-9060 **Design and Construction of a Mach-8 Quiet Tunnel at Purdue University** B. Chynoweth, S. Schneider, Purdue University, West Lafayette, IN; G. Candler, Regents of the University of Minnesota, Minneapolis, MN; J. Korte, Analytical Mechanics Associates, Hampton, VA; D. Cavalieri, University of Notre Dame, Notre Dame, IN	1030 hrs AIAA-Defense2023-9061 **Measurements of Air-Carbon Ablation Products in a Shock Tunnel** K. Lynch, J. Hargis, C. Murzyn, K. Daniel, E. Mussoni, J. Wagner, Sandia National Laboratories, Albuquerque, NM	1100 hrs AIAA-Defense2023-9063 **Hypersonic Wave-heated Facility Development Testing** A. Dufrene, CUBRC, Inc., Buffalo, NY	1130 hrs AIAA-Defense2023-9032 **Design and Testing of High-Temperature Flexible Thermal Protection System** J. Boston, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH; E. McGill, University of Dayton Research Institute, Dayton, OH; J. Childress, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH; L. Rueschhoff, Air Force Research Laboratory, Wright-Patterson AFB, OH	

Wednesday, 12 April 2023				
19-AUT01	Autonomy, Collaborative Engagement and Machine Intelligence I			Parsons Auditorium
Chaired by: P. BENNER, Raytheon Missiles & Defense and G. KULLER, Kuller Consulting LLC				
1300 hrs AIAA-Defense2023-9064 **AFWERX: Accelerating Next-Generation Aviation and Autonomy Capabilities** T. Meagher, US Department of the Air Force, Washington, D.C.	1330 hrs AIAA-Defense2023-9065 **Golden Horde Colosseum – The Battle for Networked, Collaborative, and Autonomous Weapons** E. Doucette, E. Williams, M. Alsleben, S. Stockbridge, Air Force Research Laboratory, Eglin AFB, FL	1400 hrs AIAA-Defense2023-9067 **Air Force Crewed-Uncrewed Teaming: A Blueprint for Success** J. Hagen, A. Hou, B. DeBlois, T. Hamilton, M. Kennedy, C. Lynch, RAND, Santa Monica, CA; et al.	1430 hrs AIAA-Defense2023-9068 **A Federated AI Approach to Autonomous Battle Management** L. Coduti, Leidos Inc, Reston, VA	

Wednesday, 12 April 2023				
20-DEW02	High Energy Laser Technologies			Classroom 3/4
Chaired by: M. NEICE, Directed Energy Professional Society and G. WOOD, Johns Hopkins University Applied Physics Laboratory				
1300 hrs AIAA-Defense2023-9070 **Overview of HARDROC Beam Director: AFRL/RQV Perspective** S. Sherer, R. Johnson, M. Stanek, D. Weston, Air Force Research Laboratory, Wright-Patterson AFB, OH	1330 hrs AIAA-Defense2023-9071 **Airborne Mechanical Jitter Testing of HARDROC** N. De Lucca, A. Smith, M. Whiteley, B. Catron, MZA Associates, Dayton, OH	1400 hrs AIAA-Defense2023-9072 **Aero-Optic Analysis of HARDROC Flight Test Results** A. Smith, N. De Lucca, B. Catron, B. Wauligman, M. Whiteley, MZA Associates Corporation, Dayton, OH	1430 hrs AIAA-Defense2023-9126 **Weapons Range-Depenant Lethality for Missile Defense with Directed Energy** D. White, J. Heinrichs, Johns Hopkins University, Baltimore, MD	

Wednesday, 12 April 2023				
21-HYP02	High-Maneuverability and Hypersonic Systems and Technologies II			Auditorium
Chaired by: A. KOTTAPALLI, Lockheed Martin Space Systems and K. GOULD, MIT Lincoln Laboratory				
1300 hrs AIAA-Defense2023-9073 **Cold-War Flight Measurements for Calibrating Reentry-Vehicle Signature Analyses: A Review** S. Schneider, Sandia National Laboratories, Albuquerque, NM	1330 hrs AIAA-Defense2023-9074 **Application of Advanced Software Tools for Hypersonic Flow Fields, Hard Body Heating, and Signatures** T. Deschenes, A. Woldman, M. Kogan, N. Guler, L. Joseph, Spectral Sciences Inc, Burlington, MA; M. McLaughlin, Massachusetts Institute of Technology Lincoln Laboratory, Lexington, MA; et al.	1400 hrs AIAA-Defense2023-9075 **Application of the US3D Continuum Flow Solver to Missile Exhaust Plumes and Hypersonic Flows** R. Taylor, D. Stelter, J. Bender, T. Deschenes, Spectral Sciences Inc, Burlington, MA; a. knutson, G. Candler, Regents of the University of Minnesota, Minneapolis, MN	1430 hrs AIAA-Defense2023-9076 **Hypersonic Glide Vehicle Phenomenology IR Scene Generation using High Fidelity Simulations** J. Papp, M. DeMagistris, J. Tomes, N. Sinha, Combustion Research and Flow Technology Inc, Pipersville, PA	1500 hrs AIAA-Defense2023-9077 **Test Capability for Radiometric Signature Spectral Measurements of Hard Bodies in Exoatmospheric Conditions** H. Lowry, D. Crider, National Aerospace Solutions, Arnold AFB, TN; R. Nicholson, K. Mead, Axient, Arnold AFB, TN; D. Schwer, K. Dooley, AF Civil Service, Arnold AFB, TN; et al.

Wednesday, 12 April 2023				
22-SMS04	Strategic Missile Systems IV - Flight Dynamics			Classroom 5/6
Chaired by: M. OLMOS, Northrop Grumman Corporation and A. EDSALL, The Charles Stark Draper Laboratory, Inc.				
1300 hrs AIAA-Defense2023-9079 **Calculation and Correction of In-Flight Aerodynamic Heating – A Coupled Approach** J. Simpson, J. Murdock, Northrop Grumman Corp, Fall Church, VA	1330 hrs AIAA-Defense2023-9080 **Key Variables in Extreme Altitude Staging Load Sensitivity** M. Marshall, M. Lively, Northrop Grumman Space Systems, Redondo Beach, CA	1400 hrs AIAA-Defense2023-9082 **CFD Model Validation in Modern ICBM Design** P. Farese, J. Murdock, Northrop Grumman Space Systems, Roy, UT		

Wednesday, 12 April 2023				
23-WSE04	System Performance Modeling and Simulation II			Classroom 7/8
Chaired by: A. DIGGS, Air Force Research Laboratory and O. YAKABOSKI, USAF AFMC				
1300 hrs AIAA-Defense2023-9083 **Trajectory-Informed Active Learning for Efficient Aero-Database Construction** K. Quinlan, J. Movva, J. Thornock, Lawrence Livermore National Laboratory, Livermore, CA	1330 hrs AIAA-Defense2023-9084 **Validation of High Energy Laser Predictions using the Army's propagation and wave optics codes, HELCOMES and ACS, and experimental data** F. Lopez, United States Army Space and Missile Defense Command, Huntsville, AL	1400 hrs AIAA-Defense2023-9085 **HERMES: Scheduling Considerations for a Constellation of Space-based Sensors against Many Threat Clusters** S. Edge, G. Wright, T. Metcalfe, M. Myers, C. Cox, Jacobs Engineering Group Inc, Dallas, TX	1430 hrs AIAA-Defense2023-9086 **Design Optimization for Integrated UAS High Power Microwave Airborne Effector** A. Stark, T. Fields, University of Missouri Kansas City, Kansas City, MO	1500 hrs AIAA-Defense2023-9087 **Using Artifical Intelligence and Machine Learning to Support Mission Level Modeling and Simulation** Z. Thai, R. Trafelet, A. Miller, Naval Surface Warfare Center Crane Division, Crane, IN

Wednesday, 12 April 2023		
24-KEY05 1600 - 1730 hrs	Keynote Panel: Building and Transitioning Enduring Advantages Through Science and Technology	Auditorium
Moderator: Katherine Rink, Head of the Air, Missile, and Maritime Defense Technology Division, MIT Lincoln Laboratory Panelists: **Timothy Bunning** Chief Technology Officer Air Force Research Laboratory **CAPT Randy Cruz, USN** Assistant Chief of Naval Research		

Thursday

Thursday, 13 April 2023		
25-KEY06 & KEY07 0800 - 0930 hrs	Keynotes: How the Battlefield is Changing: Lessons Learned from Ukraine Pivoting to INDOPACOM	Auditorium
Speakers: **Christine Michienzi** Senior Technology Advisor to the Under Secretary of Defense for Acquisition and Sustainment **Thomas Wiley** Senior Director, Advanced Integrated Mission Solutions, Raytheon Missiles & Defense		

Thursday, 13 April 2023				
26-AUT02	Autonomy, Collaborative Engagement and Machine Intelligence II			Parsons Auditorium
Chaired by: P. BENNER, Raytheon Missiles & Defense and G. KULLER, Kuller Consulting LLC				
1000 hrs AIAA-Defense2023-9088 **Statistical Learning Explainability for Solid Rocket Motor Simulation using SHAP** T. Sheils, N. Cervantes, M. Carpenter, R. Hartfield, Auburn University, Auburn, AL	1030 hrs AIAA-Defense2023-9089 **Reinforcement Learning Defensive Engagement Strategies** J. Pagan, Z. Goddard, Sandia National Laboratories, Albuquerque, NM	1100 hrs AIAA-Defense2023-9092 **Hardware-Validated Autonomous Navigation Kernel using Neural Network Terrain Correlation Methods** C. Bennett, T. Xiao, J. Wong, B. Feinberg, M. Matthew, S. Agarwal, Sandia National Laboratories, Albuquerque, NM		

Thursday, 13 April 2023				
27-DEW03	AFRL SHiELD Test Results			Classroom 3/4
Chaired by: M. NEICE, Directed Energy Professional society and G. WOOD, Johns Hopkins University Applied Physics Laboratory				
1000 hrs AIAA-Defense2023-9093 **SHiELD Environmental Flight Test** J. Thordahl, D. Wittich, Air Force Research Laboratory, Kirtland AFB NM, NM	1030 hrs AIAA-Defense2023-9094 **Modal Testing & Results of the SHiELD EFT Pod** B. Kelchner, Air Force Research Laboratory, Kirtland AFB NM, NM	1100 hrs AIAA-Defense2023-9095 **Modal Analysis of the SHiELD EFT Pod to Optimize the Finite Element Model** B. Kelchner, Air Force Research Laboratory, Kirtland AFB NM, NM	1130 hrs AIAA-Defense2023-9127 **RADHEL Status Update & PWEX Support** A. Defreitas, D. Luke, Air Force Research Laboratory, Kirtland AFB NM, NM	1200 hrs AIAA-Defense2023-9128 **Laser Vulnerability Module Surragation Methodology & Tool** M. Sheyka, Air Force Research Laboratory, Kirtland AFB NM, NM

Thursday, 13 April 2023				
28-GNC01	Guidance, Navigation, Control, and Estimation I			Classroom 5/6
Chaired by: M. NIESTROY, Lockheed Martin Aeronautics				
1000 hrs AIAA-Defense2023-9096 **Uncertainty Bounds for State Estimates with Applications in Target Tracking** J. Spall, Johns Hopkins Univ./APL, Laurel, MD; S. Wei, Johns Hopkins University, Baltimore, MD	1030 hrs AIAA-Defense2023-9097 **Automatic Engagement Zone Avoidance Theory and Practice** I. Weintraub, A. Von Moll, N. Hanlon, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH			

Thursday, 13 April 2023				
29-HYP03	High-Maneuverability and Hypersonic Systems and Technologies III			Auditorium
Chaired by: A. KOTTAPALLI, Lockheed Martin Space Systems and K. GOULD, MIT Lincoln Laboratory				
1000 hrs AIAA-Defense2023-9100 **Transforming MBSE Practices through Connected Simulation** N. Ingwersen, E. Lortie, R. Page, Ansys, Canonsburg, PA	1030 hrs AIAA-Defense2023-9101 **Time-Accurate US3D Simulations of an Unsteady Hypersonic Flowfield** N. Falkiewicz, Massachusetts Institute of Technology Lincoln Laboratory, Lexington, MA	1100 hrs AIAA-Defense2023-9102 **High Operational Tempo for Hypersonics: Precision Sounding Rockets for Technology Maturation** D. Chavez, B. English, J. Lucas, Sandia National Laboratories, Albuquerque, NM	1130 hrs AIAA-Defense2023-9103 **Aerothermal Flight Test Results from Two Different Hypersonic Projectiles/Test and Evaluation** M. Libeau, C. Alcoba Serrate, Naval Surface Warfare Center Dahlgren Division, Dahlgren, VA	

Thursday, 13 April 2023				
30-TAC01	Tactical I			Classroom 7/8
Chaired by: S. REITMEIER, U.S. Army and M. FRIEDLANDER, Aerojet Rocketdyne				
1000 hrs AIAA-Defense2023-9130 **Foreign Artillery Systems and Munitions Pt 1** W. Wallace, US Army, Central Virginia, VA	1030 hrs AIAA-Defense2023-9131 **Foreign Artillery Systems and Munitions Pt 2** W. Wallace, US Army, Central V irginia, VA	1100 hrs AIAA-Defense2023-9132 **Foreign Artillery Systems and Munitions Pt 3** W. Wallace, US Army, Central Virginia, VA	1130 hrs AIAA-Defense2023-9133 **Foreign Artillery Systems and Munitions Pt 4** W. Wallace, US Army, Central Virginia, VA	

Thursday, 13 April 2023				
31-AUT03	Autonomy, Collaborative Engagement and Machine Intelligence III			Parsons Auditorium
Chaired by: P. BENNER, Raytheon Missiles & Defense and G. KULLER, Kuller Consulting LLC				
1300 hrs AIAA-Defense2023-9106 **An Introduction to AI enabled Autonomy for the USAF/USSF** S. Rogers, M. Muha, US Air Force Academy, Air Force Research Laboratory, OH	1330 hrs AIAA-Defense2023-9107 **Rapid Trajectory Generation for High Consequence Unmanned Systems** A. Mazumdar, S. Deal, H. Nichols, Georgia Institute of Technology, Atlanta, GA; K. Williams, M. Sparapany, Sandia National Laboratories, Albuquerque, NM			

Thursday, 13 April 2023				
32-DEW04	HEL on ICE			Classroom 3/4
Chaired by: M. NEICE, Directed Energy Professional society and G. WOOD, Johns Hopkins University Applied Physics Laboratory				
1300 hrs AIAA-Defense2023-9108 **HEL on ICE: Final Report** J. Peters, Booz Allen Hamilton Inc, McLean, VA; D. Wittich, Air Force Research Laboratory, Wright-Patterson AFB, OH	1330 hrs AIAA-Defense2023-9109 **Sizing a Compact Airborne Laser weapon System** A. Hassall, K. Hewitt, Air Force Research Laboratory, Wright-Patterson AFB, NM	1400 hrs AIAA-Defense2023-9110 **Design & Operational Impact of Beam Control Trades for Airborne LWS** S. Gary, Lockheed Martin Corporation Aerospace and Defense, Bethesda, MD	1430 hrs AIAA-Defense2023-9111 **Enabling Power & Thermal Technologies for Airborne Directed Energy** J. Teague, Air Force Research Laboratory, Wright-Patterson AFB, NM	1500 hrs AIAA-Defense2023-9112 **National Test Assets for Airborne Directed Energy T&E** W. Winchester, Office of the Under Secretary of Defense for Acquisition & Sustainment, Orlando, FL

Thursday, 13 April 2023				
33-GNC02	Guidance, Navigation, Control, and Estimation II			Classroom 5/6
Chaired by: M. NIESTROY, Lockheed Martin Aeronautics				
1300 hrs AIAA-Defense2023-9113 **Blended Controller Formulation and Robustness Analysis for an Atmospheric Reentry Vehicle** K. Umasankar, G. Cruz, L. Hood, Sandia National Laboratories, Albuquerque, NM	1330 hrs AIAA-Defense2023-9114 **Quantum gravimetry for strategic applications: Draper Q-Grav** R. Stoner, K. Anderson, A. Baumgart, M. de Stadler, S. Dickerson, C. Hansen, Charles Stark Draper Laboratory Inc, Cambridge, MA; et al.	1400 hrs AIAA-Defense2023-9115 **Design of a Generalized HWIL for Avionics System Test** B. McGahan, Naval Surface Warfare Center Crane Division, Crane, IN		

Thursday, 13 April 2023				
34-HYP04	High-Maneuverability and Hypersonic Systems and Technologies IV			Auditorium
Chaired by: K. GOULD, MIT Lincoln Laboratory and A. KOTTAPALLI, Lockheed Martin Space Systems				
1300 hrs AIAA-Defense2023-9117 **Trajectory Optimization Against Probabilistic Threat Models** W. Stahlschmidt, L. Willey, J. Pagan, R. Ashton, Sandia National Laboratories, Albuquerque, NM	1330 hrs AIAA-Defense2023-9118 **Mission Effectiveness of Deceptive Reinforcement Learning for Aerospace Vehicles** J. Pagan, L. Willey, Sandia National Laboratories, Albuquerque, NM	1400 hrs AIAA-Defense2023-9119 **Examining and Compensating for Complex Hypersonic Flight Conditions Using Advanced Feedback Control and Dynamic Wind Tunnel Testing** A. Mazumdar, Georgia Institute of Technology, Atlanta, GA; K. Casper, J. Firth, E. Johnson, Sandia National Laboratories, Albuquerque, NM; S. Deal, Georgia Institute of Technology, Atlanta, GA; M. Noel, Sandia National Laboratories, Albuquerque, NM; et al.		

Thursday, 13 April 2023				
35-TAC02	Tactical II			Classroom 7/8
Chaired by: S. REITMEIER, U.S. Army and M. FRIEDLANDER, Aerojet Rocketdyne				
1300 hrs AIAA-Defense2023-9121 **Evolved AI for First-Order Conceptual Design Optimization: Propulsion (U)** R. Allen, Lone Star Aerospace, Addison, TX	1330 hrs AIAA-Defense2023-9122 **Transition Metals with Phenylurea Ligands as Double-base Propellant Burn Rate Additives** C. Lundell, Temple University, Philadelphia, PA	1400 hrs AIAA-Defense2023-9123 **High Performance Extruded Propellant Rocket Motor** A. Durrett, U.S. Army DEVCOM AvMC, Redstone Arsenal, AL	1430 hrs AIAA-Defense2023-9124 **Quantification of Insulation Materials Through Solid Rocket Motor Testing** Z. Johnson, US Army Combat Capabilities Development Command, Redstone Arsenal, AL	1500 hrs AIAA-Defense2023-9125 **Analysis of Trajectories from CFD for a Small Light-Weight Store Released from an Internal Bay** R. Speth, S. Sherer, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH

Thursday, 13 April 2023		
36-KEY08 1530 - 1700 hrs	Keynote Panel: Acquisition Success Stories	Auditorium

Moderator: Tony Mitchell, Vice President, Advanced Technology and Strategy, CAES

Speakers:

Lisa Henke
Deputy General Manager and Senior Technical Director
Air and Space Programs
Maxar

Andrew Nuss
Program Manager
DARPA Tactical Technology Office

Sandip “Sonny” Sarkar
Air and Space Lead
Palantir

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