
ACCELERATING
TECHNOLOGY TRANSITION
FOR BATTLESPACE
DOMINANCE
DEFENSE FORUM
16–18 APRIL 2024 | LAUREL, MD
Secret/NOFORN
aiaa.org/defense


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WELCOME TO DEFENSE FORUM

The 2024 AIAA DEFENSE Forum Executive Steering Committee (ESC) and Technical Program Committee (TPC) are excited to welcome you to AIAA DEFENSE Forum. We have worked hard to put together the high-level, technical, and in-depth discussions centered around the theme **ACCELERATING TECHNOLOGY TRANSITION FOR BATTLESPACE DOMINANCE**. 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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Timothy Wadhams, CUBRC
Otmar (Nick) Yakaboski, U.S. Air Force AFLCMC

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WEAPON SYSTEM OPERATIONAL PERFORMANCE
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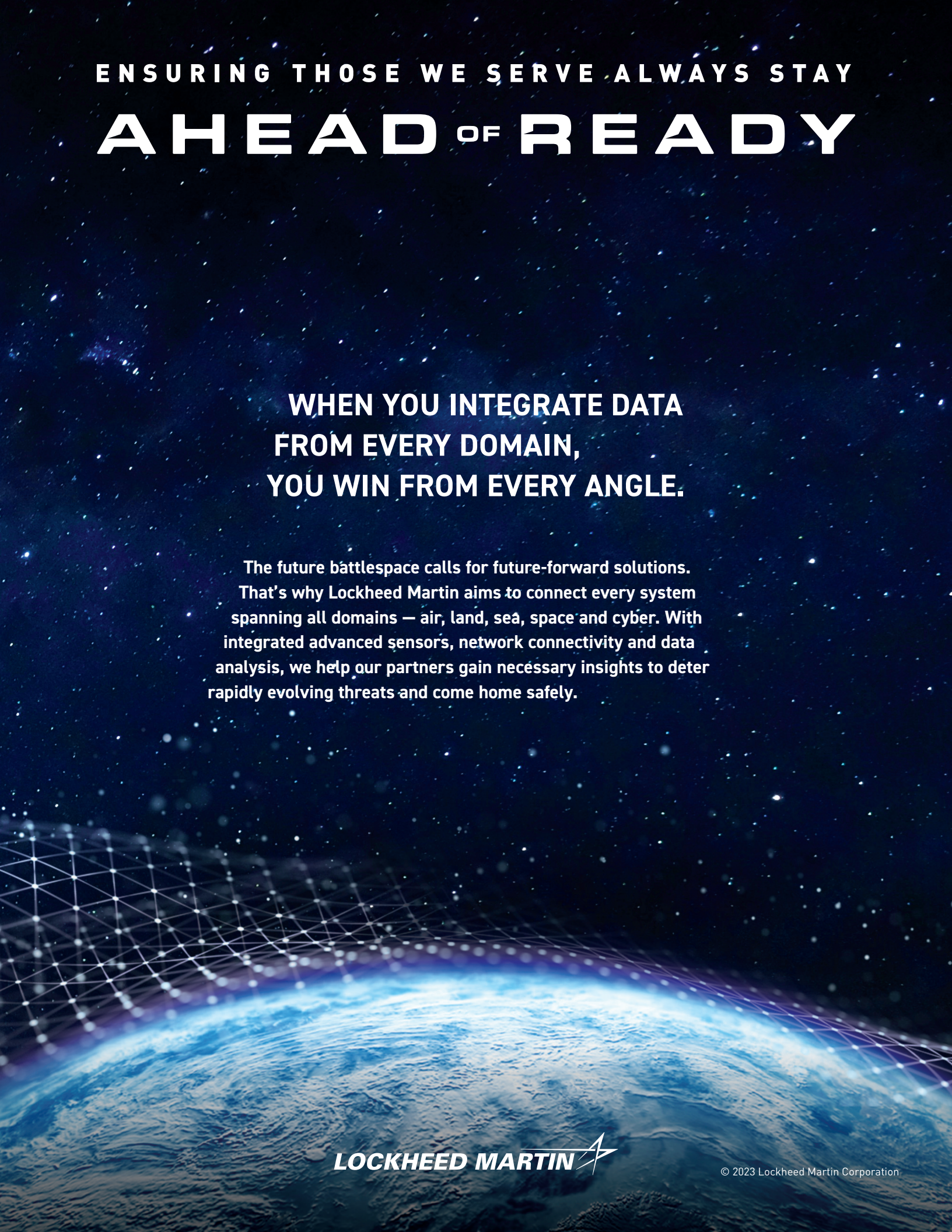
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The future battlespace calls for future-forward solutions. That's why Lockheed Martin aims to connect every system spanning all domains — air, land, sea, space and cyber. With integrated advanced sensors, network connectivity and data analysis, we help our partners gain necessary insights to deter rapidly evolving threats and come home safely.
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FORUM OVERVIEW

	TUESDAY 16 APRIL	WEDNESDAY 17 APRIL	THURSDAY 18 APRIL
0730 hrs	Continental Breakfast	Continental Breakfast	Continental Breakfast
0800 hrs 0830 hrs 0900 hrs	KEYNOTE: Threat Briefing KEYNOTE: Operational Advantages and Challenges of Artificial Intelligence and Autonomy	KEYNOTE: Defense Industrial Base Strategy KEYNOTE PANEL: Accelerating Transition and Transformation	KEYNOTE PANEL: Leveraging Technology for Operational Advantage
0930 hrs	Networking Coffee Break	Networking Coffee Break	Networking Coffee Break
1000 hrs 1030 hrs 1100 hrs 1130 hrs	DEW-01: Directed Energy Aero-Optics GNC-01: Guidance, Navigation, Control, and Estimation I SMS-01: Strategic Missile Systems TE-01: Hypersonic Test and Evaluation I	AI-01: Autonomy, Collaborative Engagement, Machine Intelligence, Robotic and Uncrewed Systems I DEW-03: DE HPM & EA GNC-03: Guidance, Navigation, Control, and Estimation III HYTASP-01: High-Maneuverability and Hypersonic Systems and Technologies I SUR-01: Survivability	AMD-01: Air & Missile Defense I DE-02: Digital Systems Modeling HYTASP-03: High-Maneuverability and Hypersonic Systems and Technologies III SASS-01: Space Access and Space Systems I TE-04: Test & Evaluation II
1200 hrs 1230 hrs	Lunch Available	Lunch Available	Lunch Available
1300 hrs 1330 hrs 1400 hrs 1430 hrs 1500 hrs	AP-01: Advanced Prototypes DEW-02: DE AI/ML & HEL Lethality GNC-02: Guidance, Navigation, Control, and Estimation II SDA-01: System and Decision Analysis for National Security SPMS-01: System Performance Modeling & Simulation I TE-02: Hypersonic Test & Evaluation II	AI-02: Autonomy, Collaborative Engagement, Machine Intelligence, Robotic and Uncrewed Systems II DE-01: Digital Thread and Mission Engineering HYTASP-02: High-Maneuverability and Hypersonic Systems and Technologies II SPMS-02: System Performance Modeling & Simulation II TE-03: Test & Evaluation I	AMD-02: Air & Missile Defense II DE-03: Digital Twin, Machine Learning, and Artificial Intelligence HYTASP-04: High-Maneuverability and Hypersonic Systems and Technologies IV SASS-02: Space Access and Space Systems II TE-05: Test & Evaluation III
1530 hrs	Networking Coffee Break	Networking Coffee Break	
1600 hrs 1630 hrs 1700 hrs	KEYNOTE PANEL: The Defense Science and Technology Challenge	KEYNOTE PANEL: Energizing the Industrial Base to Deliver Affordable Capacity	KEYNOTE PANEL: Lessons Learned from Ukraine and U.S. Central Command
1730 hrs 1800 hrs	Networking Reception		

GENERAL & SECURITY INFORMATION

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 and hearing aids must be place in airplane mode during the sessions.

If you must bring your electronics device into the facility, you will need to leave it outside the session rooms. Bags and phone racks will be availalbe on the tables outside the session areas. Please make sure all phones are on vibrate or turned off.

NOTE: AIAA and RTX are not responsible for items left outside the session rooms.

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.

AIAA TECHNICAL COMMITTEE MEETINGS

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

TUESDAY, 16 APRIL

1830–2100 HRS
Airborne Directed Energy Systems TC

1830–2100 HRS
Missile Systems TC

WEDNESDAY, 17 APRIL

1730-1930 HRS
Weapons System Effectiveness TC

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 **aiaa.org/careers.**

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/membership**

Nondiscriminatory Practices

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

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 3 May 2024
  - 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**.

SESSIONS

TUESDAY, 16 APRIL

0800–0845 HRS
Keynote: Threat Discussion

Speaker from National Air and Space Intelligence Center

0845–0930 HRS
Keynote: Operational Advantages and Challenges of Artificial Intelligence and Autonomy

SPEAKER: Kimberly Sablon, Principal Director, Trusted AI and Autonomy, Office of the Under Secretary of Defense for Research and Engineering

0930–1000 HRS
Networking Coffee Break

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1000–1200 HRS
Technical Presentations

DEW-01: Directed Energy Aero-Optics

GNC-01: Guidance, Navigation, Control, and Estimation I

SMS-01: Strategic Missile Systems

TE-01: Hypersonic Test and Evaluation I

1200–1300 HRS
Lunch Available

Cake sponsored by

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1300–1530 HRS
Technical Presentations

AP-01: Advanced Prototypes

DEW-02: DE AI/ML & HEL Lethality

GNC-02: Guidance, Navigation, Control, and Estimation II

SDA-01: System and Decision Analysis for National Security

SPMS-01: System Performance Modeling & Simulation I

TE-02: Hypersonic Test & Evaluation II

1530–1600 HRS
Networking Coffee Break

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1600–1730 HRS
Keynote Panel: The Defense Science and Technology Challenge

MODERATOR: Maynard A. Holliday, Performing the Duties of Assistant Secretary of Defense for Critical Technologies, Office of the Under Secretary of Defense for Research and Engineering

PANELISTS:

Col. Edward Ferguson, USAF, Chief, Advanced Warfighter Capabilities and Resources Analysis Division (J81), and Director, Space Technical Analysis Group (STAG), U.S. Space Command

Mark Glenn, Acting Director, Joint Hypersonics Transition Office, Office of the Assistant Secretary of Defense for Science and Technology (OASD(S&T))

Marcia Holmes, Principal Deputy Assistant Secretary of Defense for Mission Capabilities, U.S. Department of Defense

Brian L. Kantsiper, Chief Engineer, Space Development Agency

George Rumford, Director, Test Resource Management Center

1730–1900 HRS
Networking Reception

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SPEC INNOVATIONS

WEDNESDAY, 17 APRIL

0800–0845 HRS
Keynote: Defense Industrial Base Strategy

SPEAKER: Anthony Di Stasio, Director of the Manufacturing, Capability Expansion, and Investment Prioritization Directorate, Office of the Under Secretary of Defense for Acquisition and Sustainment

0845–0945 HRS
Keynote Panel: Accelerating Transition and Transformation

MODERATOR: Heidi C. Perry, Chief Technology Officer, MIT Lincoln Laboratory

PANELISTS:

Michael Brown, Chief, Hypersonic Sciences Branch, Air Force Research Laboratory

Jay Dryer, Director, Strategic Capabilities Office, Department of Defense

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

Lt. Gen. L. Neil Thurgood, USA (Ret.), Senior Vice President, Anduril Industries

0945–1000 HRS
Networking Coffee Break

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1000–1200 HRS
Technical Presentations

AI-01: Autonomy, Collaborative Engagement, Machine Intelligence, Robotic and Uncrewed Systems I

DEW-03: DE HPM & EA

GNC-03: Guidance, Navigation, Control, and Estimation III

SESSIONS

HYTASP-01: High-Maneuverability and Hypersonic Systems and Technologies I

SUR-01: Survivability

1200–1300 HRS
Lunch Available

1300–1530 HRS
Technical Presentations

AI-02: Autonomy, Collaborative Engagement, Machine Intelligence, Robotic and Uncrewed Systems II

DE-01: Digital Thread and Mission Engineering

HYTASP-02: High-Maneuverability and Hypersonic Systems and Technologies II

SPMS-02: System PerformanceModeling & Simulation II

TE-03: Test & Evaluation I

1530–1600 HRS
Networking Coffee Break
Sponsored by

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1600–1730 HRS
Keynote Panel: Energizing the Industrial Base to Deliver Affordable Capacity

MODERATOR: Aaron Kofford, Senior Advisor, Commercial Strategy, DARPA

PANELISTS:
Kimberly Caldwell, Senior Director, Global Research and Technology, Spirit AeroSystems

Shawn Fetterolf, Director of Federal Strategy, Intel Federal

Jeff Ryder, Vice President, Growth & Strategy, GM Defense

Sonny Tahiliani, Executive Director & Technology Lead, RTX Ventures

Travis Tuck, Vice President, Advanced Development and Strategy, X-Bow Systems

THURSDAY, 18 APRIL

0800–0930 HRS
Keynote Panel: Leveraging Technology for Operational Advantage

MODERATOR: VADM Sara Joyner, USN, Director, Force Structure, Resources and Assessment, J8, The Joint Staff

PANELISTS:
Col. Edward Ferguson, USAF, Chief Advanced Warfighter Capabilities and Resources Analysis Division (J81), and Director Space Technical Analysis Group (STAG), U.S. Space Command

Khoi Nguyen, Command Acquisition Executive and Director for the Cyber Acquisition and Technology Directorate (J9), U.S. Cyber Command

Robert J. Taylor, Director, Capability and Resource Integration Directorate (J8), U.S. Strategic Command

0930–1000 HRS
Networking Coffee Break
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1000–1200 HRS
Technical Presentations

AMD-01: Air & Missile Defense I

DE-02: Digital Systems Modeling

HYTASP-03: High-Maneuverability and Hypersonic Systems and Technologies III

SASS-01: Space Accessand Space Systems I

TE-04: Test & Evaluation II

1200–1300 HS
Lunch Available

1300–1530 HRS
Technical Presentations

AMD-02: Air & Missile Defense II

DE-03: Digital Twin, Machine Learning, and Artificial Intelligence

HYTASP-04: High-Maneuverability and Hypersonic Systems and Technologies IV

SASS-02: Space Accessand Space Systems II

TE-05: Test & Evaluation III

1530–1700 HRS
Keynote Panel: Lessons Learned from Ukraine and U.S. Central Command

MODERATOR: Timothy Walton, Senior Fellow, Center for Defense Concepts and Technology, Hudson Institute

PANELISTS:
Tucker Barrett, Lockheed Martin Rotary and Mission Systems

Samuel Bendett, Advisor, Russia Studies, CNA

CW5 John Peart, USA, Command and Control Systems Integrator, Joint Counter-small Unmanned Aircraft Systems Office

Col. Ryan Simms, USAF, Director of Engagements, and Chief, Air and Space Force Foreign Liaison Office, Office of the Deputy Under Secretary of the Air Force, International Affairs

2025 AIAA DEFENSE FORUM CALL FOR PRESENTATIONS

Call for presentations opens 13 May 2024 and closes 15 August 2024.

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.

DIGITAL ENGINEERING

Digital Engineering is enabling the acceleration, integration, and adoption of existing and new digital technologies using authoritative data, models, and systems across functional disciplines and supporting product lifecycle development and management from concept through design, validation, manufacture, sustainment, and disposal. Topics support the development of technical content and digital engineering capabilities in terms of definition, value, technology frameworks, reference models, case studies on implementations, recommendations, training & development, and advocacy. These are in support of driving US national competitiveness, security, and operational readiness. Additional specific complications and hurdles may be encountered when applying these topics to classified programs. Presentations are solicited on all topics, and where applicable, details are encouraged on classified program implementations.

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. 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. Presentations may address components or systems. Presentations 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. Presentations 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!

AIAA AWARDS GALA

15 May 2024 | Washington, D.C.
aiaa.org/gala

AVIATION FORUM

29 July–2 August 2024 | Las Vegas, NV
aiaa.org/aviation

ASCEND™

30 July–1 August 2024 | Las Vegas, NV
ascend.events

SCITECH FORUM

6–10 January 2025 | Orlando, FL
aiaa.org/scitech

DEFENSE FORUM

15-17 April 2025 | Laurel, MD
aiaa.org/defense

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VENUE MAP

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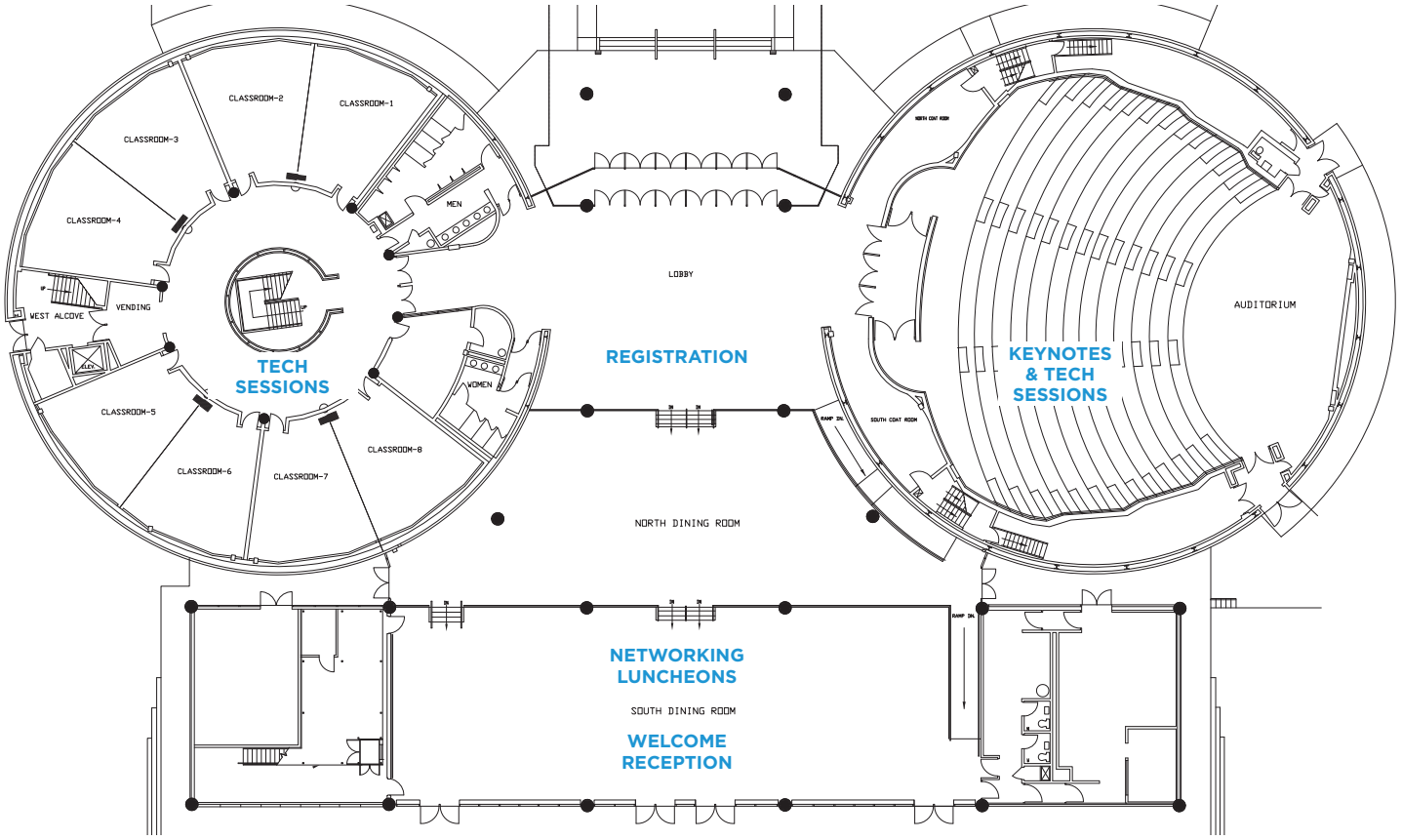
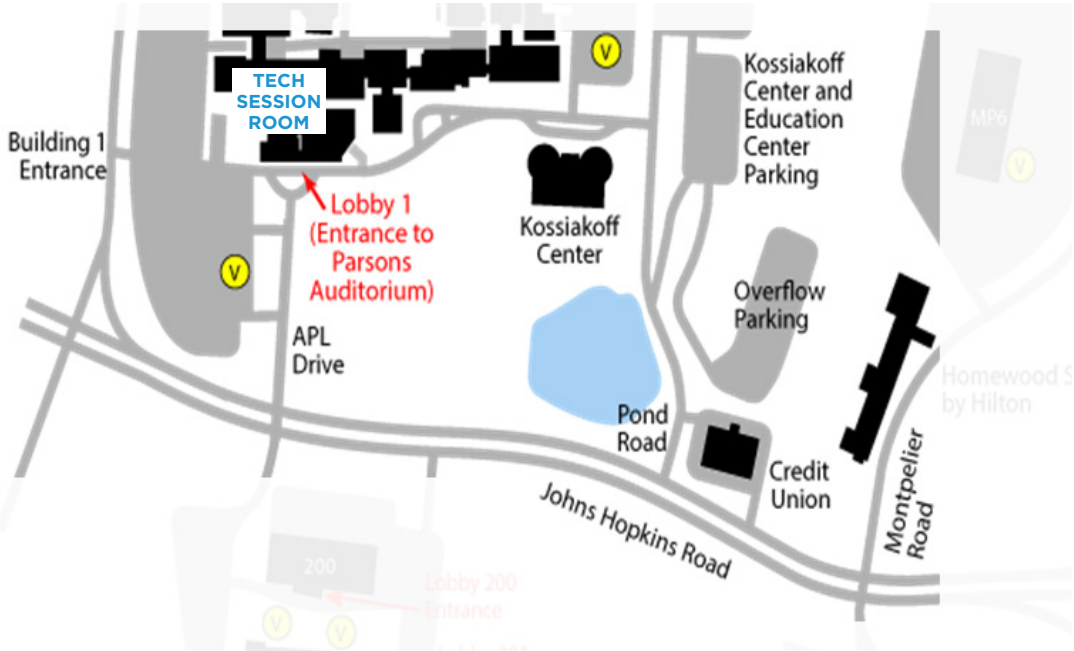
JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY



ENTRANCE TO PARSONS AUDITORIUM



DEFENSE FORUM

15–17 APRIL 2025

JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY
LAUREL, MD

Call for presentations opens
13 May 2024 and closes 15 August 2024.

aiaa.org/defense

Tuesday

Tuesday, 16 April 2024		
BRK-1 0730 - 0800 hrs	Continental Breakfast	Kossiakoff Center Dining Room

Tuesday, 16 April 2024		
KEY-1 0800 - 0845 hrs	Keynote Speaker: Threat Briefing	Auditorium
Speaker from National Air and Space Intelligence Center (NASIC)		

Tuesday, 16 April 2024		
KEY-2 0845 - 0930 hrs	Keynote Operational Advantages and Challenges of Artificial Intelligence and Autonomy	Auditorium
Speaker: **Kimberly Sablon** Principal Director, Trusted AI and Autonomy, Office of the Under Secretary of Defense for Research and Engineering		

Tuesday, 16 April 2024		
NET-1 0930 - 1000 hrs	Networking Coffee Break	Kossiakoff Center Dining Room
Sponsored by Lone Star Aerospace		

Tuesday, 16 April 2024						
DEW-1	DE Aero-Optics					Classroom 5/6
Chaired by: G. WOOD, The Johns Hopkins University - Applied Physics Laboratory (JHU/APL)						
1000 hrs AIAA-Defense2024-9000 **Airborne Directed Energy Systems Integration Committee** D. Parkes, The Boeing Company Defense Space and Security, Albuquerque, NM; D. Wittich, Air Force Research Laboratory, Kirtland AFB, NM	1020 hrs AIAA-Defense2024-9001 **Assessing the Impact of HARDROC Flow Control on the Effective Range of an Airborne DEWS System** A. Smith, N. De Lucca, M. Whiteley, MZA Associates Corporation, Dayton, OH	1040 hrs AIAA-Defense2024-9002 **Aero-Effects Design Resource for Rotor-Driven Unmanned Aerial System (UAS) Platforms for DEWS Applications** A. Smith, MZA Associates Corporation, Dayton, OH; R. Rennie, University of Notre Dame, Notre Dame, IN; N. De Lucca, MZA Associates Corporation, Dayton, OH; M. Kemnetz, Air Force Research Laboratory Directed Energy Directorate, Kirtland AFB, NM	1100 hrs AIAA-Defense2024-9003 **Model Driven Digital Engineering for Jitter Reduction in Optical Mounts** N. De Lucca, B. Catron, MZA Associates, Dayton, OH	1120 hrs AIAA-Defense2024-9004 **A Force Emulation Capability for Ground Testing Directed Energy Systems** N. De Lucca, R. Drye, MZA Associates, Dayton, OH; M. Kemnetz, Air Force Research Laboratory Directed Energy Directorate, Kirtland AFB, NM	1140 hrs AIAA-Defense2024-9005 **Higher Order Adaptive Optics on Airborne Platforms at Transonic Speeds** M. Kemnetz, Air Force Research Laboratory Directed Energy Directorate, Kirtland AFB, NM	

Tuesday, 16 April 2024						
GNC-1	Guidance, Navigation, Control, and Estimation I					Classroom 3/4
Chaired by: M. NIESTROY, Lockheed Martin Aeronautics and I. WEINTRAUB, Air Force Research Laboratory						
1000 hrs AIAA-Defense2024-9006 **Stochastic Risk-Aware Path Planning Around Multiple Threats** D. Milutinovic, University of California Santa Cruz, Santa Cruz, CA; A. Von Moll, I. Weintraub, D. Casbeer, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH	1020 hrs AIAA-Defense2024-9007 **Deterministic Risk-Aware Path Planning Around Multiple Threats** I. Weintraub, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH; A. Wolek, UNC Charlotte, Charlotte, NC; A. Von Moll, D. Casbeer, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH; S. Manyam, Infoscitex, Dayton, OH	1040 hrs AIAA-Defense2024-9008 **Digitally Enhanced Aim-Point for Capture for Mobile Targets** A. Von Moll, I. Weintraub, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH	1100 hrs AIAA-Defense2024-9009 **AI-Enabled Strike Escort and Offensive Counter Air** L. Coduti, K. Albarado, E. Frink, R. Barrett, Dynetics Inc, Huntsville, AL	1120 hrs AIAA-Defense2024-9010 **Aircraft Control Strategy Using Relational Maneuver Primitives** C. Gotwald, M. Zollars, Air Force Institute of Technology, Wright-Patterson AFB, OH; I. Weintraub, Air Force Research Laboratory, Wright-Patterson AFB, OH; J. Reeger, Air Force Institute of Technology, Wright-Patterson AFB, OH	1140 hrs Q&A/Discussion We encourage presenters to stay in the room and continue the discussion.

Tuesday, 16 April 2024						
SMS-1	Strategic Missile Systems					Classroom 7/8
Chaired by: S. VAN DYK, US Navy Strategic Systems Programs and M. OLMOS, Northrop Grumman Space Systems and A. EDSALL, The Charles Stark Draper Laboratory, Inc.						
1000 hrs AIAA-Defense2024-9011 **Advanced Weather Modeling: Using High Resolution WRF Atmospheric Model for Flight Applications** L. Diaz-Isaac, H. Beydoun, C. Knisely, B. Perfect, J. Cruz, Lawrence Livermore National Laboratory, Livermore, CA	1020 hrs AIAA-Defense2024-9014 **Optimal Sightings Selection for Celestial Navigation Applications** H. Kaptui Sipowa, R. Mangoubi, The Charles Stark Draper Laboratory Inc, Cambridge, MA	1040 hrs Q&A/Discussion We encourage presenters to stay in the room and continue the discussion.				

Tuesday, 16 April 2024						
TE-1	Hypersonic Test & Evaluation I					Auditorium
Chaired by: N. MUESCHKE, Southwest Research Institute and A. DIGGS, Air Force Research Laboratory						
1000 hrs AIAA-Defense2024-9016 **National Hypersonic Ground Test Capability Outline** G. Wilson, Test Resource Management Center, Alexandria, VA; J. Brooks, Scientific Research Corporation, Arlington, VA	1020 hrs AIAA-Defense2024-9017 **Exploring Critical Vulnerabilities for Hypersonic Vehicles in a Unique Dynamic Control Wind Tunnel Testbed** K. Casper, L. McDivitt, Sandia National Laboratories, Albuquerque, NM; A. Mazumdar, Georgia Institute of Technology, Atlanta, GA; K. Cespedes, G. Cruz, Sandia National Laboratories, Albuquerque, NM; K. Choi, Georgia Institute of Technology, Atlanta, GA; et al.	1040 hrs AIAA-Defense2024-9018 **Hypersonic Wave-Heated Facility Test and Diagnostic Capabilities** A. Dufrene, J. Peace, M. MacLean, T. Wadhams, CUBRC, Buffalo, NY	1100 hrs AIAA-Defense2024-9019 **Mach-8 Quiet Tunnel Nozzle Design and Facility Construction** 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	1120 hrs AIAA-Defense2024-9020 **The Lawrence Livermore National Laboratory Energy Matter Interaction Hypersonic Wind Tunnel (EMIT)** A. Rousso, B. Goldberg, K. Salari, R. Shuttlesworth, E. Busby, G. Ellsworth, Lawrence Livermore National Laboratory, Livermore, CA; et al.	1140 hrs Q&A/Discussion We encourage presenters to stay in the room and continue the discussion.

Tuesday, 16 April 2024		
LUNCH-1 1200 - 1300 hrs	Lunch Available	Kossiakoff Center Dining Room
Cake sponsored by Lone Star Aerospace		

Tuesday, 16 April 2024						
AP-1	Advanced Prototypes					Parsons Auditorium
Chaired by: A. SCOURAS, MIT Lincoln Laboratory and D. NEWMAN, Honeywell Inc.						
1300 hrs AIAA-Defense2024-9021 **Resilient Internetworked System (IRIS) Demonstration** Z. Mnatsakanyan, W. Guevara, K. Newell, I. Bradaric, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1320 hrs AIAA-Defense2024-9023 **Distributed Cognitive Engine for Resilient Communications Systems** I. Bradaric, B. Waida, Z. Mnatsakanyan, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1340 hrs AIAA-Defense2024-9022 **Advancements in Miniaturized Ion Electrospray Propulsion** L. Parameswaran, S. Rogers, R. Mathews, J. Kedzierski, Massachusetts Institute of Technology Lincoln Laboratory, Lexington, MA; C. Wangari, Massachusetts Institute of Technology, Cambridge, MA; E. Chin, Massachusetts Institute of Technology Lincoln Laboratory, Lexington, MA; et al.				

Tuesday, 16 April 2024						
DEW-2	DE AI/ML & HEL Lethality					Classroom 5/6
Chaired by: G. WOOD, The Johns Hopkins University - Applied Physics Laboratory (JHU/APL)						
1300 hrs AIAA-Defense2024-9024 **Determining Laser Weapon Effectiveness in the Era of 300kW Systems** N. Morley, J. McCord, AFRL, Kirtland AFB, Albuquerque, NM	1320 hrs AIAA-Defense2024-9025 **Probability of Weapon Effectiveness Experiment (PWEX) Program Results** Z. George, P. Wallentine, J. Ford, Missile Defense Agency, Fort Belvoir, VA; C. Lloyd, Naval Surface Warfare Center, Washington Navy Yard, D.C.	1340 hrs AIAA-Defense2024-9026 **Mesh Parametrization and Sensitivity Analysis for Parametric Evaluation of Surface-Defect Effects on Vehicle Performance** A. Ricciardi, J. McCauley, E. Blades, ATA Engineering, Inc, San Diego, CA; D. Luke, AFRL, Kirtland AFB, NM	1400 hrs AIAA-Defense2024-9027 **Automating Parametric Evaluation of Surface-Defect Effects on Vehicle Performance With Adaptive Mesh Refinement** A. Ricciardi, J. McCauley, E. Blades, ATA Engineering, Inc., San Diego, CA; D. Luke, AFRL, Kirtland AFB, NM	1420 hrs AIAA-Defense2024-9028 **Data-Driven Physics Model Identification Using Machine Learning: Advancing Survivability and Lethality Predictions and Analysis** A. Salas, SURVICE Engineering, Albuquerque, NM	1440 hrs AIAA-Defense2024-9029 **Artificial Intelligence Methods for Kill Assessment and Damage Assessment** A. Buczak, P. Sicurello, A. Steman, T. Reininger, G. Wood, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1500 hrs AIAA-Defense2024-9030 **Event-Based Sensor Small UAS Detection for Target Acquisition Applications** D. Ziehl, J. Cox, AFRL/RD, Kirtland AFB, NM

Tuesday, 16 April 2024						
GNC-2	Guidance, Navigation, Control, and Estimation II					Classroom 3/4
Chaired by: M. NIESTROY, Lockheed Martin Aeronautics						
1300 hrs AIAA-Defense2024-9031 **Robust Synthesis and Analysis for Hypersonic Blended Control** K. Cespedes, G. Cruz, W. Ledbetter, A. Mazumdar, K. Umasankar, J. Carpenter, Sandia National Laboratories, Albuquerque, NM; et al.	1320 hrs AIAA-Defense2024-9032 **Experimental Validation of a Hypersonic Control Design Toolkit Using a Dynamic Wind Tunnel** G. Cruz, K. Cespedes, J. Carpenter, W. Ledbetter, A. Mazumdar, K. Choi, Sandia National Laboratories, Albuquerque, NM; et al.	1340 hrs AIAA-Defense2024-9033 **Midcourse Navigation Technology for Cannon Artillery** C. Miller, J. Maley, D. Everson, US Army Research Laboratory Weapons and Materials Research Directorate, Aberdeen Proving Ground, MD	1400 hrs AIAA-Defense2024-9034 **Low SWaP Onboard Satellite Navigation, Guidance, and Control Technology** C. Gramling, S. Hur-Diaz, A. Liounis, B. Azimi, M. Romeo, G. Crum, NASA-GSFC, Greenbelt, MD; et al.	1420 hrs AIAA-Defense2024-9035 **Optimal Online Trajectory Planning for Fixed-Wing UAVS With High-Power Microwave Targeting and Tracking** J. Nguyen, M. Briggs, M. Abdulrahim, T. Fields, Missouri Institute Department and Energy, Kansas City, MO	1440 hrs Q&A/Discussion We encourage presenters to stay in the room and continue the discussion.

Tuesday, 16 April 2024					
SPMS-1	System Performance Modeling & Simulation I				Classroom 7/8
Chaired by: S. CHOCRON, Southwest Research Institute and S. BABA, Raytheon					
1300 hrs AIAA-Defense2024-9036 **Hypersonic Missile Threat Modeling, Simulation, and Assessment** R. Allen, Lone Star Aerospace, Addison, TX	1320 hrs AIAA-Defense2024-9038 **HOTSHOT: A Multiphysics Hypersonic Mission Simulation Code** J. Maxwell, A. Sweet, U.S. Naval Research Laboratory, Washington, D.C.	1340 hrs AIAA-Defense2024-9039 **Laminar-Turbulent Transition Prediction for Hypersonic Vehicles Using Reduced Order Models Derived From Parabolized Stability Equations** S. Harris, R. Wagnild, Sandia National Laboratories, Albuquerque, NM	1400 hrs AIAA-Defense2024-9041 ***Kestrel* Reynolds Averaged Navier-Stokes Turbulence and Transition Model for High-Speed Flows** R. Nichols, University of Alabama Birmingham, Birmingham, AL	1420 hrs Q&A/Discussion We encourage presenters to stay in the room and continue the discussion.	

Tuesday, 16 April 2024						
TE-2	Hypersonic Test & Evaluation II					Auditorium
Chaired by: A. DIGGS, Air Force Research Laboratory and K. CASPER, Sandia National Laboratories						
1300 hrs AIAA-Defense2024-9042 **Where Are the Wind Tunnels? How Aggregation of Wind Tunnel Test Resources Can Enable Concept Testing Within Days and Create a Sustainable Test Industry** S. Verdugo, A. Verdugo, Afterburner Wind Tunnel Services, LLC, King George, VA	1320 hrs AIAA-Defense2024-9043 **Innovation for Variable Mach Number Nozzle Used in Hypersonic Clean Air Testing** J. Herdy, CFD Research Corporation, Huntsville, AL	1340 hrs AIAA-Defense2024-9044 **Capability Improvements of Sandia's Hypersonic Wind Tunnel** S. Beresh, K. Casper, R. Spillers, R. Bhakta, B. Denk, M. De Zetter, Sandia National Laboratories, Albuquerque, NM; et al.	1400 hrs AIAA-Defense2024-9045 **Multi-Service Advanced Capability Hypersonics Test Bed (MACH-TB)** A. Brawner, A. Cash, Leidos Inc, Reston, VA	1420 hrs AIAA-Defense2024-9046 **Development, Expansion, and Future Plans for a New Direct-Connect Inlet Component Test Capability** S. Benton, D. Reilly, C. Butzer, T. Gardner, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH	1440 hrs AIAA-Defense2024-9047 **Hypersonic Ground Test Enhancements at CUBRC in Support of DoD Technology Development and Validation** T. Wadhams, A. Dufrene, Z. Carr, R. Parker, CUBRC, Inc, Buffalo, NY	1500 hrs Q&A/Discussion We encourage presenters to stay in the room and continue the discussion.

Tuesday, 16 April 2024						
SDA-1	System and Decision Analysis for National Security					Parsons Auditorium
Chaired by: K. LABBE, Systems Planning and Analysis and B. STEINFELDT, Sandia National Labs and J. LAFLEUR, Sandia National Laboratories						
				1420 hrs AIAA-Defense2024-9048 Conceptual Design and System Engineering Process - Analysis of Alternatives R. Allen, Lone Star Aerospace, Addison, TX	1440 hrs AIAA-Defense2024-9049 A Mission Effectiveness-Based Approach to Technology Impact Forecasting and Evaluation in a Hypersonic System Context A. Gabhart, Georgia Institute of Technology College of Engineering, Atlanta, GA; D. Mothershed, Lockheed Martin Corp, Bethesda, MD; A. Sudol, D. Mavris, Georgia Institute of Technology College of Engineering, Atlanta, GA	1500 hrs AIAA-Defense2024-9050 Continuous Asymmetric Risk Analysis: A New Approach to Risk Analysis Z. Engel, N. Harrill, Lone Star Analysis, Addison, TX

Tuesday, 16 April 2024		
NET-2 1530 - 1600 hrs	Networking Coffee Break	Kossiakoff Center Dining Room
Sponsored by Lone Star Aerospace		

Tuesday, 16 April 2024		
KEY-3 1600 - 1730 hrs	Keynote Panel: The Defense Science and Technology Challenge	Auditorium

Panelists will explain how the Department of Defense develops innovative and operationally relevant capabilities and will focus on both concepts and architectures. Several of the critical technology areas and priorities identified by the Under Secretary of Defense for Research and Engineering will be discussed.

Moderator: **Maynard Holliday**, Performing the Duties of Assistant Secretary of Defense for Critical Technologies, Office of the Under Secretary of Defense for Research and Engineering

Panelists:

Col. Edward Ferguson, USAF
Chief, Advanced Warfighter Capabilities and Resources Analysis Division (J81),
and Director, Space Technical Analysis Group (STAG),
U.S. Space Command

Mark Glenn
Acting Director, Joint Hypersonics Transition Office
Office of the Assistant Secretary of Defense for Science and Technology (OASD(S&T))

Marcia Holmes
Principal Deputy Assistant Secretary of Defense for Mission Capabilities
U.S. Department of Defense

Brian L. Kantsiper
Chief Engineer
Space Development Agency

George Rumford
Director
Test Resource Management Center

Tuesday, 16 April 2024		
NET-3 1730 - 1900 hrs	Networking Reception	Kossiakoff Center Dining Room
Relax and enjoy conversation, drinks, and food with attendees and speakers. It's a great way to miss the DC traffic! Reception sponsored by Spec Innovations		

Wednesday

Wednesday, 17 April 2024		
BRK-2 0730 - 0800 hrs	Continental Breakfast	Kossiakoff Center Dining Room

Wednesday, 17 April 2024		
KEY-4 0800 - 0845 hrs	Keynote Address: Defense Industrial Base Strategy	Auditorium

Hear an update from DoD Industrial Base Policy on the national defense industrial strategy and implementation plan. Topics include achieving affordable capacity, industrial base resilience, and resource prioritization.

Speaker:

Anthony Di Stasio
Director of the Manufacturing, Capability Expansion, and Investment Prioritization Directorate,
Office of the Under Secretary of Defense for Acquisition and Sustainment

Wednesday, 17 April 2024		
KEY-5 0845 - 0945 hrs	Keynote Panel: Accelerating Transition and Transformation	Auditorium

In this panel, defense leaders will describe how their organizations develop and advance critical capabilities to the field to meet operational needs and provide strategic advantages.

Moderator: **Heidi Perry**, Chief Technology Officer, MIT Lincoln Laboratory

Panelists:

Michael Brown
Chief, Hypersonic Sciences Branch
Air Force Research Laboratory

Jay Dryer
Director, Strategic Capabilities Office
Department of Defense

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

LTG L. Neil Thurgood, USA (Ret.)
Senior Vice President
Anduril Industries

Wednesday, 17 April 2024		
NET-4 0945 - 1000 hrs	Networking Coffee Break	Kossiakoff Center Dining Room

Sponsored by CUBRC

Wednesday, 17 April 2024		
AI-1	Autonomy, Collaborative Engagement, Machine Intelligence, Robotic and Uncrewed Systems I	Parsons Auditorium

Chaired by: P. BENNER, Raytheon

1000 hrs AIAA-Defense2024-9051 **Analog Accelerated Fourier Transforms for Autonomous Sensing and Navigation** C. Bennett, P. Xiao, B. Feinberg, A. Weatherly, D. Richardson, R. Patel, Sandia National Laboratories, Albuquerque, NM; et al.	1020 hrs AIAA-Defense2024-9052 **Decentralized Multi-Agent Reinforcement Learning for Interception in a 3-Dimensional Environment** D. Crowder, M. Trappett, D. McKenzie, M. Emmons, S. Musuvathy, F. Chance, Sandia National Laboratories, Albuquerque, NM	1040 hrs AIAA-Defense2024-9053 **A Modular, Hierarchical Framework for Human-Machine Strategic Planning** D. Crowder, D. McKenzie, S. Musuvathy, Sandia National Laboratories, Albuquerque, NM	1100 hrs AIAA-Defense2024-9054 **Quantifying Autonomy in Intelligent Systems: A Novel Framework for Assessing Average Level of Autonomy Based on System Behavior** S. Alaee, J. Pittman, Booz Allen Hamilton Inc, McLean, VA	1120 hrs **Q&A/Discussion** We encourage presenters to stay in the room and continue the discussion.

Wednesday, 17 April 2024		
DEW-3	DE HPM & EA	Classroom 5/6
Chaired by: G. WOOD, The Johns Hopkins University - Applied Physics Laboratory (JHU/APL)		
1000 hrs AIAA-Defense2024-9055 **Compact HPM and Cyber Capabilities and Development for Offensive Operations** T. Fields, R. Allen, P. Bland, S. Karnes, University of Missouri Kansas City, Kansas City, MO	1020 hrs AIAA-Defense2024-9056 **A Time Constant-Based Approach to HPM Effects Predictions** S. Karnes, T. Fields, J. Harp, University of Missouri-Kansas City, Kansas City, MO	1040 hrs **Q&A/Discussion** We encourage presenters to stay in the room and continue the discussion.

Wednesday, 17 April 2024					
GNC-3	Guidance, Navigation, Control, and Estimation III				Classroom 3/4
Chaired by: M. NIESTROY, Lockheed Martin Aeronautics					
1000 hrs AIAA-Defense2024-9057 **Thermal Beam Atomic Interferometer** J. Bingham, B. Ruane, R. Del Toro, A. Luong, Sandia National Laboratories, Albuquerque, NM	1020 hrs AIAA-Defense2024-9058 **Distributed and Cooperative Distance-Based Formation Control for Swarming Munitions** L. Fairfax, US Army Combat Capabilities Development Command, Aberdeen Proving Ground, MD	1040 hrs AIAA-Defense2024-9059 **Spoofing Detection Using Support Vector Machines and Receiver Power Monitoring** J. Ortiz, C. Brashar, Sandia National Laboratories, Albuquerque, NM	1100 hrs AIAA-Defense2024-9060 **Assured PNT in GPS-Denied Environments** C. Gibson, S. Miller, Sandia National Laboratories, Albuquerque, NM	1120 hrs AIAA-Defense2024-9061 **Distributed Sensing for the Navy and Marine Corps** B. Holm-Hansen, Office of Naval Research, Arlington, VA	1140 hrs **Q&A/Discussion** We encourage presenters to stay in the room and continue the discussion.

Wednesday, 17 April 2024					
HYTASP-1	High-Maneuverability and Hypersonic Systems and Technologies I				Auditorium
Chaired by: K. GOULD, MIT Lincoln Laboratory and C. REYNOLDS, Lockheed Martin Space Systems					
1000 hrs AIAA-Defense2024-9062 **The JANNAF Initiative: Next Steps – An Integrated Approach to Providing Plume/Wake/Hypersonic Prediction Tools** M. Vaughn, U.S. Army DEVCOM Aviation and Missile Center, Redstone Arsenal, AL	1020 hrs AIAA-Defense2024-9063 **Flight Vehicle Aero-Optical Simulations** L. Melander, N. Falkiewicz, C. Buttaccio, G. Cappiello, K. Gould, Massachusetts Institute of Technology Lincoln Laboratory, Lexington, MA	1040 hrs AIAA-Defense2024-9064 **Hypersonic Flow and Plasma Sheath Signal Analysis** R. Adelgren, A. Grotelueschen, L. Freeman, J. Richardson, M. Abouhamad, A. Richards, Arcfield, Colorado Springs, CO; et al.	1100 hrs AIAA-Defense2024-9065 **Hypersonic Vehicle Simulation** C. Epstein, Massachusetts Institute of Technology Lincoln Laboratory, Lexington, MA	1120 hrs AIAA-Defense2024-9066 **Using Generative Artificial Intelligence to Explore Defense Against Hypersonic Glide Vehicles** J. Ofarrill, N. Highsmith, MTSI, Huntsville, AL	1140 hrs **Q&A/Discussion** We encourage presenters to stay in the room and continue the discussion.

Wednesday, 17 April 2024					
SUR-1	Survivability				Classroom 7/8
Chaired by: J. KOKKAT, Johns Hopkins University Applied Physics Laboratory					
1000 hrs AIAA-Defense2024-9067 **Application of Low-Cost Radar Cross Section Reduction Techniques for Group I/II Unmanned Aerial Systems.** K. Butler, A. Chance, T. Fields, R. Allen, University of Missouri-Kansas City School of Science and Engineering, Kansas City, MO	1020 hrs AIAA-Defense2024-9068 **Techniques to find Compression, Tensile, and Shear Properties of Composites at High Strain Rates and Elevated Temperatures** I. Chocron, Southwest Research Institute, San Antonio, TX	1040 hrs **Q&A/Discussion** We encourage presenters to stay in the room and continue the discussion.			

Wednesday, 17 April 2024		
LUNCH-2 1200 - 1300 hrs	Lunch Available	Kossiakoff Center Dining Room

Wednesday, 17 April 2024					
AI-2	Autonomy, Collaborative Engagement, Machine Intelligence, Robotic and Uncrewed Systems II				Classroom 7/8
Chaired by: P. BENNER, Raytheon					
1300 hrs AIAA-Defense2024-9070 **Enabling Energy-Efficient Trajectory Optimization Using Analog Processing** B. Feinberg, D. Ridzal, A. Javeed, P. Xiao, C. Bennett, E. Boman, Sandia National Laboratories, Albuquerque, NM; et al.	1320 hrs AIAA-Defense2024-9071 **Safety Certification of AI-based Mission Software Applications for Manned-Unmanned Teaming in Multi-Domain Operations: Adapted Risk Assessment for Uncrewed Robotic Systems** L. Mutuel, US Department of the Army, Huntsville, AL	1340 hrs AIAA-Defense2024-9072 **Swarm vs. IADS Deception and Perception Strategies Phase II Update** M. Don, M. Hamaoui, Army Research Laboratory Aberdeen Proving Ground, Aberdeen Proving Ground, MD	1400 hrs **Q&A/Discussion** We encourage presenters to stay in the room and continue the discussion.		

Wednesday, 17 April 2024						
DE-1	Digital Thread and Mission Engineering					Classroom 5/6
Chaired by: R. GRAVES, Air Force Research Laboratory and M. BELISLE, Northrop Grumman Mission Systems						
1300 hrs AIAA-Defense2024-9073 **Lessons Learned From the Deployment of Containerized Digital Tools to Closed Networks** R. Mathews, M. Lockwood, D. Allison, RTX Corporation, Tucson, AZ	1320 hrs AIAA-Defense2024-9074 **A Digital Engineering Approach for the Design and Development of Low-Cost Missile Systems** S. Luna, J. Quintana, The University of Texas at El Paso, El Paso, TX	1340 hrs AIAA-Defense2024-9075 **Simulation-Based Digital Threads for High-Diversity Prototyping at MIT Lincoln Laboratory** J. Rey, Massachusetts Institute of Technology Lincoln Laboratory, Lexington, MA	1400 hrs AIAA-Defense2024-9076 **Overview of the Digitial Engineering Tool Evaluation Criteria Template Project (DETECT)** D. Hettema, J. Ramos, US Department of Defense, Washington, D.C.; F. Salvatore, SAIC, Stockholm, NJ	1420 hrs AIAA-Defense2024-9077 **“Project Looking Glass” - A Digital Engineering and M&S Based Capability** T. Bierly, Applied Research Associates Inc, Albuquerque, NM	1440 hrs AIAA-Defense2024-9078 **A Platform Approach to Digital Engineering for Missile Defense** S. Dam, SPEC Innovations, Manassas, VA	1500 hrs **Q&A/Discussion** We encourage presenters to stay in the room and continue the discussion.

Wednesday, 17 April 2024						
HYTASP-2	High-Maneuverability and Hypersonic Systems and Technologies II					Auditorium
Chaired by: K. GOULD, MIT Lincoln Laboratory and C. REYNOLDS, Lockheed Martin Space Systems						
1300 hrs AIAA-Defense2024-9080 **Progress in Rapid and Affordable Hypersonic Flight Research and Development** J. Fuller, J. Stults, Stratolaunch, Mojave, CA	1320 hrs AIAA-Defense2024-9081 **High Operational Tempo for Hypersonics: Precision Sounding Rockets for Technology Maturation** D. Chavez, Sandia National Laboratories, Albuquerque, NM	1340 hrs AIAA-Defense2024-9082 **High Operational Tempo for Hypersonics: Flight Performance of a Highly Depressed Three Stage Sounding Rocket** M. Lanier, B. Wiberg, Sandia National Laboratories, Albuquerque, NM	1400 hrs AIAA-Defense2024-9083 **Flight Test of a Payload** K. Gould, S. Kodali, R. Fontaine, A. Mankame, S. Knapp, G. Andrews, Massachusetts Institute of Technology Lincoln Laboratory, Lexington, MA; et al.	1420 hrs AIAA-Defense2024-9084 **Characterization of the Aerothermal Environment of Hypersonic Sounding Rockets – Mach-TB Sub Scale Tests 1 and 2** K. Casper, M. Di Stefano, R. Wagnild, S. Babiniec, B. Robbins, P. Coffin, Sandia National Laboratories, Albuquerque, NM; et al.	1440 hrs AIAA-Defense2024-9085 **Development and Flight Testing of an Optical Emission Spectroscopy System for Thermal Protection System Measurements** A. Plumadore, K. Casper, K. Lynch, W. Swain, R. Wagnild, R. Spillers, Sandia National Laboratories, Albuquerque, NM; et al.	1500 hrs AIAA-Defense2024-9086 **Flight Deployment of a Nosetip at Hypersonic Conditions** C. Smith, Sandia National Laboratories, Albuquerque, NM

Wednesday, 17 April 2024						
SPMS-2	System Performance Modeling & Simulation II					Classroom 3/4
Chaired by: J. WALKER, Southwest Research Institute and A. DIGGS, Air Force Research Laboratory						
1300 hrs AIAA-Defense2024-9088 **Verification, Validation, and Accreditation of a Federation of Models and Simulations of a Complex Systems** A. Dent, N. Borchers, US Army Test and Evaluation Command, Colorado Springs, CO	1320 hrs AIAA-Defense2024-9089 **System Performance Environment for Analysis of Requirements (SPEAR)** K. Dillard, M. Miller, Georgia Tech Research Institute, Atlanta, GA	1340 hrs **Q&A/Discussion** We encourage presenters to stay in the room and continue the discussion.				

Wednesday, 17 April 2024						
TE-3	Test & Evaluation I					Parsons Auditorium
Chaired by: T. WADHAMS, CUBRC, Inc. and K. LONDENBERG, L3Harris						
1300 hrs AIAA-Defense2024-9090 **Unsteady Balance Measurements for Weapons Separation: Trials and Progress** I. Maatz, Air Force Research Laboratory, Wright-Patterson AFB, OH	1320 hrs AIAA-Defense2024-9091 **Development of an Unsteady Loads Module (ULM) for Store Separation** N. De Lucca, M. Whiteley, A. Rainford, A. Smith, MZA Associates, Dayton, OH; I. Maatz, S. Sherer, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH; et al.	1340 hrs AIAA-Defense2024-9092 **Store Trajectory Simulations and Analysis Using the Unsteady Loads Module (ULM)** N. De Lucca, A. Rainford, M. Whiteley, A. Smith, MZA Associates, Dayton, OH; I. Maatz, S. Sherer, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH; et al.	1400 hrs AIAA-Defense2024-9093 **CFD Analyses Supporting Small-Weapon Separation Programs** S. Sherer, R. Speth, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH; F. Michael, University of Dayton Research Institute, Dayton, OH	1420 hrs AIAA-Defense2024-9094 **Trajectory Cone Due to Time of Release From a Transonic Cavity Using IDDES** R. Speth, F. Michael, S. Sherer, Air Force Research Laboratory, Wright-Patterson AFB, OH	1440 hrs AIAA-Defense2024-9095 **Exploration of Cavity Flow Control Using LES** C. Barnes, M. Schwartz, D. Garmann, Air Force Research Laboratory, Wright-Patterson AFB, OH	1500 hrs AIAA-Defense2024-9096 **Integration of Data From Multiple Sources** J. Spall, L. Wang, Johns Hopkins University, Baltimore, MD

Wednesday, 17 April 2024		
NET-5 1530 - 1600 hrs	Networking Coffee Break	Kossiakoff Center Dining Room
Sponsored by CUBRC		

Wednesday, 17 April 2024		
KEY-6 1600 - 1730 hrs	Keynote Panel: Energizing the Industrial Base to Deliver Affordable Capacity	Auditorium

"While America continues to generate the world's most capable weapons systems, it must have the capacity to produce those capabilities at speed and scale to maximize our advantage" (2023 National Defense Industrial Strategy, p. 7). Hear from senior defense industry leaders as they discuss impediments and opportunities to accelerating affordable capacity across the industrial base.

Moderator: **Aaron Kofford**, Senior Advisor, Commercial Strategy, DARPA

Panelists:

Kimberly Caldwell
Senior Director, Global Research and Technology
Spirit AeroSystems

Shawn Fetterolf
Director of Federal Strategy
Intel Federal

Jeff Ryder
Vice President Growth & Strategy
GM Defense

Sonny Tahiliani
Executive Director and Technology Lead
RTX Ventures

Travis Tuck
Vice President, Advanced Development and Strategy
X-Bow Systems, Inc.

Thursday

Thursday, 18 April 2024		
BRK-3 0730 - 0800 hrs	Continental Breakfast	Kossiakoff Center Dining Room

Thursday, 18 April 2024		
KEY-7 0800 - 0930 hrs	Keynote Panel: Leveraging Technology for Operational Advantage	Auditorium

How do we accelerate technology development to create operational advantages? Hear from Combatant Command leaders as they describe how they take existing solutions, new innovations, and emerging technologies and use them as tools to provide a competitive edge.

Moderator: **VADM Sara Joyner, USN**, Director, Force Structure, Resources and Assessment, J8, The Joint Staff

Panelists:

Col Edward Ferguson, USAF,
Chief, Advanced Warfighter Capabilities and Resources Analysis Division (J81), and
Director, Space Technical Analysis Group (STAG),
U.S. Space Command

Khoi Nguyen
Command Acquisition Executive and Director for the Cyber Acquisition and Technology Directorate (J9)
U.S. Cyber Command

Robert Taylor
Director, Capability and Resource Integration Directorate (J8),
U.S. Strategic Command

Thursday, 18 April 2024		
NET-6 0930 - 1000 hrs	Networking Coffee Break	Kossiakoff Center Dining Room
Sponsored by Leidos		

Thursday, 18 April 2024						
AMD-1	Air & Missile Defense I					Classroom 7/8
Chaired by: R. GAMBLE, Axient Corporation and D. FOX, Lockheed Martin Missiles and Fire Control						
1000 hrs AIAA-Defense2024-9097 **Integrated Air and Missile Defense Requirements Priorities - 2024** J. Banez, J. Boulware, Joint Chiefs of Staff, Washington, D.C.	1020 hrs AIAA-Defense2024-9098 **Impact Point Estimation for Missile Interceptor Area Defense** S. Rimkus, J. King, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1040 hrs AIAA-Defense2024-9099 **An Approach to Missile Interceptor Threat Containment Estimation** S. Rimkus, J. Cheng, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1100 hrs AIAA-Defense2024-9100 **Long Range Detection and Tracking of Hypersonic Glide Vehicles** A. Willitsford, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1120 hrs AIAA-Defense2024-9101 **Design and Optimization of High-Temperature Load-Bearing Skins for Cylindrical Morphing Missile Bodies** C. Kassner, L. Rueschhoff, Air Force Research Laboratory, Wright-Patterson AFB, OH	1140 hrs AIAA-Defense2024-9102 **Continued Analysis of Missile Intercept Lethality Against TBM Threats and Resulting Debris Fall** M. Harmon, Lockheed Martin Missiles and Fire Control, Dallas, TX	

Thursday, 18 April 2024						
DE-2	Digital Systems Modeling					Classroom 5/6
Chaired by: D. ALLISON, Raytheon and M. CRIBB, Anduril Industries						
1000 hrs AIAA-Defense2024-9103 **Creating Digital Threads for Aerospace Models-Based Systems Engineering Use Cases** D. Kessler, M. Pohlman, C. Cuppan, A. Guber, M. Wise, Arcfield, Chantilly, VA	1020 hrs AIAA-Defense2024-9104 **Aligning Digital Engineering and Modeling & Simulation at Office of the Secretary of Defense** D. Hettema, US Department of Defense, Washington, D.C.; F. Salvatore, SAIC, Reston, VA	1040 hrs AIAA-Defense2024-9105 **Review of the DoD SysML v1 to v2 Transition Guide Project** D. Hettema, US Department of Defense, Washington, D.C.; J. Ramos, F. Salvatore, SAIC, Reston, VA	1100 hrs AIAA-Defense2024-9106 **A Methodology for Model Federation Applied Across Defense Systems Development Programs** C. Swickline, SAIC, Reston, VA	1120 hrs AIAA-Defense2024-9107 **Applying MBSE in Space Based Systems Development** C. Swickline, SAIC, Reston, VA	1140 hrs **Q&A/Discussion** We encourage presenters to stay in the room and continue the discussion.	

Thursday, 18 April 2024						
HYTASP-3	High-Maneuverability and Hypersonic Systems and Technologies III					Auditorium
Chaired by: K. GOULD, MIT Lincoln Laboratory and C. REYNOLDS, Lockheed Martin Space Systems						
1000 hrs AIAA-Defense2024-9108 **Experimental Evaluation and Mitigation of Off-Nominal Hypersonic Vehicle Conditions With Advanced Feedback Control** A. Mazumdar, K. Casper, K. Cespedes, G. Cruz, J. Carpenter, K. Choi, Sandia National Laboratories, Albuquerque, NM; et al.	1020 hrs AIAA-Defense2024-9109 **Closed-Loop Guidance of a Hypersonic Weapon With a Side-Looking Seeker** N. Harl, N. Coleman, R. Dellana, R. Liang, Sandia National Laboratories, Albuquerque, NM	1040 hrs AIAA-Defense2024-9110 **Rotating Detonation Engine Propulsion Integration Efforts at the Air Force Research Laboratory** C. Butzer, S. Benton, M. Fotia, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH	1100 hrs AIAA-Defense2024-9111 **Ballistic Range Observations of Radiating Hypersonic Wakes** R. MacDermott, Air Force Institute of Technology, Wright-Patterson AFB, OH; N. Mueschke, Southwest Research Institute, San Antonio, TX	1120 hrs AIAA-Defense2024-9112 **Effects of a Sealed Cove on Separated Shear-Layer Transition and Elevon Heating in a Quiet Mach-6 Flow** A. Lay, J. Jewell, S. Schneider, B. Chynoweth, Purdue University, West Lafayette, IN	1140 hrs **Q&A/Discussion** We encourage presenters to stay in the room and continue the discussion.	

Thursday, 18 April 2024					
SASS-1	Space Access and Space Systems I				Classroom 3/4
Chaired by: M. MCFARLAND, Raytheon and S. LACY, Air Force Research Laboratory					
1000 hrs AIAA-Defense2024-9113 **Performance Optimized Security Implementation for Delay Tolerant Networks** N. Kortas, NASA, Washington, D.C.	1020 hrs AIAA-Defense2024-9115 **The Sensitivity of Tactical Responsive Space Factors on Campaign Objectives** D. Norrell, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH	1040 hrs AIAA-Defense2024-9116 **Wafer-Scale Satellites: A New Paradigm for Rapid Development of Distributed Satellite Networks** S. Rogers, L. Parameswaran, E. Holihan, R. Mathews, E. Chin, M. Smith, Massachusetts Institute of Technology Lincoln Laboratory, Lexington, MA; et al.	1100 hrs AIAA-Defense2024-9117 **Blackjack Proliferated Low Earth Orbit Demonstration** S. Forbes, Defense Advanced Research Projects Agency, Arlington, VA; K. Cannon, Booz Allen Hamilton Inc, McLean, VA; T. Anthony, Space Systems Integration, Chantilly, VA; D. Dixon, TEC Solutions, Arlington, VA; M. MacDonough, Booz Allen Hamilton Inc, McLean, VA	1120 hrs Q&A/Discussion We encourage presenters to stay in the room and continue the discussion.

Thursday, 18 April 2024						
TE-4	Test & Evaluation II					Parsons Auditorium
Chaired by: P. DUNN, MIT and N. MORLEY, Air Force Reseach Laboratory						
1000 hrs AIAA-Defense2024-9118 **Overview and Status of the Next Generation Seeker Window Material Testing Program** W. Coirier, Kratos Defense and Rocket Support Services, Inc., Huntsville, AL	1020 hrs AIAA-Defense2024-9119 **Modeling and Simulation in Support of the Next Generation Seeker Window Material Testing Program** J. Stutts, Kratos Defense & Rocket Support Services, Inc., Huntsville, AL	1040 hrs AIAA-Defense2024-9120 **Integration of Model-Based Engineering (MBE) Techniques To Advance Test and Evaluation (T&E)** C. Collins, USD(R&E) DTE&A, Alexandria, VA	1100 hrs AIAA-Defense2024-9121 **Unlocking Flight Test Challenges Through the Good Target Call Process** P. Mistry, M. Ferguson, K. Walters, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1120 hrs AIAA-Defense2024-9122 **Advanced Algorithms for Launch Collision Avoidance and Flight Test Safety** B. Elliott, M. Ferguson, K. Walters, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1140 hrs AIAA-Defense2024-9123 **RCS-Controlled Aerial Target Solutions** J. Baker, Modern Technology Solutions Inc, Alexandria, VA	

Thursday, 18 April 2024		
LUNCH-3 1200 - 1300 hrs	Lunch Available	Kossiakoff Center Dining Room

Thursday, 18 April 2024						
AMD-2	Air & Missile Defense II					Classroom 7/8
Chaired by: D. FOX, Lockheed Martin Missiles and Fire Control and R. GAMBLE, Axient Corporation						
1300 hrs AIAA-Defense2024-9124 **Combined Fluid – Electromagnetic Modeling of Hypersonic Re-Entry Vehicles and Wakes** G. Andrews, A. Hodges, Massachusetts Institute of Technology Lincoln Laboratory, Lexington, MA	1320 hrs AIAA-Defense2024-9125 **EO/IR Scene Modeling for Exo-Atmospheric Intercepts** R. Dressler, N. Guler, M. Braunstein, J. Gelbord, P. Corlies, B. Tannian, Spectral Sciences Inc, Burlington, MA; et al.	1340 hrs AIAA-Defense2024-9126 **Aggregate Modeling for Missile Defense Radar Clutter Environments** M. Harper, W. Sommers, PeopleTec, Inc., Huntsville, AL; D. Austin, A. Evers, Missile Defense Agency Redstone Arsenal, Redstone Arsenal, AL	1400 hrs AIAA-Defense2024-9127 **Missile Defense Parametric Modeling Framework** D. Koltenuk, Massachusetts Institute of Technology Lincoln Laboratory, Lexington, MA	1420 hrs AIAA-Defense2024-9128 **Early Detection and Tracking of Advanced Threats Against Earth Clutter With Deep Learning** J. Ha, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1440 hrs AIAA-Defense2024-9129 **Synthesis and Evaluation of Anti-Surface Warfare (ASuW) Variant of Survivable, Large Anti-SAM Air-to-Surface Missile, Extended Range (SLA-ER) Concept** J. Schwartz, Institute for Defense Analyses, Alexandria, VA	1500 hrs Q&A/Discussion We encourage presenters to stay in the room and continue the discussion.

Thursday, 18 April 2024						
DE-3	Digital Twin, Machine Learning, and Artificial Intelligence					Classroom 5/6
Chaired by: M. BELISLE, Northrop Grumman Mission Systems and D. ALLISON, Raytheon						
1300 hrs AIAA-Defense2024-9130 **Digital Materiel Management for a Bio-Inspired Rotating Empennage Aircraft** R. Graves, J. Joo, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH	1320 hrs AIAA-Defense2024-9131 **Acceleration of Aerodynamic Databasing With Machine-Learned Models** C. Beardsley, M. Amiraux, Corvid Technologies, Mooresville, NC	1340 hrs AIAA-Defense2024-9132 **Uncertainty Quantification in Multidisciplinary Analysis Design and Optimization for Industrial Aircraft Conceptual Design** J. Haderlie, L. Bodkin, D. Rankin, Northrop Grumman Aeronautics Systems, Redondo Beach, CA; D. Clark, E. Forster, Air Force Research Laboratory Aerospace Systems Directorate, Wright-Patterson AFB, OH; K. Sugiyama, Northrop Grumman Aeronautics Systems, Redondo Beach, CA; et al.	1400 hrs AIAA-Defense2024-9133 **Evolution of Digital Ecosystems to Realize Aerospace Digital Twins** D. Kessler, C. Cuppan, A. Guber, M. Wise, Arcfield, Chantilly, VA	1420 hrs AIAA-Defense2024-9134 **Advances in Generating Multi-Fidelity Aerodynamic Databases Non-Uniformly** J. Movva, K. Quinlan, Lawrence Livermore National Laboratory, Livermore, CA	1440 hrs AIAA-Defense2024-9135 **Digitial Twin Machine Learing for Irregular Fragment Field Characterization** E. O'Hare, M. Barsotti, Protection Engineering Consultants, San Antonio, TX; D. Chambers, A. Garza, Southwest Research Institute, San Antonio, TX; M. Tarbell, Midland Research, Hotchkiss, CO; E. Scarborough, Air Force Research Laboratory, Eglin AFB, FL; et al.	1500 hrs **Q&A/Discussion** We encourage presenters to stay in the room and continue the discussion.

Thursday, 18 April 2024						
HYTASP-4	High-Maneuverability and Hypersonic Systems and Technologies IV					Auditorium
Chaired by: K. GOULD, MIT Lincoln Laboratory and C. REYNOLDS, Lockheed Martin Space Systems						
1300 hrs AIAA-Defense2024-9136 **Surface Morphing and Adaptive Structures for Hypersonics (SMASH) Program Update** J. Maxwell, U.S. Naval Research Laboratory, Washington, D.C.	1320 hrs AIAA-Defense2024-9137 **Morphing Geometries Enabling Improved Performance in High-Speed Airbreathing Engines: A SMASH Study** G. Goodwin, C. Rising, J. Sosa, C. Bachman, K. Weldy, J. Maxwell, US Naval Research Laboratory, Washington, D.C.	1340 hrs AIAA-Defense2024-9138 **Investigation of Morphing Strategies to Advance High Speed Inlet Design** E. Cavanaugh, V. Narayanaswamy, NC State University, Raleigh, NC; M. Murugan, US Army Combat Capabilities Development Command, Aberdeen Proving Ground, MD; J. Amery, US Naval Research Laboratory, Washington, D.C.	1400 hrs AIAA-Defense2024-9139 **Missile Utility Transformation via Articulated Nose Technology (MUTANT) Overview** B. Dickinson, Air Force Research Laboratory Munitions Directorate, Eglin AFB, FL	1420 hrs AIAA-Defense2024-9140 **Maneuverability of an Articulated Nose Projectile** C. Butler, Georgia Institute of Technology Daniel Guggenheim School of Aerospace Engineering, Atlanta, GA; B. Dickinson, Air Force Research Laboratory Munitions Directorate, Eglin AFB, FL	1440 hrs AIAA-Defense2024-9141 **Design, Fabrication, and Testing of a Morphing Missile Actuation System** R. Beblo, Air Force Research Laboratory, Wright-Patterson AFB, OH	1500 hrs AIAA-Defense2024-9142 **Advancement of Articulation Technology With Supersonic Sled Tests** T. Mason, Air Force Research Laboratory Munitions Directorate, Eglin AFB, FL

Thursday, 18 April 2024						
SASS-2	Space Access and Space Systems II					Classroom 3/4
Chaired by: M. MCFARLAND, Raytheon and S. LACY, Air Force Research Laboratory						
1300 hrs AIAA-Defense2024-9143 **Reference Design for a Tactically Responsive Medium Lift Launch Vehicle** B. Reeds, Sierra Lobo Inc., Edwards, CA; E. Sichler, AFRL/RQRE, Edwards, CA	1320 hrs AIAA-Defense2024-9144 **Tactically Responsive Constellation Deployment: Mission Analysis Status Update** T. Sitter, Sierra Lobo, Inc., Edwards, CA; E. Sichler, Air Force Research Laboratory, RQRE, Edwards, CA	1340 hrs AIAA-Defense2024-9145 **Multi-Impulse Trajectory Tool Dev Update #1** E. Sichler, AFRL, Air Force Research Lab, Rocket Propulsion Directorate, Edwards AFB, CA; F. O'Brien, V. Ong, M. Hanlon, Sierra Lobo, Inc, Edwards AFB, CA	1400 hrs AIAA-Defense2024-9146 **Theater Specific Constellation Coverage Supporting Campaign Analysis** V. Ong, AFRL/Sierra Lobo Inc., Edwards AFB, CA; E. Sichler, AFRL/RQRE, Edwards AFB, CA	1420 hrs AIAA-Defense2024-9147 **Chemical vs Electric Propulsion for Rapid On-Orbit Refueling** F. O'Brien, Sierra Lobo, Inc/ AFRL-RQRE, Edwards AFB, CA; E. Sichler, Air Force Research Laboratory, Edwards AFB, CA	1440 hrs AIAA-Defense2024-9148 **Expanding Tactically Responsive Space Access (TRSA) Mission Analysis to High Energy Orbits** M. Hanlon, V. Ong, Sierra Lobo, Inc., Edwards, AFB, CA; E. Sichler, AFRL RQRE, Edwards AFB, CA	1500 hrs **Q&A/Discussion** We encourage presenters to stay in the room and continue the discussion.

Thursday, 18 April 2024						
TE-5	Test & Evaluation III					Parsons Auditorium
Chaired by: R. MACDERMOTT, Air Force Institute of Technology and N. MUESCHKE, Southwest Research Institute						
1300 hrs AIAA-Defense2024-9149 **Laser Based Measurements of Air Carbon Ablation Chemistry in a Shock Tunnel** J. Wagner, J. Hargis, K. Lynch, C. Murzyn, Sandia National Laboratories, Albuquerque, NM; T. Gross, University of Minnesota Twin Cities, Minneapolis, MN; E. Mussoni, Sandia National Laboratories, Albuquerque, NM; et al.	1320 hrs AIAA-Defense2024-9150 **Direct Wall Shear Measurements of High-Density Ablators** D. Simmons, R. Meritt, N. Molinaro, Ahmic Aerospace, Dayton, OH	1340 hrs AIAA-Defense2024-9151 **Adapting QCALC to Hypersonic Munition Flight Data** M. Libeau, Naval Surface Warfare Center Dahlgren Division, Dahlgren, VA	1400 hrs AIAA-Defense2024-9152 **Payload Testing With High-Speed Autonomous Platforms** J. Baker, Modern Technology Solutions, Inc., Alexandria, VA	1420 hrs AIAA-Defense2024-9153 **Hypersonic Weather Encounters Using Electromagnetic Launch Assets** M. Libeau, Naval Surface Warfare Center Dahlgren Division, Dahlgren, VA	1440 hrs AIAA-Defense2024-9155 **A Brief History of Nuclear Earth Penetrating Weapons and Their Design Challenges** C. Spawn, R. Baty, C. Scully, Los Alamos National Laboratory, Los Alamos, NM	1500 hrs **Q&A/Discussion** We encourage presenters to stay in the room and continue the discussion.

Thursday, 18 April 2024		
KEY-8 1530 - 1700 hrs	Keynote Panel: Lessons Learned from Ukraine and U.S. Central Command	Auditorium

Panelists will share lessons learned from these recent conflicts, focusing on innovation in tactics and technology, and applying these lessons to future technology development and acquisition.

Moderator: **Timothy Walton**, Senior Fellow, Center for Defense Concepts and Technology, Hudson Institute

Panelists:

Tucker Barrett
Lockheed Martin Rotary and Mission Systems

Samuel Bendett
Advisor, Russia Studies
CNA

CW5 John Peart, USA
Command and Control Systems Integrator
Joint Counter-small Unmanned
Aircraft Systems Office

Col. Ryan Simms, USAF
Director of Engagements and
Chief, Air and Space Force Foreign Liaison Office
Office of the Deputy Under Secretary of the Air
Force, International Affairs