

Sunday, 23 June 2024						
1600 - 2000 Early Registration						
Monday, 24 June 2024						
0700 - 0745 Speaker Meeting (with Light Breakfast) for Monday Presenters						
0700 - 0800 Attendee Light Continental Breakfast						
0700 - 1730 Registration Open						
1000 - 1630 Exhibitor Move-In						
1330 - 1630 Poster Move-In						
1200 - 1330 Lunch Break <i>(On Your Own - See Registration Desk for Area Restaurants)</i>						
1730 - 1900 Welcome Reception and Exhibit & Poster Kick-Off						
NSMMS & CRASTE Tutorials & Workshops Organizers: Dr. Rajini Acharya, The University of Tennessee Space Institute; Mr. Nickolas Demidovich, Federal Aviation Administration; Mr. Carter Johnson, ReLogic Research; Dr. Gerald Russell, RTCS, LLC; & Mr. Tim Stewart, Ultramet						
0800 - 0830 Keynote Presentation: To Be Announced						
	Track One	Track Two		Track Three	Track Four	Track Five
	NSMMS & CRASTE Tutorials & Workshops	NSMMS & CRASTE Panels & Tutorials		NSMMS & CRASTE Workshops & Tutorials	NSMMS & CRASTE Workshops	
0830 - 1030	UCAH/ Workforce Development Workshop Organizers: Dr. Erica Corral, The University of Arizona; Mr. Dennis Foutz and Mr. Mark Glenn, Office of the Assistant Secretary of Defense; Mr. Brian Zuchowski, Lockheed Martin Aeronautics Company JHTO Material Research Projects and Future Topics of Interest - 45 minute briefing by Mr. Dennis Foutz and Mr. Mark Glenn - 15 Minute Q&A UCAH's Strategy for Applied Material Research supporting Transition, Workforce, and Technology Protection Moderator: Dr. Erica Corral - 25 minute briefing by Mr. Dennis Foutz and Mr. Mark Glenn - 30 minute Q&A	0830 - 0930 Mach TB Organizers: Mr. Carter Johnson, ReLogic Research & Mr. Gerald Russell, RTCS, LLC Speaker: Mr. Kegan Miller, Naval Surface Warfare Center, Crane Division 0930 - 1030 Panel: RDE & Combined Cycle Technologies Organizer: Dr. Ragini Acharya, University of Tennessee Space Institute	0830 - 1000 Presentation Title to be Announced Dr. Kendall Johnson, Space Dynamics Laboratory and Mr. Gordon Scriven, ATA Engineering 1000 - 1030 Presentation To Be Announced	Presentation Title to be Announced Organizers: Mr. Edwin Betady & Mr. Iddrisu Seidu, Air Force Research Laboratory		
1030 - 1100	Break					
1100 - 1130	Growing Highly Capable and Adaptable Teams without Sacrificing Culture Mr. Pat Nowak, Scot Forge	Panel: Materials for High-Speed Applications: Strategy, Competition, and Getting Ahead Organizer: Dr. Ragini Acharya, University of Tennessee Space Institute	1100 - 1130 Regolith Simulant Derived Materials and Structures through Microwave Casting (DARPA NOM4D) Dr. Sergio dos Santos e Lucato, Teledyne Scientific Company, LLC 1130 - 1200 Presentation Title to be Announced Dr. Brent Carey, MACH-20	Presentation Title to be Announced Organizer: Mr. Carter Johnson, ReLogic Research		
1130 - 1200	Professional Development for Hypersonic Materials: Ceramic Industry Nonprofits Partner to fill Workforce Gaps and Attract the Next Generation Workforce Ms. Eileen De Guire, The American Ceramic Society					
1200 - 1330	Lunch Break <i>(On Your Own - See Registration Desk for Area Restaurants)</i>					

	Track One	Track Two	Track Three	Track Four	Track Five
	Space Access & Propulsion Session Chair: Phuoc Hai Tran, U.S. Space Force Lead Organizer: Mr. Andrew Jimenez, Air Force Research Laboratory Co-Organizers: Dr. Amjad Almansour, NASA Glenn Research Center; Dr. Raymond "Corky" Clinton, NASA Marshall Space Flight Center; Mr. Andrew Haaland, Northrop Grumman Corporation; Mr. Timothy McKechnie, Plasma Processes; Ms. Manda Schaeffer, Naval Surface Warfare Center, Crane Division; Mr. John Vasquez, Naval Research Laboratory; & Mr. Ian Wolford, Air Force Research Laboratory	Development, Processing & Testing of Advanced Materials Session Chair: Dr. Mark Opeka, Kratos SRE Lead Organizer: Ms. Kaia David, The Boeing Company Co-Organizers: Dr. Zlatomir Apostolov, Air Force Research Laboratory; Mr. Michael Fuller, Northrop Grumman Corporation; Prof. Greg Hilmas, Missouri University of Science and Technology; Mr. Kenneth Milam, L3Harris Technologies, Inc.; Dr. Samir Singh, Ball Aerospace; Dr. Vicky Trigg, The Aerospace Corporation; & Mr. James Tucker, Kratos SRE	Integrated Vehicle Health Management (IVHM) & Integrated System Health Monitoring (ISHM) Session Chair: Mr. Derek DeVries, Northrop Grumman Corporation Co-Chairs: Mr. Joaquin Castro & Mr. James Larkin, Aerojet Rocketdyne, An L3Harris Technologies Company	Missiles & Missile Defense Session Chair: To Be Announced Lead Organizer: Mr. Jason Calvert, U.S. Army Space and Missile Defense Command Co-Organizers: Mr. Alan Brown, L3Harris Technologies, Inc.; Dr. Yazmin Carroll, Missile Defense Agency; Prof. Joseph Koo, The University of Texas at Austin; Mr. Taylor Owens, U.S. Army Combat Capabilities Development Command Aviation & Missile Center; Dr. Gerald Russell, RTCS, LLC; Dr. Joseph Sheeley, PERIKIN Enterprises; & Mr. Tim Stewart, Ultramet	Small Business Forum
1330 - 1335	Session Introduction	Session Introduction	Session Introduction	Session Introduction	One-on-One Meetings with: Aerojet Rocketdyne, An L3 Harris Technologies Company Space & Mission Systems - BAE Systems, Inc. The Boeing Company Kratos Lockheed Martin Missile Defense Agency Northrop Grumman RTX
1335 - 1400	Testing of the VR35K-A Upper Stage Engine Coupled Combustion Devices Dr. Zach Hallum, Sierra Space Corporation	3D Woven Mid-Density Carbon Phenolic (3MDCP) Thermal Protection System Development Dr. Donald Ellerby, NASA Ames Research Center	Iterative Testing of Technology for an Inexpensive Black Box for Spacecraft Mr. Dale Amon, Immortal Data, Inc.	Presentation Title to be Announced Mr. Mark Glenn, Office of the Assistant Secretary of Defense	
1400 - 1425	Rocket Landing Environment and Infrastructure Materials Characterization Dr. Malissa Lightfoot & Dr. W. Jacob Monzel, Air Force Research Laboratory	Development of Advanced Conformal for Future NASA Missions and Commercial Space Dr. Matthew Gasch, NASA Ames Research Center	Fiber-Embedded Wireless Microsensors Development Dr. Joseph Pegna, Free Form Fibers, LLC	Experimental Performance of a Novel Articulated Thermal Protection System Mr. Jonathan Boston, Air Force Research Laboratory	
1425 - 1450	Development of Advanced Lightweight Polymeric Foam Thermal Protection for Space Launch Vehicles Ms. Elizabeth Schofield, Jacobs Space Exploration Group	3MDCP Ongoing Thermomechanical Characterization for Mars Sample Return Earth Entry Vehicle Ms. Courtney Severino, Kratos SRE	Intelligent Optical Nervous System for Hypersonic Vehicle Monitoring and Control Mr. William Price, IFOS Corporation	Determination of Carbon-Carbon Hydrocode Parameters by Uncertainty Quantification Mr. Daniel Hladio, Materials Research & Design, Inc.	
1450 - 1515	Presentation Title to be Announced Mr. Jim Reyenga, Ursa Major Technologies, Inc.	Conformal Phenolic Impregnated Carbon Ablator (CPICA) Thermomechanical Characterization Mr. Rafael Gonzalez, Kratos SRE	Presentation Title to be Announced Dr. Ming Chen, Air Force Research Laboratory	An Additively Manufactured Hypersonic Nose Tip Dr. Joseph Sims, Quadrus Corporation	
1515 - 1545	Break <i>Sponsored by Ultramet</i>				
	Track One	Track Two	Track Three	Track Four	Track Five
	Space Access & Propulsion, cont.	Development, Processing & Testing of Advanced Materials, cont.	Innovative Test Methodologies & Platforms Session Chair: Mr. Nickolas Demidovich, Federal Aviation Administration Lead Organizer: Ms. Manda Schaeffer, Naval Surface Warfare Center, Crane Division Co-Organizers: Dr. Amjad Almansour, NASA Glenn Research Center; Dr. Raymond "Corky" Clinton, NASA Marshall Space Flight Center; Mr. Andrew Haaland, Northrop Grumman Corporation; Mr. Andrew Jimenez, Air Force Research Laboratory; Mr. Timothy McKechnie, Plasma Processes; Mr. John Vasquez, Naval Research Laboratory; & Mr. Ian Wolford, Air Force Research Laboratory	Missiles & Missile Defense, cont.	Small Business Forum, cont.
1545 - 1550	Announcements	Announcements	Session Introduction	Announcements	One-on-One Meetings with: Aerojet Rocketdyne, An L3 Harris Technologies Company Space & Mission Systems - BAE Systems, Inc. The Boeing Company Kratos Lockheed Martin Missile Defense Agency Northrop Grumman RTX
1550 - 1615	*A Heterogeneous Fuel Infusion Technique for Ignition and Performance Augmentation of Hybrid Rocket Engines Mr. Ryan Thibaudeau, Utah State University	Shear Testing of 3D Medium Density Carbon Phenolic (3MDCP) at AEDC-H3 for Mars Sample Return (MSR) Earth Entry System (EES) Mr. Jonathan Morgan, NASA Ames Research Center	Harnessing the Power of Lunar and Orbital Testing to Enable Research and Development for Advancing Space Technologies Mr. Jason Smith, Aegis Aerospace, Inc.	Presentation Title to be Announced Mr. Mike Kryzak, Missile Defense Agency	
1615 - 1640	DELTA-V Map for Tactically Responsive Launch Vehicle Sizing Mr. Rushd Julfiker, Sierra Lobo, Inc.	*Phthalonitrile Resin Infiltrated Low-Density Flexible Ablator Materials for Aerospace Applications Mr. Steven Kim, The University of Texas at Austin	High Velocity Erosion (HIVE™) Test Cell Dr. Peter Schmidt, United Protective Technologies	Manufacturing Optimization of EL-Form Rhenium Mr. Timothy McKechnie, Plasma Processes, LLC	
1640 - 1705	Investigation into Stage Sensitivity for Single-Stage-to-Orbit Vehicles Ms. Sara Schamp, Sierra Lobo, Inc.	Microscale Modeling and Analysis of Woven Composites under NASA's Entry Systems Modeling Project Dr. Lauren Abbott, NASA Ames Research Center	The Development of Two New Emittance Measurement Facilities: Total Normal Emittance Under Flight-like Profiles and Spectral Hemispherical Emittance up to 3000°C Mr. Kelly McCullers, Kratos SRE	Missile Defense Agency Targets & Countermeasures Carbon-Carbon Material Development & Testing Dr. David Williams, Missile Defense Agency	
1705 - 1730	Development and Testing of 3D Woven Carbon Phenolic Thermal Protection Materials Mr. James Reilly, Spirit AeroSystems	Enhanced Quantification of 3D Woven Composites via Fourier Analysis and Structure Tensors Applied to CT Scans Dr. Magnus Haw, NASA Ames Research Center	Low-Cost Environmental Testing of Advanced Materials using Microcomposites Dr. Joseph Pegna, Free Form Fibers, LLC	Thermomechanical Characterization of Additively Manufactured W-Re Mr. Ryan Williams, Kratos SRE	
1730 - 1900	Welcome Reception and Exhibit & Poster Kick-Off				

Tuesday, 25 June 2024				
0700 - 0745	Speaker Meeting (with Light Breakfast) for Tuesday Afternoon Presenters <i>Sponsored by Southwest Research Institute</i>			
0700 - 0800	Attendee Light Continental Breakfast <i>Sponsored by Hexcel Corporation</i>			
0700 - 1730	Registration Open			
1200 - 1330	Lunch Break <i>(On Your Own - See Registration Desk for Area Restaurants)</i>			
1330 - 1730	Exhibits and Poster Session Open			
1730 - 1900	Networking Reception <i>Sponsored by Northrop Grumman Corporation</i>			
NSMMS & CRASTE Plenary Session				
0800 - 0815	Opening Remarks, National Anthem & Plenary Session			
0815 - 1005	Speakers to be Announced			
1005 - 1035	Break <i>Sponsored by Materials Research & Design, Inc.</i>			
1035 - 1145	Speakers to be Announced			
1145 - 1200	Lifetime Achievement Award & Sponsor Thank You			
1200 - 1330	Lunch Break <i>(On Your Own - See Registration Desk for Area Restaurants)</i> Student Networking Lunch - By Invitation Only <i>Sponsored by University Consortium for Applied Hypersonics</i>			
	Track One	Track Two	Track Three	Track Four
	Hypersonics Session Chairs: Dr. David Glass NASA Langley Research Center & Mr. Chris Kostyk, NASA Armstrong Flight Research Center Lead Organizer: Mr. Brian Zuchowski, Lockheed Martin Aeronautics Company Co-Organizers: Dr. Andrew Brune, NASA Langley Research Center; Mr. Dan Hladio, Materials Research & Design, Inc.; Mr. Karan Jain, The Boeing Company; Mr. Carter Johnson, ReLogic Research; Mr. Kevin Krueger, Missile Defense Agency; Mr. Curtis Martin, Naval Surface Warfare Center, Carderock Division; Dr. Jesse Maxwell, Naval Research Laboratory; Mr. Mitch Petervary, The Boeing Company; Dr. Scott Poveromo, Northrop Grumman Corporation; Dr. Suraj Rawal, Lockheed Martin Corporation; & Dr. Garth Wilks, RTX	Development, Processing & Testing of Advanced Materials Session Chair: Dr. Thomas Tsotsis, The Boeing Company Lead Organizer: Ms. Kaia David, The Boeing Company Co-Organizers: Dr. Zlatimir Apostolov, Air Force Research Laboratory; Mr. Michael Fuller, Northrop Grumman Corporation; Prof. Greg Hilmas, Missouri University of Science and Technology; Mr. Kenneth Milam, L3Harris Technologies, Inc.; Dr. Samir Singh, Ball Aerospace; Dr. Vicky Trigg, The Aerospace Corporation; & Mr. James Tucker, Kratos SRE	Spacecraft Buses, Payloads, & Instrumentation Session Chair: Mr. Robert Taylor, Air Force Research Laboratory Co-Organizers: Dr. Rajini Acharya, The University of Tennessee Space Institute; Mr. Jimmy Allen, Leidos; Mr. Anthony Brinkley, Lockheed Martin Corporation; Mr. Nickolas Demidovich, Federal Aviation Administration; Mr. Derek DeVries, Northrop Grumman Corporation; Mr. Barry Hellman, Blue Origin, LLC; Dr. Seth Lacy, Air Force Research Laboratory; Mr. James Larkin, L3Harris Technologies, Inc.; Mr. Robert Seibold, The Aerospace Corporation; Mr. Ethan Sichter, Air Force Research Laboratory; & Mr. Max Vozoff, X-Bow Systems	Missiles & Missile Defense Session Chair: To Be Announced Lead Organizer: Mr. Jason Calvert, U.S. Army Space and Missile Defense Command Co-Organizers: Mr. Alan Brown, L3Harris Technologies, Inc.; Dr. Yazmin Carroll, Missile Defense Agency; Prof. Joseph Koo, The University of Texas at Austin; Mr. Taylor Owens, U.S. Army Combat Capabilities Development Command Aviation & Missile Center; Dr. Gerald Russell, RTCS, LLC; Dr. Joseph Sheeley, PERIKIN Enterprises; & Mr. Tim Stewart, Ultramet
1330 - 1335	Session Introduction	Session Introduction	Session Introduction	Session Introduction
1335 - 1400	Optimizing Defense Innovation: Strategic Navigation of Department of Defense (DoD) Investment for Swift Technological Advancement Mr. J Petrie, Office of the Under Secretary of Defense for Acquisition & Sustainment	Navy High Temperature Materials Developments 1980-2020 for Hypersonic Aerosurfaces, Rocket and Scramjet Propulsion Systems, and Weapons-Hardened C-C Space Structures Dr. Mark Opeka, Kratos SRE	Large Structure Metrology Mr. Jim Tucker, Kratos SRE	Composites and Advanced Materials Testing Mr. Steven Ishida, Missile Defense Agency
1400 - 1425	The Case for Accelerating the Use of Hot Structures on Hypersonic Vehicles Dr. David Glass, NASA Langley Research Center		Development of Rechargeable Batteries with Improved Discharge Capacity at -40 °C to -80 °C for Surviving the Lunar Night Dr. Brian Elliott, TDA Research, Inc.	Presentation To Be Announced
1425 - 1450	Nosetip Radius Effect on Heating and Drag: A Computational Fluid Dynamics Study for a Hypersonic Glide Vehicle Dr. Jesse Maxwell, U.S. Naval Research Laboratory	Biological Building Blocks for Ultra-High Temperature Ceramic Precursors Ms. Sophia Angelopoulos, UES, Inc.	Surviving the Lunar Night: Astrobot's Nighttime Integrated Thermal and Electricity (NITE) System Mr. Jonathan Slavik, Astrobotic	Resonant Cavity Facility Development for Testing Dielectric Materials up to 1500°C Mr. Rafael Gonzalez, Kratos SRE
1450 - 1515	Material and Manufacturing Advancements to Tailor Hypersonic Solutions for Varying Applications Mr. Mitchell Burgess, Spirit AeroSystems	Laser Thermal Treatment for Carbonization/Graphitization of Carbon Fibers for Carbon-Carbon Composites Dr. Joshua Yoho, UES, Inc.	Presentation to be Announced Ms. Holly Garich, Faraday Technology, Inc.	Rapid Discovery of Seeker Window Materials Enabled by Physics-Informed Machine Learning, Multiscale Modeling, and High-Throughput Experimentation Dr. Mark Polking, MIT Lincoln Laboratory
1515 - 1545	Afternoon Break <i>Sponsored by Plasma Processes, LLC</i>			
	Track One	Track Two	Track Three	Track Four
	Hypersonics, cont.	Development, Processing & Testing of Advanced Materials, cont.	Spacecraft Buses, Payloads, & Instrumentation, cont.	Missiles & Missile Defense, cont.
1545 - 1550	Announcements			
1550 - 1615	An Overview of NASA Investments in High Temperature Durable Materials for Reusable Hypersonic Applications Mr. Chris Kostyk, NASA Armstrong Flight Research Center	Presentation Title to be Announced Mr. Aaron Ginsparg, Missouri University of Science and Technology	Hydrogen Peroxide/RP1 Reaction Control System (RCS) Thruster Qualification for Space Flight Dr. Todd Treichel, Sierra Space	Presentation Title to be Announced Dr. Kirk Williams, Free Form Fibers, LLC
1615 - 1640	Materials for Rotating Detonation Engines Dr. Katie Detwiler, Air Force Research Laboratory	Influence of Processing on Microstructure, Damage State and Thermo-Mechanical Performance of C/C Composites Dr. Gyaneshwar Tandon, University of Dayton Research Institute	Space Environmental Effects on Multifunctional Radiation Shielding Materials Mr. Scott O'Dell, Plasma Processes, LLC	Controllable Solid Propellant Propulsion Materials Mr. Steven Ishida, Missile Defense Agency
1640 - 1705	Robust Narrow Digital Twins for the Exploration of HGV Defense Concepts Dr. Jorge O'Farrill, Modern Technology Solutions, Inc.	Presentation Title to be Announced Ms. Ariel Parker, UES, Inc.	High-Emissivity CVD Dendritic Rhenium Coatings for NEP Radiator Panels Materials Dr. Jessica DeBerardinis, Ultramet	Presentation Title to be Announced Mr. Nathan Varney, Ursa Major Technologies, Inc.
1705 - 1730	Investigation of High-Energy, Hypersonic Weather Impact Damage using Finite Element Analysis and Ballistic Testing Mr. Daniel Clemens, University of Dayton Research Institute	Polymer-Grafted Nanoparticles as Ceramic Precursors Dr. Nicholas Posey, UES, Inc.	Presentation to be Announced Ms. Julia Deyanova, BAE Systems Space & Mission Systems Inc.	Design and Characterization of a Low-Drag Jet Vane Thrust Vector Control System Mr. Terry Hendricks, Exo-Atmospheric Technologies, LLC
1730 - 1900	Networking Reception <i>Sponsored by Northrop Grumman Corporation</i>			

0700 - 0745	Speaker Meeting (with Light Breakfast) for Wednesday's Presenters <i>Sponsored by Fenix Aerospace</i>
0700 - 0800	Attendee Light Continental Breakfast <i>Sponsored by New Mexico State University</i>
0700 - 1730	Registration Open
1200 - 1330	Lunch Break <i>(On Your Own - See Registration Desk for Area Restaurants)</i>
0945 - 1200	Exhibits and Poster Session Open
1330 - 1900	Poster Session and Networking Reception
1730 - 1900	
1900 - 2030	Exhibit and Poster Dismantle

	Track One	Track Two	Track Three	Track Four
	Hypersonics Session Chairs: Dr. Carmen Carney, Dr. Allan Katz & Mr. Ian Wolford, Air Force Research Laboratory Lead Organizer: Mr. Brian Zuchowski, Lockheed Martin Aeronautics Company Co-Organizers: Dr. Andrew Brune, NASA Langley Research Center; Dr. David Glass, NASA Langley Research Center, Mr. Dan Hladio, Materials Research & Design, Inc.; Mr. Karan Jain, The Boeing Company; Mr. Carter Johnson, ReLogic Research; Mr. Kevin Krueger, Missile Defense Agency; Mr. Curtis Martin, Naval Surface Warfare Center, Carderock Division; Dr. Jesse Maxwell, Naval Research Laboratory; Mr. Mitch Petervary, The Boeing Company; Dr. Scott Poveromo, Northrop Grumman Corporation; Dr. Suraj Rawal, Lockheed Martin Corporation; & Dr. Garth Wilks, RTX	Range and Ground Operations Session Chair: Mr. Nickolas Demidovich, Federal Aviation Administration Co-Chair: Mr. Barry Hellman, Blue Origin, LLC	Advanced Topics in Additive Manufacturing Session Chair: Dr. Daniel Driemeyer, The Boeing Company Lead Organizer: Dr. Amjad Almansour, NASA Glenn Research Center Co-Organizers: Dr. Raymond "Corky" Clinton, NASA Marshall Space Flight Center; Mr. Andrew Haaland, Northrop Grumman Corporation; Mr. Andrew Jimenez, Air Force Research Laboratory; Mr. Timothy McKechnie, Plasma Processes; Ms. Manda Schaeffer, Naval Surface Warfare Center, Crane Division; Mr. John Vasquez, Naval Research Laboratory; & Mr. Ian Wolford, Air Force Research Laboratory	Ground & Flight Test Methodologies Session Chairs: Mr. Kegan Miller, Naval Surface Warfare Center, Crane Division; Mr. Tyler Neale, U.S. Air Force & Mr. Scott Wilson, Naval Surface Warfare Center, Crane Division Lead Organizer: Dr. Gerald Russell, RTCS, LLC Co-Organizers: Mr. Alan Brown, L3Harris Technologies, Inc.; Mr. Jason Calvert, U.S. Army Space and Missile Defense Command; Dr. Yazmin Carroll, Missile Defense Agency; Prof. Joseph Koo, The University of Texas at Austin; Mr. Taylor Owens, U.S. Army Combat Capabilities Development Command Aviation & Missile Center; Dr. Joseph Sheeley, PERIKIN Enterprises; & Mr. Tim Stewart, Ultramet
0800 - 0805	Session Introduction	Session Introduction	Session Introduction	Session Introduction
0805 - 0830	Manufacturing of Carbon/Carbon Composites for Hypersonic Applications (MOC3HA) Program Update Focusing on Task Order 5 Mr. John O'Brien, Battelle	Development of a Mobile, Modular Payload Processing Capability Mr. Robert Taylor, Air Force Research Laboratory	AM Functionally Graded Radomes for Hypersonic Vehicles Prof. Joseph Koo, The University of Texas at Austin	Multi-Service Advanced Capability Hypersonic Test Bed (MACH TB) Mr. Kegan Miller, Naval Surface Warfare Center, Crane Division
0830 - 0855	MOC3HA Supported Reduced Product Variability in Thick Hi-K Carbon-Carbon Billet Dr. Cabell Lamie, Lockheed Martin Corporation	Fully Mobile Ground-Based Responsive Launch of Cryogenic Liquid-Fueled Rockets Mr. Sean Bedford, Astrobotic	Progress in the Selective Laser Melting of Rhenium Dr. Joseph Sims, Quadrus Corporation	The PID Control Loop: Aerospace Test Applications with a Practical Review Dr. Todd Smith, Air Force Research Laboratory
0855 - 0920	Presentation Title to be Announced Dr. Richard Gulotty, Honeywell International, Inc.	Development of Deployable Landing Pad for Rocket Cargo Mr. Ian Fuller, Cornerstone Research Group	Laser Powder Bed Fusion and Heat Treatment of Pure Molybdenum and W-5Re Mr. Ryan Anderson, Quadrus Corporation	Presentation Title to be Announced Dr. Adam Peters, Stratolaunch
0920 - 0945	MOC3HA Materials Testing and Characterization - Summary Results of Task Order 1 Mr. Matthew Opliger, Wichita State University	Analysis of Launch Vehicle Sensitivities and Risk due to Winds Aloft Ms. Sara Schamp, Sierra Lobo, Inc.	Response of C-103 to Multiple Parameter Sets in the Selective Laser Melting (SLM) Process Mr. Stephen Cooke, Quadrus Corporation	VARDA Commercial Flight Test Program for Thermal Protection Systems Dr. Marat Kulakhmetov, Varda Space Industries

0945 - 1015 **Break**
Sponsored by RTCS, LLC

	Track One	Track Two	Track Three	Track Four
	Hypersonics, cont.	Development, Processing & Testing of Advanced Materials Session Chair: Dr. Jason Lonergan, Missouri University of Science and Technology Lead Organizer: Ms. Kaia David, The Boeing Company Co-Organizers: Dr. Zlatomir Apostolov, Air Force Research Laboratory; Mr. Michael Fuller, Northrop Grumman Corporation; Prof. Greg Hilmas, Missouri University of Science and Technology; Mr. Kenneth Milam, L3Harris Technologies, Inc.; Dr. Samir Singh, Ball Aerospace; Dr. Vicky Trigg, The Aerospace Corporation; & Mr. James Tucker,	Advanced Topics in Additive Manufacturing, cont.	Ground & Flight Test Methodologies, cont.
1015 - 1020	Announcements	Session Introduction	Announcements	Announcements
1020 - 1045	Presentation Title to be Announced Mr. David Forsyth, Texas Research Institute Austin, Inc.	Carbon/Carbon Composites Research at ARL Dr. Dan Knorr, U.S. Army Combat Capabilities Development Command Army Research Laboratory	Additively Manufactured Ramjet Inlet - Manufacturing Process Development Overview Mr. Brandon Saathoff, Wichita State University	Aerothermal Testing Process at the AEDC Arc-Heated Test Facilities Dr. Jon Cox, Axient
1045 - 1110	Presentation Title to be Announced Mrs. Sarah Ward, Leidos	Developments on Reusable TPS Materials Based Upon Shuttle Tile Dr. Peter Marshall, Analytical Mechanics Associates, Inc.	Presentation Title to be Announced Mr. Daniel Edgar, Materials Sciences, LLC	Updates to the Mid-Pressure Aerothermal Envelopes at the AEDC Arc-Heated Test Facilities Mr. Cooper Green, Arnold Engineering Development Complex
1110 - 1135	Materials Maturation for High Mach Systems – Transitioning C/C Material Advances to Industry Dr. Alexander Morgan, University of Dayton Research Institute	Reusable Thermal Protection System Dr. Ashley Ferguson, Tex-Tech Industries	Presentation Title to be Announced Dr. Michael Chapman, BlueHalo	Advancements in Arc Jet Test Planning at AEDC through Tiered Flow Simulation Tools Mr. Christopher Lehto, Arnold Engineering Development Complex
1135 - 1200	Presentation Title to be Announced Dr. Alec Murchie, Oak Ridge National Laboratory	*Production and Characterization of HEC/C₂ Based UHTCMCs Mr. Nathaniel Blatt, Missouri University of Science and Technology	Laser Powder Bed Fusion and Post-Build Heat Treatment of W-24Re for Propulsion Applications Mrs. Melissa Forton, Quadrus Corporation	Presentation Title to be Announced Dr. David Oakes, Physical Sciences, Inc.
1200 - 1330	Lunch Break <i>(On Your Own - See Registration Desk for Area Restaurants)</i>			

	Track One	Track Two	Track Three	Track Four
	Hypersonics, cont.	Development, Processing & Testing of Advanced Materials, cont.	Advanced Topics in Additive Manufacturing Session Chair: Mr. Lawrence Huebner, NASA Marshall Space Flight Center	Ground & Flight Test Methodologies, cont.
1330 - 1335	Announcements	Announcements	Announcements	Announcements
1335 - 1400	Thermal Analysis of Novel Carbon/Carbon Composite Strakes in Depressed Trajectory Sounding Rocket Tests Dr. Christopher Hershey, Oak Ridge National Laboratory	Further Development of Asymmetric 4-Point Bend Test for Room and Elevated Temperature Measurement of Interlaminar Shear Modulus and Strength of Refractory Composite Materials Dr. Brian Sullivan, Materials Research & Design, Inc.	Presentation to be Announced	Feasibility Assessment of High-Enthalpy Test Capability Using a Green-Propellant Hybrid Gas Generator Dr. Stephen Whitmore, Utah State University
1400 - 1425	Aerothermal Evaluation of Textum CC Material Mr. Nate McGillivray, Kratos SRE	Novel Contactless Measurement Technique to Determine the Thermal Conductivity and Spectral Emissivity of Ultra-High Temperature Ceramics (UHTCs) at Ultra-High Temperatures (>2000 °C) Mr. Hunter Schonfeld, University of Virginia	Thermomechanical Characterization of El-Form Rhenium for Aerospace Applications Mr. Jacob Garner, Kratos SRE	*Development and Operation of a Low Cost Plasma Based Thermomechanical Test Facility Mr. Antoine Gagne, University of Dayton Research Institute
1425 - 1450	Tailored Fiber Placement for Mitigation of Thermomechanical Stresses in Metal/Carbon-Carbon Joints at High Temperature Dr. Jevan Furmanski, University of Dayton Research Institute	Insulation Development for Solid Rocket Motors and Novel Plasma Torch Testing Capability at Marshall Space Flight Center Ms. Katie Bradley, Jacobs Technology, Inc.	*Comparative Analysis of Defect Detection in Additive Manufactured Parts: Exploring the SuRE Method through Deep Learning and TensorFlow Mr. Matthew Laurent, Florida International University	Presentation Title to be Announced Dr. James Peace, CUBRC
1450 - 1515	Presentation Title to be Announced Mr. Christopher Davis, Leidos	Subscale Solid Rocket Motor Materials Testing at Marshall Space Flight Center Ms. Shelby Westrich, Jacobs Engineering	Design Concepts for Dissimilar Material Interfaces Dr. Mark Patterson, Kratos SRE	A New TPS Screening Facility Bridging the Gap Between Oxy-Acetylene Torch and Full Arc-Jet Testing for Rapid Prototyping Dr. Daniel Palmquist, HY-SET, LLC
1515 - 1545	Break <i>Poster Voting Cards Due to Registration Desk</i> <i>Sponsored by Aerojet Rocketdyne, An L3Harris Technologies Company</i>			
	Track One	Track Two	Track Three	Track Four
	Hypersonics, cont.	Development, Processing & Testing of Advanced Materials, cont.	Advanced Topics in Additive Manufacturing, cont.	Ground & Flight Test Methodologies, cont.
1545 - 1550	Announcements	Announcements	Announcements	Announcements
1550 - 1615	Advanced Manufacturing and Evaluation of Materials for Hot Structures Ms. Rachael Andrunonis, Wichita State University	A Novel Methodology for Analyzing the Microstructures of Thermal Protection Systems Materials Ms. Samantha Bernstein, The University of Texas at Austin	Directed Energy Deposition GRCop-42 Additively Manufactured Chamber Development and Testing Mr. Edgar Felix, Air Force Research Laboratory	Marshall Enriched Storable Oxidizer Innovation Refinement and Advancement Mr. Roger Herdy, CFD Research Corporation
1615 - 1640	Temperature-Dependent Bearing Strengths of Melt Infiltrated SiC/SiC Laminates with Application to Bolted Joint Design Dr. Allison Horner, Scalar Scientific, LLC	*Manufacturing, Characterization, and Modeling of a Novel Alumina/Polysiloxane TPS Composite Mr. Colin Yee, The University of Texas at Austin	Graded Alloy Transition Deposition (GRATD) Leading Edge Fabrication and Testing Update Dr. Daniel Driemeyer, The Boeing Company	Arcs Test Flight Dust Erosion System Operation Mx. Alex Wolfe, Arnold Engineering Development Complex
1640 - 1705	A DOE-Based Approach to Identify Optimal Processing Conditions for Melt Infiltrated C/C-SiC Mr. Gary Tiscia, Materials Research & Design, Inc.	*Photogrammetry Methods to Measure Transient Surface Recession of Ablative Materials During Aerothermal Testing Mr. Remy Feru, The University of Texas at Austin	Maturation of Additive Geometric Management Approaches for High Mach Applications (MAGMA) Mr. Jordan Severson, The Boeing Company	An Innovative, Low-Cost Approach to Simulating Hypersonic Weather Encounters using Cold Spray Technology Mr. John Stevenson, University of Dayton Research Institute
1705 - 1730	Investigation of Constituent Content and Asymmetric Four-Point Bend Performance of Melt-Infiltrated C/C-SiC Composites Ms. Lucia Morton, NASA Langley Research Center	Mechanical Properties of ZrB2/Cf Based UHTCMCs at Elevated Temperatures Mr. Jacob Stacy, Missouri University of Science and Technology	Investigating the Impact of Varying Test Sample Layer Height and Scan Speed on Deformation Reduction in Directed Energy Deposition Simulations Mr. Matthew Laurent, Florida International University	Presentation Title to be Announced Mr. Michael Libeau, Naval Surface Warfare Center, Dahlgren Division
1730 - 1900	Poster Session and Networking Reception			

0700 - 0745	Speaker Meeting (with Light Breakfast) for Thursday's Presenters			
0700 - 0800	Attendee Light Continental Breakfast			
0700 - 1730	Registration Open			
1200 - 1330	Lunch Break (On Your Own - See Registration Desk for Area Restaurants)			
	Track One	Track Two	Track Three	Track Four
	Hypersonics Session Chairs: Tuesday: Dr. Jesse Maxwell, U.S. Naval Research Laboratory & Dr. Robert Slapikas, U.S. Army Research Laboratory Lead Organizer: Mr. Brian Zuchowski, Lockheed Martin Aeronautics Company Co-Organizers: Dr. Andrew Brune, NASA Langley Research Center; Dr. David Glass, NASA Langley Research Center; Mr. Dan Hladio, Materials Research & Design, Inc.; Mr. Karan Jain, The Boeing Company; Mr. Carter Johnson, ReLogic Research; Mr. Kevin Krueger, Missile Defense Agency; Mr. Curtis Martin, Naval Surface Warfare Center, Carderock Division; Mr. Mitch Petervary, The Boeing Company; Dr. Scott Poveromo, Northrop Grumman Corporation; Dr. Suraj Rawal, Lockheed Martin Corporation; & Dr. Garth Wilks, RTX	System Architecture Studies Session Chair: Mr. Anthony Brinkley, Lockheed Martin Corporation Organizers: Mr. Robert Seibold, The Aerospace Corporation & Mr. Robert Taylor, Air Force Research Laboratory	Advanced Topics in Additive Manufacturing Session Chair: Andres Bujanda, U.S. Army Combat Capabilities Development Command Army Research Laboratory Lead Organizer: Dr. Amjad Almansour, NASA Glenn Research Center Co-Organizers: Dr. Raymond "Corky" Clinton, NASA Marshall Space Flight Center; Mr. Andrew Haaland, Northrop Grumman Corporation; Mr. Andrew Jimenez, Air Force Research Laboratory; Mr. Timothy McKechnie, Plasma Processes; Ms. Manda Schaeffer, Naval Surface Warfare Center, Crane Division; Mr. John Vasquez, Naval Research Laboratory; & Mr. Ian Wolford, Air Force Research Laboratory	Ground & Flight Test Methodologies Session Chairs: Mr. Kegan Miller, Naval Surface Warfare Center, Crane Division; Mr. Tyler Neale, U.S. Air Force & Mr. Scott Wilson, Naval Surface Warfare Center, Crane Division Lead Organizer: Dr. Gerald Russell, RTCS, LLC Co-Organizers: Mr. Alan Brown, L3Harris Technologies, Inc.; Mr. Jason Calvert, U.S. Army Space and Missile Defense Command; Dr. Yazmin Carroll, Missile Defense Agency; Prof. Joseph Koo, The University of Texas at Austin; Mr. Taylor Owens, U.S. Army Combat Capabilities Development Command Aviation & Missile Center; Dr. Joseph Sheeley, PERIKIN Enterprises; & Mr. Tim Stewart, Ultramet
0800 - 0805	Session Introduction	Session Introduction	Session Introduction	Session Introduction
0805 - 0830	Surface Morphing and Adaptive Structures for Hypersonics (SMASH): Hypersonic Glide Vehicle (HGV) Performance Advantages and Materials Requirements Dr. Jesse Maxwell, U.S. Naval Research Laboratory	NASA's Flight Opportunities Program: Increasing the Pace of Space Mr. Greg Peters, NASA Armstrong Flight Research Center	*Development of Aerospace Manufacturing Protocols for a Revolutionary Manufacturing System with Additive (Polymer and Metal), Subtractive (CNC Milling), and Thermoplastic AFP Capabilities Mr. Dimitri Seneviratne, Wichita State University	Presentation To Be Announced
0830 - 0855	Presentation Title to be Announced Dr. Robert Slapikas, U.S. Army Combat Capabilities Development Command Army Research Laboratory	Re-Entry Vehicle Configuration Optimization for Responsive Space Delivery Mr. Tyler Kunsza, SpaceWorks Enterprises, Inc.	Additive Manufacturing and Conventional Manufacturing - Understanding Perceptions, Realities, Efficiencies and Adding Value Mr. Ranga Ramanathan, Scot Forge	An Overview of the Next Generation Seeker Window Material Testing Program Dr. William Coirier, Kratos Defense & Rocket Support Services, Inc.
0855 - 0920	Flexible Thermal Protection Systems Dr. Rachel Guarriello, Physical Sciences, Inc.	Rendezvous and Proximity Operations Delta-V Requirements for GEO-Based Satellite Servicing Capabilities Mr. Victor Ong, Sierra Lobo, Inc.	Niobium Alloy Powder Market Study for AM Processes Ms. Eliza Wirkijowski, MACH-20	Modeling and Simulation Support for the Next Generation Seeker Window Material Testing Program Mr. Andrew Holm, Kratos Defense & Rocket Support Services, Inc.
0920 - 0945	Compression and Shear Char Strength of Low-Density Flexible Ablators Mr. Ben Rech, Koo and Associates International, Inc.	Presentation Title to be Announced Capt George Eberwine, U.S. Space Force	State-of-the-Art in Additively Manufactured Energetic and Explosive Materials Research Mr. Brian Benesch, Defense Systems Information Analysis Center	Survey of Failure in Optical Sapphire Windows Mr. Jonathan Coleman, U.S. Army Space and Missile Defense Command
0945 - 1015	Break			
	Track One	Track Two	Track Three	Track Four
	Hypersonics, cont.	Development, Processing & Testing of Advanced Materials Session Chair: Dr. Jennifer Fielding, Air Force Research Laboratory Lead Organizer: Ms. Kaia David, The Boeing Company Co-Organizers: Dr. Zlatomir Apostolov, Air Force Research Laboratory; Mr. Michael Fuller, Northrop Grumman Corporation; Prof. Greg Hillmas, Missouri University of Science and Technology; Mr. Kenneth Milam, L3Harris Technologies, Inc.; Dr. Samir Singh, Ball Aerospace; Dr. Vicky Trigg, The Aerospace Corporation; & Mr. James Tucker	Advanced Topics in Additive Manufacturing, cont.	Ground & Flight Test Methodologies, cont.
1015 - 1020	Announcements	Session Introduction	Announcements	Announcements
1020 - 1045	Presentation Title to be Announced Dr. Matthew Dickerson, Air Force Research Laboratory	Liquid Air Force PreCeramics (AFPCs) for Ultra-High Temperature Ceramics Dr. Jared Delcamp, Air Force Research Laboratory	Castles in the Sky Mr. Bryan Kuklinski, Orbital Construction Pioneers	Presentation Title to be Announced Mr. Justin Jones, Toyon Research Corporation
1045 - 1110	Presentation Title to be Announced Mr. Joshua Craggett, UES, Inc.	Low-Temperature Sintering of Ultra-high-temperature Coatings using Layer-by-Layer Deposition Dr. Thomas Tsotsis, The Boeing Company	*Laser Sintering Development for Manufacturing Flexible Hybrid Electronics on the International Space Station Ms. Ellie Schlake, Oregon State University	Oxidation Studies of Carbon-Carbon Composites in a High-Enthalpy Plasma Torch Facility Mr. Mitchell Trotsky, University of Tennessee, Knoxville
1110 - 1135	Development of Ablation Tools for Hypersonic Vehicles Ms. Kerry Howren, Materials Research & Design, Inc.	Oxidation Kinetics of Melt-Infiltration-Based SiC, ZrC, and SiC-ZrC Coatings on Carbon-Carbon Ms. Courtney Severino, Kratos SRE	Modernizing Reusable TPS Dr. John Howard, Canopy Aerospace	Investigation of the Effects of Material Architecture on Ablation of a Carbon Composite through In Situ Photogrammetry Mr. Ben Carmichael, Kratos SRE
1135 - 1200	Experimental and Computational Investigation of Active and Passive Oxidation for C-SiC Composites Dr. Samuel Chen, The Johns Hopkins University Applied Physics Laboratory	Environmental Exposures of C/SiC Composites with Refractory Additives Mrs. Amber Josken, Air Force Institute of Technology	Ceramic Matrix Composites Reinforced with Laser Chemical Vapor Deposition Silicon Carbide Fibers via Additive Manufacturing and Embedded Wire Chemical Vapor Deposition (EWCVD) Dr. Shay Harrison, Free Form Fibers, LLC	Testing the Thermal Insulating Properties of Fire-Retardant Polyurethane and Hollow Glass Balloons Mixtures Mr. Todd Lovelace, Immortal Data, Inc.
1200 - 1330	Lunch Break (On Your Own - See Registration Desk for Area Restaurants)			

	Track One	Track Two	Track Three	Track Four
	Hypersonics, cont.	Development, Processing & Testing of Advanced Materials, cont.	Advanced Topics in Additive Manufacturing Session Chair: Dr. Brock Birdsong, Auburn University	Ground & Flight Test Methodologies, cont.
1330 - 1335	Announcements	Announcements	Announcements	Announcements
1335 - 1400	An Investigation of HfC-SiC / Nb Ceramic Matrix Composites Produced by Hot Isostatic Pressing Mr. David Burk, University of North Texas	Tooling Design for Near Net Shape Fabrication of High-Temperature Composites Mr. Gary Tiscia, Materials Research & Design, Inc.	AI Empowered Additive and Robotic Manufacturing of Monolithic CMC Thermal Protection Systems and Hot Structures Dr. Bill Goodman, Goodman Technologies, LLC	Hypersonic Flight Materials and Uncertainty Quantification Mr. Cameron Lindberg, ReLogic Research
1400 - 1425	Aerothermal Evaluation of a C-ZrC Composite in a Flight-Scale, Leading Edge Configuration in the AEDC H2 Facility Mr. Ben Carmichael, Kratos SRE	Real-Time Material Certification of Composites using a Digital Twin Ms. Tiffany Stewart, HRL Laboratories	Additive Manufactured Low Density Carbon Insulator Dr. Greg Larsen, Oak Ridge National Laboratory	Extracting Emissivity of Reaction Cured Glass from Surface Emission Measurements during Arc Jet Testing Dr. Megan MacDonald, NASA Ames Research Center
1425 - 1450	Ground Test Results of AFRL-UES, Inc. UHTC Wedge Leading Edges Dr. Lavina Backman, Air Force Research Laboratory	Predictive Tool for Aging Effects on Performance of Phenolic-Based Thermal Protective Materials Ms. Samantha Bernstein, The University of Texas at Austin	Scaling 3D Printed C/C to Enable Monolithic Hypersonic TPS Mr. Ryan Dunn, Mantis Composites	Rocket Nozzle Static Motor Fire Material Test and Evaluation Mr. Warren Kissel, ReLogic Research
1450 - 1515	Oxidation Behavior of High Entropy Carbides and Carbonitrides Dr. Lavina Backman, U.S. Naval Research Laboratory	Presentation Title to be Announced Dr. Robert Slapikas, U.S. Army Combat Capabilities Development Command Army Research Laboratory	Regolith Enhanced Non-sintered Extruded Surface Technology (RENEST) for Lunar, Martian, and Terrestrial Rocket Landing Pads Mr. Jonathan Slavik, Astrobotic	Improved Probe Design for Stagnation Heat Flux Calorimetry in the AEDC Arc-Heated Test Facilities Dr. Justin Myrick, Axient
1515 - 1545	Break			
	Track One	Track Two	Track Three	Track Four
	Hypersonics, cont.	Development, Processing & Testing of Advanced Materials, cont.	Advanced Topics in Additive Manufacturing, cont.	Ground & Flight Test Methodologies, cont.
1545 - 1550	Announcements	Announcements	Announcements	Announcements
1550 - 1615	Affordable Production Oriented Hypersonic Aerostructures Mr. Robert Hardesty, Peregrine Falcon Corporation	Novel Benzoxazine Polymers for High-Char Carbon Structures Prof. Jeffrey Wiggins, The University of Southern Mississippi	Additive Manufacturing of Topologically Optimized Mirrors in Silicon Carbide Composite Ms. Phuong Bui, HRL Laboratories	Re-Designing Thin-Film Temperature Gauges using Latest Manufacturing Processes and Materials for Estimating Heat Flux in Hypersonic Ground Tests Dr. Jay Frankel, New Mexico State University
1615 - 1640	Presentation Title to be Announced Mr. Grant Glass, RTCS, LLC	High Char Yield Resin Composite Property Evaluation Mr. Kenneth Johnson, University of Dayton Research Institute	Frontal Polymerization and Continuous Fiber Additive Manufacturing for Space-Based Manufacturing Prof. Jeff Baur, The University of Illinois Urbana-Champaign	Laser Absorption Spectral Imaging (LASI) Sensor for Quantitative Gas Measurements in Hypersonic Flows Dr. Jason Kriesel, OKSI
1640 - 1705	Decomposition Modeling of Erinyes TPS using Multi-Rate Thermogravimetric Analysis and Developmental Flight Thermal Instrumentation Mr. Ben Carmichael, Kratos SRE	Results from Optimization of Materials and Processes for C/C based on a Novel Resin Mr. Bhavesh Patel, Kratos SRE	Improved Efficiency in Polymer Infiltration and Pyrolysis Manufacturing of Ceramic Matrix Composites by Integration of Vascular Networks Mr. Hanseung Lee, The University of Illinois Urbana-Champaign	Shape Similar Calorimetry Development for Arc Jet Test Facilities Mr. Derrick Talley, Kratos SRE
1705 - 1730	Chemical and Thermal Characterization of MX-4926/MIL-R-9299 Carbon Phenolic Material Dr. Michael Johnston, Kratos SRE	Presentation Title to be Announced Ms. Elizabeth Andrew, Materials Sciences, LLC	Binder Jet Additive Manufacturing of ZrB₂ Based Materials Mr. Peter Kaczmarek, Naval Surface Warfare Center, Carderock Division	Tailorable Solid Rocket Motors for Hypersonic Testing Mr. Travis Tuck, X-Bow Systems
1730	Grand Prize Give-Away & Adjourn <i>Sponsored by Hexcel Corporation</i>			
Friday, 28 June 2024				
0800 - 1130	Badger Propulsion Test Facility Tour- advance sign-up required, see registration page			
0800 - 1400	Materials for Hypersonics Short Course- advance sign-up required, see registration page			

Finalists for the Student Excellence Oral Award are marked with an *