

***Times are listed as Eastern Daylight Savings (EDT)**

Monday, 21 June 2021		
	Track One	
1100 - 1105	Welcome & Announcements Mr. Andrew Swanson, Air Force Research Laboratory	
1105 - 1135	Keynote: An Artemis and Human Landing System Overview Dr. Lisa Watson-Morgan, Program Manager, NASA's Human Landing System	
1135 - 1140	Transition to Parallel Sessions	
	Track One	Track Two
	NSMMS Missiles & Missile Defense Lead Organizers: Mr. Aaron Cossey, Missile Defense Agency & Mr. Andrew Swanson, Air Force Research Laboratory Co-Organizers: Mr. Jason Calvert, U.S. Army Space and Missile Defense Command; Mr. Paul Marchol, Aerojet Rocketdyne; Dr. Gerald Russell, Lockheed Martin- HEAT; Dr. Joseph Sheeley, PERIKIN Enterprises Session Chair: Ms. Danielle Gerstner, Naval Surface Warfare Center - Carderock Division	CRASTE High Altitude/Sub-Orbital Platforms & Experiments Session Chair: Mr. Robert Seibold, The Aerospace Corporation Co-Chair: Mr. Zach Tolley, Blue Origin, LLC
1140 - 1145	Session Introduction	Session Introduction
1145 - 1205	MDA Technology Maturation High Temperature Material Testing Mr. Mark Glenn, Missile Defense Agency	High Altitude/Sub Orbital Data Collection via Broadband Data Link Mr. Jay Nemeth, FlightLine Films, Inc.
1205 - 1225	Development of a Modern, Adaptable Smoothed Particle Hydrodynamics Code Dr. Conrad Patton, CFD Research Corporation	Aerospike Rocket Integration and Sub-Orbital Experiment (ARISE) Program Update Mr. Jade Pomerleau, Air Force Research Laboratory
1225 - 1245	Affordable Broadband Ceramic Nose Radome - New Design and Manufacturing Process in Production Mr. Keith Loss, Rock West Composites, Inc.	High Altitude Platform Stations for the Stratosphere Mr. Steve Jones, Aerovironment, Inc.
1245 - 1305	Advanced Thermal Management of Missile Control Systems Utilizing Phase Change Material Heat Sinks for a Low SWaP Solution Mr. Greg Hoeschele, Advanced Cooling Technologies	A Stepping Stone to Space: Suborbital Flight Tests with NASA Flight Opportunities Mr. Stephan Ord, NASA Flight Opportunities
1305 - 1320	Break	
	Track One	Track Two

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	<p>NSMMS Missiles & Missile Defense, cont.</p>	<p>NSMMS Development, Processing, & Testing of Advanced Materials</p> <p>Lead Organizer: Dr. Eric Wuchina, Naval Surface Warfare Center Carderock Division</p> <p>Co-Organizers: Mr. Jimmy Allen, Dynetics; Prof. Greg Hilmas, Missouri University of Science and Technology; Dr. Garth Wilks, Air Force Research Laboratory; Dr. David Witkin, The Aerospace Corporation</p> <p>Session Chair: Dr. Shawn Phillips, Air Force Research Laboratory</p>
1320 - 1325	Announcements	Session Introduction
1325 - 1445	<p>Tutorial On Materials Selection for High Temperature Systems: Part 1 - Condensed Phases Dr. Mark Opeka, Southern Research</p>	<p>Mechanical Characterization of Carbon-Carbon Materials at Ultrahigh Temperatures Dr. Carl Popelar, Southwest Research Institute</p>
		<p>Aerothermal Evaluation of High Temperature Composites for Hypersonic Applications Mr. Colin Yee, The University of Texas at Austin</p>
		<p>Mechanical and Thermal Property Measurement of a Woven AS4 Fiber 3DCC Composite Mr. Cole Cauthen, Southern Research</p>
		<p>Characterization and Weldability of Refractory Metal-Ceramic Joints Mr. Jecce Jarman, Missouri University of Science and Technology</p>
1445 - 1500	Break	
	<p>NSMMS & CRASTE Space Access & Propulsion</p> <p>Lead Organizer: Mr. Anthony Brinkley, Lockheed Martin- HEAT</p> <p>Co-Organizers: Mr. Alan Brown, Aerojet Rocketdyne; Mr. Timothy McKechnie, Plasma Processes, LLC; Mr. Tim Stewart; Ultramet</p> <p>Session Chair: Mr. Gary Tiscia, Materials Research & Design</p>	<p>NSMMS Development, Processing, & Testing of Advanced Materials, cont.</p>
1500 - 1505	Session Introduction	Announcements
1505 - 1525	<p>Evolution of the XLR-132 Advanced Space Engine Ms. Julia Levitt, Air Force Research Laboratory</p>	<p>Portable Thermosonic Imaging System (SoniX-IRTM) for Rapid, Full-Field, Intelligent Nondestructive Inspection of Honeycomb Airframe Structures Dr. Dan Xiang, X-wave Innovations, Inc.</p>
1525 - 1545	<p>Rotating Detonation Materials Evaluation Dr. Garth Wilks, Air Force Research Laboratory</p>	<p>Nondestructive Inspection of Carbon-Carbon Materials with Three Dimensional Stitching Mr. Wally Hoppe, University of Dayton Research Institute</p>
1545 - 1605	<p>Quick Look at Orbital Logistics Mr. Ethan Sichler, Air Force Research Laboratory</p>	<p>Creep Performance & Microstructural Analysis of Ultra-High Temperature Material at 1400 - 1500 °C Maj Michael Wilkinson, Air Force Institute of Technology</p>
1605 - 1625	<p>Carbon- and Ceramic-Matrix Composite Nozzle Extensions for Liquid Rocket Engines Ms. Savannah Metz, NASA Marshall Space Flight Center</p>	<p>Enhanced Physics Based Prognosis and Inspection for Ceramic Matrix Composites (EPPIC) Dr. George Jefferson, United States Air Force</p>
1625 - 1635	<p>Poster: • High Performance Polymer Properties from the Atoms Up Dr. Andrea Browning, Schrödinger, Inc.</p>	

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Tuesday, 22 June 2021		
	Track One	
1100 - 1105	Welcome & Announcements Dr. Raymond (Corky) Clinton, NASA Marshall Space Flight Center	
1105 - 1135	Keynote Mr. Walt Engelund, Deputy Associate Administrator for Program, Space Technology Mission Directorate (STMD)	
1135 - 1140	Transition to Parallel Sessions	
	Track One	Track Two
	Integrated Vehicle Health Management (IVHM) & Integrated System Health Monitoring (ISHM) Workshop Workshop Chair: Mr. James Larkin, Aerojet Rocketdyne Co-Chair: Mr. Derek DeVries, Northrop Grumman Corporation	NSMMS Development, Processing, & Testing of Advanced Materials Lead Organizer: Dr. Eric Wuchina, Naval Surface Warfare Center Carderock Division Co-Organizers: Mr. Jimmy Allen, Dynetics; Prof. Greg Hilmas, Missouri University of Science and Technology; Dr. Garth Wilks, Air Force Research Laboratory; Dr. David Witkin, The Aerospace Corporation Session Chair: Mr. Devlin Hayduke, ReLogic Research
1140 - 1145	Session Introduction	Session Introduction
1145 - 1205	Smart Fibers Make Intelligent Composites: Integrating NDE, VHM, and SHM into Composite Materials Dr. Joseph Pegna, Free Form Fibers	LM-HEAT Development of High-K 2DCC Mr. Dean Polk, Lockheed Martin - HEAT
1205 - 1225	Confidence in a Systems Service Life Estimate Using Physics of Failure (PoF) Mr. Derek DeVries, Northrop Grumman Corporation	Dual-Layer Thermal Protection System using Molding Compound with Ultra High Temperature Resin Mr. William Fahy, Texas State University
1225 - 1245	Structural Health Monitoring (SHM) and Manufacturing Quality Control (MQC) through Embedded Fiber Optic Sensing Mr. Jeremy Senne, Rock West Composites, LLC	In Situ Processed Thermal Protection Systems Dr. Christopher Buurma, Battelle Memorial Institute
1245 - 1305	Structural Health Monitoring as a Part of Spaceship's Data Acquisition System Mr. Dale Amon, Immortal Data, Inc.	Effects of Nanomaterial Reinforcement and High-Char-Yield Resins on Carbon/Carbon Composite Fabrication Process Speed Dr. Paul Kladitis, University of Dayton Research Institute
1305 - 1320	Break	
	Track One	Track Two
	Integrated Vehicle Health Management (IVHM) & Integrated System Health Monitoring (ISHM) Workshop, cont.	NSMMS Development, Processing, & Testing of Advanced Materials, cont.
1320 - 1340	Fiber-Optic Sensor Networks to Enable Next-Generation Hypersonic Vehicle Monitoring and Control Dr. Bijan Moslehi, Intelligent Fiber Optic Systems Corporation (IFOS)	Effects of Pendant Groups on the Mass Yield, Density and Process Modeling of Polycarbosilanes During Pyrolysis Dr. Thomas Key, UES, Inc.
1340 - 1400	Property Monitoring of CMC Using Ultrasound NDE Dr. Ming Chen, Air Force Research Laboratory	Matrix Addition Effects on 3D C/C-SiC Performance Mr. Matt Opliger, Wichita State University - NIA
	CRASTE Reducing Cost, Increasing Safety, & Improving Reliability Session Chair: Mr. Barry Hellman, Lockheed Martin Space Systems Co-Chair: Mr. Max Vozoff, X-Bow Systems	5 minute break to stay in sync with Track One
1400 - 1405	Session Introduction	

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1405 - 1425	Numerical Simulation of Truncated Boost and Upper-Stage Aerospike Vehicles along the Ascend Trajectory Dr. Farhad Davoudzadeh, Air Force Research Laboratory	Nanomaterials as Seed Crystals for Nanograin Composites Mr. Elliot Kennel, Applied Sciences, Inc.
1425 - 1445	Molecular-Driven Machine Learning and Informatics for Rocket Technology Dr. Andrea Browning, Schrödinger, Inc.	Optically Transparent High Temperature Ceramics Dr. Lindsay Cameron, Advanced Silicon Group
1445 - 1500	Break	
	Track One	Track Two
	CRASTE Reducing Cost, Increasing Safety, & Improving Reliability, cont.	NSMMS Development, Processing, & Testing of Advanced Materials, cont.
1500 - 1520	Non-Conventional Cleaning Method Using Vapor Scrubber Technology Ms. Kory Risky, Ball Aerospace	Optical Properties of Undoped Ceramic YAG for Tri-Color Window Applications Dr. Charles Kraisinger, II-VI Incorporated
1520 - 1540	Extreme Temperature, High Reliability Navigation Sensors and Electronics for Low SWaP-C Operation Mr. Jeremy Popp, GE Research	Optical Properties of Ceramic Chromium-Doped YAG for Q-Switch Applications Dr. Charles Kraisinger, II-VI Incorporated
1540 - 1600	Carbon-Carbon Hotfire Test Campaign Overview & Data Analysis Ms. Jennifer Martin Velazquez, Air Force Research Laboratory	Overview of Black Coatings used for Stray light Control at Ball Aerospace Mr. John Fleming, Ball Aerospace
1600 - 1620	Poster: • Critical Ablative TPS Capabilities Sustainment - An Approach to Playing the Long Game Dr. Mairead Stackpoole, NASA Ames Research Center	Posters: • Understanding the Fracture Mechanics of Hypersonic Materials Mr. Christopher Chattman, Naval Surface Warfare Center Dahlgren Division • Mechanical Properties of Fusion Welded Ceramics in the SiC-ZrB₂-ZrC System Mr. Jecce Jarman, Missouri University of Science and Technology • Fabrication of Spark Plasma Sintered ZrC with NbC Additions for Nuclear Thermal Propulsion Miss Hannah Martin, Missouri University of Science and Technology

Wednesday, 23 June 2021		
	Track One	
1100 - 1105	Welcome & Announcements Dr. Eric Wuchina, Naval Surface Warfare Center Carderock Division	
1105 - 1135	Keynote: Pivot to Space: Achieving Parity in Space-Related Basic Research Investments Dr. Shery Welsh, Director, Air Force Research Laboratory/Air Force Office of Scientific Research	
1135 - 1140	Transition to Parallel Sessions	
	Track One	Track Two
	NSMMS Hypersonics Lead Organizer: Mr. Craig Ohlhorst, NASA Langley Research Center Co-Organizers: Mr. Curtis Martin, Naval Surface Warfare Center Carderock Division; Mr. Tod Palm, Northrop Grumman Aerospace; Mr. Mitch Petervary, The Boeing Company; Dr. Suraj Rawal, Lockheed Martin Astronautics Company; Dr. Brian Sullivan, Materials Research & Design Inc.; & Mr. Brian Zuchowski, Lockheed Martin Aeronautics Company Session Chair: Dr. Bill Carter, Defense Advanced Research Projects Agency	NSMMS Development, Processing, & Testing of Advanced Materials Lead Organizer: Dr. Eric Wuchina, Naval Surface Warfare Center Carderock Division Co-Organizers: Mr. Jimmy Allen, Dynetics; Prof. Greg Hilmas, Missouri University of Science and Technology; Dr. Garth Wilks, Air Force Research Laboratory; Dr. David Witkin, The Aerospace Corporation Session Chair: Mr. Devlin Hayduke, ReLogic Research
1140 - 1145	Session Introduction	Announcements
1145 - 1205	Integration of ThERmal StructurE ConcepTs (INTERSECT) Program Review Mr. Jonathan Boston, Air Force Research Laboratory	Continuous Manufacturing of Lightweight Materials for Advanced Cables Dr. Derek Hass, Directed Vapor Technologies International
1205 - 1225	DARPA DSO Materials for Extreme Environments Dr. William (Bill) Carter, Defense Advanced Research Projects Agency	Light Weight, Reinforced, High Temperature Composite Material for Hypersonic Vehicles Insulation and Thermoelectric Power Generation Dr. Paul Czubarow, eM-TECH
1225 - 1245	Material Maturation for Hypersonics – A Program to Transition Advances in C/C Materials Technology to Industry Dr. Dennis Buchanan, University of Dayton Research Institute	Strain Tolerant Ultra-High Temperature Ceramics for Hypersonic Applications Dr. Lavina Backman, U.S. Naval Research Laboratory
1245 - 1305	Surface Morphing and Adaptive Structures for Hypersonics (SMASH): A Boost-Glide Mission Case Study Dr. Jesse Maxwell, U.S. Naval Research Laboratory	Thermal Protection Materials Based on High-Char Yielding Polymers Dr. Matt Laskoski, U.S. Naval Research Laboratory
1305 - 1320	Break	
	Track One	Track Two
	NSMMS Hypersonics, cont. Session Chair: Mr. Jon Boston, Air Force Research Laboratory	CRASTE Emerging Propulsion Systems Session Chair: Mr. Cory Gainus, Air Force Research Laboratory Co-Chair: Mr. Nick Demidovich, Federal Aviation Administration
1320 - 1325	Announcements	Session Introduction

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1325 - 1345	Overview of the Air Force Rotating Detonation Rocket Engine Development Program Mr. Eric Paulson, Air Force Research Laboratory	Hydrocarbon Boost Technology Demonstrator Program Key Accomplishments Mr. Alan Sutton, Air Force Research Laboratory
1345 - 1405	Evolved Ground Test Capabilities for Hypersonic Missile Defense Mr. Timothy Wadhams, CUBRC, Inc.	Liquid Film Cooling Design Criteria for Additively Manufactured Rocket Engines Dr. Philip Piper, Air Force Research Laboratory
1405 - 1425	Hypervelocity Test and Diagnostic Capability Developments Dr. Aaron Dufrene, CUBRC, Inc.	Graphene Thermionic Electrodes for High Intensity Electron Cooling of a Supersonic Combustor Mr. Elliot Kennel, Applied Sciences, Inc.
1425 - 1445	Spatial Registration of Nondestructive Evaluation (NDE) Data in Complex Structures Dr. Victoria Kramb, University of Dayton Research Institute	Enabling Nuclear and Solar Thermal Propulsion with the Computational Laboratory: Faster and Cheaper Materials Characterization Dr. William Tucker, NASA Ames Research Center
1445 - 1500	Break	
	NSMMS Hypersonics, cont. Session Chair: Dr. Jesse Maxwell, Naval Research Laboratory	CRASTE Innovative Test Methodologies & Platforms Session Chair: Mr. John Micol, NASA LaRC Co-Chair: Mr. Jeramie Broadway, NASA Marshall Space Flight Center
1500 - 1505	Announcements	Session Introduction
1505 - 1525	Advanced Manufacturing of Oxide Ceramic Composites Ms. Mary Litwinski, The Boeing Company	Leveraging Sounding Rockets for Hypersonic Technology Risk Reduction Ms. Jennifer Buckner, Kratos Space & Missile Defense Systems, Inc.
1525 - 1545	Developing a Standardized Approach to Adaptive Applications Mr. Chandler Wicks, ReLogic Research, Inc.	Testing in the Stratosphere – Efficient, Accurate & Cost Effective Mr. Russ Dewey, Near Space Corporation
1545 - 1605	AFRL Leading Edge Experimentation Fixture (LEEF): Development and Testing Update Dr. Andrew Zakrajsek, Air Force Research Laboratory	Heat Flux Testing Using Plasma Arc Jets Mr. Timothy McKechnie, Plasma Processes, LLC

Thursday, 24 June 2021		
	Track One	
1100 - 1105	Welcome & Announcements Dr. Garth Wilks, Air Force Research Laboratory	
1105 - 1135	Keynote: AFRL Hypersonics Science & Technology Overview Dr. James Weber, Senior Scientist, Hypersonics, Air Force Research Laboratory	
1135 - 1140	Transition to Parallel Sessions	
	Track One	Track Two
	NSMMS Hypersonics Lead Organizer: Mr. Craig Ohlhorst, NASA Langley Research Center Co-Organizers: Mr. Curtis Martin, Naval Surface Warfare Center Carderock Division; Mr. Tod Palm, Northrop Grumman Aerospace; Mr. Mitch Petervary, The Boeing Company; Dr. Suraj Rawal, Lockheed Martin Astronautics Company; Dr. Brian Sullivan, Materials Research & Design Inc.; & Mr. Brian Zuchowski, Lockheed Martin Aeronautics Company Session Chair: Mr. Charles (Chuck) Leonard, NASA Langley Research Center	NSMMS Additive Manufacturing for Space & Missile Materials Lead Organizers: Dr. Amjad Almansour, NASA Glenn Research Center Co-Organizers: Dr. Raymond Clinton, NASA Marshall Space Flight Center; Ms. Kaia David, The Boeing Company; Dr. Suraj Rawal, Lockheed Martin Space Systems; Mr. Michael Renbarger, Ball Aerospace; Mr. James Tucker, Southern Research & Mr. John Vasquez, Naval Research Laboratory Session Chair: Dr. Nima Shamsaei, Auburn University
1140 - 1145	Announcements	Session Introduction
1145 - 1205	An Automated Approach towards Inverse Trajectory Optimization with Material Constraints Dr. Michael Brupbacher, Johns Hopkins University Applied Physics Laboratory	Additive Manufacturing for Space Applications Mr. John Wilczynski, NCDMM/America Makes
1205 - 1225	Experimental Analysis of Hypersonic Carbon-Carbon Ablation in Representative-Wake Expansion Regions LtCol Robert MacDermott, Air Force Institute of Technology	
1225 - 1245	Statistical Model Evaluation Study for the Validation of Transient, Thermal Analysis Software Dr. William Coirier, Kratos Defense and Rocket Support Services, Inc.	Additive Manufacturing of Ultra-High Temperature Ceramics using Selective Laser Processing in Reactive Atmospheres Mr. Adam Peters, Johns Hopkins University
1245 - 1305	Uncertainty Propagation and Quantification for Hypersonic Flight Vehicles Dr. Ragini Acharya, University of Tennessee Space Institute	Formation of an Ultra High Temperature Ceramic on Carbon-Carbon Substrates via Selective Laser Melting Mr. Joseph Sopcisak, Johns Hopkins University Applied Physics Laboratory
1305 - 1320	Break	
	NSMMS Hypersonics, cont. Session Chair: Mr. Ian Wolford, Air Force Research Laboratory	NSMMS Additive Manufacturing for Space & Missile Materials, cont.
1320 - 1340	Thermal Control in Hypersonic Leading Edges Using Oscillating Heat Pipes Mr. Max Pawlick, Woodruff School of Mechanical Engineering, Georgia Institute of Technology	Assessment of Recent Advancement in 3D Printing of High-Performance Aluminum Alloys Dr. Youping Gao, Castheon, Inc.

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1340 - 1400	Integration of Extreme Nano-Ceramic, Long-Term Polysilazane Coatings into the Manufacturing Process for Improved Performance and Reliability in High-Velocity Environments Mr. Chance Paris, Sera Star Systems	Additive Manufacturing of Refractory Metal Niobium Alloy C103 for Extreme Environment Applications Dr. Youping Gao, Castheon, Inc.
1400 - 1420	Manufacturing and Analysis of Complex Shaped 2D Carbon-Carbon Composites for Hypersonic Weapon System Applications Mr. Stephen Rapp, Northrop Grumman Systems Corporation	High Throughput Approach to the Development of Novel Hypersonic Alloys Mr. Michael Niezgoda, University of Wisconsin - Madison
1420 - 1440	Diagnostic Spectroscopies for Ground-Based Testing of Ultra-High Temperature Ceramics in Extreme Environments Dr. Samuel Frueh, Air Force Research Laboratory	Development of Immiscible Alloys for Transpiration Cooling Dr. John Martin, HRL Laboratories, LLC
1440 - 1455	Break	
	NSMMS Hypersonics, cont. Session Chair: Mr. Ian Wolford, Air Force Research Laboratory	NSMMS Additive Manufacturing for Space & Missile Materials, cont.
1455 - 1535	NASA Hypersonic Investments Mr. Charles (Chuck) Leonard, NASA Langley Research Center	VR35K Directed Energy Deposition Nozzle Fabrication Mr. J. Arthur Sauer, Sierra Nevada Corporation
		Self-Terminating Etching Processes for Support Removal and Surface Finishing of GRCop Alloys Dr. Owen Hildreth, Colorado School of Mines
1535 - 1555	Thermal Metamaterial Architecture for Hypersonic Vehicle Integration Dr. Justin Hendrix, Naval Surface Warfare Center Dahlgren Division	Empowering High Temperature Composites via Hexagon/MSC Integrated Computational Materials Engineering (ICME) Dr. Robert Cook, Hexagon MI / MSC Software

Friday, 25 June 2021		
	Track One	Track Two
	NSMMS Ground & Flight Test Methodologies Lead Organizer: Dr. Joseph Sheeley, PERIKIN Enterprises Co-Organizers: Mr. Aaron Cossey, Missile Defense Agency; Mr. Jason Calvert, U.S. Army Space & Missile Defense Command; Mr. Paul Marchol, Aerojet Rocketdyne; Dr. Gerald Russell, Lockheed Martin - HEAT; & Mr. Andrew Swanson, Air Force Research Laboratory Session Chair: Mr. Elijah Minter, HyTIP Program Manager & Mr. Sean Smith, Arnold Engineering Development Complex	NSMMS Additive Manufacturing for Space & Missile Materials Lead Organizers: Dr. Amjad Almansour, NASA Glenn Research Center Co-Organizers: Dr. Raymond Clinton, NASA Marshall Space Flight Center; Ms. Kaia David, The Boeing Company; Dr. Suraj Rawal, Lockheed Martin Space Systems; Mr. Michael Renbarger, Ball Aerospace; Mr. James Tucker, Southern Research; & Mr. John Vasquez, Naval Research Laboratory Session Chair: Dr. Raymond Clinton, NASA Marshall Space Flight Center
1140 - 1145	Session Introduction	Announcements
1145 - 1205	Evaluation Through Test Mr. Daniel Marren, Marren Associates, LLC	Direct-Write Additive Manufacturing of Electrodes for High Energy Density Batteries Dr. Amjad Almansour, NASA Glenn Research Center
1205 - 1225	TRMC Investments in Ground Test Capabilities for Hypersonic Materials Mr. Marshall Polk, Arnold Engineering Development Complex	Development of Flexible Energy Storage Device for Wearable Electronics using All-Organic Composites Mr. Curtis Hill, NASA Marshall Space Flight Center
1225 - 1245	Ground Testing of Ablative Materials in a Swept Strake Configuration in the H1 Arc Jet: Shape Change and Calorimetry Mr. Ben Carmichael, Southern Research	Ceramic On-Demand Extrusion (CODE) of Functionally Graded ZrB₂-Mo Mr. Austin Martin, Missouri University of Science and Technology
1245 - 1305	Stagnation Point Sample Testing in Arc-Jets and ICP Torch Facilities Prof. Douglas Fletcher, University of Vermont	Additive Manufacturing of Optically Transparent Spinel Mr. Collin McClain, Johns Hopkins University Applied Physics Laboratory
1305 - 1320	Break	
	NSMMS Ground & Flight Test Methodologies, cont.	NSMMS Additive Manufacturing for Space & Missile Materials, cont.
1320 - 1340	Transient Heat Transfer Analysis of Multilayered Thermal Liner for the AEDC Project Phoenix Air Delivery System Mr. Stuart Steen, PERIKIN Enterprises	Exploring the Feasibility of Additive Manufacturing for Forebody and Backshell Thermal Protection Systems Mrs. Tane Boghazian, Analytical Mechanics Associates, Inc.
1340 - 1400	Predictive Modeling of Carbon Ablators Mr. John Thornton, Analytical Mechanics Associates, Inc.	Automated, In-Situ Material Characterization and Qualification of Feedstock for In-Space Additive Manufacturing Mr. Ian Fuller, Cornerstone Research Group
1400 - 1420	Multifunctional and Scalable CVD Diamond Coatings for Advanced Technology and Applications Dr. Ratnakar Vispute, Blue Wave Semiconductors, Inc.	Curing of Large Cyanate Ester AM Structures Dr. Gregory Larsen, Oak Ridge National Laboratory
1420 - 1440	Planar Chemiluminescence Absorption/Emission Tomography at the Exit Plane of a Rotating Detonation Engine Dr. Yudaya Sivathanu, En'Urga, Inc.	Data-Guided Laser Additive Manufacturing of High-Entropy Alloys Dr. Ganesh Balasubramanian, Lehigh University
1440 - 1455	Break	
	NSMMS Ground & Flight Test Methodologies, cont.	NSMMS Additive Manufacturing for Space & Missile Materials, cont.
1455 - 1515	F-104: Captive Carry & Air-Launch Capability for High Speed Flight Testing Mr. Rich Perlman, Innoveering, LLC and Mr. Richard Svetkoff, Starfighters, Inc.	Welding Simulation with Practical Examples and Application to Additive Manufacturing Modeling Dr. Frederick (Bud) Brust, Engineering Mechanics Corporation of Columbus (Emc2)
1515 - 1535	Virtual Ground Testing for High-Speed Flight Weather Effects Material Model Development Mr. Tyler Stovall, Lockheed Martin Space	Positron Annihilation Spectroscopy (PAS) Study of Additively Manufactured Inconel 718 Post Annealing Maj Nathan Ellsworth, Air Force Institute of Technology

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1535 - 1555	A Survey of Thermocouple Anomalies: Mechanisms, Interpretation, and Mitigation Dr. Magnus Haw, Analytical Mechanics Associates, Inc.	Quantitative Acoustic Microscopy for Nondestructive Characterization of Microstructure in Additive Manufacturing Parts for Rapid Qualification and Certification Dr. Dan Xiang, X-wave Innovations, Inc.
1555 - 1615	Mechanical Strength Testing of Composite Materials Utilizing a Compact Hypersonic Materials Testbed Technology Dr. David Oakes, Physical Sciences, Inc.	Novel Chamber Experiments and Prototype Testing (NCEPT) Campaign Test 299 Anomaly, Part 2: Material & Hardware Investigation Mr. Iddrisu Seidu, Air Force Research Laboratory