

KEY		KEY
NSMMS & CRASTE Sessions	CRASTE Sessions	NSMMS Sessions

Sunday, 25 June 2017

1600 - 2000	Early Registration
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Monday, 26 June 2017

0700 - 0745	Speaker Meeting (with Light Breakfast) for Monday's Tutorial & Workshop Presenters <i>Sponsored by Ultramet</i>
0700 - 0800	Attendee Light Continental Breakfast
0700 - 1700	Registration Open
1100 - 1630	Exhibitor Move-In
1300 - 1630	Poster Move-In
1200 - 1330	Lunch Break <i>(On Your Own - See Registration Desk for Area Restaurants)</i>
1700 - 1900	Welcome Reception and Exhibit & Poster Kick-Off <i>Sponsored by CoorsTek Engineered Ceramics</i>

NSMMS & CRASTE Tutorials & Workshops

Organizers: Mr. Jerry Brockmeyer, Ultramet; Mr. Nickolas Demidovich, FAA Office of Commercial Space Transportation; Mr. Kenneth Knittel, Raytheon Missile Systems; and Dr. Gerald Russell, Integration Innovation, Inc.

0800 - 0845	Keynote Presentation: NASA's Space Launch System: Building a National Capability for Exploration Mr. Steven Wofford, NASA Marshall SpaceFlight Center			
0845 - 0930	Keynote Presentation: Air-Breathing Propulsion and Thermal Management for Hypersonic Systems Dr. Thomas Jackson, Air Force Research Laboratory			
0930 - 0935	Transition to Multi-Track Tutorials & Workshops			
	Track One	Track Two	Track Three	Track Four
0935 - 1035	Solving the Material Problem for a Reusable Mach 8-10 Hypersonic Testbed Dr. Carmen Carney, Air Force Research Laboratory and Mr. Barry Hellman, Air Force Research Laboratory	NASA Flight Opportunities Program Mr. Gregory Noffz, NASA Armstrong Flight Research Center		
1035 - 1100	Break			
1100 - 1200	Solving the Material Problem for a Reusable Mach 8-10 Hypersonic Testbed, cont.	Stratollite: Long Duration Edge of Space Flight Services for Technology Development and Operations Mr. Tom Pirrone, World View, Inc.		
1200 - 1330	Lunch Break <i>(On Your Own - See Registration Desk for Area Restaurants)</i>			
1200 - 1330	Lunch Break <i>(On Your Own - See Registration Desk for Area Restaurants)</i>			

1330 - 1430	Joint Technology Office on Hypersonics (JTOH) Overview Dr. Joe Doychak, Aerospace Technology OASD(R&E), Research Directorate, Weapons Systems and Dr. William Hong, Institute for Defense Analyses	Overview of Capabilities/Plans for Falcon and Dragon Vehicles Dr. David Goldstein, SpaceX	Integrated Vehicle Health Management (IVHM) & Integrated System Health Monitoring (ISHM) Workshop Organizer: Mr. James Larkin, Aerojet Rocketdyne 1330 - 1410 Comparison of a Traditional Sustainment Program with an Enabled CBM+ Program for Maintaining Strategic Propulsion Systems Mr. Scott Hyde, Orbital ATK 1410 - 1420 Integrated Motor Life Monitoring Data Acquisition and Analysis System for Strategic Rocket Motors Mr. James Singleton, Air Force Research Laboratory 1420 - 1430 Rocket Bore Surveillance Hardware for Environmental Monitoring for Integrated Vehicle Health Management Mr. James Singleton, Air Force Research Laboratory	Small Business Forum Panel
1430 - 1435 Transition to Other Tutorials & Workshops				
1435 - 1535	High Speed Program Overview Air Force Research Laboratory	Eyes on the Universe: A 60 Year History of Ball Aerospace Science and Innovation Contributions Mr. Robert Arentz, Ball Aerospace	IVHM & ISHM Workshop, cont. 1435 - 1505 Electro-Mechanical Impedance Structural Diagnostics and Piezoelectric Sensor Fatigue in Space Environment Dr. Andrei Zagrai, New Mexico Institute of Mining and Technology 1505 - 1535 Fiber Optic Sensor System Development for TPS Dr. Richard Black, Intelligent Fiber Optic Systems Corporation	Small Business Forum, cont.
1535 - 1600 Break <i>Sponsored by Materials Research & Design, Inc.</i>				
1600 - 1700	Boundary Layer Transition for TPS Thermal Design and Performance Evaluation Mrs. Heather Bates, Integration Innovation, Inc.	Thermostructural Test Methods Mr. Matt Triplett, Integration Innovation, Inc.	IVHM & ISHM Workshop, cont. 1600 - 1630 A Demonstrated Approach for Design Verification of Vehicle and Systems Health Management Technologies Mr. Kevin Melcher, NASA Glenn Research Center 1630 - 1700 Group Discussion Mr. James Larkin, Aerojet Rocketdyne	Small Business Forum, cont.

1700 - 1900	Welcome Reception and Exhibit & Poster Kick-Off <i>Sponsored by CoorsTek Engineered Ceramics</i>		
Tuesday, 27 June 2017			
0700 - 0745	Speaker Meeting (with Light Breakfast) for Tuesday Afternoon Presenters		
0700 - 0800	Attendee Light Continental Breakfast		
0700 - 1730	Registration Open		
1210 - 1330	Lunch Break (<i>On Your Own - See Registration Desk for Area Restaurants</i>)		
1330 - 1730	Exhibits and Poster Session Open		
1800 - 2100	Indian Wells Golf Resort Dinner (<i>Walking Distance</i>) <i>Sponsored by Orbital ATK</i>		
NSMMS & CRASTE Plenary Session			
0800 - 0810	Welcome & Announcements Mr. Eric Becker, Air Force Research Laboratory and Mr. Nickolas Demidovich, FAA Office of Commercial Space Transportation		
0810 - 0815	Opening Remarks & National Anthem Moderator: Col Charles Ormsby, Acting Director, Materials & Manufacturing Directorate, Air Force Research Laboratory		
0815 - 0850	Keynote Presentation: Dr. Walt Rutledge, Conventional Prompt Strike Technical Advisor, OUSD(AT&L)/ASD(A)/SSI/Space and Prompt Strike		
0850 - 0925	Mr. Todd May , Director, NASA Marshall Space Flight Center		
0925 - 1000	Dr. Douglas Blake , Director, Aerospace Systems Directorate, Air Force Research Laboratory		
1000 - 1020	Break		
1020 - 1055	Mr. Scott Shifrin , Interim Director, Advanced Technology Science & Technology Directorate, Missile Defense Agency		
1055 - 1130	Mr. Michael Kelly , Chief Engineer, Office of Commercial Space Transportation, Federal Aviation Administration		
1130 - 1205	Mr. Sean Mahoney , Chief Executive Officer, Masten Space Systems, Inc.		
1205 - 1210	2018 NSMMS & CRASTE Location Announcement		
1210 - 1330	Lunch Break (<i>On Your Own - See Registration Desk for Area Restaurants</i>)		
	Track One	Track Two	Track Three
	NSMMS & CRASTE DARPA Materials Development for Platforms Session Chairs: Dr. Dick Cheng, Strategic Analysis, Inc. and Dr. Derek Schesser	NSMMS Emerging Materials and Novel Processing Technologies Lead Organizer: Prof. Greg Hilmas, Missouri University of Science and Technology Co-Organizers: Mr. Eric Becker, Air Force Research Laboratory; Ms. Kaia David, The Boeing Company; Dr. Ben Garcia, Orbital ATK; Mr. Kenneth Knittel, Raytheon Missile Systems; Dr. Joseph Koo, The University of Texas at Austin; Dr. John Vickers, NASA Marshall Space Flight Center; and Dr. Eric Wuchina, Naval Surface Warfare Center Carderock Division Session Chair: Prof. Greg Hilmas, Missouri University of Science and Technology	NSMMS Space Access and Propulsion Lead Organizer: Mr. John Koenig, Koenig Consulting Co-Organizers: Mr. Jerry Brockmeyer, Ultramet; Mr. Alan Brown, Aerojet Rocketdyne; Mr. Andrew Haaland, Orbital ATK; and Mr. Timothy McKechnie, Plasma Processes, LLC Session Chair: Dr. Shawn Phillips, Air Force Research Laboratory
1330 - 1335	Session Introduction	Session Introduction	Session Introduction

1335 - 1400	MDP Framework Overview Dr. Olivier Sudre, Teledyne Scientific Company and Dr. Brian Sullivan, Materials Research & Design, Inc.	Next Generation Carbons: 3D Printing and Smart Composites Dr. Marcus Worsley, Lawrence Livermore National Laboratory	Development and Testing of Carbon-Carbon Nozzle Extensions for Upper Stage Liquid Rocket Engines Mr. Peter Valentine, NASA Marshall Space Flight Center
1400 - 1425	Simplified Vehicle and Trajectory Analysis Dr. Brian Sullivan, Materials Research & Design, Inc.	Characterization of Joining Materials for Plasma Arc Welding of SiC Based Composites Dr. Jeremy Watts, Missouri University of Science and Technology	Fabrication and Testing of Affordable 2D Carbon-Carbon Extensions for Propulsion Applications Dr. John Shigley, Orbital ATK
1425 - 1450	Material Characterization and Element Testing Mr. Jacques Cuneo, Southern Research	Processing-Structure Relationship of SiC Fibers Made by Hyperbaric Pressure – Laser Assisted Chemical Vapor Deposition Ms. Katherine Vinson, The University of Alabama	Development of HEEET Woven TPS and Component Fabrication Dr. Steven Violette, Fiber Materials, Inc.
1450 - 1515	Modeling & Analysis Tools Dr. Gaurav Nilakantan, Teledyne Scientific & Imaging and Dr. Olivier Sudre, Teledyne Scientific Company	Scale-Up Study and Demonstration of Highly Aligned and High Concentration CNT Reinforced Composites for Aerospace Applications Dr. Joseph Koo, University of Texas at Austin	Evaluation of Alternative Carbon Fibers to Improve Joint Performance in 3D Woven Heatshields Dr. Brian Sullivan, Materials Research & Design, Inc.
1515 - 1545	Root Beer Float Break <i>Sponsored by Plasma Processes, LLC</i>		
	Track One	Track Two	Track Three
	NSMMS & CRASTE DARPA Materials Development for Platforms, cont.	NSMMS Emerging Materials and Novel Processing Technologies, cont.	NSMMS Space Access and Propulsion, cont.
1545 - 1610	Fabrication of 3D Reinforced C/C Dr. Brian Sullivan, Materials Research & Design, Inc.	High Temperature Emissivity of Coatings for Oxidation Protection Mr. Keith Caruso, Johns Hopkins Applied Physics Laboratory	Predicting Nonlinear Response of Carbon-Based Composite Materials Mr. Shane Flores, ATA Engineering, Inc.
1610 - 1635	Fabrication of 3D Reinforced C/SiC Dr. Olivier Sudre, Teledyne Scientific Company	Flexural Fatigue Behavior of an EBC/CMC Composite System in Air and Steam at High Temperature Ms. Martha Jaskowiak, NASA Glenn Research Center	Composite Propellant Tank Biaxial Laminate Strength and Impermeability Demonstration by Burst Testing Mr. Michael Robinson, Boeing Research & Technology
1635 - 1700	3D Weaving of Carbon Fiber Preforms Mr. Steve Clarke, T.E.A.M., Inc.	Ultra-High Temperature CMC Interphase Dr. Shay Harrison, Free Form Fibers	Modeling the Ignition Behavior of AF-M315E Monopropellant: Flowing Strand Burner Testing Dr. Arthur Fortini, Ultramet
1700 - 1725	DARPA Materials Development for Platforms Q&A	Advancements in Hf and Zr Based Pre-Ceramic Polymer Systems for Improved Performance of Refractory Ceramics at Temperatures Exceeding 1600°C Mr. Ruben Amiragov, MATECH	Development and Testing 100 lbf Non-Toxic Monopropellant Thruster Dr. Anatoliy Shchetkovskiy, Plasma Processes, LLC
1800 - 2100	Indian Wells Golf Resort Dinner (Walking Distance) <i>Sponsored by Orbital ATK</i>		
Wednesday, 28 June 2017			
0700 - 0745	Speaker Meeting (with Light Breakfast) for Wednesday's Presenters		

0700 - 0800	Attendee Light Continental Breakfast			
0700 - 1730	Registration Open			
1200 - 1330	Lunch Break <i>(On Your Own - See Registration Desk for Area Restaurants)</i>			
1330 - 1900	Exhibits and Poster Session Open			
1730 - 1900	Poster Session and Networking Reception <i>Sponsored by The Boeing Company</i>			
	Track One	Track Two	Track Three	Track Four
	NSMMS Emerging Materials and Novel Processing Technologies Lead Organizer: Prof. Greg Hilmas, Missouri University of Science and Technology Co-Organizers: Mr. Eric Becker, Air Force Research Laboratory; Ms. Kaia David, The Boeing Company; Dr. Ben Garcia, Orbital ATK; Mr. Kenneth Knittel, Raytheon Missile Systems; Dr. Joseph Koo, The University of Texas at Austin; Dr. Eric Wuchina, Naval Surface Warfare Center Carderock Division; and Dr. John Vickers, NASA Marshall Space Flight Center Session Chair: Dr. Daniel Driemeyer, Boeing Research & Technology	NSMMS Mission Operations and Experiments in Space Lead Organizer: Mr. John Vasquez, Naval Research Laboratory Co-Organizers: Dr. Anthony Calomino, NASA Langley Research Center; Dr. Derek Doyle, Air Force Research Laboratory; Mr. Michael Fuller, Orbital ATK; Ms. Beth Kelsic, Ball Aerospace; and Mr. James Tucker, Southern Research Session Chair: Dr. Andrew Shapiro-Scharlotta, NASA Jet Propulsion Laboratory	NSMMS Missiles and Missile Defense Lead Organizer: Mr. Robert Haack, Missile Defense Agency Co-Organizers: Mr. Jason Calvert, U.S. Army Space & Missile Defense Command; Dr. Doug Deason, Missile Defense Agency; Mr. Paul Marchol, Aerojet Rocketdyne; Mr. Curtis Martin, Naval Surface Warfare Center Carderock Division; Dr. Bruce Moylan, U.S. Army Aviation & Missile Research Development & Engineering Center; Dr. Gerald Russell, Integration Innovation, Inc.; and Mr. Mark Smith, Arnold Engineering Development Session Chair: Mr. Scott Shifrin, Missile Defense Agency	NSMMS & CRASTE Space Access and Propulsion Lead Organizer: Mr. John Koenig, Koenig Consulting Co-Organizers: Mr. Anthony Brinkley, Bradshaw Engineering; Mr. Jerry Brockmeyer, Ultramet; Mr. Alan Brown, Aerojet Rocketdyne; Mr. Andrew Haaland, Orbital ATK; Mr. Timothy McKechnie, Plasma Processes, LLC; and Mr. Chris McLean, Ball Aerospace Session Chair: Dr. Shawn Phillips, Air Force Research Laboratory
0800 - 0805	Session Introduction	Session Introduction	Session Introduction	Session Introduction
0805 - 0830	Insulation Materials Based on Inherently High Carbon Yield Elastomeric Resins for Rocket Motor Applications Dr. Richard Hreha, Cornerstone Research Group	The Importance of Air Exposure to the Characterization of Space Weathered Materials Mr. Ryan Hoffmann, Air Force Research Laboratory	Overview of Efforts Supporting Hypersonics Vehicle TPS Design Dr. Bruce Moylan, U.S. Army AMRDEC	Nano-energetic Photoignition Torch Applied to Subscale Test Rocket Engines Dr. Alireza Badakhshan, Air Force Research Laboratory (ERC, Inc.)
0830 - 0855	Presentation to be Announced Dr. Gregory Yandek, Air Force Research Laboratory	Optical Characterization of Common Spacecraft Materials after GEO-Like Electron Bombardment Dr. Russell Cooper, Air Force Research Laboratory	Initial Facility Calibration Results and Performance of the Upgraded AEDC H2 Aerothermal Arc Tunnel Mr. Harry Clark and Mr. Mark Smith, Arnold Engineering Development Complex	Subscale Oxidizer-Rich Preburner Longitudinal Mode Characteristics and Mitigation Measures Mr. Iddrisu Seidu, Air Force Research Laboratory
0855 - 0920	Computational Tools for Modeling Thermo-Chemical and Structural Damage in Materials Subject to Extreme Environments Dr. Srujan Rokkam, Advanced Cooling Technologies, Inc.	Simulated UV/ GEO Electron Exposure of Anodized Aluminum Thermal Control Materials Dr. Martin Ciofalo, The Aerospace Corporation	A Summary of High Speed Projectile Weather Effects Research and Development in the DoD Mr. Shawn Ericson, Integration Innovation, Inc.	Hydrocarbon Boost Technology Demonstrator Program Oxygen-Rich Preburner Material Process Experiments Mr. Cory Gainus, Air Force Research Laboratory
0920 - 0945	Coatings for High Temperature Oxidation Protection of Carbon- Carbon and Metals Mr. Dale Clemons, Johns Hopkins Applied Physics Laboratory	Carbon Nanotube Flat Plate Blackbody Calibrator Mr. John Fleming, Ball Aerospace	Extended Life, High Mach Throats for AEDC Tunnel-9 Mr. Daniel Hladio and Mr. Gary Tiscia, Materials Research & Design, Inc.	Contemporary Liquid Engine Technology Development Efforts at the AFRL Rocket Lab Mr. Robert Bernstein, Air Force Research Laboratory
0945 - 1015	Break			
	Track One	Track Two	Track Three	Track Four

	NSMMS Emerging Materials and Novel Processing Technologies, cont.	NSMMS Mission Operations and Experiments in Space, cont.	NSMMS Missiles and Missile Defense, cont.	NSMMS & CRASTE Space Access and Propulsion, cont.
1015 - 1020	Announcements	Announcements	Announcements	Announcements
1020 - 1045	Modeling and Fabrication of High-Entropy Refractory Metal Carbides Mr. Tyler Harrington, University of California, San Diego	MISSE Experiment Integration and Operations Mr. Johnnie Engelhardt, Alpha Space Test and Research Alliance, LLC	Ceramic Composite Design for Low Dielectric Loss Dr. Cheryl Xu, Florida State University	Development of an Additively Manufactured Modular Rocket Engine Mr. Philip Pelfrey, Exquadrum, Inc.
1045 - 1110	High-Entropy Metal Diborides: A New Class of Ultrahigh Temperature Ceramics Mr. Joshua Gild, University of California, San Diego	GMI Reflector Development and On-Orbit Reliability Performance: A Path to Success on Future Weather Satellite Missions Mr. David Newell, Ball Aerospace	Aerogel Insulated Thermal Batteries Dr. Nicholas Zafiroopoulos, Aspen Aerogels	Advances in Turbopump Technology for Rocket Propulsion Liquid Engines Mr. Alan Sutton, Air Force Research Laboratory
1110 - 1135	Deformation Mechanisms in Hf_xTa_{1-x}C Mr. Chase Smith, The University of Alabama	GMI Flexible Waveguide Qualification: A Path to Success on Future Weather Satellite Missions Mr. David Newell, Ball Aerospace	Development and Testing of the Transient Thermal Analysis Software Toolset (TTAS) Dr. William Coirier, Kratos Security and Defense	Vapor Cooled Structural MLI for Cryogenic Propellants Mr. Gary Mills, Ball Aerospace
1135 - 1200	Direct Current Sintering for Rapid Manufacturing of High Temperature Ceramics and Ceramic Fiber Matrix Composites and their Oxidation Behavior at Ultra High Temperatures Dr. Erica Corral, University of Arizona	Large-Scale, Silicon Oxycarbide Composite Component for Ultra-Low Cost, Lightweight Mirrors Mr. William Easter, Semplastics	U.S. Army AMRDEC LOWER AD TPS Development Mr. Carter Johnson, U.S. Army AMRDEC	Propulsion Technology Assessment of Specific Orbit Transfer Vehicle Missions Mr. Kevin Surban, Air Force Research Laboratory (Sierra Lobo, Inc.)
1200 - 1330	Lunch Break (On Your Own - See Registration Desk for Area Restaurants)			
	Track One	Track Two	Track Three	Track Four
	NSMMS Hypersonics Lead Organizer: Mr. Tod Palm, Northrop Grumman Corporation Co-Organizers: Mr. Craig Ohlhorst, NASA Langley Research Center; Mr. Miklos Petervary, Boeing Research & Technology; Dr. Brian Sullivan, Materials Research & Design, Inc.; Mr. Andrew Swanson, Air Force Research Laboratory; and Mr. Brian Zuchowski, Lockheed Martin Aeronautics Session Chair: Dr. Carmen Carney, Air Force Research Laboratory	NSMMS Mission Operations and Experiments in Space, cont.	NSMMS Missiles and Missile Defense, cont.	CRASTE Advances in Range Operations and Ground System Development Lead Session Chair: Mr. Nickolas Demidovich, FAA Office of Commercial Space Transportation Co-Chairs: Mr. Barry Hellman, Air Force Research Laboratory and Mr. John Micol, NASA Langley Research Center
1330 - 1335	Session Introduction	Announcements	Announcements	Session Introduction
1335 - 1400	Materials and Processing for Expendable Hypersonic Vehicles Dr. Carmen Carney, Air Force Research Laboratory	Manufacture Readiness of Carbon Nanotube Electrical Signal Cables Dr. Edward Silverman, Northrop Grumman Aerospace Systems	SoniX-IR™: A Portable Thermosonic Nondestructive Inspection System Dr. Dan Xiang, X-Wave Innovations, Inc.	VBITS AFTS & Space Based Range to Reduce Launch Cost - Consolidated Avionics® Game Changing Technology Mr. Edmund Burke, Space Information Laboratories
1400 - 1425	Multifunctional-Thermal Protection System for Hypersonic Flowpaths Dr. Prabhakar Rao, United Technologies Research Center	Radiation Hard GaN Materials and Devices Dr. Ke-Xun Sun, University of Nevada, Las Vegas	Static Testing of JT-700 CMC Advanced Structural Insulator in HERO Mr. Timothy Dominick, Orbital ATK	Correlation of Rarefied Gas Heat Transfer for Acceleration of Thermal Transitions during JWST Thermal Vacuum Testing Mr. Russell Schweickart, Ball Aerospace

1425 - 1450	Thermal Protection System (TPS) Materials for Expendable Air-Breathing Hypersonic Vehicles Mr. Brian Zuchowski, Lockheed Martin Aeronautics Company	Development of a Non-Invasive Environmental Sensing System for Lifecycle Management Mr. Jeremy Senne, San Diego Composites	Thermal Isolation of Solid Rocket Motor Hot Gas Paths Dr. Daniel Butts, Plasma Processes, LLC	A Trajectory Modeling and Simulation Approach for Solving Complex Range Integration Problems Mr. Kevin Feld, SpaceWorks Enterprises, Inc.
1450 - 1515	Composite Isolator Component Development Mr. Chris Kogstrom, Orbital ATK	High Modulus HM63 Qualification and Design Allowables for Stability Critical Applications Dr. James Throckmorton, Harris	Evaluation of a Low Conductivity Rayon Replacement Carbon Fiber using Ionic Liquid Technology Mr. Alden Moore, MATECH	HALAS High Altitude LIDAR for Atmospheric Sensing Dr. Matthew Wiebold, Honeywell Aerospace
1515 - 1545	Break <i>Sponsored by Scot Forge Company</i>			
	Track One	Track Two	Track Three	Track Four
	NSMMS Hypersonics, cont.	NSMMS Additive Manufacturing for Space and Missile Materials Lead Organizer: Dr. Russell Lipeles, The Aerospace Corporation Co-Organizers: Mr. Jeramie Broadway, NASA Marshall Space Flight Center; Dr. Corky Clinton, NASA Marshall Space Flight Center; Dr. Ryan DeHoff, Oak Ridge National Laboratory; Dr. Suraj Rawal, Lockheed Martin Space Systems; and Dr. Todd Steyer, The Boeing Company Session Chair: Dr. Jitendra Joshi, NASA Headquarters	NSMMS Missiles and Missile Defense, cont.	CRASTE High Altitude/Sub-Orbital Experiments Lead Session Chair: Mr. Marshall Polk, Arnold Engineering Development Complex Co-Chairs: Mr. Nickolas Demidovich, FAA Office of Commercial Space Transportation and Mr. Gautham Ramachandran, Lockheed Martin Advanced Technology Center
1545 - 1550	Announcements	Session Introduction	Announcements	Session Introduction
1550 - 1615	Generating Material Properties for Flight Representative Structures Mr. John Podhiny, Materials Research & Design, Inc.	NASA's Plans for Certification of Additively Manufactured Manned Spaceflight Components Mr. Richard Russell, NASA Kennedy Space Center	Development of Material Systems for High Performance Solid Rocket Motors Dr. Sandra Tomczak, Air Force Research Laboratory	Flight Test of ADS-B Technology for Winged Reusable Launch Vehicle Re-Entry Mr. Nickolas Demidovich, FAA Office of Commercial Space Transportation
1615 - 1640	Ceramic Matrix Composites for Hypersonic TPS Applications Mr. Wei Shih, Allcomp, Inc.	High Performance Additively Manufactured Polymer Derived Ceramics Dr. Jake Hundley, HRL Laboratories, LLC	Review of C/ZrOC CMC Developments & Ab-Initio Model of Coating Performance Mr. Thomas Rosengren, MATECH	Material Design Database Development for Thermal Insulation Mr. Randy Raley, Jacobs Technology, ESSSE Group
1640 - 1705	Design and Fabrication of Enhanced Interlaminar Strength Oxide-Oxide Materials for Antenna Window Applications on Hypersonic Vehicles Dr. Brian Sullivan, Materials Research & Design, Inc.	Near Material-Agnostic 1½-D Printing – Recursive AM of Integrated Multifunctional Composites Dr. Joseph Pegna, Free Form Fibers	Application of Advanced Benzoxazine Resins in SRM Nozzle Ablatives Mr. Bhavesh Patel, Southern Research	High Altitude Balloon Flight Test Demonstration of LED-Based Hazardous Gas Sensor in Harsh Environments for Space Applications Dr. Anthony Terracciano, University of Central Florida
1705 - 1730	Improving Structural Performance of Extreme Environment Materials for Hypersonic Applications Dr. Arun Bhattacharya, Boeing Research & Technology	Development of a Non-Destructively Evaluated Test Artifact for Additive Manufacturing Mr. Nicholas Leathe, Sandia National Laboratories	Decoupled and Conjugate Analyses of Rocket Nozzle Ablation Mr. Peter Cross, Naval Air Warfare Center Weapons Division	Fluidic Control for Transonic Buffet, Trajectory Correction and Aerobraking Dr. Rajan Kumar, Florida State University
1730 - 1900	Poster Session and Networking Reception <i>Sponsored by The Boeing Company</i>			
1900 - 2130	Exhibit and Poster Dismantle			

Thursday, 29 June 2017

0700 - 0745	Speaker Meeting (with Light Breakfast) for Thursday's Presenters		
0700 - 0800	Attendee Light Continental Breakfast		
0700 - 1530	Registration Open		
1200 - 1330	Lunch Break (On Your Own - See Registration Desk for Area Restaurants)		
	Track One	Track Two	Track Three
	NSMMS Hypersonics Lead Organizer: Mr. Tod Palm, Northrop Grumman Corporation Co-Organizers: Mr. Craig Ohlhorst, NASA Langley Research Center; Mr. Miklos Petervary, Boeing Research & Technology; Dr. Brian Sullivan, Materials Research & Design, Inc.; Mr. Andrew Swanson, Air Force Research Laboratory; and Mr. Brian Zuchowski, Lockheed Martin Aeronautics Session Chair: Dr. Brett Hauber, Air Force Research Laboratory	NSMMS Additive Manufacturing for Space and Missile Materials Lead Organizer: Dr. Russell Lipeles, The Aerospace Corporation Co-Organizers: Mr. Jeramie Broadway, NASA Marshall Space Flight Center; Dr. Corky Clinton, NASA Marshall Space Flight Center; Dr. Ryan DeHoff, Oak Ridge National Laboratory; Dr. Suraj Rawal, Lockheed Martin Space Systems; and Dr. Todd Steyer, The Boeing Company Session Chair: Dr. Jitendra Joshi, NASA Headquarters	CRASTE Emerging Propulsion Systems Lead Session Chair: Mr. Robert Taylor, Air Force Research Laboratory Co-Chairs: Mr. Anthony Brinkley, Bradshaw Engineering and Mr. Chris McLean, Ball Aerospace
0800 - 0805	Session Introduction	Session Introduction	Session Introduction
0805 - 0830	Fastener Pull-Thru Strength of Oxide/Oxide Composites Dr. Brett Hauber, Air Force Research Laboratory	Effect of SLM Machine Settings on Density, Surface Roughness, and Tensile Properties of Inconel 718 Dr. Glenn Bean, The Aerospace Corporation	Future Rotating Detonation Engine Studies Dr. Mario Roa, Air Force Research Laboratory (Sierra Lobo, Inc.)
0830 - 0855	Introduction and Review of the AFRL TRIAD CMC Fastener Characterization Program Mr. Jacques Cuneo, Southern Research	Texture and Performance Effects in Electron Beam Directed Energy Deposited Ti-6Al-4V Mr. Craig Brice, Lockheed Martin Space Systems Company	Parametric Orbital Transfer Vehicle Model Development Mr. Kevin Surban, Air Force Research Laboratory (Sierra Lobo, Inc.)
0855 - 0920	Analysis, Design and Testing of CMC Fasteners for Hypersonic and Other Flight Vehicles Ms. Leslie Weller, Materials Research & Design, Inc.	Selective Laser Melted GRCo-84: Preliminary Study of As-Printed Mechanical Properties and Microstructure Mr. Christopher Hayes, Special Aerospace Services, LLC	IMRE Overview Mr. Gabriel Mendez, Air Force Research Laboratory
0920 - 0945	Materials and Processing for Expendable Hypersonic Vehicles: Ceramic Matrix Composite (CMC) Fastener Development Program Mr. Brian Zuchowski, Lockheed Martin Aeronautics Company	Characterization of Additively Manufactured Metals Versus Wrought in Tension Mr. William Parks, Southern Research	Enabling Technologies for the Integrated Modular Rocket Engine (IMRE) Architecture Mr. Iddrisu Seidu, Air Force Research Laboratory
0945 - 1015	Break		
	Track One	Track Two	Track Three
	NSMMS Hypersonics, cont. Session Chair: Mr. Andrew Swanson, Air Force Research Laboratory	NSMMS Additive Manufacturing for Space and Missile Materials, cont.	CRASTE Responsive Access for Pico/Nano/Small Payloads Lead Session Chair: Mr. John Micol, NASA Langley Research Center Co-Chairs: Mr. Lance Fife, Space Dynamics Laboratory and Mr. Marshall Polk, Arnold Engineering Development Complex
1015 - 1020	Announcements	Announcements	Session Introduction

1020 - 1045	Robust and Affordable Heat Pipe Cooled Leading Edges for Hypersonic Vehicles Mr. Andrew Swanson, Air Force Research Laboratory	Assessing the High Cycle Fatigue Behavior of Metals Fabricated using Additive Manufacturing Dr. David Witkin, The Aerospace Corporation	Towed Glider Air-Launch Performance Analysis for Two Stage Liquid Launch Vehicles Mr. Charles Rogers, NASA Armstrong Flight Research Center
1045 - 1110	Two-Phase Thermal Protection of the Hypersonic Leading Edge Mr. Jesse Maxwell, Naval Research Laboratory	SLM Manufacture of a Monel K-500 Oxygen-Rich Preburner Mr. Peter Markopoulos, ASRC Federal Laboratory	Maximizing Space to Get to Space – ESPA Augmented Geostationary Laboratory Experiment (EAGLE) Mrs. Jennifer Fraenzl, Air Force Research Laboratory
1110 - 1135	Development of Ceramic-Metal Joints for Hypersonic Vehicles and Missile Components Mr. Evan O'Connor, Materials Research & Design, Inc.	Additive Manufacturing of Selected Rotating Components for Rocket Engine Insertion Dr. John Porter, UES, Inc.	EDDE Propellantless Upper Stage for LEO Mr. Joseph Carroll, PlaneWave Instruments
1135 - 1200	Recent Developments in High Temperature Heat Pipe Integration for Hypersonic Systems Dr. Robert Caracciolo, Aavid Thermacore	The Additive Manufacturing of Heat Pipes with Integral Wick Features for Aerospace Applications Mr. John Thayer, Aavid Thermacore	The NASA Aeronautics Evaluation and Test Capabilities (AETC) Project – New Funding Model (NFM) for Aerosciences Ground Test Capabilities Mr. John Micol, NASA Langley Research Center
1200 - 1330	Lunch Break (On Your Own - See Registration Desk for Area Restaurants)		
	Track One	Track Two	Track Three
	NSMMS Hypersonics, cont. Session Chair: Mr. Jesse Maxwell, Naval Research Laboratory	NSMMS Additive Manufacturing for Space and Missile Materials, cont.	CRASTE Reducing Cost and Increasing Safety Lead Session Chair: Mr. Barry Hellman, Air Force Research Laboratory Co-Chair: Mr. John Micol, NASA Langley Research Center
1330 - 1335	Announcements	Announcements	Session Introduction
1335 - 1400	Hypersonic Waverider Stream Surface Actuation for Variable Design Point Operation Dr. Austin Phoenix, Naval Research Laboratory	NASA's In-Space Manufacturing Project: Materials and Manufacturing Process Development Update Dr. Tracie Prater, NASA Marshall Space Flight Center	Launch: A Model Based Systems Engineering Platform for Rapid Collaboration on NASA Launch-Flight System Integration Mr. Chrishma Singh-Derewa, NASA Jet Propulsion Laboratory
1400 - 1425	Quasi-Steady Heat Flux in a Rotating Detonation Engine Dr. Christopher Stevens, Air Force Research Laboratory (Innovative Scientific Solutions, Inc.)	Food-Safe, Skin Contact-Safe, and Medical Device 3D Printing for Manned Space Missions Dr. Rachel Muhlbauer, Tethers Unlimited, Inc.	Balancing CMC Material Performance and Economics Dr. Joseph Pegna, Free Form Fibers
1425 - 1450	Ceramic Matrix Composites for Air Cooled Rotating Detonation Engines Dr. Derek King, Air Force Research Laboratory (UES, Inc.)	Reversible Thermoset Materials for <i>In Situ</i> Resource Utilization Dr. Ryan Snyder, Cornerstone Research Group	Is Orbital Debris a Manageable Problem? Mr. Joseph Carroll, PlaneWave Instruments
1450 - 1515	Cost Efficient Nondestructive Evaluations of a Prototype Composite Hypersonic Air-Breathing Isolator Duct Mr. James Hawbaker, Southern Research	Space BioManufacturing Dr. Eugene Boland, Techshot, Inc.	Orbital Propellant Depot and Orbit Transfer Vehicle Literature Review Mrs. Alexandra Ortiz, Air Force Research Laboratory (Sierra Lobo, Inc.)
1515 - 1545	Break Grand Prize Give-Away <i>Sponsored by Dynetics, Inc.</i>		
	Track One	Track Two	Track Three

	NSMMS Hypersonics, cont. Session Chair: Mr. Barry Hellman, Air Force Research Laboratory	NSMMS Additive Manufacturing for Space and Missile Materials, cont.	CRASTE Novel Testbed Capabilities for Environmental Testing Platforms for Larger Systems Lead Session Chair: Mr. Nickolas Demidovich, FAA Office of Commercial Space Transportation Co-Chairs: Mr. Lance Fife, Space Dynamics Laboratory; Mr. Gautham Ramachandran, Lockheed Martin Advanced Technology Center; and Mr. Kevin Richardson, Orbital ATK
1545 - 1550	Announcements	Announcements	Session Introduction
1550 - 1615	Conceptual Designs of a Reusable Hypersonic Testbed Mr. Barry Hellman, Air Force Research Laboratory	Sintered Inductive Metal Printer with Laser Exposure (SIMPLE) Mr. Andy Kurk, Techshot, Inc.	Subscale Propulsion Materials Test Capability Mr. Mark Bray, NASA Marshall Space Flight Center (Jacobs Technology, ESSSE Group)
1615 - 1640	Ground and Flight Testing for a Modern Hypersonic Testbed Mr. A.J. Piplica, Generation Orbit Launch Services, Inc.	Additive Manufacture of Carbon Fiber Composites with Optimized Mesostructures and Orthotropic Macroscale Properties Dr. James Lewicki, Lawrence Livermore National Laboratory	Metallic Wire Induced Damping Correlation for NASA Mission Random Analysis Mr. Robert Wagner, NASA Langley Research Center
1640 - 1705	Development of AFRL's Combined Thermal-Mechanical-Acoustic-Vibration Environment Test Facility Mr. Travis Wyen, Air Force Research Laboratory	Thermo-Mechanical Optimization of Cellular Ceramic Materials Mr. Devlin Hayduke, Materials Sciences Corporation	Jitter Characterization in Space Mechanisms Dr. Laoucet Ayari, Ball Aerospace
1705 - 1730	Aerospace Vehicles Division Hypersonic Vehicle Structural Dynamic Test Capabilities Mr. Samuel Tilmann, Air Force Research Laboratory	Oxidation Behavior of SiC Fiber Preforms Infiltrated with Polymer Derived HfSiCNO by an Additive Manufacturing Approach Ms. Setareh Azarnoush, University of Colorado Boulder	Using Fatigue Damage Spectrum to Correlate Validation Tests to End-Use Environment Mr. Andy Cogbill, Vibration Research
1730	Adjourn		