

Sunday

Sunday, 29 July 2012

1-RECPT-1 1830 - 2000 hrs	Sunday Opening Reception	Exhibit Hall
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Monday

Monday, 30 July 2012

2-JPC-1/IECEC-1 0800 - 0900 hrs	JPC/IECEC Opening Monday Keynote	Centennial Ballroom I
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Overview of NASA major program thrusts and Technology Development Opportunities
Robert Lightfoot
 Associate Administrator
 NASA

Monday, 30 July 2012

3-ABPSI-1/GTE-1	Turboelectric Distributed Propulsion I	Hanover C
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Chaired by: H. KIM, NASA Glenn Research Center and A. GIBSON, Empirical Systems Aerospace LLC

1000 hrs AIAA-2012-3700 Turboelectric Distributed Propulsion System Modelling for Hybrid-Wing-Body Aircraft C. Liu, Self, Cranfield, United Kingdom	1030 hrs AIAA-2012-3701 Sensitivity of Mission Fuel Burn to Turboelectric Distributed Propulsion Design Assumptions on the N3-X Hybrid Wing Body Aircraft J. Felder, G. Brown, NASA Glenn Research Center, Cleveland, OH; J. Chu, NASA Langley Research Center, Hampton, VA; M. Tong, NASA Glenn Research Center, Cleveland, OH	1100 hrs AIAA-2012-3702 Hybrid Axial and Cross-Flow Fan Propulsion for Transonic Blended Wing Body Aircraft J. Kummer, J. Allred, Propulsive Wing, LLC, Elbridge, NY; J. Felder, NASA Glenn Research Center, Cleveland, OH	1130 hrs Oral Presentation (Invited) Evaluation of the Propulsion Integration Aerodynamics on a Hybrid Wing Body Concept J. Chu, NASA Langley Research Center, Hampton, VA				
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Monday, 30 July 2012

4-HSABP/HYP-1/PC-1	Constant Volume Combustion Engines	Regency VII
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Chaired by: V. TANGIRALA, General Electric Company and D. DAUSEN, Naval Postgraduate School

1000 hrs AIAA-2012-3703 Development of a Wave Disk Engine Experimental Facility N. Mueller, Michigan State University, East Lansing, MI; P. Akbari, Columbia University, New York, NY; J. Piechna, Warsaw University of Technology, Warsaw, Poland	1030 hrs AIAA-2012-3704 Thermodynamics of the Wave Disk Engine P. Akbari, Columbia University, New York, NY; N. Mueller, Michigan State University, East Lansing, MI	1100 hrs AIAA-2012-3705 Experimental Optimization of Static Valveless Self-Aspiration of a Pulse Detonation Engine W. Stoddard, A. St. George, R. Driscoll, B. Romanchuk, E. Gutmark, University of Cincinnati, Cincinnati, OH	1130 hrs AIAA-2012-3706 Experimental Study of Shock Transfer in a Multiple Pulse Detonation-Crossover System R. Driscoll, W. Stoddard, A. St. George, B. Romanchuk, D. Munday, E. Gutmark, University of Cincinnati, Cincinnati, OH				
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Monday, 30 July 2012							
5-PC-2	Spray Combustion I						Hanover D
Chaired by: M. COIL, Orbital Technologies Corporation							
1000 hrs AIAA-2012-3707 Current Status of Superheat Spray Modeling with NCC M. Raju, ASRC Aerospace Corporation, Cleveland, OH; D. Bulzan, NASA Glenn Research Center, Cleveland, OH	1030 hrs AIAA-2012-3708 Theoretical Estimation Method for Liquid Sheet Atomization C. Inoue, T. Watanabe, T. Himeno, S. Uzawa, University of Tokyo, Bunkyo, Japan						

Monday, 30 July 2012							
6-EC-1	Advanced Energy Conversion Concepts						Fairlie
Chaired by: D. WOLFORD, NASA Glenn Research Center and M. PISZCZOR, NASA Glenn Research Center							
1000 hrs AIAA-2012-3709 Energy Conversion by Multiferroic Phase Transformation Y. Song, V. Srivastava, K. Bhatti, C. Leighton, R. James, University of Minnesota, Minneapolis, Minneapolis, MN	1030 hrs AIAA-2012-3710 Concept of a Plasma-based Solar Cell R. Adelhelm, Self, Freiburg, Germany	1100 hrs AIAA-2012-3711 Development Status of the Fission Power System Technology Demonstration Unit M. Briggs, M. Gibson, NASA Glenn Research Center, Cleveland, OH	1130 hrs AIAA-2012-3712 Theoretical and Experimental Investigations of the Pulse Tube Engine S. Moldenhauer, C. Holtmann, T. Stark, A. Thess, Ilmenau University of Technology, Ilmenau, Germany				

Monday, 30 July 2012							
7-APC-1	Advanced Propulsion Concepts I						Hanover A
Chaired by: A. HOSANGADI, Combustion Research & Flow, Technology, Inc.							
1000 hrs AIAA-2012-3713 Nanopropulsion from High-Energy Particle Beams via Dispersion Forces in Nanotubes F. Pinto, InterStellar Technologies Corporation, Monrovia, CA	1030 hrs AIAA-2012-3714 USAF High Energy Laser (HEL) Systems: Multi-Spectral Algorithm Efficiencies Susceptibilities During Missile Staging [Case: GHADR 110 MOD 2 (SEJIL-2)] C. Paiva, Self, California City, CA	1100 hrs AIAA-2012-3715 Phase-Change Thermal Energy Storage and Conversion: Development and Analysis for Solar Thermal Propulsion D. Scharfe, ERC, Inc., Edwards AFB, CA; M. Gilpin, University of Southern California, Los Angeles, CA; M. Young, Air Force Research Laboratory, Edwards AFB, CA	1130 hrs AIAA-2012-3716 Effect of Nuclear Side Reactions and Plasma Contamination on Magnetic Fusion Reactors in Space G. Herdrich, R. Gabrielli, University of Stuttgart, Stuttgart, Germany				

Monday, 30 July 2012							
8-TFES-1	Combustion Processes I						The Learning Center
Chaired by: J. MEHTA and A. AGRAWAL, University of Alabama							
1000 hrs AIAA-2012-3717 In-situ Spectroscopic Monitoring of Jatropha Oil Combustion Properties N. Desmira, K. Kitagawa, Ecotopia Science Institute, Nagoya University, Nagoya, Japan; A. Gupta, University of Maryland, College Park, College Park, MD	1030 hrs AIAA-2012-3718 Effect of CO2 and H2O Diluents on Radiative Heat Release Rates of Oxy-Fuel Flames B. Dam, V. Ardha, M. de la Torre, N. Love, A. Choudhuri, University of Texas, El Paso, El Paso, TX	1100 hrs AIAA-2012-3719 Understanding the Quality of Sulfur Deposit Formation in a Claus Reactor H. Selim, A. Gupta, University of Maryland, College Park, College Park, MD; A. Al Shoaibi, Petroleum Institute, Abu Dhabi, United Arab Emirates					

Monday, 30 July 2012							
9-EERE-1	Combustion Systems						Kennesaw
Chaired by: D. LILLEY, Oklahoma State University and A. GUPTA, University of Maryland							
1000 hrs AIAA-2012-3720 Combustion Properties of Spray Flames of Butanol/ Jet A Blends at a Lean Global Equivalence Ratio T. Ratul, R. Parthasarathy, S. Gollahalli, University of Oklahoma, Norman, Norman, OK	1030 hrs AIAA-2012-3721 Experimental research on biomass combustion by TG-DTA/MS analysis N. Zhu, Shizuoka Institute of Science and Technology, Fukuroi, Japan	1100 hrs AIAA-2012-3722 Combustion Characteristics of Pool Fires of Biofuel/Jet A Blends V. Tran, C. Morton, R. Parthasarathy, S. Gollahalli, University of Oklahoma, Norman, Norman, OK	1130 hrs AIAA-2012-3723 Experiments and Stochastic Simulations of Lignite Coal during Pyrolysis and Gasification I. Ahmed, A. Gupta, University of Maryland, College Park, College Park, MD				
Monday, 30 July 2012							
10-GTE-2	Compressors I						Hanover F
Chaired by: N. KEY, Purdue University and M. WOLFF, Wright State University							
1000 hrs AIAA-2012-3724 Shape of Characteristics of a Transonic Compressor C. Pixberg, M. Müller, S. Leichtfuss, P. Schiffer, Technical University of Darmstadt, Darmstadt, Germany	1030 hrs AIAA-2012-3725 The Sensitivity of Multistage Compressor Performance to Inlet Boundary Conditions J. Brossman, P. Ball, N. Smith, J. Methel, N. Key, Purdue University, West Lafayette, IN	1100 hrs AIAA-2012-3726 Performance Measurements of a Low-Speed Single-Stage Axial-Flow Compressor B. Butler, V. Capece, University of Kentucky, Paducah, Paducah, KY					
Monday, 30 July 2012							
11-SR-1	Solid Rocket Motor Combustion and Acoustic Instabilities I						Techwood
Chaired by: M. LANGHENRY, Raytheon Company and E. ORBEKK, Nammo AS							
1000 hrs AIAA-2012-3727 Effect of Diminishing Particle Size on Solid Rocket Combustion Instability Symptom Suppression D. Greatrix, Ryerson University, Toronto, Canada	1030 hrs AIAA-2012-3729 Studies on Effect of Head Cavity on Resonance Damping Characteristics in Solid Rocket Motors Q. Zhang, J. Li, W. Su, Y. Zhang, N. Wang, Beijing Institute of Technology, Beijing, China						
Monday, 30 July 2012							
12-EDGR-1	Demand Response and Smart Grid I						Greenbrier
Chaired by: T. HIKIHARA and S. DUNCAN							
1000 hrs AIAA-2012-3730 A Game Theoretic Approach for Smart Grid Demand Response Using System Dynamics M. Miller, S. Duncan, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1030 hrs AIAA-2012-3731 A System Dynamics Model of a Balancing Authority Using Demand Response as Contingent Energy Reserve A. Blanquet, S. Duncan, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1100 hrs AIAA-2012-3732 Power Packetization and Routing for Smart Management of Electricity T. HikiHara, K. Tashiro, Y. Kitamori, R. Takahashi, Kyoto University, Kyoto, Japan					

Monday, 30 July 2012		High Power Electric Propulsion Systems Panel	Regency VI
13-EP-1 1000 - 1200 hrs			
Chaired by: M. PATTERSON, Seniro Technologist, NASA Glenn Research Center			
The Panel Discussion will focus on the critical issues before us as related to the development of high power electric propulsion systems; in particular, considerations in the development and flight implementation of 30 kW class Solar Electric Propulsion (SEP) systems. These discussions will include:			
<i>SEP/High Voltage Arrays and Spacecraft Interactions</i> discussion led by Dr. Thomas J. Curtiss, Ph.D. Propulsion Science Department, Director The Aerospace Corporation		<i>Ground Test Requirements for High Power Electric Propulsion</i> discussion led by Dr. Ira Katz, Ph.D. Electric Propulsion Group, Supervisor Jet Propulsion Laboratory	<i>Power Electronics Requirements and Considerations for High Power Systems</i> discussion led by Mr. Luis Pinero, P.E. Senior Engineer NASA Glenn Research Center
The successful development and implementation of high power EP systems will necessitate closer coordination and communications among the Propulsion - Power - and Spacecraft Environmental Effects communities than historically has occurred. Bringing these communities together in this forum will initiate critical conversation, including:			
<ul style="list-style-type: none"> • Design considerations in implementation of SEP/Power Systems as related to potential SEP/array/spacecraft bus plasma interactions • Establishing ground test requirements for EP thrusters and systems that will ensure transportable results to the space environment • Ensuring a robust investment strategy in power electronics necessary to support high power EP systems development 			
This Special Session provides the opportunity to facilitate the formulation of working groups in these key areas that may then provide advisory support to NASA and others as the community moves forward in SEP vehicle development and flight implementation.			

Monday, 30 July 2012		Energetic Materials: Modeling and Experimental Studies	University
14-ECS-1			
Chaired by: B. POULSEN and K. RINK			
1000 hrs AIAA-2012-3733 Reaction Rate Analysis for Selected Solid-to-Solid-Reaction Pyrotechnic Compositions L. Yang, Self, La Canada Flintridge, CA	1030 hrs AIAA-2012-3734 A particle level-set based Eulerian method for simulating explosively driven metal pipe K. Kim, B. Kim, J. Yoh, Seoul National University, Seoul, South Korea		

Monday, 30 July 2012		EP Facility Effects	Baker
15-EP-2			
Chaired by: K. DIAMANT, The Aerospace Corporation and V. KHAYMS, Lockheed Martin Corporation			
1000 hrs AIAA-2012-3735 The Effects of Background Pressure on Hall Thruster Operation K. Diamant, R. Spektor, E. Beiting, J. Young, T. Curtiss, The Aerospace Corporation, El Segundo, CA	1030 hrs AIAA-2012-3736 Analysis of a plasma test cell including non-neutrality and complex collision mechanisms P. Giuliano, I. Boyd, University of Michigan, Ann Arbor, Ann Arbor, MI	1100 hrs AIAA-2012-3737 A Step Towards Electric Propulsion Testing Standards J. Dankanich, Gray Research, Inc., North Ridgeville, OH; M. Swiatek, J. Yim, NASA Glenn Research Center, Cleveland, OH	

Monday, 30 July 2012							
17-NFF-1	Future Flight Propulsion Systems I						Hanover B
Chaired by: G. MEHOLIC, The Aerospace Corporation and B. PALASZEWSKI, NASA Glenn Research Center							
1000 hrs AIAA-2012-3740 Power and Propulsion Options for Piloted Solar System Exploration B. Cassenti, University of Connecticut, Storrs, Storrs, CT	1030 hrs AIAA-2012-3741 An Overview of the NASA Ames Millimeter-Wave Thermal Launch System D. Murakami, K. Parkin, NASA Ames Research Center, Moffett Field, CA	1100 hrs AIAA-2012-3742 Atmospheric Mining in the Outer Solar System: Resource Capturing, Storage, and Utilization B. Palaszewski, NASA Glenn Research Center, Cleveland, OH	1130 hrs AIAA-2012-3743 Ground Testing a Nuclear Thermal Rocket: Design of a Sub-scale Demonstration Experiment S. Howe, Center for Space Nuclear Research, Idaho Falls, ID; D. Bedsun, D. Lee, M. Townsend, Nuclear Security Technologies, Las Vegas, NV; C. Cooper, J. Chapman, Desert Research Institute, Las Vegas, NV; M. Bulman, R. Samborsky, D. Brasuell, Aerojet, Sacramento, CA; S. Borowski, NASA Glenn Research Center, Cleveland, OH				

Monday, 30 July 2012							
18-LP-1	Injectors I						Spring
Chaired by: P. GLOYER, Gloyer-Taylor Laboratory and T. HINERMAN, Pratt & Whitney Rocketdyne							
1000 hrs AIAA-2012-3744 Simulation of a Shear Coaxial GO2/GH2 Rocket Injector with DES and LES Using Flamelet Models S. Thakur, J. Wright, Streamline Numerics, Inc., Gainesville, FL; M. Ihme, University of Michigan, Ann Arbor, Ann Arbor, MI; K. Tucker, NASA Marshall Space Flight Center, Huntsville, AL	1030 hrs AIAA-2012-3745 The impinging-type injector design of MMH/NTO liquid rocket engine C. Chen, National Cheng Kung University, Tainan, Taiwan	1100 hrs AIAA-2012-3746 A Mechanistic Assessment of Swirl Injection and Atomization by X-ray Radiographic and Optical Techniques C. Eberhart, D. Lineberry, R. Frederick, University of Alabama, Huntsville, Huntsville, AL	1130 hrs AIAA-2012-3807 Split Stream Flow Past a Blunt Trailing Edge with Application to Combustion Instabilities V. Tian, B. McKeon, California Institute of Technology, Pasadena, CA; I. Leyva, Air Force Research Laboratory, Edwards AFB, CA				

Monday, 30 July 2012							
19-HR-1	Internal Ballistics Modeling I						Inman
Chaired by: A. KARABEYOGLU, Space Propulsion Group, Inc. and J. MAJDALANI, University of Tennessee Space Institute							
1000 hrs AIAA-2012-3748 Comparative CFD Simulations of Hybrid Rockets Flow Fields M. Lazzarin, N. Bellomo, F. Barato, M. Faenza, M. Manente, D. Rondini, A. Bettella, D. Pavarin, University of Padova, Padova, Italy	1030 hrs AIAA-2012-3749 Combustion Modeling and Analysis of Hybrid Rocket Motor Internal Ballistics Y. Chen, National Space Organization Taiwan, Chubei, Taiwan	1100 hrs AIAA-2012-3750 Numerical Modeling of Paraffin-Based Fuels Behavior F. Barato, A. Bettella, D. Pavarin, University of Padova, Padova, Italy					

Monday, 30 July 2012							
20-GTE-3		Jet Noise I					Hanover G
Chaired by: B. KIEL, Air Force Reseach Laboratory							
1000 hrs AIAA-2012-3751 Fundamental Jet Noise Reduction Science and Technology K. Kailasanath, Naval Research Laboratory, Washington, DC	1030 hrs AIAA-2012-3752 Jet Noise Reduction Potential from Emerging Variable Cycle Technologies B. Henderson, J. Bridges, NASA Glenn Research Center, Cleveland, OH	1100 hrs Oral Presentation (Invited) Department of Navy Jet Noise Reduction (JNR) Project J. Doychak, B. Henderson, Office of Naval Research, Arlington, VA	1130 hrs AIAA-2012-3753 The Structure of Near Field Pressure Fluctuations Surrounding a Supersonic Jet D. Long, Aero Systems Engineering, St. Paul, MN; R. Schlinker, R. Reba, United Technologies Research Center, East Hartford, CT				

Monday, 30 July 2012							
21-LP-2		Monopropellants I					Roswell
Chaired by: S. BUSHMAN, Johns Hopkins University Applied Physics Laboratory and H. KAGAWA, Japan Aerospace Exploration Agency (JAXA)							
1000 hrs AIAA-2012-3754 Feasible Study on Low Frequency Plasma Jet as Ignition System for HAN Based Propellant T. Iizuka, M. Komatsu, T. Tajika, J. Aoyagi, H. Takegahara, Tokyo Metropolitan University, Hino, Japan; T. Nagata, Japan Aerospace Exploration Agency (JAXA), Tsukuba, Japan	1030 hrs AIAA-2012-3755 Development of a 90% Hydrogen Peroxide Mono-Propellant Propulsion System for the Warm Gas Test Article W. Neumaier, M. Wells, A. Brinkley, T. Talty, Dynetics, Huntsville, AL	1100 hrs AIAA-2012-3756 One Newton thruster by plasma-assisted combustion of HAN-based monopropellant A. Kakami, K. Ideta, T. Ishibashi, T. Tachibana, Kyushu University, Kitakyushu, Japan	1130 hrs AIAA-2012-3757 Development of Mono-Propellant Propulsion System for a Japanese Microsatellite 'Hodoyoshi-1' S. Nishikizawa, N. Suzuki, H. Sahara, Tokyo Metropolitan University, Tokyo, Japan; N. Miyashita, Y. Kuramoto, AXELSPACE, Tokyo, Japan				

Monday, 30 July 2012							
22-JPC-2		NASA MSFC National Institute for Rocket Propulsion Systems					Centennial Ballroom I
1000 - 1200 hrs							
Moderator: Dr. Dale Thomas, Associate Director, Technical, NASA Marshall Space Flight Center							
Panelists:							
Vigor Yang Professor Georgia Institute of Technology	Julie Van Kleeck Vice President Space & Launch Systems Aerojet	Charlie Precourt Vice President and General Manager Space Launch Division ATK	John Vilja Vice President Strategy Innovation & Growth Pratt & Whitney Rocketdyne	George F. Sowers, Ph.D. Vice President Business Development & Advanced Programs United Space Alliance	Brett Alexander Director Strategy & Business Development Blue Origin		

Monday, 30 July 2012							
23-ST-1 1000 - 1200 hrs		NASA Space Launch System				Regency V	
Chaired by: D. SAUVAGEAU, ATK Moderator: Don Sauvageau, ATK Panelists:							
Todd A. May SLS Program Manager NASA Marshall Space Flight Center		Garry M. Lyles SLS Chief Engineer NASA Marshall Space Flight Center		Alex S. Priskos SLS Boosters Manager NASA Marshall Space Flight Center		Michael (Mike) H. Kynard SLS Liquid Engines Manager NASA Marshall Space Flight Center	
Leaders from NASA's Space Launch System (SLS) will participate in a panel discussing the progress made on the program's propulsion systems. The SLS will be the nation's next human-rated heavy-lift vehicle for entirely new missions beyond Earth's orbit. With a first launch slated for 2017, the SLS Program is turning plans into progress, with the initial rocket being built in the U.S.A. today, engaging the aerospace workforce and infrastructure. Starting with an overview of the SLS mission and programmatic status, the discussion will then delve into progress on each of the primary SLS propulsion elements, including the boosters, core stage engines, and upper stage engines. Included will be a discussion of the 5-segment solid rocket motors (ATK), which are derived from Space Shuttle and Ares developments, as well as the RS-25 core stage engines from the Space Shuttle inventory and the J-2X upper stage engine now in testing (Pratt & Whitney Rocketdyne). The panel will respond to audience questions about this important national capability for human and scientific space exploration missions.							
Monday, 30 July 2012							
24-IECEC-2 1000 - 1200 hrs		Shuttle Space Transportation Replacement Options and Progress				Dunwoody	
Chaired by: P. ANDERSON, Lockheed Martin Space Systems							
The safe return of Space Shuttle Atlantis on July 21, 2011 marked the end of nearly 30 years of near-continuous American space exploration and achievements. Although this milestone marked the end of the Shuttle era, the future of American human spaceflight is far from bleak. In April, 2011, NASA awarded contracts to four commercial companies to continue development of commercial rockets and spacecraft capable of safely flying astronauts into orbit and to the International Space Station. In addition, NASA is making steady progress on building the Orion spacecraft, which is being designed to take astronauts deeper into space than ever before. The purpose of this session is to present the progress that is being made on several of these options, including highlighting the key technical drivers, achievements and challenges that each are facing as America heads into its next era of human spaceflight.							
Speakers:							
Dr. Merri Sanchez Senior Director Space Exploration Systems Sierra Nevada		Stephanie Bednarek Manager for Government Affairs SpaceX		Larry Price Deputy Program Manager, CEV Development Lockheed Martin Space Systems Company		Chris Singer Director of Engineering NASA Marshall Space Flight Center	
Kent Rominger VP Strategy and Business, Space Launch Systems ATK Aerospace Systems Group, Utah							
Monday, 30 July 2012							
26-PC-3		Advanced Combustor Concepts I				Hanover E	
Chaired by: E. LYNCH, Pratt & Whitney Rocketdyne and M. ANAND, Rolls-Royce Corporation							
1000 hrs AIAA-2012-3759 Performance Improvement of a Laser-Ignition Micro Solid Rocket by Controlling the Combustion Wave Front H. Koizumi, Y. Masuda, University of Tokyo, Bunkyo, Japan; M. Nakano, Tokyo Metropolitan College of Industrial Technology, Arakawa, Japan; K. Komurasaki, Y. Arakawa, University of Tokyo, Bunkyo, Japan	1030 hrs AIAA-2012-3760 Kinetic Modeling of Hypersonic Propellants Using Impinging Element Injectors S. Sardeshmukh, S. Heister, G. Xia, C. Merkle, Purdue University, West Lafayette, IN	1100 hrs AIAA-2012-3761 Time-Averaged Characteristics of a Reacting Fuel Jet in Vitiated Cross-Flow R. Sullivan, B. Wilde, D. Noble, K. Periagaram, J. Seitzman, T. Lieuwen, Georgia Institute of Technology, Atlanta, GA	1130 hrs AIAA-2012-3762 Characteristics of a Supersonic Model Combustor with Two-Stage Injections of Supercritical Kerosene T. Zhang, Y. Yuan, J. Li, X. Fan, Chinese Academy of Sciences, Beijing, China				

Monday, 30 July 2012							
28-TM-1	Two Phase Thermal Control Technology						Lenox
Chaired by: C. TARAU, Advanced Cooling Technologies and M. CHOI, NASA Goddard Space Flight Center							
1000 hrs AIAA-2012-3765 Performance Testing of Thermacore Loop Heat Pipe in a 1kW Heat Transport/Rejection System S. Spencer, T. Hoang, R. Baldauff, R. Sutton, Naval Research Laboratory, Washington, DC	1030 hrs AIAA-2012-3766 Progress on performance validation of a steady-state loop heat pipe model M. Page, M. Brooks, C. Bemont, L. Roberts, University of KwaZulu-Natal, Durban, South Africa	1100 hrs AIAA-2012-3767 Phase Change Material for Temperature Control of Loop Heat Pipe Compensation Chamber M. Choi, NASA Goddard Space Flight Center, Greenbelt, MD					
Monday, 30 July 2012							
29-LNCH-1 1200 - 1300 hrs	Monday Exhibit Luncheon						Exhibit Hall
Monday, 30 July 2012							
30-JPC-3 1300 - 1400 hrs	Monday Afternoon Keynote						Centennial Ballroom I
<p><i>The Role of Propulsion Technology in Commercial Space Applications</i> Antonio L. Elias Executive Vice President and General Manager Advanced Programs Group Orbital Sciences Corporation</p>							
Monday, 30 July 2012							
31-ABPSI-2/GTE-4	Turboelectric Distributed Propulsion II						Hanover C
Chaired by: J. CHU, NASA Langley Research Center and P. PILIDIS, Cranfield							
1400 hrs AIAA-2012-3768 Analysis of a Distributed Hybrid Propulsion System with Conventional Electric Machines M. Green, B. Schiltgen, A. Gibson, Empirical Systems Aerospace, Inc., Pismo Beach, CA	1430 hrs AIAA-2012-3769 Benefits and Concerns of Hybrid Electric Distributed Propulsion with Conventional Electric Machines B. Schiltgen, M. Green, A. Gibson, D. Hall, D. Cummings, Empirical Systems Aerospace, Inc., Pismo Beach, CA; C. Hange, NASA Ames Research Center, Moffett Field, CA	1500 hrs AIAA-2012-3770 Dynamic Response and High Cycle Fatigue Analysis of Fan Blades under Inlet Distortion G. Doulgeris, G. Lelias, R. Singh, P. Laskaridis, Cranfield University, Cranfield, United Kingdom	1530 hrs AIAA-2012-3771 Examining Non-Uniform Generator and Propulsor Control Schemes for a Hybrid Electric Propulsion Concept D. Trawick, C. Perullo, D. Mavris, Georgia Institute of Technology, Atlanta, GA				

Monday, 30 July 2012							
32-HSABP/HYP-2	Numerical Simulation of Scramjets						Regency VII
Chaired by: F. MALO-MOLINA, Air Force Research Laboratory and L. MCKINNEY, McKinney Associates							
1400 hrs AIAA-2012-3772 Exploratory Simulations of the HIFIRE 2 Scramjet Flowpath R. Yentsch, D. Gaitonde, Ohio State University, Columbus, OH	1430 hrs AIAA-2012-3773 Numerical Simulation of a Hypervelocity Scramjet Engine Using Silane - Hydrogen Fuel P. Vogel, J. Edwards, North Carolina State University, Raleigh, NC	1500 hrs AIAA-2012-3774 High Fidelity Analysis of a Reacting Pulsed Supersonic Combustor F. Malo-Molina, Air Force Research Laboratory, Wright-Patterson AFB, OH; H. Ebrahimi, FM&S, Reno, NV	1530 hrs AIAA-2012-3775 Radiative Heating in Hydrocarbon-fueled Scramjet Engines J. Liu, Taitech, Inc., Wright-Patterson AFB, OH; M. Brown, Air Force Research Laboratory, Wright-Patterson AFB, OH				

Monday, 30 July 2012							
33-PC-4	Advanced Combustor Concepts II						Hanover D
Chaired by: K. MCMANUS, General Electric Company and P. VENKATESWARAN, Georgia Institute of Technology							
1400 hrs AIAA-2012-3776 Characterization of Supersonic Flow Interaction with Shockwaves Using Laser-based Diagnostics S. Etheridge, J. Lee, University of Cincinnati, Cincinnati, OH; C. Carter, Air Force Research Laboratory, Wright-Patterson AFB, OH	1430 hrs AIAA-2012-3777 Novel Glow Plug for Compact High Density Engine Applications Operating on Heavy Fuels B. Baird, S. Etemad, Precision Combustion, Inc., North Haven, CT	1500 hrs AIAA-2012-3778 Turbine-Burner Model: Cavitation Flameholding in a Converging, Turning Channel Flow W. Sirignano, University of California, Irvine, Irvine, CA	1530 hrs AIAA-2012-3779 Modeling and Simulation of Enhanced Reactant-Product Mixing in Ultra Compact Combustors A. Briones, University of Dayton Research Institute, Dayton, OH; B. Sekar, Air Force Research Laboratory, Wright-Patterson AFB, OH; H. Thomburg, High Performance Technologies, Inc., Reston, VA				

Monday, 30 July 2012							
34-APC-2	Advanced Propulsion Concepts II						Hanover A
Chaired by: T. CHEN and J. ROBINSON							
1400 hrs AIAA-2012-3780 Combination of Fluidic Thrust Modulation and Vectoring in a 2D Nozzle A. Ali, C. Rodriguez, A. Neely, J. Young, University of New South Wales at the Australian Defence Force Academy, Canberra, Australia	1430 hrs AIAA-2012-3782 Effect of Ambient Pressure Fluctuations on the Dual-Bell Transition Behavior S. Verma, NAL Research Corporation, Bangalore, India; R. Stark, O. Haidn, German Aerospace Center (DLR), Hardthausen, Germany	1500 hrs AIAA-2012-3783 Preliminary Trajectory Analysis of Microwave Rocket with Reed Valve Air Breathing System M. Fukunari, A. Arnault, T. Yamaguchi, K. Komurasaki, University of Tokyo, Kashiwa, Japan; H. Koizumi, Y. Arakawa, University of Tokyo, Bunkyo, Japan; I. Funaki, Japan Aerospace Exploration Agency (JAXA), Sagami, Japan; H. Katsurayama, Yamaguchi University, Ube, Japan					

Monday, 30 July 2012							
35-TFES-2	Combustion Processes II						The Learning Center
Chaired by: N. LOVE, The University of Texas, El Paso and A. AGRAWAL, University of Alabama							
1400 hrs AIAA-2012-3784 Design and Development of an Optically Accessible High Pressure Combustor S. Sarker, J. Nunez, C. Valdez, N. Love, A. Choudhuri, University of Texas, El Paso, El Paso, TX	1430 hrs AIAA-2012-3785 Numerical and Experimental Study of Turbulent Mixing and Reaction in Colorless Distributed Combustion Systems H. Abdul-Rahman, F. Jabeji, Michigan State University, East Lansing, MI; A. Khalil, A. Gupta, University of Maryland, College Park, College Park, MD	1500 hrs AIAA-2012-3786 Characterization of Oxy-Fuel Flames in a Swirl Combustor V. Arzha, B. Dam, N. Love, A. Choudhuri, University of Texas, El Paso, El Paso, TX					

Monday, 30 July 2012							
36-JPC-4	Commercial Space Development						Centennial Ballroom I
1400 - 1620 hrs							
Join this panel of commercial space leaders in an interactive discussion of commercial space developments and future space plans. We will address current issues and consider future strategies and opportunities							
Moderator: Michael Griffin, AIAA President, Former NASA Administrator							
Lisa Matthews Business Development Director Propulsion, Space Systems Group Sierra Nevada		Brett Alexander Director Business Development & Strategy Blue Origin, LLC		Charles Precourt Vice President & General Manager Space Launch Division ATK		Frank Culbertson Senior Vice President and Deputy General Manager Human Spaceflight Systems Orbital Sciences	
Adam Harris Vice President Government Sales SpaceX			George Sowers Vice President Business Development ULA		John Mulholland Vice President & Program Manager Commercial Programs, Space Exploration The Boeing Company		

Monday, 30 July 2012							
37-EDGR-2	Demand Response and Smart Grid II						Lenox
Chaired by: S. DUNCAN and T. HIKIHARA							
1400 hrs AIAA-2012-3787 Deterioration Process Modeling of a Multi-Component Complex System for a Condition Based Maintenance J. Kim, S. Duncan, D. Mavis, Georgia Institute of Technology, Atlanta, GA	1430 hrs Oral Presentation (Invited) Building of the European SmartGrids : The European Electricity Grid Initiative (EEGI) A. Vu, Electricité Réseau Distribution France (ERDF), Paris, France	1500 hrs Oral Presentation (Invited) Multi-Level Cluster Approach - The Flexible and Adaptive Strategy for Smart Grid E. Ortjoahnn, P. Wirasanti, M. Hoppe, South Westphalia University of Applied Sciences, Soest, Germany					

Monday, 30 July 2012							
38-EP-4		Hall Thrusters I					Regency VI
Chaired by: H. KAMHAWI, NASA Glenn Research Center and W. HOSKINS, Aerojet							
1400 hrs AIAA-2012-3788 Design of a Laboratory Hall Thruster with Magnetically Shielded Channel Walls, Phase II: Experiments R. Hofer, D. Goebel, I. Mikellides, I. Katz, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA	1430 hrs AIAA-2012-3789 Design of a Laboratory Hall Thruster with Magnetically Shielded Channel Walls, Phase III: Comparison of Theory with Experiment I. Mikellides, I. Katz, R. Hofer, D. Goebel, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA	1500 hrs AIAA-2012-3790 Potential Contours in Ion Focusing Hall Thruster K. Xu, H. Dao, M. Walker, Georgia Institute of Technology, Atlanta, GA	1530 hrs AIAA-2012-3791 Dependence of lifetime on magnetic field configuration in a Hall thruster N. Yamamoto, H. Nakashima, Kyushu University, Kasuga, Japan; A. Yalin, Colorado State University, Fort Collins, CO				
Monday, 30 July 2012							
39-EP-5		Electrospray Propulsion I					Baker
Chaired by: V. HRUBY							
1400 hrs AIAA-2012-3793 Investigating Ion Fragmentation in Electrospray Thruster Beams T. Coles, P. Lozano, T. Fedkiw, Massachusetts Institute of Technology, Cambridge, MA; N. Takahashi, German Aerospace Center (DLR), Stuttgart, Germany	1430 hrs AIAA-2012-3738 Capillary Extraction of the Ionic Liquid [Bmim][DCA] for Variable Flow Rate Operations B. Prince, S. Miller, Air Force Research Laboratory, Kirtland AFB, NM; J. Rovey, Missouri University of Science and Technology, Rolla, MO	1500 hrs AIAA-2012-4291 Modeling of an Ionic Liquid Electrospray using Molecular Dynamics A. Borner, R. Kumar, Z. Li, D. Levin, Pennsylvania State University, University Park, PA					
Monday, 30 July 2012							
40-EP-6		Ion Thrusters I					Cortland
Chaired by: D. GOEBEL, Jet Propulsion Laboratory, California Institute of Technology and L. KING, Michigan Technological University							
1400 hrs AIAA-2012-3795 Performance Characterization of a 50 cm Ion Thruster Discharge Chamber J. Foster, S. Gucker, A. Hubble, University of Michigan, Ann Arbor, Ann Arbor, MI; P. Peterson, ElectroDynamic Applications, Inc., Ann Arbor, MI	1430 hrs AIAA-2012-3796 An Experimental Study of Single Cathode Gridded Ion Thrusters Y. Hayakawa, K. Miyazaki, H. Nagano, Y. Ohkawa, T. Higuchi, S. Kitamura, Japan Aerospace Exploration Agency (JAXA), Tokyo, Japan	1500 hrs AIAA-2012-3797 Numerical Lifetime Evaluation of Ion Thruster's Ion Optics Using the JIEDI Tool I. Funaki, H. Watanabe, Japan Aerospace Exploration Agency (JAXA), Sagami, Japan; M. Nakano, Tokyo Metropolitan College of Industrial Technology, Arakawa, Japan; Y. Kajimura, Japan Aerospace Exploration Agency (JAXA), Sagami, Japan; T. Miyasaka, Gifu University, Gifu, Japan; Y. Nakayama, National Defense Academy, Yokosuka, Japan; H. Kuninaka, I. Shimohara, Japan Aerospace Exploration Agency (JAXA), Sagami, Japan	1530 hrs AIAA-2012-3798 Annular-Geometry Ion Engine: Concept, Development Status, and Preliminary Performance M. Patterson, D. Herman, NASA Glenn Research Center, Cleveland, OH; J. Foster, University of Michigan, Ann Arbor, Ann Arbor, MI				

Monday, 30 July 2012							
41-ECS-2	Energetic Material Applications						University
Chaired by: D. JACKSON, ATK and H. LEE, Chemring Energetic Devices							
1400 hrs AIAA-2012-3799 Failure Mode Analysis of V-Shaped Pyrotechnically Actuated Valves J. Sachdev, A. Hosangadi, CRAFT Tech, Pipersville, PA; R. Saulsberry, S. McDougle, NASA White Sands Test Facility, Las Cruces, NM	1430 hrs AIAA-2012-3800 Analyzing the Effects of Electromagnetic Exposure on Energetic Compositions C. Crane, M. Pantoya, B. Weeks, Texas Tech University, Lubbock, TX	1500 hrs AIAA-2012-3801 The Investigation of a Low Pressure Anomaly in a Pressure Cartridge Containing a Double-Base Propellant W. Sanborn, R. McCoy, Pacific Scientific Energetic Materials Company, Chandler, AZ	1530 hrs AIAA-2012-3802 2012 CAD/PAD Technology Roadmap Update T. Blachowski, J. Burchett, Naval Surface Warfare Center, Alexandria, VA				
Monday, 30 July 2012							
42-EERE-2	Energy-Efficient Systems I						Kennesaw
Chaired by: J. DARKWA, University of Nottingham-Ningbo and T. BRADLEY, Colorado State University							
1400 hrs AIAA-2012-3803 Energy Efficiency in Buildings: Think Pyramids E. Khalil, Cairo University, Cairo, Egypt	1430 hrs AIAA-2012-3804 Improvement of Natural Ventilation in South-Facing Rooms Located in Top Floors in Cairo, Egypt A. Masoud, A. Ibrahim, E. Khalil, Cairo University, Cairo, Egypt	1500 hrs AIAA-2012-3805 Pulsed Ejector Cooling System S. du Clou, M. Brooks, University of KwaZulu-Natal, Durban, South Africa; W. Lear, S. Sherif, University of Florida, Gainesville, Gainesville, FL; E. Khalil, Cairo University, Cairo, Egypt	1530 hrs AIAA-2012-3806 Feasibility Study of Localized Heating and Cooling Systems Totally Powered by Solar Energy N. Ghaddar, K. Ghali, M. Abiad, American University of Beirut, Beirut, Lebanon				
Monday, 30 July 2012							
43-LP-4	Injectors II						Spring
Chaired by: T. HINERMAN, Pratt & Whitney Rocketdyne and P. GLOYER, Gloyer-Taylor Laboratory							
1400 hrs AIAA-2012-3747 Experimental Evaluation of a Reverse Engineering Swirl Atomizer M. Zirakssaz, I.A. University, Tehran, Iran; F. Ommi, Tarbiat Modares University, Tehran, Iran; D. Ganji, Babol University, Babol, Iran; M. Ashjaee, Tehran University, Tehran, Iran							
Monday, 30 July 2012							
44-HR-2	Internal Ballistics Modeling II						Inman
Chaired by: S. FROLIK, The Aerospace Corporation and B. EVANS, Space Propulsion Group, Inc.							
1400 hrs AIAA-2012-3809 Numerical Analysis of Nozzle Material Thermochemical Erosion in Hybrid Rocket Engines D. Bianchi, F. Nasuti, University of Rome "La Sapienza", Rome, Italy	1430 hrs AIAA-2012-3810 Linear Stability Study of Cylindrically-Shaped Hybrid Rockets T. Elliott, J. Majdalani, University of Tennessee Space Institute, Tullahoma, TN						

Monday, 30 July 2012							
45-GTE-5	Propulsion systems modeling and design						Hanover F
Chaired by: J. TAI, Georgia Institute of Technology							
1400 hrs AIAA-2012-3812 Multi Design Point Cycle Design Incorporation into the Environmental Design Space J. Schutte, J. Tai, D. Mavis, Aerospace Systems Design Laboratory, Atlanta, GA	1430 hrs AIAA-2012-3813 Turboshaft Engine Predesign and Performance Assessment S. Burguburu, ONERA, Meudon, France; P. Basset, ONERA, Salon-de-Provence, France	1500 hrs AIAA-2012-3814 Improved Pareto Optimal Engine Cycle Designs Through the Use of a New Pareto Quality Indicator N. Molina, J. Sands, S. Duncan, E. Osvalds, D. Mavis, Georgia Institute of Technology, Atlanta, GA					

Monday, 30 July 2012							
46-IECEC-3	Micro/Nano Thermal Management Technology for Aerospace, Energy and Environment						Dunwoody
1400 - 1600 hrs							
Chaired by: M. CHOI, NASA Goddard Space Flight Center							
<p>The micro/nano-scale thermal management technologies in this panel session include, but are not limited to, heat and mass transport issues in the following materials, components or systems: carbon nanotube, high temperature nanofibers, ceramics, aerogel insulation, thermal energy storage, microcooler, nanopropellants, propulsion systems, in-space propulsion, solar-electrical conversion, solar-fuel conversion, thermoelectric energy conversion, magnetocaloric energy conversion, pyroelectric energy conversion, piezoelectric energy conversion, electrochemical energy conversion and storage, chip scale spot cooling and waste heat recovery. A panel of experts will discuss the emerging micro/nano-scale thermal management technologies for aerospace, energy and environment, and offer their vision for the future of these technologies. Focus will be placed on challenges and opportunities.</p>							
Micro/Nano Thermal Management Technology for Aerospace, Energy and Environment							
1400-1430 hrs Timothy Fisher Purdue University, West Lafayette, IN	1430-1500 hrs Theodorian Borca-Tasciuc Rensselaer Polytechnic Institute, Troy, NY	1500-1530 hrs Rama Venkatasubramanian RTI International, Research Triangle Park, NC	1530-1500 hrs Gerald Mahan Penn State University, State College, PA				

Monday, 30 July 2012							
48-LP-5	Monopropellants II						Roswell
Chaired by: S. MILLER, Aerojet and S. BUSHMAN, Johns Hopkins University Applied Physics Laboratory							
1400 hrs AIAA-2012-3815 A Family of Thrusters for ADN-Based Monopropellant LMP-103S M. Persson, K. Anflo, A. Dinardi, SSC Group, Solna, Sweden	1430 hrs AIAA-2012-3817 Life Test Results for a New 4N (1 lbf) Thrust Class Hydrazine Monopropellant Engine O. Morgan, Aerojet, Redmond, WA	1500 hrs AIAA-2012-3818 Performance Improvement of Hydrogen Peroxide Monopropellant by Blending Ethanol J. Lee, D. Jang, S. Kwon, Korea Advanced Institute of Science and Technology, Daejeon, South Korea	1530 hrs AIAA-2012-4335 A New State-of-The-Art in AF-M315E Thruster Technologies R. Masse, R. Spores, Aerojet, Redmond, WA				

Monday, 30 July 2012							
49-NFF-2	Nuclear Thermal Propulsion I: Fuels Development						Hanover B
Chaired by: J. WARREN, NASA Headquarters and S. BOROWSKI, NASA Glenn Research Center							
1400 hrs AIAA-2012-3819 Fabrication and Testing of CERMET Fuel Materials for Nuclear Thermal Propulsion R. Hickman, NASA Marshall Space Flight Center, Huntsville, AL; J. Broadway, O. Mireles,	1430 hrs Oral Presentation (Invited) Recapturing Graphite-Based Fuel Element Technology for Nuclear Thermal Propulsion M. Trammell, L. Qualls, Oak Ridge National Laboratory, Oak Ridge, TN	1500 hrs					
Monday, 30 July 2012							
50-GTE-6	Jet Noise II						Hanover G
Chaired by: B. KIEL, Air Force Research Laboratory							
1400 hrs AIAA-2012-3821 Adjoint Design Methods for Nozzles for Reduced Noise in High-Speed Jets P. Morris, N. Sikarwar, Pennsylvania State University, University Park, PA	1430 hrs AIAA-2012-3822 Investigation of an Axisymmetric Transonic Jet with High Resolution Time-Resolved PIV Z. Berger, K. Low, Syracuse University, Syracuse, NY; S. Kostka, S. Gogineni, Spectral Energies, LLC, Dayton, OH; M. Glauser, Syracuse University, Syracuse, NY	1500 hrs AIAA-2012-3823 Aeroacoustic and Performance Simulations of a Test Scale Open Rotor R. Claus, NASA Glenn Research Center, Cleveland, OH					
Monday, 30 July 2012							
51-SR-3	Solid Rocket Motor Combustion and Acoustic Instabilities II						Techwood
Chaired by: D. GREATRIX, Ryerson University and J. SPURLING, Naval Air Warfare Center Weapons Division							
1400 hrs AIAA-2012-3824 Pressure oscillation numerical simulation in solid propellant rocket motor E. Cavallini, V. Ferretti, B. Favini, University of Rome "La Sapienza", Rome, Italy; F. Serraglia, ESA, Rome, Italy; M. Di Giacinto, University of Rome "La Sapienza", Rome, Italy	1430 hrs AIAA-2012-3825 Theoretical Investigation of the Parietal Vortex Shedding in Solid Rocket Motors B. Germain, G. Casalis, J. Estivalezes, ONERA, Toulouse, France	1500 hrs AIAA-2012-3826 The Influence of Thermal Inhibitor Position on Pressure Oscillations in Solid Rocket Motors: Numerical Study S. Xing, W. Zhijun, Q. Zhang, Z. Yandong, L. Junwei, N. Wang, Beijing Institute of Technology, Beijing, China					
Monday, 30 July 2012							
52-SR-4	Solid Fueled Scramjets and Ducted Rockets						Vinnings
Chaired by: K. NAUMANN, Bayern-Chemie GmbH and D. MACINNIS, Raytheon Company							
1400 hrs AIAA-2012-3827 Development of a 6-DoF Simulation of a VFDR Propulsion System C. Bauer, N. Hopfe, P. Caldas-Pinto, G. Kurth, MBDA, Aschau am Inn, Germany	1430 hrs AIAA-2012-3828 Effects of Gas Generator Burn Rate Variability on Variable Flow Ducted Rocket Design and Performance D. MacInnis, Raytheon Company, Tucson, AZ	1500 hrs AIAA-2012-3829 Effects of the Distance of High Temperature Metal Particles in a Secondary Combustor of Ducted Rockets A. Kamisaka, K. Takahashi, T. Kuwahara, Nihon University, Funabashi, Japan	1530 hrs AIAA-2012-3830 Numerical Investigation on Cavity Length for Solid Fuel Scramjet X. Pei, J. Liu, W. Zhijun, N. Wang, Beijing Institute of Technology, Beijing, China				

Monday, 30 July 2012							
53-APS-1	Spacecraft Solar Array Design						Greenbriar
Chaired by: R. CHAMBERS, Lockheed Martin Corporation and A. ARASTU, The Boeing Company							
1400 hrs AIAA-2012-3831 Solar Probe Plus (SPP) Autonomous Solar Array Angle Control A. Baisden, L. Roufberg, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1430 hrs AIAA-2012-3832 Solar Panel Design and Qualification for the Mars Atmosphere and Volatile Evolution (MAVEN) Program G. Lam, C. Su, D. Leland, Lockheed Martin Corporation, Sunnyvale, CA	1500 hrs AIAA-2012-3833 JUNO Photovoltaic Power at Jupiter S. Dawson, P. Stella, W. McAlpine, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA; B. Smith, The Aerospace Corporation, El Segundo, CA					

Monday, 30 July 2012							
55-LP-6	Turbopumps						Piedmont
Chaired by: B. WINTERS, Orbital Sciences Corporation and B. MARCU, SpaceX							
1400 hrs AIAA-2012-3834 Development of a Robust and Efficient Parallel Solver for Unsteady Turbomachinery Flows J. Wright, S. Thakur, Streamline Numerics, Inc., Gainesville, FL; E. Luke, Mississippi State University, Starkville, MS; J. West, NASA Marshall Space Flight Center, Huntsville, AL	1430 hrs AIAA-2012-3835 Major achievements reached through the LAPLACE-BCER cavitation test turbopump program P. Alliot, J. Vigouroux, SNECMA, Vernon, France; B. Pouffary, French Space Agency (CNES), Paris, France	1500 hrs AIAA-2012-3836 Experimental Results of a Centrifugal Pump Using Hydrazine and MON-3 H. Kagawa, Japan Aerospace Exploration Agency (JAXA), Tsukuba, Japan; A. Okayasu, S. Shimizu, ASIRI, Mitaka, Japan	1530 hrs AIAA-2012-3763 The Design of a Kerosene Turbopump for a South African Commercial Launch Vehicle J. Smyth, J. Bindon, M. Brooks, G. Smith, University of KwaZulu-Natal, Durban, South Africa; G. Snedden, Council for Scientific and Industrial Research, Pretoria, South Africa				

Monday, 30 July 2012							
56-GTE-7 1400 - 1600 hrs	Volcanic Ash						Regency V
Chaired by: A. NIX, West Virginia University							
Panelists:							
Operation of Gas Turbine Engines in Volcanic Ash Environments							
Mike Dunn Ohio State University		Charlie Stevens Air Force Research Laboratory		Allan van de Wall GE Aviation		Mark Zelesky Pratt & Whitney	
				John Sordyl Williams International		John Fisher Federal Aviation Administration	

Monday, 30 July 2012							
57-ABPSI-3	PDEs, ICes, and Propellers						Hanover B
Chaired by: W. WESTPHAL, Rolls-Royce Corporation and D. BENCHERGUI, Bombardier Inc							
1630 hrs AIAA-2012-3837 Scaling Study of Wave Rotor Turbo Normalization of an Internal Combustion Engine M. Polanka, B. Smith, Air Force Institute of Technology, Wright- Patterson AFB, OH	1700 hrs AIAA-2012-3838 Aerodynamic Analysis of High Rotation and Low Reynolds Number Propeller L. Oliveira, H. Muñoz, F. Catalano, University of São Paulo, São Carlos, Brazil	1730 hrs AIAA-2012-3839 Thrust Augmentation Using High Power Beam and Reed valve Air-breathing System M. Fukunari, R. Komatsu, S. Saitoh, T. Yamaguchi, K. Komurasaki, University of Tokyo, Chiba, Japan; Y. Oda, K. Sakamoto, Japan Atomic Energy Agency, Naka, Japan					

Monday, 30 July 2012							
58-EP-7	Electromagnetic Propulsion I						Regency V
Chaired by: R. THOMAS, NASA Glenn Research Center and K. POLZIN, NASA Marshall Space Flight Center							
1630 hrs AIAA-2012-3840 Fluid and Hybrid-PIC Code Comparison of the Plasma Plume in a Magnetic Nozzle J. Navarro, M. Merino-Martinez, E. Ahedo, Technical University of Madrid, Madrid, Spain	1700 hrs AIAA-2012-3841 Towards Computation of Resistive Magnetohydrodynamic Magnetic Nozzle Plasma Flow F. Ebersohn, S. Girmaji, Texas A&M University, College Station, TX; J. Shebalin, NASA Johnson Space Center, Houston, TX; D. Staack, Texas A&M University, College Station, TX	1730 hrs AIAA-2012-3842 Large-beta effects on the magnetic detachment of a supersonic plasma flow J. Little, E. Choueiri, Princeton University, Princeton, NJ	1800 hrs AIAA-2012-3843 Magnetic Nozzle Far-Field Simulation M. Merino-Martinez, E. Ahedo, Technical University of Madrid, Madrid, Spain				
Monday, 30 July 2012							
59-ABPSI-4/GTE-8 1630 - 1830 hrs	Why Turboelectric Distributed Propulsion						Hanover C
Chaired by: H. KIM, NASA Glenn Research Center and N. MADAVAN, NASA Ames Research Center							
Speakers:							
John Kinney Director, Advanced Programs Business Development NASA Program Manager, GE Aviation Cincinnati, OH		Rich Ouellette Advanced Technology Concepts Project Manager Boeing Research & Technology Group, Huntington Beach, CA		Prof. Pericles Pilidis Head of Power and Propulsion Department Cranfield University, United Kingdom		Andrew Gibson President, Empirical Systems Aerospace, Inc. Pismo Beach, CA	James Felder Aerospace Engineer NASA Glenn Research Center Cleveland, OH
Monday, 30 July 2012							
61-PC-6	Combustion Modeling I						Hanover D
Chaired by: T. NGUYEN, Aerojet and C. BRUNO, University 'La Sapienza'							
1630 hrs AIAA-2012-3844 A Numerical Study on Combustion-Stability Rating of Impinging-Jet Injectors in a Subscale Chamber C. Sohn, H. Choi, Sejong University, Seoul, South Korea	1700 hrs AIAA-2012-3845 Surrogate Model Design for GtL Kerosene N. Slavinskaya, German Aerospace Center (DLR), Stuttgart, Germany						
Monday, 30 July 2012							
62-PC-7	Combustion Diagnostics						Hanover E
Chaired by: C. BROPHY, Naval Postgraduate School							
1630 hrs AIAA-2012-3846 Effect of Electron Injection for Soot Suppression in Hydrocarbon Flames J. Suzuki, H. Horisawa, Y. Matsuzawa, Tokai University, Kanagawa, Japan; I. Kimura, University of Tokyo, Tokyo, Japan	1700 hrs AIAA-2012-3847 KHz particle-image velocimetry and emission measurements of induced turbulence in premixed propane/air flame by millisecond pulsed current-voltage J. Schmidt, S. Kostka, S. Roy, Spectral Energies, LLC, Dayton, OH; J. Gord, B. Ganguly, Air Force Research Laboratory, Wright-Patterson AFB, OH	1730 hrs AIAA-2012-3848 Visualization of Vaporized Kerosene Combustion in a Supersonic Combustor Using Pulsed Schlieren System Y. Yuan, M. Yang, T. Zhang, G. Yu, X. Fan, Chinese Academy of Sciences, Beijing, China					

Monday, 30 July 2012							
63-LP-7	Test Facility and Database Development						Hanover A
Chaired by: D. COOTE, NASA Stennis Space Center and D. LINEBERRY, University of Alabama, Huntsville							
1630 hrs AIAA-2012-3849 Conceptual Study on Rocket Engine Test Facility for Higher Operability T. Ueda, N. Nagao, H. Nanri, Japan Aerospace Exploration Agency (JAXA), Kakuda, Japan	1700 hrs AIAA-2012-3850 Cryogenic Propellant Delivery and Controls Facility Development for LOX/Methane Propulsion Research F. Pineda, J. Betancourt-Roque, A. Choudhuri, University of Texas, El Paso, El Paso, TX	1730 hrs AIAA-2012-3851 Development and Utilization of Rocket Engine Test Database (REDAK) in Japan Aerospace Exploration Agency D. Sugimori, T. Ueda, H. Nanri, Japan Aerospace Exploration Agency (JAXA), Kakuda, Japan; T. Kanno, T. Shibasaki, KANNO Information System, Kakuda, Japan	1800 hrs AIAA-2012-3852 A review of Propulsion Industrial Base Studies and an Introduction to the National Institute of Rocket Propulsion Systems R. Doreswamy, NASA Marshall Space Flight Center, Huntsville, AL				
Monday, 30 July 2012							
64-EP-8	Hall Thrusters II						Regency VI
Chaired by: M. NAKLES, Air Force Research Institute and M. COLETTI, University of Southampton							
1630 hrs AIAA-2012-3853 High Density Hall Thruster Propellant Investigations J. Szabo, B. Pote, M. Robin, S. Paintal, Busek Company, Inc., Bedford, MA	1700 hrs AIAA-2012-3854 Overview of the High Voltage Hall Accelerator Project H. Kamhawi, T. Haag, W. Huang, R. Shastry, T. Peterson, NASA Glenn Research Center, Cleveland, OH	1730 hrs AIAA-2012-4015 Hall Thruster Analysis Using a Multiscale Approach L. Brieda, Particle In Cell Consulting, Falls Church, VA; M. Keidar, George Washington University, Washington, DC					
Monday, 30 July 2012							
65-LP-8	Injectors III						Spring
Chaired by: J. LOCKE, United Technologies Research Center and D. PRECLIK, Astrium, an EADS Company							
1630 hrs AIAA-2012-3856 High Pressure Optically Accessible Rocket Combustor Testing and Evaluation C. Navarro, J. Betancourt-Roque, L. Sanchez, A. Choudhuri, University of Texas, El Paso, El Paso, TX	1700 hrs AIAA-2012-3857 Investigation of the API-Injection Concept in a LOX/LH2 Combustion Chamber at GG/PB Operation Conditions D. Suslov, J. Deeken, German Aerospace Center (DLR), Lampoldshausen, Germany; O. Haidn, Technical University of Munich, Garching, Germany	1730 hrs AIAA-2012-3858 Interaction of Acoustic Pressure Fluctuations with Supercritical Nitrogen Jets M. Schmid, T. Sattelmayer, Technical University of Munich, Garching, Germany	1800 hrs AIAA-2012-3859 Study on Self-Pulsation Characteristics of Gas/Liquid Shear Coaxial Injector with Annular Liquid Sheets J. Yoon, Y. Yoon, Seoul National University, Seoul, South Korea				
Monday, 30 July 2012							
66-NFF-3	Future Flight Propulsion Systems II						Regency VII
Chaired by: G. MEHOLIC, The Aerospace Corporation and M. MILLIS, Tau Zero Foundation							
1630 hrs AIAA-2012-3860 Faster-Than-Light Space Warps, Status and Next Steps E. Davis, Institute for Advanced Studies at Austin, Austin, TX	1700 hrs AIAA-2012-3861 Recent Results of an Investigation of Mach Effect Thrusters J. Woodward, California State University, Fullerton, CA	1730 hrs AIAA-2012-3862 RAMA Experiment - Persistence of Anomalous Thrusting Effects Using Laser Vibration Sensing H. Brito, C. Dominguez, R. De Alessandro, E. Galian, Aeronautical University Institute, Cordoba, Argentina					

Monday, 30 July 2012							
67-EERE-3	Ground and Air Vehicle Systems						Kennesaw
Chaired by: T. BRADLEY, Colorado State University							
1630 hrs AIAA-2012-3863 Experimental and numerical investigations of aerodynamic characteristics around buses and trucks O. Abdellatif, Benha University, Cairo, Egypt; S. ElDemerdash, E. Khalil, Cairo University, Cairo, Egypt	1700 hrs AIAA-2012-3864 Environmental Evaluation and Effectiveness of Electric-assist Bicycle for a Local Transportation N. Maruyama, S. Hara, M. Torregrosa Mira, M. Okamoto, Y. Kidaite, M. Hirota, Mie University, Tsu, Japan	1730 hrs AIAA-2012-3865 Geographical and Temporal Variations in Plug-in Electric Vehicle HVAC Loads K. Kambly, T. Bradley, Colorado State University, Fort Collins, CO					
Monday, 30 July 2012							
68-EP-9	Advanced Concepts I						Baker
Chaired by: M. BOSS, EADS Astrium GmbH and J. VAN NOORD, NASA Glenn Research Center							
1630 hrs AIAA-2012-3866 Development of a Superconducting Helicon Thruster J. Vitucci, R. Sedwick, University of Maryland, College Park, College Park, MD	1700 hrs AIAA-2012-3867 Investigation of Plasma Properties in a Helicon Injected Rocket (HIIPER) A. Krishnamurthy, B. Ulmen, G. Chen, P. Keutelian, University of Illinois, Urbana-Champaign, Urbana, IL; M. Reilly, Starfire Industries, Champaign, IL; G. Miley, NPL Associates, Inc., Champaign, IL	1730 hrs AIAA-2012-4103 Micro-Cathode Arc Thruster (?CAT) Performance and Thrust Vector Control T. Zhuang, A. Shashurin, M. Keidar, George Washington University, Washington, DC					
Monday, 30 July 2012							
69-EP-10	Hall Thruster Physics I						Cortland
Chaired by: J. DANKANICH, Gray Research, Inc.							
1630 hrs AIAA-2012-3869 Experimental Assessment of Double Langmuir Probe Analysis Techniques in a Hall Thruster Plume D. Brown, B. Beal, Air Force Research Laboratory, Edwards AFB, CA; J. Blakely, ERC, Inc., Edwards AFB, CA	1700 hrs AIAA-2012-3870 Ion Current Density Study of the NASA-300M Hall Thruster W. Huang, R. Shastri, D. Herman, G. Soulas, H. Kamhawi, NASA Glenn Research Center, Cleveland, OH	1730 hrs AIAA-2012-3871 A Comparison of Ion Acceleration Characteristics for Krypton and Xenon Propellants within a 600 W Hall Effect Thruster G. Azamia, W. Hargus, M. Nakles, Air Force Research Laboratory, Edwards AFB, CA	1800 hrs AIAA-2012-3872 Optical Emission Spectra of the Iodine Hall Thruster B. Prince, Air Force Research Laboratory, Kirtland AFB, NM; Y. Chiu, Busek Company, Inc., Natick, MA				

Monday, 30 July 2012							
70-LP-9	Control Methods for Liquid Rocket Engines						Roswell
Chaired by: S. FORDE, Aerojet and T. GIEL, Jacobs Technology							
1630 hrs AIAA-2012-3873 Progress of the development of an all-electric control system of a rocket engine P. Alliot, J. Chapinet, F. Lassoudiere, Snecma, Vernon, France; G. Sylvain, French Space Agency (CNES), Paris, France	1700 hrs AIAA-2012-3874 Experimental and Numerical Study of Thrust-Vectoring Effects by Transverse Gas Injection into a Propulsive Axisymmetric C-D Nozzle V. Zmijanovic, V. Lago, National Center for Scientific Research (CNRS), Orleans, France; P. Sandrine, J. Oswald, French Space Agency (CNES), Evry, France; A. Chpoun, University of Evry, Evry, France	1730 hrs AIAA-2012-3875 Best Practices from the Design and Development of the Ares I Launch Vehicle Roll and Reaction Control Systems A. Butt, C. Popp, F. Jernigan, NASA Marshall Space Flight Center, Huntsville, AL; L. Passeur, Teledyne Brown Engineering, Huntsville, AL; H. Pitts, The Boeing Company, Huntsville, AL					

Monday, 30 July 2012							
71-JPC-5 1630 - 1830 hrs	Next Steps in Hypersonics - Turning Research into Reality						Centennial Ballroom I
Moderator: Dr. Mark Lewis, Director, Science and Technology Policy Institute, Institute for Defense Analyses Panelists:							
Chris Gettinger ATK	Kenneth Rock NASA Langley Research Center	Timothy O'Brien Aerojet	Rodney Bowersox Texas A&M University	James Kenyon Office of the Secretary of Defense	Chiping Li Air Force Office of Scientific Research		

Monday, 30 July 2012							
72-TNES-1	Nuclear Power Technologies and Fuels I						The Learning Center
Chaired by: R. BEHERA and M. HOUTS, NASA Marshall Space Flight Center							
1630 hrs AIAA-2012-3876 Atomic Scale Investigation of Lanthanide Substitution in Urania (UO₂) R. Behera, C. Deo, Georgia Institute of Technology, Atlanta, GA	1700 hrs AIAA-2012-3877 A High Power-to-Weight Ratio Liquid Metal MHD Concept Reactor for Space and Terrestrial Needs G. Rosaire, P. Tsvetkov, Texas A&M University, College Station, TX						

Monday, 30 July 2012							
73-GTE-9	Turbines						Hanover F
Chaired by: A. NIX, West Virginia University and G. PANIAGUA, von Karman Institute							
1630 hrs AIAA-2012-3878 Application of Sweep to Low Pressure Turbine Blade for Tip Flow Containment R. Trehan, B. Roy, Indian Institute of Technology Bombay, Mumbai, India	1700 hrs AIAA-2012-3879 Aerodynamic Investigation of Incidence Angle Effects in a Large Scale Transonic Turbine Cascade A. McVetta, NASA Glenn Research Center, Cleveland, OH; P. Giel, ASRC Aerospace Corporation, Cleveland, OH	1730 hrs AIAA-2012-3880 Heat Transfer Investigation on a Transonic Turbine Cascade with Pulsating Trailing Edge Cooling B. Saracoglu, G. Paniagua, von Kármán Institute for Fluid Dynamics, Rhode-Saint-Genèse, Belgium	1800 hrs AIAA-2012-4101 Heat Transfer and Film Effectiveness Study on a Pitchwise Curved Surface with Unsteady Wake Interaction M. Golsen, S. Mahadevan, G. Natsui, M. Ricklick, J. Kapat, University of Central Florida, Orlando, FL				

Monday, 30 July 2012							
74-EDU-1	Propulsion Education						University
Chaired by: R. FREDERICK, University of Alabama, Huntsville and J. MILLER, NASA Marshall Space Flight Center							
1630 hrs AIAA-2012-3881 Design of a High Power Rocket Aerodynamics DAQ Payload D. Cavender, B. Setayesh, University of Alabama, Huntsville, Huntsville, AL	1700 hrs AIAA-2012-3882 Microfluidics in the First-Year Classroom: Understanding the Foundation B. Carruthers, S. Abernathy, M. Snyder, H. Driscoll, P. Clingan, Ohio State University, Columbus, OH	1730 hrs AIAA-2012-3883 Student Design/Build/Test of a Throttleable LOX-LCH4 Thrust Chamber M. Bedard, ; T. Feldman, A. Rettenmaier, W. Anderson, Purdue University, West Lafayette, IN	1800 hrs AIAA-2012-3884 Institution and Community Wide Approach to Engineering Workforce Development N. Robinson, Center for Space Exploration, El Paso, TX; A. Choudhuri, University of Texas, El Paso, El Paso, TX				

Monday, 30 July 2012							
75-SR-5	Solid Rocket Motor Internal Ballistics Analysis						Vinnings
Chaired by: A. NERI, ESA/ESTEC							
1630 hrs AIAA-2012-3885 One-Dimensional, Two-Phase Flow Modeling Toward Interpreting Motor Slag Expulsion Phenomena T. Kibbey, Jacobs, Huntsville, AL	1700 hrs AIAA-2012-3886 Agglomeration/Breakup Studies on Radial Slot Flows in Solid Rocket Motor K. Park, S. Heister, Purdue University, West Lafayette, IN	1730 hrs AIAA-2012-3887 Propellant Effects on SRM Upper Stage Internal Ballistics and Performance with Nozzle Erosion Characterization E. Cavallini, D. Bianchi, B. Favini, M. Di Giacinto, University of Rome "La Sapienza", Rome, Italy; F. Serraglia, ESA, Frascati, Italy	1800 hrs AIAA-2012-3758 Two-Mode Active Thrust Modulation of a Solid Propellant Rocket Motor M. Tanaka, Y. Osawa, Y. Yokomine, National Defense Academy, Yokosuka, Japan				

Monday, 30 July 2012							
76-ST-2	Space Transportation						Techwood
Chaired by: M. SIR, The Aerospace Corporation and B. ST GERMAIN, SpaceWorks Engineering, Inc. (SEI)							
1630 hrs AIAA-2012-3888 Large Solid Rocket Motors for Future European Launcher B. Didier, Snecma, Le Haillan, France	1700 hrs AIAA-2012-3889 How Fast Can We Go To Mars Using High Power Electric Propulsion? R. Epenoy, French Space Agency (CNES), Toulouse, France; N. Berend, ONERA, Palaiseau, France; E. Cliquet, J. Ruault, French Space Agency (CNES), Paris, France	1730 hrs AIAA-2012-3890 Analysis of Roll Steering for Solar Electric Propulsion Missions D. Pederson, University of Texas, Austin, Austin, TX; J. Hojnicky, NASA Glenn Research Center, Cleveland, OH	1800 hrs AIAA-2012-3891 Executive Summary of Propulsion on the Orion Abort Flight-Test Vehicles D. Jones, S. Koelfgen, NASA Dryden Flight Research Center, Edwards, CA; M. Barnes, R. McCauley, T. Wall, NASA Marshall Space Flight Center, Huntsville, AL; B. Reed, NASA Glenn Research Center, Cleveland, OH; C. Duncan, TASC, Inc., Kirtland AFB, NM				

Monday, 30 July 2012							
77-TM-2	Spacecraft and Lunar/Mars/Venus Surface Thermal Management						Lenox
Chaired by: M. CHOI, NASA Goddard Space Flight Center and S. SPENCER, Naval Research Laboratory							
1630 hrs AIAA-2012-3892 Long Lived Venus Lander Thermal Management System Design R. Hay, A. Slippey, C. Tarau, W. Anderson, Advanced Cooling Technologies, Inc., Lancaster, PA	1700 hrs AIAA-2012-3893 Diode Heat Pipes for Long Lived Venus Landers M. Dechristopher, C. Tarau, W. Anderson, Advanced Cooling Technologies, Inc., Lancaster, PA	1730 hrs AIAA-2012-3894 Using Pre-melted Phase Change Material to Keep Payload Warm without Power for Hours in Space M. Choi, NASA Goddard Space Flight Center, Greenbelt, MD	1800 hrs AIAA-2012-3895 Three Canted Radiator Panels to Provide Adequate Cooling for Instruments on Slewing Spacecraft in LEO M. Choi, NASA Goddard Space Flight Center, Greenbelt, MD				

Monday, 30 July 2012							
78-APS-2		Spacecraft Power System In-Orbit Performance					Greenbriar
Chaired by: M. PATEL, U.S. Merchant Marine Academy and A. BAISDEN, Johns Hopkins University Applied Physics Laboratory							
1630 hrs AIAA-2012-3896 The STEREO Spacecraft's Power System Extended Mission Flight Performance M. Butler, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1700 hrs AIAA-2012-3897 The TIMED Spacecraft Mission Orbital Performance Ten Years in LEO M. Butler, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1730 hrs AIAA-2012-3898 The Design and Operation of the Dawn Power System G. Cardell, A. Ulloa-Severino, M. Gross, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA	1800 hrs AIAA-2012-3899 Aeroflex's Space Qualified Lithium-Ion Battery Cell Balancing and Protection Electronics J. Castaldo, Aeroflex, Plainview, NY				
Monday, 30 July 2012							
79-EC-3		Sustainable Energy Conversion Systems					Fairlie
Chaired by: J. FLEURIAL, Jet Propulsion Laboratory, California Institute of Technology and B. NESMITH, Jet Propulsion Laboratory, California Institute of Technology							
1630 hrs AIAA-2012-3900 Thermoelectric and Thermophotovoltaic Micro-Renewable Power Systems for Home Use A. Srivastava, S. Shah, N. Komerath, Georgia Institute of Technology, Atlanta, GA	1700 hrs AIAA-2012-3901 Feasibility Study of Cafeteria Energy Demand with Integration of a Downdraft Bio-digester System E. Ogedengbe, ENERGHX, Ottawa, Canada; E. Ogedengbe, University of Lagos, Lagos, Nigeria	1730 hrs AIAA-2012-3902 Investigation and Development on Performance of a Rice-Husk Powered Stirling Engine-Generator S. Kwankaomeng, King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand; B. Kongtrakool, Srinakharinwirot University, Nakhonnayok, Thailand; B. Banterng Silpsakoolsook, Siam University, Bangkok, Thailand	1800 hrs Oral Presentation (Invited) Solar Thermochemical Power and Fuels R. Wegeng, C. Pestak, Pacific Northwest National Laboratory, Battelle Memorial Institute, Richland, WA				
Monday, 30 July 2012							
80-HR-3		Swirling Oxidizer Flows					Inman
Chaired by: J. MICHLITSCH, The Aerospace Corporation and S. CLAFLIN, Pratt & Whitney Rocketdyne							
1630 hrs AIAA-2012-3903 The "Vortex Reloaded" project: numerical investigation on fully tangential vortex injection in N2O - paraffin hybrid motors N. Bellomo, F. Barato, M. Faenza, A. Bettella, D. Pavarin, University of Padova, Padova, Italy	1700 hrs AIAA-2012-3904 Combustion Characteristics of Paraffin-Fueled Swirling Oxidizer-Flow-Type Hybrid Rocket Engines D. Saito, Y. Saburo, K. Hirata, T. Sakurai, N. Shiraishi, Tokyo Metropolitan University, Hino, Japan	1730 hrs AIAA-2012-3905 A Study of Hybrid Rockets with Multi-Section Swirl Injection Method Y. Hirata, S. Ohyama, S. Aso, Y. Tani, Kyushu University, Fukuoka, Japan; T. Shimada, Institute of Space and Astronautical Science, Sagami-hara, Japan	1800 hrs AIAA-2012-3906 Effects of Injector Design and Impingement Techniques on the Atomization of Self-Pressurizing Oxidizers B. Waxman, B. Cantwell, Stanford University, Stanford, CA; G. Ziliac, NASA Ames Research Center, Moffett Field, CA				

Monday, 30 July 2012							
81-LP-10	Film Cooling						Piedmont
Chaired by: E. BESNARD, California State University, Long Beach and R. BALLARD, NASA Marshall Space Flight Center							
1630 hrs AIAA-2012-3907 Numerical Study of Heat Transfer in Film Cooled Thrust Chambers B. Betti, University of Rome "La Sapienza", Rome, Italy; E. Martelli, Second University of Naples, Aversa, Italy; F. Nasuti, M. Onofri, University of Rome "La Sapienza", Rome, Italy	1700 hrs AIAA-2012-3908 Modelling and Simulation of Film Cooling in Liquid Rocket Engine Propulsion Systems F. Di Matteo, M. Venanzi, University of Rome, Rome, Italy; M. De Rosa, ESA, Noordwijk, The Netherlands; M. Onofri, University of Rome, Rome, Italy	1730 hrs AIAA-2012-3909 Assessment of Analytical Models for Film Cooling in a Hydrocarbon/GOX Rocket Combustion Chamber O. Haidn, C. Kirchberger, G. Schlieben, Technical University of Munich, Garching, Germany	1800 hrs AIAA-2012-3910 Using Intra Cooling Channel Measurements for Film Cooling Investigations in a GOX/Kerosene Rocket Combustion Chamber G. Schlieben, C. Kirchberger, O. Haidn, Technical University of Munich, Garching, Germany				
Monday, 30 July 2012							
82-GTE-10	Advanced Propulsion Architecture						Hanover G
Chaired by: J. TAI, Georgia Institute of Technology							
1630 hrs AIAA-2012-3911 Performance and Weight Estimates for an Advanced Open Rotor Engine E. Hendricks, M. Tong, NASA Glenn Research Center, Cleveland, OH	1700 hrs AIAA-2012-3912 Fuel Burn Benefits of a Variable-Pitch Geared Fan Engine I. Halliwell, K. Justice, Power Systems Manufacturing, Jupiter, FL	1730 hrs AIAA-2012-3913 An Integrated Assessment of an Advanced Open Rotor Configuration Using the Environmental Design Space C. Perullo, B. Havrilesko, J. Tai, D. Mavis, Georgia Institute of Technology, Atlanta, GA					
Monday, 30 July 2012							
83-NFF-4	Future Flight Propulsion Systems III						Hanover B
Chaired by: M. MILLIS, Tau Zero Foundation and E. DAVIS, Institute for Advanced Studies at Austin							
1900 hrs AIAA-2012-3915 On the Reality of Gravity-Like Fields J. Hauser, HPCC-Space GmbH, Hamburg, Germany	1930 hrs AIAA-2012-3916 Physics of the Electromagnetic Control of Spacetime and Gravity L. Williams, Konfluence Research, Manitou Springs, CO						
Tuesday							
Tuesday, 31 July 2012							
84-IECEC-5 0800 - 0900 hrs	IECEC Keynote Plenary: Aerospace Capabilities Applied To Solving Terrestrial Energy Problems...A University View						Dunwoody
Chaired by: R. SHAW, NASA Glenn Research Center							
Ronald Sega Vice President of Energy and Environment, Institute of Energy and Environment Ohio State University							

Tuesday, 31 July 2012		
85-JPC-6 0800 - 0900 hrs	Tuesday Opening Keynote	Centennial Ballroom I
<p><i>Turbine Engines: Aviation Management and Technology</i></p> <p>David Garrison Managing Director, Engine and Component Maintenance Delta Tech Ops</p> <p>Airlines are continuously looking for ways to lower costs and improve efficiency and reliability. Delta Air Lines currently maintains a fleet of more than 750 aircraft, plus provides maintenance for more than 150 other operators. The Delta fleet is one of the most reliable fleets in the world. Delta has developed an unparalleled level of experience and knowledge in the art of aircraft and engine maintenance. Delta must rely on new technology and develop new processes to make aircraft and engines more reliable and fuel-efficient. This in turn enables Delta to expand service to new cities, increase profits, and achieve industry-leading operational performance.</p>		

Tuesday, 31 July 2012		
86-ABPSI-5	Propulsion Integration	Hanover C
Chaired by: N. HERRING, United Technologies Research Center and R. SCHARNHORST, The Boeing Company		
1000 hrs AIAA-2012-3917 Optimal Inlet Shape Design of N2B Hybrid Wing Body Configuration H. Kim, ASRC Aerospace Corporation, Cleveland, OH; M. Liou, NASA Glenn Research Center, Cleveland, OH	1030 hrs AIAA-2012-3918 Hybrid Wing Body Engine Cycle Design Exploration for Boundary Layer Ingesting (BLI) Propulsion Systems Under Design Uncertainty J. Sands, J. Gladin, B. Kestner, D. Mavis, Georgia Institute of Technology, Atlanta, GA	1100 hrs AIAA-2012-3919 The UltraFan Engine and Aircraft Based Thrust Reversing B. McKay, Lockheed Martin Corporation, Marietta, GA; A. Barlow, Rolls-Royce Group plc, Indianapolis, IN
1130 hrs AIAA-2012-3920 Parametric Heat Exchanger Design for Next Generation Advanced Vehicle and Propulsion System Analysis P. Gray, B. Kestner, D. Mavis, Aerospace Systems Design Laboratory, Atlanta, GA		

Tuesday, 31 July 2012		
87-HSABP/HYP-3	Experimental Investigations in Supersonic Combustion	Hanover E
Chaired by: C. MUNDT, University of the German Federal Armed Forces and S. POWELL, Aerospace Testing Alliance (ATA)		
1000 hrs AIAA-2012-3921 Performance of a Rocket-Ramjet Combined-Cycle Engine Model under Ramjet-Mode Operations S. Tomioka, K. Kato, K. Tani, S. Hasegawa, M. Kodera, S. Ueda, Japan Aerospace Exploration Agency (JAXA), Kimigaya, Japan	1030 hrs AIAA-2012-3922 Research on flow structure of supersonic combustion chamber based on cavity - strut flame holder Y. Zhao, J. Liang, Y. Zhao, M. Sun, L. Yang, National University of Defense Technology, Changsha, China	1100 hrs AIAA-2012-3923 Experimental study on combustion mode transition in an aero-ramp based scramjet B. Wei, Beihang University, Beijing, China; Y. Zhang, Nanyang Institute of Technology, Nanyang, China; L. Tian, G. Song, X. Xu, Beihang University, Beijing, China

Tuesday, 31 July 2012							
88-HSABP/HYP-4		Supersonic Mixing / Injection I					Regency VII
Chaired by: D. MUSIELAK, University of Texas, Arlington and R. HARTFIELD, Auburn University							
1000 hrs AIAA-2012-3924 Study of Forebody Injection and Mixing with Application to Hypervelocity Airbreathing Propulsion E. Axdah, A. Kumar, NASA Langley Research Center, Hampton, VA; A. Wilhite, National Institute of Aerospace, Hampton, VA	1030 hrs AIAA-2012-3925 LES/RANS Simulations of Turbulent Mixing in Gas Plumes I. Zilberter, J. Edwards, North Carolina State University, Raleigh, NC	1100 hrs AIAA-2012-3926 Three-Dimensional Heat Transfer Analysis and Optimized Design of Actively Cooled Strut for Scramjet Applications F. Zhong, T. Chen, X. Fan, L. Chen, X. Chang, Chinese Academy of Sciences, Beijing, China	1130 hrs AIAA-2012-3927 Role of Chemical Kinetic Models in Simulating Scramjet Flows H. Hassan, J. Edwards, J. Fulton, North Carolina State University, Raleigh, NC				
Tuesday, 31 July 2012							
89-EP-11		Electromagnetic Propulsion II					Regency V
Chaired by: J. GILLAND, OAI							
1000 hrs AIAA-2012-3928 Thrust Stand Measurements of a Conical Pulsed Inductive Plasma Thruster A. Hallock, Yetispace, Inc., Huntsville, AL; K. Polzin, NASA Marshall Space Flight Center, Huntsville, AL; G. Emsellem, Elwing Company, Wilmington, DE	1030 hrs AIAA-2012-3929 Numerical and experimental efforts to explain delayed gas breakdown in ?-pinch devices with bias magnetic field W. Meeks, J. Rovey, Missouri University of Science and Technology, Rolla, MO	1100 hrs AIAA-2012-3930 VASIMR VX-200 Improved Throttling Range B. Longmier, L. Cassidy, J. Squire, M. Carter, A. Ilin, T. Glover, F. Chang Diaz, Ad Astra Rocket Company, Webster, TX; E. Bering, University of Houston, Houston, TX	1130 hrs AIAA-2012-3931 A Method to Determine Any Damage to Structure Resulting from Recirculation of Particles in the VASIMR® VX-200 Plasma Engine Backfield M. Martin, Texas A&M University, College Station, TX				
Tuesday, 31 July 2012							
90-LP-11		CH4 Engines: Booster, Upper Stage, and Technology Demonstrators					Inman
Chaired by: D. COOTE, NASA Stennis Space Center and D. PRECLIK, Astrium, an EADS Company							
1000 hrs AIAA-2012-3932 Current Status of the Technology Development Project for a New Storable Propellant Upper Stage Engine Demonstrator R. Arnold, G. Obermaier, A. Goetz, Astrium, Munich, Germany	1030 hrs AIAA-2012-3933 An End-to-End High Fidelity Numerical Simulation of the LE-X Engine - Combustion Chamber Risk Evaluation N. Tani, N. Yamanishi, A. Kurosu, Japan Aerospace Exploration Agency (JAXA), Ibaraki, Japan	1100 hrs AIAA-2012-3935 Design and Development of a LOX/LCH4 Technology Demonstrator V. Salvatore, F. Battista, R. Votta, M. Di Clemente, M. Ferraiuolo, P. De Matteis, Italian Aerospace Research Center (CIRA), Capua, Italy					
Tuesday, 31 July 2012							
91-JPC-7		Challenges for Future Commercial Aircraft Propulsion					Centennial Ballroom I
1000 - 1200 hrs							
Moderator: Richard A. Wahls, Project Scientist Subsonic Fixed Wing, NASA Langley Research Center							
The panel will discuss NASA and US industry perspective on propulsion technology required to meet the technical challenges envisioned for future commercial aircraft. Speakers will highlight the short-, mid- and long-term perspectives of the visions							
Panelists:							
Rubén Del Rosario Project Manager Subsonic Fixed Wing NASA		Alan Epstein Vice President Technology and Environment, Pratt & Whitney		Mark Wilson Chief Operating Officer, Rolls-Royce North American Technologies, Inc. (LibertyWorks)		Richard Donaldson Executive, Advanced Programs, GE Aviation	

Tuesday, 31 July 2012							
92-GTE-11	Compressors II						Hanover F
Chaired by: N. KEY, Purdue University							
1000 hrs AIAA-2012-3936 Airfoil Base Region Control with Dielectric Barrier Discharge G. Paniagua, P. Rocandio, Y. Babou, von Kármán Institute for Fluid Dynamics, Rhode-Saint-Genèse, Belgium	1030 hrs AIAA-2012-3937 Estimation of Heat Transfer Performance for Compressor Stators Heat Exchangers in a New Intercooled and Recuperated Aviation Gas-Turbine Engine Y. Ito, N. Yamamoto, T. Nagasaki, Tokyo Institute of Technology, Yokohama, Japan	1100 hrs AIAA-2012-3938 Stability of the Phase-Lag Boundary Condition in Turbomachinery Simulations A. Suresh, General Electric Company, Schenectady, NY	1130 hrs AIAA-2012-3939 Impact of Engine Icing on Jet Engine Compressor Flow Dynamics R. Kundu, J. Prasad, Georgia Institute of Technology, Atlanta, GA; P. Tiwari, General Electric Company, Niskayuna, NY; A. Breeze-Stringfellow, P. Szucs, T. Nakano, General Electric Company, Cincinnati, OH				
Tuesday, 31 July 2012							
93-EP-12	Hall Thrusters III						Regency VI
Chaired by: P. PETERSON, ElectroDynamic Applications, Inc. (EDA) and J. SZABO, Busek Co., Inc.							
1000 hrs AIAA-2012-3940 Performance of NASA's Higher Fidelity 50 kW Hall Thruster G. Soulas, H. Kamhawi, D. Herman, T. Haag, W. Huang, R. Shastry, NASA Glenn Research Center, Cleveland, OH; G. Williams, Ohio Aerospace Institute, Cleveland, OH	1030 hrs AIAA-2012-3941 Thermal Behavior of High Power Hall Thrusters J. Polk, B. Dotson, R. Hofer, D. Goebel, I. Katz, I. Mikellides, J. Snyder, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA	1100 hrs AIAA-2012-3942 The Development and Initial Characterization of the X3 100-kW Class Laboratory Model Nested Hall Thruster R. Florenz, T. Liu, A. Gallimore, University of Michigan, Ann Arbor, Ann Arbor, MI; H. Kamhawi, NASA Glenn Research Center, Cleveland, OH; D. Brown, Air Force Research Laboratory, Edwards AFB, CA; R. Hofer, J. Polk, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA	1130 hrs AIAA-2012-3739 Demonstration of an Automated Mass Flow Control System for Condensable Propellant Hall-effect Thrusters M. Hopkins, L. King, Michigan Technological University, Houghton, MI				
Tuesday, 31 July 2012							
94-PC-8	Rotating Detonation Engines						Hanover A
Chaired by: C. BROPHY, Naval Postgraduate School							
1000 hrs AIAA-2012-3943 Modeling Exhaust Effects in Rotating Detonation Engines D. Schwer, A. Corrigan, K. Kailasonath, Naval Research Laboratory, Washington, DC	1030 hrs AIAA-2012-3944 Design and Operation of an Optically Accessible Rotating Detonation Engine D. Dausen, C. Brophy, R. Wright, Naval Postgraduate School, Monterey, CA	1100 hrs AIAA-2012-3945 Experimental Research on the H₂/air Continuous Rotating Detonation Engine L. Shijie, W. Liu, Z. Lin, National University of Defense Technology, Changsha, China; F. Zhuang, Academy of Equipment Command & Technology, Beijing, China; J. Zhou, J. Liang, National University of Defense Technology, Changsha, China	1130 hrs AIAA-2012-3946 Experimental Research on Transition Regions in Continuously Rotating Detonation Waves W. Yuhui, J. Wang, S. Tianyi, L. Yusi, L. Yongsheng, Peking University, Beijing, China				

Tuesday, 31 July 2012							
95-EP-13	Ion Thrusters II						Cortland
Chaired by: M. KEIDAR, The George Washington University and E. CARDIFF, NASA Headquarters							
1000 hrs AIAA-2012-3947 Micro Radio-Frequency Ion Propulsion System M. Tsay, K. Hohman, N. Rosenblad, E. Ehtibar, M. Robin, Busek Company, Inc., Natick, MA; C. Farrell, Plasma Controls, LLC, Fort Collins, CO; R. Hofer, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA	1030 hrs AIAA-2012-3948 Near-Surface Cusp Confinement of Micro-Scale Plasma R. Wirz, S. Araki, University of California, Los Angeles, Los Angeles, CA	1100 hrs AIAA-2012-3949 Development of the Miniature Ion Propulsion System for 50 kg Small Spacecraft H. Koizumi, K. Komurasaki, Y. Arakawa, University of Tokyo, Bunkyo, Japan	1130 hrs AIAA-2012-3950 Miniature Ion Thruster Using a Cylindrical Micro ICP Y. Takao, K. Eriguchi, K. Ono, Kyoto University, Kyoto, Japan				
Tuesday, 31 July 2012							
96-TFES-3	Internal Combustion Engines						Kennesaw
Chaired by: S. GOLLAHALLI and J. MEHTA							
1000 hrs AIAA-2012-3951 Innovative Approaches for Reducing CO2 Emissions of Aviation Engines Part 1: Selection of Promising Approaches H. Mongia, V. Kumar, P. Panda, S. Naik, Purdue University, West Lafayette, IN	1030 hrs AIAA-2012-3952 Innovative Approaches for Reducing CO2 Emissions of Aviation Engines Part 5: Turbo Reaction-Controlled Internal Combustion System TRCS P. Panda, V. Kumar, H. Mongia, S. Naik, Purdue University, West Lafayette, IN	1100 hrs AIAA-2012-3953 In-Cylinder Combustion and Output Performance and Emissions Influenced by Split Fuel Injection Input Parameters of Compression-Ignition Engines G. Chen, Gannon University, Erie, PA	1130 hrs AIAA-2012-3954 Innovative Approaches for Reducing CO2 Emissions of Aviation Engines Part 1: Selection of Promising Approaches V. Kumar, P. Panda, H. Mongia, S. Naik, Purdue University, West Lafayette, IN				
Tuesday, 31 July 2012							
97-EP-14	Advanced Concepts II						Baker
Chaired by: M. WALKER, Georgia Institute of Technology and R. WIRZ, University of California, Los Angeles							
1000 hrs AIAA-2012-3955 A fluiddynamic performance model of a helicon thruster E. Ahedo, J. Navarro, M. Merino-Martinez, Technical University of Madrid, Madrid, Spain	1030 hrs AIAA-2012-3956 Laboratory Model Development of Lissajous Acceleration for Electroless Helicon Plasma Thruster T. Matsuoka, I. Funaki, Japan Aerospace Exploration Agency (JAXA), Kanagawa, Japan; S. Satoh, T. Fujino, University of Tsukuba, Tsukuba, Japan; T. Nakamura, H. Nishida, S. Shinohara, Tokyo University of Agriculture and Technology, Koganei, Japan; T. Tanikawa, Tokai University, Hiratsuka, Japan; T. Hada, Kyushu University, Kasuga, Japan; K. Shamraj, Institute for Nuclear Research, Nauki, Ukraine	1100 hrs AIAA-2012-3957 Helicon Injected Inertial Plasma Electrostatic Rocket (HIIPER): Experimental Proof of Principle A. Krishnamurthy, B. Ulmen, G. Chen, P. Keutelian, University of Illinois, Urbana-Champaign, Urbana, IL; M. Reilly, Starfire Industries, Champaign, IL; G. Miley, NPL Associates, Inc., Champaign, IL	1130 hrs AIAA-2012-4102 Ionization and Charge Exchange Reactions in Neutral Entrainment of a Field Reversed Configuration Thruster J. Brackbill, ERC, Inc., Edwards AFB, CA; J. Cambier, Air Force Research Laboratory, Edwards AFB, CA; N. Gimmelstein, S. Gimmelstein, ERC, Inc., Edwards AFB, CA; A. Ketsdever, Air Force Research Laboratory, Edwards AFB, CA; T. Quiller, University of Colorado, Colorado Springs, Colorado Springs, CA				

Tuesday, 31 July 2012							
99-NFF-5	Nuclear Thermal Propulsion II: Engine Modeling						Hanover D
Chaired by: R. JOYNER and M. BULMAN, Aerojet							
1000 hrs AIAA-2012-3958 Small Fast Spectrum Reactor Designs Suitable for Direct Nuclear Thermal Propulsion B. Schnitzler, Idaho National Laboratory, Idaho Falls, ID; S. Borowski, NASA Glenn Research Center, Cleveland, OH	1030 hrs AIAA-2012-3959 Thermal, Fluid, and Structural Analysis of a Cermet Fuel Element M. Stewart, ASRC Aerospace Corporation, Cleveland, OH; B. Schnitzler, Idaho National Laboratory, Idaho Falls, ID	1100 hrs AIAA-2012-3960 Cycle Analysis of a 200MW Class CERMET Based NTR Engines J. Fittje, Analex Corporation, Cleveland, OH; B. Schnitzler, Idaho National Laboratory, Idaho Falls, ID	1130 hrs Oral Presentation (Invited) Power Profile Control in Graphite-Based Nuclear Thermal Propulsion Reactor Cores for Mitigation of Mid-Band Corrosion T. Harrison, L. Qualls, Oak Ridge National Laboratory, Oak Ridge, TN				

Tuesday, 31 July 2012							
100-HR-4	Paraffin Fuels I						University
Chaired by: S. WHITMORE, Utah State University and B. MADHANABHARATAM, Space Propulsion Group, Inc.							
1000 hrs AIAA-2012-3961 Visualization of the Liquid Layer Combustion of Paraffin Fuel for Hybrid Rocket Applications A. Chandler, E. Jens, B. Cantwell, G. Hubbard, Stanford University, Stanford, CA	1030 hrs AIAA-2012-3962 Design and Testing of FDM Manufactured Paraffin-ABS Hybrid Rocket Motors J. McCulley, A. Bath, S. Whitmore, Utah State University, Logan, UT	1100 hrs AIAA-2012-3963 Paraffin Fuel and Additive Combustion in an Opposed Flow Burner Configuration C. Zaseck, T. Pourpoint, S. Son, Purdue University, West Lafayette, IN					

Tuesday, 31 July 2012							
101-PC-9	Fuels and Propellant Development						Hanover B
Chaired by: B. CHEHROUDI, European Research Council (ERC)							
1000 hrs AIAA-2012-3964 Enhanced Evaporation of Nanofluid Fuels under Radiation Y. Gan, L. Qiao, Purdue University, West Lafayette, IN	1030 hrs AIAA-2012-3965 Synthetic Jet Fuels and Their Impact in Aircraft Performance and Elastomer Materials S. Arias Quintero, M. Ricklick, J. Kapat, University of Central Florida, Orlando, FL	1100 hrs AIAA-2012-3966 Catalytic Ignition in Hydrogen Peroxide-based Space Propulsion Systems S. Bonifacio, G. Festa, A. Russo Sorge, University of Naples "Federico II", Naples, Italy	1130 hrs AIAA-2012-3967 Recent Results on Thread Formation with an Impinging Jet Injector M. Negri, German Aerospace Center (DLR), Lampoldshausen, Germany; M. Redaelli, Technical University of Milan, Milan, Italy; H. Ciezki, German Aerospace Center (DLR), Lampoldshausen, Germany				

Tuesday, 31 July 2012							
102-LP-12	Side Loads						Vinnings
Chaired by: D. PERIGO and J. SAUER, Orbital Technologies Corporation							
1000 hrs AIAA-2012-3968 Transient Side Load Analysis of Out-of-Round Film-Cooled Nozzle Extensions T. Wang, J. Lin, J. Ruf, M. Guidos, NASA Marshall Space Flight Center, Huntsville, AL	1030 hrs AIAA-2012-3969 Fully-Coupled Fluid-Structure Interaction Simulations of Rocket Engine Side Loads E. Blades, ATA Engineering, Inc., Madison, AL; E. Luke, Mississippi State University, Starkville, MS; J. Ruf, NASA Marshall Space Flight Center, Huntsville, AL	1100 hrs AIAA-2012-3970 Optimisation of a Rocket Nozzle Side Load Reduction Device R. Stark, C. Genin, German Aerospace Center (DLR), Hardthausen, Germany					

Tuesday, 31 July 2012							
103-IECEC-6 1000 - 1200 hrs		Solar Absorption and Desiccant Cooling Technologies for Air Conditioning in Sunny Countries					Dunwoody
Chaired by: T. BRADLEY, Colorado State University and E. KHALIL, Cairo University							
Air conditioning contributes a major consumption of electricity in many parts of the world, especially in sunny countries. As the demand for air conditioning increases, the electricity demand increases. Solar assisted absorption or desiccant cooling is a sustainable solution. It reduces the demand for electricity. A panel of experts will present their view on solar assisted absorption and desiccant cooling technologies in sunny countries. They will focus on challenges and opportunities.							
1000 - 1030 hrs Nesreen Ghaddar Associate Provost, Qatar Chair in Energy Studies Professor of Mechanical Engineering, American University of Beirut, Beirut, Lebanon		1030 - 1100 hrs Jo Darkwa Professor, Centre for Sustainable Energy Technologies University of Nottingham-Ningbo, China		1100 - 1300 hrs Omar Abdelaziz Research and Development Staff Oak Ridge National Laboratory, Oak Ridge, TN, USA		1130 - 1200 hrs Essam Khalil Professor of Mechanical Engineering Cairo University, Cairo, Egypt	
Tuesday, 31 July 2012							
104-SR-6		Solid Rocket Motor Propellant Combustion					Techwood
Chaired by: M. KAISERMAN, Raytheon Company and J. VILLARREAL							
1000 hrs AIAA-2012-3972 Ignition and Combustion Characteristics of Liquid GAP with Metals and Oxidizer S. Yamouchi, T. Kuwahara, Nihon University, Funabashi, Japan	1030 hrs AIAA-2012-3973 Characteristics of aluminum agglomeration at burning surface in AP/AN composite propellants S. Oide, K. Takahashi, T. Kuwahara, Nihon University, Funabashi, Japan	1100 hrs AIAA-2012-3974 A New Three-Dimensional Ballistic Model for Solid Rocket Motor Non-Homogeneous Combustion R. Bertacin, F. Ponti, University of Bologna, Forli, Italy; A. Annovazzi, Avio S.p.A., Colleferro, Italy					
Tuesday, 31 July 2012							
105-APS-3		Spacecraft Power - Advanced Concepts and Designs					Greenbriar
Chaired by: J. HAINES, and L. ROUFBERG, Johns Hopkins University Applied Physics Laboratory							
1000 hrs AIAA-2012-3975 A Space Power Source Using Low Energy Nuclear Reactions (LENRs) G. Miley, X. Yang, University of Illinois, Urbana-Champaign, Urbana, IL	1030 hrs AIAA-2012-3976 Study on Technologies for Lunar Night Survival Powered by Solar Arrays T. Hoshino, H. Naito, K. Ogawa, T. Hashimoto, Japan Aerospace Exploration Agency (JAXA), Tokyo, Japan	1100 hrs AIAA-2012-3977 Advances in Technologies for High Power SEP Missions A. Arastu, The Boeing Company, El Segundo, CA	1130 hrs AIAA-2012-3978 SPS-ALPHA: The First Practical Solar Power Satellite via Arbitrarily Large Phased Array (A 2011-2012 NIAC Project) J. Mankins, Artemis Innovation Management Solutions, Santa Maria, CA; N. Kaya, Kobe University, Kobe, Japan; M. Vasile, University of Strathclyde, Glasgow, United Kingdom				

Tuesday, 31 July 2012							
106-EC-4	Stirling System Design and Optimization						Fairlie
Chaired by: S. WILSON, NASA Glenn Research Center and S. ORITI, NASA Glenn Research Center							
1000 hrs AIAA-2012-3979 A Simulation-Integrated Decision Support System for Advanced Vehicle Design Demonstrated on Colorado State's EcoCAR M. Fox, Self, Fort Collins, CO	1030 hrs AIAA-2012-3980 Dynamic Pitching Moment Measurement of a Wing Executing Pitch and Plunge Motion K. Goal, V. Raghav, A. Srivastava, N. Komerath, Georgia Institute of Technology, Atlanta, GA	1100 hrs AIAA-2012-3981 A Hydraulic Motor-Alternator System for Ocean-Submersible Vehicles H. Aintablian, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA	1130 hrs AIAA-2012-3982 Passenger Vehicle Hill Coast-Down Math Model F. Wyczalek, Energy Independence Foundation, Bloomfield Hills, MI; M. Wyczalek, General Motors Corporation, Warren, MI; T. Wyczalek, Magna Exteriors and Interiors, Novi, MI				
Tuesday, 31 July 2012							
107-LP-13	Tanks I: Optimization and Control						Roswell
Chaired by: G. GRAYSON, The Boeing Company and V. AHUJA, Combustion Research & Flow Technology, Inc.							
1000 hrs AIAA-2012-3983 Modeling Active Pressure Control in a Large Scale Cryogenic Storage Tank in Normal Gravity O. Kartuzova, M. Kassemi, NASA Glenn Research Center, Cleveland, OH	1030 hrs AIAA-2012-3984 Contamination Control of the Global Precipitation Measurement Mission Propellant Tank G. Webster, NASA Goddard Space Flight Center, Greenbelt, MD; C. Toro, G. Falk, Cobham Pressure Technology Solutions, Westminster, MD	1100 hrs AIAA-2012-3985 Non-Dimensional Parameterization of Tank Purge Behavior J. Roth, NASA Kennedy Space Center, Cape Canaveral, FL; S. Chintalapati, D. Kirk, Florida Institute of Technology, Melbourne, FL					
Tuesday, 31 July 2012							
108-TM-3	Thermal Management of Machinery						Lenox
Chaired by: C. TARAU, Advanced Cooling Technologies and M. CHOI, NASA Goddard Space Flight Center							
1000 hrs AIAA-2012-3986 Effect of Shaped-Hole on Film Cooling Effectiveness of Gas Turbine Blade E. Abdelghany, Aviation Institute, Cairo, Egypt; A. Alsayed, Zagazig University, Zagazig, Egypt; M. Fouad, E. Khalil, Cairo University, Cairo, Egypt	1030 hrs AIAA-2012-3987 High Efficiency Thermoelectric Coolers for Use in Firefighter Applications A. Kustas, T. Cote, A. Jurgensmeyer, D. Williams, B. Minor, B. Dickman, T. Lipsey, T. Bradley, J. Williams, Colorado State University, Fort Collins, CO	1100 hrs AIAA-2012-3988 Effect of Film Cooling of HP and IP Turbines on Performance of Triple Spool Turbofan Engines E. Abdelghany, Aviation Institute, Cairo, Egypt; A. Alsayed, Zagazig University, Zagazig, Egypt; M. Fouad, E. Khalil, Cairo University, Cairo, Egypt					
Tuesday, 31 July 2012							
109-LP-14	Transpiration Cooling and Cooling Channel Analysis						Piedmont
Chaired by: M. MEYER, NASA Glenn Research Center and E. BESNARD, California State University, Long Beach							
1000 hrs AIAA-2012-3989 Systems Analysis of a LOX/LH2 Rocket Engine with a Transpiration-Cooled Ceramic Thrust-Chamber A. Herberitz, M. Selzer, German Aerospace Center (DLR), Stuttgart, Germany	1030 hrs AIAA-2012-3990 Transpiration Cooled Ceramic Thrust Chamber Applicability for High-Thrust Rocket Engines A. Herberitz, M. Ortelt, I. Müller, I. Hermann Hald, German Aerospace Center (DLR), Stuttgart, Germany	1100 hrs AIAA-2012-3991 Analysis on the Effect of Channel Aspect Ratio on Rocket Thermal Behavior M. Pizzarelli, F. Nasuti, M. Onofri, University of Rome, Rome, Italy	1130 hrs AIAA-2012-3992 Improved Correlations for Curvature Effects in Cooling Channels of Rocket Engines M. Naraghi, R. Dassonville, Manhattan College, Riverdale, NY; M. Pizzarelli, University of Rome, Rome, Italy				

Tuesday, 31 July 2012							
110-GTE-12/ABPSI-6	NASA Fundamental Aeronautics Program, Subsonic Fixed Wing Project, Efficient Propulsion and Power Research						Hanover G
Chaired by: M. HATHAWAY, NASA Glenn Research Center and D. AREND, NASA Glenn Research Center							
1000 hrs AIAA-2012-3993 Aircraft System Study of Boundary Layer Ingesting Propulsion L. Hardin, G. Tillman, O. Sharma, United Technologies Research Center, East Hartford, CT; J. Berton, D. Arend, NASA Glenn Research Center, Cleveland, OH	1030 hrs AIAA-2012-3994 Parametric Analysis and Design for Embedded Engine Inlets R. Florea, C. Matalanis, L. Hardin, M. Stucky, A. Shabbir, United Technologies Research Center, East Hartford, CT	1100 hrs AIAA-2012-3995 Aeromechanics Analysis of a Boundary Layer Ingesting Fan M. Bakhle, NASA Glenn Research Center, Cleveland, OH; T. Reddy, University of Toledo, Toledo, OH; G. Herrick, NASA Glenn Research Center, Cleveland, OH; A. Shabbir, R. Florea, United Technologies Research Center, East Hartford, CT	1130 hrs AIAA-2012-3996 Fan Response to Total Pressure Distortions Produced by Boundary Layer Ingesting Serpentine Inlets A. Ferrar, W. O'Brien, Virginia Polytechnic Institute and State University, Blacksburg, VA				
Tuesday, 31 July 2012							
111-IECEC-7 1000 - 1200 hrs	Robust and Resilient System Design Approaches for Next Generation Terrestrial Nuclear Energy Systems						Spring
Chaired by: M. HOUTS, NASA Marshall Space Flight Center							
Novel terrestrial nuclear energy systems are emerging for a broad range of potential applications spanning from conventional electricity generation to process heat for energy demanding industrial applications with an expectation of absolute safety and autonomy of operation. These requirements and trends lead to an amplified synergy between considerations for space systems and terrestrial systems within the realm of nuclear driven configurations. This special session will offer a forum to discuss designs, requirements, methods and trends for novel nuclear energy systems focusing on robust and resilient system design approaches needed for next generation technology development to meet performance targets under competitive economics constraints.							
Tuesday, 31 July 2012							
112-IECEC-8 1200 - 1400 hrs	IECEC Awards Luncheon Keynote: Aerospace Capabilities Applied to Solving Terrestrial Energy Problems...A Federal Laboratory View						Centennial Ballroom IV
Chaired by: R. SHAW, NASA Glenn Research Center							
William Harrison III Technical Advisor for Fuels and Energy Air Force Research Laboratory Fellow United States Air Force							
Tuesday, 31 July 2012							
113-ABPSI-7	Inlet/Engine Performance Prediction Tools						Hanover C
Chaired by: T. BERENS, Cassidian and K. BLODGETT, GE Aviation							
1300 hrs AIAA-2012-3997 Bayesian Collaborative Sampling for Aero-Propulsion Design of an Engine and Nacelle C. Lee, D. Mavris, Georgia Institute of Technology, Atlanta, GA	1330 hrs AIAA-2012-3998 Nacelle External Drag Prediction Using Computational Fluid Dynamics J. Joo, G. Tillman, R. Lin, United Technologies Research Center, East Hartford, CT	1400 hrs AIAA-2012-3999 Computational Simulation of Dynamic Total-Pressure Distortion in an S-Diffuser J. Mace, M. Lakebrink, M. Mani, The Boeing Company, St. Louis, MO; W. Steenken, BVS and Associates, Hamilton, OH					

Tuesday, 31 July 2012		
114-ABPSI-8/GTE-13 1300 - 1500 hrs	The Impact of Engine Control Technologies on NASA Goals for Improved Aviation Safety, Environmental Compatibility and Performance	Hanover E
Chaired by: D. CULLEY, NASA Glenn Research Center Panelists:		
Dr. Michael Hathaway NASA Glenn Research Center Cleveland, OH	Dr. Dan Bulzan NASA Glenn Research Center Cleveland, OH	Dr. George Kopasakis NASA Glenn Research Center Cleveland, OH
		Mr. Jonathan Litt NASA Glenn Research Center Cleveland, OH

Tuesday, 31 July 2012		
115-HSABP/HYP-5	Supersonic Mixing / Injection II	Hanover D
Chaired by: B. MADHANABHARATAM, Space Propulsion Group, Inc. and S. BECKEL, ATK Mission Systems		
1300 hrs AIAA-2012-4000 Effect of Flow Distortion on Cavity-Assisted Fuel Injection J. Boles, R. Milligan, Taitech, Inc., Beavercreek, OH; K. Hsu, Innovative Scientific Solutions, Inc., Dayton, OH; M. Hagenmaier, Air Force Research Laboratory, Wright-Patterson AFB, OH	1330 hrs AIAA-2012-4001 Numerical Study of Supersonic Flow over Backward-Facing Step for Scramjet Application A. Karimi, S. Wijeyakulasuriya, M. Nalim, Indiana University-Purdue University Indianapolis, Indianapolis, IN	1400 hrs AIAA-2012-4002 The non-reacting flow characteristics of a model supersonic combustor C. Gong, M. Sun, J. Liang, J. Zhou, National University of Defense Technology, Changsha, China

Tuesday, 31 July 2012		
117-SCP-1	Advanced Seal Technology I	Inman
Chaired by: B. STEINETZ, NASA Glenn Research Center; P. DUNLAP, NASA Glenn Research Center and E. RUGGIERO, General Electric Company		
1300 hrs AIAA-2012-4003 Brush Seal Hysteresis A. Bowsheer, P. Crudgington, T. Kirk, Cross Manufacturing Company, Ltd., Devizes, United Kingdom; J. Walla, Product Development Services, Ltd., Solihull, United Kingdom	1330 hrs AIAA-2012-4004 A Novel High Temperature Non-Contact Dynamic Seal P. Crudgington, R. Cross, E. Cross, Cross Manufacturing Company, Ltd., Devizes, United Kingdom	1400 hrs AIAA-2012-4005 Experimental Results of an Aramid Fiber Brush Seal for High-Power Density, Liquid-Cooled, Rotating Electric Machines W. Gerstler, K. Huh, E. Ruggiero, F. Ghasripoor, A. El-Refaie, P. de Bock, X. Shen, J. Alexander, General Electric Company, Niskayuna, NY

Tuesday, 31 July 2012		
118-PC-10	Combustion Studies I	Hanover A
Chaired by: T. JACKSON, University of Illinois		
1300 hrs AIAA-2012-4006 Study of Hydrogen Combustion in Homogeneous Reactor R. Gonçalves, J. Rocco, K. Iha, Aeronautical Institute of Technology, São José dos Campos, Brazil	1330 hrs AIAA-2012-4007 Combustion of Nanofluid Fuels with the Addition of Boron and Iron Particles Y. Gan, L. Qiao, Purdue University, West Lafayette, IN	1400 hrs AIAA-2012-4008 Combustion evaluation of PU solid fuel based on pre-polymer technology additivated with paraffin and Aluminum for hybrid rocket engines S. Gomes, Aeronautical Institute of Technology, São José dos Campos, Brazil; L. Rocco, Flowtest Aerospace Research, São Paulo, Brazil; J. Rocco, K. Iha, Aeronautical Institute of Technology, São José dos Campos, Brazil

Tuesday, 31 July 2012							
119-LP-15	Cooling Techniques and Structural Analysis for Thermally Loaded Engines						Spring
Chaired by: T. POURPOINT, Purdue University and W. WANG, The Aerospace Corporation							
1300 hrs AIAA-2012-4009 Combustion and Heat Transfer Modeling in Regeneratively Cooled Thrust Chambers (Optimal Solution Procedures for Heat Flux Estimation of A Full-Scale Thrust Chamber) Y. Daimon, H. Negishi, N. Yamanishi, Japan Aerospace Exploration Agency (JAXA), Tsukuba, Japan; Y. Nunome, M. Sasaki, T. Tomita, Japan Aerospace Exploration Agency (JAXA), Kakuda, Japan	1330 hrs AIAA-2012-4010 Structural Investigations on Cryogenically Operated and Transpiration Cooled Fibre Reinforced Rocket Thrust Chambers M. Ortelt, I. Hermann Hald, A. Herberitz, German Aerospace Center (DLR), Stuttgart, Germany	1400 hrs AIAA-2012-4011 Cyclic laser heating and optical measurement of combustion chamber wall structures J. Riccius, A. Gernoth, S. Schlechtriem, German Aerospace Center (DLR), Hardthausen, Germany	1430 hrs AIAA-2012-4123 Coupled Heat Transfer Analysis in Regeneratively Cooled Thrust Chambers B. Betti, M. Pizzarelli, F. Nasuti, University of Rome "La Sapienza", Rome, Italy				
Tuesday, 31 July 2012							
120-EP-16	Electromagnetic Propulsion III						Regency V
Chaired by: D. KIRTLEY and J. HAAS, Air Force Research Laboratory							
1300 hrs AIAA-2012-4012 Experimental Investigation of Applied-Field Magnetoplasmadynamic Thrusters at Institute of Space Systems A. Boxberger, P. Bambach, G. Herdrich, P. Upadhyay, S. Fasoulas, H. Roser, University of Stuttgart, Stuttgart, Germany; M. Merino-Martinez, Technical University of Madrid, Madrid, Spain	1330 hrs AIAA-2012-4013 Effect of Inter-electrode Geometry on the Performance of an Applied-field 2D MPD Thruster M. Takubo, Yokohama National University, Yokohama, Japan; H. Koizumi, University of Tokyo, Bunkyo, Japan; T. Hyakutake, Yokohama National University, Yokohama, Japan; H. Kuninaka, Institute of Space and Astronautical Science, Sagami-hara, Japan	1400 hrs AIAA-2012-4276 Steady-State, Applied-Field, Rectangular Magnetoplasmadynamics Thruster Using Hollow Cathode A. Sasoh, D. Ichihara, T. Enoki, S. Yokota, Nagoya University, Nagoya, Japan					
Tuesday, 31 July 2012							
122-HR-5	Ground Testing of Hybrid Motors						University
Chaired by: D. MYRE, U.S. Naval Academy and B. EVANS, Space Propulsion Group Inc.							
1300 hrs AIAA-2012-4017 Peregrine Hybrid Rocket Motor Ground Test Results G. Zilliac, NASA Ames Research Center, Moffett Field, CA; B. Waxman, E. Doran, Stanford University, Stanford, CA; J. Dyer, A. Karabeyoglu, Space Propulsion Group, Inc., Sunnyvale, CA; B. Cantwell, Stanford University, Stanford, CA	1330 hrs AIAA-2012-4018 Experimental Characterization of a Hydrogen Peroxide Simulator F. Moretto, University of Padova, Padova, Italy	1400 hrs AIAA-2012-4019 Development of a student hybrid rocket J. Ronningen, R. Vesterås, M. Berger, Nammo Raufoss, Raufoss, Norway	1430 hrs AIAA-2012-4020 Overview of the University of Colorado at Boulder Hybrid Sounding Rocket Project (HySoR) M. Cannella, B. Lesage, C. Snyder, University of Colorado, Boulder, Boulder, CO				

Tuesday, 31 July 2012							
123-EP-18	Ion Thrusters III						The Learning Center
Chaired by: J. BROPHY, Jet Propulsion Laboratory and I. FUNAKI, Japan Aerospace Exploration Agency							
1300 hrs AIAA-2012-4021 Plasma Loss through Permanent Magnet Cusps in Miniature Ion Thrusters H. Mao, R. Wirz, University of California, Los Angeles, Los Angeles, CA	1330 hrs AIAA-2012-4022 Performance of Miniature Microwave Discharge Ion Thruster for Drag-free Control T. Izumi, Shizuoka University, Hamamatsu, Japan; H. Koizumi, University of Tokyo, Bunkyo, Japan; H. Kuninaka, Institute of Space and Astronautical Science, Sagami-hara, Japan; Y. Yamagiwa, Shizuoka University, Hamamatsu, Japan	1400 hrs AIAA-2012-4023 Status of the NASA's Evolutionary Xenon Thruster (NEXT) after 42,100 Hours, 738 kg Throughput, and 28.2 MN-s Total Impulse R. Shastry, D. Herman, NASA Glenn Research Center, Cleveland, OH					

Tuesday, 31 July 2012							
124-EP-19	Electrospray Propulsion II						Baker
Chaired by: W. HARGUS, Air Force Research Laboratory							
1300 hrs AIAA-2012-4024 Progress Towards a Miniaturized Electrospray Thruster for Flexible Propulsion of Small Spacecraft S. Dandavino, C. Ataman, S. Chakraborty, H. Shea, Swiss Federal Institute of Technology, Neuchatel, Switzerland; C. Ryan, J. Stark, Queen Mary, University of London, London, United Kingdom	1330 hrs AIAA-2012-4289 Demonstration of Remote, Autonomous Attitude Control of a CubeSat Using Ion Electrospray Propulsion Systems L. Perna, P. Lozano, Massachusetts Institute of Technology, Cambridge, MA	1400 hrs AIAA-2012-4293 Cesium Exposure Test of the Colloid Micro-Newton Thruster for the LISA Pathfinder Mission J. Anderson, J. Ziemer, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA; A. Bulit, ESA, Noordwijk, The Netherlands					

Tuesday, 31 July 2012							
125-LP-16	Transient Processes in Orifices and Oxygen Dome						Vinnings
Chaired by: D. LINEBERRY, University of Alabama, Huntsville and S. CHIANESE, SpaceX							
1300 hrs AIAA-2012-4027 Numerical simulation of a 3D unsteady two-phase flow in the filling cavity in oxygen of a cryogenic rocket-engine M. Gauffre, H. Neau, O. Simonin, Fluid Mechanics Institute of Toulouse (IMFT), Toulouse, France; R. Ansart, Laboratory of Chemical Engineering (LGC), Toulouse, France; N. Meyers, Snecma, Vernon, France; S. Petitot, French Space Agency (CNES), Evry, France	1330 hrs AIAA-2012-4028 A Streamlined Approach to Venturi Sizing A. Scroggins, NASA Goddard Space Flight Center, Greenbelt, MD	1400 hrs AIAA-2012-4029 Experimental Investigation of Cavitation Induced Feedline Instability from an Orifice M. Hiitt, D. Lineberry, University of Alabama, Huntsville, Huntsville, AL					

Tuesday, 31 July 2012							
126-PC-11	Initiation and Flame Characterization						Hanover B
Chaired by: K. KAILASANATH, Naval Research Laboratory							
1300 hrs AIAA-2012-4030 Experimental Investigation on Detonation Initiation Mechanism by Hot Jets L. Wei, J. Zhou, H. Xu, Z. Lin, J. Liang, F. Zhuang, National University of Defense Technology, Changsha, China	1330 hrs AIAA-2012-4031 Active Control of Fuel-Flexible Combustor Using Alternative Fuels S. Park, A. Ghosh, K. Yu, University of Maryland, College Park, College Park, MD	1400 hrs AIAA-2012-4032 An Evolution of the Premixed Flame Precipitated by Ultrasonic Standing Wave J. Kim, H. Seo, S. Lee, Pukyong National University, Busan, South Korea					

Tuesday, 31 July 2012							
127-GTE-14	Innovations in Combustor Technology						Hanover F
Chaired by: D. BLUNCK, Air Force Research Laboratory and J. TAI, Georgia Institute of Technology							
1300 hrs AIAA-2012-4033 Fuel Flexible Distributed Combustion for Gas Turbine Engines A. Khalil Hasan, A. Gupta, University of Maryland, College Park, College Park, MD	1330 hrs AIAA-2012-4034 Performance Assessment of a Gas Fired RQL Combustion System Operated in a Vitiated Air Stream V. McDonell, E. Sullivan-Lewis, R. Hack, University of California, Irvine, Irvine, CA						

Tuesday, 31 July 2012							
128-JPC-8 1300 - 1500 hrs	Interagency Propulsion Technology Development						Centennial Ballroom I
Moderator: James Kenyon, Associate Director, Aerospace Technology, Office of the Secretary of Defense							
Panelists:							
William Harrison Technical Advisor for Fuels and Energy Air Force Research Laboratory	Jennings Bryant Advanced Development & Technology Transition Senior Engineer Naval Air Systems Command	Fayette Collier Project Manager, Environmentally Responsible Aviation (ERA) NASA	Rhett Jeffries Program Manager, Continuously Lower Energy, Emissions, and Noise (CLEEN) FAA	Diane Hooie Senior Advisor, Energy Delivery Technologies Division National Energy Technology Laboratory Department of Energy			

Tuesday, 31 July 2012							
129-EP-20	Hall Thruster Physics II						Cortland
Chaired by: W. HUANG and R. HOFER, Jet Propulsion Laboratory, California Institute of Technology							
1300 hrs AIAA-2012-4035 A Low-Cost Optical Approach to Evaluate the Lifetime of Hall Thruster Discharge Channel W. Huang, A. Gallimore, University of Michigan, Ann Arbor, Ann Arbor, MI	1330 hrs AIAA-2012-4036 Optical Diagnostic Characterization of High-Power Hall Thruster Wear and Operation G. Williams, Ohio Aerospace Institute, Cleveland, OH; W. Huang, D. Herman, NASA Glenn Research Center, Cleveland, OH	1400 hrs AIAA-2012-4037 Luminescence Measurements of the Kr+/Kr2+ + Kr Collision Systems B. Prince, Air Force Research Laboratory, Kirtland AFB, NM; Y. Chiu, Busek Company, Inc., Natick, MA					

Tuesday, 31 July 2012							
130-GTE-15	NASA Environmentally Responsible Aviation, propulsion technology						Hanover G
Chaired by: K. SUDER, NASA Glenn Research Center							
1300 hrs AIAA-2012-4038 Overview of the NASA Environmentally Responsible Aviation Project's Propulsion Technology Portfolio K. Suder, NASA Glenn Research Center, Cleveland, OH	1330 hrs AIAA-2012-4039 Tip Vortex and Wake Characteristics of a Counterrotating Open Rotor D. Van Zante, M. Wernet, NASA Glenn Research Center, Cleveland, OH	1400 hrs AIAA-2012-4040 NASA Environmentally Responsible Aviation High Overall Pressure Ratio Compressor Research - Pre-Test CFD M. Celestina, J. Fabian, S. Kulkarni, NASA Glenn Research Center, Cleveland, OH; D. Althausen, ASRC Aerospace Corporation, Cleveland, OH	1430 hrs AIAA-2012-4041 Generation after Next Propulsor Research: Robust Design for Embedded Engine Systems D. Arend, NASA Glenn Research Center, Cleveland, OH; G. Tillman, United Technologies Research Center, East Hartford, CT; W. O'Brien, Virginia Polytechnic Institute and State University, Blacksburg, VA				
Tuesday, 31 July 2012							
131-SR-7	Solid Rocket Motor Ignition Evaluation and Design						Techwood
Chaired by: M. LANGHENRY, Raytheon Missile Systems							
1300 hrs AIAA-2012-4042 Laser assisted combustion of solid propellant for a 100 mN class variable thrust rocket motor A. Kakami, H. Taketoshi, S. Ishihara, T. Tachibana, Kyushu University, Kitakyushu, Japan	1330 hrs AIAA-2012-4043 Ignition Transient of Dual-Thrust Solid Propellant Rocket Motors - A Review V. Sanal Kumar, Kumaraguru College of Technology, Coimbatore, India; R. Basavanahalli, Indian Institute of Science, Bangalore, India	1400 hrs AIAA-2012-4044 Analysis on Micro-Solid Propellant Motor's Size Effect Y. Wang, S. Li, Beijing Institute of Technology, Beijing, China					
Tuesday, 31 July 2012							
132-LP-17	Tanks II: Optimization and Control						Roswell
Chaired by: A. LOPEZ, The Boeing Company and G. GRAYSON, The Boeing Company							
1300 hrs AIAA-2012-4045 Summary of the Development of a Demiseable Composite Overwrapped Hydrazine Tank for the Global Precipitation Measurement Mission from Concept to Delivery R. Estes, NASA Goddard Space Flight Center, Greenbelt, MD; J. Harris, Cobham Pressure Technology Solutions, Westminster, MD; N. Moore, Angeles Crest Engineering, Inc., Pasadena, CA	1330 hrs AIAA-2012-4046 Development and Implementation of a Process for Producing a Highly Wettable Aluminum PMD for the GPM Hydrazine Tank N. Moore, Angeles Crest Engineering, Inc., Pasadena, CA; R. Estes, NASA Goddard Space Flight Center, Greenbelt, MD	1400 hrs AIAA-2012-4047 Cryogenic Propellant Management during Ballistic Flight Phases P. Behruzi, J. Klatte, N. Fries, G. Netter, Astrium, Bremen, Germany; A. Sirbi, ESA, Paris, France					

Tuesday, 31 July 2012	
133-LP-18 1300 - 1500 hrs	Hydrogen Propulsion: Centaur-Saturn to J2X and Beyond
Piedmont	
Chaired by: K. PUGMIRE, Spincraft and B. AUSTIN, IN Space LLC More than a "history session." <i>The U.S. liquid propulsion capability is at a crossroads, i.e., do we rest on prior laurels with our present systems and depend on other countries for major parts of what we need in the future? Or do we pay the price and make the long-term commitments for an effective U.S. internal capability that satisfies our national and commercial requirements? What succeeded in the 1960s and 1970s established a level of excellence in hydrogen propulsion, a capability which has been maintained and added upon. These lessons learned are the stepping-stones to a greater capability for U.S. propulsion and will help shape our nation's future directions. – Dr. Leonard Caveny</i>	
Introduction and Comments Robert L. Sackheim <i>Lessons Learned in the Early Days of Liquid Rocketry - Detonation is Not Preferred.</i> Chuck Ehresman Professor Emeritus Purdue University B47 ATO, Aerobee, BOMARC, Curtiss-Wright XLR25 on Bell X-2, liquid fueled RATOs. (Video with commentary by B. J. Austin)	
<i>Taming Liquid Hydrogen</i> Lawrence J. Ross, Retired Director, NASA Lewis/Glen	<i>Suntan to Centaur and Beyond, Evolution of Hydrogen Propulsion</i> Joaquin Castro Pratt & Whitney-Rocketdyne
<i>Moon to the Solar System, Evolution of Hydrogen Rocket Engines</i> Brian Anderson Advanced Programs, Rocketdyne	<i>Hydrogen-Based Propulsion at Aerojet, M-1 and NERVA to Next Generation Systems</i> John M. Cramer Project Engineering, Aerojet-Sacramento
<i>Hydrogen Propulsion: Mission Enabling, Going Forward, Handle With Care</i> Lawrence Dale Thomas NASA MSFC Associate Director - Technology	

Tuesday, 31 July 2012	
134-TM-4	Aerospace and Terrestrial Power Systems Thermal Management I
Lenox	
Chaired by: C. TARAU, Advanced Cooling Technologies and S. SPENCER, Naval Research Laboratory	
1400 hrs AIAA-2012-4048 Carbon Nanotube Arrays for Enhanced Thermal Interfaces to Thermoelectric Modules K. Saviers, S. Hodson, Purdue University, West Lafayette, IN; J. Salvador, General Motors Corporation, Warren, MI; L. Kasten, Air Force Research Laboratory, Wright-Patterson AFB, OH; T. Fisher, Purdue University, West Lafayette, IN	1430 hrs AIAA-2012-4049 Thermosyphon Flooding Limits in Reduced Gravity Environments M. Gibson, D. Jaworske, NASA Glenn Research Center, Cleveland, OH; J. Sanzi, Sest, Inc., Middleburg Heights, OH; D. Ljubanovic, Gilcrest Electric, Elyria, OH
1500 hrs AIAA-2012-4050 Thermal Analysis of Space-based Solar Power System Study Photovoltaic RF to DC Antenna Module (PRAM) S. Spencer, P. Jaffe, B. Nguyen, Naval Research Laboratory, Washington, DC	1530 hrs AIAA-2012-4051 Unmanned Aerial Systems (UAS) Thermal Management Needs, Current Status, and Future Innovations J. Mehta, J. Charneski, M. Sampson, BELCAN Corporation, Cincinnati, OH

Tuesday, 31 July 2012	
135-EERE-4	Fuels Production and Air Pollution Abatement
Dunwoody	
Chaired by: A. KARABEYOGLU, Space Propulsion Group Inc. and W. LEAR, University of Florida	
1400 hrs AIAA-2012-4052 Thermal Cracking of Tars in a Continuously Fed Reactor with Steam H. Molintas, University of Maryland, College Park, College Park, MD	1430 hrs AIAA-2012-4053 Hydrogen Production by Using Circulating Fluidized-Bed Reactor Y. Achawangkul, Mie University, Tsu, Japan
1500 hrs AIAA-2012-4054 A Comparative Study of Combustion between Biofuels and Fossil Fuels A. Ingenito, F. Gamma, A. Agresta, University of Rome "La Sapienza", Rome, Italy; R. Andriani, Technical University of Turin, Turin, Italy	1530 hrs AIAA-2012-4055 Development of Ammonia Based Fuels for Environmentally Friendly Power Generation A. Karabeyoglu, B. Evans, B. Cantwell, Space Propulsion Group, Inc., Sunnyvale, CA; D. Micheletti, Montana Aerospace Development Association, Butte, MT

Tuesday, 31 July 2012						
136-TNES-2	Nuclear Power Technologies and Fuels II					Kennesaw
Chaired by: R. BEHERA and M. HOUTS, NASA Marshall Space Flight Center						
	1400 hrs Oral Presentation (Invited) TRU-Fueled HTRs for Advanced Power Applications P. Tsvetkov, Texas A&M University, College Station, TX	1430 hrs AIAA-2012-4056 U-235 Prompt Neutron Fission Spectrum Data Sensitivity/Uncertainty Effects in Fuel Cycle Performance Parameters M. Cuvelier, P. Tsvetkov, Texas A&M University, College Station, TX	1500 hrs Panel Discussion An Overview of the Interagency Advanced Power Group (IAPG)			

Tuesday, 31 July 2012						
137-APS-4	Spacecraft Power System Design					Greenbriar
Chaired by: J. WITCHER, Sandia National Labs and A. SALIM						
	1400 hrs AIAA-2012-4057 Solar Probe Plus (SPP) Spacecraft Power System L. Roubberg, A. Baisden, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1430 hrs AIAA-2012-4058 Mars Science Laboratory (MSL) Power System Architecture G. Carr, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA	1500 hrs AIAA-2012-4059 The RBSP Spacecraft Power System Design and Development S. Laughery, M. Butler, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1530 hrs Oral Presentation (Invited) Revolutionary Reaction Engines: SABRE and Skylon S. Hutchison, Reaction Engines, Ltd., Oxford, United Kingdom		

Tuesday, 31 July 2012						
138-EC-5	Stirling/Radioisotope Power System Design, Modeling and Analysis					Fairlie
Chaired by: P. CORNELL, NASA Glenn Research Center and T. REID, NASA Glenn Research Center						
	1400 hrs AIAA-2012-4060 Advanced Stirling Radioisotope Generator thermal power model in Thermal Desktop SINDA/FLUINT analyzer X. Wang, W. Fabanich, NASA Glenn Research Center, Cleveland, OH; P. Schmitz, Power Computing Solutions, Inc., Cleveland, OH	1430 hrs AIAA-2012-4061 Performance of an Advanced Stirling Converter Based on Heat Flux Sensor Measurements S. Wilson, NASA Glenn Research Center, Cleveland, OH	1500 hrs AIAA-2012-4062 Preparation of the MMRTG for the Mars Science Laboratory Mission W. Otting, L. Gard, Pratt & Whitney, Canoga Park, CA; T. Hammel, R. Bennett, Teledyne Energy Systems, Inc., Hunt Valley, MD	1530 hrs AIAA-2012-4063 Multi-Mission Radioisotope Thermoelectric Generator (MMRTG): Proven Power for Next Generation Radioisotope Power Systems T. Hammel, R. Bennett, Teledyne Energy Systems, Inc., Hunt Valley, MD; W. Otting, Pratt & Whitney, Canoga Park, CA; S. Keyser, R. Sievers, Teledyne Energy Systems, Inc., Hunt Valley, MD		

Tuesday, 31 July 2012						
140-EP-21	EP Mission Analysis and Concepts					Regency VI
Chaired by: C. GARNER, Jet Propulsion Laboratory, California Institute of Technology and J. SNYDER, Jet Propulsion Laboratory, California Institute of Technology						
1600 hrs Oral Presentation (Invited) End-of-Life Power Implication of Low-Thrust Geocentric Transfer J. Dankanich, Gray Research, Inc., North Ridgeville, OH; T. Kerslake, NASA Glenn Research Center, Cleveland, OH	1630 hrs AIAA-2012-4067 Spacecraft Conceptual Design for Returning Entire Near-Earth Asteroids J. Brophy, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA; S. Oleson, NASA Glenn Research Center, Cleveland, OH	1700 hrs AIAA-2012-4068 Experimental Investigation of a Direct-Drive Hall Thruster and Solar Array System at Power Levels up to 10 kW J. Snyder, J. Brophy, R. Hofer, D. Goebel, I. Katz, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA				

Tuesday, 31 July 2012							
141-APC-3	Advanced Propulsion Concepts III						Hanover A
Chaired by: J. ROBINSON							
1600 hrs AIAA-2012-4069 A Misunderstood/Overlooked/ Traditional/Useful Newly Discovered Force H. Huang, Self, Webster, TX	1630 hrs AIAA-2012-4070 Preliminary Study of a Novel Gas Turbine Combustor Concept based on Hydrogen Synthesis from Kerosene Reformation B. Khandelwal, Cranfield University, Cranfield, United Kingdom	1700 hrs AIAA-2012-4071 Steady Operation of an FRC Thruster on Martian Atmosphere and Liquid Water Propellants D. Kirtley, A. Pancotti, J. Slough, C. Pihl, MSNW, LLC, Redmond, WA	1730 hrs AIAA-2012-4072 PRECISE - Development of a MEMS-based Monopropellant Micro Chemical Propulsion System M. Gauer, German Aerospace Center (DLR), Göttingen, Germany; D. Telitschkin, EADS, Ottobrunn, Germany; Y. Battoneau, National Center for Scientific Research (CNRS), Paris, France; H. Johansson, Nanospace AB, Uppsala, Sweden; M. Ivanov, NPO Mashinostroyeniya, Moscow, Russia; P. Palmer, University of Surrey, Guildford, United Kingdom; R. Wiegerink, University of Twente, Enschede, The Netherlands				
Tuesday, 31 July 2012							
142-SCP-2	Advanced Seal Technology II						Inman
Chaired by: B. STEINETZ, NASA Glenn Research Center and P. DUNLAP, NASA Glenn Research Center							
1600 hrs AIAA-2012-4073 Compliant Plate Seals: Static Tests H. Deo, General Electric Company, Niskayuna, NY	1630 hrs AIAA-2012-4074 Manufacturing of Compliant Plate Seals H. Deo, General Electric Company, Niskayuna, NY; W. Adis, M. Mack, General Electric Company, Schenectady, NY	1700 hrs AIAA-2012-4075 A Comparison of Candidate Seal Designs for Future Docking Systems P. Dunlap, B. Steinetz, NASA Glenn Research Center, Cleveland, OH					
Tuesday, 31 July 2012							
143-TM-5	Aerospace and Terrestrial Power Systems Thermal Management II						Lenox
Chaired by: J. MEHTA, President and M. CHOI, NASA Goddard Space Flight Center							
1600 hrs AIAA-2012-4076 Temperature Stabilization of Pulsating Flow in High Pressure Field Using Coaxial Tube Heat Exchanger with Liquid Oil Tuner N. Maruyama, Y. Masuda, Mie University, Tsu, Japan; K. Nagata, Kouwakougyo Company, Ltd., Yokkaichi, Japan; Y. Ito, M. Hirota, Mie University, Tsu, Japan	1630 hrs AIAA-2012-4077 Forced Convection Heat Transfer for Falling Film over Hot Horizontal Tubes H. Sait, King Abdul Aziz University, Rabigh, Saudi Arabia	1700 hrs AIAA-2012-4078 Titanium-Water Thermosyphon Gamma Radiation Exposure and Results J. Sanzi, Sest, Inc., Middleburg Heights, OH					

Tuesday, 31 July 2012							
144-EP-22	Cathodes						The Learning Center
Chaired by: I. MIKELLIDES, Jet Propulsion Laboratory, California Institute of Technology and Y. RAITSES, Princeton Plasma Physics Laboratory							
1600 hrs AIAA-2012-4079 High Current Lanthanum Hexaboride Hollow Cathode for 20-to-100 kW Class Hall Thrusters D. Goebel, E. Chu, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA	1630 hrs AIAA-2012-4080 High Current Hollow Cathode Development at NASA Glenn Research Center H. Kamhawi, J. Van Noord, NASA Glenn Research Center, Cleveland, OH	1700 hrs AIAA-2012-4081 Insert Temperature Measurements of a 180A Hollow Cathode for the HiPER Project M. Coletti, S. Gabriel, University of Southampton, Southampton, United Kingdom	1730 hrs AIAA-2012-4082 A Hollow Cathode Thruster Performance Model D. Frollani, M. Coletti, Mars Space, Ltd., Southampton, United Kingdom; S. Gabriel, University of Southampton, Southampton, United Kingdom	1800 hrs AIAA-2012-4083 Exploration of RF-Controlled High Current Density Cathode Concepts M. Plasek, B. Jorns, E. Choueiri, Princeton University, Princeton, NJ; J. Polk, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA			

Tuesday, 31 July 2012							
145-JPC-9	Challenges for Future Rotorcraft Propulsion						Centennial Ballroom I
1600 - 1830 hrs							
Moderator: George A Bobula, Chief Engineer, Propulsion Division, Aviation Engineering Directorate, AMRDEC							
Panelists:							
Susan Gorton Project Manager NASA Subsonic Rotary Wing Project		Catherine Ferrie Director Xworx & Test and Evaluation Bell Helicopter		Richard F. Spivey Director U.S. Army Aeroflightdynamics Directorate		Steve Weiner Director Engineering Sciences Sikorsky Aircraft Corporation	
Harold Rosenstein Chief Engineer Advanced Mobility Boeing Phantom Works							

Tuesday, 31 July 2012							
146-LP-19	Combustion Instability I						Spring
Chaired by: J. LOCKE, United Technologies Research Center and E. JACOB, GTL							
1600 hrs AIAA-2012-4084 The Effect of Unsteady Entropy on Combustion Instability E. Jacob, G. Flandro, P. Gloyer, GTL Company, Tullahoma, TN	1630 hrs AIAA-2012-4085 Analysis of the impact of heat losses on an unstable model rocket-engine combustor using Large-Eddy Simulation R. Garby, Fluid Mechanics Institute of Toulouse (IMFT), Toulouse, France; L. Selle, T. Poinot, National Center for Scientific Research (CNRS), Toulouse, France	1700 hrs AIAA-2012-4086 On the Sidewall Boundary Layer of Transverse Waves in Simulated Liquid Rocket Engines C. Haddad, J. Majdalani, University of Tennessee Space Institute, Tullahoma, TN	1730 hrs AIAA-2012-4087 Coupling Behaviour of LO_x/H₂ Flames to Longitudinal and Transverse Acoustic Instabilities J. Hardj, M. Oschwald, German Aerospace Center (DLR), Lampoldshausen, Germany; B. Dally, University of Adelaide, Adelaide, Australia	1800 hrs AIAA-2012-4088 Comparison Between Simulation and Measurement of Self-Excited Combustion Instability T. Feldman, M. Harvazinski, C. Merkle, W. Anderson, Purdue University, West Lafayette, IN			

Tuesday, 31 July 2012							
147-PC-12	Fundamental Combustion Processes						Hanover B
Chaired by: J. OEFELIN, Sandia National Laboratories and T. NGUYEN, Aerojet							
1600 hrs AIAA-2012-4089 Combustion of Blended Monopropellants A. Ambekar, A. Chowdhury, Indian Institute of Technology Mumbai, Mumbai, India	1630 hrs AIAA-2012-4090 Quasi-1D Compressible Flow of Hydrocarbon Fuel D. Cheng, X. Fan, Chinese Academy of Sciences, Beijing, China	1700 hrs AIAA-2012-4091 Supercritical Mixing in Single and Dual Component Systems A. Roy, C. Segal, University of Florida, Gainesville, Gainesville, FL	1730 hrs AIAA-2012-4092 Combustion of JSC-1A Lunar Regolith Simulant Mixed with Magnesium F. Alvarez, C. White, A. Delgado, J. Frias, A. Narayana Swamy, E. Shafirovich, University of Texas, El Paso, El Paso, TX				

Tuesday, 31 July 2012							
148-TFES-4	Emerging Fossil Energy Technologies						Kennesaw
Chaired by: D. LILLEY, Oklahoma State University and M. KHAN							
1600 hrs AIAA-2012-4093 Development of Thermoelectric Temperature Sensors J. Kuchle, K. Hassan, N. Love, University of Texas, El Paso, El Paso, TX	1630 hrs AIAA-2012-4094 Experimental Study of Thermoelectric Properties of Randomly Distributed SWCNTs and SiC Nanoparticles O. Gracia, M. Khan, A. Choudhuri, N. Love, University of Texas, El Paso, El Paso, TX	1700 hrs AIAA-2012-4095 Low-Temperature Oxidation of Methanol with the Assistance of Platinum Nanoparticles B. Pavlov, L. Qiao, Purdue University, West Lafayette, IN	1730 hrs AIAA-2012-4096 Acoustic Source Localization using Microphone Arrays by TDOA Method A. Singh, A. Eshaghi, M. Yu, University of Maryland, College Park, College Park, MD; K. Bryden, Iowa State University, Ames, IA; A. Gupta, University of Maryland, College Park, College Park, MD				

Tuesday, 31 July 2012							
149-EERE-5	Energy-Efficient Systems II						Greenbriar
Chaired by: E. KHALIL, Cairo University and T. BRADLEY, Colorado State University							
1600 hrs AIAA-2012-4097 Numerical Investigations of Flow Patterns and Thermal Comfort in Air-Conditioned Lecture Room T. Abou Dief, M. Fouad, E. Khalil, Cairo University, Cairo, Egypt	1630 hrs AIAA-2012-4098 Effect of Shorted Blade Circumferential Positions on Centrifugal Pump Characteristics M. Abdelghanny, M. Shehata, A. Abd Elhafez, M. Abdraboo, S. Ayad, Benha University, Cairo, Egypt	1700 hrs AIAA-2012-4099 Numerical Investigations of Air Flow Patterns and Thermal Comfort in an Ice-Cream Factory Conditioned by Conventional Air Conditioning or Radiant Cooling Systems E. Khalil, W. Sweida, Cairo University, Cairo, Egypt	1730 hrs AIAA-2012-4100 Performance and Flow Field Analysis for a Diffuser Pump at Different Flow and Design Parameters M. Abdelghanny, A. Shahin, O. Abdellatif, M. Abdraboo, S. Ayad, Benha University, Cairo, Egypt				

Tuesday, 31 July 2012							
152-HR-6	Fuel Regression Characterization						University
Chaired by: A. KARABEYOGLU, Space Propulsion Group Inc. and J. MICHLITSCH, The Aerospace Corporation							
1600 hrs AIAA-2012-4104 Regression Rate Characteristics of Paraffin-based Fuel under Swirled Oxidizer Flow I. Nakagawa, K. Shinohara, Tokai University, Hiratsuka, Japan	1630 hrs AIAA-2012-4105 A Numerical Study on the Regression Rate of Hybrid Rocket Motors Using a Combination of Enhancement Techniques P. Chidambaram, A. Kumar, Indian Institute of Technology Madras, Chennai, India	1700 hrs AIAA-2012-4106 Controlling Parameters for Fuel Regression Rate of Swirling-oxidizer-flow-type Hybrid Rocket Engine S. Yuasa, N. Shiraiishi, K. Hirata, Tokyo Metropolitan University, Hino, Japan	1730 hrs AIAA-2012-4107 Effectiveness of Concave-convex Surface Grain for Hybrid Rocket Combustion S. Hatagaki, Y. Saburo, K. Hirata, T. Sakurai, Tokyo Metropolitan University, Hino, Japan	1800 hrs AIAA-2012-4108 The effect of a block on flow oscillations near the fuel surface with wall blowing C. Lee, Y. Na, Konkuk University, Seoul, South Korea; H. Koo, Seoul National University, Seoul, South Korea			

Tuesday, 31 July 2012							
153-PC-13	Combustion Modeling II						Hanover D
Chaired by: J. LEYLEGIAN, Manhattan College							
1600 hrs AIAA-2012-4109 Development of a Chemical Kinetic Model to Describe the Endothermic Reforming of Logistical Fuels J. Spero, J. Leylegian, Manhattan College, Bronx, NY	1630 hrs AIAA-2012-4111 From Flamelet to Distributed/Broken Reaction Zone Regimes: Investigations Using the Linear Eddy Model S. Srinivasan, S. Menon, Georgia Institute of Technology, Atlanta, GA	1700 hrs AIAA-2012-4110 Analysis of Reduced Order Chemical Mechanisms for Oxygen-enriched Combustion of Methane and n-decane M. Ilie, University of Central Florida, Orlando, FL					

Tuesday, 31 July 2012							
154-NFF-6	Fusion and Alternative Nuclear Concepts						Hanover E
Chaired by: J. CASSIBRY and R. SEDWICK, University of Maryland							
1600 hrs AIAA-2012-4112 Fusion Hybrid Rocket for Moon Tourism T. Kammash, Self, Ann Arbor, MI	1630 hrs AIAA-2012-4113 Mission Design Architecture for the Fusion Driven Rocket A. Pancotti, J. Slough, D. Kirtley, MSNW, LLC, Redmond, WA; M. Pfaff, ; C. Pihl, G. Votroubek, MSNW, LLC, Redmond, WA	1700 hrs AIAA-2012-4114 The Case and Development Path for Fusion Propulsion J. Cassibry, R. Cortez, M. Stanic, R. Hatcher, M. Beattie, University of Alabama, Huntsville, Huntsville, AL; W. Seidler, The Boeing Company, Huntsville, AL; R. Adams, G. Statham, NASA Marshall Space Flight Center, Huntsville, AL					

Tuesday, 31 July 2012							
155-EP-24	Hall Thruster Physics III						Cortland
Chaired by: J. POLK, Jet Propulsion Laboratory and D. BROWN, Air Force Research Laboratory							
1600 hrs AIAA-2012-4115 Electrostatic Probe Measurements in the Near-field Plume of the NASA 300M Hall Thruster D. Herman, R. Shastry, W. Huang, G. Soulas, H. Kamhawi, NASA Glenn Research Center, Cleveland, OH	1630 hrs AIAA-2012-4116 A Performance and Plume Comparison of Xenon and Krypton Propellant on the SPT-100 M. Nakles, W. Hargus, Air Force Research Laboratory, Edwards AFB, CA; J. Delgado, R. Corey, Space Systems/Loral, Palo Alto, CA	1700 hrs AIAA-2012-4117 Hall Effect Thruster Plasma Plume Characterization with Probe Measurements and Self-Similar Fluid Models K. Dannenmayer, S. Mazouffre, National Center for Scientific Research (CNRS), Orléans, France; M. Merino-Martinez, E. Ahedo, Technical University of Madrid, Madrid, Spain	1730 hrs AIAA-2012-4118 Laser Thomson Scattering Measurements of Electron Temperature and Density in the Near-Field Plume of a Hall-Effect Thruster R. Washeleski, E. Meyer, L. King, Michigan Technological University, Houghton, MI	1800 hrs AIAA-2012-4119 Well-Characterized Plasma Experiments for Validation of Computational Models M. Patino, L. Chu, R. Wirz, University of California, Los Angeles, Los Angeles, CA			

Tuesday, 31 July 2012							
156-LP-20	Heat Transfer, Cooling and Combustion of Methane Engines						Vinnings
Chaired by: S. FORDE, Aerojet and M. MEYER, NASA Glenn Research Center							
1600 hrs AIAA-2012-4120 Verification of Prediction Methods for Methane Heat Transfer Characteristics H. Kawashima, Japan Aerospace Exploration Agency (JAXA), Tsukuba, Japan; T. Tomita, M. Sasaki, Japan Aerospace Exploration Agency (JAXA), Kakuda, Japan; H. Negishi, Japan Aerospace Exploration Agency (JAXA), Tsukuba, Japan; T. Kaneko, Mitsubishi Heavy Industries, Ltd., Nagoya, Japan	1630 hrs AIAA-2012-4121 An Experimental Investigation on the Heat Transfer Characteristics of Liquid Methane A. Trejo, S. Flores, A. Choudhuri, University of Texas, El Paso, El Paso, TX	1700 hrs AIAA-2012-4122 Flowfield and Heat Transfer Characteristics of Cooling Channel Flows in a Methane-Cooled Thrust Chamber H. Negishi, Y. Daimon, H. Kawashima, N. Yamanishi, Japan Aerospace Exploration Agency (JAXA), Tsukuba, Japan	1730 hrs AIAA-2012-4124 Vaporization and Zonal Mixing in Performance Modeling of Advanced LOX-Methane Rockets G. Williams, Ohio Aerospace Institute, Cleveland, OH; B. Stiegemeier, Arctic Slope Research Corporation, Cleveland, OH				

Tuesday, 31 July 2012							
157-ES-1	High-Energy Storage for Space Application						Fairlie
Chaired by: R. SHAW, Lockheed Martin Corporation and J. TROUTMAN, EnerSys/ABSL Space Products							
1600 hrs AIAA-2012-4125 Lithium Intelli-Pack Battery: A Modular and Scalable Smart Battery for Multiple Aerospace Platforms E. Burke, Space Information Laboratories, Santa Maria, CA	1630 hrs AIAA-2012-4126 Next Generation Lithium-ion Cell Chemistry for Space Applications R. Gitzen Danner, F. Puglia, M. Gulbinska, S. Santee, C. Deroy, Yardney Technical Products, Pawcatuck, CT	1700 hrs AIAA-2012-4127 Low Temperature Cycling Performance of the SONY 18650 Hard Carbon Mandrel Cell J. Troutman, EnerSys/ABSL Space Products, Longmont, CO; R. Buckle, EnerSys/ABSL Space Products, Culham, United Kingdom	1730 hrs AIAA-2012-4128 Study on High Pressure Water Electrolysis for Energy Storage Device of Space Systems H. Naito, Japan Aerospace Exploration Agency (JAXA), Tsukuba, Japan; T. Hoshino, Japan Aerospace Exploration Agency (JAXA), Sagami-hara, Japan; T. Tani, Mitsubishi Heavy Industries, Ltd., Kobe, Japan				

Tuesday, 31 July 2012							
158-IECEC-9	The Future of Smart Grid in the United States and Abroad						Dunwoody
Chaired by: W. LEAR, University of Florida and M. CHOI, NASA Goddard Space Flight Center Smart Grid has become a critical agenda item around the globe. The speakers will present their views on the future of Smart Grid in the United States and abroad. They will focus on opportunities and challenges.							
Moderators: William E. Lear, University of Florida, Gainesville, FL and Michael Choi, NASA Goddard Space Flight Center, Greenbelt, MD							
Speakers:							
1600 - 1625 hrs Anh Vu Smart Cities Program Manager ERDF Distribution France	1625 - 1650 hrs Reji Kumar Pillai President - India Smart Grid Forum (a PPP initiative of Govt of India) India	1650 - 1715 hrs Scott Duncan School of Aerospace Engineering Georgia Institute of Technology USA	1715 - 1740 hrs Egon Ortjohann Head of Power Systems and Power Economics Department South Westphalia University of Applied Sciences Germany	1740 - 1805 hrs José Eduardo Azarite Director of Marketing CPqD Brazil	1805 - 830 hrs Takashi Hiki-hara Professor of Department of Electrical Engineering Kyoto University Japan		

Tuesday, 31 July 2012							
159-LP-21	Ignition of Methane and Hydrogen Engines						Roswell
Chaired by: J. SAUER, Orbital Technologies Corporation and T. POURPOINT, Purdue University							
1600 hrs AIAA-2012-4129 Spark Ignition Characteristics of a LO₂/LCH₄ Engine at Altitude Conditions J. Kleinhenz, C. Sarmiento, W. Marshall, NASA Glenn Research Center, Cleveland, OH	1630 hrs AIAA-2012-4130 Experimental Study of Low Frequency Plasma for Liquid Oxygen and Methane Ignition T. Nagata, Japan Aerospace Exploration Agency (JAXA), Tsukuba, Japan; J. Culbertson, J. Torres, E. Besnard, California State University, Long Beach, CA	1700 hrs AIAA-2012-4131 Low Ambient Pressure Ingestion and Consequences on Ignition of Liquid Rocket Engines C. Manfretti, German Aerospace Center (DLR), Hardthausen, Germany	1730 hrs AIAA-2012-4132 Laser Ignition of a Research 200N RCS LO_x/GH₂ and LO_x/GCH₄ Engine C. Manfretti, German Aerospace Center (DLR), Hardthausen, Germany	1800 hrs AIAA-2012-4133 Development and Testing of a Methane/Oxygen Catalytic Microtube Ignition System for Rocket Propulsion M. Deans, S. Schneider, NASA Glenn Research Center, Cleveland, OH			

Tuesday, 31 July 2012							
160-LP-22	Non-Conventional Concepts for Rocket Engines						Piedmont
Chaired by: P. ALLIOT, SNECMA and D. SARGENT, Federal Aviation Administration							
1600 hrs AIAA-2012-4134 Valveless Detonation Concepts for Space Exploration B. Kan, S. Heister, Purdue University, West Lafayette, IN	1630 hrs AIAA-2012-4135 Plain-Orifice Injector Flow Characteristics with Rheological Hysteresis C. Yoon, S. Heister, P. Santos, O. Campanella, Purdue University, West Lafayette, IN						
Tuesday, 31 July 2012							
161-SR-8	Solid Rocket Motor Burn Rate Analysis						Techwood
Chaired by: B. LEARY, ATK Mission Systems							
1600 hrs AIAA-2012-4136 Universal Subscale Fixed-Nozzle Burning Rate Analysis Tool M. Hinkelman, J. Goldin, Aerojet, Rancho Cordova, CA	1630 hrs AIAA-2012-4138 Experimental Study of Erosive and Dynamic Burning in Polybutadiene Based Composite Propellants A. Reffenmaier, S. Heister, Purdue University, West Lafayette, IN						
Tuesday, 31 July 2012							
162-GTE-17	Engine Performance						Hanover G
Chaired by: D. JENSEN, Rolls-Royce Corporation and R. BRUCKNER, NASA Glenn Research Center							
1600 hrs AIAA-2012-4139 Optimization of Civil Turbofan with Evolutionary Algorithms L. Casalino, D. Pastrone, F. Simeoni, Technical University of Turin, Turin, Italy	1630 hrs AIAA-2012-4140 Off-Design Performances of a Gas Turbine Engine with Heat Recovery and Intercooling R. Andriani, Technical University of Milan, Milan, Italy; F. Gamma, University of Rome "La Sapienza", Rome, Italy; U. Ghezzi, Technical University of Milan, Milan, Italy	1700 hrs AIAA-2012-4142 Large-Scale Transient Loading of a Three Stream Variable Cycle Engine M. Corbett, Air Force Research Laboratory, Wright-Patterson AFB, OH					
Tuesday, 31 July 2012							
163-GTE-18	Young Professionals' Vision for the Future of Propulsion						Regency V
Chaired by: J. CONVERY, GE Aviation and J. SORDYL, Williams International							
1600 hrs Oral Presentation (Invited) Nicole Key	1630 hrs Oral Presentation (Invited) John McKinnis	1700 hrs Oral Presentation (Invited) Matt Billingsley	1730 hrs Oral Presentation (Invited) Shane Bunnang	1800 hrs Oral Presentation (Invited) Joel Malo-Molina			

Tuesday, 31 July 2012							
164-HSABP/HYP-8/ ABPSI-10	High-Speed Inlets / Isolators I						Regency VII
Chaired by: T. O'BRIEN, Aerjet and B. MCKAY, Lockheed Martin Aeronautics							
1600 hrs AIAA-2012-4143 Highlights from a Mach 4 Experimental Demonstration of Inlet Mode Transition for Turbine Based Combined Cycle Hypersonic Propulsion L. Foster, J. Saunders, NASA Glenn Research Center, Cleveland, OH; B. Sanders, L. Weir, TechLand Research, Inc., North Olmsted, OH	1630 hrs AIAA-2012-4144 A simulation scheme for turbine-based combined cycles inlet mode-transition control D. Le, D. Vrnak, J. Slater, E. Hessel, NASA Glenn Research Center, Cleveland, OH	1700 hrs AIAA-2012-4145 Shock Train Position Control in an Axisymmetric Scramjet Combustor Flowpath J. Donbar, Air Force Research Laboratory, Wright-Patterson AFB, OH	1730 hrs AIAA-2012-4146 High-Speed Schlieren Analysis of Buzz in a Relaxed-Compression Supersonic Inlet T. Herges, G. Elliott, J. Dutton, University of Illinois, Urbana-Champaign, Urbana, IL	1800 hrs AIAA-2012-4147 Quasi One-Dimensional Unsteady Modeling of External Compression Supersonic Inlets G. Kopasakis, J. Connolly, NASA Glenn Research Center, Cleveland, OH; K. Woolwine, Florida State University, Gainesville, FL			

Tuesday, 31 July 2012							
199-ABPSI-13/GTE-23	Turbine Engine Control						Hanover C
Chaired by: D. CULLEY, NASA Glenn Research Center							
1600 hrs AIAA-2012-4255 Overview of Propulsion Controls and Diagnostics Research at NASA Glenn S. Garg, NASA Glenn Research Center, Cleveland, OH	1630 hrs AIAA-2012-4257 Model-Based Engine Control of a Commercial Class Turbofan Engine Using an Optimal Tuner Approach J. Connolly, S. Garg, NASA Glenn Research Center, Cleveland, OH; A. Chicatelli, Analex Corporation, Cleveland, OH	1700 hrs AIAA-2012-4258 Fixed Dynamic Method for Transient-State Optimal Control Law Design of Aircraft Engine Y. Guo, Northwestern Polytechnical University, Xi'an, China; L. Wang, Xi'an Aeroengine Controls Corporation, Xi'an, China; J. Lu, J. Wu, Northwestern Polytechnical University, Xi'an, China	1730 hrs AIAA-2012-4259 Improved hybrid Kalman filter for in-flight aircraft engine performance estimation Y. Guo, J. Lu, S. Zhang, Northwestern Polytechnical University, Xi'an, China	1800 hrs			

Wednesday

Wednesday, 1 August 2012							
165-IECEC-10 0800 - 0900 hrs	IECEC Plenary Panel Aerospace Capabilities Applied to Solving Terrestrial Energy Problems...An Aerospace Industry View						Dunwoody
Chaired by: R. SHAW, NASA Glenn Research Center							
David Parekh Vice President of Research, Director United Technologies Research Center							

Wednesday, 1 August 2012							
166-JPC-10 0800 - 0900 hrs	Wednesday Opening Keynote						Centennial Ballroom I
<i>Flight Testing: Increasing Value and Demand</i> Dr. Wes Harris Charles Stark Draper Professor of Aeronautics and Astronautics Massachusetts Institute of Technology							

Wednesday, 1 August 2012							
167-HSABP/HYP-9/ ABPSI-11		High-Speed Inlets / Isolators II					Regency VII
Chaired by: M. BRADLEY, The Boeing Company & Technology and T. BERENS, Cassidian							
0930 hrs AIAA-2012-4148 Quantification of Convection Velocity and Dominant Scale of Large-Scale Structures by High-Speed Schlieren Imaging T. Kouchi, G. Masuya, Tohoku University, Sendai, Japan	1000 hrs AIAA-2012-4149 A Turbine Based Combined Cycle Engine Inlet Model and Mode Transition Simulation Based on HiTECC Tool J. Csank, T. Stueber, NASA Glenn Research Center, Cleveland, OH	1030 hrs AIAA-2012-4150 Real-time Unstart Prediction and Detection of Hypersonic Inlet Based on Recursive Fourier Transform J. Chang, Harbin Institute of Technology, Harbin, China	1100 hrs AIAA-2012-4151 Design of hypersonic inward turning inlets with controllable Mach number distribution Y. Li, K. Zhang, X. Nan, Nanjing University of Aeronautics and Astronautics, Nanjing, China				
Wednesday, 1 August 2012							
168-GEPC-1/GTE-19		Alternative Aviation Fuel Experiments (AAFEX) I & II					Roswell
Chaired by: D. BULZAN, NASA Glenn Research Center and R. DEL ROSARIO, NASA Glenn Research Center							
0930 hrs Oral Presentation (Invited) Introduction, Background, Objectives, and Experimental Details of Alternative Aviation Fuel Experiments (AAFEX) I and II B. Anderson, A. Beyersdorf, NASA Langley Research Center, Hampton, VA	1000 hrs Oral Presentation (Invited) Engine Performance and Gaseous Emissions from JP-8, GTL, and CTL Fischer-Tropsch (FT), Hydroprocessed Esters and Fatty Acids (HEFA), and Blends C. Wey, ASRC Aerospace Corporation, Cleveland, OH; R. Howard, Arnold Engineering Development Center, Arnold AFB, TN; D. Bulzan, NASA Glenn Research Center, Cleveland, OH	1030 hrs Oral Presentation (Invited) Solid and Volatile Engine Particulate Emissions from F-T, HEFA, JP-8, and Blends E. Corporan, Air Force Research Laboratory, Wright-Patterson AFB, OH; L. Ziemia, NASA Langley Research Center, Hampton, VA; M. Dewitt, University of Dayton Research Institute, Dayton, OH; B. Knighton, Montana State University, Bozeman, MT; M. Timko, Aerodyne, Billerica, MA	1100 hrs Oral Presentation (Invited) Engine Exhaust Plume Measurements and Chemical Evolution R. Miakelye, S. Herndon, Aerodyne, Billerica, MA				
Wednesday, 1 August 2012							
170-APC-4		Advanced Propulsion Concepts IV					Hanover A
Chaired by: R. CHASE and J. ROBINSON							
0930 hrs AIAA-2012-4152 A Systems Approach to Developing an Affordable Space Ground Transportation Architecture using a Commonality Approach J. Garcia, NASA Kennedy Space Center, Cape Canaveral, FL; C. McCleskey, T. Bollo, R. Rhodes, J. Robinson, Seal Beach, CA	1000 hrs AIAA-2012-4153 Approach to an Affordable and Productive Space Transportation System C. McCleskey, NASA Kennedy Space Center, Cape Canaveral, FL; R. Rhodes, R. Lepsch, E. Henderson, J. Robinson, Seal Beach, CA	1030 hrs AIAA-2012-4154 Exploration and Space Habitation Public Support W. Knuth, KE, Inc., Huntsville, AL; J. Robinson, Seal Beach, CA; R. Rhodes, NASA Kennedy Space Center, Cape Canaveral, FL; E. Henderson, NASA Johnson Space Center, Houston, TX	1100 hrs AIAA-2012-4155 Affordability Advantages in Integrating the Aircraft and Space Launch Operations D. Thorpe, Exploration Partners, LLC, Mount Sterling, KY; J. Robinson, Seal Beach, CA; R. Rhodes, NASA Kennedy Space Center, Cape Canaveral, FL				

Wednesday, 1 August 2012							
171-GTE-20	Compressors III						Hanover F
Chaired by: V. CAPECE, University of Kentucky							
0930 hrs AIAA-2012-4156 Flow Instability Inception Model of Compressors based on Eigenvalue Theory X. Liu, R. Hou, D. Sun, X. Sun, Beijing University of Aeronautics and Astronautics, Beijing, China	1000 hrs AIAA-2012-4157 Application of Unsteady Vortex Lift in Turbomachinery L. Du, X. Sun, Beihang University, Beijing, China; V. Yang, Georgia Institute of Technology, Atlanta, GA	1030 hrs AIAA-2012-4158 Vane Clocking Effects on Stall Margin in a Multistage Compressor N. Smith, N. Key, Purdue University, West Lafayette, IN					

Wednesday, 1 August 2012							
172-TM-6	Aircraft, Aero-Engine and Hypersonic Vehicle Thermal Management						Fairlie
Chaired by: J. MEHTA, President and C. TARAU, Advanced Cooling Technologies							
0930 hrs AIAA-2012-4159 Performance Analysis on Fuel Turbo-pump and Motor System of Scramjet Engine W. Bao, D. Zhang, J. Qin, W. Zhou, Harbin Institute of Technology, Harbin, China	1000 hrs AIAA-2012-4160 Effects of Pressure on Heat Sink of n-Decane W. Zhou, Z. Jia, W. Bao, B. Yu, Harbin Institute of Technology, Harbin, China	1030 hrs AIAA-2012-4161 Integrated Analysis for the Design of Reusable TPS Based on Variable Transpiration Cooling for Hypersonic Cruise Vehicles S. Gulli, L. Maddalena, University of Texas, Arlington, Arlington, TX; S. Hosder, Missouri University of Science and Technology, Rolla, MO					

Wednesday, 1 August 2012							
173-JPC-11 0930 - 1200 hrs	Clipped Wings: Assessing U.S. Aeronautical Flight Research						Centennial Ballroom I
Moderator: Dr. Victor Lebarcaz, VICC Associates, Principal Panelists:							
	Richard Christiansen Vice President Sierra Lobo	Mark Anderson Director Platform Performance Technology The Boeing Company	Dale Carlson General Manager, Technology Strategy GE Aviation	Douglas Bowers(invited) Chief Propulsion Division USAF AFRL	John Langford CEO Aurora Flight Sciences	Thomas Irvine NASA Deputy Associate Administrator for Aeronautics Research Mission Directorate	

Wednesday, 1 August 2012							
174-LP-23	Nozzle Design						University
Chaired by: T. GIEL, Jacobs Technology and D. PERIGO							
0930 hrs AIAA-2012-4164 Numerical Investigation of Dual Bell Nozzle Flow Field C. Genin, German Aerospace Center (DLR), Lampoldshausen, Germany; S. Karl, German Aerospace Center (DLR), Göttingen, Germany; R. Stark, German Aerospace Center (DLR), Lampoldshausen, Germany	1000 hrs AIAA-2012-4162 Nozzle Design through Chemical Kinetics Coupled with Axis-Symmetric Method of Characteristics R. Young, R. Hartfield, Auburn University, Auburn, AL	1030 hrs AIAA-2012-4163 Assessment and Benchmarking of the Extendible Nozzle Systems in the Liquid Propulsion M. Ferlin, French Space Agency (CNES), Paris, France					

Wednesday, 1 August 2012							
175-PC-14	Combustion Studies II						Hanover B
Chaired by: C. CADOU							
0930 hrs AIAA-2012-4165 Flame Stabilization Modes in Lean Premixed Swirl Stabilized Combustion D. Foti, S. Menon, Georgia Institute of Technology, Atlanta, GA	1000 hrs AIAA-2012-4166 Supercritical LOX/Hydrogen Combustion of a Shear Coaxial Injector H. Huo, V. Yang, Georgia Institute of Technology, Atlanta, GA	1030 hrs AIAA-2012-4167 Numerical Studies on Combustion in a Film Cooled Semicryogenic Rocket Thrust Chamber J. Prakash, Liquid Propulsion System Centre, Thiruvananthapuram, India; K. Roy, T. Krishnakumar, TKM College of Engineering, Kollam, India; G. Ramesh, J. Pisharady, P. Balachandran, R. Thomas, Liquid Propulsion System Centre, Thiruvananthapuram, India	1100 hrs AIAA-2012-4168 Further Progress on a Kinetic Model Reduction Method for CFD Applications J. Leylegian, V. Tulino, Manhattan College, Bronx, NY				

Wednesday, 1 August 2012							
176-GTE-21	Pressure Gain Combustors						Hanover G
Chaired by: J. SORDYL, Williams International							
0930 hrs AIAA-2012-4169 Coupled Analysis of the Inlet and Fuel Systems of a Wave Rotor Constant-Volume Combustor K. Smith, M. Nalim, Indiana University-Purdue University Indianapolis, Indianapolis, IN	1000 hrs AIAA-2012-4170 Thermodynamic cycle efficiency enhancement in a Wave Disk Engine by re-injection of combusted gas for pre-compression R. Kiran, S. Wijeyakulasuriya, N. Mueller, Michigan State University, East Lansing, MI; J. Piechna, Warsaw University of Technology, Warsaw, Poland	1030 hrs AIAA-2012-4171 Fuel Proximity Effect on Hot-Jet Ignition in a Wave Rotor Constant Volume Combustor S. Wijeyakulasuriya, T. Elharis, M. Nalim, Indiana University-Purdue University Indianapolis, Indianapolis, IN	1100 hrs AIAA-2012-4172 High Energy Spark Discharges for Ignition J. Kim, B. Sforzo, J. Seitzman, J. Jagoda, Georgia Institute of Technology, Atlanta, GA				

Wednesday, 1 August 2012							
177-SCP-3	Engineering and Analysis for Propulsion Systems I						Hanover D
Chaired by: J. CHENOWETH, CRAFT Tech							
0930 hrs AIAA-2012-4173 Feasibility Study of Multi-objective Optimization of Subsystem Redundancy for Human-rated Launch Vehicle K. Kawatsu, Y. Mihara, N. Tani, N. Yamanishi, K. Okita, Japan Aerospace Exploration Agency (JAXA), Ibaraki, Japan	1000 hrs AIAA-2012-4174 SPONGE: a Sounding Rocket Experiment for PMDs M. Lazzarin, N. Bellomo, F. Barato, D. Paulon, F. Moretto, D. Rondini, University of Padova, Padova, Italy						

Wednesday, 1 August 2012							
178-TFES-5	Fossil Energy Numerical Modeling						Kennesaw
Chaired by: M. KHAN and S. GOLLAHALLI							
0930 hrs AIAA-2012-4175 Innovative Approaches for Reducing CO2 Emissions of Aviation Engines Part 3: Advanced Brayton Cycle Optimization V. Kumar, P. Panda, H. Mongia, S. Naik, Purdue University, West Lafayette, IN	1000 hrs AIAA-2012-4176 Application of BRANZFIRE to a Variety of Realistic Burning Items in a Room Fire with Smoke Detectors and Sprinkler Activation Times D. Lilley, Lilley & Associates, Stillwater, OK	1030 hrs AIAA-2012-4177 Application of the Fire Dynamics Simulator FDS Code to 10 Experimental Fires in the End Room of a Three-Room Structure with 60 Smoke Detectors D. Lilley, Lilley & Associates, Stillwater, OK	1100 hrs AIAA-2012-4178 Detailed Numerical Modeling of Solar Coal Gasification in a Perfectly-stirred Reactor J. Xu, L. Qiao, J. Gore, Purdue University, West Lafayette, IN				
Wednesday, 1 August 2012							
179-EP-26	Hall Thrusters IV						Regency VI
Chaired by: O. DUCHEMIN, SNECMA and G. SOULAS, NASA Glenn Research Center							
0930 hrs AIAA-2012-4179 Studies of rotating spoke and breathing types of oscillations in Hall thrusters Y. Raitses, M. Griswold, L. Ellison, N. Fisch, Princeton Plasma Physics Laboratory, Princeton, NJ	1000 hrs AIAA-2012-4180 Low-frequency azimuthal stability analysis of Hall thrusters D. Escobar Anton, E. Ahedo, Technical University of Madrid, Madrid, Spain	1030 hrs AIAA-2012-4016 Lifetime Simulation of an SPT-Type Hall Thruster by Using a 2D Fully Kinetic PIC Model S. Cho, University of Tokyo, Tokyo, Japan; K. Komurasaki, University of Tokyo, Kashiwa, Japan; Y. Arakawa, University of Tokyo, Tokyo, Japan	1100 hrs AIAA-2012-4336 Performance of a Helicon Hall Thruster Operating with Xenon, Argon, and Nitrogen A. Shabselowitz, A. Gallimore, University of Michigan, Ann Arbor, MI; P. Peterson, ElectroDynamic Applications, Inc.	1130 hrs AIAA-2012-4181 Researches on Anomalous Electron Transportation in Hall Thruster Plasma S. Oghienko, V. Olendarev, S. Vertyutin, National Aerospace University, Kharkiv, Ukraine			
Wednesday, 1 August 2012							
180-EP-27	Ion Thrusters IV						The Learning Center
Chaired by: J. FOSTER, University of Michigan and G. WILLIAMS, Ohio Aerospace Institute							
0930 hrs AIAA-2012-4182 In-Flight Operation of the Dawn Ion Propulsion System Through the Preparations For Escape From Vesta M. Rayman, C. Garner, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA	1000 hrs AIAA-2012-4183 Plasma Diagnostics inside the ECR Ion Thruster μ10 by Laser Absorption Spectroscopy with Optical Fiber Probes R. Tsukizaki, H. Koizumi, University of Tokyo, Bunkyo, Japan; K. Nishiyama, H. Kunitaka, Japan Aerospace Exploration Agency (JAXA), Sagami-hara, Japan	1030 hrs AIAA-2012-4184 Speed-up for a PIC-MCC Discharge Chamber Plasma Computer Code S. Mahalingam, Y. Choi, J. Loverich, S. Stoltz, Tech-X Corporation, Boulder, CO; B. Penkel, J. Menart, Wright State University, Dayton, OH	1100 hrs AIAA-2012-4185 Electric Field Measurement of ECR Ion Thruster μ10 with Optical Fiber Sensor T. Ise, H. Koizumi, University of Tokyo, Tokyo, Japan; K. Nishiyama, H. Kunitaka, Japan Aerospace Exploration Agency (JAXA), Tokyo, Japan	1130 hrs AIAA-2012-4186 Current Density Measurements of an Annular-Geometry Ion Engine R. Shastry, M. Patterson, D. Herman, NASA Glenn Research Center, Cleveland, OH; J. Foster, University of Michigan, Ann Arbor, Ann Arbor, MI			
Wednesday, 1 August 2012							
181-TM-7	Heating and Cooling of Buildings						Lenox
Chaired by: E. KHALIL, Cairo University and J. DARKWA, University of Nottingham-Ningbo							
0930 hrs AIAA-2012-4187 Air Flow Distribution Effects on Thermal Comfort Parameters in an Air-Conditioned Room E. Bially, E. Khalil, Cairo University, Cairo, Egypt	1000 hrs AIAA-2012-4188 Applicability of Enclosed Fog Systems in Rural Development Region [Study on Toshki-Egypt Region] A. Fahim, Electro-Mechanical Research Institute, Cairo, Egypt	1030 hrs AIAA-2012-4189 Effectiveness of a Solar Absorption Cooling System in a Low Carbon Building J. Darkwa, University of Nottingham, Ningbo, China	1100 hrs AIAA-2012-4190 Investigation into Compacted Composite Micro-encapsulated Phase Change Energy Storage Material J. Darkwa, O. Su, University of Nottingham, Ningbo, China				

Wednesday, 1 August 2012							
182-EP-28	Advanced Concepts III						Baker
Chaired by: A. PANCOTTI, MSNW LLC. and T. SWANSON							
0930 hrs AIAA-2012-4191 Low Power RF Plasma Thruster Experimental Characterization D. Pavarin, A. Lucca Fabris, F. Tiezzolani, M. Manente, M. Faenza, F. Ferri, University of Padova, Padova, Italy; A. Selmo, RESIA, Albaredo d'Adige, Italy; K. Katsonis, C. Berenguer, DEDALOS, Thessaloniki, Greece	1000 hrs AIAA-2012-4192 Ion Current Distribution of ECR Microwave Discharge Neutralizer W. Ohmichi, University of Tokyo, Bunkyo, Japan; H. Kuninaka, Japan Aerospace Exploration Agency (JAXA), Sagami-hara, Japan	1030 hrs AIAA-2012-4193 Single-Stage Faraday Accelerator with Radio-frequency Assisted Discharge Proof of Concept Experiment M. Feldman, E. Choueiri, Princeton University, Princeton, NJ	1100 hrs AIAA-2012-4194 Experimental Characterization of Plasma Heating with Beating Electrostatic Waves Proof of Concept Experiment B. Jorns, E. Choueiri, Princeton University, Princeton, NJ				
Wednesday, 1 August 2012							
183-EP-29	Hall Thruster Physics IV						Cortland
Chaired by: L. BRIEDA, Particle In Cell Consulting LLC and D. HERMAN							
0930 hrs AIAA-2012-4195 Plume Diagnostics for the Evaluation of the NASA HiVHAC EM-R W. Huang, H. Kamhawi, R. Shastry, NASA Glenn Research Center, Cleveland, OH	1000 hrs AIAA-2012-4196 Plasma Potential and Langmuir Probe Measurements in the Near-field Plume of the NASA 457Mv2 Hall Thruster R. Shastry, W. Huang, D. Herman, G. Soulas, H. Kamhawi, NASA Glenn Research Center, Cleveland, OH	1030 hrs AIAA-2012-4197 Comparison of Numerical and Experimental Time-Resolved Near-Field Hall Thruster Plasma Properties A. Gonzales, Air Force Research Laboratory, Edwards AFB, CA; M. Scharfe, ERC, Inc., Edwards AFB, CA; W. Hargus, Air Force Research Laboratory, Edwards AFB, CA					
Wednesday, 1 August 2012							
184-HR-7	Novel Motor Operating Configurations I						Inman
Chaired by: D. PASTRONE, Technical University of Turin and D. MYRE, U.S. Naval Academy							
0930 hrs AIAA-2012-4198 Initial Experimental Investigations of Self-Pressurizing Propellant Dynamics J. Zimmerman, B. Cantwell, Stanford University, Stanford, CA; G. Ziliac, NASA Ames Research Center, Moffett Field, CA	1000 hrs AIAA-2012-4199 Development and Testing of the Regeneratively Cooled Multiple Use Plug Hybrid (for) Nanosats (MUPHyN) Motor S. Eilers, T. Whitmore, M. Wilson, Z. Peterson, J. McCulley, Utah State University, Logan, UT	1030 hrs AIAA-2012-4200 Closed-Loop Thrust and Pressure Profile Throttling of a Nitrous-Oxide HTPB Hybrid Rocket Motor Z. Peterson, S. Eilers, S. Whitmore, Utah State University, Logan, UT	1100 hrs AIAA-2012-4201 Nitrous Oxide Cooled, Reusable Hybrid Aerospike Rocket Motor: Experimental Results P. Lemieux, California State Polytechnic University, San Luis Obispo, CA	1130 hrs AIAA-2012-4202 Design Trade-offs for Hybrid Rocket Motors L. Casalino, D. Pastrone, F. Simeoni, Technical University of Turin, Turin, Italy			

Wednesday, 1 August 2012							
185-LP-24	Combustion Instability II						Vinnings
Chaired by: W. WANG, The Aerospace Corporation and J. BATTERSON, University of Tennessee Space Institute							
0930 hrs AIAA-2012-4203 Application of Proper Orthogonal Decomposition to Light Intensity Measurements of Combustion Instability M. Wierman, C. Fugger, B. Pomeroy, W. Anderson, T. Feldman, Purdue University, West Lafayette, IN	1000 hrs AIAA-2012-4204 Propellant Throttling Effects on Self-pulsation of Liquid Rocket Swirl-coaxial Injection C. Eberhart, D. Lineberry, R. Frederick, University of Alabama, Huntsville, Huntsville, AL	1030 hrs AIAA-2012-4205 Effect of Step Height on Level of Combustion Instability in a Subscale Transverse Rocket Combustor M. Wierman, C. Morgan, W. Anderson, Purdue University, West Lafayette, IN	1100 hrs AIAA-2012-4206 Acoustic structure and damping estimation of a cylindrical rocket chamber during oscillation T. Shimizu, D. Hori, Japan Aerospace Exploration Agency (JAXA), Kanagawa, Japan; Y. Daimon, Japan Aerospace Exploration Agency (JAXA), Tsukuba, Japan				
Wednesday, 1 August 2012							
186-NFF-7	Nuclear Thermal Propulsion III: Missions, Architectures and Affordability						Piedmont
Chaired by: B. SCHNITZLER and J. WARREN, NASA Headquarters							
0930 hrs AIAA-2012-4207 Development of a Small Nuclear Thermal Propulsion Flight Demonstrator Concept that is Scalable to Human Missions C. Joyner, D. Levack, Pratt & Whitney, North Palm Beach, FL; S. Borowski, NASA Glenn Research Center, Cleveland, OH	1000 hrs AIAA-2012-4208 Impact and Options for Human Mars Missions Departing from 1000km M. Bulman, V. Collarzo-Perez, D. Brasuell, Aerojet, Sacramento, CA	1030 hrs AIAA-2012-4209 Near Earth Asteroid Human Exploration Mission Possibilities Using Nuclear Thermal Rocket (NTR) Propulsion S. Borowski, D. McCurdy, T. Packard, NASA Glenn Research Center, Cleveland, OH	1100 hrs Oral Presentation (Invited) Perspectives on Affordable Nuclear Thermal Propulsion System Development S. Bhattacharyya, RENMAR Enterprises, Inc., North Augusta, SC				
Wednesday, 1 August 2012							
187-GTE-22 0930 - 1130 hrs	AIAA and ASME IGTI Student Design Competition						Regency V
Chaired by: I. HALLIWELL, Power Systems Manufacturing LLC							
Three teams will compete for final placing in this 2nd round of design presentations.							
Wednesday, 1 August 2012							
188-SR-9	Solid Rocket Motor Development Experiences and History						Spring
Chaired by: W. FOSTER, Auburn University and M. LANGHENRY, Raytheon Company							
0930 hrs AIAA-2012-4211 Analysis of VEGA Solid Stages Static Firing Tests towards the Maiden Flight E. Cavallini, B. Favini, M. Di Giacinto, University of Rome "La Sapienza", Rome, Italy; F. Serraglia, ESA, Frascati, Italy	1000 hrs AIAA-2012-4212 Solid Propulsion Systems for Epsilon Launch Vehicle S. Tokudome, H. Habu, K. Ui, F. Shimizu, Japan Aerospace Exploration Agency (JAXA), Sagami-hara, Japan; Y. Yachi, N. Sano, IHI Corporation, Tomioka, Japan	1030 hrs AIAA-2012-4213 Technological and Programmatic Development of Zefiro 40 Solid Rocket Motor M. Angelone, F. Mascanzoni, C. Milana, Avio S.p.A., Colleferro, Italy					

Wednesday, 1 August 2012							
189-SR-10	Solid Rocket Motor Design and Optimization						Techwood
Chaired by: Y. CHEN, National Space Organization Taiwan and A. GERARDS, US Army AMRDEC							
0930 hrs AIAA-2012-4214 Evolving Swarm-A Genetically Modified Particle Swarm Optimizer with Localized Pattern Search Capability for Aerospace Propulsion Systems R. Hartfield, K. Albarado, R. Jenkins, Auburn University, Auburn, AL	1000 hrs AIAA-2012-4215 SRM Simulation Using the Level Set Method and Higher Order Integration Schemes K. Albarado, A. Shelton, R. Hartfield, Auburn University, Auburn, AL	1030 hrs AIAA-2012-4216 Rocstar Simulation Suite: An Advanced 3-D Multiphysics, Multiscale Computational Framework for Tightly Coupled, Fluid-Structure-Thermal Applications M. Brandyberry, F. Najjar, T. Jackson, W. Dick, B. Wasistho, D. Schwenk, M. Campbell, IllinoisRocstar, LLC, Champaign, IL	1100 hrs AIAA-2012-4318 Coupled CFD Analysis of Thermochemical Erosion and Unsteady Heat Conduction in Solid Rocket Nozzles D. Bianchi, A. Turchi, F. Nasuti, M. Onofri, University of Rome "La Sapienza", Rome, Italy				

Wednesday, 1 August 2012							
190-APS-5	Spacecraft Power Electronics Design and Performance						Greenbriar
Chaired by: G. CARR, Jet Propulsion Laboratory, California Institute of Technology and A. SALIM							
0930 hrs AIAA-2012-4219 Grounding Aspects of Power Processing Units for Electric Propulsion Onboard Spacecrafts M. Gollor, B. Fallis, ESA, Noordwijk, The Netherlands	1000 hrs AIAA-2012-4220 Optimum Switching Frequency of a DC-DC Converter in Space Applications M. Taherbaneh, Iranian Research Organization for Science and Technology, Tehran, Iran	1030 hrs AIAA-2012-4221 NEXT Ion Thruster Power Processing Unit (PPU) Capacitor Failure Root Cause Analysis J. Soeder, L. Pineru, NASA Glenn Research Center, Cleveland, OH; J. Dunning, Alphaport Corporation, Cleveland, OH; A. Birchenough, Arctic Slope Research Corporation, Cleveland, OH					

Wednesday, 1 August 2012										
191-IECEC-11 0930 - 1130 hrs	The Latest Advances in Radioisotope Power Systems - A Mission Perspective						Dunwoody			
Chaired by: E. LEWANDOWSKI, NASA Glenn Research Center										
<p>This is an exciting time for radioisotope power systems (RPS). The last General Purpose Heat Source Radioisotope Thermoelectric Generator (GPHS-RTG) produced is on its way to Pluto and beyond on the New Horizons mission. The first Multi-Mission Radioisotope Thermoelectric Generator (MMRTG) is about to land on Mars powering the Mars Science Laboratory (MSL) rover Curiosity. And the Advanced Stirling Radioisotope Generator (ASRG) is being developed for possible use on future missions. Panelists will provide a mission perspective on what radioisotope power systems have meant to space exploration, how the capabilities of GPHS-RTG, MMRTG and ASRG are/will be used by missions, and undoubtedly will cover other aspects of RPS-related technologies, opportunities, and constraints.</p> <p>Panelists:</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center; vertical-align: top;"> Ralph L. McNutt, Jr. Science and Analysis Branch, Chief Scientist for Space Science Applied Physics Laboratory, Johns Hopkins Laboratory </td> <td style="text-align: center; vertical-align: top;"> David Woerner Nuclear Space Power Office Jet Propulsion Laboratory, California Institute of Technology </td> <td style="text-align: center; vertical-align: top;"> Leonard A. Dudzinski Program Executive NASA Headquarters </td> </tr> </table>								Ralph L. McNutt, Jr. Science and Analysis Branch, Chief Scientist for Space Science Applied Physics Laboratory, Johns Hopkins Laboratory	David Woerner Nuclear Space Power Office Jet Propulsion Laboratory, California Institute of Technology	Leonard A. Dudzinski Program Executive NASA Headquarters
Ralph L. McNutt, Jr. Science and Analysis Branch, Chief Scientist for Space Science Applied Physics Laboratory, Johns Hopkins Laboratory	David Woerner Nuclear Space Power Office Jet Propulsion Laboratory, California Institute of Technology	Leonard A. Dudzinski Program Executive NASA Headquarters								

Wednesday, 1 August 2012							
192-ABPSI-12	Nozzles and Thrust Reversers						Hanover C
Chaired by: C. CHUCK, The Boeing Company and R. DAEBELLIEHN, Aerojet							
0930 hrs AIAA-2012-4222 Application of the Narrow-band Correlated k-Distribution Method to Numerical Simulation of the IR Emission from Non-Scattering Exhaust Plumes A. Sventitskiy, C. Mundt, University of the German Federal Armed Forces, Neubiberg, Germany	1000 hrs AIAA-2012-4223 CFD Validation Study for Internal Performance of Advanced SERN Configurations A. Baucio, K. Shanley, D. Bevis, Rolls-Royce Group plc, Indianapolis, IN	1030 hrs AIAA-2012-4224 A Multidisciplinary Approach to Mixer-Ejector Analysis and Design E. Hendricks, J. Seidel, NASA Glenn Research Center, Cleveland, OH					
Wednesday, 1 August 2012							
193-JPC-12 1200 - 1400 hrs	JPC Awards Luncheon						Centennial Ballroom IV
<i>Air Mobility History and Flight Testing at Lockheed Martin</i> Wayne Roberts LM Fellow, Chief Test Pilot for Airlift Programs							
Wednesday, 1 August 2012							
194-TFES-6	Gas Turbine Engines and Related Technologies						Greenbriar
Chaired by: N. LOVE, University of Texas, El Paso and D. LILLEY, Oklahoma State University							
1300 hrs AIAA-2012-4227 Hydrogen Combustors in Gas Turbines A. Karakurt, B. Khandelwal, V. Sethi, R. Singh, Cranfield University, Cranfield, United Kingdom	1330 hrs AIAA-2012-4228 Innovative Approaches for Reducing CO2 Emissions of Aviation Engines Part 2: NPSS Calibration with Existing Gas Turbine Engines V. Kumar, P. Panda, H. Mongia, S. Naik, Purdue University, West Lafayette, IN	1400 hrs AIAA-2012-4229 Numeric Simulation of a Gas Turbine Engine with Constant Volume Combustion R. Andriani, Technical University of Milan, Milan, Italy; F. Gamma, A. Agresta, A. Ingenito, University of Rome "La Sapienza", Rome, Italy	1430 hrs AIAA-2012-4230 Innovative Approaches for Reducing CO2 Emissions of Aviation Engines Part 4: Turbine Exhaust Driven Thermal Secondary Cycle TED-T P. Panda, V. Kumar, H. Mongia, S. Naik, Purdue University, West Lafayette, IN				
Wednesday, 1 August 2012							
195-TM-8	Modeling, Simulation and Analysis of Thermal Systems						Lenox
Chaired by: E. KHALIL, Cairo University and J. DARKWA, University of Nottingham-Ningbo							
1300 hrs AIAA-2012-4231 On the Calculations of Flat Plate Film Cooling Effectiveness E. Abdelghany, Aviation Institute, Cairo, Egypt; A. Alsayed, Zagazig University, Zagazig, Egypt; M. Fouad, E. Khalil, Cairo University, Cairo, Egypt	1330 hrs AIAA-2012-4232 Numerical Investigations of Flow Patterns and Thermal Conditions in Large Scale High Compute Density Data Centers M. Aziz, E. Khalil, Cairo University, Cairo, Egypt	1400 hrs AIAA-2012-4233 Computational Fluid Dynamics Simulation of a Thermoacoustic Refrigerator A. Abd El-Rahman, American University in Cairo, New Cairo, Egypt; A. Abd El-Rahman, Cairo University, Cairo, Egypt; E. Abdel-Rahman, American University in Cairo, New Cairo, Egypt	1430 hrs AIAA-2012-4234 Simulation of the Influence of Heated Flows on Internal Light Shafts in Residential Buildings A. Fahim, Electro-Mechanical Research Institute, Cairo, Egypt	1500 hrs AIAA-2012-4235 Numerical Investigation of Impulse Ventilation for Smoke Control in an Underground Car Park S. Ali, E. Khalil, Cairo University, Cairo, Egypt	1530 hrs AIAA-2012-4236 Physical Modeling of Concrete-Core-Radiant Cooling System in Upper Egypt A. Fahim, Electro-Mechanical Research Institute, Cairo, Egypt	1600 hrs Oral Presentation (Invited) Two Phase Thermal Control for Aircraft Applications W. Anderson, M. Ellis, J. Hartenstine, R. Hay, K. Lu, J. Montgomery, D. Pellicone, K. Walker, Advanced Cooling Technologies, Inc., Lancaster, PA	1630 hrs AIAA-2012-4237 Role of PCM Based Nanofluids for Energy Efficient Thermal Storage in Electronic Cooling System V. Kumaresan, Anna University, Chennai, India; P. Chandrasekaran, SRM University, Chennai, India; R. Velraj, Anna University, Chennai, India; M. Nanda, A. Maini, Laser Science and Technology Centre, Delhi, India

Wednesday, 1 August 2012							
196-APS-6		Power Technologies and Management for Aircraft and UAV					Dunwoody
Chaired by: M. LIFFRING, Boeing Commercial Airplanes and J. FU							
1300 hrs AIAA-2012-4238 Performance Analysis of a Fuel Cell Hybrid Aviation Propulsion System K. Okai, H. Fujiwara, Japan Aerospace Exploration Agency (JAXA), Tokyo, Japan; H. Nomura, Nihon University, Narashino, Japan; T. Tagashira, R. Yanagi, Japan Aerospace Exploration Agency (JAXA), Tokyo, Japan	1330 hrs AIAA-2012-4239 Integration, Validation, and Testing of a Hybrid-Electric Propulsion System for a Small Remotely Piloted Aircraft J. Ausserer, F. Harmon, Air Force Research Laboratory, Wright-Patterson AFB, OH	1400 hrs AIAA-2012-4240 Optimal System Partitioning for Distributed Heterogeneous Simulations B. Loop, E. Walters, PC Krause and Associates, West Lafayette, IN; P. Lamm, Air Force Research Laboratory, Wright-Patterson AFB, OH	1430 hrs AIAA-2012-4241 Design of Hybrid Electric Propulsion System for Long Endurance Small UAV Y. Li, L. Liu, X. Ma, H. Tu, Beijing Institute of Technology, Beijing, China	1500 hrs AIAA-2012-4242 Neural Modeling and Predictive Control of a Small Turbojet Engine (SR-30) A. Aly, I. Atia, Military Technical College (MTC), Cairo, Egypt			
Wednesday, 1 August 2012							
197-EERE-6		Renewable Energy Generation Technologies					Kennesaw
Chaired by: M. SIMPSON and F. WYCZALEK, FW Lilly, Inc.							
1300 hrs AIAA-2012-4243 Electric Power Generation Using Buoyancy-Induced Vortices M. Simpson, A. Glezer, Georgia Institute of Technology, Atlanta, GA	1330 hrs AIAA-2012-4244 Optimization of a Vertical Axis Micro Wind Turbine for Low Tip Speed Ratio Operation A. Pendharkar, R. McGowan, K. Morillas, M. Pinder, N. Komerath, Georgia Institute of Technology, Atlanta, GA	1400 hrs AIAA-2012-4245 Novel Electro-Mechanical Mechanism for Blade Pitch-Control of Horizontal-Axis, Home-scale Wind Turbines A. Abdel Gawad, Zagazig University, Zagazig, Egypt	1430 hrs AIAA-2012-4246 CALERA CO2 Sequestration and Enhanced Geothermal Energy F. Wyczalek, Energy Independence Foundation, Bloomfield Hills, MI; M. Wyczalek, General Motors Corporation, Warren, MI; T. Wyczalek, Magna Exteriors and Interiors, Novi, MI	1500 hrs AIAA-2012-4247 Analysis of Electricity Consumption in the Faculty of Engineering with Integration of Renewable Solar Power System E. Ogedengbe, ENERGHX, Ottawa, Canada; E. Ogedengbe, University of Lagos, Lagos, Nigeria	1530 hrs AIAA-2012-4248 Sustainable Urbanism: Theories and Green Rating Systems H. Khalil, Cairo University, Cairo, Egypt		
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198-EC-6		Stirling System Development					Fairlie
Chaired by: T. CHAN, Lockheed Martin Corporation and D. HILL, Lockheed Martin Corporation							
1300 hrs AIAA-2012-4249 Advanced Stirling Convertor Durability Testing: Plans and Interim Results D. Meer, Sest, Inc., Middleburg Heights, OH; S. Oriti, NASA Glenn Research Center, Cleveland, OH	1330 hrs AIAA-2012-4250 Advanced Stirling Convertor (ASC-E2) Characterization Testing Z. Williams, S. Oriti, E. Lewandowski, NASA Glenn Research Center, Cleveland, OH	1400 hrs AIAA-2012-4251 Pathfinding the Flight Advanced Stirling Convertor Design with the ASC-E3 W. Wong, NASA Glenn Research Center, Cleveland, OH; K. Wilson, E. Smith, J. Collins, Sunpower, Inc., Athens, OH	1430 hrs AIAA-2012-4252 Sunpower's Dynamic Conversion to Flight with the Advanced Stirling Convertor (ASC-F) J. Collins, W. Wong, K. Wilson, M. Dunlap, E. Smith, Sunpower, Inc., Athens, OH	1500 hrs AIAA-2012-4253 Testing of the Advanced Stirling Radioisotope Generator Engineering Unit at NASA Glenn Research Center E. Lewandowski, NASA Glenn Research Center, Cleveland, OH	1530 hrs AIAA-2012-4254 Test Hardware Design for Flight-Like Operation of Advanced Stirling Convertors (ASC-E3) S. Oriti, P. Schmitz, E. Lewandowski, NASA Glenn Research Center, Cleveland, OH		
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139-ABPSI-9/HSABP/HYP-7		High Speed Integrated Inlets					Hanover C
Chaired by: M. MCMILLAN, Syngenes Corporation and I. HALLIWELL, Power Systems Manufacturing LLC							
1400 hrs AIAA-2012-4064 Inverse Design of Supersonic Internal Flow Path Based on Given Outflow Velocity Profile X. Fang, K. Zhang, Nanjing University of Aeronautics and Astronautics, Nanjing, China	1430 hrs AIAA-2012-4065 Numerical Investigation of Hypersonic Curved Shock Two-Dimensional Inlet Designed on the Wall Constant Mach Number Gradient L. Zhang, K. Zhang, Nanjing University of Aeronautics and Astronautics, Nanjing, China						

Wednesday, 1 August 2012							
200-HSABP/HYP-10		Numerical Modeling of Turbulent Combustion in Hypersonic Flows (Invited)					Regency VII
Chaired by: D. MUSIELAK, University of Texas, Arlington and J. WHITE, NASA Langley Research Center							
1400 hrs AIAA-2012-4260 SFMDf in US3D for LES of Compressible Flows on Unstructured Meshes C. Otis, University of Pittsburgh, Pittsburgh, PA; P. Ferrero, G. Candler, University of Minnesota, Minneapolis, MN; P. Givi, University of Pittsburgh, Pittsburgh, PA	1430 hrs AIAA-2012-4261 Large eddy simulation of the HyShot II scramjet combustor using a supersonic flamelet model (Invited) J. Larsson, Self, Stanford, CA	1500 hrs AIAA-2012-4262 Large Eddy/Reynolds-Averaged Navier-Stokes Simulations of Scramjet Combustor Flow Fields (Invited) J. Edwards, Self, Raleigh, NC	1530 hrs AIAA-2012-4263 Low-Dissipation Advection Schemes Designed for Large Eddy Simulations of Hypersonic Propulsion Systems J. White, NASA Langley Research Center, Hampton, VA	1600 hrs AIAA-2012-4264 Progress toward affordable high fidelity combustion simulations using filtered density functions for hypersonic flows in complex geometries (Invited) T. Drozda, NASA Langley Research Center, Hampton, VA	1630 hrs Oral Presentation (Invited) Large Eddy Simulation of High Speed Turbulent Combustion (Invited) F. Jaber, Michigan State University, East Lansing, MI		
Wednesday, 1 August 2012							
201-APC-5		Advanced Propulsion Concepts V					Hanover A
Chaired by: T. CHEN and J. ROBINSON							
1400 hrs AIAA-2012-4265 Study of Novel Micromix Combustors to be used in Gas Turbines; using Hydrogen, Hydrogen-Methane, Methane and Kerosene as a fuel B. Khandelwal, A. Karakurt, V. Sethi, R. Singh, Cranfield University, Cranfield, United Kingdom	1430 hrs AIAA-2012-4266 Viscous losses of MNG in Hybrid Motor Tests D. Chasman, S. Haight, R. Loehr, Raytheon Company, Tucson, AZ	1500 hrs AIAA-2012-4267 A Review of Hydrogen as a Fuel for Future Air Transport B. Khandelwal, A. Karakurt, A. Prakash, V. Sethi, Cranfield University, Cranfield, United Kingdom	1530 hrs AIAA-2012-4268 Design and Selection Process for Optimized Heavy Lift Launch Vehicles P. Ritter, J. Lyne, University of Tennessee, Knoxville, Knoxville, TN	1600 hrs AIAA-2012-4269 Mission Applications of the MRS-142 CubeSat High-Impulse Adaptable Monopropellant Propulsion System (CHAMPS) D. Schmuland, C. Carpenter, Aerojet, Redmond, WA			
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202-GTE-24		Combustor Emissions					Hanover F
Chaired by: J. CONVERY, GE Aviation and D. BLUNCK, Air Force Research Laboratory							
1400 hrs AIAA-2012-4270 Computational Modeling of Discrete-Jet Lean-Direct Injectors K. Ajmani, ASRC Aerospace Corporation, Cleveland, OH	1430 hrs AIAA-2012-4271 Experimental Measurements in Reactive and Non-Reactive Turbulent Flows F. Florean, A. Petcu, I. Porumbel, C. Carlanescu, C. Sandu, COMOTI National Research & Development Institute for Gas Turbines, Bucharest, Romania; G. Dumitrascu, "Gheorghe Asachi" Technical University, Iasi, Romania	1500 hrs AIAA-2012-4273 Emissions Prediction for Aircraft Conceptual Design R. Denney, J. Tai, D. Mavis, Georgia Institute of Technology, Atlanta, GA					

Wednesday, 1 August 2012							
203-EP-30	Electromagnetic Propulsion IV						Regency V
Chaired by: B. LONGMIER, University of Wisconsin, Madison							
1400 hrs AIAA-2012-4274 Magnetic Nozzle Plasma Plume: Review of Crucial Physical Phenomena F. Ebersohn, S. Girmaji, Texas A&M University, College Station, TX; J. Shebalin, NASA Johnson Space Center, Houston, TX; D. Staack, Texas A&M University, College Station, TX; B. Longmier, University of Michigan, Ann Arbor, MI; C. Olsen, Ad Astra Rocket Company, Webster, TX	1430 hrs AIAA-2012-4275 Experimental Investigation of the Current Density in the Discharge Plasma of ADD SIMP-LEX M. Lau, S. Manna, G. Herdrich, University of Stuttgart, Stuttgart, Germany; T. Schönherr, K. Komurasaki, University of Tokyo, Kashiwa, Japan	1500 hrs AIAA-2012-4277 Results of Experimental Studies on Thorium Migration in Electric Thrusters D. Codron, D. Erwin, K. Goodfellow, University of Southern California, Los Angeles, CA					

Wednesday, 1 August 2012							
205-EP-32	Pulsed Plasma Thrusters						Regency VI
Chaired by: J. ZIEMER, Jet Propulsion Laboratory, California Institute of Technology							
1400 hrs AIAA-2012-4278 Influence of Propellant in the Discharge Process of PPT T. Schönherr, Y. Abe, K. Okamura, H. Koizumi, Y. Arakawa, University of Tokyo, Bunkyo, Japan; K. Komurasaki, University of Tokyo, Kashiwa, Japan	1430 hrs AIAA-2012-4279 A micro PPT for Nano-satellite applications: Design and experimental results A. Mingo Perez, University of Southampton, Southampton, United Kingdom; M. Coletti, Mars Space, Ltd., Southampton, United Kingdom; S. Gabriel, University of Southampton, Southampton, United Kingdom	1500 hrs AIAA-2012-4280 Numerical Simulation of a Water Propellant Pulsed Plasma Thruster S. Wang, Z. Wu, X. Liu, L. Yang, F. Wang, Y. Cheng, N. Wang, Beijing Institute of Technology, Beijing, China	1530 hrs AIAA-2012-4281 A high-peak-power laser assisted pulsed plasma thruster H. Kobayashi, H. Horisawa, Tokai University, Hiratsuka, Japan; I. Funaki, Japan Aerospace Exploration Agency (JAXA), Sagamihara, Japan				

Wednesday, 1 August 2012							
206-GTE-25	Engine Compatibility, Testing, and CFD						Hanover G
Chaired by: G. WELCH, NASA Glenn Research Center							
1400 hrs AIAA-2012-4282 Demonstration of Sub-system Level Simulations: A Coupled Inlet and Turbofan Stage R. Webster, K. Sreenivas, D. Hyams, B. Hilbert, W. Briley, D. Whitfield, University of Tennessee, Chattanooga, Chattanooga, TN	1430 hrs AIAA-2012-4283 Progress in Boundary Layer Ingesting Embedded Engine Research A. Ferrar, W. O'Brien, Virginia Polytechnic Institute and State University, Blacksburg, VA	1500 hrs AIAA-2012-4284 AEDC/UTSI J85 Turbojet Test Stands R. Baltz, N. Galyen, Aerospace Testing Alliance, Arnold AFB, TN; T. Moeller, University of Tennessee Space Institute, Tullahoma, TN; M. May, Arnold Engineering Development Center, Arnold AFB, TN	1530 hrs AIAA-2012-4285 Vortex Shedding of Various Bluff Bodies in Cross Flow C. Ruscher, J. Dannenhoffer, M. Glauser, Syracuse University, Syracuse, NY; B. Kiel, B. Sekar, Air Force Research Laboratory, Wright-Patterson AFB, OH				

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207-SCP-4	Engineering and Analysis for Propulsion Systems II						Hanover D
Chaired by: C. GATTO, Jet Propulsion Laboratory, California Institute of Technology							
1400 hrs AIAA-2012-4286 Propulsion Analysis of Demeter Microsatellite Fluidic Passivation G. Boudier, French Space Agency (CNES), Toulouse, France	1430 hrs AIAA-2012-4287 Brayton Cycle Conversion for Space Solar Power B. Dessanti, N. Komerath, Georgia Institute of Technology, Atlanta, GA	1500 hrs AIAA-2012-4288 NASA in-Space Propulsion Technologies and Their Infusion Potential D. Anderson, E. Pencil, NASA Glenn Research Center, Cleveland, OH; J. Dankanich, Gray Research, Inc., Cleveland, OH; D. Vento, NASA Glenn Research Center, Cleveland, OH; M. Munk, L. Glaab, NASA Langley Research Center, Hampton, VA; T. Peterson, NASA Glenn Research Center, Cleveland, OH					

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209-LP-25	Tanks - Sloshing						Vinnings
Chaired by: V. AHUJA, Combustion Research & Flow Technology, Inc. and A. LOPEZ, The Boeing Company							
1400 hrs AIAA-2012-4294 Prediction of Liquid Slosh Damping Using a High Resolution CFD Tool H. Yang, CFD Research Corporation, Huntsville, AL	1430 hrs AIAA-2012-4295 Investigation on Pressure Change Induced by Cryogenic Sloshing T. Himeno, Y. Umemura, C. Inoue, T. Watanabe, University of Tokyo, Tokyo, Japan; S. Nonaka, Y. Naruo, Y. Inatani, Japan Aerospace Exploration Agency (JAXA), Sagami-hara, Japan; K. Kinefuchi, K. Okita, Japan Aerospace Exploration Agency (JAXA), Tsukuba, Japan	1500 hrs AIAA-2012-4296 EUCLID Mission: Theoretical Sloshing Model and CFD Comparison M. Lazzarin, HIT09, Padova, Italy; M. Biolo, Asco Pompe, Milan, Italy; A. Bettella, HIT09, Padova, Italy; R. Da Forno, MDA, Belluno, Italy; D. Pavarin, University of Padova, Padova, Italy	1530 hrs AIAA-2012-4297 Design of an Experiment Platform for Acquisition of Liquid Slosh Data aboard the International Space Station S. Chintalapati, D. Kirk, Florida Institute of Technology, Melbourne, FL	1600 hrs AIAA-2012-4298 Two-phase flow modeling combining the CICSAM with the projection method M. Gauer, M. Lambert, K. Hannemann, German Aerospace Center (DLR), Göttingen, Germany	1630 hrs AIAA-2012-4299 Design, Test, and Slosh Analysis of Baffled Spherical Tanks for Slosh Control on a Liquid Oxygen-Methane Lander Test Vehicle H. Hernandez, NASA Johnson Space Center, Houston, TX		

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210-SCP-5	Innovative Propulsion Systems						Hanover E
Chaired by: J. CHENOWETH, CRAFT Tech							
1400 hrs AIAA-2012-4300 Progress in Magnetohydrodynamic and Particle Simulations of Magnetoplasma Sail I. Funaki, Japan Aerospace Exploration Agency (JAXA), Sagami-hara, Japan; H. Nishida, Tokyo University of Agriculture and Technology, Koganei, Japan; Y. Oshio, Graduate University for Advanced Studies, Sagami-hara, Japan; N. Yamamoto, Y. Yamagiwa, Shizuoka University, Hamamatsu, Japan	1430 hrs AIAA-2012-4303 Current Collection Experiment of Bare Electrodynamic Tape Tether by Using Sounding Rocket Y. Yamagiwa, A. Takagi, N. Yoshimura, Shizuoka University, Hamamatsu, Japan; K. Tanaka, T. Abe, Japan Aerospace Exploration Agency (JAXA), Sagami-hara, Japan; H. Sahara, Tokyo Metropolitan University, Hino, Japan; H. Fujii, Kanagawa Institute of Technology, Atsugi, Japan	1500 hrs AIAA-2012-4302 Laser ablation thrusters for atmospheric flight applications K. Hagiwara, H. Horisawa, K. Fukuda, Tokai University, Hiratsuka, Japan					

Wednesday, 1 August 2012							
211-HR-9	Novel Motor Operating Configurations II						Piedmont
Chaired by: J. STEVENS, Space Propulsion Group, Inc. and B. EVANS, Space Propulsion Group, Inc.							
1400 hrs AIAA-2012-4304 The "Vortex Reloaded" project: experimental investigation on fully tangential vortex injection in N2O - paraffin hybrid motors N. Bellomo, F. Barato, M. Faenza, A. Bettella, D. Pavarin, University of Padova, Padova, Italy	1430 hrs AIAA-2012-4305 Catalytic Decomposition of Nitrous Oxide Monopropellant for Hybrid Motor Re-Ignition M. Wilson, S. Eilers, S. Whitmore, Utah State University, Logan, UT						
Wednesday, 1 August 2012							
212-JPC-13 1400 - 1700 hrs	NSTC Aeronautics S&T Subcommittee Public Outreach						Centennial Ballroom I
The National Science and Technology Council's (NSTC) Aeronautics Science and Technology Subcommittee will unveil and discuss the results of its recent assessment of progress under the National Aeronautics Research and Development Plan. In addition, the subcommittee will engage public stakeholders on key issues in aeronautics research and development and future subcommittee activities.							
Wednesday, 1 August 2012							
213-NFF-8	Nuclear Thermal Propulsion IV: Testing and Programmatics						University
Chaired by: S. BHATTACHARYYA, RENMAR Enterprises, Inc. and T. HARRISON, Oak Ridge National Laboratory							
1400 hrs AIAA-2012-4307 Nuclear Thermal Rocket Element Environmental Simulator (NTREES) Upgrade Activities W. Emrich, NASA Marshall Space Flight Center, Huntsville, AL	1430 hrs AIAA-2012-4308 Affordable Development of a Nuclear Cryogenic Propulsion Stage M. Houts, NASA Marshall Space Flight Center, Huntsville, AL; S. Borowski, NASA Glenn Research Center, Cleveland, OH; J. George, NASA Johnson Space Center, Houston, TX; T. Kim, W. Emrich, R. Hickman, J. Broadway, H. Gerrish, R. Adams, NASA Marshall Space Flight Center, Huntsville, AL						
Wednesday, 1 August 2012							
214-HR-8	Paraffin Fuels II						Inman
Chaired by: J. MAJDALANI, University of Tennessee Space Institute and D. MYRE, U.S. Naval Academy							
1400 hrs AIAA-2012-4309 Evaluation of polyurethane binder additivated with paraffin and tested with a swirl injector S. Gomes, Aeronautical Institute of Technology, São José dos Campos, Brazil; L. Rocco, Flowtest Aerospace Research, São Paulo, Brazil; J. Rocco, K. Iha, Aeronautical Institute of Technology, São José dos Campos, Brazil	1430 hrs AIAA-2012-4310 Design and Development of a Thrust Vector Controlled Paraffin/Nytrox Hybrid Rocket L. Simurda, A. Boiron, K. Hornstein, K. Stober, Stanford University, Stanford, CA	1500 hrs AIAA-2012-4311 Nammo hybrid rocket propulsion TRL improvement program J. Ronningen, J. Husdal, M. Berger, R. Vesterås, G. Raudsandmoen, Nammo Raufoss, Raufoss, Norway	1530 hrs AIAA-2012-4312 The Phoenix Hybrid Sounding Rocket Program: A Progress Report 2012 M. Brooks, J. Pitot, B. Genevieve, S. Chowdhury, L. Roberts, University of KwaZulu-Natal, Durban, South Africa				

Wednesday, 1 August 2012							
215-EP-34	Hall Thruster Physics V						Cortland
Chaired by: C. KOPPEL, KopooS Consulting Ind and R. SHASTRY							
1400 hrs AIAA-2012-4313 One Dimensional Hybrid-Vlasov Simulation of a Hall Thruster K. Hara, I. Boyd, University of Michigan, Ann Arbor, Ann Arbor, MI; V. Kolobov, CFD Research Corporation, Huntsville, AL	1430 hrs AIAA-2012-4314 Modeling the Effects of Discharge Voltage on Hall Thruster Performance A. Yilmaz, Istanbul Kultur University, Istanbul, Turkey	1500 hrs AIAA-2012-4315 Characterization of CAMILA Hall Thruster Discharge using Electrical Probe Measurements I. Kronhaus, A. Kapulkin, V. Balabanov, M. Rubanovich, M. Guelman, B. Natan, Technion-Israel Institute of Technology, Haifa, Israel	1530 hrs AIAA-2012-4316 Investigation of Singly Ionized Iodine Spectroscopy in Support of Electrostatic Propulsion Diagnostics Development W. Hargus, J. Lubkeman, K. Remy, A. Gonzales, Air Force Research Laboratory, Edwards AFB, CA				

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217-SR-12	Solid Rocket Motor Propellant Development						Techwood
Chaired by: J. HANSEN, United Launch Alliance and W. RYAN, United Launch Alliance							
1400 hrs AIAA-2012-4319 Investigation of the Effect of Gelling Agents on Dicyclopentadiene's Rheological Characteristics for Improvement of Composite Solid Propellant Quality P. O'Neil, S. Heister, Purdue University, West Lafayette, IN	1430 hrs AIAA-2012-4320 Evaluation of Ballistic and Mechanical Properties of Polymerized-Dicyclopentadiene-Based Composite Solid Propellants P. O'Neil, S. Heister, Purdue University, West Lafayette, IN	1500 hrs AIAA-2012-4321 Experimental Evaluation of Processing and Aging Characteristics of Polymerized Dicyclopentadiene for Use as a Composite Solid Propellant Binder P. O'Neil, S. Heister, Purdue University, West Lafayette, IN	1530 hrs AIAA-2012-4323 Research on NEPE Solid Rocket Motor Grain Storage Damage Z. Ya, Beijing High Technology Research Institute, Beijing, China				

Wednesday, 1 August 2012							
218-PC-15	Spray Combustion II						Hanover B
Chaired by: M. ANAND, Rolls-Royce Corporation							
1400 hrs AIAA-2012-4324 Simulation of Reacting Spray in a Multi-Point Lean Direct Injection Combustor D. Dewanji, A. Gangoli Rao, M. Pourquie, J. van Buijtenen, Delft University of Technology, Delft, The Netherlands	1430 hrs AIAA-2012-4325 Critical Ignition Criteria for Monomethylhydrazine and Red Fuming Nitric Acid in an Impinging Jet Apparatus J. Dennis, T. Pourpoint, S. Son, Purdue University, West Lafayette, IN	1500 hrs AIAA-2012-4326 Experimental Investigation of Atomization and Combustion of Organic Gel Propellant S. Feng, H. Bo, H. He, L. Su, Z. Hou, W. Nie, Academy of Equipment Command & Technology, Beijing, China	1530 hrs AIAA-2012-4327 Comparison of CFD Predictions and Experimental Measurements of Liquid Jet Injection into a Vitiated Crossflow C. Brown, U. Mondragon, V. McDonell, Energy Research Consultants, Laguna Hills, CA; B. Kiel, Air Force Research Laboratory, Wright-Patterson AFB, OH	1600 hrs AIAA-2012-4328 A Thickness-based Refinement Method for Multi-scale Two-phase Flow Simulation X. Chen, V. Yang, Georgia Institute of Technology, Atlanta, GA			

Wednesday, 1 August 2012							
219-LP-26	In-Space and Upper Stage Propulsion Systems						Roswell
Chaired by: S. MILLER, Aerojet and A. FRANKEL, AMPAC In-Space Propulsion							
1400 hrs AIAA-2012-4329 The SDO Propulsion Subsystem W. Willis, NASA Goddard Space Flight Center, Greenbelt, MD	1430 hrs AIAA-2012-4330 LRO Propulsion System Design & On-Orbit Operations M. Fiebig, C. Zakrzewski, NASA Goddard Space Flight Center, Greenbelt, MD	1500 hrs AIAA-2012-4331 LRO Propulsion System Testing M. Fiebig, C. Zakrzewski, NASA Goddard Space Flight Center, Greenbelt, MD	1530 hrs AIAA-2012-4332 Design, Fabrication, and Testing of the Radiation Belt Storm Probes Propulsion Systems S. Bushman, Johns Hopkins University Applied Physics Laboratory, Laurel, MD	1600 hrs AIAA-2012-4333 Flight Performance of the MESSENGER Propulsion System from Launch to Orbit Insertion M. Wilson, C. Engelbrecht, Johns Hopkins University Applied Physics Laboratory, Laurel, MD; M. Trela, Skybox Imaging, Mountain View, CA	1630 hrs AIAA-2012-4334 Development and Testing Status of the Vinci Thrust Chamber D. Haeseler, F. Haidinger, L. Brummer, J. Haeberle, Astrium, Munich, Germany		

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