Program Schedule

AIAA Propulsion and Energy Forum and Exposition

July 25 - 27, 2016

The Program Report was last updated July 20, 2016 at 01:01 AM EDT. To view the most recent meeting schedule online, visit https://aiaa-mpe16.abstractcentral.com/planner.jsp

Monday, July 25, 2016

Time	Session or Event Info
8:00 AM-9:00 AM, Ballroom A-D, **PLNRY-01. INNOVATE OR DIE! (Note: Dying is easier)** , Plenary, **Forum Event**	
8:45 AM-9:30 AM, Exhibit Hall C, **NW-01. Networking Coffee Break**, Networking	
9:30 AM-12:00 PM, 255 F, **ABPSI-01. Nozzles and Exhaust**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Chen Chuck, chen.chuck@boeing.com, Boeing Commercial Airplanes; Co-Chair: Darius Sanders, dr.darius.sanders@gmail.com, Air Force Reseach Laboratory	
9:30-10:00 AM	**AIAA-2016-4500. Reducing residue in aluminized fuel-rich propellant for Ramjets.** N. Rathi; P. Ramakrishna
10:00-10:30 AM	**AIAA-2016-4501. Prediction of NO_x Emissions Using a Stirred Reactor Modelling Approach for an Aero-Engine with RQL Combustor** A. Prakash
10:30-11:00 AM	**AIAA-2016-4502. Hot Streak Characterization in Serpentine Exhaust Nozzles** D.S. Crowe; C.L. Martin
11:00-11:30 AM	**AIAA-2016-4503. Propulsion AerodynamicWorkshop II, Summary of Participant Results for a Dual Separate Flow Reference Nozzle, Including Some Experimental Results** R.L. Thornock
11:30-12:00 PM	**AIAA-2016-4504. Open and Closed-Loop Responses of a Dual-Throat Nozzle during Fluidic Thrust Vectoring** M. Ferlauto; R. Marsilio
9:30 AM-12:00 PM, 255 E, **ADP-01. Additive Manufacturing for Propulsion Systems**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Elizabeth Jens, bethjens@gmail.com, Stanford Univ; Co-Chair: Corinne Gatto, Corinne.E.Gatto@jpl.nasa.gov, Jet Propulsion Laboratory	
9:30-10:00 AM	**AIAA-2016-4505. Thin film deposition using rarefied gas jet** S. Pradhan
10:00-10:30 AM	**AIAA-2016-4506. Use of Additive Manufacturing to Develop Advanced Hybrid Rocket Designs** J.J. Catina; B. Nellis; D. Grigsby; K. Castonguay
10:30-11:00 AM	**AIAA-2016-4507. Additive Manufacturing of Small Scale Rocket Grain Cartridges with Uniformly Distributed Aluminum Particles** T.S. Elliott; B. Jenkins; R. Zeineldin; J. Johnson; M. Simons; J. Godfey; T. Mabry
11:00-11:30 AM	**AIAA-2016-4508. Design of an Additive Manufactured Compressor Vane with Multi-Hole Pressure Probes for the Application in a Twin-Spool Turbofan Engine** F. Kern; S. Bindl; M. Strasser; R. Niehuis

11:30-12:00 PM	**AIAA-2016-4509. Additively Manufactured Low NOx Multipoint Lean Direct Injection Fuel Atomizer Concepts** G. Zink; S. Pack; J. Ryon; J. Short
9:30 AM-12:00 PM, 150 G, **AEC-01. Advanced Engine Control & Intelligent Systems I**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Alireza Behbahani, al.behbahani@wpafb.af.mil, AFRL/RQT; Co-Chair: Richard Millar, r.c.millar@verizon.net, Naval Postgraduate School	
9:30-10:00 AM	**AIAA-2016-4510. G2 ISHM Autonomous Control System for Cryogenics Operation** J.A. Toro Medina
10:00-10:30 AM	**AIAA-2016-4511. Heat Transfer Analysis for Servo Valve in Hydraulic Servo Actuator of Aero Engine Vectoring Nozzle** Y. Ding; Y. Liu; Y. Luo; L. Du
10:30-11:00 AM	**AIAA-2016-4512. Technical Opportunities for High Temperature Smart P3 Sensors and Electronics for Distributed Engine Control** O.A. Watts; L. Frediani; M.W. Usrey
9:30 AM-12:00 PM, 251 C, **APC-01. Advanced In-Space Concepts**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Co-Chair: Aloysius Reisz, areisz@reiszeng.com, Reisz Engineers; Chair: John Robinson, jwelshr@gmail.com, Retired f/Boeing	
9:30-10:00 AM	**AIAA-2016-4513. Roadmap for Long Term Sustainable Space Exploration and Habitation Alternate Basing Concepts** J.W. Robinson; R.E. Rhodes; E.M. Henderson
10:00-10:30 AM	**Abstract Withdrawn**
10:30-11:00 AM	**AIAA-2016-4515. Proposed Lunar Mission to Commemorate Apollo 11 Moon Landing** D.G. Thorpe; E.M. Henderson
11:00-11:30 AM	**AIAA-2016-4516. Space Tug Propellant Options** J.W. Robinson
9:30 AM-12:00 PM, 150 DE, **APS-01. Space Power Generation, Processing and Performance**, Technical Paper, **14th International Energy Conversion Engineering Conference**, Co-Chair: Mukund Patel, patelm@usmma.edu, US Merchant Marine Academy; Co-Chair: Andrew Baisden, carson.baisden@jhuapl.edu, Johns Hopkins University Applied Physics Laboratory	
9:30-10:00 AM	**AIAA-2016-4517. The Van Allan Probes Power System Mission Performance** M.H. Butler
10:00-10:30 AM	**AIAA-2016-4518. Stability Analysis of Spacecraft Power Systems and Power Processing Units** J.R. Lee
10:30-11:00 AM	**AIAA-2016-4519. Status of the Development of Flight Power Processing Units for the NASA's Evolutionary Xenon Thruster - Commercial (NEXT-C) Project** M.V. Aulisio; J.J. Bontempo; L.R. Pinero; A.G. Birchenough; T. Hertel; B. White; T. Hickman

11:00-11:30 AM	**AIAA-2016-4520. Solar Array Design For The Mars InSight Lander Mission** G.Q. Lam; S. Billets; T. Norick; R. Warwick
11:30-12:00 PM	**AIAA-2016-4521. Planetary Object Geophysical Observer (POGO) and Its Unique Power System** E. Adams; E. Hohlfeld; J. Neville; C. Vigil Lopez; B.R. Wilhelm
9:30 AM-12:00 PM, 151 DE, **ECD-01. Magnetohydrodynamic, Brayton, and CO2 Cycle Systems**, Technical Paper, **14th International Energy Conversion Engineering Conference**, Chair: Michael Piszczor, Michael.F.Piszczor@nasa.gov, NASA Glenn Research Center; Co-Chair: Steven Geng, Steven.M.Geng@nasa.gov, NASA Glenn Research Center	
9:30-10:00 AM	**AIAA-2016-4522. Fundamental Studies of Radio-Frequency Preionization for Frozen Inert Gas Plasma Magnetohydrodynamic Electrical Power Generation** M. Tanaka; Y. Hitotsubashi; Y. Okuno
10:00-10:30 AM	**AIAA-2016-4523. Numerical Simulation of Frozen Inert Gas Plasma MHD Generator with Collisional-Radiative Model** R. Takahashi; F. Takayasu; Y. Okuno
10:30-11:00 AM	**AIAA-2016-4524. Numerical Analysis of Non-equilibrium Disk MHD Generator with Swirl Vanes** D. Ichinokiyama; F. Takayasu
11:00-11:30 AM	**AIAA-2016-4525. Sensitivity Study of a VHTR Powered Brayton Cycle as a Topping Unit for a Steam Cycle** W. Freitas; D. Wilson
11:30-12:00 PM	**AIAA-2016-4526. Two Types of Analytical Methods for a Centrifugal Compressor Impeller for Supercritical CO $_2$ Power Cycles** L. Blanchette; A. Khadse; M. Mohagheghi; J.S. Kapat
9:30 AM-12:00 PM, 151 G, **EDES-01. Waste Heat Recovery and Submerged Offshore Nuclear Power Stations: Technology, Opportunities and Challenges**, Panel, **14th International Energy Conversion Engineering Conference (non-paper sessions)**, Chair: Ashwani Gupta, akgupta@umd.edu, University of Maryland; Co-Chair: Scott Duncan, sduncan@asdl.gatech.edu, Aerospace Systems Design Laboratory, Georgia Tech	
9:30 AM-12:00 PM, 253 AB, **EDU-01. Propulsion Education I**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Eugene Fleeman, genefleeman@mindspring.com; Co-Chair: Matthew Hitt, mah0004@uah.edu, The University of Alabama in Huntsville	
9:30-10:00 AM	**AIAA-2016-4527. Practical Techniques for Modeling Gas Turbine Engine Performance** J.W. Chapman; T.M. Lavelle; J.S. Litt
10:00-10:30 AM	**AIAA-2016-4528. Teaching Risk Analysis for Use in an Aircraft Gas Turbine Engine Capstone Design Course** A.R. Byerley; C. Cooper; D. O'Dowd
10:30-11:00 AM	**AIAA-2016-4529. The Gas Dynamic Brayton Cycle Power Conversion Test Bed as an Educational Device for Workforce Development** J.R. Herdy

11:00-11:30 AM	**AIAA-2016-4530. Overview of Vortex Injected Hybrid Rocket Engines-Regression Rate Modeling** B.J. Roy; R.A. Frederick
11:30-12:00 PM	**AIAA-2016-4531. Development of a Vortex Hybrid Upper Stage Engine** A.K. Parlett
9:30 AM-12:00 PM, 250 A, **EP-01. Hall Thruster Physics & Modeling I**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Hani Kamhawi, hani.kamhawi-1@nasa.gov, NASA Glenn Research Center; Co-Chair: Marlene Patino, mipatino@ucla.edu, University of California, Los Angeles	
9:30-10:00 AM	**AIAA-2016-4532. Measurements and theory of driven breathing oscillations in a Hall effect thruster** K. Hara; S. Keller; Y. Raitses
10:00-10:30 AM	**AIAA-2016-4533. PRINCE: A Software Tool for Characterizing Waves and Instabilities in Plasma Thrusters** S. Rojas Mata; E. Choueiri; B. Jorns; R. Spektor
10:30-11:00 AM	**AIAA-2016-4534. Growth and Saturation of Ion Acoustic Waves in Hall Thrusters** I. Katz; A. Lopez Ortega; B. Jorns; I.G. Mikellides
11:00-11:30 AM	**AIAA-2016-4535. Hall Thruster Thermal Modeling and Test Data Correlation** J.L. Myers; H. Kamhawi; J. Yim; L. Clayman
9:30 AM-12:00 PM, 250 B, **EP-02. Lorentz Force Accelerators**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Michael Keidar, keidar@gwu.edu, The George Washington University; Co-Chair: Nelson Yanes, nelsonyanes135@gmail.com	
9:30-10:00 AM	**AIAA-2016-4536. Liquid Metal Mass Flow Measurement Using a JxB Pump for a Lithium Lorentz Force Accelerator** M.A. Hepler; W. Coogan; B. Ilardi; E. Choueiri
10:00-10:30 AM	**AIAA-2016-4537. Measurement of the Applied-Field Component of the Thrust of a Lithium Lorentz Force Accelerator** W. Coogan; M.A. Hepler; E. Choueiri
10:30-11:00 AM	**AIAA-2016-4538. Parametric Optimization of the Fusion Driven Rocket Liner Compression Driver** A. Shimazu; A.P. Pancotti; B. Cornella; J.T. Slough
9:30 AM-12:00 PM, 250 C, **EP-03. EP Flight Programs & Missions**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Taylor Swanson, taylorswanson@gmail.com, AEDC; Co-Chair: Benjamin Jorns, Benjamin.A.Jorns@jpl.nasa.gov,	
9:30-10:00 AM	**AIAA-2016-4539. In-Flight Operation of the Dawn Ion Propulsion System Through Operations in the LAMO Orbit at Ceres** C.E. Garner; M.D. Rayman
10:00-10:30 AM	**AIAA-2016-4540. The Iodine Satellite (iSat) Project Development through Critical Design Review (CDR)** J. Dankanich; H. Kamhawi; M.W. Selby; L. Byrne

10:30-11:00 AM	**AIAA-2016-4541. Psyche: Journey to a Metal World** D.Y. Oh; D.M. Goebel; L. Elkins-Tanton; C. Polanskey; P. Lord; S. Tilley; J.S. Snyder; G. Carr; S. Collins; G. Lantoine; D. Landau
11:00-11:30 AM	**AIAA-2016-4542. Adaptability of the SSL SPT-140 Subsystem for use on a NASA Discovery Class Missions: Psyche** J.J. Delgado; P. Lord; L.C. Rotlisberger
11:30-12:00 PM	**AIAA-2016-4543. Performance and Plume Characterization of the PPS 1350-G Hall Thruster** K.D. Diamant; T. Lee; R. Liang; J. Noland; V. Vial; N. Cornu
9:30 AM-12:00 PM, 250 D, **EP-04. Ion Thruster Development**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Richard Wirz, wirz@ucla.edu, UCLA; Co-Chair: John Foster, jefoster@umich.edu, University of Michigan	
9:30-10:00 AM	**AIAA-2016-4544. Maturation of Iodine Fueled BIT-3 RF Ion Thruster and RF Neutralizer** M. Tsay; J. Frongillo; J. Zwahlen
10:00-10:30 AM	**AIAA-2016-4545. Design of Miniature Ring-Cusp Ion Thrusters via Analysis of Discharge EEDF and Plasma Parameter Mapping** B. Dankongkakul; R.E. Wirz
9:30 AM-12:00 PM, 250 E, **EP-05. Electrospray I**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Benjamin Prince, benjamin.prince@kirtland.af.mil, Air Force Research Laboratory; Co-Chair: Steven Berg, spbryf@mail.mst.edu, Missouri University of Science and Technology	
9:30-10:00 AM	**AIAA-2016-4547. Silicon Emitter Needle and Array Design for Indium Electrospray Arrays for Spacecraft Propulsion** C. Marrese-Reading; J.R. Anderson
10:00-10:30 AM	**AIAA-2016-4548. Simulation and Imaging of Ferrofluid Meniscus Deformation and Spray Onset under Electric and Magnetic Stresse** B. Jackson; L.B. King
10:30-11:00 AM	**AIAA-2016-4549. Measuring the Effects of Magnetic Surface Stress During Electrospray of an Ionic Liquid Ferrofluid** K.J. Terhune; L.B. King
11:00-11:30 AM	**AIAA-2016-4550. Species Measurements in the Beam of an Ionic Liquid Ferrofluid Capillary Electrospray Source** K.J. Terhune; L.B. King; B.D. Prince; B.S. Hawkett
11:30-12:00 PM	**AIAA-2016-4551. Measurement of the Fragmentation Rates of Solvated Ions in Ion Electrospray Thrusters** C. Miller; P.C. Lozano
9:30 AM-12:00 PM, Ballroom F, **F360-01. NRC Low-Carbon Aviation Report and Recommendations**, Forum 360, **Forum 360**	

9:30 AM-12:00 PM, 250 F, **GTE-01. Turbines I**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Guillermo Paniagua, gpaniagua@me.com, Purdue University	
9:30-10:00 AM	**AIAA-2016-4552. Influence of Laminar-Turbulent Transition on 3D Flow Pattern in Subsonic Turbine Cascade** S. Yershov; V. Yakovlev
10:00-10:30 AM	**AIAA-2016-4553. Secondary Flows and Losses in a Highly Loaded Low Aspect Ratio Transonic Axial Flow Turbine Stage** A. Kaliyaperumal; M. Govardhan
10:30-11:00 AM	**AIAA-2016-4554. Secondary Loss Production Mechanisms in a Low Pressure Turbine Cascade** P.S. Bear; M. Wolff; A. Gross; C. Marks; R. Sondergaard
11:00-11:30 AM	**AIAA-2016-4555. Probabilistic CFD-Analysis of Regeneration-Induced Geometry Variances in a Low-Pressure Turbine** B. Ernst; J.R. Seume; F. Herbst
11:30-12:00 PM	**AIAA-2016-4556. Integration of a Turbine Stage Optimizer into Engine Simulation Utilizing Numerical Propulsion System Simulation** C.R. Thorn; R.J. Hartfield
9:30 AM-12:00 PM, 251 A, **GTE-02. Air-Breathing Combustors I**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Mohamed Nalim, mnalim@iupui.edu, Indiana University Purdue University Indianapolis	
9:30-10:00 AM	**AIAA-2016-4557. Assessment of the Boundary Layer within a Rotating Detonation Combustor** J. Braun; J. Sousa; G. Paniagua
10:00-10:30 AM	**AIAA-2016-4558. Computational Analysis of Flame Stabilization Using Strong Swirl for Afterburner Applications** K.M. Parammasivam; D. D; S. Gunasekar; A. Basidh
10:30-11:00 AM	**AIAA-2016-4559. Numerical Evaluation of an Ejector-Enhanced Resonant Pulse Combustor with a Poppet Inlet Valve and a Converging Exhaust Nozzle** S. Yungster; D.E. Paxson; H. Perkins
11:00-11:30 AM	**AIAA-2016-4560. Optical Diagnostics in a High-g Combustion Cavity** A. Cottle; N.A. Gilbert; M.D. Polanka; L.P. Goss; C.Z. Goss
11:30-12:00 PM	**AIAA-2016-4561. A CFD Investigation of Multiple Burner Ignition and Flame Propagation with Detailed Chemistry and Automatic Meshing** G. Kumar; S.A. Drennan
9:30 AM-12:00 PM, 255 B, **HR-01. Combustion Dynamics and Mixing Efficiencies I**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Scott Claflin, scott.claflin@rocket.com, Aerojet Rocketdyne; Co-Chair: Dario Pastrone, dario.pastrone@polito.it, Politecnico di Torino	
9:30-10:00 AM	**AIAA-2016-4562. Vortex Combustion in a Lab-Scale Hybrid Rocket Motor** C. Paravan; J. Glowacki; S. Carlotti; F. Maggi; L. Galfetti

10:00-10:30 AM	**AIAA-2016-4563. Thermal Cycling for Development of Hybrid Fuel for a Notional Mars Ascent Vehicle** E. Farias; M. Redmond; A.C. Karp; R. Shotwell; F.S. Mechentel; G.T. Story
10:30-11:00 AM	**AIAA-2016-4564. Flame Emission Spectroscopy in a Paraffin-Based Hybrid Rocket** K.J. Stober; P. Narsai; K. Venkataraman; A. Thomas; B.J. Cantwell
11:00-11:30 AM	**AIAA-2016-4565. Bipolar Combustion Response Model for Hybrid Rocket Internal Ballistic Simulation** D.R. Greatrix
9:30 AM-12:00 PM, 254 B, **HSABP-01. Special/Invited Panel on HSABP: Special Session: Persistence Issues In CFD of Hypersonic Air-Breathing Propulsion**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Faure Malo-Molina, faurejoel@gmail.com, Raytheon Missile Systems; Co-Chair: Stephen Beckel, sabeckel@gmail.com	
9:30-11:00 AM	**Panel Discussion**
11:00-11:30 AM	**AIAA-2016-4566. Reacting Hybrid Reynolds-Averaged Navier-Stokes/Large-Eddy Simulation of a Supersonic Cavity Flameholder** E.A. Hassan; D.M. Peterson; M.A. Hagenmaier
11:30-12:00 PM	**AIAA-2016-4567. Scaling for Flamelet Calculation of Turbulent Supersonic Combustion** F. Ladeinde; Z. Lou
9:30 AM-12:00 PM, 255 A, **HSABP-02. Computational Analysis of Supersonic Combustion Flow Paths, Components, and Processes**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Co-Chair: Claudio Bruno, sonic.grafica1@gmail.com, United Technologies Research Center; Chair: Robert Moehlenkamp, robert.moehlenkamp@rocket.com, Aerojet Rocketdyne	
9:30-10:00 AM	**AIAA-2016-4568. Performance comparisons, RAM and SCRAM** J.K. Tegner
10:00-10:30 AM	**AIAA-2016-4569. A Quasi-One-Dimensional Analysis of Hydrogen-Fueled Scramjet Combustors** R. Seleznev; S. Surzhikov
10:30-11:00 AM	**AIAA-2016-4570. Quasi-One-Dimensional Analysis of Supersonic Combustor Performance** Y. Zhao; Q. Shen; F. Guan
11:00-11:30 AM	**AIAA-2016-4571. A computational and experimental study of injection structure effect on H_2-air rotating detonation engine** C. Yang; H. Ma; X. Wu; X. Xu
9:30 AM-12:00 PM, 254 C, **HSABP-03. Design and Optimization of High Speed Propulsion Flow Paths**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Roy Hartfield, rjh@eng.auburn.edu, Auburn University; Co-Chair: Daniel Paxson, daniel.e.paxson@nasa.gov, NASA Glenn Research Center	
9:30-10:00 AM	**AIAA-2016-4572. Investigation of a variable geometry 2D inlet for combined cycle engine.** X. Liu; L. Shi; P. Liu; G. He

10:00-10:30 AM	**AIAA-2016-4573. Analysis of Mode Transition Performance for a Tandem TBCC Engine** M. Zhang; Z. Wang; Z. Liu; X. Zhang
10:30-11:00 AM	**AIAA-2016-4574. Analyzing the flow pattern of inward turning inlet combined with variable-geometry** Z. Fengyuan; G. Huang; H. Huihui; C. Xia
11:00-11:30 AM	**AIAA-2016-4575. Research on a Novel Internal waverider TBCC Inlet for Ramjet Mode** H. Huihui; G. Huang; Z. Fengyuan; C. Xia
9:30 AM-12:00 PM, 251 D, **LP-01. Green Propellants I,** Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: Matthew Deans, mcd18@cwru.edu, NASA Glenn Research Ctr; Co-Chair: Jeff Moore, jmoore5@moog.com	
9:30-10:00 AM	**AIAA-2016-4576. Green Propellant Loading Demonstration at U.S. Range** H. Mulkey; J.T. Miller; C. Bacha
10:00-10:30 AM	**AIAA-2016-4577. AF-M315E Propulsion System Advances and Improvements** R. Masse; M. Allen; R. Spores; E.A. Driscoll
10:30-11:00 AM	**AIAA-2016-4578. Decomposition of a Double Salt Ionic Liquid Monopropellant on Heated Metallic Surfaces** S.P. Berg; J. Rovey
11:00-11:30 AM	**AIAA-2016-4579. Linear Burn Rates of Monopropellants for Multi-Mode Micropropulsion** A. Mundahl; S.P. Berg; J. Rovey
9:30 AM-12:00 PM, 251 E, **LP-02. Combustors I,** Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: David Lineberry, linebed@uah.edu, UAH Propusion Research Center; Co-Chair: Matthieu Masquelet, matthieu.masquelet@gmail.com, GE Global Research Center	
9:30-10:00 AM	**AIAA-2016-4580. Exact Euler Solution of the Beltramian and Trkalian Bidirectional Vortex in a Cylindrical Annulus** T.A. Barber; J. Majdalani
10:00-10:30 AM	**AIAA-2016-4581. Effect of Injector Variation on the Bidirectional Vortex** B.A. Maicke; G. Talamantes
10:30-11:00 AM	**AIAA-2016-4582. Experimental Investigation of Continuous Detonation Rocket Engines for In-Space Propulsion** R.D. Smith; S. Stanley
11:00-11:30 AM	**AIAA-2016-4583. Validation of Damage Parameter Based Finite Element Fatigue Life Analysis Results to Combustion Chamber Type TMF Panel Test Results** G. Thiede; J.R. Riccius; S. Reese
9:30 AM-12:00 PM, 251 F, **LP-03. Propellant Storage & Transfer I,** Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: Jason Molinsky, jason.molinsky@orbitalatk.com, Orbital ATK; Co-Chair: Michael Meyer, michael.l.meyer@nasa.gov, NASA Glenn Research Center	

9:30-10:00 AM	**AIAA-2016-4584. Experimental, Numerical and Analytical Study of Cyrogenic Slosh Dynamics in a Spherical Tank** J.M. Storey; J. Poothokaran; D.R. Kirk; H. Gutierrez; M. de Natris; B. Marsell; P.A. Schallhorn
10:00-10:30 AM	**AIAA-2016-4585. New CFD Method for Simulation of Slosh & Microgravity Fluid Dynamics** R.E. Manning; I. Ballinger; M. Dowdy
10:30-11:00 AM	**AIAA-2016-4586. Coupling sloshing, GNC and rigid body motions during ballistic flight phases** P. Behruzi; F. De Rose; F. Cirillo; M. Konopka
11:00-11:30 AM	**AIAA-2016-4587. Validation of High-Resolution CFD Method for Slosh Damping Extraction of Baffled Tanks** H.Q. Yang; J. West
11:30-12:00 PM	**AIAA-2016-4588. Numerical calculation and reduced gravity experiment for dynamic wetting behavior in liquid container** R. Imai
9:30 AM-12:00 PM, 255 C, **PC-01. Combustion Dynamics I**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: William Anderson, wanderso@purdue.edu, Purdue University	
9:30-10:00 AM	**AIAA-2016-4589. Experimental Combustion Dynamics Behavior Of A Multi-Element Lean Direct Injection (LDI) Gas Turbine Combustor** W.A. Acosta; C. Chang
10:00-10:30 AM	**AIAA-2016-4590. Computation of Combustion Noise from a Premixed and Pressurized Propane Flame Using Statistical Noise Modeling** W.C. Ullrich; C. Hirsch; T. Sattelmayer
10:30-11:00 AM	**AIAA-2016-4591. Assessing Computational Fluid Dynamics Turbulence Models for Rocket Exhaust Plume Simulation** D. Watts
11:00-11:30 AM	**AIAA-2016-4592. A structural variation of the methane-air premixed flame affected by an ultrasonic standing wave** J. Kim; M. Kim; S. Bae; D. Bae; H. Seo
9:30 AM-12:00 PM, 255 D, **PC-02. Propellant Development - Solid Fuel**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Thong Nguyen, thong.nguyen@rocket.com, Aerojet Rocketdyne; Co-Chair: Christian Paravan, christian.paravan@polimi.it, Politecnico di Milano	
9:30-10:00 AM	**AIAA-2016-4593. Measurements of Dielectric Properties of Condensed Phase Aluminized Composite Propellants** S.J. Barkley; K. Zhu; M. Ballestero; J. Michael; T.R. Sippel
10:00-10:30 AM	**AIAA-2016-4594. Modern Scanning Electron Microscopy in the Study of Solid Propellant Combustion: Surface structure and Elemental Identification Via EDS** G.R. Morrow; A.R. Demko; E.L. Petersen
10:30-11:00 AM	**AIAA-2016-4595. Pyrotechnic Dispersion and Ignition of Boron Particles in Gels** Y. Solomon; D. Grinstein; B. Natan

11:00-11:30 AM	**AIAA-2016-4596. Novel Activated Metal Powders for Improved Hybrid Fuels and Green Solid Propellants** S. Dossi; C. Paravan; F. Maggi; M. Di Lorenzo; J. Ardalic; L. Galfetti
11:30-12:00 PM	**AIAA-2016-4597. Numerical Method to Estimate Thermal Conductivity of a Model Composite Propellant** G. Rajoriya; C. Vijay; P. Ramakrishna
9:30 AM-12:00 PM, 254 A, **SR-01. Solid Rocket Grain Design and Ballistics** , Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: Michel Berdoyes, michel.berdoyes@herakles.com, Herakles; Co-Chair: Scott McHenry, scott.mchenry@orbitalatk.com, OrbitalATK	
9:30-10:00 AM	**AIAA-2016-4598. 3D Flame Spread and Starting Transient in Dual-thrust Solid Propellant Rocket Motors** S. Ajith; C. Nichith; S. Vignesh; S. Mani; T. Ramesh kumar; V. Sanal Kumar
10:00-10:30 AM	**AIAA-2016-4599. Burning Rate and Temperature Measurements of HTPB/AP/Al Propellants at Standard Rocket Motor Tests** R.P. de Araujo; P.T. Lacava; L.N. de Almeida; F.A. Cunha
10:30-11:00 AM	**Abstract Withdrawn**
9:30 AM-12:00 PM, 151 AB, **TM-01. Thermal System Applications and Unique Environments I,** Technical Paper, **14th International Energy Conversion Engineering Conference,** Chair: Michael Choi, Michael.K.Choi@nasa.gov, NASA-Goddard Space Flight Center; Co-Chair: Calin Tarau, calin.tarau@1-act.com, Advanced Cooling Technologies	
9:30-10:00 AM	**AIAA-2016-4601. Using Paraffin PCM to Make Optical Communication Type of Payloads Thermally Self-Sufficient for Operation in Orion Crew Module** M.K. Choi
10:00-10:30 AM	**AIAA-2016-4602. Novel Multiphase Change Materials for Energy Storage Application in Buildings** J. Darkwa; W. Su
10:30-11:00 AM	**AIAA-2016-4603. Alkali Metal Heat Pipes for Kilopower** C. Tarau; W.G. Anderson; D. Beard
11:00-11:30 AM	**AIAA-2016-4604. Computational Investigation of Impingement Cooling for Regeneratively Cooled Rocket Nozzles** B. De Angelo; M.A. Ricklick
11:30-12:00 PM	**AIAA-2016-4605. Heat Pipe Embedded Thermoelectric Generator for Diesel Generator Set Waste Heat Recovery** J. Schmidt; M. Ababneh
1:30 PM-3:00 PM, Ballroom A-D, **PLNRY-02. System Needs in Propulsion and Energy** , Plenary, **Forum Event**	
3:00 PM-3:30 PM, Exhibit Hall C, **NW-02. Networking Coffee Break,** Networking	

3:30 PM-6:00 PM, 255 F, **ABPSI-02. High-Speed Inlets**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: M Hassan, mohammed.hassan@gatech.edu, Georgia Institute of Technology	
3:30-4:00 PM	**AIAA-2016-4606. Optimizing Probe Placement to Determine Inlet Distortion** S.F. Walter; J. Nabity; R.P. Starkey
4:00-4:30 PM	**AIAA-2016-4607. Design of Wave Derived Inlet for High Curvature Fuselage** E.B. Saheby; G. Huang; A. Hays
4:30-5:00 PM	**AIAA-2016-4608. Effects of Ridge Configuration on the Performance of Integrated inlets** G. Huang; E.B. Saheby; M. Akhlaghi; Z. Yu
5:00-5:30 PM	**AIAA-2016-4609. Vortex Generators in a Two-Dimensional, External-Compression Supersonic Inlet** E. Baydar; F.K. Lu; J.W. Slater
3:30 PM-6:00 PM, 250 E, **AEP-01. Aircraft Electric Propulsion I**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Lie-Mine Gea, lie-mine.gea@boeing.com, Boeing Engineering Operations & Technology ; Co-Chair: Chen Chuck, chen.chuck@boeing.com, Boeing Commercial Airplanes	
3:30-4:00 PM	**AIAA-2016-4610. Parallel Hybrid Gas-Electric Geared Turbofan Engine Conceptual Design and Benefits Analysis** C.E. Lents; L.W. Hardin; J. Rheaume; L. Kohlman
4:00-4:30 PM	**AIAA-2016-4611. NASA Turbo-electric Distributed Propulsion Bench** K.V. Papathakis; K.J. Kloesel; Y. Lin; S.C. Clarke; J.J. Ediger; S.R. Ginn
4:30-5:00 PM	**AIAA-2016-4612. Hybrid Regional Aircraft: A Comparative Review of New Potentials Enabled by Electric Power** J. Thauvin; G. Barraud; M. Budinger; X. Roboam; D. Leray; B. Sareni
5:00-5:30 PM	**AIAA-2016-4613. Airbus Group Electrical Aircraft Program, The E-Fan Project** L. Juvé; J. Fosse; E. Joubert; N. Fouquet
3:30 PM-6:00 PM, 151 G, **APS-02. Space Transportation Development and Progress**, Panel, **14th International Energy Conversion Engineering Conference (non-paper sessions)**, Chair: Paul Anderson, paul.m.anderson@lmco.com, Lockheed Martin Space Systems	
3:30 PM-6:00 PM, 251 C, **ECS-01. Energetic Material, Detonation Transition and Ignition of Components**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: James Baglini, jlbaglini@exodynamics.com, Exodynamics Technology Incorporated; Co-Chair: Stephanie Sawhill, stephanie.sawhill@systima.com, Systima Technologies, Inc.	
3:30-4:00 PM	**AIAA-2016-4614. The Evolution of Retonation During DDT of Low Density HMX** K.A. Gonthier; P. Rao
4:00-4:30 PM	**AIAA-2016-4615. Multiscale Simulation of Shock to Detonation** E.P. Fahrenthold

3:30 PM-6:00 PM, 151 DE, **EDES-02. Energy Technologies for Aerospace and Terrestrial Applications**, Technical Paper, **14th International Energy Conversion Engineering Conference**, Chair: Scott Duncan, sduncan@asdl.gatech.edu, Aerospace Systems Design Laboratory, Georgia Tech; Co-Chair: Lee Mason, lee.s.mason@nasa.gov, NASA Glenn Research Center	
3:30-4:00 PM	**AIAA-2016-4616. Improving the Simple Gas Turbine Cycle with Compressed Air Energy Storage (CAES)** P. Lemieux
4:00-4:30 PM	**AIAA-2016-4617. Efficient Liquid Fuel Consumption in Household Cooking Appliances without Back-flow Tendencies** F. Ajibade; E.O. Ogedengbe
3:30 PM-6:00 PM, 250 A, **EP-06. Hall Thruster Physics & Modeling II**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Justin Koo, koojie@gmail.com, ; Co-Chair: Cesar Huerta, cesar@seas.ucla.edu,	
3:30-4:00 PM	**AIAA-2016-4618. Hall2De Simulations with a First-principles Electron Transport Model Based on the Electron Cyclotron Drift Instability** I.G. Mikellides; B. Jorns; I. Katz; A. Lopez Ortega
4:00-4:30 PM	**AIAA-2016-4619. Continuum Kinetic Study of Magnetized Sheaths for Use in Hall Thrusters** P. Cagas; B. Srinivasan; A. Hakim
4:30-5:00 PM	**AIAA-2016-4620. Comparing Two-Dimensional, Axisymmetric, Hybrid -Direct Kinetic and Hybrid-Particle-in-Cell Simulations of the Discharge Plasma in a Hall Thruster** A. Raisanen; K. Hara; I.D. Boyd
5:00-5:30 PM	**AIAA-2016-4621. Development of a hybrid particle-continuum kinetic method for Hall thruster discharge plasmas** K. Hara; S. Cho
3:30 PM-6:00 PM, 250 B, **EP-07. Hall Thruster Development**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: William Hargus, william.hargus@us.af.mil, USAF/AFRL/RQRC; Co-Chair: Gary Li, g.li@ucla.edu	
3:30-4:00 PM	**AIAA-2016-4622. Parametric studies of velocity distribution functions for Xenon ions and neutrals in cylindrical Hall thruster by laser-induced fluorescence** I. Romadanov; P. Svarnas; A. Diallo; Y. Raitses; A. Smolyakov
4:00-4:30 PM	**AIAA-2016-4623. Annular Hall Thruster with High Anode Efficiency** S. Lee; H. Kim; J. Kim; Y. Lim; W. Choe
4:30-5:00 PM	**AIAA-2016-4624. Laser Induced Fluorescence Measurements in a Hall Thruster as a Function of Background Pressure** R. Spektor; W.G. Tighe
5:00-5:30 PM	**AIAA-2016-4625. Operational Properties of UT-58 Anode Layer Hall Thruster with Modified Magnetic Field and Guard-ring Material** J. Bak; Y. Hamada; Y. Hirano; K. Komurasaki; T. Schönherr; H. Koizumi

3:30 PM-6:00 PM, 250 C, **EP-08. Hollow Cathode Physics & Modeling,** Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: Wensheng Huang, wensheng.huang@nasa.gov, NASA Glenn Research Center; Co-Chair: Jason Frieman, jfrieman3@gatech.edu,	
3:30-4:00 PM	**AIAA-2016-4626. First-principles Modelling of the IAT-driven Anomalous Resistivity in Hollow Cathode Discharges I: Theory** B. Jorns; A. Lopez Ortega; I.G. Mikellides
4:00-4:30 PM	**AIAA-2016-4627. First-principles modeling of the IAT-driven anomalous resistivity in hollow cathode discharges II: Numerical simulations and comparison with measurements** A. Lopez Ortega; I.G. Mikellides; B. Jorns
4:30-5:00 PM	**AIAA-2016-4628. Numerical and Experimental Study on Discharge Characteristics of High-Current Hollow Cathode** K. Kubota; Y. Oshio; H. Watanabe; S. Cho; Y. Ohkawa; I. Funaki
5:00-5:30 PM	**AIAA-2016-4629. The High Frequency Potential Oscillations Near the Hollow Cathode in Ion Thrusters** Y. Qin; K. Xie; Q. Xia; J. Ouyang
3:30 PM-6:00 PM, 250 D, **EP-09. NEXT Ion Thruster Development,** Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: Eric Cardiff, Eric.H.Cardiff@nasa.gov, NASA; Co-Chair: Daniel Herman, daniel.a.herman@nasa.gov, NASA Glenn Research Ctr	
3:30-4:00 PM	**AIAA-2016-4630. Post-test Examination of NASA's Evolutionary Xenon Thruster Long-Duration Test Hardware: Discharge Chamber** R. Shastry; G.C. Soulas
4:00-4:30 PM	**AIAA-2016-4631. Post-test Examination of NASA's Evolutionary Xenon Thruster Long-Duration Test Hardware: Discharge and Neutralizer Cathodes** R. Shastry; G.C. Soulas
4:30-5:00 PM	**AIAA-2016-4632. Post-test Examination of NASA's Evolutionary Xenon Thruster Long-Duration Test Hardware: Ion Optics** G.C. Soulas; R. Shastry
5:00-5:30 PM	**AIAA-2016-4633. NEXT Thruster Performance Curve Analysis And Validation** P. Saripalli; E.H. Cardiff; J.A. Englander
3:30 PM-6:00 PM, Ballroom F, **F360-02. Launch Vehicle Reusability: Holy Grail, Chasing Our Tail, or Somewhere in Between** , Forum 360, **Forum 360**	
3:30 PM-6:00 PM, 150 DE, **FFP-01. Fossil-Fuel Power Technologies I,** Technical Paper, **14th International Energy Conversion Engineering Conference,** Chair: Bhupendra Khandelwal, bhupendra.khandelwal@gmail.com, The University of Sheffield; Co-Chair: Ahsan Choudhuri, ahsan@utep.edu, University of Texas at El Paso	
3:30-4:00 PM	**AIAA-2016-4634. Investigation on Flow-Flame Front Characteristics in a Backward Facing Step Combustor Using Laser Diagnostics** A. Acosta-Zamora; M. de la Torre; N.D. Love; A.R. Choudhuri

4:00-4:30 PM	**AIAA-2016-4635. Conceptual Study of Oxy-Methane Flows in a Constant-Velocity Faraday Magnetohydrodynamic Generator** M.J. Hernandez; L.A. Cabrera; A.R. Choudhuri; N.D. Love
4:30-5:00 PM	**AIAA-2016-4636. Conceptual Design of a Supercritical Oxyfuel Combustor Based on LOX/Methane Rocket Engine Technologies** A.R. Chowdhury; A. Badhan; L.A. Cabrera; A.R. Choudhuri; N.D. Love
5:00-5:30 PM	**AIAA-2016-4637. High Intensity Combustion of Methane and Propane using Oxygen Enhanced Air** A. Said; A.K. Gupta
3:30 PM-6:00 PM, 250 F, **GTE-04. Thermodynamic Topics of Gas Turbine Engines**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Xinfeng Gao, Xinfeng.Gao@colostate.edu, Colorado State Univ	
3:30-4:00 PM	**AIAA-2016-4638. Exergy-Based Performance Analysis of a Turbojet Engine** M. Abbas; D.W. Riggins
4:00-4:30 PM	**AIAA-2016-4639. Gas Turbine Transient Response to Subsystem Architecture Secondary Power Off-Takes** M.F. Ozcan; I. Chakraborty; J.C. Tai; D.N. Mavris
4:30-5:00 PM	**AIAA-2016-4640. Environmental Assessment of a Micro Turbojet Engine with the Aid of Exergy** K. Coban; Y. Sohret; T. Karakoc; C. Colpan
5:00-5:30 PM	**AIAA-2016-4641. Aerothermodynamic Benefits of Mixed Exhaust Turbofans** S.J. Khalid
3:30 PM-6:00 PM, 251 A, **GTE-05. Compressors I**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Magdy Attia, magdy.attia@erau.edu, Embry-Riddle Aeronautical University	
3:30-4:00 PM	**AIAA-2016-4642. Rotor Blade Fault Detection through Statistical Analysis of Stationary Component Vibration** J.R. Cox; S. Arnold; P. Anusonti-Inthra
4:00-4:30 PM	**AIAA-2016-4643. Stationary Simulation of the Fluid-Structure Interaction to Determine the Operating Geometry of a Blade in a Transonic Axial Compressor** S.M. Aberle; R. Niehuis
4:30-5:00 PM	**AIAA-2016-4644. A Hybrid Vortex Solution for Surge Margin Enhancement in Axial Compressors** M.S. Attia; D.F. Port; A.V. Rozendaal
5:00-5:30 PM	**AIAA-2016-4645. Stall and Surge Characteristics of a Two-Volume Compression System** A.R. Hickman; S.C. Morris
5:30-6:00 PM	**AIAA-2016-4646. Computational Study of the Effects of Protruding Studs Casing Treatment on the Performance of an Axial Transonic Turbofan** M.D. Collao; R.S. Webster; K. Sreenivas; W. Lin

3:30 PM-6:00 PM, 251 B, **GTE-06. Air-Breathing Combustors II**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: May-Fun Liou, may-fun.liou@nasa.gov, NASA Glenn Research Center; Co-Chair: Andrew Caswell, andrew.caswell.4@us.af.mil, USAF AFRL/RQTC	
3:30-4:00 PM	**AIAA-2016-4647. Investigation of differences in lean blowout of liquid single-component fuels in a gas turbine model combustor** J. Grohmann; B. Rauch; T. Kathrotia; W. Meier; M. Aigner
4:00-4:30 PM	**AIAA-2016-4648. The Effect of Axial Spacing of Constant and Variable Blockages on the Deflagration to Detonation Transition in a Pulse Detonation Engine** N. Gagnon; M.S. Attia
4:30-5:00 PM	**AIAA-2016-4649. Precursors to blowout in a turbulent combustor based on recurrence quantification** V.R. Unni; R.I. Sujith
5:00-5:30 PM	**AIAA-2016-4650. The Impact of Venturi Geometry on Reacting Flows in a Swirl-Venturi Lean Direct Injection Airblast Injector** X. Ren; X. Xue; C. Sung; K.B. Brady; H.C. Mongia; P. Lee
5:30-6:00 PM	**AIAA-2016-4651. Enhancement of the Open National Combustor Code (Open NCC) and Initial Simulation of Energy Efficient Engine** K. Miki; J.P. Moder; M. Liou
3:30 PM-6:00 PM, 254 B, **GTE-09. Engine Control Systems**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: David Foutch, david.w.foutch@boeing.com, The Boeing Company	
3:30-4:00 PM	**AIAA-2016-4652. A Network Scheduling Model for Distributed Control Simulation** D.E. Culley; E. Aretskin-Hariton; G.L. Thomas
4:00-4:30 PM	**AIAA-2016-4653. Advanced Control Considerations for Turbofan Engine Design** J.W. Connolly; J. Csank; A. Chicatelli
4:30-5:00 PM	**AIAA-2016-4654. The Application of Hardware in the Loop Testing for Distributed Engine Control** G.L. Thomas; D.E. Culley; A. Brand
5:00-5:30 PM	**AIAA-2016-4655. Aircraft Engine Advanced Controls Research under NASA Aeronautics Research Mission Programs** S. Garg
3:30 PM-6:00 PM, 255 B, **HR-02. Design and Development of Novel Hybrid Rocket Motor Concepts I**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Mario Kobald, mario.kobald@dlr.de, DLR-German Aerospace Center; Co-Chair: Shane Coogan, shane.coogan@swri.org, Southwest Research Institute	
3:30-4:00 PM	**AIAA-2016-4656. Hybrid Propulsion In-Situ Resource Utilization Test Facility Results for Performance Characterization** F.S. Mechentel; A.C. Karp; B. Nakazono; M. Parker; D. Vaughan
4:00-4:30 PM	**AIAA-2016-4657. Experimental Evaluation of a Polyethylene/Nitrous Oxide Axial-Injection, End-Burning Hybrid** M.A. Hitt; R.A. Frederick

4:30-5:00 PM	**AIAA-2016-4658. Throttled Launch-Assist Hybrid Rocket Motor for an Airborne NanoSat Launch Platform.** S.A. Whitmore; Z.S. Spurrier; S.D. Walker; S.L. Merkley
5:00-5:30 PM	**AIAA-2016-4659. Investigation on Tri-propellant Hybrid Rocket Performance** Y. Chen; A. Lai; J. Lin; S. Wei; T. Chou; J. Wu
3:30 PM-6:00 PM, 255 A, **HSABP-04. Advances in Hypersonic Air-Breathing Propulsion Systems,** Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: Erik Axdahl, Erik.L.Axdahl@NASA.gov, NASA Langley Research Center; Co-Chair: Guillermo Paniagua, gpaniagua@me.com, Purdue University	
3:30-4:00 PM	**AIAA-2016-4660. Experimental and Numerical Studies of Kerosene Fueled Scramjet Control Technology** Q. Fu
4:00-4:30 PM	**AIAA-2016-4661. Characterization of the time-resolved starting process of supersonic diffusers** N. Thiry; G. Paniagua
4:30-5:00 PM	**AIAA-2016-4662. Prediction of Mixing Efficiency between Incoming Air and Embedded Rocket Exhaust within an RBCC Engine** T. Isono; R. Nakano; S. Tomioka; K. Kudo; A. Murakami; S. Ueda
3:30 PM-6:00 PM, 251 D, **LP-04. Green Propellants II,** Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: Eric Besnard, besnarde@csulb.edu, California State University–Long Beach; Co-Chair: Christoph Kirchberger, christoph.kirchberger@dlr.de, German Aerospace Center (DLR)	
3:30-4:00 PM	**AIAA-2016-4663. Predicting Flashing Phenomena: A Combined Approach of Numerical Simulation and Experiments** C. Hendrich; L. Gury; S. Schlechtriem
4:00-4:30 PM	**AIAA-2016-4664. Combustion Characteristics of GAP for the Liquid Monopropellant -Effects of the Spray Droplet Diameters-** K. Hayashi; T. Kuwahara
4:30-5:00 PM	**AIAA-2016-4665. Overview on the Gelled Propellants Activities of DLR Lampoldshausen** C.U. Kirchberger; P. Kröger; M. Negri; H.K. Ciezki
5:00-5:30 PM	**AIAA-2016-4666. Long Duration Test Runs of a Highly Throttleable Gelled Propellant Rocket Motor** P.C. Pinto; J. Ramsel; K. Bauer; S. Risse; K.W. Naumann; A. Thumann; G. Kurth
5:30-6:00 PM	**AIAA-2016-4667. Green Gelled Propellant Gas Generator for High-Performance Divert- and Attitude Control Systems** K.W. Naumann; G. Tussiwand
3:30 PM-6:00 PM, 251 E, **LP-05. Nozzles I,** Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: Kevin Lohner, kevinlohner@gmail.com, Stanford University	
3:30-4:00 PM	**AIAA-2016-4668. Experimental investigation of cold flow TIC nozzles, a spectral analysis** C. Genin; R.H. Stark

4:00-4:30 PM	**AIAA-2016-4669. Scaling Effects on Side Load Generation in Subscale Rocket Nozzles** R.H. Stark; C. Genin
4:30-5:00 PM	**AIAA-2016-4670. Hybrid RANS-LES Simulation of Separated Nozzle Flow** R. Larusson; N. Andersson; J. Östlund
5:00-5:30 PM	**AIAA-2016-4671. A Numerical Model for Nozzle Flow Application under LOX/CH4 Hot Flow Conditions** D. Schneider; C. Genin; S. Karl; V. Hannemann
5:30-6:00 PM	**AIAA-2016-4672. CFD Analysis of Film Cooling and Heat Transfer in a Bipropellant Rocket Nozzle, Incorporating Chemically Reacting Flow** N. Amato; J.C. Leylegian; M.H. Naraghi
3:30 PM-6:00 PM, 251 F, **LP-06. Propellant Storage & Transfer II**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Philipp Behruzi, Philipp.Behruzi@airbus.com, Airbus Defence & Space; Co-Chair: Stewart Bushman, stewart.bushman@jhuapl.edu, Johns Hopkins University Applied Physics Laboratory	
3:30-4:00 PM	**AIAA-2016-4673. Modeling Droplet Heat and Mass Transfer during Spray Bar Pressure Control of the Multipurpose Hydrogen Test Bed (MHTB) Tank in Normal Gravity** O.V. Kartuzova; M. Kassemi
4:00-4:30 PM	**AIAA-2016-4674. Self-Pressurization of a Flightweight, Liquid Hydrogen Tank: Simulation and Comparison with Experiments** M. Stewart; J.P. Moder
4:30-5:00 PM	**AIAA-2016-4675. Numerical Approach to Measure Accommodation Coefficients for Long-Duration Spaceflight Cryogenic Propellants** S.J. Alberts; P. Srikanth; S.H. Collicott; S.D. Heister
5:00-5:30 PM	**AIAA-2016-4676. Numerical Modeling of Pressurization of Cryogenic Propellant Tank for Integrated Vehicle Fluid System** A.K. Majumdar; A. LeClair; A. Hedayat
5:30-6:00 PM	**AIAA-2016-4677. Modeling Ullage Dynamics of Tank Pressure Control Experiment during Jet Mixing in Microgravity** O.V. Kartuzova; M. Kassemi
3:30 PM-6:00 PM, 253 AB, **LP-07. Propulsion Systems - Design & Test I**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Corinne Gatto, Corinne.E.Gatto@jpl.nasa.gov, Jet Propulsion Laboratory; Co-Chair: Robert Bell, cryoteach@aol.com, Sierra Nevada	
3:30-4:00 PM	**AIAA-2016-4678. Vinci® propulsion system: Transition from Ariane 5 ME to Ariane 6** J. Sannino; J. Delange; V. De Korver; A. Lekeux; B. Vieille
4:00-4:30 PM	**AIAA-2016-4679. Extending MESSENGER's Low-Altitude Hover Campaign by Using Helium Pressurant as Cold-Gas Propellant** S.S. Bushman; C. Engelbrecht; S. Flanigan; M. Kirk; J. McAdams; D. Moessner

4:30-5:00 PM	**AIAA-2016-4680. Primary Mission Flight Performance of the Van Allen Probes Propulsion Systems** J.W. John; S.S. Bushman
5:00-5:30 PM	**AIAA-2016-4681. Integrated Pressure-Fed Liquid Oxygen / Methane Propulsion Systems – Morpheus Experience, MARE, and Future Applications** E.A. Hurlbert; M.J. Atwell; J.C. Melcher; R.L. Morehead
5:30-6:00 PM	**AIAA-2016-4682. Cold Helium Pressurization for Liquid Oxygen / Liquid Methane Propulsion Systems: Fully-Integrated Initial Hot-Fire Test Results** R.L. Morehead; M.J. Atwell; J.C. Melcher; E.A. Hurlbert
3:30 PM-6:00 PM, 150 G, **NFF-01. Fusion and Alternative Nuclear Concepts I**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Jason Cassibry, Jason.Cassibry@uah.edu, ; Co-Chair: George Williams, george.j.williams@nasa.gov, Ohio Aerospace Institute	
3:30-4:00 PM	**AIAA-2016-4683. Progress on Computational Modeling of Z-Pinch Nuclear Fusion Reactor Components for Spacecraft Propulsion** M.A. Rodriguez; J.T. Cassibry
4:00-4:30 PM	**AIAA-2016-4684. Development of a magnetic thrust chamber for a laser fusion rocket** M. Edamoto; N. Saito; T. Morita; N. Yamamoto; A. Sunahara; R. Kawashima; S. Miura; Y. Itadani; H. Nakashima; S. Fujioka; A. Yogo; H. Nishimura; Y. Mori; T. Johzaki
4:30-5:00 PM	**AIAA-2016-4685. On the Use of a Pulsed Nuclear Thermal Rocket for Interplanetary Travel.** F.J. Arias
5:00-5:30 PM	**AIAA-2016-4686. Test Suite for Hydrodynamic Modeling for Plasma Driven Magneto-Inertial Fusion** K.J. Schillo; J.T. Cassibry; M.A. Rodriguez
3:30 PM-6:00 PM, 255 C, **PC-03. Ignition**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Bruce Chehroudhi, chehroudhi@aol.com, Advanced Technology Consultants; Co-Chair: Subith Vasu, subith@ucf.edu, University of Central Florida	
3:30-4:00 PM	**AIAA-2016-4687. Ignition and Flame Propagation in a Liquid-Fueled Swirling Combustor** M.M. Masquelet; S. Cao; M. Pai
4:00-4:30 PM	**AIAA-2016-4689. Alternative Jet Fuel Spray and Combustion at Intermittent-Combustion Engine Conditions** J. Temme; M. Tess; C.M. Kweon; V. Coburn
4:30-5:00 PM	**AIAA-2016-4690. Burning Rate and Ignition Delay Times of AP/HTPB -Based Solid Rocket Propellants Containing Graphene** C.A. Dillier; A.R. Demko; T. Sammet; K. Grossman; S. Seal; E.L. Petersen
5:00-5:30 PM	**AIAA-2016-4691. Shock Tube Ignition Studies of Advanced Biofuels** O. Pryor; G. Barari; B. Koroglu; J. Lopez; L. Nash; S. Vasu
5:30-6:00 PM	**AIAA-2016-4688. Design and Test of a Resonance Ignition System for Green In-Orbit Propulsion Systems** C. Bauer; O.J. Haidn

3:30 PM-6:00 PM, 255 D, **PC-04. Spray Combustion** , Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: William Anderson, wanderso@purdue.edu, Purdue University; Co-Chair: Grazia Lamanna, gl@itlr.uni-stuttgart.de, Universitaet Stuttgart	
3:30-4:00 PM	**AIAA-2016-4692. Experimental Combustion Investigations from Like-Impingement Sprays of Green Propellants** C. Indiana; M. Bellenoue; B. Boust; S. Petitot
4:00-4:30 PM	**AIAA-2016-4693. Influence of Sleeve Angle on the LBO Performance of TeLESS-II Combustor** B. Wang; C. Zhang; X. Hui; Y. Lin; J. Li
4:30-5:00 PM	**AIAA-2016-4694. A Hybrid Eulerian-Eulerian/Eulerian-Lagrangian Method for Dense-to-Dilute Dispersed Multiphase Reacting Flows** A. Panchal; G. Hannebique; R. Ranjan; M. Akiki; S. Menon
5:00-5:30 PM	**AIAA-2016-4695. Crosswise Distribution of Kerosene Spray in Crossflow** Y. Zhao; C. Zhang; Y. Lin; Y. Cheng
3:30 PM-6:00 PM, 255 E, **PC-05. Advanced Concepts**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Richard Hausen, richard.hausen@honeywell.com, Honywell; Co-Chair: Adam Steinberg, steinberg@utias.utoronto.ca, University of Toronto	
3:30-4:00 PM	**AIAA-2016-4696. Analysis of MHD Generators for use with solid rocket motors** Y. Metsker; J. Kugele; S. Nobbe; O.J. Haidn
4:00-4:30 PM	**AIAA-2016-4697. Application of Additive manufacturing in Solid and Hybrid Grain Design** C. Bauer; Y. Metsker; C. von Sethe; M. Mutschler; M. Bambauer; P. Lungu; M. Brandl
4:30-5:00 PM	**AIAA-2016-4698. Experimental and numerical investigation of spray characteristics in a new FLOX® based combustor for liquid fuels for Micro Gas Turbine Range Extender (MGT-REX).** J.D. Gounder; A. Zizin; L. Oliver; M. Rachner; S.R. Kulkarni; M. Aigner
5:00-5:30 PM	**AIAA-2016-4699. Experimental Investigation of Ignition and Combustion Processes in a Constant-Volume Combustion Chamber for Air-Breathing Propulsion** B. Boust; Q. Michalski; M. Bellenoue
5:30-6:00 PM	**AIAA-2016-4700. Performance and Thermal Characteristics of Low-Power DC Arcjet Thrusters with Radiation-Cooled Anodes for Green Propellants** S. Shiraki; H. Tahara
3:30 PM-6:00 PM, 254 A, **SR-02. Solid Rocket Modeling and Simulation**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Co-Chair: Enrico Cavallini, enrico.cavallini@uniroma1.it, University of Roma "La Sapienza"; Chair: Joseph Majdalani, joe.majdalani@auburn.edu, Auburn University	
3:30-4:00 PM	**AIAA-2016-4701. Local Linear Stability Analysis of Non-Circular Injection-Driven Channel Flows** M. Bouyges; F. Chedevergne; G. Casalis

4:00-4:30 PM	**AIAA-2016-4702. Random Vibration Environment Standard Deviation Variation Verification for Solid Rocket Motors** R. Ott
4:30-5:00 PM	**AIAA-2016-4703. VEGA Launch Vehicle Dynamic Loads due to Solid Propulsion Ignition Transients and Pressure Oscillations** E. Cavallini; B. Favini; M. Castelli; A. Neri
3:30 PM-6:00 PM, 151 AB, **TM-02. Thermal System Applications and Unique Environments II**, Technical Paper, **14th International Energy Conversion Engineering Conference**, Chair: Calin Tarau, calin.tarau@1-act.com, Advanced Cooling Technologies; Co-Chair: Michael Choi, Michael.K.Choi@nasa.gov, NASA-Goddard Space Flight Center	
3:30-4:00 PM	**Oral Presentation. High Temperature Titanium-Water Heat Pipes for Kilopower Fission Power Systems** M. Ababneh; W.G. Anderson; D. Beard; C. Tarau
4:00-4:30 PM	**AIAA-2016-4704. *Swift* BAT Thermal Recovery After Loop Heat Pipe #0 Secondary Heater Controller Failure in October 2015** M.K. Choi
4:30-5:00 PM	**AIAA-2016-4705. Status of the Development of Low Cost Radiator for Surface Fission Power - III** C. Tarau; T.P. Maxwell; W.G. Anderson; C. Wagner; M. Wrosch; M.H. Briggs
3:30 PM-6:00 PM, 254 C, **VS-01. Advanced Vehicle Systems Concepts**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Frank Chandler, fochandler@cpp.edu, Boeing Defense, Space & Security; Co-Chair: Timothy Chen, timothy.t.chen@gmail.com, NASA	
3:30-4:00 PM	**AIAA-2016-4706. Hypersonic Waverider Stream Surface Actuation for Variable Design Point Operation** J.R. Maxwell
4:00-4:30 PM	**AIAA-2016-4707. Disruptive Propulsion Technology Makes Endo/Exoatmosphere Operating Commercial Aircraft Possible** B. Pande
6:00 PM-7:30 PM, Exhibit Hall C, **NW-03. Welcome Reception**, Networking	
7:30 PM-9:30 PM, 150 G, **NFF-02. Open Forum: Nuclear Propulsion in the 21st Century**, Panel, **52nd AIAA/SAE/ASEE Joint Propulsion Conference (non-paper sessions)**, Chair: Raymond Sedwick, sedwick@umd.edu, University of Maryland	

Tuesday, July 26, 2016

Time	Session or Event Info
8:00 AM-9:00 AM, Ballroom A-D, **PLNRY-03. Game Changing Developments in Propulsion and Energy**, Plenary, **Forum Event**	
8:45 AM-9:30 AM, Exhibit Hall C, **NW-04. Networking Coffee Break**, Networking	

9:30 AM-12:00 PM, 255 F, **ABPSI-03. Supersonic and Hypersonic Inlets**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: John Slater, john.w.slater@nasa.gov, NASA Glenn Research Center; Co-Chair: Ryan Starkey, ryan.p.starkey@raytheon.com, Raytheon Missile Systems	
9:30-10:00 AM	**AIAA-2016-4708. Role of wall temperature on shock train in a rectangular isolator** H. Lu; D. Wang; Z. Liu; L. Yue; X. Zhang
10:00-10:30 AM	**AIAA-2016-4709. Computational experiments for improving the performance of Fugine based on supermulti-jets colliding working for a wide range of speeds from startup to hypersonic condition** K. Tsuru; K. Naitoh
10:30-11:00 AM	**AIAA-2016-4710. Investigation on Strut-based RBCC Engine Configuration to Improve Performance in M3-6** D. Yan; G. He; F. Qin; X. Wei; L. Shi
9:30 AM-12:00 PM, 150 DE, **AEP-02. Aircraft Electric Propulsion II**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Lie-Mine Gea, lie-mine.gea@boeing.com, Boeing Engineering Operations & Technology ; Co-Chair: Chen Chuck, chen.chuck@boeing.com, Boeing Commercial Airplanes	
9:30-10:00 AM	**AIAA-2016-4711. Principles of High-efficiency Electric Flight** J. Barnes
10:00-10:30 AM	**AIAA-2016-4712. Optimizing Power Density and Efficiency of a Double-Halbach Permanent-Magnet Ironless Axial Flux Motor** K.P. Duffy
10:30-11:00 AM	**AIAA-2016-4713. Potential of Aircraft Electric Propulsion with SOFC/GT Hybrid Core** K. Okai; T. Himeno; T. Watanabe; H. Nomura; T. Tagashira; A. Nishizawa
9:30 AM-12:00 PM, 151 G, **ECD-02. Thermoelectric, Fuel Cell, and Photovoltaic Conversion Systems**, Technical Paper, **14th International Energy Conversion Engineering Conference**, Chair: Carl Sandifer, carl.e.sandifer@nasa.gov, NASA Glenn Research Center; Co-Chair: Scott Wilson, scott.d.wilson@nasa.gov, NASA Glenn Research Center	
9:30-10:00 AM	**AIAA-2016-4714. Development of Filled-Skutterudite Based Thermopile for High Temperature Sensors for Space and Terrestrial Applications** K.L. Smith; B.C. Li; S. Firdosy; S. Sujittosakul; M. Errico; G. Nakatsukasa; J. Fleurial; R. Ewell
10:00-10:30 AM	**AIAA-2016-4715. Development of High Temperature Thermoelectric Device Technologies to Validated Materials Performance and Reliability for Advanced ThermoElectric Couple (ATEC) Program** B.C. Li; S. Firdosy; V.A. Ravi; K.L. Smith; D. Uhl; J. Ni; K. Star; S. Sujittosakul; O. Villalpando; M. Aranda; S. Bux; J. Ma; S. Chanakian; G. Nakatsukasa; J. Fleurial
10:30-11:00 AM	**AIAA-2016-4716. Thermoelectric Generator Opportunity Analysis for Commercial Gas Turbine Engines** J.M. Rheaume; D. Gerlach

11:00-11:30 AM	**AIAA-2016-4717. Optimal Thickness Analysis of the Microporous Layer in an *M.pudica* Based Photovoltaic Solar Cell** M.B. Shitta; E.O. Ogedengbe; I. Feyintola
11:30-12:00 PM	**AIAA-2016-4718. Dynamic Model of Solid Oxide Fuel Cell Integrated with Fan and Exhaust Nozzle** V. Chakravarthula; R.A. Roberts; M. Wolff
9:30 AM-12:00 PM, 251 C, **ECS-02. Updates to Acceptance Methodologies for Energetic Components,** Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: John Scott, john.g.scott@ulalaunch.com, United Launch Alliance, LLC	
9:30-10:00 AM	**AIAA-2016-4719. Variations in the use of dynamics environments in the screening of ordnance components in LAT** J.G. Scott; K. Kostecka
10:00-10:30 AM	**AIAA-2016-4720. Methodology for Analyzing Non-Steady-State Thermal Transient Test (T^3) Data** L.C. Yang
10:30-11:00 AM	**AIAA-2016-4721. Technical Evaluation and Proposed Modifications for Ordnance Component Shock and Random Vibration Test Requirements** J. Niehues
9:30 AM-12:00 PM, 251 B, **EDU-02. Propulsion Education II,** Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: Matthew Hitt, mah0004@uah.edu, The University of Alabama in Huntsville; Co-Chair: Rene Rezende, renenardi@hotmail.com,	
9:30-10:00 AM	**AIAA-2016-4722. UAH Propulsion Research Center - 25th Anniversary Highlights** R.A. Frederick
10:00-10:30 AM	**AIAA-2016-4723. K-12 Minority STEM Education Program: MAA Southwest** H. Keerthi; P. Uptergrove; M.L. Everett; N.D. Love; A.R. Choudhuri
10:30-11:00 AM	**AIAA-2016-4724. An Overview of Combustion Instabilities and Rocket Engine Injector Design** C. Staschus; R.A. Frederick
11:00-11:30 AM	**AIAA-2016-4725. Overview of X-Ray Techniques for Solid Rocket Propellant Regression Measurements** D.A. Jones; R.A. Frederick
9:30 AM-12:00 PM, 250 A, **EP-10. Hall Thruster Physics & Modeling III,** Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: James Polk, james.e.polk@jpl.nasa.gov, Jet Propulsion Laboratory; Co-Chair: Stephen Samples, Stephen.samples@gmail.com,	
9:30-10:00 AM	**AIAA-2016-4726. A Unified Model for Axial-Radial and Axial-Azimuthal Hall Thruster Simulations** R. Kawashima; K. Hara; K. Komurasaki; H. Koizumi
10:00-10:30 AM	**AIAA-2016-4727. Influence of multiple factors on electron behavior and transport process in a miniaturized hall thruster** Q. Liu; H. Tang; J. Ren; X. Shi; X. Lu

10:30-11:00 AM	**AIAA-2016-4728. The Effects of Cathode Boundary Condition on Particle Simulation of a SPT-100-like Hall Thruster** S. Cho; H. Watanabe; K. Kubota; I. Funaki
9:30 AM-12:00 PM, 250 B, **EP-11. Hall Thruster Alternative Propellants**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Lyon King, lbking@mtu.edu, Michigan Technological University; Co-Chair: Ben Dankongkakul, BenDankongkakul@gmail.com,	
9:30-10:00 AM	**AIAA-2016-4729. Overview of Iodine Propellant Hall Thruster Development Activities at NASA Glenn Research Center** H. Kamhawi; T. Haag; G. Benavides; T. Hickman; T. Smith; G. Williams; J.L. Myers; K.A. Polzin; J. Dankanich; L. Byrne; J.J. Szabo; L.P. Lee
10:00-10:30 AM	**AIAA-2016-4730. Engineering Model Propellant Feed System Development for an Iodine Hall Thruster Demonstration Mission** K.A. Polzin; S.R. Peeples; A. Martinez; J.F. Seixal; S. Mauro; A.O. Burt; J.L. Myers
10:30-11:00 AM	**AIAA-2016-4731. Condensable Propellant Hall Thruster for Metallic Thin Film Deposition** M.A. Hopkins; L.B. King; J. Drelich; J. Goldman; K. Baker
9:30 AM-12:00 PM, 250 C, **EP-12. Hollow Cathode Development**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Ioannis Mikellides, Ioannis.g.Mikellides@jpl.nasa.gov, Jet Propulsion Laboratory; Co-Chair: Christopher Dodson, cdodson@ucla.edu	
9:30-10:00 AM	**AIAA-2016-4732. Characterization and Qualification of a Low Current Heaterless Hollow Cathode** D.R. Lev; G. Alon; D. Mikitchuk; L. Appel
10:00-10:30 AM	**AIAA-2016-4733. Advanced Dispenser-Type Cathode Development for Electric Propulsion** W.L. Ohlinger; B. Vancil; J.E. Polk
9:30 AM-12:00 PM, 250 D, **EP-13. Helicon Thruster**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Eric Pencil, Eric.J.Pencil@nasa.gov, NASA Glenn Research Center; Co-Chair: Neil Arthur, arthurne@umich.edu,	
9:30-10:00 AM	**AIAA-2016-4734. Current Status of the Helicon Injected Inertial Plasma Electrostatic Rocket** D.M. Ahern; G. Miley
10:00-10:30 AM	**AIAA-2016-4735. Effects of Water Vapor Propellant on Helicon Thruster Performance** E.M. Petro; R.J. Sedwick
10:30-11:00 AM	**AIAA-2016-4736. A Solid Propellant High Power Helicon Thruster** I.K. Johnson; B. Roberson; R. Winglee; I. Slobodov; J. Prager; T. Ziemba
11:00-11:30 AM	**AIAA-2016-4737. Effects of Magnetic Nozzles and a Downstream Antenna to the High Power Helicon Thruster** B. Roberson; I.K. Johnson; I. Slobodov; R. Winglee; J. Prager; T. Ziemba

9:30 AM-12:00 PM, 250 E, **EP-14. Electrospray II**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: John Dankanich, john.dankanich@nasa.gov, NASA Marshall Space Flight Center; Co-Chair: Catherine Miller, cmiller8991@gmail.com,	
9:30-10:00 AM	**AIAA-2016-4738. Microfluidic Electrospray Propulsion(MEP) Thruster Performance with Microfabricated Emitter Arrays for Indium Propellant** C. Marrese-Reading
10:00-10:30 AM	**AIAA-2016-4739. Electrospray Thruster Propellant Feedsystem for a Gravity Wave Observatory Mission** N.R. Demmons; N. Lamarre; J.K. Ziemer; M. Parker; D. Spence
10:30-11:00 AM	**AIAA-2016-4740. Mass Spectrometry of Selected Ionic Liquids in Capillary Electrospray at Nanoliter Volumetric Flow Rates** S.W. Miller; B.D. Prince; R.J. Bemish; J. Rovey
9:30 AM-12:00 PM, Ballroom F, **F360-03/LP-11. Liquid Propulsion History Session: Lessons Learned**, Panel, **52nd AIAA/SAE/ASEE Joint Propulsion Conference (non-paper sessions)**, Chair: Benjamin Austin, bjaustin@inspacellc.com, IN Space LLC; Co-Chair: William Marshall, william.m.marshall@nasa.gov, NASA-Glenn Research Center	
9:30 AM-12:00 PM, 254 B, **GEPC-01. Low Carbon Aviation-Propulsion Integration, Gas Turbines, and Fuels**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Marty Bradley, marty.k.bradley@boeing.com, Boeing Commercial Airplanes; Co-Chair: Tarek Abdel-Salam, abdelsalamt@ecu.edu, East Carolina University	
9:30-10:00 AM	**Oral Presentation. National Research Council - Low Carbon Aviation: Study Background and Expectations** B. Esker
10:00-10:30 AM	**Oral Presentation. Sustainable Alternative Jet Fuel Deployment for Low Carbon Aviation: Goals, Progress, and Research Needs Remaining** S. Csonka
10:30-11:00 AM	**Oral Presentation. The Role and Future of Gas Turbine Propulsion in Low Carbon Aviation** A. Epstein
11:00-11:30 AM	**Oral Presentation. Technologies and Innovation for Low Carbon Aviation** E. Ducharme
11:30-12:00 PM	**Oral Presentation. Low Carbon Aviation: Fleet Level System Studies** D. DeLaurentis
9:30 AM-12:00 PM, 250 F, **GTE-07. Turbines II**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Mark Ricklick, Mark.Ricklick@erau.edu, Embry Riddle Aeronautical University	
9:30-10:00 AM	**AIAA-2016-4741. Validation of Magnetic Resonance Thermometry through Experimental and Computational Approaches** J. Spirnak; M. Samland; B. Tremont; A. McQuirter; E. Williams; M. Benson; B. Van Poppel; C. Verhulst; C. Elkins; L. Burton; J.K. Eaton; M. Owkes
10:00-10:30 AM	**AIAA-2016-4742. Experimental Analysis of an Axial Turbine Driven by Periodic Pressure Pulses** M. Fernelius; S.E. Gorrell

10:30-11:00 AM	**AIAA-2016-4743. A Detailed Experimental and Numerical Investigation of Flow and Heat Transfer in a Single Row Narrow Impingement Channel Using PIV and LES** J. Hossain; E. Fernandez; J.S. Kapat
9:30 AM-12:00 PM, 251 A, **GTE-08. Compressors II**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Karthik Mani, karthik.mani@rolls-royce.com, Rolls-Royce Corporation	
9:30-10:00 AM	**AIAA-2016-4744. Design and Analysis of a High Pressure Ratio Mixed Flow Compressor Stage** A. Nassar; G. Giri; L. Moroz; A. Sherbina; I. Klimov
10:00-10:30 AM	**AIAA-2016-4745. Validation of a Two-Equation VLES Turbulence Model Using a Transonic Axial Compressor Stage** R. Kelly; A.R. Hickman; K. Shi; S.C. Morris; A. Jemcov
10:30-11:00 AM	**AIAA-2016-4746. Implementation of Fourier methods in CFD to analyze distortion transfer and generation through a transonic fan** M.W. Peterson; S.E. Gorrell; M.G. List; C. Custer
9:30 AM-12:00 PM, 253 AB, **HR-03. Internal Ballistics Modeling I**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Brian Evans, bevans7@stanford.edu, Stanford University; Co-Chair: Scott Claflin, scott.claflin@rocket.com, Aerojet Rocketdyne	
9:30-10:00 AM	**AIAA-2016-4747. Method for Determining Nozzle Throat Erosion History in Hybrid Rockets** L.T. Kamps; Y. Saito; R. Kawabata; Y. Takahashi; H. Nagata
10:00-10:30 AM	**AIAA-2016-4748. Numerical analysis of grain port scale and firing test of long-time working hybrid motor** X. Sun; H. Tian; Y. Zhang; H. Zhu
10:30-11:00 AM	**AIAA-2016-4749. Optimization of Hybrid Sounding Rockets Through Coupled Motor-Trajectory Simulation** M. Ghilardi; F. Barato; D. Pavarin
11:00-11:30 AM	**AIAA-2016-4750. Scaling of Hybrid Rocket Motors with Swirling Oxidizer Injection - Part 2** E. Paccagnella; F. Barato; D. Pavarin; A.M. Karabeyoglu
11:30-12:00 PM	**AIAA-2016-4751. Quasi 1-D Numerical Analysis of Combustion Instability in Hybrid Rocket Motor Incorporating Boundary Layer Lags** G. Karthikeyan; T. Shimada
9:30 AM-12:00 PM, 255 B, **HR-04. Combustion Dynamics and Mixing Efficiencies II**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Brian Cantwell, cantwell@stanford.edu, Stanford University; Co-Chair: Yen-Sen Chen, ychen_esi@yahoo.com, National Space Organization Taiwan	

9:30-10:00 AM	**AIAA-2016-4752. Experimental and Analytical Investigation of Effect of Pressure on Regression Rate of Axial-Injection End-Burning Hybrid Rockets** Y. Saito; T. Yokoi; H. Nagata; H. Yasukochi; K. Soeda; T. Totani; M. Wakita
10:00-10:30 AM	**AIAA-2016-4753. Measuring Nozzle Erosion in a Hybrid Rocket Motor with Ultrasound** P. Narsai; K. Venkataraman; K. Stober; B.J. Cantwell
10:30-11:00 AM	**AIAA-2016-4754. Development of a Hybrid Rocket Slab Motor** R. Theba; K.L. Veale; C. Bemont
11:00-11:30 AM	**AIAA-2016-4755. Fuel Regression Behavior of a Swirling-Injection End-Burning Hybrid Rocket Engine using Paraffin-based Fuels** Y. Oishige; D. Hayashi; T. Sakurai
9:30 AM-12:00 PM, 254 C, **HSABP-05. Numerical Analysis of Supersonic Combustion Flow Paths, Components, and Processes**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Faure Malo-Molina, faurejoel@gmail.com, Raytheon Missile Systems; Co-Chair: Foluso Ladeinde, FL@ttctech.com, TTC Technologies Inc	
9:30-10:00 AM	**AIAA-2016-4756. Combustion Performance of Hydrocarbon Fuel in a Dual-Mode Combustor** K. Nojima; M. Soejima; T. Arakawa; S. Tomioka; N. Sakuranaka
10:00-10:30 AM	**AIAA-2016-4757. Research on Mixing Control by Injection Scheme in Dual-Mode Combustor** T. Arakawa; S. Ishizaki; K. Nojima; S. Tomioka; N. Sakuranaka
10:30-11:00 AM	**AIAA-2016-4758. Performance Prediction of Diverging Dual-mode Combustors at Ramjet-mode Operation** S. Tomioka; M. Takahashi; K. Kobayashi; K. Tani; K. Nojima; T. Arakawa
11:00-11:30 AM	**AIAA-2016-4759. Asymmetric Combustion Characteristics of Transverse Ethylene Injection in a Rectangular Supersonic Combustor with Single-side Expansion** M. Sun
11:30-12:00 PM	**AIAA-2016-4760. Supersonic Mixing and Combustion studies using Decoupling Strategy** Y. Wang; W. Song; H. Bai
9:30 AM-12:00 PM, 255 A, **HSABP-06. High Fidelity Simulations of High-Speed Air-Breathing Systems**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Co-Chair: Venkat Tangirala, tangiral@crd.ge.com, General Electric; Chair: Ronald Springer, ronald.springer@jhuapl.edu, Johns Hopkins University Applied Physics Laboratory	
9:30-10:00 AM	**AIAA-2016-4761. Detached Eddy Simulation of a high-Ma regenerative-cooled scramjet combustor based on skeletal kerosene mechanism** W. Yao; Y. Lu; X. Li; J. Wang; X. Fan
10:00-10:30 AM	**AIAA-2016-4762. Computational Analysis of Flow Phenomena in a Back-Pressured Supersonic Isolator** M.A. Hagenmaier; E.A. Hassan

10:30-11:00 AM	**AIAA-2016-4763. Control of Shock-Induced Boundary Layer Separation by High Momentum Blowing** D.R. Cuppoletti; C. Saucier; C. Harris
11:00-11:30 AM	**AIAA-2016-4764. CFD Analysis of Mixing Characteristics of Several Fuel Injectors at Hypervelocity Flow Conditions** T.G. Drozda; R. Baurle
9:30 AM-12:00 PM, 151 DE, **ITAR-01. Gas Turbines and Associated Equipment (CAT-XIX)**, ITAR Presentations, **ITAR Presentations**, Co-Chair: Chiping Li, chiping.li@afosr.af.mil, Air Force Office of Scientific Research; Chair: Knox Millsaps, millsaps@nps.edu, Naval Postgraduate School	
9:30-10:00 AM	**AIAA-2016-4765. Initial Comparison of Experimental and Numeric Premixed Rotating Detonation Engines** I.Q. Andrus; P.I. King; M.D. Polanka; F.R. Schauer; J.L. Hoke
10:00-10:30 AM	**Oral Presentation. NRL Simulations of a Rotating-Detonation-Wave Engine Concept** K. Kailasanath; D.A. Schwer
10:30-11:00 AM	**AIAA-2016-4766. Integrated Fiber Optic Sensor (IFOS) System** N. Ma; A. Ghoshal; T. Nielsen; V. Romanov
11:00-11:30 AM	**AIAA-2016-4767. Thermodynamics of RDE Flow with Axial Flow Turbine** C.A. Nordeen; R. Munipalli; Z. Liu; B. Cetegen
9:30 AM-12:00 PM, 251 D, **LP-08. Nozzles II**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Scott Forde, Scott.Forde@rocket.com, Aerojet Rocketdyne; Co-Chair: Scott Miller, scott.miller@rocket.com, Aerojet Rocketdyne	
9:30-10:00 AM	**AIAA-2016-4768. Performance Evaluation of Aerospike Nozzles for Lucrative Thrust Vector Control** S. Ajith; A. S; M. Raj; R. S; T. Ramesh kumar; S. Vivek; V. Sanal Kumar
10:00-10:30 AM	**AIAA-2016-4769. 3D Numerical Studies on Thrust Vectoring using Shock Induced Self Impinging Secondary Jets** N. Vishnu; S. Vigneshwaran ; S. Vignesh; C. Nichith; S. Sharan; V. Sanal Kumar
10:30-11:00 AM	**AIAA-2016-4770. Diagnostic Investigation of Nozzle Flow Choking Time and Stage Separation Sequence of a Multi-stage Rocket** V. Sanal Kumar; C. Nichith; S. Vigneshwaran ; A. S; A. Kumar; S. Ajith; S. Sharan; S. Mani
11:00-11:30 AM	**AIAA-2016-4771. Rapid Fabrication Techniques for Liquid Rocket Channel Wall Nozzles** P.R. Gradl
9:30 AM-12:00 PM, 251 E, **LP-09. Propellant Storage & Transfer III**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Michael Meyer, michael.l.meyer@nasa.gov, NASA Glenn Research Center; Co-Chair: Daniel Kirk, dkirk@fit.edu, Florida Institute of Technology	

9:30-10:00 AM	**AIAA-2016-4772. A Detailed Historical Review of Propellant Management Devices for Low Gravity Propellant Acquisition** J.W. Hartwig
10:00-10:30 AM	**AIAA-2016-4773. Experimental Investigation on Liquid Acquisition Devices by Mesh-type Baffles** S. Hamajima; T. Himeno; Y. Sakuma; Y. Umemura; H. Negishi; K. Ishikawa; T. Watanabe; S. Uzawa
10:30-11:00 AM	**AIAA-2016-4774. Analytical Prediction of Peak Pressure Transients Occurring During The Priming of a Spacecraft Propulsion System** J.J. Flynn
11:00-11:30 AM	**AIAA-2016-4775. Design and Operation of a Calorimeter for Advanced Multilayer Insulation Testing** D.J. Chato; W.L. Johnson; N. Van Dresar
9:30 AM-12:00 PM, 150 G, **NFF-03. Fusion and Alternative Nuclear Concepts II**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Mitchell Rodriguez, mar0017@uah.edu, ; Co-Chair: Bryan Palaszewski, bryan.a.palaszewski@nasa.gov, NASA Glenn Research Center	
9:30-10:00 AM	**AIAA-2016-4776. Inertial Electrostatic Confinement Fusion Simulation and a Statistical Treatment of Coulomb Collisions** A.M. Chap; R.J. Sedwick
10:00-10:30 AM	**AIAA-2016-4777. Novel Inertial Electrostatic Confinement Fusion with Buckyball Shaped Grids** J. Wulfkuehler; M. Tajmar
10:30-11:00 AM	**AIAA-2016-4778. A Hybrid Solid/Gas Core Nuclear Thermal Rocket Engine for Future Solar System Exploration.** L. Beveridge
9:30 AM-12:00 PM, 255 C, **PC-06. Combustion Chemistry**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Thomas Jackson, tlj@ufl.edu, University of Florida; Co-Chair: Nadja Slavinskaya, nadja.slavinskaya@dlr.de, DLR - German Aerospace Center	
9:30-10:00 AM	**AIAA-2016-4779. Characterizing NOx Emissions for Air-Breathing Rotating Detonation Engines** D.A. Schwer; K. Kailasanath
10:00-10:30 AM	**AIAA-2016-4780. Density Functional Theory Investigations on Bulk Iridium Structures for ReaxFF Catalysis Parameterization** D.D. Depew; J.J. Wang
10:30-11:00 AM	**AIAA-2016-4781. Skeletal Mechanism of the Methane Oxidation for Space Propulsion Applications** N. Slavinskaya; O.J. Haidn
11:00-11:30 AM	**AIAA-2016-4782. Ignition Delay Testing of Various Hypergolic Ionic liquids and Oxidizers** A. Thomas; K. Stober; R. Al Otaibi; M. Alotaibi; N. Almuqati; B.J. Evans; H. Gao; J. Shreeve; B.J. Cantwell

9:30 AM-12:00 PM, 255 D, **PC-07. Air-Breathing Combustion Modeling**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Suresh Menon, suresh.menon@ae.gatech.edu, Georgia Institute of Technology; Co-Chair: Lance Smith, smithll@utrc.utc.com, United Technologies Research Center	
9:30-10:00 AM	**AIAA-2016-4783. CFD Based Design of a Filming Injector for N+3 Combustors** K. Ajmani; H.C. Mongia; P. Lee
10:00-10:30 AM	**AIAA-2016-4784. Effect of Radiation on Gas Turbine Combustor Liner Temperature with Conjugate Heat Transfer (CHT) Methodology** Y. Saygin; S. UsLu
10:30-11:00 AM	**AIAA-2016-4785. LES validation practices in a model aero-engine combustor at engine relevant conditions** S. Yellapantula; K. Venkatesan; A. Pratt; C. Slabaugh; R.P. Lucht
11:00-11:30 AM	**AIAA-2016-4786. Large-Eddy Simulation of a Full Annular RQL Combustion Chamber & Fuel Distribution Effects on the Combustor Exit Temperature Profile** O. Kocaman; T. Aksu; S. UsLu
9:30 AM-12:00 PM, 255 E, **PC-08. Cryogenic Sprays**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Venke Sankaran, venkateswaran.sankaran@us.af.mil, US Air Force/AFRL/RQRC; Co-Chair: Hiroshi Terashima, htera@eng.hokudai.ac.jp, Hokkaido University	
9:30-10:00 AM	**AIAA-2016-4787. Cryogenic Flashing Jets: A Review (Invited Paper)** G. Lamanna
10:00-10:30 AM	**AIAA-2016-4788. Trajectory and Breakup of Cryogenic Jets in Crossflow** W.S. Richards; A.M. Steinberg
10:30-11:00 AM	**AIAA-2016-4789. Sub- or Supercritical? A flamelet analysis of high pressure rocket propellant injection** D.T. Banuti; J. Hickey; M. Ihme
11:00-11:30 AM	**AIAA-2016-4790. Injection of Cryogenic Propellants under Low Pressure Conditions** M. Luo; O.J. Haidn
11:30-12:00 PM	**AIAA-2016-4791. High Fidelity Large Eddy Simulation of Reacting Supercritical Fuel Jet-in-Cross-Flow using GPU acceleration** K.C. Gottiparthi; R. Sankaran; J.C. Oefelein
9:30 AM-12:00 PM, 254 A, **SR-03. Solid Rocket Combustion Instability**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Co-Chair: Alana Spurling, alana.spurling@navy.mil, Naval Air Warfare Center Weapons Division; Chair: Charle Rousseau, Werner.Rousseau@rheinmetall-denelmunition.com, Denel (Pty) Ltd.	
9:30-10:00 AM	**AIAA-2016-4792. Biglobal Instability of the Compressible Taylor-Culick Solution in Cylindrical Rockets** M. Akiki; J. Majdalani
10:00-10:30 AM	**AIAA-2016-4793. Motor Scale and Propellant Geometry Effects on Pressure Oscillations in Aft-Finocyl Solid Rocket Motors** E. Cavallini; B. Favini; A. Neri

9:30 AM-12:00 PM, 151 AB, **TM-03. Thermal System Applications and Unique Environments III**, Technical Paper, **14th International Energy Conversion Engineering Conference**, Co-Chair: Jayesh Mehta, jmehta@belcan.com, Belcan AETD; Chair: Calin Tarau, calin.tarau@1-act.com, Advanced Cooling Technologies	
9:30-10:00 AM	**AIAA-2016-4794. Investigations into the thermal performance of a helically coiled closed loop oscillating heat pipe** S.K. Yeboah; J. Darkwa
10:00-10:30 AM	**AIAA-2016-4795. Development of a radiative heating system for studies of heat transfer in fuel-cooled structures** D. Dong; Y. Lu; Y. Yuan; X. Fan
10:30-11:00 AM	**AIAA-2016-4796. Copper-Methanol Heat Pipes Development for Electronics Cooling of Surveillance Equipment** R. Riehl
11:00-11:30 AM	**AIAA-2016-4797. A novel spiral regenerator suitable for MICSE and the study on its hybrid thermodynamic cycle** Z. Zhang; G. Huang; C. Xia; Y. Xu
11:30-12:00 PM	**AIAA-2016-4798. Investigation of Insulation Effect on Spacecraft Thermal Control System** A.M. Farag; A.M. Elzahaby; M.K. Khalil; T.Z. Wafi; E.E. Khalil
1:00 PM-2:30 PM, Ballroom A-D, **PLNRY-04. High Power Systems for Aerospace Applications**, Plenary, **Forum Event**	
2:30 PM-3:00 PM, Exhibit Hall C, **NW-05. Networking Coffee Break**, Networking	
3:00 PM-6:00 PM, 255 F, **ABPSI-04. Subsonic Inlets & Aerodynamic Interaction**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Thomas Berens, thomas.berens@airbus.com, AIRBUS Defence and Space; Co-Chair: Mitchell Hageman, mitchell.hageman@usafa.edu,	
3:00-3:30 PM	**AIAA-2016-4799. Design point analysis of a distributed propulsion system with boundary layer ingestion implemented in UAV's for agriculture in the Andean region** E. Valencia; V. Hidalgo; J. Cisneros
3:30-4:00 PM	**AIAA-2016-4800. Installed Performance Assessment of a Boundary Layer Ingesting Distributed Propulsion System at Design Point** C. Goldberg; D. Nalianda; P. Pilidis; D. MacManus; J. Felder
4:00-4:30 PM	**AIAA-2016-4801. Numerical Investigation of the Effect of Wing Position on the Aeroacoustic Field of a Propeller** D. Boots; D. Feszty
4:30-5:00 PM	**AIAA-2016-4802. Three Dimensional Design Optimization Using Adjoint Method with Newton Krylov Solver** A. Yıldırım; S. Eyi

5:00-5:30 PM	**AIAA-2016-4803. Studies on Boundarylayer Blockage and External Flow Choking at Moving Wing in Ground Effect** S. Vignesh; S. Vivek; S. Ganesh Shankar; S. Ajith; S. Mani; V. Sanal Kumar
3:00 PM-6:00 PM, 150 DE, **AEC-02. Advanced Engine Control & Intelligent Systems II,** Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: Richard Millar, r.c.millar@verizon.net, Naval Postgraduate School; Co-Chair: Alireza Behbahani, al.behbahani@wpafb.af.mil, AFRL/RQT	
3:00-3:30 PM	**AIAA-2016-4804. Intelligent Nodal-Based Controls Technologies for Integrated Propulsion Energy / Power / Thermal Management Systems** A.R. Behbahani; R.A. Roberts; A.K. Chandoke
3:30-4:00 PM	**AIAA-2016-4805. Development of Distributed Control Systems for Aircraft Turbofan Engines** T.M. Seitz; O.B. Macmann; A.R. Behbahani; F. Khoury
4:00-4:30 PM	**AIAA-2016-4806. Modeling of a Gas Turbine Using Distributed Networks with Smart Nodes and Multiple Time Delays** T.M. Seitz; R.K. Yedavalli; O.B. Macmann; A.R. Behbahani
4:30-5:00 PM	**AIAA-2016-4807. Performing Diagnostics & Prognostics On Simulated Engine Failures Using Neural Networks** O.B. Macmann; T.M. Seitz; A.R. Behbahani; K. Cohen
5:00-5:30 PM	**AIAA-2016-4808. Reconfigurable Distributed Control Systems for Turbine Engine Operation Uncertainties** S. Zein-Sabatto; M. Bodruzzaman; C. McCurry; A.R. Behbahani
5:30-6:00 PM	**AIAA-2016-4809. Integrated Robust and Resilient Control of Propulsion Systems** A.R. Behbahani; O.B. Macmann; T.M. Seitz; R. Buettner
3:00 PM-6:00 PM, 251 D, **APC-02. Advanced Propulsion Concepts I,** Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Co-Chair: Aloysius Reisz, areisz@reiszeng.com, Reisz Engineers; Chair: John Robinson, jwelshr@gmail.com, Retired f/Boeing	
3:00-3:30 PM	**AIAA-2016-4810. Parametric Cycle Analysis of a Turbofan with Core Engine Replaced by Revolutionary Innovative Turbine Engine** F. Yang; Z. Wang; Z. Liu; L. Zhou; X. Zhang
3:30-4:00 PM	**AIAA-2016-4811. Computational Fluid Dynamics Simulations and Validation of a Novel Constant Volume Combustion Jet Engine** J.T. Travis; A.V. Kuznetsov; W. Roberts
4:00-4:30 PM	**AIAA-2016-4812. Aerodynamic Design and Analysis of the Hyperloop Pod** J. Braun; J. Sousa; C. Pekardan
4:30-5:00 PM	**AIAA-2016-4813. Experimental Investigation of a Baffled-Tube Ram Accelerator** C. Knowlen; J. Glusman; R. Grist; A. Bruckner; A. Higgins

3:00 PM-6:00 PM, 151 G, **APS-03. Space Nuclear Power Generation**, Technical Paper, **14th International Energy Conversion Engineering Conference**, Co-Chair: James Haines, jim.haines@btinternet.com, Retired - formerly ESA/ESTEC; Co-Chair: Mukund Patel, patelm@usmma.edu, US Merchant Marine Academy	
3:00-3:30 PM	**AIAA-2016-4814. Performance Testing of the EU/QU MMRTG** C.D. Barklay; B. Tolson; G.S. Bolotin; N. Keyawa; W. David
3:30-4:00 PM	**AIAA-2016-4815. The Selenide Saga: A Contribution Toward a History of the Selenide Isotope Generator** G. Bennett
4:00-4:30 PM	**AIAA-2016-4816. Advanced Stirling Radioisotope Generator EU2 Anomaly Investigation** E.J. Lewandowski; S.M. Oriti
4:30-5:00 PM	**AIAA-2016-4817. Enhancement of the Multi-Mission Radioisotope Thermoelectric Generator with Efficient Skutterudite Thermoelectric Couples: Current Status of the Skutterudite Technology Maturation Program** T.C. Holgate; Y. Song; D. Shi; R. Utz; T. Chung; R. Bennett; S. Keyser; T.E. Hammel; R. Sievers; T. Caillat; J. Fleurial
3:00 PM-6:00 PM, 150 G, **EE-01. Systems-Level Analysis of Energy Efficiency and Renewable Energy**, Technical Paper, **14th International Energy Conversion Engineering Conference**, Chair: Emmanuel Ogedengbe, ogedengbe@energhx.com, ENERGHX Consulting/University of Lagos; Co-Chair: Scott Duncan, sduncan@asdl.gatech.edu, Aerospace Systems Design Laboratory, Georgia Tech	
3:00-3:30 PM	**AIAA-2016-4818. A Building Thermal Demand Model for a District Energy System** J. Lewe; S. Oh; H. Solano; D.N. Mavris
3:30-4:00 PM	**AIAA-2016-4819. A Parametric Modeling of Water-to-air Heat Exchanger Based on CFD Analysis** S. Wojnarska; J. Lewe; K. Song; S.J. Duncan
4:00-4:30 PM	**AIAA-2016-4820. “Synthetic shroud” concept for wind turbine performance optimization** D. Feszty; S. McTavish; I. Bodnya; D. Jee
4:30-5:00 PM	**AIAA-2016-4821. Air Craft Winglet Design and Performance: Cant Angle Effect** E.E. Khalil; E.S. AbdelGhany; G.M. ElHarriri; O.E. Abdellatif
5:00-5:30 PM	**AIAA-2016-4822. Separation analysis in a high-speed rotating cylinder for a binary gas mixture** S. Pradhan
5:30-6:00 PM	**AIAA-2016-4823. A Center for Aviation Systems Efficiency** D. Erbschloe; W. Harrison
3:00 PM-6:00 PM, 250 A, **EP-15. HERMeS Hall Thruster I**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Mitchell Walker, mitchell.walker@ae.gatech.edu, Georgia Institute of Technology; Co-Chair: Kurt Terhune, kjterhun@mtu.edu,	

3:00-3:30 PM	**AIAA-2016-4824. The Ion Propulsion System for the Asteroid Redirect Robotic Mission** D.A. Herman; W. Santiago; H. Kamhawi; J.E. Polk; J.S. Snyder; R.R. Hofer; M.J. Sekerak
3:30-4:00 PM	**AIAA-2016-4825. Development Status of the 12.5 kW HERMeS Hall Thruster for the Solar Electric Propulsion Technology Demonstration Mission** R.R. Hofer; H. Kamhawi
4:00-4:30 PM	**AIAA-2016-4826. Performance, Facility Pressure Effects, and Stability Characterization Tests of NASA's 12.5-kW Hall Effect Rocket with Magnetic Shielding Thruster** H. Kamhawi; T. Haag; W. Huang; J. Yim; D.A. Herman; P.Y. Peterson; G. Williams; J. Gilland; R.R. Hofer; I.G. Mikellides
4:30-5:00 PM	**AIAA-2016-4827. Performance Comparison of the 12.5 kW HERMeS Hall Thruster Technology Demonstration Units** R.W. Conversano; R.R. Hofer; M.J. Sekerak; H. Kamhawi; P.Y. Peterson
5:00-5:30 PM	**AIAA-2016-4828. Facility Effect Characterization Test of NASA's HERMeS Hall Thruster** W. Huang; H. Kamhawi; T. Haag
5:30-6:00 PM	**AIAA-2016-4829. Plasma Oscillation Characterization of NASA's HERMeS Hall Thruster via High Speed Imaging** W. Huang; H. Kamhawi; T. Haag
3:00 PM-6:00 PM, 250 B, **EP-16. Low Power Hall Thruster Development**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: David Oh, david.y.oh@jpl.nasa.gov, Jet Propulsion Laboratory; Co-Chair: James Szabo, jszabo@busek.com, Busek Co., Inc.	
3:00-3:30 PM	**AIAA-2016-4830. High Throughput 600 Watt Hall Effect Thruster for Space Exploration** J.J. Szabo; B. Pote; R. Tedrake; S. Paintal; L. Byrne; V.J. Hruby; H. Kamhawi; T. Smith
3:30-4:00 PM	**AIAA-2016-4831. Characterization and Qualification of the CAM200 Low Power Hall Thruster** D.R. Lev; R. Eytan; D. Katz-Franco; L. Appel
4:00-4:30 PM	**AIAA-2016-4832. Design and characterization of a 200W Hall thruster in "magnetic shielding" configuration** L. Grimaud; J. Vaudolon; S. Mazouffre; C. Boniface
4:30-5:00 PM	**AIAA-2016-4833. Performance Evaluation of the T-40 Low-Power Hall Current Thruster** J.D. Frieman; T. Liu; M.L. Walker; J. Makela; A. Mathers; P.Y. Peterson
5:00-5:30 PM	**AIAA-2016-4834. Experimental Study of the Effects of the Cathode Position and the Electrical Circuit Configuration on the Operation of HK40 Hall Thruster and BUSTLab Hollow Cathode** N. Turan; U. Kokal; M. Celik; H. Kurt

3:00 PM-6:00 PM, 250 C, **EP-17. LaB6 Hollow Cathodes**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Rotislav Spektor, rostislav.spektor@aero.org, The Aerospace Corporation; Co-Chair: Brandon Jackson, bajackso@mtu.edu,	
3:00-3:30 PM	**AIAA-2016-4835. Lanthanum Hexaboride Hollow Cathode Performance and Wear Testing for the Asteroid Redirect Mission Hall Thruster** D.M. Goebel; J.E. Polk
3:30-4:00 PM	**AIAA-2016-4836. Wear Test Demonstration of a Technique to Mitigate Keeper Erosion in a High-Current LaB$_6$ Hollow Cathode** A. Ho; B. Jorns; I.G. Mikellides; D.M. Goebel; A. Lopez Ortega
4:00-4:30 PM	**AIAA-2016-4838. Laser-induced Fluorescence Measurements of Energetic Ions in a 100-A LaB$_6$ Hollow Cathode** C. Dodson; D. Perez-Grande; B. Jorns; D.M. Goebel; R.E. Wirz
3:00 PM-6:00 PM, 250 D, **EP-18. Sputtering & Erosion Physics**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Kurt Polzin, kurtpolzin@gmail.com, NASA Marshall Space Flight Center; Co-Chair: Natalia MacDonald, natalia.macdonald@us.af.mil, AFRL	
3:00-3:30 PM	**AIAA-2016-4839. Mechanisms for Pole Piece Erosion in a 6-kW Magnetically-Shielded Hall Thruster** B. Jorns; C.A. Dodson; J.R. Anderson; D.M. Goebel; R.R. Hofer; M.J. Sekerak; A. Lopez Ortega; I.G. Mikellides
3:30-4:00 PM	**AIAA-2016-4840. Surface Geometry Effects on Secondary Electron Emission Via Monte Carlo Modeling** C.E. Huerta; R.E. Wirz
4:00-4:30 PM	**AIAA-2016-4841. Multi-diagnostic Measurements of Sputter Yield of Molybdenum under Argon Plasma Bombardment** G. Li; T.S. Matlock; D.M. Goebel; R.E. Wirz
4:30-5:00 PM	**AIAA-2016-4842. Search for Anomalous Ridge Growth during Stressed Material Plasma Erosion** A.M. Schinder; M.L. Walker; J. Rimoli
5:00-5:30 PM	**AIAA-2016-4843. A Parametric Computational Study of Boron Transport in Hall Thrusters** B.D. Smith; I.D. Boyd
3:00 PM-6:00 PM, 250 E, **EP-19. Pulsed Plasma Thruster**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Rei Kawashima, kawashima@al.t.u-tokyo.ac.jp, The University of Tokyo; Co-Chair: Joe Cardin, JCardin@VACCO.com, VACCO	
3:00-3:30 PM	**AIAA-2016-4844. Research and Development of a High-Power Electrothermal Pulsed Plasma Thruster System onboard Osaka Institute of Technology 2nd PROITERES Nano-Satellite** K. Kanaoka; H. Tahara

3:30-4:00 PM	**AIAA-2016-4845. Observation of Late-Time Ablation in Electric Solid Propellant Pulsed Microthrusters** M.S. Glascock; J. Rovey; S. Williams; J. Thrasher
4:00-4:30 PM	**AIAA-2016-4846. Pulsed Plasma Thruster Development Using A Novel HAN-Based Green Electric Monopropellant** J. Thrasher; S. Williams; P. Takahashi; J. Sousa
4:30-5:00 PM	**AIAA-2016-4847. Characteristics of a Coaxial Pulsed Plasma Thruster Using Liquid Propellant** K. Miyagi; A. Kakami; T. Tachibana
5:00-5:30 PM	**AIAA-2016-4848. Development and Testing of Electric Propulsion Systems at TU Dresden** D. Bock; F. Nürmberger; C. Drobny; P. Laufer; M. Tajmar
3:00 PM-5:30 PM, Ballroom F, **F360-04. Nuclear Power for Distant Solar System Destinations** , Forum 360, **Forum 360**	
3:00 PM-6:00 PM, 251 A, **GTE-10. Advanced Materials and Technology for Gas Turbine Engines**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Mark Ricklick, Mark.Ricklick@erau.edu, Embry Riddle Aeronautical University	
3:00-3:30 PM	**AIAA-2016-4849. Integrated High Temperature Sensors for Advanced Propulsion Materials** K. Wong; S. Sahoo; M. McFarland
3:30-4:00 PM	**AIAA-2016-4850. The influences of foreign object damage on the high cycle fatigue behavior of titanium alloy TC4** Z. Zhao; X. Xu; W. Chen; T. Wu
4:00-4:30 PM	**AIAA-2016-4851. Preliminary Investigation of an Oblique Jet Impingement Cooling on a CMC Rough Surface** K. Krishna; M.A. Ricklick
4:30-5:00 PM	**AIAA-2016-4852. Effect of Semi-Molten Particulate on Tailored Thermal Barrier Coatings for Gas Turbine Engine** A. Ghoshal; M. Murugan; M. Walock; B. Barnett; M. Pepi; S. Jeffrey; D. Hopkins; G. Gazonas; M. Shiao; K.A. Kerner; C. Rowe
5:00-5:30 PM	**AIAA-2016-4853. Fatigue Analysis of a Cylindrical Turbine Disk with Integrated Heat Pipes** S. Eisenmann; T. Schmidt; V. Gümmer; A. Hupfer
3:00 PM-6:00 PM, 251 B, **GTE-11. Turbines III**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Magdy Attia, magdy.attia@erau.edu, Embry-Riddle Aeronautical University	
3:00-3:30 PM	**AIAA-2016-4854. A Comparative Evaluation of Heat Transfer and Friction Behavior of a Square Channel with Sharp and Rounded 45° Ribs at Wide Range of Reynolds Numbers Using Experimental and Numerical Computation** L. Ahmed; P.K. Tran; C. Vergos; E. Fernandez; L. Mears; J. Rodriguez; J.S. Kapat

3:30-4:00 PM	**AIAA-2016-4855. Investigation of Pressure Drop and Heat Transfer Behavior of a Square Channel with 45° Angle Turbulators on One and Two Wall Configuration** C. Vergos; L. Ahmed; P.K. Tran; T. Buchanan; E. Fernandez; J.S. Kapat
4:00-4:30 PM	**AIAA-2016-4856. Experimental and Computational Flow Analyses of a Single Jet Impinging on a Flat Plate** M. Benson; M. Cremins; A. Lachance; C. Snow; B. Van Poppel; C. Verhulst; G. Rodebaugh; C. Elkins
4:30-5:00 PM	**AIAA-2016-4857. Analysis of a Coupled Micro- and Triple-Impingement Cooling Configuration in the C3X Vane** C.D. Rossman; M.A. Ricklick
3:00 PM-6:00 PM, 251 C, **GTE-12. Gas Turbine Engine Testing Techniques**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Robert Hancock, robert.hancock.3@us.af.mil, AFRL/RQT	
3:00-3:30 PM	**AIAA-2016-4858. Approximation of Engine Casing Temperature Constraints for Casing Mounted Electronics** J.L. Kratz; D.E. Culley; J.W. Chapman
3:30-4:00 PM	**AIAA-2016-4859. An Inverse Heat Conduction Problem applied to the Rotor Casing of a Transonic Turbine** B.F. Hilbert; S.C. Morris
4:00-4:30 PM	**AIAA-2016-4860. Experimental and Numerical Analysis of a Piezo Driven Fluidic Device for Active Flow Control** M. Mair; L. Chen; J. Turner; M. Bacic; P. Ireland
4:30-5:00 PM	**AIAA-2016-4861. Investigation on the dynamic response of aero-engine structures due to fan blade out event through subscale testing** L. Liu; W. Chen; Z. Zhao; G. Luo
3:00 PM-6:00 PM, 253 AB, **HR-05. Development and Evaluation of Novel O/F Formulations and Combinations**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Toru Shimada, shimada.toru@jaxa.jp, Japan Aerospace Exploration Agency; Co-Chair: Stephen Whitmore, stephen.whitmore@usu.edu, Utah State University	
3:00-3:30 PM	**AIAA-2016-4862. Combustion Characteristics of Gas Hybrid Rocket using H_2O as Oxidizer-Effect of Mg-Al Particle Sizes-** Y. Sato; T. Kuwahara
3:30-4:00 PM	**AIAA-2016-4863. Development of a 75 mm Hybrid Rocket Motor to Test Metal Additives** C.S. Maharaj; K.L. Veale; J. Pitot; C. Bemont
4:00-4:30 PM	**AIAA-2016-4864. Design and performance evaluation of hybrid rocket using 95 wt.% H2O2** S. Kang; D. Lee; E. Lee; S. Kwon
4:30-5:00 PM	**AIAA-2016-4865. AP and Boron combustion characteristics in Staged Hybrid Rocket Engine** D. Lee; C. Lee

3:00 PM-6:00 PM, 255 B, **HR-06. Combustion Stability, Motor Performance, and Related Issues**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Balasubramanyam Madhanabharatam, madhanbala@gmail.com, Aerospace Consultant; Co-Chair: Arif Karabeyoglu, arif@spg-corp.com, Space Propulsion Group Inc.	
3:00-3:30 PM	**AIAA-2016-4866. Nondestructive Mapping of Hybrid Rocket Fuel Grains** A.M. Costantino; P. Narsai; B.J. Cantwell
3:30-4:00 PM	**AIAA-2016-4867. Effects of Radiation Heating on Additively Printed Hybrid Fuel Grain O/F Shift** S.A. Whitmore; S.L. Merkley
4:00-4:30 PM	**AIAA-2016-4868. A Fundamental Study on the Hybrid Rocket Clustering for the Rocket Sled Propulsion System** D. Nakata; K. Yasuda; S. Horio; K. Higashino
4:30-5:00 PM	**AIAA-2016-4869. Pressure Oscillation and Combustion in Shear Layer of Hybrid Rocket Post Chamber** Y. Moon; C. Lee
5:00-5:30 PM	**AIAA-2016-4870. Computed Tomography Characterization of a Porous Hybrid Motor Grain with Added Contrast Agent** J.R. Buckley; M. Denny; G.J. Nelson
5:30-6:00 PM	**AIAA-2016-4871. Measuring Time-Varying Fuel Regression Rates with Image Processing in a Hybrid Rocket Motor** P. Narsai; K. Venkataraman; K. Stober; B.J. Cantwell
3:00 PM-6:00 PM, 254 C, **HSABP-07. Numerical Analysis of High-Speed Air-Breathing Propulsion and Their Integration**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Alan Drake, alan.drake@atk.com, Orbital ATK	
3:00-3:30 PM	**AIAA-2016-4872. Aerothermodynamics cycle model for new hypersonic propulsion: Rocket Ignited Supersonic Combustion Ram Jet** J.E. Barros; M. Gabaldo; M.d. Guerra
3:30-4:00 PM	**AIAA-2016-4873. Ignition Test of Solid Fuel Ramjet Combustor** W. Jung; S. Baek; J. Park; T. Kwon; S. Kwon
4:00-4:30 PM	**AIAA-2016-4874. Numerical Analysis of a Dual-mode Scramjet Engine VS a Rocket-Based Combined-Cycle Engine** L. Shi
4:30-5:00 PM	**AIAA-2016-4875. The Effects of Air Vitiation on the Supersonic Turbulent Channel flow using Direct Numerical Simulation** X. Chen; X. Li; H. Dou
3:00 PM-6:00 PM, 255 A, **HSABP-08. Pulse Detonation Physics, and/or Combined Cycle with Other Utility to High-Speed Propulsion**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Kailas Kailasanath, KAILAS@LCP.NRL.NAVY.MIL, Naval Research Laboratory; Co-Chair: A Koichi Hayashi, hayashi@me.aoyama.ac.jp, Aoyama Gakuin University	
3:00-3:30 PM	**AIAA-2016-4876. Preliminary Parametric Analysis of a Rotating Detonation Engine by Analytical Methods** A.R. Mizener; F.K. Lu

3:30-4:00 PM	**AIAA-2016-4877. Mach Disk Pressure Measurement Technique within Rotating Detonation Engine** J.R. Codoni; K.Y. Cho; J.L. Hoke; F.R. Schauer
4:00-4:30 PM	**AIAA-2016-4878. Analytical Model of Shock Dynamics in Pulse Detonation Engine Nozzles** J.T. Peace; F.K. Lu
4:30-5:00 PM	**AIAA-2016-4879. Criteria for rotating detonation to pass obstacles near the inlet** Y. Wang
5:00-5:30 PM	**AIAA-2016-4880. Adaptive simulations of viscous and inviscid detonations in supersonic combustible mixture using a hot jet initiation** X. Cai; J. Liang
3:00 PM-6:00 PM, 151 DE, **ITAR-02. Launch Vehicles I (CAT-IV),** ITAR Presentations, **ITAR Presentations,** Chair: Christopher Brophy, cmbrophy@nps.edu, Naval Postgraduate School; Co-Chair: Scott Claflin, scott.claflin@rocket.com, Aerojet Rocketdyne	
3:00-3:30 PM	**Oral Presentation. Development and Testing 100 lbf Non-Toxic Monopropellant Thruster. Consider for ITAR session.** A. Shchetkovskiy; T. McKechnie; S. Mustaikis
3:30-4:00 PM	**AIAA-2016-4881. Development of 10 inch Diameter Titanium Rolling Metal Diaphragm Tank for Green Propellant** H. Conomos; J. Yager; J. Moore; R. Goddard; T. Salzler; J. Fetes; K. Burch
4:00-4:30 PM	**AIAA-2016-4882. HTP CubeSat Propulsion Module** A. Vazquez; N.D. Love; A.R. Choudhuri
4:30-5:00 PM	**AIAA-2016-4883. Schlieren Visualizations within a Rotating Detonation Engine** J.R. Codoni; K.Y. Cho; J.L. Hoke; F.R. Schauer
5:00-5:30 PM	**AIAA-2016-4884. Launch Vehicle Low Shock Stage Separation System** H. Golden; S. Sawhill
3:00 PM-6:00 PM, 251 E, **NFF-04. Nuclear Thermal Propulsion: Engines and Missions,** Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: Claude Joyner, claude.joyner-ii@rocket.com, Aerojet Rocketdyne; Co-Chair: Stanley Borowski, stanley.k.borowski@nasa.gov, NASA Glenn Research Center	
3:00-3:30 PM	**AIAA-2016-4885. Nuclear Thermal Rocket - Arc Jet Integrated System Model** B.D. Taylor; W.J. Emrich
3:30-4:00 PM	**AIAA-2016-4886. Three-Dimensional Analysis of a Hydrogen Containment Process For Nuclear Thermal Engine Ground Testing** T. Wang; E.T. Stewart; F. Canabal
4:00-4:30 PM	**AIAA-2016-4887. Comparing Low Enriched Fuel to Highly Enriched Fuel for use in Nuclear Thermal Propulsion Systems** V. Patel; M. Eades; P. Venneri; C.R. Joyner

4:30-5:00 PM	**AIAA-2016-4888. Engine Design Attributes Relative to HEU and LEU Core Approaches for a Small Thrust NTP** C.R. Joyner; D.J. Levack; T. Jennings; M. Eades; V. Patel
5:00-5:30 PM	**Oral Presentation. Realizing Commercial Missions to the Moon Using Conventional and Bipropellant Nuclear Thermal Rocket (NTR) Propulsion** S.K. Borowski; S.W. Ryan; L.M. Burke; D.R. McCurdy; J.E. Fittje; C.R. Joyner
5:30-6:00 PM	**AIAA-2016-4889. Atmospheric Mining in the Outer Solar System: Outer Planet Orbital Transfer and Lander Analyses** B.A. Palaszewski
3:00 PM-6:00 PM, 255 C, **PC-09. Advanced Combustor Concepts**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Richard Hausen, richard.hausen@honeywell.com, Honywell; Co-Chair: Edward Lynch, edward.lynch@rocket.com, Aerojet Rocketdyne	
3:00-3:30 PM	**AIAA-2016-4890. Alternative Bio-Derived JP-8 Class Fuel and JP-8 Fuel: Flame Tube Combustor Test Results Compared using a GE TAPS Injector Configuration** Y.R. Hicks; S.A. Tedder; R. Anderson
3:30-4:00 PM	**AIAA-2016-4891. A Comparison of Three Second-Generation Swirl-Venturi Lean Direct Injection Combustor Concepts** K.M. Tacina; P. Lee; H. Mongia; B.K. Dam; Z.J. He; D.P. Podboy
4:00-4:30 PM	**AIAA-2016-4892. Flame-Flow interaction under Distributed Combustion Conditions** A.E. Khalil; A.K. Gupta
3:00 PM-6:00 PM, 255 D, **PC-10. Combustion Instability**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Oliver Knab, oliver.knab@airbus.com, Airbus Defense & Spaceafran Launcher; Co-Chair: Tomasz Drozda, tomasz.g.drozda@nasa.gov, NASA Langley Research Center	
3:00-3:30 PM	**AIAA-2016-4893. Review of experimental test cases for modelling high frequency combustion instability (Invited paper)** J. Hardi; S. Gröning; S. Webster; S. Beinke; D. Suslov; M. Oschwald
3:30-4:00 PM	**AIAA-2016-4894. Generations of unstable combustion in a non-premixed GCH4/GOX rocket injector** H. Terashima; Y. Daimon
4:00-4:30 PM	**AIAA-2016-4895. Towards Numerical Prediction of Jet Fuels Sensitivity of Flame Dynamics in a Swirl Spray Combustion System** R. Ranjan; A. Panchal; G. Hannebique; S. Menon
4:30-5:00 PM	**AIAA-2016-4896. Exploration of POD-Galerkin Techniques for Developing Combustion Response Functions** C. Huang; W.E. Anderson; C. Merkle
5:00-5:30 PM	**AIAA-2016-4897. Variation of Dominant Instability Mode with Fuel Configuration in an Inverted Coaxial Injector** A. Dasari; M. Gamba
5:30-6:00 PM	**AIAA-2016-4898. Numerical Study of the Influence of the Opening Ratio on the Damping Capacity of the Injector** H. An; W. Nie; S. Feng

3:00 PM-6:00 PM, 255 E, **PC-11. Combustion Diagnostics**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Christoph Kirchberger, christoph.kirchberger@dlr.de, German Aerospace Center (DLR); Co-Chair: Simona Silvestri, silvestri@tum.de	
3:00-3:30 PM	**AIAA-2016-4899. Lean Blowout with a High Pressure Well Stirred Reactor** J.T. Gross; D. Shouse; C. Neuroth
3:30-4:00 PM	**AIAA-2016-4900. Fuel Distribution and Gas Temperature Measurements in a Nonuniformly-Fueled Bluff-Body Flame** B. Huelskamp; L.P. Goss; D. Richardson; G. Wang; A. Lynch; V. Belovich; A.W. Caswell
4:00-4:30 PM	**AIAA-2016-4901. Planar Laser Absorption Spectroscopy for the Resolution of Simultaneous, Spatially-Distinct Absorption Paths** J. France; M. Gamba
4:30-5:00 PM	**AIAA-2016-4902. Assessment of flames heat radiation prediction** A.R. da Silva; M.S. Venturini; N.R. Caetano
5:00-5:30 PM	**AIAA-2016-4903. Hydrocarbon Fuel Thermal Performance Modeling based on Systematic Measurement and Comprehensive Chromatographic Analysis** M.C. Billingsley; N. Keim; B. Hill-Lam; R. Synovec
3:00 PM-6:00 PM, 251 F, **SATS-01. Small Satellites I**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Jeremy Straub, jastraub@gmail.com, University of North Dakota	
3:00-3:30 PM	**AIAA-2016-4904. Design Optimization and Performance Evaluation of A Monopropellant Satellite Thruster** C. Nichith; P. P; S. Sharan; S. Mani; V. Sanal Kumar
3:30-4:00 PM	**AIAA-2016-4905. Complete EM System Development for Busek's 1U CubeSat Green Propulsion Module** M. Tsay; J. Zwahlen; D. Lafko; C. Feng; M. Robin
4:00-4:30 PM	**AIAA-2016-4906. Development of Propulsion System with Bi-propellants Based on Green Propellant for Microsatellite** J. Matsushima; M. Kaku; M. Banno; H. Sahara; Y. Araki
4:30-5:00 PM	**AIAA-2016-4907. Development of a MEMS Pyrotechnic Thruster for Micro Propulsion Applications** H. Shukla; R.G. Singh Nandan; P. Shukla; V. Kumar N; M. Varma
3:00 PM-6:00 PM, 254 A, **SR-04. Advanced Solid Rockets (Nozzles, Cases, and Controllable)**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Co-Chair: Helmut Ciezki, helmut.ciezki@dlr.de, DLR - German Aerospace Center; Chair: Karl Naumann, karl.naumann@mbda-systems.de, Bayern-Chemie GmbH	

3:00-3:30 PM	**AIAA-2016-4909. Brazilian Thrust Vector Control System Development: Status and Trends** T. Wekerle; E. Barbosa; C.M. Batagini; L.E. Loures da Costa; L.G. Trabasso
3:30-4:00 PM	**AIAA-2016-4910. Design of Environmental Friendly Chevron Nozzles for Lower Stage Rockets** R. Sathyaprabha ; S. Vigneshwaran ; R. Manishaa; S. Vivek; S. Ajith; S. Mani; V. Sanal Kumar
4:00-4:30 PM	**AIAA-2016-4911. Investigation of Vortex Valve Controlled Variable Thrust SRM** X. Yu; Y. Wang; X. Wei
4:30-5:00 PM	**AIAA-2016-4908. Electrolytic Combustion in the Polyvinyl Alcohol + Hydroxyl Ammonium Nitrate Solid Propellant** J. Baird; J. Lang; A. Hiatt; R.A. Frederick
3:00 PM-6:00 PM, 151 AB, **TM-04. Heat Transfer and Transport Modeling and Analysis I**, Technical Paper, **14th International Energy Conversion Engineering Conference**, Co-Chair: Jayesh Mehta, jmehta@belcan.com, Belcan AETD	
3:00-3:30 PM	**AIAA-2016-4912. Effect of internal partitions on thermal comfort and IAQ level provided by underfloor air distribution system in a typical Office Space** A. AbouZeid; E.E. Khalil
3:30-4:00 PM	**AIAA-2016-4913. Thermal analysis of RBCC engine at ejector, ramjet and scramjet modes** T. Jing; G. He; B.B. Lin; W. Li; F. Qin; Y. Liu
4:00-4:30 PM	**AIAA-2016-4914. Numerical Study of Decreasing the Spread of Sarin (GB) in an Air-conditioned Aircraft Cabin** A.M. Farag; E.E. Khalil; M.M. Hassan
4:30-5:00 PM	**AIAA-2016-4915. Enhanced ECS/Generator Models in an Integrated Air Vehicle Platform** A. Donovan; R.A. Roberts; M. Wolff
5:00-5:30 PM	**AIAA-2016-4916. Predictions of the Air Flow Regimes and Thermal Comfort in Islamic Worship:Religious Rituals of Hajar and her infant Ishmael between Al-Safa and Al-Marwah.** A.A. ElDegwy; E.E. Khalil
6:00 PM-7:30 PM, Ballroom A-D, **PLNRY-05. Formula for Success and Longevity in the Aerospace Business**, Plenary, **Forum Event**	
7:00 PM-8:30 PM, 150 G, **NFF-05. Future Flight Propulsion Systems I**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Bryan Palaszewski, bryan.a.palaszewski@nasa.gov, NASA Glenn Research Center; Co-Chair: Brice Cassenti, cassenti@engr.uconn.edu, University of Connecticut	
7:00-7:30 PM	**AIAA-2016-4917. WWAT: Warp Drives, Wormholes, Antigravity and Time Travel** B.N. Cassenti
7:30-8:00 PM	**AIAA-2016-4918. Destination Universe: Some Thoughts on Faster-Than Light (FTL) Travel** G. Bennett

8:00-8:30 PM	**AIAA-2016-4919. Testing the Possibility of Weight Changes in Highly-Polarized Electrets** M. Tajmar; T. Schreiber

Wednesday, July 27, 2016

Time	Session or Event Info
8:00 AM-9:00 AM, Ballroom A-D, **PLNRY-06. The Impact of Additive Manufacturing on the Design Process**, Plenary, **Forum Event**	
8:45 AM-9:30 AM, Exhibit Hall C, **NW-06. Networking Coffee Break**, Networking	
9:30 AM-12:00 PM, 255 E, **ADP-02. Seal Material Advancements and Advanced Seal Technology**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Patrick Dunlap, patrick.h.dunlap@nasa.gov, NASA Glenn Research Center; Co-Chair: Neelesh Sarawate, sarawate@ge.com, GE Global Research; Co-Chair: Bodhayan Dev, bodhayan.dev@ge.com, GE Global Research Center	
9:30-10:00 AM	**AIAA-2016-4920. Film Riding Pressure Activated Leaf Seal Proof of Concept** T. Kirk; A. Bowsher; P. Crudgington; C. Grondahl; J. Dudley; A. Pawlak
10:00-10:30 AM	**AIAA-2016-4921. Non-Contacting Finger Seals Static Performance Test Results at Ambient and High Temperatures** M.P. Proctor
10:30-11:00 AM	**AIAA-2016-4922. Characterization of thermoplastic-elastomeric seals at high pressures and temperatures** B. Dev; J. Wang; O.p. Samudrala; Q. Xuele
11:00-11:30 AM	**AIAA-2016-4923. An Electrically Conductive Elastomer Seal for Spacecraft** C.C. Daniels; H.A. Oravec; J. Mather; P.H. Dunlap
9:30 AM-12:00 PM, 251 C, **APC-03. Advanced Propulsion Concepts II**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Aloysius Reisz, areisz@reiszeng.com, Reisz Engineers; Co-Chair: John Robinson, jwelshr@gmail.com, Retired f/Boeing	
9:30-10:00 AM	**AIAA-2016-4924. Experimental Investigation on Rotating Detonation Engine with Different Mixing Distance** X. Han; S. Zhang; J. Wang
10:00-10:30 AM	**AIAA-2016-4925. Laser powered air breathing blast wave propulsion guided by donut mode beam** K. Mori
10:30-11:00 AM	**AIAA-2016-4926. Feasibility Study of a DRBCC-Powered Single-Stage-To-Orbit Launch Vehicle** F. Zhang; H. Zhang; B. Wang
9:30 AM-12:00 PM, 151 G, **APS-04. Space and Aircraft Power Generation, Processing and Performance**, Technical Paper, **14th International Energy Conversion Engineering Conference**, Co-Chair: James Haines, jim.haines@btinternet.com, Retired - formerly ESA/ESTEC; Co-Chair: Giang Lam, giang.lam@lmco.com, Lockheed Martin Corporation	

9:30-10:00 AM	**AIAA-2016-4927. Solar Probe Plus (SPP) Power System Electronics** A.C. Baisden; D. Frankford
10:00-10:30 AM	**AIAA-2016-4928. Proposal and Development of a High Voltage Variable Frequency Alternating Current Power System for Hybrid Electric Aircraft** D.J. Sadey; L. Taylor; R. Beach
10:30-11:00 AM	**AIAA-2016-4929. Improving Solar Arrays for LILT and High Radiation Environments** J.S. McNatt; C.B. Taylor; M.F. Piszczor
11:00-11:30 AM	**AIAA-2016-4930. Further Analyses of the NASA Glenn Research Center Solar Cell and Photovoltaic Materials Experiment onboard the International Space Station** M.G. Myers; M.F. Piszczor; M.J. Krasowski; N.F. Prokop; D.S. Wolford; J.S. McNatt
9:30 AM-12:00 PM, 254 C, **ECS-03. Energetic Systems and Component Developments**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Brian Smith, besmith@psemc.com, Pacific Scientific Energetic Materials Company	
9:30-10:00 AM	**Oral Presentation. 2016 CAD/PAD Technology Roadmap Update** J.W. Burchett; T.J. Blachowski; A. Woods
10:00-10:30 AM	**AIAA-2016-4931. A Review on Relationship between Reliability and Lot Acceptance Sample Size for ECS** L.C. Yang
10:30-11:00 AM	**AIAA-2016-4932. Thermal-Mechanical Characterization of Bridgewires and Surrounding Materials Utilizing Thermal Transient Testing** C.J. Moore; J.G. Morgan; L.B. Roberson; J. Carney; J.T. Whittaker; J.D. Glass
11:00-11:30 AM	**AIAA-2016-4933. Detonating Cord Assembly (DCA) Second Source Project Overview** T.J. Blachowski; G. Teowee
9:30 AM-12:00 PM, 253 AB, **EDU-03. Propulsion Education III**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Robert Frederick, robert.frederick@uah.edu, University of Alabama @ Huntsville; Co-Chair: Matthew Hitt, mah0004@uah.edu, The University of Alabama in Huntsville	
9:30-10:00 AM	**AIAA-2016-4934. Measurement of Micro-Thruster Performance Characteristics Using a Magnetically Levitating Thrust Stand** A. Patel; D.M. Lineberry; J.T. Cassibry; R.A. Frederick
10:00-10:30 AM	**AIAA-2016-4936. A parametric model for thrust chamber preliminary design** R.N. Rezende; V. de Castro Perez; A. Pimenta
10:30-11:00 AM	**AIAA-2016-4937. ITA Candy rocket motor design and solid propellant manufacture challenges** D. Bontorin; S.R. Gomes; L. Rocco; R. Jachura; J.A. Rocco; K. Iha
11:00-11:30 AM	**AIAA-2016-4935. Laboratory Experimentation and Basic Research Investigating Electric Solid Propellant Electrolytic Characteristics** A. Hiatt; R.A. Frederick

9:30 AM-12:00 PM, 250 A, **EP-20. Plasma Plume Modeling,** Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: Kimiya Komurasaki, komurasaki@al.t.u-tokyo.ac.jp, The University of Tokyo; Co-Chair: Robert Thomas, robert.e.thomas@nasa.gov,	
9:30-10:00 AM	**AIAA-2016-4938. On the Validity of the Boltzmann Assumption for Electrons in Plasma Plume Modeling** Y. Hu; J.J. Wang
10:00-10:30 AM	**AIAA-2016-4939. SM/MURF: Current Capabilities and Verification as a Replacement of AFRL Plume Simulation Tool COLISEUM** S.J. Araki; R.S. Martin; D. Bilyeu; J.W. Koo
10:30-11:00 AM	**AIAA-2016-4940. Numerical Simulations of Unsteady Plasma Plume Flows** C. Cai
11:00-11:30 AM	**AIAA-2016-4941. Carbon Back Sputter Modeling for Hall Thruster Testing** J.H. Gilland; G. Williams; J.M. Burt; J. Yim
9:30 AM-12:00 PM, 250 B, **EP-21. Mid Power Hall Thruster Development,** Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: Stephane Mazouffre, Stephane.Mazouffre@cnrs-orleans.fr, ICARE-CNRS; Co-Chair: Petr Cagas, pcagas@vt.edu, Virginia Tech	
9:30-10:00 AM	**AIAA-2016-4942. Laboratory Testing of Hall Thrusters for All-electric Propulsion Satellite and Deep Space Explorers** I. Funaki; S. Iihara; S. Cho; K. Kubota; H. Watanabe; K. Fuchigami; Y. Tashiro
10:00-10:30 AM	**AIAA-2016-4943. Integration Tests of the 4 kW-class High Voltage Hall Accelerator Power Processing Unit with the HiVHAc and the SPT-140 Hall Effect Thrusters** H. Kamhawi; L.R. Pinero; T. Haag; W. Huang; D. Ahern; R. Liang; V. Shilo
10:30-11:00 AM	**AIAA-2016-4944. Research and Development of low-Power and High-Power Three-Types Hall Thrusters at Osaka Institute of Technology** T. Kakuma; H. Tahara
9:30 AM-12:00 PM, 250 C, **EP-22. Cathodes & Neutralizers,** Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: Dan Goebel, dan.goebel@jpl.nasa.gov, Jet Propulsion Laboratory; Co-Chair: Alejandro Lopez Ortega, alejandro.lopez.ortega@jpl.nasa.gov, Jet Propulsion Laboratory	
9:30-10:00 AM	**AIAA-2016-4945. Experimental Performance Characterization of a Novel Direct Current Cold Cathode Neutralizer for Electric Thruster Applications** A. Gurciullo; A.K. Knoll; P. Bianco
10:00-10:30 AM	**AIAA-2016-4946. 3D Particle Simulation for Electron Extraction Mechanisms of a Miniature Microwave Discharge Neutralizer** K. Hiramoto; Y. Nakagawa; H. Koizumi; K. Komurasaki; Y. Takao
10:30-11:00 AM	**AIAA-2016-4947. Performance of a Hall Thruster Operating with a Radio Frequency Plasma Cathode** H. Watanabe; M. Ichimura; H. Takegahara

9:30 AM-12:00 PM, 250 D, **EP-23. Advanced EP Concepts**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Co-Chair: Jonathan Kolbeck, jkolbeck@gwu.edu, ; Co-Chair: Taylor Swanson, taylorswanson@gmail.com, AEDC	
9:30-10:00 AM	**AIAA-2016-4948. Antenna Coupling and Thrust Measurements in a Direct Wave-Drive Thruster** M.S. Feldman; E. Choueiri
10:00-10:30 AM	**AIAA-2016-4949. Experimental Performance Analysis of the BUSTLab Microwave Electrothermal Thruster** M.S. Yildiz; M. Celik
10:30-11:00 AM	**AIAA-2016-4950. Advances in Duration Testing of the VASIMR® VX-200SS™ System** J.P. Squire; M.D. Carter; F.R. Chang Diaz; L. Dean; M. Giambusso; J. Castro; J. Del Valle
11:00-11:30 AM	**AIAA-2016-4951. Preliminary Investigation of an External Discharge Plasma Thruster** B. Karadag; S. Cho; Y. Oshio; Y. Hamada; I. Funaki; K. Komurasaki
9:30 AM-12:00 PM, Ballroom F, **F360-05. Rising Leaders in Aerospace -- Forum 360 Combined Session**, Forum 360, **Forum 360**	
9:30 AM-12:00 PM, 150 DE, **FFP-02. Fossil-Fuel Power Technologies II**, Technical Paper, **14th International Energy Conversion Engineering Conference**, Co-Chair: Ahsan Choudhuri, ahsan@utep.edu, University of Texas at El Paso; Chair: Bhupendra Khandelwal, bhupendra.khandelwal@gmail.com, The University of Sheffield	
9:30-10:00 AM	**AIAA-2016-4952. Reactor Parameters Effects on Hydrogen Production from Hydrogen Sulfide** A.M. El-Melih; S. Ibrahim; A. Al Shoaibi; A.K. Gupta
10:00-10:30 AM	**AIAA-2016-4953. The Effect of the Fuel Change from Petroleum Kerosene to HEFA Alternative Jet Fuel on the Emission of an RQL Type Gas Turbine Combustor** K. Okai; H. Fujiwara; M. Makida; K. Shimodaira; H. Yamada; M. Nakamura
10:30-11:00 AM	**AIAA-2016-4954. Bio-Ethanol Fuel Mixtures Theoretical Influence on Aviation Reciprocating Engines** J. Vega; J. Leyton; L.F. Monico
11:00-11:30 AM	**AIAA-2016-4955. Emission Characteristics of Laminar Prevaporized Petroleum and Biodiesel Flames at near Stoichiometric Conditions** A. Balakrishnan; R.N. Parthasarathy; S. Gollahalli
11:30-12:00 PM	**AIAA-2016-4956. Experimental Investigation of the Laminar Flame Speeds of GTL Fuel Blends** S. Samim; S.F. Ahmed
9:30 AM-12:00 PM, 254 B, **GEPC-02/EOA-01. Low Carbon Aviation- Electric Propulsion and Technologies**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Marty Bradley, marty.k.bradley@boeing.com, Boeing Commercial Airplanes; Co-Chair: Tarek Abdel-Salam, abdelsalamt@ecu.edu, East Carolina University; Co-Chair: Elena Garcia, elena.garcia@ae.gatech.edu, Georgia Institute of Technology	
9:30-10:00 AM	**Oral Presentation. Air Force Research Laboratory More Electric Aircraft Technologies** J. Nairus

10:00-10:30 AM	**Oral Presentation. Exploration of Enabling Technologies and Preliminary Design of High Efficiency, High Specific Power Drive for Hybrid Propulsion Systems** F. Luo
10:30-11:00 AM	**Oral Presentation. Carbon Emissions Impact of Hybrid Electric Propulsion and Secondary Power Systems** C.E. Lents
11:00-11:30 AM	**Oral Presentation. Enabling Technology Development for Hybrid and Distributed Electric Aircraft Propulsion** M.J. Armstrong
11:30-12:00 PM	**Oral Presentation. Review of Hybrid and Turbo Electric Propulsion for Large Transport Aircraft** J. Felder
9:30 AM-12:00 PM, 251 A, **GTE-14. Compressors III**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Jeffrey Csank, jeffrey.t.csank@nasa.gov, NASA Research Center	
9:30-10:00 AM	**AIAA-2016-4957. Application of Symmetry Property for Transient Response Analysis of Mistuned Bladed Disks** J. Yao; W. Zhu; N. Hu; J. Wang
10:00-10:30 AM	**AIAA-2016-4958. Analytical Modeling of Helium Compressor Performance** D. Wilson; P. Balaji
10:30-11:00 AM	**AIAA-2016-4959. Three-objective Optimization for the Design of Mechanical Component Using Evolutionary Numerical Simulation Approach** N.R. Nagaiah; J.S. Kapat; C.D. Geiger
11:00-11:30 AM	**AIAA-2016-4960. Optical Characterization of a Cross flow fan for Distributed Propulsion** G. Raush; L. Villafane; G. Paniagua
9:30 AM-12:00 PM, 251 B, **GTE-15/ABPSI-06/HSABP-11. Undergraduate Engine Design Competition**, Panel, **52nd AIAA/SAE/ASEE Joint Propulsion Conference (non-paper sessions)**, Chair: Jimmy Tai, jimmy.tai@ae.gatech.edu, Georgia Institute of Technology; Co-Chair: Christopher Perullo, chris.perullo@ae.gatech.edu, Georgia Institute of Technology	
9:30 AM-12:00 PM, 255 B, **HR-07. Design and Development of Novel Hybrid Rocket Motor Concepts II**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Shane Coogan, shane.coogan@swri.org, Southwest Research Institute; Co-Chair: Yen-Sen Chen, ychen_esi@yahoo.com, National Space Organization Taiwan	
9:30-10:00 AM	**AIAA-2016-4961. Design of a Hybrid CubeSat Orbit Insertion Motor** E. Jens; A.C. Karp; B. Nakazono; D.B. Eldred; M.E. DeVost; D. Vaughan
10:00-10:30 AM	**AIAA-2016-4962. A Hybrid Mars Ascent Vehicle Concept for Low Temperature Storage and Operation** A.C. Karp; B. Nakazono; J. Benito Manrique; R. Shotwell; D. Vaughan; G.T. Story
10:30-11:00 AM	**AIAA-2016-4963. Experiments of an Ejector-jet using a Wax-based Fuel Hybrid Rocket Motor** Y. Nakada; I. Nakagawa

11:00-11:30 AM	**AIAA-2016-4964. Static Burning Tests on a Bread Board Model of Altering-intensity Swirling-Oxidizer-Flow-Type Hybrid Rocket Engine** K. Ozawa; T. Usuki; G. Mishima; K. Kitagawa; M. Yamashita; M. Mizuchi; S. Aso; Y. Tani; Y. Wada; T. Shimada
11:30-12:00 PM	**AIAA-2016-4965. Design of a Lab-Scale Hybrid Rocket Test Stand** J.C. Thomas; J.M. Stahl; G.R. Morrow; E.L. Petersen
9:30 AM-12:00 PM, 255 A, **HSABP-09. Experimental and Numerical Analysis of High Speed Propulsion Systems**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Timothy O'Brien, tim.obrien@raytheon.com, Raytheon Missiles Systems	
9:30-10:00 AM	**AIAA-2016-4966. Design and Experiments of a Continuous Rotating Detonation Engine: a Spinning Wave Generator and Modulated Fuel/Oxidizer Mixing** J.A. Boening; J.D. Heath; T.J. Byrd; J.V. Koch; A.T. Mattick; R.E. Breidenthal; C. Knowlen; M. Kurosaka
10:00-10:30 AM	**AIAA-2016-4967. Theoretical and Experimental Consideration of the Continuous Rotating Detonation Engine** M. Kurosaka; C. Knowlen; J.A. Boening
10:30-11:00 AM	**AIAA-2016-4968. Preliminary Experiments on Transpiration Cooling in Ramjets and Scramjets** F.T. Strauss; C. Manfletti; D. Freudenmann; J. Witte; S. Schlechtriem
11:00-11:30 AM	**AIAA-2016-4969. Flow Field Characteristics of Non-Axisymmetric High Subsonic Jets** G. Valentich; R. Kumar; D. Cuppoletti; M. Alphonso; C. Harris
9:30 AM-12:00 PM, 151 DE, **ITAR-03. Explosives and Energetic Materials (CAT-V)**, ITAR Presentations, **ITAR Presentations**, Chair: Joaquin Castro, joaquin.castro@rocket.com, Aerojet Rocketdyne; Co-Chair: Christopher Brophy, cmbrophy@nps.edu, Naval Postgraduate School	
9:30-10:00 AM	**AIAA-2016-4970. High Energy Radiation Effects on Spacecraft Service Valve O-ring Leak Rates** G.T. Coll; R. Gigliuto; G. Webster; M. Espinosa
10:00-10:30 AM	**AIAA-2016-4971. Microgravity Flight Testing of Multi-Pulse Small Solid Motors (Consider for ITAR Session)** S. Williams; P. Takahashi; J. Sousa; A. Nicholas
10:30-11:00 AM	**AIAA-2016-4972. Design and Development of Gaseous Hydrogen and Oxygen Tank Pressurization Assemblies for the Space Launch System Core Stage** H.M. Pitts; M. Ettleman; P. Park; V. Cardoso; R. Kelly; Y. Gerasimov
11:00-11:30 AM	**AIAA-2016-4973. Design and Fabrication of an Ultra-Low-Cost Variant of the Bantam Liquid Rocket Engine Family for Application to the DARPA Experimental Spaceplane (XS-1) and Other Future Low-Cost Launch Applications** J.H. Castro; W. Sack; J. Littles

11:30-12:00 PM	**AIAA-2016-4974. Pyrooshock Dynamic Loading Impacts on Thermoelectric Module Assemblies and Bi-Couples in Multi-Mission Radioisotope Thermoelectric Generators** T.J. Hendricks; D.J. Neff; N. Keyawa; B.J. Nesmith; P. Bahrami; A. Derkevorkian; A.R. Kolaini
9:30 AM-12:00 PM, 251 D, **LP-12. Rocket Engine Components**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Silvio Chianese, silvio.chianese@spacex.com, SpaceX; Co-Chair: Andrew Devereaux, andrew.devereaux@thalesaleniaspace.com, Surrey Satellite Technology Ltd (SSTL)	
9:30-10:00 AM	**AIAA-2016-4975. Development and Testing of a O_2/CH_4 Torch Igniter for Propulsion Systems** L.E. Sanchez; J. Chaparro; S.A. Torres; N.D. Love; A.R. Choudhuri
10:00-10:30 AM	**AIAA-2016-4976. Characterising the Infrared Signature of a Liquid Propellant Engine Plume** C.J. Higgins; T. Smithson; I. Coxhill; P. Fournier; S. Ringuette
10:30-11:00 AM	**AIAA-2016-4977. Digital Image Correlation Techniques Applied to Large Scale Rocket Engine Testing** P.R. Gradl
9:30 AM-12:00 PM, 251 E, **LP-13. Propulsion Systems - Design & Test II**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: David Coote, david.j.coote@nasa.gov, NASA Stennis Space Center; Co-Chair: Daniel Guadagnoli, guadagnoli.daniel@orbital.com, Orbital ATK	
9:30-10:00 AM	**AIAA-2016-4978. Numerical Studies of Dynamic Response for an Oxidizer Injector to Detonation Wave** K. Mikoshiba; S. Sardeshmukh; D. Stechmann; S.D. Heister
10:00-10:30 AM	**AIAA-2016-4979. Experimental Study of Liquid Injector Elements for Use in Rotating Detonation Engines** W.S. Anderson; D. Lim; M.R. Washington; S.D. Heister
10:30-11:00 AM	**AIAA-2016-4980. Monopropellant Hydrazine Thrusters—Bringing Updated Designs to Flight** V. Yarnot; M.B. Dawson; O.M. Morgan
11:00-11:30 AM	**AIAA-2016-4981. Effects of Water Hammer on Propulsion Systems** B. Brindle; J. Gilbert; J.D. Moore; G.A. Risha
9:30 AM-12:00 PM, 251 F, **LP-14. Turbomachinery**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Bogdan Marcu, bogdan.n.marcu@gmail.com, ; Co-Chair: Scott Forde, Scott.Forde@rocket.com, Aerojet Rocketdyne	
9:30-10:00 AM	**AIAA-2016-4982. Unique Characteristics of Imbalanced Torque Force of a Partial Admission Turbine for 50% Partiality** K. Yada; S. Kawasaski; M. Uchiumi; H. Kato; K. Funazaki
10:00-10:30 AM	**AIAA-2016-4983. The Design and Analysis of Low Solidity Vaned Diffusers for Increased Turbopump Throttling Capability** S.R. Sargent

10:30-11:00 AM	**AIAA-2016-4984. Turbopump Design and Development for the Virgin Galactic NewtonThree Engine System** S.R. Sargent; J. Noall; M. Becker; S. Macklin
11:00-11:30 AM	**AIAA-2016-4985. High Suction Performance Pumps with Large Inlet Blade Angles and an Integrated Stability Control Device** R.K. Lundgreen; K. Oliphant; D. Maynes; S.E. Gorrell
11:30-12:00 PM	**AIAA-2016-4986. Characterization of Rotating Cavitation in a Four Bladed Inducer** C. Lettieri; Z. Spakovszky; D. Jackson; V. Wang
9:30 AM-12:00 PM, 150 G, **NFF-06. Future Flight Propulsion Systems II**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Brice Cassenti, cassenti@engr.uconn.edu, University of Connecticut; Co-Chair: Martin Tajmar, martin.tajmar@tu-dresden.de, Dresden University of Technology	
9:30-10:00 AM	**AIAA-2016-4987. Anomalous Electromagnetically Induced Propulsion Effects on Self-contained "RAMA" Devices** H.H. Brito; R. De Alessandro; M.A. Brito
10:00-10:30 AM	**AIAA-2016-4988. First Measurements of a 0.6 Gigawatt Superconducting Gravity-Impulse-Generator** I. Lörincz; M. Tajmar
10:30-11:00 AM	**AIAA-2016-4989. Propulsion Estimates for High Energy Lunar Missions Using Future Propellants** B.A. Palaszewski; G. Bennett
9:30 AM-12:00 PM, 255 C, **PC-12. Green Propulsion**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Christopher Cadou, cadou@umd.edu, University of Maryland; Co-Chair: Helmut Ciezki, helmut.ciezki@dlr.de, DLR - German Aerospace Center	
9:30-10:00 AM	**AIAA-2016-4990. Comparison of single and multi-injector GOC/CH4 combustion chambers** M. Celano; S. Silvestri; C. Bauer; N. Perakis; G. Schlieben; O.J. Haidn
10:00-10:30 AM	**AIAA-2016-4991. Investigation of Green Hypergolic Propellants for Hybrid Rockets** K. Stober; A. Thomas; B.J. Evans; B.J. Cantwell
10:30-11:00 AM	**AIAA-2016-4992. Characterization of a Multi-Injector GOX/CH4 Combustion Chamber** S. Silvestri; M. Celano; G. Schlieben; O.J. Haidn
11:00-11:30 AM	**AIAA-2016-4993. Studies on Flame Behaviors of GCH_4/GO_2 Coaxial Jets in a Model Combustor at Elevated Pressure** H. Kim; S. Choi; T. Kim; O. Kwon
11:30-12:00 PM	**AIAA-2016-4994. A 1D Multiphase Mixture Model for the Design of Catalysts for Monopropellant Thrusters** C. Boffa; O.J. Haidn
9:30 AM-12:00 PM, 255 D, **PC-13. Single Injector Test Case Modeling**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Oskar Haidn, haidn@tum.de, Technische Universität München; Co-Chair: Yu Daimon, daimon.yu@jaxa.jp, Japan Aerospace Exploration Agency	

9:30-10:00 AM	**AIAA-2016-4995. Numerical Investigation of Flow and Combustion in a Single Element GCH4/Gox Rocket Combustor** C.M. Roth; O.J. Haidn; A. Chemnitz; T. Sattelmayer; G. Frank; H. Müller; J. Zips; R. Keller; P.M. Gerlinger; D. Maestro; B. Cuenot; H. Riedmann; L. Selle
10:00-10:30 AM	**AIAA-2016-4996. Numerical Investigation of Flow and Combustion in a Single-Element GCH_4/GOX Rocket Combustor: Chemistry Modeling and Turbulence-Combustion Interaction** D. Maestro; B. Cuenot; A. Chemnitz; T. Sattelmayer; C. Roth; O.J. Haidn; Y. Daimon; R. Keller; P.M. Gerlinger; G. Frank; M. Pfitzner; L. Selle
10:30-11:00 AM	**AIAA-2016-4997. Numerical Investigation of Flow and Combustion in a Single-Element GCH4/GOX Rocket Combustor: A comparative LES study** H. Müller; J. Zips; M. Pfitzner; D. Maestro; B. Cuenot; S. Menon; R. Ranjan; P. Tudisco; L. Selle
11:00-11:30 AM	**AIAA-2016-4998. Numerical Modeling of Flow and Combustion in a Single-Element GCH4/GOX Rocket Combustor: Aspects of Turbulence Modeling** A. Chemnitz; T. Sattelmayer; C.M. Roth; O.J. Haidn; Y. Daimon; R. Keller; P.M. Gerlinger; J. Zips; M. Pfitzner
11:30-12:00 PM	**AIAA-2016-4999. On the Effects of Chemical Kinetics and Thermal Conditions on the Flow and Flame Features in a Single-Element GCH4/GOX Rocket Combustor** R. Ranjan; A. Panchal; S. Menon
9:30 AM-12:00 PM, 254 A, **SR-05. Solid Rocket Developments Past and Present** , Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: Merlin Randall, Merlin.Randall@rocket.com, Aerojet-Rocketdyne East; Co-Chair: David Poe, david.poe@rocket.com, Aerojet Rocketdyne	
9:30-10:00 AM	**AIAA-2016-5000. Observation in Ballistic Evaluation Motor Static Firing: Graphite Nozzle Cracking** T. K; A. Rao; R. Jakka
10:00-10:30 AM	**AIAA-2016-5001. Multidisciplinary Optimization of a Solid Propellant Sectional Geometry for Internal Ballistic and Structural Strength Criteria** C. Tola; M. Nikbay
10:30-11:00 AM	**AIAA-2016-5002. Effect of Ageing on Mechanical Properties of Composite Solid Propellants** H. Naseem; H. Murthy; P. Ramakrishna
11:00-11:30 AM	**AIAA-2016-5003. "Thermal-Mechanical" Coupled Model Based on Porous Media Characteristics of EPDM insulator Char Layer** Y. Liu; J. Pei
9:30 AM-12:00 PM, 151 AB, **TM-05. Heat Transfer and Transport Modeling and Analysis II,** Technical Paper, **14th International Energy Conversion Engineering Conference,** Co-Chair: Calin Tarau, calin.tarau@1-act.com, Advanced Cooling Technologies; Chair: Essam Khalil, khalile1@asme.org, Cairo University	
9:30-10:00 AM	**AIAA-2016-5004. Air Cycle Machine Transient Modeling with Exergy Analysis** M. Bracey; S.R. Nuzum; R.A. Roberts; M. Wolff; J. Zumberge

10:00-10:30 AM	**AIAA-2016-5005. CFD Investigation of Smoke Management In Underground Tunnels** E.E. Khalil; W.M. El-Sayed Sweida; O. Huzzayyin
10:30-11:00 AM	**AIAA-2016-5006. Lumped Parameter Modelling and Testing of a Free Piston Stirling Engine Heat Exchanger Using Laminated Woven Copper Wire Mesh as Heat Transfer Areas** F.M. Senda; P.T. Senda; R.T. Dobson
11:00-11:30 AM	**AIAA-2016-5007. Oxidizer Composition Effects on NOx Emissions from Swirl Burner** E.E. Khalil; A. Ahmed; M.M. Hassan; H. Kayed
1:30 PM-3:00 PM, Ballroom A-D, **PLNRY-07. The Strategic Challenges and Opportunities in the Power and Propulsion Markets**, Plenary, **Forum Event**	
3:00 PM-6:00 PM, 255 F, **ABPSI-05. Propulsion Systems Integration**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Darrell Crowe, darrell.crowe@us.af.mil, Air Force Institute of Technology; Co-Chair: Atma Prakash, a.prakash@tees.ac.uk, University of Teesside	
3:00-3:30 PM	**AIAA-2016-5008. Computational and Experimental Evaluation of a Complex Inlet Swirl Pattern Generation System** D.D. Sanders; C. Nessler; W.W. Copenhaver; M.G. List; T.J. Janczewski
3:30-4:00 PM	**AIAA-2016-5009. Parametrical Optimization of a three-dimensional Dump Diffuser with Aerodynamically-shaped Flame Tube for Modern Aircraft Engines** C. Selvakarthick ; S. Ajith; H. Nagaraju Doddi; V. Sanal Kumar; V. Rangaraj; J.K. Allen
4:00-4:30 PM	**AIAA-2016-5010. Development of an Engine-Integrated Fuel Cell Concept Demonstrator: Phase I Efforts** L.M. Pratt; S. Vannoy; C.P. Cadou
4:30-5:00 PM	**AIAA-2016-5011. Development And Analysis of a Group 1 UAV Series Hybrid Power System with Two Engine Options** M.D. Hageman; C. Wisniewski
3:00 PM-6:00 PM, 151 AB, **ECD-03. Stirling Components and Systems**, Technical Paper, **14th International Energy Conversion Engineering Conference**, Chair: Terry Hendricks, terry.j.hendricks@jpl.nasa.gov, NASA-Jet Propulsion Laboratory; Co-Chair: Lee Mason, lee.s.mason@nasa.gov, NASA Glenn Research Center	
3:00-3:30 PM	**AIAA-2016-5012. Fission Surface Power Technology Demonstration Test Results** M.H. Briggs; M.A. Gibson; S.M. Geng; J. Sanzi
3:30-4:00 PM	**AIAA-2016-5013. Two-Step Multi-Physics Analysis of an Annular Linear Induction Pump for Fission Power Systems** S.M. Geng; T.V. Reid
4:00-4:30 PM	**AIAA-2016-5014. Performance Testing of a High Temperature Linear Alternator for Stirling Convertors** J. Metscher; S.M. Geng

4:30-5:00 PM	**AIAA-2016-5015. Active Vibration Reduction of the Advanced Stirling Convertor** S.D. Wilson; J. Metscher; N.A. Schifer
5:00-5:30 PM	**AIAA-2016-5016. Improving Power Density of Free-Piston Stirling Engines** M.H. Briggs
5:30-6:00 PM	**AIAA-2016-5017. Maturing Technologies for Stirling Space Power Generation** S.D. Wilson; B.C. Nowlin; M.W. Dobbs; P.C. Schmitz; J.J. Huth
3:00 PM-5:30 PM, 254 B, **ECS-04. Young Professionals and Energetic Components & Systems - An Educational Series Panel Session**, Panel, **52nd AIAA/SAE/ASEE Joint Propulsion Conference (non-paper sessions)**	
3:00 PM-6:00 PM, 150 G, **EE-02. Renewable Fuel Generation And Processing**, Technical Paper, **14th International Energy Conversion Engineering Conference**, Co-Chair: Scott Duncan, sduncan@asdl.gatech.edu, Aerospace Systems Design Laboratory, Georgia Tech; Chair: Yinon Yavor, yinonyavor@tx.technion.ac.il, Technion - Israel Ins. of Technology	
3:00-3:30 PM	**AIAA-2016-5018. Optimal Technique for Separation of Particle-rich Syngas in Cyclone for Efficient Methanation** O.O. Olalekan; E.O. Ogedengbe
3:30-4:00 PM	**AIAA-2016-5019. Dry (CO2) Reformation of Methane using Nickel-Barium Catalyst** K.R. Burra; A.K. Gupta
4:00-4:30 PM	**AIAA-2016-5020. Simultaneous Differential Thermal and Thermogravimetric Analysis of Chicken Manure Gasification using Nitrogen and Carbon Dioxide** R.S. Amano; M.S. Hussaein
4:30-5:00 PM	**AIAA-2016-5021. Aluminum-Water Reaction Mechanism – Modeling of the Different Reaction Stages** Y. Yavor
5:00-5:30 PM	**AIAA-2016-5022. The Generalized Onsager Model for a Binary Gas Mixture with Swirling Feed** S. Pradhan
5:30-6:00 PM	**AIAA-2016-5023. Analysis of High-Speed Rotating Flow in 2D Polar *(r - θ)* Coordinate** S. Pradhan
3:00 PM-6:00 PM, 250 A, **EP-24. HERMeS Hall Thruster II**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Taylor Matlock, tmatlock17@ucla.edu, ; Co-Chair: Steve Gildea, stephen.gildea@us.af.mil, AFRL	
3:00-3:30 PM	**AIAA-2016-5024. Transient Thermal Analysis of the 12.5 kW HERMeS Hall Thruster** S.W. Reilly; M.J. Sekerak; R.R. Hofer
3:30-4:00 PM	**AIAA-2016-5025. 2000-hour Wear-Testing of the HERMeS Thruster** G. Williams; J.H. Gilland; P.Y. Peterson; H. Kamhawi; W. Huang; M. Swiatek; C. Joppeck; J. Yim; T. Haag
4:00-4:30 PM	**AIAA-2016-5026. Hollow Cathode Assembly Development for the HERMeS Hall Thruster** T.R. Sarver-Verhey; H. Kamhawi; D.M. Goebel; J.E. Polk; P.Y. Peterson; D.A. Robinson

4:30-5:00 PM	**AIAA-2016-5027. NASA's HERMeS Hall Thruster Electrical Configuration Characterization** P.Y. Peterson; H. Kamhawi; W. Huang; G. Williams; J.H. Gilland; J. Yim; R.R. Hofer; D.A. Herman
5:00-5:30 PM	**AIAA-2016-5028. Ion Acoustic Turbulence and Ion Energy Measurements in the Plume of the HERMeS Thruster Hollow Cathode** N. Yanes; B. Jorns; A. Friss; J.E. Polk; P. Guerrero; J.M. Austin
3:00 PM-6:00 PM, 250 B, **EP-25. High Power Hall Thruster & PPU Development,** Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: Olivier Duchemin, olivier.duchemin@snecma.fr, Snecma S.A.; Co-Chair: Ryan Conversano, ryan.w.conversano@jpl.nasa.gov, Jet Propulsion Laboratory	
3:00-3:30 PM	**AIAA-2016-5029. Investigation of Channel Interactions in a Nested Hall Thruster Part II: Probes and Performance** S.E. Cusson; E.T. Dale; A. Gallimore
3:30-4:00 PM	**AIAA-2016-5030. Investigation of Channel Interactions in a Nested Hall Thruster Part I: Acceleration Region Velocimetry** M.P. Georgin; V. Dhaliwal; A. Gallimore
4:00-4:30 PM	**AIAA-2016-5031. Performance of a High-Fidelity 4kW-Class Engineering Model PPU and Integration with HiVHAc System** L.R. Pinero; H. Kamhawi; V. Shilo
4:30-5:00 PM	**AIAA-2016-5032. Electric Propulsion Electronics Activities in Europe 2016** M. Gollor; E. Bourguignon; G. Glorieux; N. Wagner; J. Palencia; P. Galantini; W. Dechent; A. Franke; U. Schwab; G. Tuccio
5:00-5:30 PM	**AIAA-2016-5033. High Input Voltage, Power Processing Unit Performance Demonstration** W. Santiago; K. Bozak; L.R. Pinero; R.J. Scheidegger; M.C. Gonzalez; A.G. Birchenough; M.J. Garret; N.V. Ivanov
3:00 PM-6:00 PM, 250 C, **EP-26. Magnetoplasmadynamics and EP Diagnostics,** Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: Robert Lobbia, lobbia@umich.edu, University of Michigan; Co-Chair: Peter Peterson, peter.y.peterson@nasa.gov, NASA Glenn Research Center	
3:00-3:30 PM	**AIAA-2016-5034. Plume and beam properties of miniaturized low-power cylindrical Hall thruster for micro-satellites** H. Kim; S. Lee; Y. Lim; J. Kim; W. Choe
3:30-4:00 PM	**AIAA-2016-5035. Kinetic modelling of collisionless electron cooling on magnetized plasma expansions** S. Correyero Plaza; J. Navarro; E. Ahedo; G. Sánchez
4:00-4:30 PM	**AIAA-2016-5036. Measurement of Electron and Neutral Atom Density Downstream of an Electric Propulsion** N. Yamamoto; M. Iwamoto; T. Morita; H. Nakashima

4:30-5:00 PM	**AIAA-2016-5037. Collisionless electron cooling in unmagnetized plasma thruster plumes** M. Merino-Martinez; P. Fajardo; E. Ahedo
5:00-5:30 PM	**AIAA-2016-5038. Foundation of the new laboratory - MIPT Plasma Propulsion Lab** A. Skrylev; D. Krivoruhko; O. Gorshkov
5:30-6:00 PM	**AIAA-2016-5039. Thrust Performance and Cathode Temperature Evaluation of MW Class Quasi-Steady MPD Thruster** Y. Oshio; S. Tonooka; I. Funaki
3:00 PM-6:00 PM, 250 E, **EP-28. Micropropulsion**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: William Hoskins, wah@rocket.com, Aerojet Rocketdyne; Co-Chair: Matthew Glascock, msgdm3@mst.edu,	
3:00-3:30 PM	**AIAA-2016-5040. Micropropulsion Based on Vacuum Arc Physics and Technology: A Review** J. Kolbeck; M. Keidar; A. Anders
3:30-4:00 PM	**AIAA-2016-5041. A Vacuum Arc Thruster with Ablatable Anode** J. Kolbeck; J.N. Lukas; G.L. Teel; M. Keidar
4:00-4:30 PM	**AIAA-2016-5042. Preliminary Measurements of an Integrated Prototype of the CubeSat Ambipolar Thruster** T. Collard; J. Sheehan
4:30-5:00 PM	**AIAA-2016-5043. Linear Actuated Micro-Cathode Arc Thruster System** S.A. Hurley; M. Keidar
5:00-5:30 PM	**AIAA-2016-5044. The IFM 350 Nano Thruster - Introducing very high Δv Capabilities for Nanosats and Cubesats** A. Reissner
5:30-6:00 PM	**AIAA-2016-5045. Lifetime Testing of the mN-FEEP Thruster** A. Reissner
3:00 PM-6:00 PM, 250 F, **GTE-16. Turbines IV**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Christopher Perullo, chris.perullo@ae.gatech.edu, Georgia Institute of Technology	
3:00-3:30 PM	**AIAA-2016-5046. Determination of Transient Heat Transfer Rates for a Film Cooled Metal Plate in a Blowdown Facility using Infrared Thermography** L. Chen; R.M. Mathison
3:30-4:00 PM	**AIAA-2016-5047. Integrated Turbine Tip Clearance and Gas Turbine Engine Simulation** J.W. Chapman; T. Guo; J.L. Kratz; J.S. Litt
4:00-4:30 PM	**AIAA-2016-5048. An Experimental and Numerical Investigation of the Flow Field and Heat Transfer from a Single Impinging Jet with Varying Confinement Conditions** J.D. Hodges; L. Blanchette; H. Zawati; E. Fernandez; J. Rodriguez; J.S. Kapat
4:30-5:00 PM	**AIAA-2016-5049. Multi-objective optimization method for high pressure turbine casing based on thermal-structural coupling analysis** W. Chen; Z. Zhao; X. Dai

3:00 PM-6:00 PM, 251 A, **GTE-17. Aerodynamic Flows in Gas Turbine Engines**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Arun Suryanarayanan, arun.surya@fmcti.com, FMC Technologies	
3:00-3:30 PM	**AIAA-2016-5050. Transition and turbulence in a wall-bounded channel flow at high Mach number** S. Pradhan
3:30-4:00 PM	**AIAA-2016-5051. Large eddy simulation of flat plate film cooling flow characteristics based on plasma actuation** G. Li; J. Yu; F. Chen; L. Li; Y. Song
4:00-4:30 PM	**AIAA-2016-5052. Application of the Maximum Lyapunov Exponent to Analyze the Effect on the Flow Separation with Vibration Wall** W. Jinchun; F. Xin; G. Huang; H. Shuli; Z. Yuanchi
4:30-5:00 PM	**AIAA-2016-5053. Experimental Study on Effusion Cooling with Tangential Air Inlet** H. Yu; J. Suo; H. Liang; L. Zheng
5:00-5:30 PM	**AIAA-2016-5054. Application of Crossflow Transition Criteria to Local Correlation-Based Transition Model** C. Bode; J. Friedrichs; C. Müller; F. Herbst
3:00 PM-6:00 PM, 251 B, **GTE-18. Gas Turbine Inlets**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: David Foutch, david.w.foutch@boeing.com, The Boeing Company	
3:00-3:30 PM	**AIAA-2016-5055. Numerical investigation on influence of suction in S-shaped inlet to the rear fan-stage performance** J. Yu; H. Liu; L. Liu; G. Li; F. Chen; Y. Song
3:30-4:00 PM	**AIAA-2016-5056. Performance Estimation for Serpentine Nozzle Coupled with Aero-engine** S. Xiaolin; Z. Wang; L. Zhou; J. Shi
4:00-4:30 PM	**AIAA-2016-5057. Fast Uncertainty Quantification in Engine Nacelle Inlet Design Using a Reduced Dimensional Polynomial Chaos Approach** X. Gao; Y. Wang; N. Spotts; N. Xie; S. Roy; A. Prasad
4:30-5:00 PM	**AIAA-2016-5058. Analysis and Comparison of Inlet Distortion Flow Physics at Design and Near Stall Operating Condition Using Proper Orthogonal Decomposition** R.A. Spencer; S.E. Gorrell; M. Jones; E. Duque
5:00-5:30 PM	**AIAA-2016-5059. Modeling of ice accretion on rotating cone in aero-engine** L. Zhang; M. Zhang; X. Zhang; Z. Liu
3:00 PM-6:00 PM, 251 C, **GTE-19. Gas Turbine Engine Modeling**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Jimmy Tai, jimmy.tai@ae.gatech.edu, Georgia Institute of Technology	
3:00-3:30 PM	**AIAA-2016-5060. Exergetic, Exergoeconomic and Exergoenvironmental Analysis of Intercooled Gas Turbine Engine** A.S. Almutairi; P. Pilidis; N. Al-Mutawa

3:30-4:00 PM	**AIAA-2016-5061. Dynamic Modeling of a Mixed-Flow Afterburning Turbofan Using MATLAB/Simulink** R. Buettner; R.A. Roberts; M. Wolff
4:00-4:30 PM	**AIAA-2016-5062. Design Parameter Identification of the Air Supply for a Turboshaft Engine Quick-Start System** M.R. Kerler; C. Schäffer; W. Erhard; V. Gümmer
4:30-5:00 PM	**AIAA-2016-5063. Development and Validation of an NPSS Model of a Small Turbojet Engine** S. Vannoy; C.P. Cadou
5:00-5:30 PM	**AIAA-2016-5064. Uncertainty Quantification and Management in Engine Conceptual Design** J.C. Tai; J.M. Mines; E.J. Inclan; S.Y. Zhu
5:30-6:00 PM	**AIAA-2016-5065. Size Estimation and Performance Analysis of a New Intercooled and Recuperated Aero-engine** Y. Xu; H. Tang; M. Chen
3:00 PM-6:00 PM, 255 B, **HR-08. Internal Ballistics Modeling II**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Ashley Karp, ashley.c.karp@jpl.nasa.gov, Jet Propulsion Laboratory; Co-Chair: Mario Kobald, mario.kobald@dlr.de, DLR-German Aerospace Center	
3:00-3:30 PM	**AIAA-2016-5066. Modeling of Paraffin-Based Fuels in the Simulation of Hybrid Rocket Flowfields** G. Leccese; D. Bianchi; F. Nasuti
3:30-4:00 PM	**AIAA-2016-5067. Pressure-Measurement Based Estimation of Fuel Regression Rate in Hybrid Rockets** C. Carmicino; D. Pastrone
4:00-4:30 PM	**AIAA-2016-5068. Development and Testing of Three Alternative Designs for Additively Manufactured Hybrid Thrusters** S.A. Whitmore; S. Mathias
4:30-5:00 PM	**AIAA-2016-5069. Generalized Trkalian Flows: Swirling Motion in Rockets with Arbitrary Headwall Injection** O.M. Cecil; J. Majdalani
3:00 PM-6:00 PM, 255 A, **HSABP-10. Experimental Developments in High-speed Air-Breathing Systems**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Robert Moehlenkamp, robert.moehlenkamp@rocket.com, Aerojet Rocketdyne	
3:00-3:30 PM	**AIAA-2016-5070. Control of Shock Wave – Boundary Layer Interaction Using Nanosecond Dielectric Barrier Discharge Plasma Actuators** K. Kinefuchi; A. Starikovskiy; R. Miles
3:30-4:00 PM	**AIAA-2016-5071. Experimental Investigation of Fuel Cooled Combustor** L. Taddeo; N. Gascoin; K. Chetehouna; A. Ingenito; F. Gamma; M. Bouchez; B. Le Naour
4:00-4:30 PM	**AIAA-2016-5072. Experimental Study on Start/Unstart Behavior of Two Dimensional Mixed Compression Inlet by Cowl Actuation** R. Ananthapadmanaban; T. Murganandam

3:00 PM-6:00 PM, 151 DE, **ITAR-04. Launch Vehicles II (CAT-IV)** , ITAR Presentations, **ITAR Presentations**, Chair: Narendra Joshi, narendra_joshi@ge.com, GE; Co-Chair: Kailas Kailasanath, KAILAS@LCP.NRL.NAVY.MIL, Naval Research Laboratory	
3:00-3:30 PM	**AIAA-2016-5073. The Influence of Pore Pressure Modeling on Thermal Analysis of Charring Materials** T.S. Laker; M.E. Ewing
3:30-4:00 PM	**AIAA-2016-5074. Nusselt Number Correlation for Rocket Nozzle Analysis** B. Losser; M.E. Ewing
4:00-4:30 PM	**AIAA-2016-5075. Experimental Investigation of Fine Droplet Injectors on AF-M315E Microthruster Operation** R. Grist; C. Knowlen; G. Shaw; S. Sawhill
4:30-5:00 PM	**AIAA-2016-5076. Engine Inlet Impacts on Mixing, Operability and Performance of Rotating Detonation Wave Combustors** C.M. Brophy; A.D. Chaves
5:00-5:30 PM	**AIAA-2016-5077. Development and Validation of Autonomous Operational Sequences for the NEXT System** R. Thomas; M.J. Patterson
3:00 PM-6:00 PM, 251 D, **LP-15. Injectors**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Ivett Leyva, ivett.leyva@us.af.mil, AFOSR; Co-Chair: Stephen Schumaker, stephen.schumaker@edwards.af.mil, Air Force Reseach Laboratory	
3:00-3:30 PM	**AIAA-2016-5078. Study on Combustion Characteristics of LOX/LNG (methane) Co-axial Type Injector under High Pressure Condition** H. Asakawa; H. Nanri; I. Masuda; R. Shinohara; Y. Ishikawa; H. Sakaguchi
3:30-4:00 PM	**AIAA-2016-5079. Mixing of Supercritical Fluid in Shear Coaxial Injector Configuration** S.V. Sardeshmukh; W.E. Anderson
4:00-4:30 PM	**AIAA-2016-5080. Performance Evaluation of Rocket Engine Combustors using Ethanol/Liquid Oxygen Pintle Injector** K. Sakaki; H. Kakudo; S. Nakaya; M. Tsue; R. Kanai; K. Suzuki; T. Inagawa; T. Hiraiwa
4:30-5:00 PM	**AIAA-2016-5081. Study on atomization and combustion characteristics of LOX/Methane pintle injectors** F. Xinxin; S. Chibing
3:00 PM-6:00 PM, 251 E, **LP-16. Combustion Stability**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Paul Gloyer, paul.gloyer@gtlcompany.com, Gloyer-Taylor Laboratory; Co-Chair: David Lineberry, linebed@uah.edu, UAH Propusion Research Center	
3:00-3:30 PM	**AIAA-2016-5082. Dynamic Characteristics of Various Liquid Propulsion Engine Cycles as Relates to Pogo Stability Analysis** D.L. Ransom

3:30-4:00 PM	**AIAA-2016-5083. Experimental Investigation of Transverse Combustion Instabilities in a High Pressure Multi-Element Combustor** R.M. Gejji; B.L. Austin; W.E. Anderson
4:00-4:30 PM	**AIAA-2016-5084. Large Eddy Simulations of Transverse Combustion Instability in a Multi-element Injector** M.E. Harvazinski; Y. Desai; D.G. Talley; V. Sankaran
4:30-5:00 PM	**AIAA-2016-5085. High Amplitude Acoustic Field Effects on Air-Assisted Liquid Jet** A. Ficuciello; F.J. Baillot; J. Blaisot; C. Richard; M. Théron
5:00-5:30 PM	**AIAA-2016-5086. High Frequency Transverse Acoustic Forcing of Cryogenic Impinging Jets at High Pressure** M. Roa; S.A. Schumaker; D.G. Talley
5:30-6:00 PM	**AIAA-2016-5087. Numerical Investigation on Combustion Instability in a small MMH/NTO Liquid Rocket Engine** J. Qin; H. Zhang; B. Wang
3:00 PM-6:00 PM, 251 F, **LP-17. Combustors II**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Anne Lekeux, anne.lekeux@cnes.fr, CNES; Co-Chair: Gregory Coll, Gregory.t.coll@nasa.gov, Orbital ATK	
3:00-3:30 PM	**AIAA-2016-5088. Material Compatibility of Bio-Ethanol Fuel with Rocket Engine Combustion Chamber Cooling Channels** N. Azuma; D. Ogawa; A. Iijima; K. Higashino; T. Hiraiwa; M. Oguma
3:30-4:00 PM	**AIAA-2016-5089. Designing and Building a Hydrogen Peroxide-Kerosene Rocket Engine** V. Tacussis; Z. Seider; A. Demarest; S. Nyquist
4:00-4:30 PM	**AIAA-2016-5090. Modeling of Fuel Film Cooling Using Steady State RANS and Unsteady DES Approaches** K.C. Brown; E.B. Coy; M.E. Harvazinski; V. Sankaran
4:30-5:00 PM	**AIAA-2016-5091. Development of Hydrogen PeroxideKerosene 2,500 N Bipropellant Thruster for Long-term Operation by Film Cooling** S. Heo; S. Kwon; S. Jung
3:00 PM-6:00 PM, 253 AB, **LP-18. Green Propellants III**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Timothee Pourpoint, timothee@purdue.edu, Purdue University; Co-Chair: J Arthur Sauer, sauerc@orbitec.com, Orbital Technologies Corporation	
3:00-3:30 PM	**AIAA-2016-5092. Development and testing of a nitrous-oxide/ethanol bi-propellant rocket engine** J. Phillip; S. Youngblood; M. Grubelich; W.V. Saul; M.J. Hargather
3:30-4:00 PM	**AIAA-2016-5093. Study on the Thermal Decomposition of Bioethanol as a High-Pressure Rocket Propellant** A. Iijima; D. Nakata; K. Higashino

4:00-4:30 PM	**AIAA-2016-5094. Pressure Drop Measurement of Porous Materials: Flashback Arrestors for a N_2O/C_2H_4 Premixed Green Propellant** L.K. Werling; S. Müller; A. Hauk; H.K. Ciezki; S. Schlechtriem
3:00 PM-6:00 PM, 255 C, **PC-14. Combustion Modeling**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Dario Maestro, maestro@cerfacs.fr; Co-Chair: Christoph Roth, Christoph.roth@ltf.mw.tum.de, TU München	
3:00-3:30 PM	**AIAA-2016-5095. An Overview of Spray Modeling With OpenNCC and its Application to Emissions Predictions of a LDI Combustor at High Pressure** M.S. Raju
3:30-4:00 PM	**AIAA-2016-5096. Numerical Investigation of Liquid Jet Breakup and Droplet Statistics with Comparison to X-ray Radiography** L.G. Bravo; D. Kim; F. Ham; C. Powell; D. Duke; K. Matusik; A. Kastengren; A. Swantek
4:00-4:30 PM	**AIAA-2016-5097. Computational simulation on the performance of Scramjet combustor using Multi-strut circular shaped injector** K. Pandey; G. Choubey
4:30-5:00 PM	**AIAA-2016-5098. Solid rocket motor burn simulation considering complex 3D propellant grain geometries** G. Mejia; R. Jachura; S.R. Gomes; L. Rocco; J.A. Rocco; K. Iha
3:00 PM-6:00 PM, 255 D, **PC-15. Rotating Detonation Concepts**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Jeffrey Murphy, jeffrey.j.murphy@aero.org, The Aerospace Corporation; Co-Chair: Christopher Cadou, cadou@umd.edu, University of Maryland	
3:00-3:30 PM	**AIAA-2016-5099. High-Pressure Rotating Detonation Engine Testing and Flameholding Analysis with Hydrogen and Natural Gas** D. Stechmann; S.D. Heister; S. Sardeshmukh
3:30-4:00 PM	**AIAA-2016-5100. Experimental Study of Effects of Injector Configurations on Rotating Detonation Engine Performance** K. Goto; Y. Kato; K. Ishihara; K. Matsuoka; J. Kasahara; A. Matsuo; I. Funaki
4:00-4:30 PM	**AIAA-2016-5101. Numerical Simulation towards Investigating the Factor for Velocity Decrease of Detonation Wave in Rotating Detonation Engine Chamber** J. Fujii; Y. Kumazawa; A. Matsuo; S. Nakagami; K. Matsuoka; J. Kasahara
4:30-5:00 PM	**AIAA-2016-5102. Numerical Study for Rotating Detonation Propagation in a Two-Parallel-Plane Combustor** Y. Kumazawa; J. Fujii; A. Matsuo; S. Nakagami; K. Matsuoka; J. Kasahara
5:00-5:30 PM	**AIAA-2016-5103. Experimental Study of Research of Centrifugal-Compressor-Radial-Turbine Type Rotating Detonation Engine** C. Ishiyama; K. Miyazaki; S. Nakagami; K. Matsuoka; J. Kasahara; A. Matsuo; I. Funaki

3:00 PM-6:00 PM, 255 E, **PC-16. Combustion Dynamics II**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Bruce Chehroudhi, chehroudhi@aol.com, Advanced Technology Consultants; Co-Chair: John Leylegian, John.Leylegian@manhattan.edu, Manhattan College	
3:00-3:30 PM	**AIAA-2016-5104. Comparative Analysis of Alternative Fuels in Detonation Combustion** M. Azami; M. Savill
3:30-4:00 PM	**AIAA-2016-5105. Numerical Simulation of Interaction of Detonation with Metal Particles in Condensed Matter** J. Zhang; T.L. Jackson
4:00-4:30 PM	**AIAA-2016-5106. Numerical Studies of Detonation Initiation by Supersonic Projectiles using a High-Order Adaptive Cut-cell Method** B. Muralidharan; S. Menon
4:30-5:00 PM	**AIAA-2016-5107. An Experimental Study on the Deflagration-to-Detonation Transition in Millimeter Scale Tubes** J. He; W. Fan; T. Yan; Y. Chi
5:00-5:30 PM	**AIAA-2016-5108. Numerical investigation of the initiation and propagation of oblique detonation waves in a confined combustion chamber** H. Lee; W. Fan; Q. Xiao
3:00 PM-6:00 PM, 150 DE, **PP-01. Propulsion and Power Systems of Unmanned Systems**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Lea Chen, ldchen@tamucc.edu, Texas A&M University	
3:00-3:30 PM	**AIAA-2016-5109. Energy Management Strategy of Hybrid PEMFC-PV-Battery Propulsion System for Low Altitude UAVs** X. Zhang; L. Liu; G. Xu
3:30-4:00 PM	**AIAA-2016-5110. Influence and efficiency of energy harvesting on the process of de-orbiting using bare electrodynamic tether system** Q. Xia; K. Xie; X. Liu; Z. Wu; N. Wang
4:00-4:30 PM	**AIAA-2016-5111. Combustion and Performance Sensitivity to Fuel Cetane Number in an Aviation Diesel Engine** M.T. Szedlmayer; C.M. Kweon; K.M. Kruger; J.A. Gibson; R. Armstrong; C.A. Lindsey; R.D. Meininger; N. Jackson; A. Giddings
4:30-5:00 PM	**AIAA-2016-5112. The Testing of a Small-Scale Wave Rotor for Use as a Modified Brayton-Cycle Engine** M.J. McClearn; M.D. Polanka; K. Lapp; M.R. Mataczynski; F.R. Schauer; D.E. Paxson
5:00-5:30 PM	**Oral Presentation. D-DALUS Cyclogyro Exploratory Propulsion System for UAVs** D.J. Wills; M. Schwaiger
3:00 PM-6:00 PM, 254 C, **SATS-02. Small Satellites II**, Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference**, Chair: Jeremy Straub, jastraub@gmail.com, University of North Dakota	
3:00-3:30 PM	**AIAA-2016-5113. Application of Technology Readiness Levels to Micro-Propulsion Systems** W.A. Hargus; J.T. Singleton

3:30-5:00 PM	**Small Satellites Fusion Panel**
3:00 PM-6:00 PM, 254 A, **SR-06. Solid Propellant Developments,** Technical Paper, **52nd AIAA/SAE/ASEE Joint Propulsion Conference,** Chair: Barbara Leary, barbara.leary@jhuapl.edu, Johns Hopkins University Applied Physics Laboratory; Co-Chair: Charle Rousseau, Werner.Rousseau@rheinmetall-denelmunition.com, Denel (Pty) Ltd.	
3:00-3:30 PM	**AIAA-2016-5114. Effect of Particle Size on Microwave Seeded Plasma Enhancement of Composite Propellant Combustion** S.J. Barkley; K. Zhu; M. Ballestero; J. Michael; T.R. Sippel
3:30-4:00 PM	**AIAA-2016-5115. Laboratory-Scale Burning of Composite Solid Propellant Using *In-Situ* Synthesized Iron Oxide** A.R. Demko; C.A. Dillier; G.R. Morrow; T. Sammet; K. Grossman; S. Seal; E.L. Petersen
4:00-4:30 PM	**AIAA-2016-5116. Stability of filler-binder interface under hygrothermal aging** C.A. Pereira; L.S. Madureira; J.Z. Schpector; L.D. Villar
4:30-5:00 PM	**AIAA-2016-5117. Combustion Characteristics in the Secondary Combustor of Ducted Rockets -Effects of the Changing Distance Rate of B Particles-** K. Shirotori; T. Kuwahara
5:00-5:30 PM	**AIAA-2016-5118. Comparison of Solid Propellant Burning Rate Determination Methods from Industrial Point of View** Ö. Atak; B. Ziraman; M. Yumusak
5:30-6:00 PM	**AIAA-2016-5119. Study on the Thermal Decomposition Characteristics of AP/HTPB Composite Propellant under High Heat Flux** X. Lyu; X. Liu; X. Pang; P. Wang
3:00 PM-4:30 PM, 151 G, **TM-06. Nano-Technology for Thermal Management (Panel),** Panel, **14th International Energy Conversion Engineering Conference (non-paper sessions),** Chair: Michael Choi, Michael.K.Choi@nasa.gov, NASA-Goddard Space Flight Center	
3:00 PM-6:00 PM, 151 G, **TM-07. Heat Transfer and Transport Modeling and Analysis III,** Technical Paper, **14th International Energy Conversion Engineering Conference,** Co-Chair: Emmanuel Ogedengbe, ogedengbe@energhx.com, ENERGHX Consulting/University of Lagos	
3:00-4:30 PM	**No Presentation**
4:30-5:00 PM	**AIAA-2016-5120. Outdoor Air Conditioning: Case Study of Open Football Stadium** M.E. Ashmawy; E.E. Khalil
5:00-5:30 PM	**AIAA-2016-5121. Sensitivity Analysis of Upwinding Schemes for Three Dimensional Advection-Diffusion Transport Using Control-Volume Based Finite Element Method** K.L. Olaitan; E.O. Ogedengbe
5:30-6:00 PM	**AIAA-2016-5122. Air Flow Regimes in Air-Conditioned Spectators' Zone of Qatar Stadium** E.E. Khalil; M. Ashmawy; W. Abdelsameaa