JANNAF INTERAGENCY PROPULSION COMMITTEE
JOINT ARMY-NAVY-NASA-AIR FORCE

62nd JANNAF Propulsion Meeting (JPM)
Programmatic and Industrial Base Meeting (PIB)
10th Modeling and Simulation (MSS)
8th Liquid Propulsion (LPS)
7th Spacecraft Propulsion (SPS)
Joint Subcommittee Meeting

Meeting Invitation

Nashville Airport Marriott Hotel
Nashville, Tennessee
1 - 5 June 2015

Last updated 5/19/15

JANNAF Meeting Invitation - June 2015

You are invited to attend the June 2015 meeting of the Joint Army-Navy-NASA-Air Force (JANNAF), which will consist of the 62nd JANNAF Propulsion meeting; the Programmatic and Industrial Base meeting; and the Joint Meeting of the 10th Modeling and Simulation, 8th Liquid Propulsion, and 7th Spacecraft Propulsion Subcommittees. This meeting will be held **Monday through Friday, 1 - 5 June 2015**, at the **Nashville Airport Marriott Hotel in Nashville, Tennessee**.

The Program Chair for the meeting is **Dr. Richard K. Cohn**, Air Force Research Laboratory, Edwards AFB; a complete list of Program Committee Members can be found on pages 5-7.

The **JANNAF Interagency Propulsion Committee** coordinates fundamental research, exploratory development, and advanced development programs; standardizes procedures for nomenclature; promotes and facilitates the exchange of technical information; and accomplishes problem solving in the areas of joint agency interest on propulsion systems for missiles, rockets, boosters, spacecraft, satellites, and guns.

The **Programmatic and Industrial Base** areas of interest include integrated program plans and key decision points; industrial base assessments; risks and opportunities with respect to skills, knowledge, and experience; identification of commonality, innovative acquisition, and partnership opportunities; integrated assessments to identify rocket propulsion industrial base (RPIB) rationalization opportunities; special actions from senior agency, department, or Executive Office of the President (EOP) leadership; and information provided to decision makers for either situational awareness or policy decisions.

JANNAF subcommittees focus their resources on technical issues of interest to the JANNAF agencies. The **Modeling and Simulation Subcommittee (MSS)** activities include modeling and simulation of systems; virtual engineering; development of software analogs of propulsion devices or systems; software integration-coupling of diverse simulation tools to enable more detailed, system-of-systems analysis and simulation; simulation credibility-uncertainty, verification, validation, reliability, and risk; and integrated health management-identification and management of off-nominal conditions in propulsion.

The **Liquid Propulsion Subcommittee (LPS)** addresses technical problems and issues of greatest national needs associated with liquid engine systems, including liquid and gel propulsion technology topics that include the overall engine system, combustion components, and propellant feed systems.

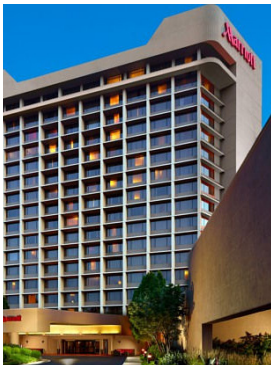
The **Spacecraft Propulsion Subcommittee (SPS)** focuses on the full array of spacecraft propulsion technology interests including electric propulsion, advanced chemical propulsion, solar thermal propulsion, nuclear thermal propulsion, aerocapture, solar sails, tether systems, and technologies for the future.

Meeting Site

All sessions will be held at the Nashville Airport Marriott Hotel in Nashville, Tennessee. Information about the hotel can be found below.

Hotel Information

Sleeping rooms have been reserved with the **Nashville Airport Marriott Hotel,** located at 600 Marriott Drive in Nashville, TN 37214. Amenities include government per diem rate for attendees with a valid government employee ID and a discounted rate for all other attendees; free enhanced high speed internet access in guestrooms; complimentary airport shuttle and complimentary parking. These amenities are available only to attendees who are staying at the Nashville Airport Marriott.



The room rate per night for government attendees will be at the GSA per diem rate, currently $132 plus tax (currently 15.25% plus $2.50 city occupancy fee) for single or double occupancy. The discounted rate for all other attendees is $169 plus tax and city occupancy fee.

UPDATED INFORMATION: The JANNAF discounted rooms are no longer available at the Nashville Airport Marriott. Reservations are now being accepted on a space- and rate-available basis; the hotel is sold out during some nights of the conference. To check the availability and rate of rooms at the Nashville Airport Marriott, call **Marriott reservations** at **(888) 236-2427** or **(615) 889-9300.**

If you find that you need to cancel your reservation at the Nashville Airport Marriott, be sure to do so no less than 24 hours prior to arrival to avoid paying a cancellation penalty.

A limited number of overflow rooms has been arranged at the SpringHill Suites Nashville Airport Hotel at the discounted rate of $132 (government per diem) per night plus tax. **Call (888) 247-9400 or (615) 884-6111 on or before Tuesday, 26 May to reserve a room in the JANNAF Conference** overflow block. For additional information about the SpringHill Suites Nashville Airport, including shuttle transportation between this property and the meeting location (Nashville Airport Marriott), visit the **Hotel** page of the meeting webiste.

Transportation and Parking

The hotel offers complimentary self parking. Complimentary airport shuttle transportation is also offered by the hotel for its guests. A taxi ride is approximately $25.00 one way. The hotel is located four miles from the Nashville International Airport. Low cost round trip transportation to downtown Nashville is available, by reservation, through Nashville Moves. Downtown Nashville is just 10 minutes from the hotel.

Registration

Registration for JANNAF meetings is a **two-part process**; to complete this process:

1. Register for the meeting via the JANNAF Secure Portal.
2. Pay the registration fee.

Important links for completing your meeting registration can be found at https://www.jannaf.org/mtgs/June2015/pages/registration.html.

Security/Attendance Requirements

The overall security classification of this meeting is Unclassified.

Attendance is restricted to **U.S. citizens qualified to receive unclassified, limited-distribution information.** To qualify, the attendee must be employed by a DoD, DoE, or NASA facility, or with a DoD, DoE, or NASA contractor facility eligible for receipt of militarily-critical technical data. No foreign nationals will be permitted to attend. **To register, you must have a JANNAF Secure Portal account. Please visit the Registration page of the meeting website for additional information and important links.**

Questions concerning attendance eligibility should be directed to the CPIAC Facility Security Officer, Mary Gannaway, at (410) 992-7304, ext. 211 or mtg@jhu.edu.

Registration Fee

For details of what the registration fee includes, please go to the Registration page of the meeting website**.** Please reference the registration fee chart below to determine the amount applicable to your registration. **The dates noted below are based on payment being receivedand reflect an extension of the early fee**.

Payment Received	Regular Attendee	Student*
***on or before* 5/31/15**	$ 900.00	$200.00
****6/1/15 or later***	$1,050.00	$200.00

A discounted registration fee is offered for full time students, interns, and cooperative education students. Students must meet the security/attendance requirements noted above and present current student identification upon registration on-site.

Registration payment will be accepted via check payable to JHU-CPIAC, purchase order (government only), or by credit card (VISA, MasterCard, American Express) using the online remittance site available online; go to https://www2.cpiac.jhu.edu/meetings/June2015/pages/index.html, and click on Registration.

Attendees are encouraged to complete the registration process via the JANNAF Secure Portal, and submit payment, on or before 31 May 2015 to ensure prompt registration upon arrival. Credit card payments made electronically via the Web will be charged immediately; a receipt will be sent to you via email.

Cancellation Policy

Please note our cancellation policy—cancellations on or before 18 May 2015 will receive a full refund minus an administrative fee of $50.00. **Cancellations made after 18 May 2015 will not be refunded.** Substitutes are welcome as long as attendance certifications are appropriately met. Please contact Shelley Cohen via email to scohen@cpiac.jhu.edu to transfer or cancel your payment.

On-Site Registration

The JANNAF Registration desk will be located on the first floor of the Nashville Airport Marriott. Photo identification is required upon registration, which will be open Monday, 1 June from 10:00 a.m. - 5:00 p.m., and Tuesday, June 2 through Thursday, 4 June from 7:00 a.m. - 5:00 p.m.

Attention DoD

An approval package to certify the June 2015 JANNAF Meeting as a "government approved" conference has been submitted by Mr. Stuart Blashill, Chair of the JANNAF Executive Committee from the Naval Air Warfare Center Weapons Division in China Lake, CA.

DoD approval of conferences takes several months and judging from past meetings, may not be received until just prior to the start of the June meeting. **Interested DoD attendees are strongly encouraged to obtain a JANNAF Secure Portal account now and register for the meeting.** This step does not require travel or training office approval since it does not include a financial committment. Payment of the registration fee may be completed as soon as permitted.

Attire

There is no official dress code for JANNAF conferences. However, most attendees wear business or business casual attire. When packing, keep in mind that it can be difficult to regulate the temperature in meeting rooms to everyone's liking, and any changes may not be noticeable quickly, so it is best to bring a sweater or jacket and dress in layers.

Dining

Approximately one and one-half hours for lunch has been built into the program each day. Hotel restaurants include Champions and Starbucks. More information about lunch options will be provided in the Final Program.

Several restaurants ranging from fast food to sit-down restaurants are located within a short drive of the hotel. Information on local eateries is available from the front desk of the hotel.

Networking Room

Salons D and E of the Nashville Ballroom will serve as the JANNAF networking area at the hotel; a light continental breakfast and mid-morning coffee break along with mid-afternoon refreshments will be served at the times stated in the program. This area will be open Monday from 10:00 a.m. - 5:00 p.m., and Tuesday - Thursday from 7:00 a.m. - 5:00 p.m. Please note that scheduled breaks are included in session agendas where time permits.

Networking Night

Come enjoy an evening with fellow JANNAF attendees on Wednesday, 3 June 2015, from 6:30-8:30 p.m., in the Cumberland Ballroom (specific location subject to change) at the Nashville Airport Marriott. A complimentary meal is included. There is no charge for meeting attendees; however, guest tickets may be purchased on the Registration Payment site for $40 (admission is free for children five and under). Be sure to wear your JANNAF badge to attend the event.

Reading Room

All papers presented in the technical sessions and received in time will be available to read in the Knoxville Room. The reading room will be open Tuesday through Thursday from 8:00 a.m. - 4:30 p.m. Reproduction of reading room papers is not permitted.

Side Meetings

There are rooms of varying sizes located on the 1st floor of the hotel that are available for JANNAF-related side meetings. Audiovisual equipment will not be provided. Please contact Shelley Cohen at scohen@cpiac.jhu.edu to reserve a room.

JANNAF Meeting Invitation - June 2015

Program Changes

Meeting programs will be distributed to attendees upon registration on-site. Note that **Final Programs are Distribution Statement C and should be secured when not in your possession.** Changes to the final program will be posted in the registration area. Attendees should periodically check for program updates and administrative announcements.

Meeting Proceedings

Proceedings from this meeting will be published by the Chemical Propulsion Information Analysis Center. Papers, and in limited cases, presentations will be provided complimentary to attendees of this meeting who have paid the full registration fee (early or regular). These attendees will have access to these materials approximately 12 weeks following the meeting via the JANNAF Digital Online Collection (JDOC) Database accessible through your account on the JANNAF Secure Portal. This benefit or registration is not available for student attendees.

Questions

Questions concerning this program and/or payment of the registration fee should be directed to Shelley Cohen at (410) 992-7302, ext. 215 or email: scohen@cpiac.jhu.edu. Questions pertaining to registering via the JANNAF Secure Portal should be directed to Mary Gannaway at (410) 992-7304, ext. 211 or email: mtg@jhu.edu.

Upcoming JANNAF Meetings

Green Monopropellant Alternatives to Hydrazine
Joint JANNAF / NIRPS
Technical Interchange Meeting
August 4-5, 2015
The Jackson Center
Huntsville, Alabama

43rd Structures and Mechanical Behavior;
39th Propellant and Explosives Development and Characterization;
30th Rocket Nozzle Technology;
28th Safety and Evironmental Protection
Joint Subcommittee Meeting
December 7-11, 2015 *(tentative)*
Location to be announced

Program Committee Members

PROGRAM CHAIR

Dr. Richard K. Cohn
Air Force Research Laboratory
Edwards AFB, CA

JANNAF PROPULSION MEETING

JPM PROGRAM COMMITTEE

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Area III: Propulsion Systems for Space Access

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NASA Marshall Space Flight Center / Huntsville, AL

Area IV: Gun and Gun-Launched Propulsion

Mr. Lucas R. Lopez
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Picatinny Arsenal, NJ

Area V: Propulsion and Energetics Test Facilities

Mr. Michael D. Owen
NASA White Sands Test Facility / Las Cruces, NM

Ms. Julie A. Carlile
Air Force Research Laboratory / Edwards AFB, CA

Area VI: Sensors for Propulsion Measurement Applications

Dr. Gary W. Hunter
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Mr. Robert F. Peterson
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Mr. Eric J. Paulson
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Area II: Virtual Engineering

Mr. Gary C. Prybyla
Naval Surface Warfare Center Weapons Division / Indian Head, MD

Area III: Integrated Health Management

Mr. R. Scott Hyde
Orbital ATK / Brigham City, UT

Area IV: Simulation Credibility: Uncertainty, Verification, Validation, and Risk

Dr. Unmeel B. Mehta
NASA Ames Research Center / Moffett Field, CA

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Mission Area I: Liquid Engine Systems

Mr. Jason B. Turpin
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Dr. Gregory A. Ruderman
Air Force Research Laboratory / Edwards AFB, CA

Mission Area II: Liquid Combustion Subsystems and Components

Dr. Christopher S. Protz
NASA Marshall Space Flight Center / Huntsville, AL

Mr. Nils M. Sedano
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Mission Area III: Liquid Propellant Feed and Pressurization Systems

Mr. James L. Cannon
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Lt. Jacob Robertson
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Mission Area IV: Advanced Materials for Liquid Propulsion Applications

Mr. Clyde "Chip" Jones
NASA Marshall Space Flight Center / Huntsville, AL

Mr. Jamie B. Malak
Air Force Research Laboratory / Edwards AFB, CA

Mission Area V: Special Topic: Engine Health Management (EHM) "Technology Roadmap"

Mr. James A. Larkin
Aerojet Rocketdyne / West Palm Beach, FL

SPACECRAFT PROPULSION SUBCOMMITTEE

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NASA Glenn Research Center / Cleveland, OH

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Air Force Research Laboratory / Edwards AFB, CA

Mission Area III: Cube / Nano Satellite Propulsion

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Dr. William A. Hargus, Jr.
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Mission Area IV: Propellantless Propulsion Systems

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Mission Area V: Nuclear / Solar Thermal Propulsion / Technologies for the Future

Dr. Marcus P. Young
Air Force Research Laboratory / Edwards AFB, CA

Dr. Kurt A. Polzin
NASA Marshall Space Flight Center / Huntsville, AL

Mr. Wayne J. Bordelon
NASA Marshall Space Flight Center / Huntsville, AL

Mission Area VI: Program and Mission Application Overviews, and Technology Infusion Challenges

TBD

Mission Area VII: Special Topic: Spacecraft Modeling and Simulation

Dr. Justin Koo
Air Force Research Laboratory / Edwards AFB, CA

JANNAF MEETING MANAGER
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Technical Program

This year's technical program currently consists of 45 technical sessions, 3 specialist sessions, 8 workshops, 12 panel meetings and 1 working group meeting. Detailed agendas of the technical sessions, specialist sessions, and workshops are listed in the Program Section of this invitation. Other meetings for each of the subcommittees are listed below.

JANNAF Propulsion Meeting	Date	Time	Location	Participation
Specialist Session: New Developments in HME Research (3A)	Wednesday, June 3	8:00am	Nashville A	Open
Specialist Session: HME Safety (3M)	Wednesday, June 3	1:30pm	Nashville A	Open
Workshop: Investigation of Deflagration to Detonation Transition of Ammonium Nitrate (4N)	Thursday, June 4	1:30pm	Nashville B	Open
JPM Program Planning Committee Meeting	Thursday, June 4	4:00pm	Stones River	Closed

Programmatic and Industrial Base	Date	Time	Location	Participation
PIB Closed Session (invitation only)	Thursday, June 4	8:00am	Chattanooga	Closed
PIB Executive Committee Meeting	Thursday, June 4	1:30pm	Chattanooga	Closed

Modeling and Simulation Subcommittee	Date	Time	Location	Participation
Panel Meeting: Joint MSS IHM / LPS EHM (1P)	Monday, June 1	5:05pm	Nashville F	Open
Panel Meeting: Simulation Credibility (2P)	Tuesday, June 2	5:05pm	Nashville F	Open
Technical Steering Group Meeting	Thursday, June 4	12:00pm	Stones River	Closed
Panel Meeting: Virtual Engineering (4P)	Thursday, June 4	3:05pm	Nashville F	Open

Liquid Propulsion Subcommittee	Date	Time	Location	Participation
Panel Meeting: Joint MSS IHM / LPS EHM (1P)	Monday, June 1	5:05pm	Nashville F	Open
Panel Meeting: Test Practices and Standards	Tuesday, June 2	10:00am	Jackson	Open
Panel Meeting: Hydrocarbon Fuels (2Q)	Tuesday, June 2	5:05pm	Nashville G	Open
Panel Meeting: Turbomachinery - I (2S)	Tuesday, June 2	5:35pm	Capitol I	Open
Panel Meeting: Advanced Materials	Tuesday, June 2	5:35pm	Knoxville	Open
Technical Steering Group Meeting	Tuesday, June 2	7:30pm	Stones River	Closed
Workshop: RP Fuel Properties and Knowledge Gap Identification - I (3I)	Wednesday, June 3	8:00am	Jackson	Open
Workshop: RP Fuel Properties and Knowledge Gap Identification - II (3U)	Wednesday, June 3	1:30pm	Jackson	Open
Panel Meeting: Turbomachinery - II (4F)	Thursday, June 4	10:35am	Nashville H	Open
Panel Meeting: Combustion Stability	Thursday, June 4	1:30pm	Capitol II	Open

Spacecraft Propulsion Subcommittee	Date	Time	Location	Participation
Workshop: Spacecraft Chemical Propulsion Guidelines (1R)	Monday, June 1	1:30pm	Nashville H	Open
Panel Meeting: Microthrust Propulsion (1Q)	Monday, June 1	4:05pm	Nashville G	Open
Technical Steering Group Meeting	Tuesday, June 2	12:00pm	Stones River	Closed
Panel Meeting: Chemical Propulsion (3C)	Wednesday, June 3	10:35am	Nashville C	Open
Panel Meeting: Electric Propulsion (3E)	Wednesday, June 3	11:35am	Nashville G	Open
Workshop: Electric Propulsion Operation In the Space Environment and Facility Interactions - I (4G)	Thursday, June 4	8:00am	Capitol I	Open

JANNAF Meeting Invitation- June 2015

Spacecraft Propulsion Subcommittee	Date	Time	Location	Participation
Workshop: Monopropellant Thruster Technology (4O)	Thursday, June 4	1:30pm	Nashville C	Open
Workshop: Electric Propulsion Operation In the Space Environment and Facility Interactions - II (4S)	Thursday, June 4	1:30pm	Capitol I	Open
Workshop: Electric Propulsion Operation In the Space Environment and Facility Interactions - III (5G)	Friday, June 5	8:00am	Capitol I	Open

Airbreathing Propulsion Subcommittee	Date	Time	Location	Participation
Specialist Session: Recent Rotating Detonation Engine Technology Advances (4I)	Thursday, June 4	8:00am	Jackson	Open
Working Group Meeting: Pressure Gain Combustion	Thursday, June 4	1:30pm	Jackson	Closed

Program Highlights

Keynote Address

Matthew Smith, Vice President of Engineering at United Launch Alliance (ULA), will present the keynote at this year's conference. The title of his address is **"The Economics of Innovation."** His presentation will examine the factors leading to the original selection of the RD180 for the Atlas V EELV program in the 1990s, discuss its pending replacement by the Blue Origin BE4 engine, and illustrate the challenges associated with the introduction of new innovations in space launch systems.

In his role as Vice President of Engineering, Smith has enterprise-wide responsibility for engineering personnel, processes, tools, products and services as well as technical oversight and launch readiness certification activities. He also leads the knowledge management and technical workforce development activities at ULA. This includes business support of the college intern program, which builds and launches large-scale model rockets each summer with payloads from the Ball Aerospace intern program and local area high school teams. United Launch Alliance (ULA) is headquartered in Centennial, Colorado.

Prior to joining ULA, Smith served as technical director and chief engineer for Atlas programs at Lockheed Martin Space Systems Company. Previously, Smith served as chief engineer for Atlas V/ Evolved Expendable Launch Vehicle (EELV) development, chief engineer for Atlas IIAS launch pad development at Space Launch Complex-3 at Vandenberg Air Force Base in California, and director of Atlas propulsion systems.

Smith began his career with the Atlas Launch Vehicle program in 1983 as a pneumatics system design engineer for the Convair division of General Dynamics. Following this assignment, Smith assumed a number of increasingly responsible positions on the Atlas program including propulsion and fluid systems lead for Atlas I and II development and recurring programs chief engineer.

Smith earned his Bachelor of Science in applied mechanics and engineering science from the University of California-San Diego.

Smith functions in a number of education related roles including serving on the boards of directors for the Colorado Legacy Foundation, STEM High and STEM Academy, a charter school organization. He is also co-chair of the Colorado State Council on Educator Effectiveness, which provides recommendations to the State Board of Education about how to evaluate the effectiveness of the state's teachers and principals.

All attendees are invited to participate. **The Keynote Address begins at 8:00 a.m. on Tuesday, 2 June, in Salons D and E of the Nashville Ballroom** (subject to change) at the hotel.

Awards Ceremony

Awards to acknowledge the contributions of the Modeling and Simulation, Liquid Propulsion, and Spacecraft Propulsion subcommittees are being solicited. Please contact Nicholas Keim (nkeim@cpiac.jhu.edu) for MSS nominations, Peter Zeender (pzeender@cpiac.jhu.edu) for LPS nominations, and David Owen (dowen@cpiac.jhu.edu) for SPS nominations. An Awards Ceremony will immediately follow the keynote address.

62nd JANNAF Propulsion Meeting / Programmatic and Industrial Base Meeting / 10th Modeling and Simulation / 8th Liquid Propulsion / 7th Spacecraft Propulsion Joint Subcommittee Meeting
June 1 – 5, 2015
BLOCK DIAGRAM

Nashville Airport Marriott Hotel	Nashville Salon A	Nashville Salon B	Nashville Salon C	Nashville Salon F	Nashville Salon G	Nashville Salon H	Capitol I	Capitol II	Jackson
Monday AM 6/1/2015									
Monday PM	(1M) JPM-IV Computational and Statistical Modeling for Gun Propulsion	(1N) JPM-III Low-Cost Launch	(1O) LPS-II/JPM Nozzle Fluid Flows and Structural Mechanics	(1P) MSS-III/ JPM-VI Miscellaneous IHM / EHM Systems and Sensors	(1Q) SPS-III Cube / Nano Satellite Propulsion - I	(1R) SPS-I *WORKSHOP*: Spacecraft Chemical Propulsion Guidelines	(1S) LPS-I Hydrocarbon Boost Technology Demonstrator – I	(1T) SPS-II Advanced Electric Propulsion	
Keynote Address 8:00 – 10:00 a.m. Tuesday, June 2 – Nashville Salons D/E									
Tuesday AM 6/2/2015	(2A) JPM-IV Conventional Gun Propulsion Concepts – I	(2B) JPM-III Solid Propulsion for Space Access	(2C) LPS-II Fundamental Fluid Mechanics Studies	(2D) MSS-I Modeling and Simulation of Systems – I	(2E) LPS-II RP Fuels Performance, Characterization and Modeling – I	(2F) SPS-I Spacecraft Chemical Propulsion System Developments - Part I: Non-Ionic Liquids	(2G) LPS-IV Advanced Materials for Liquid Propulsion Applications	(2H) SPS-II Hall Thrusters - I	
Tuesday PM	(2M) JPM-IV Conventional Gun Propulsion Concepts – II	(2N) JPM-II Missile Defense / Strategic Propulsion	(2O) MSS-I Modeling and Simulation of Systems - II	(2P) MSS-IV Simulation Credibility: Uncertainty, Verification, Validation, and Risk	(2Q) LPS-II RP Fuels Performance, Characterization and Modality – II	(2R) SPS-III Cube / Nano Satellite Propulsion - II	(2S) LPS-I Hydrocarbon Boost Technology Demonstrator – II	(2T) SPS-II Hall Thrusters - II	

Nashville Airport Marriott Hotel	Nashville Salon A	Nashville Salon B	Nashville Salon C	Nashville Salon F	Nashville Salon G	Nashville Salon H	Capitol I	Capitol II	Jackson
Wednesday AM 6/3/2015	(3A) *SPECIALIST SESSION:* New Developments in HME Research	(3B) JPM-I Tactical Motor Design, Fabrication, and Performance	(3C) SPS-I Spacecraft Chemical Propulsion System Developments - Part II: Ionic Liquids	(3D) MSS-I/ MSS-IV M&S of SLS Booster Ignition Overpressure	(3E) SPS-II NASA Hall Thruster Development	(3F) LPS-I Analysis of Engine Systems	(3G) LPS-IV Additive Manufacturing for Liquid Propulsion-I	(3H) LPS-III Propellant Tanks and Feed System Design/ Operation/ Additive Manufacturing	(3I) LPS *WORKSHOP:* RP Fuel Properties and Knowledge Gap Identification - I
Wednesday PM	(3M) *SPECIALIST SESSION:* HME Safety	(3N) JPM-I IM Technologies	(3O) SPS-I Green Propellant Infusion Mission	(3P) MSS/JPM/LPS IHM / EHM – Sensors / Measurement	(3Q) SPS-II XR-5 Hall Thruster	(3R) LPS-II Design, Modeling & Testing of GCSC Injectors for ORSC Engines	(3S) LPS-IV Additive Manufacturing for Liquid Propulsion-II	(3T) PIB Status and Issues in the Propulsion Industrial Base	(3U) LPS *WORKSHOP:* RP Fuel Properties and Knowledge Gap Identification - II
Thursday AM 6/4/2015		(4B) JPM-I Propellant Ingredients and Processing	(4C) SPS-I Green Monopropellant Diagnostics & Modeling	(4D) MSS – II Virtual Engineering – I: Slosh Modeling	(4E) LPS-I Engine Testing Results and Operations	(4F) LPS-III Turbomachinery Design, Test, and Analysis	(4G) SPS-II *WORKSHOP:* Electric Propulsion Operation In the Space Environment and Facility Interactions - I	(4H) LPS – II Combustion Stability and Dynamics	(4I) APS *SPECIALIST SESSION:* Recent Rotating Detonation Engine Technology Advances
Thursday PM		(4N) *WORKSHOP:* Investigation of Deflagration to Detonation Transition of Ammonium Nitrate	(4O) SPS-I *WORKSHOP:* Monopropellant Thruster Technology	(4P) MSS-II Virtual Engineering – II	(4Q) JPM-V Propulsion and Energetics Test Facilities		(4S) SPS-II *WORKSHOP:* Electric Propulsion Operation In the Space Environment and Facility Interactions - II		
Friday AM 6/5/2015							(5G) SPS-II *WORKSHOP:* Electric Propulsion Operation In the Space Environment and Facility Interactions - III		