

JANNAF INTERAGENCY PROPULSION COMMITTEE

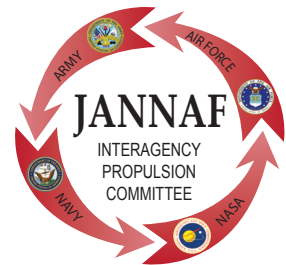
JOINT ARMY-NAVY-NASA-AIR FORCE

Liquid Propulsion Subcommittee (LPS)

Advanced Materials Panel (AMP)

Additive Manufacturing for Propulsion Applications

Technical Interchange Meeting (TIM)



MEETING INVITATION



**JACKSON CENTER
HUNTSVILLE, AL
23-25 AUGUST 2016**

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited

Last updated 7/15/16

JANNAF Meeting Invitation and Preliminary Program - August 2016

You are invited to attend the Joint Army-Navy-NASA-Air Force (JANNAF) Liquid Propulsion Subcommittee (LPS) Advanced Materials Panel Additive Manufacturing for Propulsion Applications TIM being held on Tuesday-Thursday, August 23-25, 2016, in Huntsville, Alabama at the Jackson Center.

The Program Co-Chairs for this Meeting are Elizabeth Robertson, NASA Marshall Space Flight Center, Huntsville, AL and Alison Park, Aerojet Rocketdyne, Canoga Park, CA. A complete list of Program Committee Members can be found on page 5.

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.

JANNAF subcommittees focus their resources on technical issues of interest to the JANNAF agencies.

The Liquid Propulsion Subcommittee (LPS) addresses technical problems and issues of greatest national need associated with liquid propulsion systems.

Meeting Site

The overall security classification of this meeting is unclassified. Sessions will be held at the Jackson Center in Huntsville, Alabama. Information about the Convention Center can be found on its Web site at <http://www.jacksoncenter.net/>.

Hotel Information

Room blocks have not been established for the August 2016 JANNAF Technical Interchange Meeting. Attendees will be responsible for reserving their own rooms for the meeting.

Click [here](#) for a list of hotels located near the Jackson Center.

Transportation and Parking

Free parking is available at the Jackson Center. Please be aware that the hotels near the Jackson Center do not offer an airport shuttle or a shuttle service to nearby businesses such as the Jackson Center. If you will not have your own car, you will most likely need to rent a car or use a taxi service.

Tour of the NASA Marshall Space Flight Center

A bus tour of the NASA Marshall Space Flight Center will be available on Monday, August 22, 2016, from 3-5pm, for the first 56 JANNAF Additive Manufacturing TIM attendees who register. The tour will visit the MSFC additive manufacturing lab, propulsion lab, and test area.

The bus will pick up from the Visitor Center just outside Gate 9 at the Redstone Arsenal, and will depart at 3pm. Please send a response to George Fletcher (George.fletcher@nasa.gov) by August 9, 2016 if you are interested in participating in this bus tour, and indicate whether or not you have a Government Common Access Card (CAC). If you have a Government CAC, please arrive by 2:45pm. If you do not have a Government CAC, please arrive by 2:30pm for processing through security, and provide George with your First and Last Name, Company Name, Drivers License Number and State of Issue. You will also need to bring a valid government ID with you to the NASA gate in order to get through security. Only people who have pre-registered will be allowed on the bus tour.

Space is **limited to 56 attendees**. Please note that if you sign up for the tour you are making a commitment to attend a limited participation event. If you register for the tour and decide to decline your

ERG provides technical and administrative support to the JANNAF Interagency Propulsion Committee
JHU Energetics Research Group - 10630 Little Patuxent Parkway, Suite 202, Columbia, MD 21044-3286
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participation on the day of the event, you are denying another willing participant the opportunity to attend.

Posters

For those attendees who are presenting posters, you may ship your posters to the address below:

Jackson Center/JANNAF Conference
c/o Jamie Jones
600 Genome Way
Huntsville, AL 35806

Dining/ Boxed Lunches

Attendees have the option of pre-ordering continental breakfast Tuesday-Thursday and/or a box lunch from the Jackson Center for the Tuesday and Wednesday sessions. **Orders must be placed by Friday, 19 August 2016.** Unfortunately the Jackson Center will not be able to accept orders after this date. For more information or to place an order, go to the [Site Info & Meal Options page](#) of the meeting website.

Coffee and snack items will also be available for cash purchase throughout each day.

Attendees are welcome to go beyond the Jackson Center to purchase a lunch. Nearby restaurants include the Hudson Alpha Cafe. In addition, the Jackson Center is located 1.2 miles from the Bridge Street Town Centre which features 70 upscale shops and restaurants.

Networking Room

The Atrium prefunction area (Jackson Center, 1st floor) will serve as the JANNAF networking area. This area will be open each meeting day from 7:30 a.m. - 5:00 p.m. Please note that scheduled breaks are included in session agendas where time permits.

Side Meetings

There are two rooms of varying sizes located near the Atrium Lobby in the Jackson Center that are available for JANNAF-related side meetings for meeting attendees. Please contact Kathleen Rowan at (410) 992-7300, ext. 208 or KRowan@erg.jhu.edu to reserve a room.

Table Top Exhibits Available

If you are interested in reserving a 6 x 24 table for a table top exhibit, please contact Kathleen Rowan at (410) 992-7300, ext. 208 or e-mail: KRowan@erg.jhu.edu. Please note that tables are limited.

Meeting Proceedings

Proceedings from this meeting will be published by the JHU-WSE Energetics Research Group. Presentations will be available at no charge to Government attendees (DoD, DoE and NASA) via the new JANNAF Digital Online Collection (JDOC) Database, accessible through your account on the JANNAF Secure Portal. Industry and academic attendees will be able to access the presentations from the TIM by subscribing to JDOC. For information about subscriptions, please contact Tricia Reider at (410) 992-7300, ext. 222. Please allow 12 weeks following the conclusion of the TIM for the presentations to be posted on JDOC.

Security/Attendance Requirements

The overall security level of the meeting is Unclassified. All sessions will be held at the Jackson Center in Huntsville, Alabama. 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. No foreign nationals will be permitted to attend.

ALL non-government attendees (which includes contractors, consultants and universities) attending this meeting **must:**

1. Be certified by a Sponsoring Government Official
2. Provide their organization's DD 2345 Certification Number for receipt of militarily-critical technical data

DD 2345: For additional information, contact the Joint Certification Program Office (JCP) at 1-800-352-3572 or visit their Web site at www.dlis.dla.mil/jcp/.

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All attendees will be required to register via the JANNAF Secure Portal. Portal accounts are complimentary so if you do not currently have an account, please visit the JANNAF web-site at www.jannaf.org to begin the process. Questions concerning attendance eligibility or establishment of a secure portal account should be directed to the JHU-WSE ERG Assistant Facility Security Officer, Tricia Reider at (410) 992-7300, ext. 222 or treider@erg.jhu.edu.

On-Site Electronics Policy

We know how important it is to stay connected. However...as a registered attendee of this ITAR restricted and Military Critical Technology Symposium, you have a personal responsibility to help protect the data exchanged at this event. This includes managing your electronic devices (phones, computers, cameras, pads, etc.), as well as your conversations responsibly. Aside from security concerns, prudence and responsible use of these devices extends basic courtesy to other attendees and speakers.

Please follow these basic guides at this meeting:

- Phones should not be used in any technical session. Preferably turn these devices off. If you must have your phone on, it needs to be on vibrate mode. Calls should not be accepted during the course of a presentation.
- Confine technical discussions to the meeting space, as an open foyer may be available to the general public.
- If using a phone or having a conversation with someone in the general vicinity of the symposium area be mindful of other people or devices that could pick up or transmit your conversation or those going on around you.
- Cameras are strictly prohibited. If you would like a photo of a poster, speaker, or other person or item within the confines of the meeting space, please first see someone at the registration desk. If your computer or other device has a microphone or camera, turn it off while in the meeting space.

Registration

There is no registration fee to attend the August 2016 TIM. However, all attendance requirements must still be met (see Security/Attendance Requirements, previous page). **Pre-registration is strongly recommended.**

STEP #1

Create a Portal Account (www.jannaf.org)

To register for the TIM, **you must first have a JANNAF Secure Portal account.** Please allow sufficient time for completion of the Portal Account application and approval process. For more information and instructions, please visit the [FAQ page](#) on the meeting website.

STEP #2

Once you have your JANNAF Secure Portal Account:

1. Go to the [Registration page](#) of the meeting website and click on "Register for the LPS / AMP / TIM."
2. Log in to your Portal account.

STEP #3

Complete the brief online Registration Questionnaire.

After your responses to the Registration Questionnaire have been entered in the meeting database, you'll receive an email confirming your registration for the LPS /AMP / TIM.

On Site Registration

The Registration Desk will be located in the lobby of the Jackson Center. Pre-registered attendees must show photo identification before receiving their badge and materials. **Pre-registration is strongly recommended to ensure that all attendance requirements have been met prior to arrival.** Registration will be open Tuesday and Wednesday, 23-25 August, beginning at 7:00 a.m. and closing at the end of sessions each day.

Attire

There is no official dress code for the TIM; however, most attendees wear business or business casual

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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 light sweater or jacket and dress in layers.

Questions

Questions concerning this program should be directed to Kathleen Rowan at (410) 992-7300, ext. 208 or e-mail: KRowan@erg.jhu.edu.

Upcoming JANNAF Meeting

Programmatic and Industrial Base (PIB) / 11th Modeling and Simulation (MSS) / 9th Liquid Propulsion (LPS) / 8th Spacecraft Propulsion Joint Subcommittee Meeting, 5 - 9 December 2016, Phoenix, Arizona.

Attendee Things to Do Checklist		
Task	Yes	No
1. Have you completed your application for a JANNAF Secure Portal account? (Click here to create an Account, Due Date: August 04, 2016)	<input type="checkbox"/>	<input type="checkbox"/>
2. Have you followed up with your FSO or HR contact re: Secure Portal application? (Due Date: August 04, 2016)	<input type="checkbox"/>	<input type="checkbox"/>
3. Did you complete your online Registration Questionnaire? (Due Date: August 09, 2016)	<input type="checkbox"/>	<input type="checkbox"/>
4. Have you submitted your presentation and presentation clearance form? (Due Date: August 09, 2014)	<input type="checkbox"/>	<input type="checkbox"/>
5. Have you ordered lunch(s) from the Jackson Center? (Click here to order no later than August 19th)	<input type="checkbox"/>	<input type="checkbox"/>
6. Have you ordered Continental Breakfast from the Jackson Center? (Click here to order no later than August 19th)	<input type="checkbox"/>	<input type="checkbox"/>
7. Planning to attend the tour of NASA Marshall Space Flight Center? (Please email George Fletcher, George.fletcher@nasa.gov by August 09 if you are interested in participating)	<input type="checkbox"/>	<input type="checkbox"/>

Program Committee Members

PROGRAM CO-CHAIRS

Ms. Elizabeth Robertson
NASA Marshall Space Flight Center
Huntsville, AL

Ms. Alison M. Park
Aerojet Rocketdyne
Canoga Park, CA

LPS PROGRAM COMMITTEE

Mr. Clyde S. Jones
NASA Marshall Space Flight Center
Huntsville, AL

Mr. Robert Carter
NASA Glenn Research Center
Cleveland, OH

Area I: Component Fabrication and Test

Mr. Michael E. Fuller
Orbital ATK
Brigham City, UT

AREA II: ADDITIVE MANUFACTURING TECHNIQUES AND MACHINES

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

AREA III: POST BUILD PROCESSING, FINISHING, AND INSPECTION

Ms. Karen Taminger
NASA Langley
Hampton, VA

Area IV: Materials

Dr. David L. Ellis
NASA Glenn Research Center
Cleveland, OH

Area V: Design for Additive Manufacturing

Ms. Elizabeth Robertson
NASA Marshall Space Flight Center
Huntsville, AL

AREA VI: MODELING AND SIMULATION

Dr. Phillip A. Farrington
University of Alabama
Huntsville, AL

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Area VII: Process Qualification and Specifications

Ms. Kristin L Morgan
NASA Marshall Space Flight Center
Huntsville, AL

Area VIII: Process Analysis, Sensing, and Control, Non-Destructive Evaluation

Mr. Darrell E. Gaddy
NASA Marshall Space Flight Center
Huntsville, AL

Area IX: Special Topics

Ms. Alison M. Park
Aerojet Rocketdyne
Canoga Park, CA

Area X: Future Needs

Mr. John Vickers
NASA Marshall Space Flight Center
Huntsville, AL

ERG Technical Representative

Mr. Bryan S. DeHoff
Aerospace Technical Services
West Chester, OH

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Technical Program

The TIM program currently consists of 9 technical sessions, with 41 presentations. There will also be a keynote presentation and poster presentations.

Technical Program Agenda - Tuesday, 23 August	
8:00 a.m. - 8:10 a.m.	Welcome
8:10 a.m. - 8:15 a.m.	TIM Introductory Remarks; Dr. Paul McConnaughey, NASA/MSFC
8:15 a.m. - 10:20 a.m.	(1A) Session 1: Component Fabrication and Test
10:20 a.m. - 10:35 a.m.	Break; View Posters
10:35 a.m. - 11:05 a.m.	Keynote: Michael Maher
11:05 a.m. - 1:50 a.m.	(1B) Session 2: Additive Manufacturing Techniques and Machines
11:55 a.m. - 1:00 p.m.	Lunch Break
1:50 p.m. - 3:30 p.m.	(1C) Session 3: Post Build Processing, Finishing, and Inspection
3:30 p.m. - 3:45 p.m.	Break; View Posters
3:45 p.m. - 5:50 p.m.	(1D) Session 4: Materials

Technical Program Agenda - Wednesday, 24 August	
8:00 a.m. - 8:05 a.m.	Welcome
8:05 a.m. - 10:35 a.m.	(2A) Session 5: Design for Additive Manufacturing
10:35 a.m. - 10:50 a.m.	Break; View Posters
10:50 a.m. - 1:30 p.m.	(2B) Session 6: Modeling and Simulation
11:40 a.m. - 12:40 p.m.	Lunch Break
1:30 p.m. - 3:10 p.m.	(2C) Session 7: Process Qualification & Specifications
3:10 p.m. - 3:25 p.m.	Break; View Posters
3:25 p.m. - 5:05 p.m.	(2D) Session 8: Process Analysis, Sensing, and Control, Non-Destructive Evaluation

Technical Program Agenda - Thursday, 25 August	
8:00 a.m. - 8:05 a.m.	Welcome
8:05 a.m. - 10:10 a.m.	(3A) Session 9: Special Topics
10:10 a.m. - 10:30 a.m.	Break; View Posters
10:30 a.m. - 12:00 p.m.	(3B) Future Needs Panel

Block Diagram
JANNAF Liquid Propulsion Subcommittee (LPS) Advanced Materials Panel (AMP)
Additive Manufacturing for Propulsion Applications Technical Interchange Meeting (TIM)
August 23 – 25, 2016

Jackson Center	Discovery Hall			Discovery Hall Pre-Function Posters
Tuesday 8/23/2016	(1A-Area I) Component Fabrication and Test	(1B-Area II) Additive Manufacturing Techniques and Machines	(1C-Area III) Post Build Processing, Finishing and Inspection	Poster presentations will be on display August 23-25, 2016 in the Pre-Function area of Discovery Hall. See page 9 in the program for poster details.
	(1D-Area IV) Materials			
Wednesday 8/24/2016	(2A-Area V) Design for Additive Manufacturing	(2B-Area VI) Modeling and Simulation	(2C-Area VII) Process Qualification and Specifications	
	(2D-Area VIII) Process Analysis, Sensing and Control, Non-Destructive Evaluation			
Thursday 8/25/2016	(3A-Area IX) Special Topics	(3B-Area X) Panel - Future Needs		