JANNAF
INTERAGENCY PROPULSION COMMITTEE

73rd JPM | PIB Meeting | 50th SMBS | 46th PEDCS
35th SEPS | 20th MSS | 3rd HTMAS
Joint Subcommittee Meeting

Call for Papers

1 - 5 June 2026 Pittsburgh, PA

Abstract Deadline:
5 December 2025

CONTENTS

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What? June 2026 JANNAF Interagency Propulsion Committee meeting

When? Monday through Friday, 1-5 June 2026

Where? Location in Pittsburgh, Pennsylvania

Meeting Chair:
Ms. Megan L. Rex, Naval Air Warfare Center Weapons Division, China Lake, CA

The following subcommittees will meet:

JANNAF Propulsion Meeting (JPM)
Programmatic and Industrial Base (PIB)
Structures and Mechanical Behavior (SMBS)
Propellant and Explosives Development and Characterization (PEDCS)
Safety and Environmental Protection (SEPS)
Modeling and Simulation (MSS)
High Temperature Material Applications (HTMAS)

For additional information, visit the June meeting page.

WHY SHOULD YOU ATTEND A JANNAF MEETING?

[According to previous JANNAF Meeting attendees]

ATTENDANCE REQUIREMENTS

The overall security level of the meeting is **Unclassified**. All sessions will be held at the Wyndham Grand Pittsburgh Downtown. Attendance is restricted to U.S. citizens 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 are permitted to attend.

All attendees will need to have an active JANNAF account. Instructions can be found here.

Non-government attendees (including contractors, consultants, and universities) will need the following:

1. Current government contract or certification from a Sponsoring Government Official
2. Employer'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 https://www.dla.mil/HQ/LogisticsOperations/Services/JCP/.

Questions concerning attendance eligibility and JANNAF account access should be directed to Mionna Sharp (msharp@erg.jhu.edu) or by calling (410) 992-7300 ext. 224.

REGISTRATION

Preliminary registration information is provided on the June meeting website with full details available when registration opens in late-March. All attendees, including presenters, must register and pay the registration fee.

PURPOSE

The JANNAF Interagency Propulsion Committee focuses on the technology, development, and production capabilities for all types of propulsion systems and energetics for tactical, strategic and missile defense rockets and missiles, for space boost and orbit transfer, for in-space propulsion, and for gun systems. JANNAF provides a forum for discussion of propulsion issues, challenges, and opportunities across the Military Departments, Defense Agencies and NASA. JANNAF subcommittees focus their resources on technical issues of interest to the JANNAF agencies. JANNAF accepts papers that are unclassified/unlimited and unclassified/limited for all meetings; and up to classified Secret as announced in the specific meeting's announcement and call for papers.

JANNAF IS SOLICITING ABSTRACTS FOR BOTH PAPERS AND POSTERS.

ABSTRACT SUBMITTAL GUIDANCE

- The technical areas to be addressed are defined in this announcement. Individuals who wish to submit an abstract should carefully review the topic areas listed on pages 8 - 25.
- **The deadline date for submission of the online Abstract Form is 5 December 2025**. If you need to submit an abstract after this date, please contact ERG (meetings@erg.jhu.edu).
- **Your organization may require abstracts to be processed through an approval system prior to submission. This process takes additional time, so authors should plan accordingly to meet the abstract deadline date.**
- Submitting an abstract represents an agreement to **submit a final paper for publication by 1 May 2026**, attend the meeting, and deliver a 25-minute presentation or a poster. The JANNAF Policy of "No Paper, No Podium" will be in effect for this meeting, with the exception of posters.
- **All abstracts are to be submitted via the JANNAF Abstract Submittal Site**. A JANNAF account is NOT required to submit an abstract.
- Submit only unclassified abstracts with content that is distribution statement A (approved for public release) or C (distribution authorized to U.S. Government and its contractors). **Abstracts will NOT be published** and will only be used by the program committee members for selection and scheduling purposes.
- You will be asked to indicate your presentation's anticipated Distribution Statement when completing required fields on the Abstract Submittal Site.
  - » Dissemination of information from JANNAF presentations is primarily relegated to either Statement A (approved for public release) or Statement C (Distribution authorized to U.S. Government and their contractors).
  - » To properly secure them, presentations marked with Statement B (U.S. Government agencies only), Statement D (U.S. Department of Defense and U.S. DoD Contractors only), or Statement E (U.S. Department of Defense components only), must be placed at the beginning of session agendas.
  - » Papers may have different Distribution Statements than their corresponding presentations.
- The Title field on the Abstract Submittal Site is limited to 150 characters including spaces.
- Only a primary author should be listed when submitting your abstract, unless the presenting author is someone other than the primary author. If accepted, there is no author limit when submitting your final paper and all names will be included in the author list when the paper is published in JDOC.
- Abstract length is limited to 300 words, and may not include tables or figures. State the objective of the work. Describe the scope, method of approach, and any new advances in the state of the art. Highlight important conclusions, and include a brief summary of the data used to substantiate them.
- Indicate confirmation of required resources when completing the required fields on the Abstract Submittal Site to ensure availability of time, funding, and support for your participation in the meeting. This is NOT related to security review/approval to submit the abstract or submit/present the paper. A "no" response to this question will place your abstract in placeholder status.
- If the abstract deadline is approaching and you have not received approval to release your abstract, please contact the ERG meetings team (meetings@erg.jhu.edu) for guidance on submitting a placeholder.
- When filling in the form in the Abstract Submittal Site, if there is required information that you do not have, you have the ability to save your form and return once you have obtained the missing information to complete and submit the form.

ABSTRACT SUBMITTAL INSTRUCTIONS

JHU WSE ERG accepts only **electronic submission** of abstracts, presentations, and papers. **Abstracts must be submitted only via the Abstract Submittal Site:**

1. To access the Abstract Submittal Site, go to: https://jannaf.org/abstractstart. You may submit an abstract ***with or without*** an active JANNAF Secure Portal Account. Contact meetings@erg.jhu.edu if you require assistance.
   - » If you are submitting an abstract without an active JANNAF Account, and have not received a validation code (from info@erg.jhu.edu) within 30 minutes after you have submitted a request, after confirming that the message is not in your junk/spam folder, email meetings@erg.jhu.edu.
   - » If you are submitting an abstract without an active JANNAF Account, you may use your validation code to submit more than one abstract.
2. After reaching the Abstract Landing Page, select the June 2026 meeting, and then click the dark blue "Create new abstract" button to create a new abstract or edit/submit a draft abstract.
   - » Once you have reached the Submission Details tab, you will have the option to save the form as a draft and return to complete it at a later time.
3. When all required fields have been completed accurately, submit your abstract. You will have the opportunity to review your responses before you submit.

AUTHOR TIMELINE

Dates below are subject to change.

Date	Weeks to Meeting	Action
5 Dec 2025	25	Deadline for receipt of abstracts via Abstract Submittal Site.
23 Feb 2026	14	Approximate date for committee decision emails sent to authors.
6 Mar 2026	12	Deadline for changes to Meeting Invitation and Preliminary Program.
23 Mar 2026	10	Approximate date for Meeting Invitation, Preliminary Program, and registration materials forwarded to propulsion community.
27 Mar 2026	9	Deadline for award nominations and submittal of Student papers for Best Student Paper award consideration
17 Apr 2026	6	Deadline for submission of changes to the Final Program
1 May 2026	4	Last day for discounted Early registration fee.
1 May 2026	4	Deadline for receipt of papers and publication clearance forms. Papers not received by this date may be removed from the program.
8 May 2026	3	Deadline for reservations at Wyndham Grand Pittsburgh Downtown.
15 May 2026	2	Last day to pre-register online (registration form submission and registration fee payment). Late registration required thereafter.
15 May 2026	2	Deadline for receipt of presentations
1 June 2026	0	Start date for JPM/PIB/SMBS/PEDCS/SEPS/MSS/HTMAS Joint Subcommittee Meeting

MEETING SUBCOMMITTEES & MISSION AREAS

Click on the Mission Area of interest in the chart below to jump to that section in this Call for Papers.

Mission Area	JPM	SMBS	PEDCS	SEPS	MSS	HTMAS
I	Tactical Propulsion	Service Life / Missile Sustainment	Liquid Propellants	Toxicology	Model-Based Engineering	High Temperature Material Modeling and Simulation
II	Missile Defense / Strategic Propulsion	Materials Properties and Characterization	Explosive Development and Characterization	Atmospheric Dispersion Modeling and Hazards Assessment	Integrated Health Management	High Temperature Material Design, Test and Evaluation
III	Propulsion Systems for Space Access	Structural Analysis and Design	Propellant and Explosives Process Engineering	Instrumentation	Simulation Credibility: Verification, Validation, and Risk	High Temperature Material Development
IV	Gun and Gun-Launched Propulsion	Experimental Structural and Mechanical Analysis and Test Methods	Energetic Materials Characterization and Raw Material Obsolescence	Environmental	Model Based Test and Evaluation (MBTE)	
V	Propulsion and Energetics Test Facilities	Nondestructive Evaluation	Solid Propellant Ingredients and Formulations	Industrial Hygiene		
VI	Sensors for Propulsion Measurement Applications	Defect Evaluation	Propellant and Explosive Surveillance and Aging	Range Safety and Explosives Safety		
VII	System-wide Application of Additive Manufacturing for Propulsion Applications	Processing and Characterization of Additively Manufactured Materials Joint SMBS-PEDCS Mission Area	Gun Propulsion	Green Energetic Materials (GEM) Joint PEDCS – SEPS Mission Area		
VIII			Green Energetic Materials (GEM) Joint PEDCS-SEPS Mission Area	Demilitarization, Reclamation, and Reuse Technologies		
IX			Processing and Characterization of Additively Manufactured Materials Joint SMBS-PEDCS Mission Area	Review of Accidents and Incidents		

JANNAF PROPULSION MEETING

JHU WSE ERG Technical Representative
Mr. Michael "Miki" Fedun / JHU WSE ERG / Columbia, MD
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The JANNAF Propulsion Meeting (JPM) encompasses research and applications at the systems level. The JPM is held each year in conjunction with standing JANNAF subcommittee meetings on a rotating basis. The scope of the 73rd JPM spans seven mission areas (MA): Tactical Propulsion; Missile Defense/Strategic Propulsion; Propulsion Systems for Space Access; Gun and Gun-Launched Propulsion; Propulsion and Energetics Test Facilities; Sensors for Propulsion Measurement Applications; and System-wide Application of Additive Manufacturing for Propulsion Applications..

The 73rd JANNAF Propulsion Meeting sessions will cover systems development within the seven mission areas described below. Questions concerning these areas or the topics being solicited should be directed to the JHU WSE ERG Technical Representative for JPM.

Mission Area I:
Tactical Propulsion

This area encompasses all tactical propulsion systems including those applicable to air-to-air; air-to-surface, surface launched and underwater missions. Typical systems include tactical missile boosters or sustainers, kinetic energy missiles, free-flight rockets, anti-radiation, anti-ship, anti-armor, anti-personnel/materiel missiles, ramjets, scramjets, and combined cycle propulsion. System studies that evaluate advanced propulsion concepts and demonstrations that incorporate one or more component technologies applicable to tactical propulsion are of interest. Examples of component technologies include propellants and fuels, fuel management systems, cases and combustors, inlets, nozzles, thrust vector control systems, thrust management systems, and advanced materials applications. Life cycle cost and demilitarization are also topics of interest.

Manufacturing technologies and fabrication techniques: Papers are requested that emphasize manufacturing technologies and fabrication techniques. Papers need not be associated with a particular system but should be applicable to materials associated with such vehicles and their corresponding flight environment. Abstracts are especially sought on the following topics:

- Airbreathing propulsion systems
- Hybrid propulsion systems
- Solid propellant rocket propulsion systems
- Demilitarization
- Hypersonic propulsion systems
- Improved missile kinematics
- Insensitive munitions (from a systems perspective)
- Propulsion system product improvement
- Manufacturing technologies and fabrication techniques

Airframe Structures and Materials: Materials development and characterization, and structural concepts, design, test, and validation for Airframe applications and components exposed to extreme environments as found in atmospheric high speed or reentry conditions. Topics of interest include: TPS and hot structures, materials,

structures and related technology for leading edges, exterior acreage surfaces, control surfaces, hot structures, and seals (penetrations). Further topics include hot and integrated structures; acreage thermal protection systems, including ceramic matrix composites, tiles, blankets, ablators, and metallics; fuel tanks, including cryogenic and hydrocarbon, composite and metallic; leading edges, including active, passive, and heat-pipe-cooled; design and analysis methods; and seals. System-level design and analysis methods for power and thermal balancing the various heat loads with available heat sinks, especially time-unsteady are of interest. Papers on structures and materials that have recently flown, or are planned for flight, on flight vehicles are encouraged.

Mission Area II:
Missile Defense / Strategic Propulsion

This area includes technology applicable to ballistic missiles, trans-atmospheric vehicles, and missile defense. Emphasis should be on system-level papers discussing propulsion technology for new vehicle systems, upgrades, modernization and sustainment; failure investigations; and economic considerations that include evolving business practices, life cycle cost estimation, and approaches that reduce development and operations costs and schedules. Papers are requested that emphasize sustainable manufacturing technologies and fabrication techniques. Papers need not be associated with a particular system but should be applicable to materials associated with such vehicles and their corresponding flight environment. Abstracts are especially sought in the areas of:

- Ground-based and sea-based strategic systems
- Ground-based, aircraft-based and sea-based missile defense
- Anti-satellite systems
- Advanced (including low or non-toxic) propellants
- Advanced (including light weight and/or high temperature) materials
- Insensitive munitions technologies
- Energy management approaches
- Dual mode systems (airbreathing/rocket)
- Unconventional propulsion
- Divert propulsion/attitude control propulsion
- Post boost control system propulsion
- Innovative propellant tank and valve technologies (including hot gas valves/pintles)
- Aging and Surveillance of propulsion systems
- Methodologies for determining space propulsion system useful life from design analysis and ground-based testing
- Manufacturing technologies and fabrication techniques including the use of 3D printing for strategic and missile defense propulsion system components
- US-sourced sustainable materials
- Demilitarization or alternative applications of heritage propulsion system

Mission Area III:
Propulsion Systems for Space Access

This area focuses on existing or potential primary and auxiliary government, commercial or foreign propulsion systems for earth-to-orbit vehicles or in-space propulsion systems. Emphasis should be on system-level papers discussing propulsion technologies for new vehicle systems, upgrades and modernization, failure investigations,

and evolving business practices that reduce development and operations costs while increasing mission reliability. Papers should address future access to space missions, future exploration missions and needs, vehicle system architectures, and the identification of critical propulsion requirements technologies that must be enabled to support these new system requirements.

Manufacturing technologies and fabrication techniques: Papers are requested that emphasize manufacturing technologies and fabrication techniques. Papers need not be associated with a particular system but should be applicable to materials associated with such vehicles and their corresponding flight environment. Abstracts are especially sought in the following areas:

- Methods for development of design reference missions and vehicle systems architecture
- Future or current vehicle systems that use either solid or liquid propulsion
- Description of vehicle systems analysis models and assumptions including risk
- Description of vehicle system full scale testing versus model analysis and assumptions including risk
- Details of architecture studies and descriptions of promising vehicle architectures
- Uncertainty evaluation of vehicle systems analysis
- Cybersecurity and its relationship to operation and protection or risk of vehicle or propulsion systems
- Results of sensitivity analysis of key parameters on vehicle dry mass fraction margin, gross take-off weight, cost, reliability, and safety, with emphasis on propulsion
- Methods for identification and prioritization of critical enabling propulsion technologies
- Approaches for utilizing higher fidelity propulsion analyses in the overall systems architecture model(s)
- Methods to standardize model assumptions and fidelity in order to make relevant comparisons between vehicle architectures and various propulsion system options
- Description of promising new propulsion systems including risk assumptions
- Description and status of the access to space propulsion system technology or development activities
- Small launch vehicle mission analysis
- System analysis for responsive space access
- Manufacturing technologies and fabrication techniques
- Manufacturing use of 3D printing for propulsion hardware
- Testing use of 3D printing for propulsion hardware

Mission Area IV:
Gun and Gun-Launched Propulsion

This area embraces technologies applicable to small-, intermediate-, or large-caliber guns, as well as gun-launched rocket propulsion, for air, sea, or ground/mobile weapons systems. Typical rocket assisted systems include kinetic energy missiles and extended range projectiles, both guided and unguided. Abstracts are especially sought in the following areas:

- Conventional gun propulsion concepts to include solid and liquid propellants
- Unconventional gun propulsion concepts
- System-level gunp propulsion studies (gun tube wear and erosion, blast/flash mitigation, improved system survivability)
- Concepts to enable propulsion systems (i.e. gun barrel and/or rocket motor case) to achieve higher operating pressures

- Assisted projectiles
- Assisted guided munitions
- Propulsion design and accommodation for novel launch packages to include UXV
- Insensitive munitions
- Gun propulsion concepts using additive/advanced manufacturing methods
- Gun propulsion concepts to increase loading density and/or deliver highly optimized gas generation rates (GGR)
- Novel ignition system and propelling charge architectures

Mission Area V:
Propulsion and Energetics Test Facilities

This area targets issues, technologies, and achievements relevant to the operation and use of rocket propulsion test facilities for demonstration, development, characterization, and qualification of rocket, spacecraft, and gun propulsion systems, energetics, and materials for propulsion applications. Eligible test facilities include static test facilities for liquid rocket engines, solid rocket motors, electric and in-space propulsion systems, hypersonic test facilities, gel motors, hybrid propulsion systems, explosives, insensitive munitions, wind tunnels, altitude/vacuum chambers, and other rocket propulsion technologies; laboratory test facilities for energetics and materials science characterization; and test ranges for missiles, guns, and rocket sleds. Abstracts are specifically solicited on the following topics:

- Best practices and testing standards
- Integrating instrumentation, controls, and data acquisition systems
- Static thrust measurement systems
- Propellant and materials handling and safety
- Accident and incident lessons learned
- Test facility modeling

Abstracts on improvements in base infrastructure, updates and upgrades of test stand capabilities, new propellant inventories, or other general advertisements of capabilities or assets will not be considered for this area

Mission Area VI:
Sensors for Propulsion Measurement Applications

This area captures technologies and advancements in sensors and measurement devices for rocket and gun propulsion applications. Emphasis should be on development, application, modeling and integration of sensors for use in various propulsion applications. Abstracts are specifically sought on systems and sensors for:

- Storage, tanking and cryogenic systems, including true cryogenic mass flow, cryogenic temperature measurement, mass and level measurement in micro and zero gravity, pump and turbomachinery induced pressure fluctuations, leak and tank integrity monitoring, and other propellant feed and storage measurements
- High-temperature systems and hostile environments, including: extreme high-temperature measurements, real-time nozzle erosions and fuel regression, material ablation, flame propagation, high temperature electronics, packaging, and communications, and measurement and analysis of thermal effects on pressure transducers
- In-chamber diagnostics, including development of methods to make measurements of velocity, temperature, pressure, and/or other flow quantities inside of firing combustion chambers
- Plume measurement technology, including methods to utilize plume measurements to understand chamber operating conditions and spacecraft contamination issues

- Systems health monitoring and non-destructive evaluation (NDE) and repair, including: test stand characterization and control, structure and sense line frequency characterization, micro and nanotechnologies, systems for conversion of sensor data into actionable knowledge, technologies for intelligent health management systems, integrated fiber optics, electromagnetic NDE technologies, NDE data processing and analysis, life cycle monitoring of solid rocket motors, and monitoring of aeroshells and ballutes during reentry
- Smart sensing technology, including the development of sensors capable of automatic calibration and fault detection; intelligent sensors that are calibrated in situ and provide dynamic compensation for environmental changes (temperature, humidity, etc.); fault detection also including any fault that would cause a sensor to provide inaccurate information such as sensor damage, lead wire damage or disconnection, and the disbonding or detorquing of the sensor; smart and distributed sensor system approaches, systems architectures, and applications
- Chemical sensors suitable for solid rocket motor environments and applications (sensors of interest include those for measuring the chemical state or composition of a solid, including gaseous diffusion, liquid diffusion, changes in free volume, direct measurement of changes in molecular weight or molecular weight per crosslink due to chain scission or the reaction products which result from chain scission); and development and applications of sensors that do not alter the chemical equilibrium of the solid solution are of particular interest
- Sensor modeling and simulation including modeling and simulation methods for sensor selection and data validation approaches; and recent advances in micro/nano technology, embedded sensor systems, optical diagnostics, and multiparameter measurement technologies
- Sensor systems or approaches including embedded sensor systems enabled by advances in additive manufacturing
- Sensor systems associated with hybrid electric or all electric vehicle propulsion and vehicle systems
- Methods for automating one or more manufacturing steps to improve speed, repeatability, safety, or other characteristics
- Non-destructive evaluation techniques, particularly in-situ or non-disruptive evaluation techniques that complement advanced manufacturing methods
- Design and analysis methods, techniques, and tools to assess materials and systems produced using manufacturing methods described in this mission area, to include those that address service life, reliability and critical defects assessments
- Studies that assess the merit of applying manufacturing methods described in this mission area to particular systems or classes of systems
- Development of Lot Acceptance Test (LAT) methods to measure the burn rate and mechanical properties that are efficient and effective for materials produced by additive manufacturing, to include alternatives to casting or extruding blocks of propellant to make burn rate strands and/or JANNAF dog-bones

Mission Area VII:
System-wide Application of Additive Manufacturing for Propulsion Applications

This area focuses on the use of Additive Manufacturing (AM) as an enabling technology from both an organizational and a systems perspective. Additive manufacturing is critical for reducing manufacturing time and cost to produce specific components for propulsion systems, and multiple JANNAF Subcommittees are addressing the specific application challenges within their areas. Affordability is a critical element for both government and commercial systems. New and innovative manufacturing techniques are working their way into mainstream manufacturing. Before additive manufacturing is widely accepted for general use, it is necessary to understand the technology well enough to proceed with a high level of confidence. This Mission Area emphasizes how the various JANNAF organizations are planning to address the challenges of integrating AM into propulsion systems. What are the synergies between the JANNAF organizations' AM plans and the AM centers of excellence such as

America Makes (as well as others)? How are the JANNAF organizations addressing the integration of AM hardware into existing or new systems? Other areas to consider are overall cost considerations and ROI when incorporating AM hardware into new systems.

Papers should address AM technology roadmaps (government, industry, AM centers), AM integration challenges, strategies for incorporating AM hardware into new or existing systems, and economic considerations.

Additive Manufacturing Technology:

- Government AM technology road maps/plans
- AM Centers of Excellence technology road maps/plans
- Industry AM technology road maps
- Synergy between roadmaps, what is missing?
- Challenges for incorporating AM hardware into systems
- Economic considerations of incorporating AM hardware into new systems
- Are we investing enough into AM?
- Are we investing in the right areas?

PIB

PROGRAMMATIC AND INDUSTRIAL BASE

JHU WSE ERG Technical Representative
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The JANNAF Programmatic and Industrial Base (PIB) Committee was chartered by the Department of Defense and the National Aeronautics and Space Administration in 2014 as a part of JANNAF. Its focus is on providing a mechanism for DoD and NASA Programs to collaboratively identify and manage risks and issues within the propulsion industrial base, and to work together to solve them. This requires an integrated understanding of each program's plans and key decision points, and how those decisions may impact the propulsion industrial base. PIB 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.

STRUCTURES & MECHANICAL BEHAVIOR SUBCOMMITTEE

JHU WSE ERG Technical Representative
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The SMBS addresses the development, application, and verification of experimental, analytical, and statistical techniques required in the preliminary or detailed structural design of solid propellant rocket motors and gun ammunition, the assessment of their structural integrity, and the prediction of their service life based on structural or chemical aging mechanisms.

The 50th Structures and Mechanical Behavior Subcommittee sessions relate to the structures and materials comprising propulsion systems, including composite structures. Papers are solicited on developing, applying, and verifying techniques for preliminary or detailed structural design of propulsion units (rocket motors, liquid- or gel-fueled engines and gun propulsion) and related composite structures, for assessing their structural integrity and reliability, and for predicting their service life. Specific areas of interest are listed below. Questions about any of the SMBS mission areas should be directed toward the JHU WSE ERG Technical Representative for SMBS, listed at the beginning of this section.

Mission Area I:
Service Life / Missile Sustainment

Methodology for service life prediction and assessment.

- Aging systems - surveillance, service life prediction, extension
- Factors which limit the service life of propulsion systems and propellants, such as chemical/structural aging, changes in binder/filler interaction, crystallization, migration/diffusion of ingredients or moisture
- Development approaches for improving service life of solid rocket motors and liquid rocket components
- Motor monitoring - NDE methodologies applicable to service life evaluation
- Factors which limit service life of structural sub-components (nozzles, cases, igniters, combustion chambers, tanks, etc.)
- Hazards related to service life and aging

Mission Area II:
Materials Properties and Characterization

New developments or application experiences related to mechanical properties and characterization.

- New and/or improved test methods for evaluating propellant and case or component construction materials' mechanical properties including tensile, shear, friability, dilatation and bulk, fracture, microstructure, aging, propellant/case bond, etc.
- New and/or improved approaches to material properties optimization during solid rocket motor or gun propellant development
- Advancements in test equipment and procedures, test instrumentation, data acquisition and processing techniques, and data reduction and analysis
- Test specimen preparation techniques and dynamic characterization
- Mechanical properties related to propulsion systems hazards, e.g., material characterization under impact loads or high loading rates

- Effects of propellant formulation on gun tube wear and erosion (GTWE)
- Fundamental molecular modeling related to gun tube wear and erosion
- New and/or improved test methods for evaluating materials used in liquid engine components or liquid engine propellant tanks

Mission Area III:
Structural Analysis and Design

Evaluation and validation of structural analysis methods applicable to initial design, structural integrity, and service life prediction of propulsion systems.

- Advancements in the state-of-the-art in structural analysis, particularly in nonlinear viscoelastic analysis and incorporation of nonlinear constitutive behavior
- Cumulative damage, failure criteria, and thermal and moisture diffusion analysis are included in these areas
- Structural reliability analyses and analysis of nondestructive evaluation results relative to structural reliability are two areas of particular interest
- Approaches to incorporating the results of NDE in a structural analysis code and methods of evaluating the effects of defects on structural integrity are of particular interest
- Applications of nonlinear elastic-plastic analysis to design of metal components, such as cases and pressure vessels
- Application of structural analysis methods to health-monitoring sensors, including sensor design, influence of sensors on motor integrity, and interpretation and application of sensor data

Mission Area IV:
Experimental Structural and Mechanical Analysis and Test Methods

Evaluation of stress measurement tools and techniques for liquid rocket engines and solid rocket motors, analog rocket motor design, analysis and testing.

- State-of-the-art experimental structural methods
- Technology for experimental stress analysis
- Experimental validation of stress analyses and failure analyses
- Experimental investigation of rocket motor structural/ballistic interactions
- Statistical considerations in experimental stress analysis
- Experimental structural analysis and test methods for rocket motor cases, nozzles, and gun propulsion systems
- Experiments related to the fundamental chemistry occurring between gun barrel materials and combustion products
- Macroscopic erosion experiments leading to chemical mechanisms occurring in gun tube wear and erosion

Mission Area V:
Nondestructive Evaluation

Nondestructive evaluation and inspection techniques to solid propellant rocket motors, liquid or gel engines, and gun propulsion systems and components.

- Application of NDE techniques during any portion of the life cycle of the propulsion components
- Application of NDE technology and methods for enhancing propulsion system and/or subcomponent quality and reliability
- Use of NDE methods during the propulsion system life cycle from manufacturing to acceptance (buy-off)
- The monitoring and control of manufacturing processes
- Automated NDE sensing systems for quality control and conformance testing

- Use of embedded sensing system (including Micro-Electromechanical Systems – MEMS) for performance testing
- NDE methods used during static test
- NDE standards for system or component acceptance
- NDE methods for health management
- Role of NDE in service life assessment and extension
- Evaluation of propulsion system aging characteristics
- The post-acceptance evaluation of grain integrity, inert materials aging, chemical attack and migration, corrosion, and environmental storage effects
- Use of NDE technologies in strategic sustainment
- Advanced NDE systems and technologies, including but not limited to, real-time radiography, digital ultrasonics, holography, shearography, computed tomography, acoustic emission, electro-optic fiber embedments, thermography, lasers, and advanced digital image analysis techniques
- Emerging NDE technologies and their potential application to the propulsion community

Mission Area VI:
Defect Evaluation

Evaluation of the criticality of flaws and defects to the structural integrity of propulsion systems.

- Improved methods for predicting crack growth and cumulative damage in viscoelastic materials and solid, liquid and gun propulsion system component materials
- Applications of crack propagation and fracture theory in structural analysis finite element codes
- Structural/ballistic interaction, e.g., analysis of pressure-driven crack propagation in a propellant grain

Mission Area VII:
Processing and Characterization of Additively Manufactured Materials Joint SMBS-PEDCS Mission Area

New or significantly improved methods for manufacturing solid rocket motor or solid-fueled propulsion systems or solid explosive systems (or components thereof).

- Development of additive manufacturing (AM) methods (e.g. fused deposition modeling, direct ink writing, robocasting, stereolithography) for energetic materials
- Material, formulation and process development, and optimization of energetic materials to enable effective additive manufacturing
- Advanced manufacturing methods for inert components of propulsion or energetic systems, including automated fiber placement for composite components or AM methods for metallic components
- Methods for automating one or more manufacturing steps to improve speed, repeatability, safety, or other characteristics
- Non-destructive evaluation techniques, particularly in-situ or non-disruptive evaluation techniques that complement advanced manufacturing methods
- Design and analysis methods, techniques, and tools to assess materials and systems produced using manufacturing methods described in this mission area, to include those that address service life, reliability and critical defects assessments
- Studies that assess the merit of applying manufacturing methods described in this mission area to particular systems or classes of systems
- Development of Lot Acceptance Test (LAT) methods to measure the burn rate and mechanical properties that are efficient and effective for materials produced by additive manufacturing, to include alternatives to casting or extruding blocks of propellant to make burn rate strands and/or JANNAF dog-bones

PEDCS

PROPELLANT & EXPLOSIVES DEVELOPMENT AND CHARACTERIZATION SUBCOMMITTEE

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The scope of PEDCS comprises work and issues associated with propellants, explosives, and other energetic formulations used in the development, manufacture, performance, and operation of weapons, propulsion systems, and gas generator devices. This subcommittee covers the technology areas required to develop, manufacture, and characterize propellants and ingredients. The manufacturing technologies of interest include mixing procedures, sampling and quality control, safety and handling practices, and the design and operation of mixing equipment. The characterization tests involve classical wet chemistry, instrumental analysis, chemical stability, compatibility, and calorimetric measurements.

The 46th Propellant and Explosives Development and Characterization Subcommittee sessions will be organized into the topic areas described below. Please submit your abstract according to the interest area. Please direct questions about any of the PEDCS mission areas to the JHU WSE ERG Technical Representative for PEDCS listed at the beginning of this section.

Mission Area I:
Liquid Propellants

Areas of interest include research, development, and improvement of methods of analysis and specifications for liquid propellants; development and characterization of new and existing liquid engine and gun propellants; assessment of materials compatibility, reaction chemistry, and reactivity with various propellants including hydrazine fuels, dinitrogen tetroxide oxidizers, gels, ionic and other monopropellants, and liquid gun propellants. The evaluation of liquid propellant supply status and qualification of new or alternate suppliers is also of importance.

Mission Area II:
Explosive Development and Characterization

This Mission Area focuses on development, characterization and testing of explosives to improve ordnance reliability and increase lethal effects. Topics of interest include reactive materials, increased metal acceleration, air-blast performance, as well as advances in the study of initiation and growth of detonation events. Abstracts especially sought in the following areas:

- Improving reliability by understanding initiation via experiments to understand James-Space
- Experimental or theoretical studies to understand thermal initiation of detonation
- The use of detonation wave merging to increase warhead or fuze performance
- Characterization of additively manufactured explosives
- Novel high performance formulations
- Novel high performance explosive chemical ingredients

Mission Area III:
Propellant and Explosives Process Engineering

Papers are sought in the areas of propellant and energetic formulation development and processing technology. Additional areas of interest include the measurement and characterization of rheological properties such as viscosity, yield stress, pot life/gelation time, cure rate, and viscoelasticity and their effect on properties such as processability, burning rate, and mechanical behavior. Of particular interest are the continuous and novel processing of energetic formulations as well as lessons-learned in propellants and explosives manufacture.

Mission Area IV:
Energetic Materials Characterization and Raw Material Obsolescence

Areas of interest include chemical and combustion test methods to analyze and characterize energetic materials and their formulations including solid and liquid propellants, warheads, pyrotechnics, fuses, and initiators, especially those pertaining to tactical and strategic propellants and associated energetics that contain novel ingredients; modifications of current test methods or alternate procedures that minimize/eliminate the use of ozone depleting solvents or other adverse organic chemicals; statistics of sample selection; techniques of sample preparation; methods development for microcalorimeter instruments, gun propellant, and rocket propellant; and related subjects. Additional focus is an emphasis to document and track on-going propellant and warhead raw material obsolescence and related testing of new replacement materials.

Mission Area V:
Solid Propellant Ingredients and Formulations

Topics include identification of advances and challenges in the area of solid propellant ingredients and formulations with emphasis on ingredient synthesis and production, industrial base and supplier status, chemical, structural and physical characteristics (including reactivity), and recovery, reuse, and disposal of ingredients as well as the qualification and use of new and novel ingredients in propellant formulations.

Mission Area VI:
Propellant and Explosive Surveillance and Aging

Papers are sought on analysis techniques for the determination of the chemical aging behavior and safe storage of solid propellants. Of particular interest are the decomposition of solid propellants that contain nitrate esters and the autoignition risk that may result from their degradation. New areas of interest include Munition Health Management and Predictive Maintenance for aging and lifetime extension.

Mission Area VII:
Gun Propulsion

Seeking research in the areas of formulation and processing of propellants and associated components (igniters, case and packaging materials, etc.) for use in gun propulsion. This can include new compositions, new ingredient development, novel geometries and structures, propellant development protocols, performance diagnostics, aging and shelf life, increased performance, reduced wear and erosion, as well as insensitive munitions response.

Mission Area VIII:
Green Energetic Materials (GEM) Joint PEDCS-SEPS Mission Area

Papers are sought on the development of environmentally sustainable energetic ingredients, formulations, and processing technologies with an emphasis on the following: reduction of impacts from energetic materials and unexploded ordnance on military ranges, manufacturing and demilitarization facilities; enhancement of recycling, recovery, reuse and reduction of waste; and response to specific impacts that environmental regulations have had on military readiness, such as limiting training with live ordnance, outsourcing of manufacturing overseas or explicit banning of the use of specific materials.

Mission Area IX:
Processing and Characterization of Additively Manufactured Materials Joint SMBS-PEDCS Mission Area

This Mission Area addresses the development of AM methods for energetic materials to include: material, formulation and process development and optimization of energetic materials to enable effective additive manufacturing; advanced manufacturing methods for inert components of energetic systems, including automated fiber placement for composite components or AM methods for metallic components; methods for automating manufacturing steps to improve speed, repeatability, safety, or other characteristics; non-destructive evaluation techniques; design and analysis methods, techniques, and tools to assess AM materials and systems produced to include those that address service life, reliability and critical defects assessments; studies that assess the merit of applying AM methods to particular systems or classes of systems; and development of Lot Acceptance Test (LAT) methods to measure the burn rate and mechanical properties that are efficient and effective for materials produced by AM, to include alternatives to casting or extruding blocks of propellant to make burn rate strands and/or JANNAF dog-bones.

SEPS

SAFETY & ENVIRONMENTAL PROTECTION SUBCOMMITTEE

JHU WSE ERG Technical Representative
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SEPS is focused on issues related to the human health, safety and environmental impacts associated with the manufacture, storage and use of propellants, explosives and pyrotechnics. Papers are invited that address all health effects associated with energetic compounds, precursors, combustion products, and waste products as well as safety concerns present during their intentional use, demilitarization, and accidents. New and emerging areas of interest include additive manufacturing of energetic materials, nanomaterials, insensitive high explosive formulations, and brain injury due to exposure to blast and overpressure.

The 34th Safety and Environmental Protection Subcommittee sessions will be organized into the topic areas described below. Please submit your abstract according to the interest area. Questions regarding the SEPS mission areas should be directed to the JHU WSE ERG Technical Representative for SEPS listed at the beginning of this section. Topics to highlight:

Mission Area I:
Toxicology

This mission area examines the toxicity of energetic materials such as propellants, pyrotechnics, and munitions, their ingredients, combustion products, and related chemicals and subjects. Also of interest are the use of risk assessment methodologies in the management of toxic hazards and the rationale for the establishment of toxic material exposure criteria for the workplace and the environment.

Mission Area II:
Atmospheric Dispersion Modeling and Hazards Assessment

Mission Area II is focused on atmospheric dispersion modeling and hazards assessment applied to propulsion activities. Subjects of interest include modeling transport and diffusion of propellant spills including both dense and trace gases, chemically reactive species, and aerosols; wind flow and dispersion modeling in complex terrain; model validation; source modeling; ozone depletion, ground cloud dispersal, and acid rain from launch vehicles; and models for emergency response systems. Experimental or theoretical work on other atmospheric hazards such as thunderstorms, lightning, wind shear, and precipitation are also welcome. Also includes addressing blast injury effects of new and emerging areas including additive manufacturing of energetic materials, nanomaterials, insensitive high explosive formulations.

Mission Area III:
Instrumentation

Interests include instrumentation requirements, basic research, and hardware development of equipment used to measure hazardous environments. Presentations regarding work done in the measurement of hypergolic or other hazardous propellant vapors, oxygen/hydrogen propellant vapors, hydrochloric acid and other propellant combustion products, and other chemical hazards of interest to the propulsion community are sought.

Mission Area IV:
Environmental

The Environmental Mission Area is interested in papers that address environmental issues related to energetics and their by-products. Papers and presentations that address any of the following: techniques for measuring and predicting combustion products, environmental fate and transport of energetics and their by-products, emerging environmental regulations and their impact on energetic materials operations, environmental effects from propulsion-related activities, permitting requirements, hazardous waste treatment, water and air pollution prevention, pollution control technologies related to energetic material production and use, waste minimization, operational ingredient reclamation, or recycling in the production of energetic materials.

Mission Area V:
Industrial Hygiene

Focus is on industrial hygiene aspects of energetic material production, transportation, use, and disposal. Areas of interest include personal protective strategies and equipment used in manufacturing and handling operations; ingredient and product monitoring methods and experience; operational ventilation strategies and experience; hazardous materials control; hazardous waste management; substitution of less hazardous materials in industrial processes and maintenance; and hazardous materials information, including labeling and material safety data sheets.

Mission Area VI:
Range Safety and Explosives Safety

Range safety and explosives safety issues relevant to launch range safety risk assessments and other energetic material safety problems are the focus of this area. Papers are sought that address hazards inherent in solid and liquid propellant/explosive/pyrotechnic (PEP) materials manufacturing, processing, handling, storage, use and disposal; liquid and solid propellant explosive hazards; blast injury; quantity-distance criteria; shielding; and the hazards of damaged or aged propellants. Addresses new and emerging areas including additive manufacturing of energetic materials, nanomaterials, insensitive high explosive formulations, and blast injury.

Mission Area VII:
Green Energetic Materials (GEM) Joint PEDCS – SEPS Mission Area

Papers are sought on the development of environmentally sustainable energetic ingredients, formulations, and processing technologies with an emphasis on the following: reduction of impacts from energetic materials and unexploded ordnance on military ranges, manufacturing and demilitarization facilities; enhancement of recycling, recovery, reuse and reduction of waste; synthesis and development of energetics materials with reduced waste, solvents, and energy requirements; and response to specific impacts that environmental regulations have had on military readiness, such as limiting training with live ordnance, outsourcing of manufacturing overseas or explicit banning of the use of specific materials.

Mission Area VIII:
Demilitarization, Reclamation, and Reuse Technologies

This area's focus is demilitarization, reclamation, and reuse technologies for propellant, explosive, and PEP materials. Interest areas include: thermal degradation/treatment and incineration of PEP materials; chemical or mechanical separation, reclamation, and neutralization technologies; technologies that utilize sub- or super-critical fluids for reclamation or oxidation of PEP materials; biodegradation technology; reuse of energetic materials or ingredients for military and commercial applications; and research that addresses traditional disposal options, such as open burning/open detonation and static firing.

Mission Area IX:
Review of Accidents and Incidents

This Mission Area addresses accidents and incidents involving propellant manufacturing, storage, transportation, use, hazardous material spills, and transportation accident response. Topics of interest include lessons learned, post-accident procedures for liquid propellant spills, propellant spill response systems, spill mitigation activities, and transportation accident response computer systems.

MSS

MODELING & SIMULATION SUBCOMMITTEE

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The 20th Modeling and Simulation Subcommittee (MSS) provides an overarching focus on M&S across all disciplines related to the JANNAF Interagency Propulsion Committee. Simulation-based acquisitions include propulsion systems for aerospace plane, hypersonic aircraft, rocket-based space-access systems, high-speed missiles, in-space propulsion systems, and gun propulsion systems. The MSS pursues this focus through Model-Based Engineering (MBE), Integrated Health Management, Simulation Credibility: Verification, Validation, and Risk, and Model Based Test and Evaluation. At the 20th MSS Meeting, papers are sought to address specifics of the mission areas as described below. Questions about any of the MSS mission areas should be directed toward the JHU WSE ERG Technical Representative for MSS. **Misson areas and suggested paper topics are listed below.**

Mission Area I:

Model-Based Engineering

Model-Based Engineering (MBE) encompasses the development of methodologies, codes, and model simulations to quantitatively evaluate and optimize propulsion technologies across propulsion component, propulsion system, and vehicle system levels. The MBE mission area includes the specific discipline of Model-Based System Engineering (MBSE). MBSE is the formalized application of modeling to support system requirements, design, analysis, and verification/validation activities from conceptual design through later life cycle phases. The use of models complements traditional experimentation during technology development with a goal of reducing the development time and schedule. Development and usage of physics-based models allows exploration of domains and behaviors that may be particularly difficult or impossible to examine experimentally. Statistical models provide an estimation of system sensitivities and uncertainties. Publications in the MBE area fall under two topic headings: Modeling Methodologies/Approaches/Tools and System Analysis Results.

Examples of topics of interest for the MBE mission area include the following:

- Modeling Methods/Approaches
  - » Proposed performance/loss models for rotating detonation rocket engines
  - » Ignition modeling
  - » Accommodating multidisciplinary modeling at multiple heterogeneous levels of fidelity
  - » Engineering decision support, including facilitating optimization, scheduling, and knowledge-based tool integration into the engineering process
  - » Advances in the development of models and methods for component modeling and simulations to aid propulsion design
  - » Improvements in commercial software which enable advanced MBE
  - » Challenges/boosts to using MBE under a more commercial/less centralized propulsion technology development paradigm and shifts from horizontal to vertical integration in the launch industry
  - » AI-based approaches for improving system modeling and design, including (but not limited to) learned reduced-order simulations, design optimizations, active learning for optimizing test case efficiency, differentiable simulations, and generative AI designs
- System Analysis Results
  - » M&S of vehicle system technology trades for space launch systems, prompt strike platforms, long-range ballistic missiles, cruise missiles, and hypersonic cruise vehicles
  - » Simulations, methods, and models to evaluate performance capabilities, cost, and reliability of systems
  - » Simulations, methods, and models to evaluate AI-in the loop vehicle systems
  - » Vehicle and launch facility, weapon and weapons platform, propulsion system and test facility simulations, interactions, and integration

Mission Area II:

Integrated Health Management

Integrated Health Management (IHM) promotes advancement and development of best practices of health management of propulsion systems within a “system of systems” environment. IHM technologies are focused on reducing maintenance and logistics costs, and increasing reliability of propulsion systems. IHM includes methods and tools for a variety of technologies: data management and mining; integrated communications, command and control; diagnostics; prognostics, and integrated sensors and sensing systems. These tools enable making redline and contingency decisions using knowledge-based expert systems, model-based diagnostic and reasoning using

physics-based or advanced empirical models such as first-principles, fault models, machine learning and artificial intelligence (AI), neural networks, fuzzy logic, genetic and evolutionary algorithms, and life-cycle analysis. The advancement of the internet of things (IoT), digital twin and augmented reality (AR) technologies are key enablers for implementing IHM systems in propulsion systems.

Seeking papers on the following, with the intent to establish a valuable interchange of technical solutions:

- Condition evaluation of Propulsion Systems relevant to IoT and AR implementation challenges, successes, lessons learned and business case impact
- Digital Twin application examples and practices for propulsion systems supporting reliability or readiness
- Data Management and Mining: Advances in data mining, data fusion, machine learning, and statistics with applications to verification and validation of data, prognosis and diagnosis of system health
- Integrated Communications, Command and Control: architecture, theory, test beds, and demonstrations focused on vehicle health or reusability
- Diagnostic Systems: architecture, theory, simulations, and demonstrations of diagnosis of current state of health of propulsion and vehicle system, including in-place and depot-level non-destructive inspection methodologies
- Prognostic Systems: architecture, theory, simulations, and demonstrations of prognosis of future state of health of propulsion and vehicle systems; mitigation of, and recovery from, degraded system health to enable condition-based repairs and successful missions
- Integrated Sensors and Sensing Systems: diverse sensors and integrated sensing systems with broad applications to health and status monitoring of all vehicle types and methods for integrated sensing systems across multiple disciplines and end-use applications with an emphasis on measurement technology, smart sensors, test beds, application considerations, lessons learned, and sensor fidelity for condition-base maintenance (CBM+) of propulsion systems

Mission Area III:
Simulation Credibility: Verification, Validation, and Risk

The credibility of digital and analog simulations is a major issue for incorporating simulation tools and data into a technology-development program, for conducting simulation-based acquisition, for assessing system reliability to assure human safety and/or mission success, and for identifying and assessing risks in complex, technological systems. Simulation credibility includes assessment and management of computer simulation uncertainty, experimental uncertainty, verification and validation (V&V) of simulation models and of simulations, and risk assessment. Abstracts are solicited on technological advances in the following areas:

- Uncertainty quantification for experiments and simulations
- Validation of models and verification of simulations
- Propagation of uncertainty
- Risk assessment and management
- Recommendations for guidelines, procedures, or standards

Mission Area IV:
Model Based Test and Evaluation (MBTE)

Model Based Test and Evaluation (MBTE) investigates the design, development, and use of different types of models (e.g., logical, physical, virtual, etc.) to compliment physical testing of propulsion systems. MBTE technologies are expected to increase the linkages between test models and systems under test (SUT), facilitate

a higher degree of test process automation (e.g., reporting), and provide greater accuracy regarding predicted results of test through the use of high-fidelity physics based models, virtual prototypes, and digital twins.

The following topics represent strong alignment with this mission area:

- Model-Based Test Engineering: Test methodologies using models to capture requirements, behavior, structure, and functionality of propulsion SUTs and/or associated propulsion test infrastructure
- Verification & Validation: Models used to perform verification, validation, and uncertainty quantification for propulsion SUTs and/or associated propulsion test infrastructure
- Data Architecture and Modeling: Models used to define, develop, and deploy propulsion test and evaluation data pipelines for process automation and improved data analytics
- References & Standards: Definition and development of model-based plans, processes and procedures used to streamline propulsion test and evaluation
- Reality Capture: High-resolution models used to represent test equipment, test fixtures, test facilities, and test installations used for propulsion test and evaluation
- Modeling Simulation and Analyis (MS&A): High-fidelity physics based models used to represent real-world phenomenon associated with propulsion SUTs and/or associated propulsion test infrastructure
- Digital Twins/Digital Threads: Application models and software developed to serve as digital twins and associated digital threads for propulsion SUTs and/or associated propulsion test infrastructure
- Virtual Prototype Testing: Model based tools and techniques to support virtual experimentation and testing of propulsion SUTs

HTMAS

HIGH TEMPERATURE MATERIAL APPLICATIONS SUBCOMMITTEE

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This 3rd HTMA Subcommittee meeting selection of sessions will encompass material applications for all propulsion systems including Rocket Nozzle Technology, Hypersonic Systems, Thrust Control, and components of Strategic, Tactical, Space Launch, and other systems. The HTMAS focuses on the application of advanced, high temperature materials, including carbon-carbon, ceramic matrix, and carbon phenolic composites, CERMETs, refractory metals, structural and non-structural insulators, and other advanced materials as applied to propulsion systems and related technology developments.

Sessions will focus on the properties, processing, quality assurance, design, testing, evaluation, analysis and modeling of high-temperature materials for propulsion systems. Papers are sought in the specific areas listed below.

Open Mission Area: **HTMAS is interested in exploring new areas and for this call, abstracts that do not align with any of the below Mission Areas will be considered for inclusion in this meeting, or for discussion by the Technical Steering Group. Misson areas and suggested paper topics are listed below.**

Mission Area I:
High Temperature Material Modeling and Simulation

- Advances in structural composite materials modeling and failure criteria
- Advances in modeling of ablation and erosion of advanced materials
- Advances in modeling of heat and mass transfer processes in rocket propulsion systems (including, but not limited to: CFD, fluid network analysis, RTE solvers)
- Coupled thermo-structural modeling of heated advanced materials
- Coupled fluid-thermal surface ablation modeling with two-phase surface interaction
- Semi-empirical laboratory methods used for gathering of heated material property dat

Mission Area II:
High Temperature Material Design, Test and Evaluation

- Inspection techniques and criteria development (to include new or improved tools and methodologies)
- High temperature material test development
    - Samples/coupon, subscale, and full-scale hot gas testing
- Material characterization and acceptance testing (to include new or improved test methods)
- Post-Test evaluation - comparison of test results to predictive analytical methodologies and tools

Mission Area III:
High Temperature Material Development

- Characterization of new high temperature materials: discussing state-of-the-art research on high-temperature materials in the area of **ceramics, metals, their alloys, and composites which offer excellent chemical, phase**, and property stability, at temperatures exceeding 900 °C
- Manufacturing and Fabrication techniques for high temperature materials to include refining fundamental manufacturing technologies, development of new additive and subtractive capabilities, as well as encompassing smart manufacturing that integrates modeling, simulation, monitoring and control systems
- Enhancement and/or optimization of manufacturing procedures and techniques directed at process repeatability and quality control
- High temperature material research producing new formulations and architectures that enhance high temperature propulsion system applications in the areas of performance, functionality, and manufacturability; creating new and novel design options

POSTER SESSION INFORMATION

For the June 2026 Meeting, abstracts for poster presentations may be submitted by any interested author, including those considered Early Career professionals. The poster session will take place on T**uesday, 2 June** at the Wyndham Grand Pittsburgh Downtown and will be open to all meeting attendees. All Posters must be unclassified and suitable for public release or approved for presentation at distribution statement C/CUI/FEDCON. Authors of abstracts selected for Poster presentations have the option of providing a paper.

Early Career Posters

JANNAF is interested in offering more opportunities for Early Career Propulsion and Energetics Professionals to engage with one another and the overall JANNAF community. In order to be considered an Early Career Professional, at least one of the following criteria must apply to you:

- A student
- Working in the field for less than five years
- Have obtained your Doctorate within the last five years

If you meet the above criteria of an Early Career professional, you are eligible to submit a poster abstract for any of the subcommittees listed on pages 8-25. When submitting, choose “Early Career Poster” in place of selecting a Mission Area within your preferred subcommittee.

General Posters

Authors interested in presenting a Poster who do not meet the JANNAF definition of Early Career have the option of selecting “General Poster” in lieu of choosing a Mission Area when submitting an abstract. The preferred subcommittee must first be selected so that the identified subcommittee is assigned the Poster abstract for review.

Visit the Poster Information page for additional details.

Photo released by Darrell Ames, Program Executive Office Missiles and Space

WORKSHOPS/SPECIALIST SESSIONS

Recommendations for workshops or specialist sessions are solicited at this time. Individuals interested in organizing and chairing a workshop or specialist session should contact the JHU WSE ERG Technical Staff member in their respective subcommittee by the Deadline of **5 December 2025**.

Workshops

The JANNAF Workshop is reserved for bringing the community together to address a specific task or problem, the outcome of which is important and substantial enough to warrant the publication of a final report detailing the discussions, conclusions, and recommendations that resulted from the workshop.

To request a workshop you must submit a Workshop Request Form to your JHU WSE ERG Technical Representative (see pages 8 - 25 for contact information) or the JANNAF Meeting Planning Team at meetings@erg.jhu.edu. This form must be submitted to ERG by **Friday, 5 December 2025**. The agenda and invitation list is due **Friday, 20 February 2026** for inclusion in the Preliminary Program, and must be approved no later than **Thursday, 2 April 2026** for inclusion in the Final Program.

Specialist Sessions

A JANNAF specialist session is an opportunity for experts in a specific technical area to meet to stimulate ideas and contributions from the audience. These sessions are dedicated to a single topic and often include invited presentations. The organization of these sessions is similar to a regular JANNAF paper session with time allocated to individual presentations; however, specialist sessions often include moderator led discussion periods or a question and answer session with expert panelists. Unlike a regular JANNAF paper session, the presentations from specialist sessions may or may not be published as part of the meeting proceedings. Publication can include an executive summary authored by the session chair if desired.

To request a Specialist Session for this JANNAF meeting, a Specialist Session Request Form must be submitted to JHU WSE ERG. This form requires a statement of justification for the Specialist Session along with a well thought out agenda. Requests will be reviewed by the designated JANNAF subcommittee TSG chair and ERG for approval; this approval is necessary for any Specialist Sessions to be included in the Final Program.

The deadline for submission of a Specialist Session request is **5 December 2025**, and forms must include a draft agenda. In order for the draft agenda to be included in the Preliminary Program, all Invited Presentation details must be submitted online via the Abstract Submittal Site no later than **Friday, 20 February 2026**. To be included in the Final Program, the final agenda and online submission of all Invited Presentation details must be received no later than **Thursday, 2 April 2026**. If you have any questions about planning a Specialist Session please contact your ERG Technical Liaison or the JANNAF Meeting Planning Team at meetings@erg.jhu.edu.

BEST STUDENT PAPER AWARD

The Best Student Paper Award will be given to an undergraduate or graduate student who authors a paper that exhibits excellence and significant merit. One paper will be selected to receive this award, which will be presented at the JANNAF meeting at which the paper is given. To be eligible for consideration, a student must be the paper's primary author. The paper and its signed and completed JANNAF Publication Clearance Form must be submitted to JHU WSE ERG by **Friday, 27 March 2026**. Please indicate within the abstract submission if you wish to be considered.

Student authors must conform to the same JANNAF eligibility requirements as other authors, per the policy on non-government attendees (see page 3), and are encouraged to work with their advisors to ensure they meet these requirements before registration opens. For student eligibility and participation questions, contact Mionna Sharp (msharp@erg.jhu.edu).

More information about JANNAF Awards can be found on pages 15-17 of the JANNAF Technical Committee Manual.

UPCOMING JANNAF MEETINGS

72nd JANNAF Propulsion Meeting
Programmatic and Industrial Base Meeting
53rd Combustion
41st Airbreathing Propulsion
41st Exhaust Plume and Signatures
35th Energetic Systems Hazards
19th Modeling and Simulation
15th Liquid Propulsion
14th Spacecraft Propulsion
Joint Subcommittee Meeting

26 - 30 January 2026
Spokane, Washington
Visit January 2026 meeting website

73rd JANNAF Propulsion Meeting
Programmatic and Industrial Base Meeting
50th Structures and Mechanical Behavior
46th Propellant and Explosives Development and Characterization
35th Safety and Environmental Protection
20th Modeling and Simulation
3rd High Temperature Material Applications
Joint Subcommittee Meeting

1 - 5 June 2026
Pittsburgh, Pennsylvania
Visit June 2026 meeting website

54th Combustion
42nd Airbreathing Propulsion
42nd Exhaust Plume and Signatures
36th Energetic Systems Hazards
20th Modeling and Simulation
Joint Subcommittee Meeting
Programmatic and Industrial Base Meeting

7 - 11 December 2026
Location TBD