

**BAA Call N0001426SBC05 (Replacement to N0001426SBC10)  
Special Programs Announcement for Office of Naval Research Opportunity:  
Enabling Technologies for Hypersonic Boost-Glide Vehicles**

## **I. INTRODUCTION**

This announcement describes a technology area, entitled “Hypersonic Aerodynamics, High Speed Propulsion and Materials” under the Long Range Broad Agency Announcement for Navy and Marine Corps Science and Technology N0001425SB001 which can be found at <https://www.onr.navy.mil/work-with-us/funding-opportunities/announcements>. The submission of proposals, their evaluation and the placement of contracts will be carried out as described in the above Long Range Broad Agency Announcement.

The purpose of this announcement is to focus attention of the scientific, aviation and weapons communities on (1) the areas of interest, including advancements in Hypersonics and the associated enabling technologies necessary to operate in the hypersonic flight regime, (2) encourage dialogue amongst those interested in this area, and (3) the planned timetable for the submission of white papers and full proposals to provide for the immediate needs of the subject program as described below.

## **II. TOPIC DESCRIPTION**

The Flight Advancement of Structures for Hypersonics (FLASH) Innovative Naval Prototype (INP) program integrates advanced hypersonic vehicle technologies that will demonstrate the viability of the concept to be fielded as a surface-launched, tactical range, hypersonic strike capability. FLASH will design, develop, manufacture and flight test a number of prototype vehicles to inform decisions concerning the FLASH capability. FLASH will address vehicle structural, aerodynamic and thermal performance, vehicle controllability and affordability related to its technologies and assess compatibility with the Vertical Launch System (VLS) and Virginia Payload Module (VPM). The FLASH concept, which leverages prior Applied Research, was selected by Navy Leadership as an INP in FY 2026 due to promising technology maturation. A number of precursors, subscale ground and flight test efforts are planned to advise full-scale FLASH vehicle demonstrations. In support of this effort, the program office seeks to gather technical, performance, scalability, risk reduction options, technology/material readiness level (TRL/MRL), availability and cost information to include (technical on-site/financial) participation interest from other government and industry partners in a number of Critical Enabling Technology (CET) areas and engineering thrust categories to include:

1. High TRL/Flight Qualified Command and Control Systems and System Components
2. High Temperature Structures, Thermal Protection Systems, Assemblies and Components
3. Scaled Design Verification and Flight Test Demonstration Capabilities

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#### 4. Multidisciplinary Design, Analysis and Optimization (MDAO)

Additional performance-related mission requirements that will likely impact this technology acquisition effort will be accessible via a CUI and/or classified addendum. Requests for access to the addendum should be directed to either the Technical or Business Point of Contact listed in Section VIII of this BAA Call.

The primary focus of the FLASH program is to demonstrate a tactically relevant range, low cost, hypersonic capability via advanced aerodynamics, control techniques and resulting relaxed reliance on exquisite materials. Therefore, existing compatible and the minimum necessary onboard mission systems will be sought for vehicle integration to enable negligible GNC flight test risk. This demonstration philosophy allows for the concentrated development efforts of the program to laser-focus on the extremely promising aero and aerothermodynamic concepts developed in previous applied research efforts that are of highest risk, highest interest and highest payoff to the ONR and the war fighter.

### **TECHNICAL AREA DESCRIPTIONS:**

#### **TECHNICAL AREA 1.**

#### **High TRL/Flight Qualified Guidance, Navigation and Control (GNC) Systems and System Components**

**Background:** The FLASH program is seeking detail technical, cost and delivery schedule information the existing industry standard through state-of-the-art (SOTA) in all manner of flight qualified and or flight heritage hypersonic vehicle compatible GNC systems and system elements for potential application to its Hypersonic class, flight vehicle system component suite. Of particular interest include but are not limited to:

- Flight Computer
- Inertial Navigation System (INS)
- Inertial Measurement Unit (IMU)
- GPS Systems
- Flight Termination
- Power (High and low Voltage)
- Communications

(U) Proposed offerings within this subtopic of interest must be fully compatible with the extreme operational environments and various support systems of the vehicle under development. Offerors should describe environmental compatibility and qualification histories with their BAA submissions and address the following:

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- Vibration environments
- Acoustic environments
- Shock environment
- Design load factors
- Bus Voltage
- Operational and non-operations temperature limits
- Electromagnetic Interference/Electromagnetic Compatibility (EMI/EMC) limits
- Altitude environment
- Aero/thermal heating limits (as applicable)

**Objective:** With limited physical on-board space, mass and power available, the FLASH program must rapidly optimize, package and support a Guidance, Navigation and Control (GNC) architecture that meets all performance and environmental requirements to reliably operate the vehicle throughout all mission phases, profiles and performance envelopes. This specific area of interest serves to:

1. Identify existing industry interest, capability and Commercial-Off-The-Shelf (COTS) systems and components.
2. Quickly confirm/right size the basic GNC system SWAP for early FLASH architecture conception leading to a viable baseline design while serving to identify any areas of need early on for further development and packaging advancements.
3. Foster industry engagement/partnership in the identification, engineering development and provision of viable system components and solutions that meet form, fit and function of the program system performance requirements while forging government/industry transitional relationships.

For consideration, a formal Specification and/or detailed description of each system/system element offered is required to include at a minimum:

- Size, Weight and Power (SWaP)
- Component/System performance capabilities to include but not limited to:
  - o Bandwidth
  - o Channel capacities
  - o Precision Resolution
  - o Compatibility
- Operational/environmental envelope
- Interface Control documentation (ICD)

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- Pertinent Analysis and Test Reports
- Relevant applications/Scaling options
- Rough Order of Magnitude (ROM) cost and delivery schedule
- Flight history/TRL/MRL assessment

## TECHNICAL AREA 2.

### High Temperature Structures, Thermal Protection Systems, Components, Manufacture and Test

**Background:** The FLASH concept is anticipated to significantly improve key mission performance parameters over similar size (class) hypersonic systems currently under consideration for fielding to the war fighting magazine. Through a combination of analytical techniques and Computational Fluid Dynamics (CFD), scaled development, ground, captive carry and free flying demonstration activities, this funded INP intends to systematically develop an optimized, robust and lethal planform while utilizing readily available, less costly materials via advanced aerodynamics. These optimizations include pitch-roll-yaw maneuverability and will provide for maximum range, lethality and survivability.

**Objective:** In order to withstand the environmental impacts of operating and maneuvering at hypersonic speeds and within these extraordinarily hazardous regimes, vehicle outer mold line (OML) components and supporting structures, mechanisms and systems will be required to tolerate extreme temperatures while enduring incredibly stressing mechanical loads.

FLASH is seeking information and detail application descriptions of the use of traditional, less exquisite materials and systems, directing program risk away from optimized mass and volume options to that of low(er) cost, available, conventional alternatives in order to readily demonstrate the scaled beneficial aspects of advanced aerodynamic concepts and their operational advantages.

Specific needs in the category of materials include High to Very High temperature materials and systems for immediate consideration for integration but are not limited to:

1. High MRL skin materials
2. Carbon/Carbon (C/C) or similar Ultra High Temperature Systems
3. Large, lower cost Ceramic/Ceramic Matrix Composites (CMC) Structures/Systems
4. High temperature elastomers
5. Metal Based Super Alloys and Coatings
6. Ablative Materials and Material Coatings

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Lower TRL/MRL technology components with significant potential for advancement may be considered at a later time.

Specific needs in the category of High to Very High temperature devices and components include but are not limited to:

1. High Power Permanent Magnet Synchronous (PMS) Motor technologies
2. High Power Actuation Systems and components
3. Non-Backdriveable Speed Reducer Systems
4. Springs and Torsion Springs
5. Rotary Dampers
6. Field oriented control (FOC) motor drive systems and components
7. High Temperature Pre-load elements, springs, seals and techniques
8. Linear displacement sensors
9. Vapor barrier materials and systems
10. Inflatable class Gaskets/Bellows/Boots

Lower TRL/MRL technology components with significant potential for advancement may be considered at a later time.

Specific needs in the category of High to Very High temperature system element manufacture and test include but are not limited to:

1. Structural Assembly test system (or capability) for Aero structures
2. Large format, Laser Powder Bed Fusion (LPBF) or other Additive Manufacturing (or capability)

### **TECHNICAL AREA 3.**

#### **Scaled Design Verification and Flight Test Demonstration Capabilities**

**Background:** As an innovative Navy prototype program, predicted performance of the FLASH concept has the potential to push the boundaries of Navy war fighting might. These improved capability metrics are the result of unproven concepts resulting from previously funded research.

**Objective:** The FLASH program is in need of affordable heritage, appropriately sized, subscale, free-flying vehicles which can be adapted/modified for FLASH technology demonstration activities. This program seeks to identify viable flight proven, commensurate hypersonic demonstration vehicles and capabilities of scale for flight verification and risk reduction opportunities for subsystems, materials, assemblies and components to definitize the performance of core technologies and capabilities under development.

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## TECHNICAL AREA 4.

### Multidisciplinary Design, Analysis and Optimization (MDAO)

**Background:** The comprehensive process of defining, planning, and optimizing offensive mission strategies while considering the coupled aero-thermo-structural effects, flight control limits, trajectories, mission-critical maneuvers, and vehicle survivability combine as an extremely complex simultaneous equation set in the development and fielding of an effective and affordable weapon system. Arriving at a manageable subset of the most optimized mission profiles in order to inform an all-up round vehicle configuration is at the forefront of the FLASH program concept development effort.

Designing such vehicles is highly complex due to the strong coupling between aerodynamic heating, structural loading, control authority, system mass, and mission trajectory. Traditional sequential design methods are too slow, fragmented, and costly to support rapid capability development. Multidisciplinary Design, Analysis, and Optimization methods offer an integrated, holistic approach, enabling the concurrent consideration of all relevant disciplines to find superior, optimized designs that balance performance, cost, and risk.

**Objective:** The FLASH program is seeking government and industry insight into existing capabilities, promising techniques under development, and novel concepts for the integrated design and optimization of hypersonic systems. The primary objective is to acquire and apply an MDAO framework to accelerate the conceptual and preliminary design and mission analysis of hypersonic boost-glide weapons.

This framework should assist in navigating the extremely broad and complex trade space to produce globally optimal design options that maximize critical performance characteristics. Proposals may include the development of new tools, the adaptation of existing Government or commercial solutions, or the integration of partial elements to form a comprehensive and informative capability.

Responsive proposals should demonstrate capabilities that address the following areas:

- **Integrated Design:** Concurrent optimization of vehicle geometry, mission trajectory, and control strategies while accounting for launch platform constraints (e.g., volume, mass, interface requirements).
- **Coupled Aero-Thermo-Structural (ATS) Analysis:** Integrated analysis of tightly coupled aerodynamic, thermal, and structural effects. This includes predicting forces, moments, and heating loads (including control surface and deformation effects) and evaluating the resulting stresses, strains, and deformations. The analysis must support

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high-temperature materials, composite structures, and Thermal Protection System (TPS) behavior.

- **Systems Packaging:** Optimization of internal layouts for payloads, sensors, and power systems while maintaining center-of-gravity control and packaging feasibility.
- **Trajectory and Control:** Optimization to enhance flight performance while meeting constraints on range, maneuverability, survivability, and terminal accuracy.
- **Framework Integration:** System-level integration into an existing or proposed MDAO architecture (e.g., ADAPT, Open MDAO) with support for geometry parameterization, solver coupling, and multi-objective optimization.
- **AI/ML Integration:** Application of artificial intelligence and machine learning methods to accelerate convergence, construct reduced-order models, support adaptive sampling, and enable data-driven design exploration. This may include learning weighting factors for multi-objective problems, generating surrogate models for expensive simulations, or discovering improved formulations via symbolic regression.
- **Risk and Manufacturability:** Delivery of outputs that inform system cost estimation, manufacturability assessments, technology development roadmaps, and risk reduction strategies.

### III. WHITE PAPER SUBMISSION

Although not required, white papers are strongly encouraged for all offerors proposing to provide a COTS component or capability, work or specific solution to the topics presented. Each white paper shall respond to a single topic area and will be evaluated by the Government to determine whether the proposed technology appears to be of particular value to the FLASH program. Initial Government evaluations and feedback will be issued via e-mail notification from the Technical Point of Contact. The initial white paper appraisal is intended to give entities a sense of whether their concepts are likely to be funded.

Detailed Full Proposal (Technical and Cost volumes) will be subsequently encouraged from those Offerors whose proposed technologies have been identified through the above referenced e-mail as being of “particular value” to the Government. However, any such encouragement does not assure a subsequent award. Full Proposals may also be submitted by any offeror whose white paper was not identified as being of particular value to the Government or any offeror who did not submit a white paper.

For white papers that propose efforts that are considered of particular value to the Navy but either exceed available budgets or contain certain tasks or applications that are not desired by the Navy, ONR may suggest a full proposal with reduced effort to fit within expected available

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budgets or an effort that refocuses the tasks or application of the technology to maximize the benefit to the Navy.

White papers should not exceed 10 single-sided pages, exclusive of references and resume of principal investigator, and should be in 12-point Times New Roman font with margins not less than one inch. White papers shall be in Adobe PDF format (preferred) or in Microsoft Word format compatible with at least Microsoft Word 2016.

The 10-page body of the white paper should include the following information:

- Technical Concept: A description of the technology innovation and technical risk areas.
- Operational Utility Assessment Plan (where applicable) – A plan for demonstrating and evaluating the operational effectiveness of the Offeror's proposed products or processes in field experiments and/or tests in a simulated environment.
- Rough Order of Magnitude (ROM) cost estimate
- Organization Details – Point of contact details, key personnel, organization portfolio and novel applicable accomplishments.

A resume of the principal investigator, not to exceed 1 page, should also be included after the 10-page body of the white paper.

White papers must be submitted through the ONR Submission Portal at <https://submissions.nre.navy.mil/> in accordance with Section F, Submission Requirements and Deadline, Section 4. White Paper Submissions in N0001425SB001.

To ensure full, timely consideration for funding, white papers should be submitted **no later than 16:00 EST on 28 MAY 2026**. White papers received after that date will be considered as time and availability of funding permit.

The planned date for completing the review of white papers is **11 JUNE 2026**.

#### IV. ORAL PRESENTATIONS

FLASH program management requests that Project Managers provide an expanded oral presentation from those Offerors whose proposed technologies have been identified as being of "particular value" to the FLASH program. The purpose of the oral presentation is to provide greater detail than can be contained in the White Paper and to permit the evaluation panel to ask questions to better understand aspects of the proposed effort. However, any such request does not

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assure a subsequent award. Any Offeror whose White Paper technology was not identified as being of "particular value" to FLASH will not be invited to make an oral presentation. The requested oral presentations will occur on or around, **08 JULY 2026**. The time, location, and briefing format of the oral presentations, if requested, will be provided at a later date via email notification. Evaluations of the oral presentations will be issued via email notification on or about **24 JULY 2026**.

**V. FULL PROPOSAL SUBMISSION AND AWARD INFORMATION**

Full proposals should be submitted under N0001426SBC05 by **31 AUGUST 2026**. Full proposals submitted after that due date should be submitted under N0001425SB001 and will be considered as time and availability of funding permit.

FLASH anticipates that multiple contracts will be issued for this effort. At this time, grants are not being considered.

Full proposals for contracts should be submitted in accordance with Appendix 2 of N0001425SB001.

Technical Areas 1-3 will have specific and near-term need dates described in the CUI addendum. The approximate dollars per year to be allocated in total for the MDAO Technical Area 4 only are currently unknown. The period of performance for any MDAO awarded projects will be one to three (1-3) years.

Proposed efforts should have clear milestones that can be reviewed and evaluated on an annual basis. It is anticipated that multiple awards will be made in Technical Areas 1-4 based on the quality of the proposed efforts. White papers are strongly encouraged by all offerors seeking funding.

Although FLASH expects the above-described program plan to be executed, the program reserves the right to make changes according to program priorities and funding availability.

**VI. SIGNIFICANT DATES AND TIMES**

<b>Event</b>	<b>Date</b>	<b>Time</b>
Deadline – Final White Paper Submission Date	<b>28 MAY 2026 (STC)</b>	16:00 Eastern Standard Time (EST)
Notification of White Paper Evaluation	<b>11 JUN 2026 (STC)</b>	
E-mail notification of request for Oral Presentations	<b>15 JUN 2026 (STC)</b>	

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Oral Presentations – ONR, Arlington VA. - Execution depends on interest	<b>08 JUL 2026 (STC)</b>	
Provide Presentation Results and Request For (full) Proposals (RFP)	<b>24 JUL 2026 (STC)</b>	
Full Proposal Submission (NLT)	<b>31 AUG 2026 (STC)</b>	16:00 EST
Notice of Contract Awards (NLT)	<b>08 FEB 2027 (STC)</b>	

**Note: All dates are notional and subject to change (STC).**

## VII. Small Business Subcontracting

Other-than small businesses (i.e. large businesses, non-profit organizations and educational institutions) must submit a subcontracting plan along with their research proposal. While other-than small businesses are responsible for making these subcontracting arrangements, ONR can help facilitate prime contractor/small business contracting connections by posting to the ONR external website contact information of small businesses that have indicated their subcontracting interests and technological niche for prime contractor consideration for this program. This is not an endorsement, but an effort by ONR to help bring these parties together to provide superior solutions.

If you are a small business and your company is interested in subcontracting activities with other-than small businesses, please provide the following information by email to the ONR Small Business Director at [nrl\\_smallbusinessoffice@us.navy.mil](mailto:nrl_smallbusinessoffice@us.navy.mil) with the subject line “N0001426SBC05 – Small Business Subcontracting Interest”:

- 1) Company Name and Website
- 2) Individual (POC) name and POC email address
- 3) Business Size and socio-economic category
- 4) Brief Technology Description (no more than 3 sentences)
- 5) Technology Key Words (no more than 10 words)

Note: Do not include ANY proprietary information. This information will be posted on the ONR website under this BAA call and will be available to the public.

## VIII. POINTS OF CONTACT

In addition to the points of contact listed in N001425SB0001 the specific points of contact for this announcement are listed below:

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**Technical Point of Contact:**

Dr. Eric Marineau  
Hypersonic Aerothermodynamics, High-Speed Propulsion and Materials Program Officer  
ONR Code 352  
[usn.pentagon.cnr-arlington-va.mbx.ONR-Hypersonics-FLASH@us.navy.mil](mailto:usn.pentagon.cnr-arlington-va.mbx.ONR-Hypersonics-FLASH@us.navy.mil)

**Business Point of Contact:**

Mr. James Farnsworth  
Contracting Officer  
Office of Naval Research  
[james.e.farnsworth8.civ@us.navy.mil](mailto:james.e.farnsworth8.civ@us.navy.mil)

**IX. ADDRESS FOR THE SUBMISSION OF WHITE PAPERS AND FULL PROPOSALS FOR CONTRACTS**

White Papers/Full Proposal:

Unclassified white papers must be submitted through the ONR Submission Portal at <https://submissions.nre.navy.mil/> in accordance with Section F, Submission Requirements and Deadline, Section 4 in N0001425SB001, with copy to [usn.pentagon.cnr-arlington-va.mbx.ONR-Hypersonics-FLASH@us.navy.mil](mailto:usn.pentagon.cnr-arlington-va.mbx.ONR-Hypersonics-FLASH@us.navy.mil) by 16:00 Eastern Standard Time on **28 MAY 2026**.

Unclassified full proposals must be submitted through the ONR Submission Portal at <https://submissions.nre.navy.mil/> in accordance with Appendix II of N0001425SB001 with copy to [usn.pentagon.cnr-arlington-va.mbx.ONR-Hypersonics-FLASH@us.navy.mil](mailto:usn.pentagon.cnr-arlington-va.mbx.ONR-Hypersonics-FLASH@us.navy.mil) by 16:00 Eastern Standard Time on **31 AUGUST 2026**.

The ONR Submission Portal accepts CUI submission but not Export Controlled CUI.

Files exceeding 10MB in size should not be emailed, but instead transmitted via a file transfer service, for example DoD SAFE, <https://safe.apps.mil>. If you will be using DoD SAFE, please request a Drop-Off link from the Technical POCs via electronic mail.

**Classified White Papers/ Full Proposals:**

Classified white papers and proposals up to the general service (GENSER) Secret level should be mailed via traceable means, with the outer envelope addressed to the Office of Naval Research, Attn: Document Control Unit, ONR Code 43, 875 N. Randolph St., Arlington, VA 22203-1995. The inside envelope should indicate the classification level and be addressed as: Office of Naval Research, Attn: Dr. Eric Marineau, ONR Code 352, 875 N. Randolph St., Arlington, VA 22203-1995. If you will be mailing a classified white paper or proposal, please send a notification to the technical POC's via electronic mail.

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## **XI. SUBMISSION OF QUESTIONS**

Any questions regarding this announcement must be provided to the Technical Points of Contact and/or the Business Point of Contact listed above. All questions shall be submitted in writing by electronic mail.

Answers to questions submitted in response to this BAA Call will be addressed in the form of an Amendment and will be posted to the following web pages:

- Sam.gov Webpage –Contract Opportunities – <https://sam.gov/>
- ONR BAAs, FOAs and Special Program Announcements Webpage - <https://www.onr.navy.mil/work-with-us/funding-opportunities/announcements>

Questions regarding **White Papers or Full Proposals** should be submitted No Later Than one week before the dates recommended for receipt of White Papers and No Later Than two weeks before the date recommended for receipt of Full Proposals. Questions after this date may not be answered.

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