DEPARTMENT OF THE NAVY (DON)
25.B Small Business Technology Transfer (STTR)
Proposal Submission Instructions

IMPORTANT

- **The following instructions apply to STTR topics only:**
  - **N25B-T029 through N25B-T033**

- Submitting small business concerns are encouraged to thoroughly review the DoD SBIR/STTR Program Broad Agency Announcement (BAA) and register for the DSIP Listserv to remain apprised of important programmatic changes.
  - The DoD Program BAA is located at: https://www.defensesbirsttr.mil/SBIR-STTR/Opportunities/#announcements. Select the tab for the appropriate BAA cycle.
  - Register for the DSIP Listserv at: https://www.dodsbirsttr.mil/submissions/login.

- The information provided in the DON Proposal Submission Instructions takes precedence over the DoD Instructions posted for this BAA.

- **DON Phase I Technical Volume (Volume 2) page limit is not to exceed 10 pages.**

- Phase I Technical Volume (Volume 2) and Supporting Documents (Volume 5) templates, specific to DON topics, are available at https://www.navysbir.com/links_forms.htm.

- The DON provides notice that Basic Ordering Agreements (BOAs) may be used for Phase I awards, and BOAs or Other Transaction Agreements (OTAs) may be used for Phase II awards.

- This BAA is issued under regulations set forth in Federal Acquisition Regulation (FAR) 35.016 and awards will be made under "other competitive procedures". The policies and procedures of FAR Subpart 15.3 shall not apply to this BAA, except as specifically referenced in it. All procedures are at the sole discretion of the Government as set forth in this BAA. Submission of a proposal in response to this BAA constitutes the express acknowledgement to that effect by the proposing small business concern.

INTRODUCTION

The DON SBIR/STTR Programs are mission-oriented programs that integrate the needs and requirements of the DON's Fleet through research and development (R&D) topics that have dual-use potential, but primarily address the needs of the DON. More information on the programs can be found on the DON SBIR/STTR website at www.navysbir.com. Additional information on DON's mission can be found on the DON website at www.navy.mil.

For questions regarding this BAA, use the information in Table 1 to determine who to contact for what types of questions.

TABLE 1: POINTS OF CONTACT FOR QUESTIONS REGARDING THIS BAA

Type of Question	When	Contact Information
Program and administrative	Always	Navy SBIR/STTR Program Management Office usn.pentagon.cnr-arlington-va.mbx.navy-sbir-sttr@us.navy.mil or appropriate Program Manager listed in Table 2 (below)
Topic-specific technical questions	BAA Pre-release	Technical Point of Contact (TPOC) listed in each topic on the DoD SBIR/STTR Innovation Portal (DSIP). Refer to the Proposal Submission section of the DoD SBIR/STTR Program BAA for details.
	BAA Open	DoD SBIR/STTR Topic Q&A platform (https://www.dodsbirsttr.mil/submissions) Refer to the Proposal Submission section of the DoD SBIR/STTR Program BAA for details.
Electronic submission to the DoD SBIR/STTR Innovation Portal (DSIP)	Always	DSIP Support via email at dodsbirsupport@reisystems.com
Navy-specific BAA instructions and forms	Always	DoN SBIR/STTR Program Management Office usn.pentagon.cnr-arlington-va.mbx.navy-sbir-sttr@us.navy.mil

TABLE 2: DoN SYSTEMS COMMANDS (SYSCOM) SBIR PROGRAM MANAGERS

Topic Numbers	Point of Contact	SYSCOM	Email
N25B-T029 to N25B-T033	Ms. Kristi DePriest	Naval Air Systems Command (NAVAIR)	navair-sbir@us.navy.mil

PHASE I SUBMISSION INSTRUCTIONS

The following section details requirements for submitting a compliant Phase I Proposal to the DoD SBIR/STTR Programs.

(NOTE: Proposing small business concerns are advised that support contract personnel will be used to carry out administrative functions and may have access to proposals, contract award documents, contract deliverables, and reports. All support contract personnel are bound by appropriate non-disclosure agreements.)

DoD SBIR/STTR Innovation Portal (DSIP). Proposing small business concerns are required to submit proposals via the DoD SBIR/STTR Innovation Portal (DSIP); and follow proposal submission instructions in the DoD SBIR/STTR Program BAA on the DSIP at https://www.dodsbirsttr.mil/submissions. Proposals submitted by any other means will be disregarded. Proposing small business concerns submitting through DSIP for the first time will be asked to register. It is recommended that small business concerns register as soon as possible upon identification of a proposal opportunity to avoid delays in the proposal submission process. Proposals that are not

successfully certified electronically in DSIP by the Corporate Official prior to BAA Close will NOT be considered submitted and will not be evaluated by DON. Proposals that are encrypted, password protected, or otherwise locked in any portion of the submission will be REJECTED unless specifically directed within the text of the topic to which you are submitting. Please refer to the DoD SBIR/STTR Program BAA for further information.

Proposal Volumes. The following seven volumes are required.

- **Proposal Cover Sheet (Volume 1).** As specified in DoD SBIR/STTR Program BAA.

- **Technical Proposal (Volume 2)**
  - Technical Proposal (Volume 2) must meet the following requirements or the proposal will be REJECTED:
    - Not to exceed 10 pages, regardless of page content
    - Single column format, single-spaced typed lines
    - Standard 8 ½" x 11" paper
    - Page margins one inch on all sides. A header and footer may be included in the one-inch margin.
    - No font size smaller than 10-point
    - Include, within the 10-page limit of Volume 2, an Option that furthers the effort in preparation for Phase II and will bridge the funding gap between the end of Phase I and the start of Phase II. Tasks for both the Phase I Base and the Phase I Option must be clearly identified. Phase I Options are exercised upon selection for Phase II.
    - Work proposed for the Phase I Base must be exactly six (6) months.
    - Work proposed for the Phase I Option must be exactly six (6) months.

  - Additional information:
    - A Phase I proposal template specific to DON to meet Phase I requirements is available at https://navysbir.com/links_forms.htm.
    - A font size smaller than 10-point is allowable for headers, footers, imbedded tables, figures, images, or graphics that include text. However, proposing small business concerns are cautioned that if the text is too small to be legible it will not be evaluated.

- **Cost Volume (Volume 3).**
  - Cost Volume (Volume 3) must meet the following requirements or the proposal will be REJECTED:
    - The Phase I Base amount must not exceed $140,000.
    - Phase I Option amount must not exceed $100,000.
    - Costs for the Base and Option must be separated and clearly identified on the Proposal Cover Sheet (Volume 1) and in Volume 3.
    - For Phase I a minimum of 40% of the work is performed by the proposing small business concern, and a minimum of 30% of the work is performed by the single research institution. The percentage of work requirement must be met in the Base costs as well as in the Option costs. The percentage of work is measured by both direct and indirect costs. To calculate the minimum percentage of effort for the proposing small business concern the sum of all direct and indirect costs attributable to the proposing small business concern represent the numerator and the total cost of the proposal (i.e., Total Cost before Profit Rate is applied) is the denominator. The single research institution percentage is calculated by taking the sum of all costs attributable to the single research institution (identified as Total Subcontractor Costs

(TSC) 1 in DSIP Cost Volume) as the numerator and the total cost of the proposal (i.e., Total Cost before Profit Rate is applied) as the denominator.

- Proposing Small Business Concern Costs (included in numerator for calculation of the small business concern):
  - Total Direct Labor (TDL)
  - Total Direct Material Costs (TDM)
  - Total Direct Supplies Costs (TDS)
  - Total Direct Equipment Costs (TDE)
  - Total Direct Travel Costs (TDT)
  - Total Other Direct Costs (TODC)
  - General & Administrative Cost (G&A)

  NOTE: G&A, if proposed, will only be attributed to the proposing small business concern.
- Research Institution (numerator for Research Institution calculation):
  - Total Subcontractor Costs (TSC) 1
- Total Cost (i.e., Total Cost before Profit Rate is applied, denominator for either calculation)

— **Cost Sharing: Cost sharing is not accepted on DON Phase I proposals. If a value above or below $0.00 is entered in the Cost Sharing field the proposal will be deemed non-compliant and will be REJECTED by DON.**

- Additional information:
  - Provide sufficient detail for subcontractor, material, and travel costs. Subcontractor costs must be detailed to the same level as the prime contractor. Material costs must include a listing of items and cost per item. Travel costs must include the purpose of the trip, number of trips, location, length of trip, and number of personnel.
  - Inclusion of cost estimates for travel to the sponsoring SYSCOM's facility for one day of meetings is recommended for all proposals.
  - The "Additional Cost Information" of Supporting Documents (Volume 5) may be used to provide supporting cost details for Volume 3. When a proposal is selected for award, be prepared to submit further documentation to the SYSCOM Contracting Officer to substantiate costs (e.g., an explanation of cost estimates for equipment, materials, and consultants or subcontractors).

- **Company Commercialization Report (Volume 4)**. DoD collects and uses Volume 4 and DSIP requires Volume 4 for proposal submission. Please refer to the Proposal Preparation Instructions and Requirements section of the DoD SBIR/STTR Program BAA for details to ensure compliance with DSIP Volume 4 requirements.

- **Supporting Documents (Volume 5).** Volume 5 is for the submission of administrative material that DON may or will require to process a proposal, if selected, for contract award.

  All proposing small business concerns must review and submit the following items, as applicable:

  — **Allocation of Rights.** Required for all small business concerns proposing to STTR. In accordance with the SBIR and STTR Policy Directive section 8(b) and DFARS 252.227-7040, the proposing small business concern must submit this agreement as an upload as a separate PDF file in Volume 5, Supporting Documents. Please refer to the Proposal Preparation Instructions and Requirements section of the DoD STTR Program BAA for a link to the Model Agreement for the Allocation of Rights.

- Proposing small business concerns may include the following administrative materials in Supporting Documents (Volume 5); a template is available at https://navysbir.com/links_forms.htm to provide guidance on optional material the proposing small business concern may want to include in Volume 5:
    - Additional Cost Information to support the Cost Volume (Volume 3)
    - SBIR/STTR Funding Agreement Certification
    - Data Rights Assertion
    - Disclosure of Information (DFARS 252.204-7000)
    - Prior, Current, or Pending Support of Similar Proposals or Awards
    - Foreign Citizens
- Details of Request for Discretionary Technical and Business Assistance (TABA), if proposed, is to be included under the Additional Cost Information section if using the DON Supporting Documents template.
- Do not include documents or information to substantiate the Technical Volume (Volume 2) (e.g., resumes, test data, technical reports, or publications). Such documents or information will not be considered.
- A font size smaller than 10-point is allowable for documents in Volume 5; however, proposing small business concerns are cautioned that the text may be unreadable.

- **Fraud, Waste and Abuse Training Certification (Volume 6)**. DoD requires Volume 6 for submission. Please refer to the Proposal Preparation Instructions and Requirements section of the DoD SBIR/STTR Program BAA for details.

- **Disclosures of Foreign Affiliations or Relationships to Foreign Countries (Volume 7)**. In accordance with Section 4 of the SBIR and STTR Extension Act of 2022 and the SBA SBIR/STTR Policy Directive, the DoD will review all proposals submitted in response to this BAA to assess security risks presented by small business concerns seeking a Federally funded award. Small business concerns must complete the Disclosures of Foreign Affiliations or Relationships to Foreign Countries webform in Volume 7 of the DSIP proposal submission. Please refer to the Proposal Preparation Instructions and Requirements section of the DoD SBIR/STTR Program BAA for details.

PHASE I EVALUATION AND SELECTION

The following section details how the DON SBIR/STTR Programs will evaluate Phase I proposals.

Proposals meeting DSIP submission requirements will be forwarded to the DON SBIR/STTR Programs. Prior to evaluation, all proposals will undergo a compliance review to verify compliance with DoD and DON SBIR/STTR proposal eligibility requirements. Proposals not meeting submission requirements will be REJECTED and not evaluated.

- **Proposal Cover Sheet (Volume 1).** The Proposal Cover Sheet (Volume 1) will undergo a compliance review to verify the proposing small business concern has met eligibility requirements and followed the instructions for the Proposal Cover Sheet as specified in the DoD SBIR/STTR Program BAA.

- **Technical Volume (Volume 2).** The DON will evaluate and select Phase I proposals using the evaluation criteria specified in the Method of Selection and Evaluation Criteria section of the DoD SBIR/STTR Program BAA, with technical merit being most important, followed by qualifications of key personnel and commercialization potential of equal importance. The information considered for this decision will come from Volume 2. This is not a FAR Part 15 evaluation and proposals will not

be compared to one another. Cost is not an evaluation criterion and will not be considered during the evaluation process; the DON will only do a compliance review of Volume 3. Due to limited funding, the DON reserves the right to limit the number of awards under any topic.

The Technical Volume (Volume 2) will undergo a compliance review (prior to evaluation) to verify the proposing small business concern has met the following requirements or the proposal will be REJECTED:

- Not to exceed 10 pages, regardless of page content
- Single column format, single-spaced typed lines
- Standard 8 ½" x 11" paper
- Page margins one inch on all sides. A header and footer may be included in the one-inch margin.
- No font size smaller than 10-point, except as permitted in the instructions above.
- Include, within the 10-page limit of Volume 2, an Option that furthers the effort in preparation for Phase II and will bridge the funding gap between the end of Phase I and the start of Phase II. Tasks for both the Phase I Base and the Phase I Option must be clearly identified.
- Work proposed for the Phase I Base must be exactly six (6) months.
- Work proposed for the Phase I Option must be exactly six (6) months.

- **Cost Volume (Volume 3).** The Cost Volume (Volume 3) will not be considered in the selection process and will only undergo a compliance review to verify the proposing small business concern has met the following requirements or the proposal will be REJECTED:
  - Must not exceed values for the Base ($140,000) and Option ($100,000).
  - Must meet minimum percentage of work; 40% of the work is performed by the proposing small business concern, and a minimum of 30% of the work is performed by the single research institution. The percentage of work requirement must be met in the Base costs as well as in the Option costs.
  - **Cost Sharing: Cost sharing is not accepted on DON Phase I proposals. If a value above or below $0.00 is entered in the Cost Sharing field the proposal will be deemed non-compliant and will be REJECTED by DON.**

- **Company Commercialization Report (Volume 4).** The CCR (Volume 4) will not be evaluated by the DON nor will it be considered in the award decision. However, all proposing small business concerns must refer to the DoD SBIR/STTR Program BAA to ensure compliance with DSIP Volume 4 requirements.

- **Supporting Documents (Volume 5).** Supporting Documents (Volume 5) will not be considered in the selection process and will only undergo a compliance review to ensure the proposing small business concern has included items in accordance with the PHASE I SUBMISSION INSTRUCTIONS section above.

- **Fraud, Waste, and Abuse Training Certificate (Volume 6).** Not evaluated.

- **Disclosures of Foreign Affiliations or Relationships to Foreign Countries (Volume 7)**. Disclosures of Foreign Affiliations or Relationships to Foreign Countries (Volume 7) will be assessed as part of the Due Diligence Program to Assess Security Risks. Refer to the DoD SBIR/STTR Program BAA to ensure compliance with Volume 7 requirements.

ADDITIONAL SUBMISSION CONSIDERATIONS

This section details additional items for proposing small business concerns to consider during proposal preparation and submission process.

Due Diligence Program to Assess Security Risks. The SBIR and STTR Extension Act of 2022 (Pub. L. 117-183) requires the Department of Defense, in coordination with the Small Business Administration, to establish and implement a due diligence program to assess security risks presented by small business concerns seeking a Federally funded award. Please review the Certifications and Registrations section of the DoD SBIR/STTR Program BAA for details on how DoD will assess security risks presented by small business concerns. The Due Diligence Program to Assess Security Risks will be implemented for all Phases.

Discretionary Technical and Business Assistance (TABA). The SBIR and STTR Policy Directive section 9(b) allows the DON to provide TABA (formerly referred to as DTA) to its awardees. The purpose of TABA is to assist awardees in making better technical decisions on SBIR/STTR projects; solving technical problems that arise during SBIR/STTR projects; minimizing technical risks associated with SBIR/STTR projects; and commercializing the SBIR/STTR product or process, including intellectual property protections. Proposing small business concerns may request, in their Phase I Cost Volume (Volume 3) and Phase II Cost Volume, to contract these services themselves through one or more TABA providers in an amount not to exceed the values specified below. The Phase I TABA amount is up to $6,500 and is in addition to the award amount. The Phase II TABA amount is up to $25,000 per award, is to be included as part of the award amount, and is limited by the established award values for Phase II by the SYSCOM (i.e., within the $2,000,000 or lower limit specified by the SYSCOM). As with Phase I, the amount proposed for TABA cannot include any profit/fee by the proposing small business concern and must be inclusive of all applicable indirect costs. TABA cannot be used in the calculation of general and administrative expenses (G&A) for the STTR proposing small business concern. A Phase II project may receive up to an additional $25,000 for TABA as part of one additional (sequential) Phase II award under the project for a total TABA award of up to $50,000 per project. A small business concern receiving TABA will be required to submit a report detailing the results and benefits of the service received. This TABA report will be due at the time of submission of the final report.

Request for TABA funding will be reviewed by the DON SBIR/STTR Program Management Office.

If the TABA request does not include the following items the TABA request will be denied.

- TABA provider(s) (firm name)
- TABA provider(s) point of contact, email address, and phone number
- An explanation of why the TABA provider(s) is uniquely qualified to provide the service
- Tasks the TABA provider(s) will perform (to include the purpose and objective of the assistance)
- Total TABA provider(s) cost, number of hours, and labor rates (average/blended rate is acceptable)

TABA must NOT:

- Be subject to any indirect costs, profit, or fee by the STTR proposing small business concern
- Propose a TABA provider that is the STTR proposing small business concern
- Propose a TABA provider that is an affiliate of the STTR proposing small business concern
- Propose a TABA provider that is an investor of the STTR proposing small business concern
- Propose a TABA provider that is a subcontractor or consultant of the requesting small business concern otherwise required as part of the paid portion of the research effort (e.g., research partner, consultant, tester, or administrative service provider)

TABA requests must be included in the proposal as follows:

- Phase I:
  - Online DoD Cost Volume (Volume 3) – the value of the TABA request.
  - Supporting Documents (Volume 5) – a detailed request for TABA (as specified above) specifically identified as "TABA" in the section titled Additional Cost Information when using the DON Supporting Documents template.
- Phase II:
  - DON Phase II Cost Volume (provided by the DON SYSCOM) - the value of the TABA request.
  - Supporting Documents (Volume 5) – a detailed request for TABA (as specified above) specifically identified as "TABA" in the section titled Additional Cost Information when using the DON Supporting Documents template.

Proposed values for TABA must NOT exceed:
- Phase I: A total of $6,500
- Phase II: A total of $25,000 per award, not to exceed $50,000 per Phase II project

If a proposing small business concern requests and is awarded TABA in a Phase II contract, the proposing small business concern will be eliminated from participating in the Navy SBIR Transition Program (STP), the DON Forum for SBIR/STTR Transition (FST), and any other Phase II assistance the DON provides directly to awardees.

All Phase II awardees not receiving funds for TABA in their awards must participate in the virtual Navy STP Kickoff during the first or second year of the Phase II contract. While there are no travel costs associated with this virtual event, Phase II awardees should budget time of up to a full day to participate. STP information can be obtained at: https://navystp.com. Phase II awardees will be contacted separately regarding this program.

Disclosure of Information (DFARS 252.204-7000). In order to eliminate the requirements for prior approval of public disclosure of information (in accordance with DFARS 252.204-7000) under this award, the proposing small business concern shall identify and describe all fundamental research to be performed under its proposal, including subcontracted work, with sufficient specificity to demonstrate that the work qualifies as fundamental research. Fundamental research means basic and applied research in science and engineering, the results of which ordinarily are published and shared broadly within the scientific community, as distinguished from proprietary research and from industrial development, design, production, and product utilization, the results of which ordinarily are restricted for proprietary or national security reasons (defined by National Security Decision Directive 189). A small business concern whose proposed work will include fundamental research and requests to eliminate the requirement for prior approval of public disclosure of information must complete the DON Fundamental Research Disclosure and upload as a separate PDF file to the Supporting Documents (Volume 5) in DSIP as part of their proposal submission. The DON Fundamental Research Disclosure is available on https://navysbir.com/links_forms.htm and includes instructions on how to complete and upload the completed Disclosure. Simply identifying fundamental research in the Disclosure does **NOT** constitute acceptance of the exclusion. All exclusions will be reviewed and, if approved by the Government Contracting Officer, noted in the contract.

Partnering Research Institutions. The Naval Academy, the Naval Postgraduate School, and other military academies are Government organizations but qualify as partnering research institutions. However, DON laboratories DO NOT qualify as research partners. DON laboratories may be proposed only IN ADDITION TO the partnering research institution.

System for Award Management (SAM). It is strongly encouraged that proposing small business concerns register in SAM, https://sam.gov, by the Close date of this BAA, or verify their registrations are still active and will not expire within 60 days of BAA Close. Additionally, proposing small business concerns should confirm that they are registered to receive contracts (not just grants) and the address in SAM matches the address on the proposal. A small business concern selected for an award MUST have an active SAM registration at the time of award or they will be considered ineligible.

Notice of NIST SP 800-171 Assessment Database Requirement. The purpose of the National Institute of Standards and Technology (NIST) Special Publication (SP) 800-171 is to protect Controlled Unclassified Information (CUI) in Nonfederal Systems and Organizations. As prescribed by DFARS 252.204-7019, in order to be considered for award, a small business concern is required to implement NIST SP 800-171 and shall have a current assessment uploaded to the Supplier Performance Risk System (SPRS) which provides storage and retrieval capabilities for this assessment. The platform Procurement Integrated Enterprise Environment (PIEE) will be used for secure login and verification to access SPRS. For brief instructions on NIST SP 800-171 assessment, SPRS, and PIEE, please visit https://www.sprs.csd.disa.mil/nistsp.htm. For in-depth tutorials on these items please visit https://www.sprs.csd.disa.mil/webtrain.htm.

Human Subjects, Animal Testing, and Recombinant DNA. Due to the short timeframe associated with Phase I of the SBIR/STTR process, the DON does **not** recommend the submission of Phase I proposals that require the use of Human Subjects, Animal Testing, or Recombinant DNA. For example, the ability to obtain Institutional Review Board (IRB) approval for proposals that involve human subjects can take 6-12 months, and that lengthy process can be at odds with the Phase I goal for time-to-award. Before the DON makes any award that involves an IRB or similar approval requirement, the proposing small business concerns must demonstrate compliance with relevant regulatory approval requirements that pertain to proposals involving human, animal, or recombinant DNA protocols. It will not impact the DON's evaluation, but requiring IRB approval may delay the start time of the Phase I award and if approvals are not obtained within two months of notification of selection, the decision to award may be terminated. If the use of human, animal, and recombinant DNA is included under a Phase I or Phase II proposal, please carefully review the requirements at: https://www.nre.navy.mil/work-with-us/how-to-apply/compliance-and-protections/research-protections. This webpage provides guidance and lists approvals that may be required before contract/work can begin.

Government Furnished Equipment (GFE). Due to the typical lengthy time for approval to obtain GFE, it is recommended that GFE is not proposed as part of the Phase I proposal. If GFE is proposed, and it is determined during the proposal evaluation process to be unavailable, proposed GFE may be considered a weakness in the technical merit of the proposal.

International Traffic in Arms Regulation (ITAR). For topics indicating ITAR restrictions or the potential for classified work, limitations are generally placed on disclosure of information involving topics of a classified nature or those involving export control restrictions, which may curtail or preclude the involvement of universities and certain non-profit institutions beyond the basic research level. Small businesses must structure their proposals to clearly identify the work that will be performed that is of a basic research nature and how it can be segregated from work that falls under the classification and export control restrictions. As a result, information must also be provided on how efforts can be performed in later phases if the university/research institution is the source of critical knowledge, effort, or infrastructure (facilities and equipment).

SELECTION, AWARD, AND POST-AWARD INFORMATION

Notifications. Email notifications for proposal receipt (approximately one week after the Phase I BAA Close) and selection are sent based on the information received on the proposal Cover Sheet (Volume 1). Consequently, the e-mail address on the proposal Cover Sheet must be correct.

Debriefs. Requests for a debrief must be made within 15 calendar days of select/non-select notification via email as specified in the select/non-select notification. Please note debriefs are typically provided in writing via email to the Corporate Official identified in the proposal of the proposing small business concern within 60 days of receipt of the request. Requests for oral debriefs may not be accommodated. If contact information for the Corporate Official has changed since proposal submission, a notice of the change on company letterhead signed by the Corporate Official must accompany the debrief request.

Protests. Interested parties have the right to protest in accordance with the procedures in FAR Subpart 33.1.

Pre-award agency protests related to the terms of the BAA must be served to: osd.ncr.ousd-r-e.mbx.SBIR-STTR-Protest@mail.mil. A copy of a pre-award Government Accountability Office (GAO) protest must also be filed with the aforementioned email address within one day of filing with the GAO.

Protests related to a selection or award decision should be filed with the appropriate Contracting Officer for an Agency Level Protest or with the GAO. Contracting Officer contact information for specific DON Topics may be obtained from the DON SYSCOM Program Managers listed in Table 2 above. For protests filed with the GAO, a copy of the protest must be submitted to the appropriate DON SYSCOM Program Manager and the appropriate Contracting Officer within one day of filing with the GAO.

Awards. Due to limited funding, the DON reserves the right to limit the number of awards under any topic. Any notification received from the DON that indicates the proposal has been selected does not ultimately guarantee an award will be made. This notification indicates that the proposal has been selected in accordance with the evaluation criteria and has been sent to the Contracting Officer to conduct compliance review of Volume 3, to confirm eligibility of the proposing small business concern, and to take other relevant steps necessary prior to making an award.

Contract Types. The DON typically awards a Firm Fixed Price (FFP) contract or a small purchase agreement for Phase I. In addition to the negotiated contract award types listed in the section of the DoD SBIR/STTR Program BAA titled Additional Considerations, for Phase II awards the DON may (under appropriate circumstances) propose the use of an Other Transaction Agreement (OTA) as specified in 10 U.S.C. 4021/10 U.S.C. 4022 and related implementing policies and regulations. The DON may choose to use a Basic Ordering Agreement (BOA) for Phase I and Phase II awards.

Funding Limitations. In accordance with the SBIR and STTR Policy Directive section 4(b)(5), there is a limit of one sequential Phase II award per small business concern per topic. Additionally, to adjust for inflation DON has raised Phase I and Phase II award amounts. The maximum Phase I proposal/award amount including all options (less TABA) is $240,000. The Phase I Base amount must not exceed $140,000 and the Phase I Option amount must not exceed $100,000. The maximum Phase II proposal/award amount including all options (including TABA) is $2,000,000 (unless non-SBIR/STTR funding is being added). Individual SYSCOMs may award amounts, including Base and all Options, of less than $2,000,000 based on available funding. The structure of the Phase II proposal/award, including maximum amounts as well as breakdown between Base and Option amounts will be provided to all Phase I awardees either in their Phase I award or a minimum of 30 days prior to the due date for submission of their Initial Phase II proposal.

Contract Deliverables. Contract deliverables for Phase I are typically a kick-off brief, progress reports, and a final report. Required contract deliverables (as stated in the contract) must be uploaded to https://www.navysbirprogram.com/navydeliverables/.

Payments. The DON makes three payments from the start of the Phase I Base period, and from the start of the Phase I Option period, if exercised. Payment amounts represent a set percentage of the Base or Option value as follows:

Days from Start of Base Award or Option	Payment Amount
15 Days	50% of Total Base or Option
90 Days	35% of Total Base or Option
180 Days	15% of Total Base or Option

Transfer Between SBIR and STTR Programs. Section 4(b)(1)(i) of the SBIR and STTR Policy Directive provides that, at the agency's discretion, projects awarded a Phase I under a BAA for SBIR may transition in Phase II to STTR and vice versa.

PHASE II GUIDELINES

Evaluation and Selection. All Phase I awardees may submit an **Initial** Phase II proposal for evaluation and selection. The evaluation criteria for Phase II is the same as Phase I (as stated in the BAA). The Phase I Final Report and Initial Phase II Proposal will be used to evaluate the small business concern's potential to progress to a workable prototype in Phase II and transition the technology to Phase III. Details on the due date, content, and submission requirements of the Initial Phase II Proposal will be provided by the awarding SYSCOM either in the Phase I contract or by subsequent notification.

Awards. The DON typically awards a Cost Plus Fixed Fee contract for Phase II; but, may consider other types of agreement vehicles. Phase II awards can be structured in a way that allows for increased funding levels based on the project's transition potential. To accelerate the transition of SBIR/STTR-funded technologies to Phase III, especially those that lead to Programs of Record and fielded systems, the Commercialization Readiness Program was authorized and created as part of section 5122 of the National Defense Authorization Act of Fiscal Year 2012. The statute set-aside is 1% of the available SBIR/STTR funding to be used for administrative support to accelerate transition of SBIR/STTR-developed technologies and provide non-financial resources for the small business concerns (e.g., the Navy STP).

PHASE III GUIDELINES

A Phase III SBIR/STTR award is any work that derives from, extends, or completes effort(s) performed under prior SBIR/STTR funding agreements, but is funded by sources other than the SBIR/STTR programs. This covers any contract, grant, or agreement issued as a follow-on Phase III award or any contract, grant, or agreement award issued as a result of a competitive process where the awardee was an SBIR/STTR firm that developed the technology as a result of a Phase I or Phase II award. The DON will give Phase III status to any award that falls within the above-mentioned description. Consequently, DON will assign SBIR/STTR Data Rights to any noncommercial technical data and noncommercial computer software delivered in Phase III that were developed under SBIR/STTR Phase I/II effort(s). Government prime contractors and their subcontractors must follow the same guidelines as above and ensure that companies operating on behalf of the DON protect the rights of the SBIR/STTR firm.

Navy STTR 25.B Topic Index

N25B-T029 TITLE: High Performance Electro-optic Modulator Designed for Military Aircraft

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Advanced Materials;Integrated Sensing and Cyber;Microelectronics

OBJECTIVE: Design a high performance electro-optic modulator that can maintain its required performance over the expected environmental operating envelope when mounted directly to the antenna of a military aircraft.

DESCRIPTION: The current advancements in Thin Film Lithium Niobate Mach-Zehnder low Vp (halfwave voltage) electro-optic modulators have resulted in compelling performance improvements for airborne receivers. The performance improvements compared to radio frequency (RF) sensors are in sensitivity, bandwidth, electromagnetic interference (EMI) protection, and cable weight. For STTR-developed modulators to be deployed on a military aircraft, they will need to maintain their performance over the appropriate military aircraft environmental envelope. The mounting locations with the most stressing environment will be the modulator attached directly an antenna mounted at the wingtip. This effort will meet generic target performance specifications for this application.

The two largest areas of concern for this STTR topic are temperature and electromagnetic vulnerability. The challenge to operations over temperature is the interferometric bias control. Low Vp modulators require a bias controller with more sensitivity than previous large Vp modulators. Errors in bias control can degrade the second-order intercept point (IP2) and create unwanted harmonics. Most current modulator designs use thermal tuning for bias control. Thermal tuning may be difficult to maintain during thermal shock conditions. One possible alternative is to use electrical tuning, but this is not currently used because defects in the crystal structure of the waveguides create areas for charge accumulation, which can affect electrical bias control. This topic is looking for creative solutions to meet the thermal operational requirement.

Electromagnetic vulnerability requirements will focus on transient susceptibility: This requirement specifies the maximum level of EM radiation that the system can tolerate without experiencing permanent damage. The requirements include transient sources, such as lightning, electrostatic discharge, and loud nearby transmitters. While the crystal of the modulator is impervious to high voltage, care must be taken with the design to prevent arcing between the electrodes or the case and to properly size the termination for power handling. Designs with internal terminations are unlikely to meet the requirements.

The topic expects successful testing of thermal and electrostatic discharge (ESD) requirements (Threshold (T)) Altitude and shock/vibration (Objective(O)).
Key Test Parameters (KTPs) for this effort are:
Modulator Performance:
Frequency = 10Mhz - 20Ghz
Vp = 1V at 10Ghz (T), 0.5 volts at 10Ghz (O)
Max optical input power = 27dBm
Optical Insertion loss = < 6dB
Bias Control = +-3° (T), +-2° (O)
Operating Environment:
Operational Temperature= -55C° to 70C° Continuous, +85C° for 10 min
Thermal Shock= 70C° to -55C° at a rate of 35C°/min
Electromagnetic Susceptibility:
High power signals = 450V, 4GHz, 5us PW, 3.5% Duty cycle
ESD: 0-4,000 V as discharged from a 100-pF capacitor through a 1.5kO resistor
Max Altitude:

50K feet
Shock/Vibration: (to be provided)
The bias controller is preferred to be located with the modulator in a same or separate package and will meet the same environmental requirements.

PHASE I: Develop a modulator and bias controller design. If feasible, demonstrate the core bias control technology concept at a bench top level. Insert data from the demonstration into the model and predict the modulator performance. The Phase I effort will include prototype plans to be developed under Phase II.

PHASE II: Build 4 packaged modulators and bias controllers and demonstrate the performance over the required thermal and EMS conditions (T). Also test over altitude and vibration (O).

PHASE III DUAL USE APPLICATIONS: Support the DoD in transitioning the proposed receiver, to include working with a program office to develop a final packaging design that meets the platform's space, weight and power (SWAP) and environmental requirements plus systems specifications for the associated analog photonic links.

Development of this receiver has widespread commercial applications for commercial radar and 5G/6G receivers.

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KEYWORDS: Modulator; Fiber; radio frequency; RF; Receiver; Photonics; Terraform Linter; TFLint

N25B-T030 TITLE: Multi-functional, Microwave Photonic Sensor for Modern Electronic Warfare & Signals Intelligence

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Integrated Sensing and Cyber;Microelectronics

OBJECTIVE: Develop a multi-functional, photonics-enabled (MPE) microwave sensor capable of enabling advanced electronic warfare (EW) and signal intelligence applications.

DESCRIPTION: The Navy seeks development of a photonic microwave sensor based on an environmentally rugged optical frequency comb locked to a compact and fieldable, high-performance optical reference cavity.

The optical front end will feed microwave photonic extension modules with diverse functionality including: (a) a broadband spectrum analysis receiver module for the rapid detection and frequency identification of microwave tones between 1–40 GHz, (b) a broadband compressive sensing receiver module for the phase sensitive detection and reconstruction of microwave tones between 1–40 GHz, and (c) provisions for a future broadband transmitter module for the generation of discrete microwave tones between 1–40 GHz with exceptional phase noise performance.

The MPE modules will incorporate photonic integrated circuit (PIC) technology where possible to improve the size, weight, and power (SWaP), and ruggedness of the photonic sub-systems. Such a system will not only provide assured access to a large segment of the EW spectrum but will also enable control and modernization of the EW spectrum for next generation defense capabilities in dense maritime environments.

PHASE I: Develop an architecture and a detailed development plan for the optical frequency comb front end, broadband receiver module, phase-sensitive broadband receiver module and ultra-low phase noise transmitter module. The Phase I effort will include prototype plans to be developed under Phase II.

PHASE II: Mature the design of key photonic integrated sub-systems including breadboard demonstration of microwave photonics extension modules and brassboard demonstration of multi-functional microwave photonic sensor. Prepare a maturation and system integration plan leading to a future fielded system.

PHASE III DUAL USE APPLICATIONS: Demonstrate the functionality of the brassboard microwave photonic sensor using a higher-order modulation protocol to both transmit and receive the communication signal. Execute a fielded demonstration of the microwave photonic sensor technology in an environment relevant to the end use case.

This technology supports emerging commercial radar and communication infrastructure in operating in the 1–40 GHz frequency spectrum.

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KEYWORDS: Multi-functional, Photonics-enabled microwave sensor; Electronic warfare; Signal intelligence; Ultra-wideband radar; Compressive sensing; Low phase noise systems

N25B-T031 TITLE: Increased Combat Radius of Naval Tactical Aircraft

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Sustainment

OBJECTIVE: Identify, characterize, and validate innovative methods to increase the unrefueled combat radius of Naval tactical aircraft.

DESCRIPTION: It is expected that recent technological advances may be leveraged to increase a tactical aircraft's unrefueled combat radius. Aircraft combat radius is a key factor in the ability of the Naval force to deliver long-range fires.

The objective of this STTR topic is to identity and quantify innovative concepts to increase the combat radius of a tactical aircraft (Phase I) and then validate the feasibility of the concepts and implement into a prototype(s) (Phase II). Concepts may include but are not limited to: modification to propulsion, fuels, flight controls, drag reduction, weight reduction, fuel storage, or other methods. Concepts may also include non-materiel solutions (i.e., changes to concepts of employment).

Key considerations are the anticipated increase in range provided by the concept(s), the expected challenges and costs of developing and integrating the solution(s) into a Naval tactical aircraft, and the suitability of the solution(s) for aircraft carrier operations.

The goal is that concepts identified in Phase I will reach Technology Readiness Level (TRL) 3 (analytical proof of concept).

The goal is that concepts will reach TRL 4-5 (component and/or breadboard validation in laboratory environment) by the end of Phase II.

PHASE I: Conduct a trade study of proposed concepts culminating in low-fidelity quantification of concepts and their potential benefits. Consider integration cost and schedule. The goal is that concepts identified in Phase I will reach Technology Readiness Level (TRL) 3 (analytical proof of concept). Develop plans to validate the concepts at the component level in a laboratory environment (Phase II).

PHASE II: Build a prototype solution. Conduct component-level validation in a laboratory environment to demonstrate the feasibility and potential benefit of a concepts. Validation methods could include in-depth computation fluid dynamics (CFD) studies, small-scale wind tunnel validation experiments, or similar methods. The goal is that concepts will reach TRL 4-5 (component and/or breadboard validation in laboratory environment) by the end of Phase II. Deliver a plan for how the concept would be integrated into a tactical aircraft, an estimate of the non-recurring engineering costs, an approximate schedule to IOC, and a risk analysis.

PHASE III DUAL USE APPLICATIONS: Mature the concepts to TRL 6, and work with the program office and original equipment manufacturer (OEM) to develop an Engineering Change Proposal (ECP). Concepts developed under this topic will be relevant to commercial transport aircraft and general aviation for the purpose of increasing the efficiency of flight.

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KEYWORDS: Drag Reduction; Tactical Aircraft; Extended Range; Endurance; Combat Radius; Propulsion Efficiency

N25B-T032 TITLE: Advanced Fretting Fatigue Life Prediction Method for Naval Aerospace Applications

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Advanced Computing and Software; Advanced Materials; Sustainment

OBJECTIVE: Develop innovative tools for advancing the science, physics-based modeling & simulation (M&S), and mitigation techniques for fretting fatigue damage to improve durability, reliability, and performance in naval aero-structural applications.

DESCRIPTION: Fretting fatigue occurs across various naval aero-structural applications such as bolted and screw joints, engine mounts, and rotor hub assemblies. The intricate interplay between frictional wear and cyclic stress often leads to premature material failure and reduced fretting fatigue life of critical components. As aircraft and aerospace systems are exposed to maneuvers, vibrations, thermal variations, and fluctuating loads, the potential for fretting fatigue damage increases, particularly in high-performance aircraft, which operate under more extreme conditions.

While existing mitigation strategies primarily focus on surface treatments, coatings, and material modifications, there exists a significant gap in the understanding of fretting fatigue mechanisms and reliable life-estimation techniques. Moreover, the lack of a universal approach for fretting fatigue estimation or prediction exacerbates the complexity of the problem, necessitating innovative solutions tailored to the specific requirements in naval aero-structural applications.

Current approaches to fretting fatigue management predominantly revolve around empirical methods and standardized tests to assess the performance. These methods often involve cyclic loading tests combined with surface inspections to detect early signs of wear and crack initiation. However, these empirical methods are limited in their ability to fully capture the complex interactions at play in different fretting fatigue scenarios.

Advanced materials and surface treatments, such as shot peening, laser shock peening, and various coating technologies, have shown promise in extending the life of components by enhancing surface hardness and reducing stress concentrations. Despite these advancements, challenges persist in accurately predicting fretting fatigue, particularly in complex aerospace systems subjected to diverse operational environments and loading conditions.

Existing models often oversimplify the phenomena or fail to account for variable factors such as temperature fluctuations, varying coefficient of friction or cyclic frequency, and in-service operational stresses. Lack of comprehensive modeling frameworks also limit the ability to develop effective mitigation strategies that address the root causes of fretting fatigue. There is a need for integrated approaches that combine advanced modeling, real-time monitoring, and innovative materials science to provide more accurate and reliable solutions to fretting fatigue.

The Navy seeks innovative solutions to address key challenges in understanding the science, modeling and mitigation of fretting fatigue damage, aiming to advance the state of the art in each of these areas. This includes developing advanced M&S techniques to elucidate fretting fatigue mechanisms, devising accurate prediction models for estimating component life in the presence of multiaxial stresses, and exploring novel mitigation strategies that go beyond traditional approaches. There is currently no universal approach for fretting fatigue estimation/prediction or testing, underlining the need for innovative solutions tailored to specific naval aero-structural applications.

The Navy needs to explore innovative methods for detecting and monitoring fretting cracks to enable proactive maintenance and repair to prevent failure. Understanding the effect of varying coefficient of friction due to factors such as temperature fluctuations, humidity, and surface treatments is essential for developing accurate predictive models and effective mitigation strategies tailored to specific operational conditions. Furthermore, exploring novel coating technologies that enhance durability and performance under fretting conditions are important considerations for fretting fatigue mitigation.

PHASE I: Design, develop, and demonstrate feasibility of the innovative approach(es) in advancing understanding of the science, mitigation, and modeling of fretting fatigue for naval aero-structural applications. The emphasis will be on conceptualizing advanced models for material behavior under fretting conditions. Participants will investigate developing predictive models and the design of innovative mitigation techniques. The Phase I effort will include prototype plans to be developed under Phase II.

PHASE II: Refine the design(s) and model(s) based on Phase I results and optimize for performance, reliability, and scalability. Comprehensive testing and evaluation will be conducted to demonstrate the effectiveness of the durability and performance of the prototype. This should ensure that the solutions are robust and effective in different application scenarios. The final prototype will be showcased, providing detailed performance data and demonstrating its potential for widespread adoption in aero-structural applications.

PHASE III DUAL USE APPLICATIONS: Transition validated full fretting fatigue modeling tool to acquisition program and integrate with existing engineering analysis tools.

Complex fretting damage resulting in fractures is a risk for commercial producers in aerospace, automotive, trucking, heavy equipment companies, medical reconstruction, and any other private sector that utilizes assemblies of parts subjected to motion. The benefits to the private sector would be lower failure rates/warranty costs and mitigated damages.

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KEYWORDS: Fretting fatigue; Coatings; Crack initiations; Debris; Tribology; Friction

N25B-T033 TITLE: Hypersonic Computational Fluid Dynamics Heat Flux Sub-Models Development

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Hypersonics

OBJECTIVE: Enhance Modeling and Simulation (M&S) of Navy-relevant hypersonic flows through the development and/or improvement of Computational Fluid Dynamics (CFD) turbulence-heat flux sub-models.

DESCRIPTION: At present, CFD prediction of heat flux in hypersonic flows relies on simplified approximation of the relationship between fluid transport, turbulence, and heat flux. These models are not rooted in fundamental physics and are typically "tuned" to yield reasonable agreement with a select number of canonical sub- and transonic flows. Consequently, existing turbulence models can produce larger errors when attempting to predict heat flux for hypersonic flows.

The objective of this topic is to enhance M&S of Navy-relevant hypersonic flows through the development and/or improvement of CFD turbulence-heat flux sub-models. Proposers should define a framework for heat flux modeling of the Favre-averaged, reacting Navier-Stokes equations, develop a heat flux sub-model that can be easily integrated into existing RANS-based CFD solvers, and demonstrate the predictive capability of the model through verification and validation (V&V) against existing hypersonics datasets.

PHASE I: Develop and present a turbulence modeling framework based on the Favre-averaged, reacting Navier-Stokes equations. Provide a heat flux sub-model for hypersonic, turbulent flows that shows improvements in physical realism, predictive capability, and numerical performance/robustness over existing heat flux sub-models. Ideally, the model should be generalizable across flight conditions (i.e., subsonic to hypersonic). The functional form of the heat flux sub-model must be capable of seamless integration into existing compressible RANS and hybrid RANS/LES turbulence modeling frameworks, i.e., the model should take as inputs only those variables used/stored by industry-standard RANS/LES algorithms and their sub-models, be continuous in form, rely only on local data, and should ideally be turbulence model agnostic.

The Phase I effort will include prototype plans to be developed under Phase II.

PHASE II: Refine the form of the model(s) and define any constants needed to close the model. Constants and model specifics should be driven by a combination of first principles and existing experimental/flight test data. Collaborate with the High Performance Computing Modernization Program (HPCMP) CREATE Air Vehicle (CREATE-AV) development team to incorporate the model(s) into a CFD architecture, verify the model implementation, and validate the model against existing hypersonics databases using best V&V practices. Further refine the model form, constants, and implementation based on V&V activities. Finalize the heat flux sub-model by demonstrating model integration into an existing turbulence modeling framework plus improvements in predictive capability for Navy-relevant hypersonic flows, and transitioning the model to CREATE tools.

PHASE III DUAL USE APPLICATIONS: Transition the finalized model(s) along with all supporting documentation, rationale, and source code to the HPCMP CREATE development team for (1) implementation into its Kestrel CFD solver, (2) standard verification testing, and comparison to/validation against existing databases,. Complete any necessary alterations to the model or its source code requested by the HPCMP CREATE team.

Improved heat flux modeling will benefit commercial computational fluid dynamics solvers and commercial entities that utilize CFD for design and analysis. In addition to hypersonic systems, improved heat flux modeling will benefit commercial sectors producing turbomachinery, internal combustion engines, and other problems where heat transfer due to fluid-solid-interaction plays an important role in design, performance, and sustainment.

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KEYWORDS: Hypersonic; Turbulence Modeling; Heat Flux; Computational Fluid Dynamics; CFD; Heat Transfer; Modeling and Simulation; M&S