INTRODUCTION:

This publication constitutes a Funding Opportunity Announcement (FOA) as contemplated in the Department of Defense Grants and Agreements regulations (DoDGARS) 22.315(a). A formal Request for Proposals (RFP), solicitation, and/or additional information regarding this announcement will not be issued.

The Office of Naval Research (ONR) will not issue paper copies of this announcement. The ONR reserves the right to select for award and fund all, some, or none of the proposals in response to this announcement. ONR provides no funding for direct reimbursement of proposal development costs. Technical and cost proposals (or any other material) submitted in response to this FOA will not be returned. It is the policy of ONR to treat all proposals submitted under this FOA as sensitive competitive information and to disclose their contents only for the purposes of evaluation.
This FOA is intended for proposals related to basic research projects from Historically Black Colleges and Universities and Minority Institutions (HBCU/MI) related to the Department of the Navy (DON) HBCU/MI Program. Proposals that do not meet the criteria specified by this document will not be reviewed.

All grant proposals are to be submitted through Grants.gov. Offerors should include responses to the Representations indicated in Section VII, D, of this FOA and located at http://www.onr.navy.mil/en/Contracts-Grants/submit-proposal/grants-proposal.aspx
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I. PROGRAM DESCRIPTION

A. Agency Name

Office of Naval Research
One Liberty Center
875 N. Randolph Street
Arlington, VA 22203-1995

B. Research Opportunity Title

Funding Opportunity Announcement for the Office of Naval Research's (ONR) Navy and Marine Corps FY2017 Historically Black Colleges and Universities/Minority Institutions (HBCU/MI) Program.

C. Program Name

DON Historically Black Colleges and Universities/Minority Institutions (HBCU/MI) Program

D. Research Opportunity Number

N00014-16-R-FO08

E. Response Date

This announcement will remain open until 30 September 2017 or until replaced by a successor FOA or BAA, whichever occurs first. All submissions will be considered on a rolling basis. Priority will be given to white papers that are submitted by 1 January 2016. Proposals are considered as they arrive and successful applications are funded on a rolling basis. Therefore, Offerors are encouraged to submit early in the cycle as there is no guarantee of available program funding. Invited full proposals based on white papers may be accepted until the close of this announcement.

F. Research Opportunity Description

The Office of Naval Research (ONR) is interested in receiving proposals from Historically Black Colleges and Universities and Minority Institutions (HBCU/MI) for basic research relating to the following topic areas:

- **Topic Area 1** Information Dominance
- **Topic Area 2** Platform Design and Survivability
- **Topic Area 3** Power and Energy
- **Topic Area 4** Power Projection and Integrated Defense
**Topic Area 1: Information Dominance**

The Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance Department (Code 31) invests in areas of science and their applications such as data science, mathematical and computational science, computer and information sciences, quantum information sciences, cyber security, electronics, command and control and combat systems, communications, cyber operations, electronic warfare, sensing and surveillance, and precision timing and navigation.

Specific thrusts and focused research areas are:

1) Mathematics, Computers and Information Sciences, which sponsors basic and applied research, and advanced technology development efforts in mathematics, computer and information sciences that address Navy and Department of Defense needs in computation, information processing, information operation, information assurance and cybersecurity, decision tools, and command and control with specific focus on enabling rapid, accurate decision making


   Specific scientific and technical areas include:

   a) Applied and computational analysis;
   b) Command and control;
   c) Computational methods for decisions making;
   d) Cyber security and complex software systems;
   e) Machine learning, reasoning, and intelligence;
   f) Mathematical data science;
   g) Mathematical optimization and operations research;
   h) Quantum information sciences.

2) Electronics, Sensors and Network Research, which conducts an integrated program of basic and applied research and advanced technology development into technologies that enable new and innovative uses of the electromagnetic spectrum in areas of surface and aerospace surveillance, communications, electronic combat, and navigation. All of these areas are supported by a broad research program in electronics which is focused on the reduction of the cost, weight and size of transmit and receive systems. Two overarching goals are the development of technologies and techniques to support adaptive persistent surveillance, and the development of digital/radio frequency technologies and techniques to support active aperture phased arrays capable of performing multiple functions simultaneously

Specific scientific and technical areas include:

- a) Active aperture array;
- b) Atomic, molecular and quantum physics;
- c) Communications and networking;
- d) Electromagnetic materials;
- e) Electronic warfare;
- f) EO/IR sensors and sensor processing;
- g) Nanoscale computing devices and systems;
- h) Precision, Navigation and timekeeping;
- i) RF surveillance and signal processing;
- j) Mixed signal (radio frequency and digital) processing devices, circuits and architecture;
- k) Radio frequency superconducting technologies;
- l) Radio frequency semiconductors, radio frequency solid state amplifiers; and wide bandgap materials.

**Topic Areas 2, 3 and 4: Platform Design and Survivability; Power and Energy; Power Projection and Integrated Defense**

**The Sea Warfare and Weapons Department** (Code 33) develops and delivers technology to enable superior warfighting capabilities for surface and sub-surface naval platforms and undersea weaponry. Code 33 also develops and delivers technology to reduce total life cycle cost of naval platforms, to minimize the energy footprint of Naval forces, and to develop new scientists and engineers for Navy-unique technological areas. Specific thrusts and focused research areas are:

1) Ship Systems and Engineering Research: Focused on providing technologically superior warfighting capabilities at reduced total ownership costs for surface and subsurface platforms through investments in basic and applied research and advanced technology development of programs in: a) hydrodynamics, b) survivability c) electrical and thermal systems and d) platform structures. The division is also responsible for the National Naval Responsibility in Naval Engineering (NNR-NE). The NNR-NE supports fundamental and early applied research in the areas of propulsion, platform structures, hydrodynamics, automation control and system engineering, design tools, naval power systems and ensuring strong a healthy academic infrastructure. Specific research themes are:

- a. Hydrodynamics: Theory, computation, and experiments in the lab and at-sea are utilized to develop understanding and prediction capabilities for all hydrodynamic phenomena around a surface ship, their effects on ship performance, and concepts for modification. Understand the physics of flow around propulsors and their interactions to improve propulsor design capability that would result in improved mobility, efficiency, and affordability. Predict and control of various types of cavitation on propulsors and appendages. Develop predictive capability of cavitation inception, thrust breakdown and erosion phenomenon and scaling laws.
Science and technology efforts in the area of Subsurface Hydrodynamics include identifying, understanding, predicting, and controlling flow physics, as well as turbulence and stratified wakes. This is further applied to Subsurface Maneuvering Technologies, and understanding the Dynamics of Interacting Platforms.

b. Survivability: Investigate and understand electromagnetic (EM) sources (including major ferro and non-ferromagnetic sources, eddy currents, and Corrosion Related Magnetic Fields (CRM)) that are associated with naval platforms. Develop understanding of EM field propagation relationships and analysis aids, and technologies to predict the electromagnetic properties of a naval platform. Advance physics based understanding of platform acoustics. Discover and develop algorithms and methods that will enable the development of improved design, analysis, and prediction tools for enhanced acoustic performance. Understand, design and develop optical and acoustic metamaterials to control light and sound propagation over a large frequency range. New architectures to overcome challenges associated with loss, bandwidth, and scalability are being explored. Design and develop models, algorithms, and integrated development environments for simulation and control of complex, interdependent, distributed shipboard machinery systems to enable integrated, autonomous operation and reconfiguration of shipboard machinery systems. Support research understanding the behavior of highly-rate sensitive polymers under extreme conditions to improve survivability to blast and ballistic penetration for application to ships, vehicles and head protection against Traumatic Brain Injury.

c. Electrical and Thermal Systems: Provide a scientific foundation for a reconfigurable electric warship including physical properties, control laws, stability criteria, modeling and simulation, advanced design and development methods. Develop new machinery integration concepts. Develop simulation based Verification, Validation and Accreditation (VV&A) methods and technologies. Contribute to system reconfiguration. Design a ship electrical system architecture based on a main bus that distributes “rough” DC power throughout the ship at nominally 10 KV. Conduct fundamental research necessary for enabling scientific progress and breakthroughs in shipboard and expeditionary power & energy technology. Development of macro- and atomic-scale multi-physics models is being pursued to enhance understanding of materials processing & performance, energy conversion mechanisms, cyber-physical energy concepts, and power management. Advanced magnetics, material surface science, and solid-state conversion concepts are of interest, and alternative energy approaches for powering Navy equipment of the future are being investigated. Advance thermal science and technology through fundamental studies of multi-phase heat transfer, fluid dynamics, and nanostructured materials in order to efficiently acquire, transport and reject heat and enable higher power density electronic systems associated with Advanced Naval Power Systems. System-level studies focus on the scalability and reliability of component technologies. Another thrust is the development of tools to model heat
transfer at multiple length scales allowing for simulation of heat flow through the
ship in order to evaluate the impact of power conversion electronics, sensors, and
weapons on the overall thermal balance of the vessel.

d. Platform Structures: Structural reliability focuses on time-varying, structural
reliability analysis and prediction for a ship structural system; advanced global hull
strength, local panel strength, fatigue and fracture strength prediction models;
seaway loads application and translation into a load effect for high-speed/high-
performance ships and vessels; structural health monitoring of large, complex
geometries with low spatial density of sensors in support of damage identification
and prediction through signal processing or (inverse) modeling. Computational
mechanics focuses on improving the accuracy and efficiency of the modeling of
linear and nonlinear mechanical behavior of complex structures. Hybrid structures
focuses on understanding structural performance of naval platforms under quasi-
static seaway conditions as well as extreme loads, dynamic shock and wave impact
loads, and the exploitation of composites and lightweight materials in ship design,
such as hybrid ship hull concepts, composite topside structures, and energy
absorbing structures; addressing development of multi-scale computations and FE
methods for dynamic crack propagation, damage of composites structures, hybrid
composite-to-steel joints, and testing of small elements and large structural models
in understanding failure mechanisms of large structures and joints.

http://www.onr.navy.gov/Science-Technology/Departments/Code-
33/All-Programs/331-ship-systems-engineering.aspx

2) Naval Materials Science and Technology: Focused on a full spectrum of activities
from long-range, fundamental scientific and engineering research in the design and
realization of new materials and systems to fulfilling the unique requirements of marine
and military applications. Experimental work is closely coupled with the development
of models and predictive capabilities for materials properties and behavior. Specific
research areas include:

a. Functional Materials (Electrochemical power sources, Capacitors for pulsed
power applications, Electronic and optical ceramics, and Functional polymeric
organic materials)
b. Structural Materials (Bulk nanostructured materials, Composite materials
development and processing; Fracture and fatigue damage of Naval structural
materials focuses on two areas: fatigue of structural materials and
defformation/fracture in nanostructured materials; High temperature turbine
materials, Ultra-high temperature materials, Solid Mechanics, Structural cellular
materials, Structural Metals, and Non-Destructive Evaluation, Structural Health
Monitoring, Prognostics)
c. Environmental Quality (Environmentally benign marine antifouling coatings and
Environmental quality waste treatment/reduction)
d. Pervasive Materials S&T (Computer Aided Materials Design and Integrated
Computational Materials Engineering)
3) Sea Platforms and Weapons: Focused on coordinating the transition of technologically superior systems and equipment that will enhance warfighting capabilities.

a. Sea Weapons Program: Accomplished through the University Laboratory Initiative, which was established in part to increase the number of engineers and scientists in Navy laboratories and University Affiliated Research Centers that conduct research and development of undersea weapon technology. Core technology areas for applied research and technology development include: guidance and control; sensors; signal processing; planning and control algorithms; signal management for undersea distributed network systems (UDNS); weapon energy conversion; batteries, air- independent fuel cells and hybrids; motors; otto fuel replacements; vehicle technology; liquid fuels for “gas and go” concepts; corrosion and anti-fouling coatings; hydrodynamics; control surfaces; propulsors; drag and noise reduction; projectiles; warheads; explosives; detonators; and fuses.


4) The Naval Alternative Energy and Fuels Program: Focused on understanding the physical effects of incorporating Alternative Fuels into Naval Systems. Research Challenges and Opportunities include:

a. Modeling/Simulation Tools: development and validation of tools that predict the engine performance/degradation using wide variety of alternative fuels.

b. Increasing the knowledge of physical properties and chemical reactions of alternative fuels in a maritime environment.

G. Points of Contact (POC)

Questions of a Technical nature:

Mr. Anthony C. Smith, Sr.
Director of DON HBCU/MI
Office of Naval Research
875 North Randolph Street
Arlington VA 22203-1995
DON_HBCUFOA@navy.mil
Questions of a Business nature, and suggestions for improvement should be submitted to:

Mr. David Broadwell  
Grant Management Specialist  
Code 255  
Office of Naval Research  
875 North Randolph Street  
Arlington VA 22203-1995  
david.broadwell@navy.mil

Comments or questions should be brief eliminating any unnecessary verbiage. The relevant part and paragraph of the FOA should be referenced. All questions shall be submitted via email and should not be classified.

Amendments to this FOA will be posted to one or more of the following web pages:


H. Instrument Type


I. Catalog of Federal Domestic Assistance (CFDA) Numbers

12.300 Office of Naval Research (ONR)

J. Catalog of Federal Domestic Assistance (CFDA) Titles

Basic and Applied Scientific Research (ONR)

K. Other Information

With regard to any restrictions on the conduct or outcome of work funded under this FOA, ONR will follow the guidance on and definition of “contracted fundamental research” as provided in the Under Secretary of Defense (Acquisition, Technology and

As defined therein, the definition of “contracted fundamental research,” in a DoD grant or contractual context, includes research performed under grants and contracts that are (a) funded by Research, Development, Test and Evaluation Budget Activity 1 (Basic Research), whether performed by universities or industry or (b) funded by Budget Activity 2 (Applied Research) and performed on-campus at a university. The research shall not be considered fundamental in those rare and exceptional circumstances where the Basic Research funded effort presents a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense, and where agreement on restrictions have been recorded in the contract or grant.

Normally, fundamental research is awarded under grants with universities and under contracts with industry. Non-fundamental research is normally awarded under contracts and may require restrictions during the conduct of the research and DoD pre-publication review of such research results due to subject matter sensitivity. Potential Offerors should consult with the Technical POC to determine whether the proposed effort would constitute basic research, applied research or advanced research.

THIS ANNOUNCEMENT IS NOT FOR THE ACQUISITION OF TECHNICAL, ENGINEERING AND OTHER TYPES OF SUPPORT SERVICES.

II. AWARD INFORMATION

A. Funding Amount and Period of Performance

ONR intends to award approximately $450,000.00 in FY2017 under this HBCU/MI FOA competition, subject to availability of funds. It is estimated that 3 awards will be made. Each individual award is up to a maximum of $150,000.00 per year with one-year option periods up to three years.

B. Peer Reviews

In the case of proposals funded as basic research, ONR may utilize peer reviewers from academia, industry, and Government agencies to assist in the periodic appraisal of performance under the awards, as outlined in ONR Instruction 3966.1A. Such periodic program reviews monitor the cost, schedule and technical performance of funded basic research efforts. The reviews are used in part to determine which basic research projects will receive continued ONR funding. Peer reviewers who are not U.S. Government employees must sign nondisclosure agreements before receiving full or partial copies of proposals and reports submitted by the basic research performers. Offerors may include travel costs for the Principal Investigator (PI) to attend the peer review.
III. ELIGIBILITY INFORMATION

A. This competition is open only to U.S. Historically Black Colleges and Universities and Minority Institutions (HBCU/MI) of higher education with degree granting programs in science, mathematics, and/or engineering as determined by the Department of Education. Criteria and listings can be found at https://www2.ed.gov/about/offices/list/ocr/edlite-minorityinst-list.html

B. Teams are also encouraged and may submit proposals in any and all areas. However, Offerors must be willing to cooperate and exchange software, data and other information in an integrated program with other contractors, as well as with system integrators, selected by ONR.

C. Offerors should be aware of recent changes in export control laws. Offerors are responsible for ensuring compliance with all applicable International Traffic in Arms Regulation (ITAR) requirements as found in 22 CFR §120 et. seq. The U.S. Munitions List (USML) is available online at http://www.ecfr.gov/cgi-bin/text-idx?node=pt22.1.121 Additional information regarding the President's Export Control Reform Initiative can be found at http://export.gov/ecr/index.asp

D. Cost sharing is not expected and will not be used as a factor during the merit review of any proposal hereunder. However, the Government may consider voluntary cost sharing if proposed.

IV. APPLICATION AND SUBMISSION INFORMATION

A. Application and Submission Process

   White Papers: White papers are mandatory and must be submitted by email to the attention of the Technical POC. Each white paper must state that it is submitted in response to this FOA and cite the particular Topic Area of the Research Opportunity Description that the white paper is primarily addressing.

   White Paper Evaluation/Notification: Navy evaluations of the white papers will be issued via email notification.

   Full Proposals: It is anticipated that final selections will be made within four weeks after full proposal submission. All submissions will be considered on a rolling basis. As soon as the final full proposal evaluation process is completed, PI’s will be notified via email of their project’s selection or non-selection.

B. Content and Format of White Papers/Full Proposals

   White papers and full proposals submitted under this FOA shall be unclassified basic research. White papers and full proposal submissions will be protected from unauthorized disclosure in accordance with applicable laws and DoD regulations.
No classified proposals shall be submitted.

IMPORTANT NOTE: Titles given to the White Papers/Full Proposals should be descriptive of the work they cover and should not be merely a copy of the title of this solicitation.

1. White Papers

White Paper Format

- Paper Size – 8.5 x 11 inch paper
- Margins – 1 inch
- Spacing – single spaced
- Font – Times New Roman, 12 point
- Page limit – 5 pages maximum single-sided including the Cover Page but not including the Curriculum Vitae. Consult Technical POC with any questions.

White Paper Submission

The subject line of the email shall read “N00014-16-R-FO08 White Paper Submission” and must be sent to the attention of the Technical POC at: DON_HBCUFOA@navy.mil.

The white paper must be a Microsoft Word 2007 compatible, or PDF format attachment to the email. There is an email size limit of 5MB per email.

NOTE: Do not send:
1) Hardcopies of White Papers (including Facsimiles);
2) ZIP files; and
3) Password protected files.

White Paper Content

- Cover Page: The Cover Page shall be labeled “WHITE PAPER” and shall include the FOA Number N00014-16-R-FO08, proposed title, technical points of contact, telephone number, facsimile number, and e-mail address.

- Summary (One-half Page Maximum): A one paragraph Summary of the proposed effort.

- Technical Concept (2 Page Maximum): A description of the technology innovation and technical risk areas. The project idea, technical rationale, and approach should identify a problem(s), make arguments to substantiate the claims made, and describe the proposed approach to address the issue. The Offeror’s capacities should be discussed as they relate to the achieving success in the project. The project should address the research announcement criteria stated in Section I.F.
• **Future Naval Relevance (1 Page Maximum):** A description of potential Naval relevance and contributions of the effort to the agency’s specific mission. Identification of Navy command, warfare center or lab supporting efforts of technology.

• **Rough Order of Magnitude (ROM) (One-half Page Maximum):** White Paper submissions shall include a rough order of magnitude cost showing requested funding per year, total cost, and suggests spending priorities to satisfy Section I.F. Break requested cost down into categories of salaries and benefits, equipment, materials and supplies, travel, cost associated with student participation (tuition and fees) and indirect costs.

• **Curriculum Vitae (One and one-half Page Maximum):** One curriculum vitae of the Principal Investigator. (The CV is not included in the White Paper 5 page maximum)

**2. Full Proposals**

The following information must be completed as follows in the Standard Form (SF) 424 located on [http://www.grants.gov](http://www.grants.gov) to ensure that the application is directed to the correct individual for review:

- **Block 4a, Federal Identifier:** Enter N00014
- **Block 4b, Agency Routing Number:** Enter 03R [Smith, Anthony].
- **Block 4c, Previous Grants.gov Tracking ID:** If applicable, enter the Grants.gov tracking number of the previous proposal submission if this submission is for a Changed/Corrected Application; otherwise leave blank.

Applicants who fail to provide a Program Officer Code identifier may receive a notice that their proposal is rejected.

**Attach the technical proposal in Grants.gov:**

> click on "Research and Related Other Project information"
> click on "Move form to Submission List"
> click on "Open Form"

You will see a new PDF document titled "Research & Related Other Project Information"

**Block 7, Project Summary/Abstract:** > click on "Add attachment" and attach the project summary/abstract. (You will not be able to type in the box, therefore, save the file you want to attach as Project Summary or Abstract that should be marked Approved for Public Release). Abstracts of all funded research projects will be posted on a TBD website that will be open to the public. **Do not** include proprietary or confidential information. Use only characters available on a standard QWERTY keyboard. Spell out all Greek letters, other non-English letters and symbols. Graphics are not allowed and there is a 500 character limit.
Block 8, Project Narrative: > click on attachment and attach the technical proposal. (Save the file as Volume I- Technical Proposal since you will not be able to type in the box).

**Full Proposal Format - Volume 1: Technical Proposal, and Volume 2: Cost Proposal**

- Paper Size – 8.5 x 11 inch paper
- Margins – 1 inch
- Spacing – single spaced
- Font – Times New Roman, 12 point
- Page limit – There are no page limitations


**NOTE:** The electronic file name for all documents submitted under this FAO must not exceed 68 characters in length, including the file name extension.

**Volume 1: Technical Proposal**

**Cover Page:** This must include the words “Technical Proposal” and the following:

1) FOA Number: N00014-16-R-FO08
2) Title of Proposal
3) Identity of prime Offeror and complete list of subawards, if applicable
4) Technical contact (name, address, phone/fax, electronic mail address)
5) Administrative/business contact (name, address, phone/fax, electronic mail address)
6) Proposed period of performance (identify both the base period and any options, if included).

**Table of Contents:** An alphabetical/numerical listing of the sections within the proposal, including corresponding page numbers.

**Technical Approach and Justification:** The major portion of the proposal should consist of a clear description of the technical approach being proposed. This discussion should provide the technical foundation/justification for pursuing this particular approach/direction and why one would expect it to enable the objectives of the proposal to be met.

**Future Naval Relevance:** A description of potential Naval relevance and contributions of the effort to the agency’s specific mission.

**Operational Naval Concept:** A description of the project objectives, the concept of operation for the new capabilities to be delivered, and the expected operational performance improvements.
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.

Project Schedule and Milestones: A summary of the schedule of events and milestones:

Reports: The following are sample reports that are typically required under a research effort:
- Technical and Financial Progress Reports
- Annual Program Review
- Final Report

Grants do not include the delivery of software, prototypes, and other hardware deliverables.

Management Approach: Identify which personnel and subcontractors/subrecipients (if any) will be involved. Include a description of the facilities that are required for the proposed effort, along with a description of any Government Furnished Equipment/Hardware/Software/Information required, by version and/or configuration.

Current and Pending Project and Proposal Submissions: Offerors are required to provide information on all current and pending support for ongoing projects and proposals, including subsequent funding in the case of continuing contracts, grants, and other assistance agreements. Offerors shall provide the following information of any related or complementary proposal submissions from whatever sources (e.g., ONR, Federal, State, local or foreign government agencies, public or private foundations, industrial or other commercial organizations).

The information must be provided for all proposals already submitted or submitted concurrently to other possible sponsors, including ONR. Concurrent submission of a proposal to other organizations will not prejudice its review by ONR:

1) Title of Proposal and Summary;
2) Source and amount of funding (annual direct costs; provide contract and/or grant numbers for current contracts/grants);
3) Percentage effort devoted to each project;
4) Identity of prime Offeror and complete list of subawards, if applicable;
5) Technical contact (name, address, phone/fax, electronic mail address)
6) Administrative/business contact (name, address, phone/fax, electronic mail address);
7) Period of performance (differentiate basic effort);
8) The proposed project and all other projects or activities requiring a portion of time of the Principal Investigator and other senior personnel must be included, even if they receive no salary support from the project(s);
9) The total award amount for the entire award period covered (including indirect costs) must be shown as well as the number of person-months or labor hours per year to be devoted to the project, regardless of source of support; and
10) State how projects are related to the proposed effort and indicate degree of overlap.

Qualifications: A discussion of the qualifications of the proposed Principal Investigator and any other key personnel. Include resumes or curricula vitae for the Principal Investigator, other key personnel and consultants. The resumes/curricula vitae shall be attached to the proposal.

**Volume 2: Cost Proposal**

The Offeror must use the Grants.gov forms (including the SF-424 and Research and Related (R&R) Budget Form) from the application package template associated with the FOA on the Grants.gov web site located at [http://www.grants.gov/](http://www.grants.gov/). If options are proposed, the cost proposal must provide the pricing information for the option periods; failure to include the proposed costs for the option periods will result in the options not being included in the award. Assume that performance will start no earlier than three (3) months after the date the cost proposal is submitted. E.g.:

<table>
<thead>
<tr>
<th>Proposal Received by ONR</th>
<th>Period of Performance Start</th>
</tr>
</thead>
<tbody>
<tr>
<td>July - December 2016</td>
<td>March 2017</td>
</tr>
<tr>
<td>January - March 2017</td>
<td>June 2017</td>
</tr>
<tr>
<td>April - June 2017</td>
<td>September 2017</td>
</tr>
<tr>
<td>July - September 2017</td>
<td>January 2018</td>
</tr>
</tbody>
</table>

A separate Adobe .pdf document should be included in the application that provides appropriate justification and/or supporting documentation for each element of cost proposed.

**Part 1:** The itemized budget must include the following

**Direct Labor:** Individual labor categories or persons, with associated labor hours and unburdened direct labor rates. Provide escalation rates for out years.

**Administrative and Clerical Labor:** Salaries of administrative and clerical staff are normally indirect costs (and included in an indirect cost rate). Direct charging of these costs may be appropriate when a major project requires an extensive amount of administrative or clerical support significantly greater than normal and routine levels of support. Budgets proposing direct charging of administrative or clerical salaries must be supported with a budget justification which adequately describes the major project and the administrative and/or clerical work to be performed.
Fringe Benefits and Indirect Costs (F&A, Overhead, G&A, etc.): The proposal must show the rates and calculation of the costs for each rate category. If the rates have been approved/negotiated by a Government agency, provide a copy of the memorandum/agreement. If the rates have not been approved/negotiated, provide sufficient detail to enable a determination of allowability, allocability and reasonableness of the allocation bases, and how the rates are calculated. Additional information may be requested, if needed. If composite rates are used, provide the calculations used in deriving the composite rates.

Travel: The proposed travel cost must include the following for each trip: the purpose of the trip, origin and destination if known, approximate duration, the number of travelers, and the estimated cost per trip must be justified based on the organizations historical average cost per trip or other reasonable basis for estimation. Such estimates and the resultant costs claimed must conform to the applicable Federal cost principles. Offerors may include travel costs for the Principal Investigator to attend the peer reviews described in Section II, B. of this FOA.

Subawards/Subcontracts: Provide a description of the work to be performed by the subrecipient/subcontractor. For each subaward, a detailed cost proposal is required to be submitted by the subrecipient(s). A proposal and supporting documentation must be received and reviewed before the Government can complete its cost analysis of the proposal and enter negotiations. ONR's preferred method of receiving subcontract information is for this information to be included with the Prime's proposal. However, a subcontractor's cost proposal can be provided in a sealed envelope with the recipient's cost proposal or via e-mail directly to the Program Officer at the same time the prime proposal is submitted. The e-mail should identify the proposal title, the prime Offeror and that the attached proposal is a subcontract. Fee/profit guidance for subawards/subcontracts: Fee/Profit is unallowable under assistance agreements at either the prime or subaward level but may be permitted on any subcontracts issued by the prime awardee.

Consultants: Provide a breakdown of the consultant’s hours, the hourly rate proposed, any other proposed consultant costs, a copy of the signed Consulting Agreement or other documentation supporting the proposed consultant rate/cost, and a copy of the consultant’s proposed statement of work if it is not already separately identified in the prime contractor’s proposal.

Materials & Supplies: Provide an itemized list of all proposed materials and supplies including quantities, unit prices, and the basis for the estimate (e.g., quotes, prior purchases, catalog price lists).

Recipient Acquired Equipment or Facilities: Equipment and/or facilities are normally furnished by the Recipient. If acquisition of equipment and/or facilities is proposed, a justification for the purchase of the items must be provided. Provide an itemized list of all equipment and/or facilities costs and the basis for the estimate (e.g., quotes, prior purchases, catalog price lists). Allowable items normally are limited to research equipment not already available for the project. General purpose equipment (i.e., equipment not used exclusively for research, scientific or other technical activities, such as personal computers, laptops, office equipment) should not be requested unless they will be used primarily or exclusively...
for the project. For computer/laptop purchases and other general purpose equipment, if proposed, include a statement indicating how each item of equipment will be integrated into the program or used as an integral part of the research effort.

Other Direct Costs: Provide an itemized list of all other proposed other direct costs such as Graduate Assistant tuition, laboratory fees, report and publication costs, and the basis for the estimate (e.g., quotes, prior purchases, catalog price lists).

Fee/Profit: Fee/profit is unallowable under assistance agreements at either the prime or subaward level but may be permitted on subcontracts issued by the prime awardee.

**Part 2:** Cost breakdown by Government fiscal year and task/sub-task corresponding to the same task breakdown in the proposed Statement of Work. When options are contemplated, options must be separately identified and priced by task/subtask.

For submission instructions, see Part IV, Section D. [Submission of Grant Proposals through Grants.gov](http://www.grants.gov)

**C. Significant Dates and Times**

The applicable dates and deadlines for this announcement are given in Section I.E, above.

**D. Submission of Grant Proposals through Grants.gov**


White Papers must NOT be submitted through the Grants.gov application process. White paper submissions must be e-mailed directly to Technical POC. White paper format requirements are found in Part IV, Section B.(a) above.

For electronic submission of full proposals for grants, there are several one-time actions that must be completed in order to submit an application through Grants.gov. These include obtaining a Dun and Bradstreet Data Universal Numbering System (DUNS) number, registering with System for Award Management (SAM), registering with the credential provider, and registering with Grants.gov. See [www.grants.gov](http://www.grants.gov), specifically [http://www.grants.gov/web/grants/support.html](http://www.grants.gov/web/grants/support.html). Click on Grants.gov Online User Guide.

**Use the Grants.gov Organization Registration Checklist which can be found at:**
This document will provide guidance through the process. Designating an E-Business Point of Contact (E-Biz POC) and obtaining a special password called ‘MPIN’ are important steps in the SAM registration process. Applicants who are not registered with SAM.gov and Grants.gov should allow at least 21 days to complete these requirements. The process should be started as soon as possible. Any questions relating to the registration process, system requirements, how an application form works, or the submittal process must be directed to Grants.gov at 1-800-518-4726 (1-606-545-5035 for foreign applicants) or support@grants.gov.

Special Notices Relative to Grant Applications to be submitted through Grants.Gov:
All attachments to grant applications submitted through Grants.Gov must be in Adobe Portable Document Format (PDF). Proposals with attachments submitted in word processing, spreadsheet, or any format other than Adobe Portable Document Format (PDF) will not be considered for award.

Proposal Receipt Notices: After a full proposal is submitted through Grants.gov, the Authorized Organization Representative (AOR) will receive a series of three e-mails. It is extremely important that the AOR watch for and save each of the e-mails. You will know that your proposal has reached ONR when the AOR receives e-mail Number 3. You will need the Submission Receipt Number (e-mail Number 1) to track a submission. The three e-mails are:

Number 1 – The applicant will receive a confirmation page upon completing the submission to Grants.gov. This confirmation page is a record of the time and date stamp that is used to determine whether the proposal was submitted.

Number 2 – The applicant will receive an e-mail indicating that the proposal has been validated by Grants.gov within two days of submission (This means that all of the required fields have been completed). After an institution submits an application, Grants.gov generates a submission receipt via email and also sets the application status to “Received.” This receipt verifies the Application has been successfully delivered to the Grants.gov system. Next, Grants.gov verifies the submission is valid by ensuring it does not contain viruses, the opportunity is still open, and the applicant login and applicant DUNS number match. If the submission is valid, Grants.gov generates a submission validation receipt via email and sets the application status to “Validated.” If the application is not validated, the application status is set to "Rejected." The system sends a rejection email notification to the institution, and the institution must resubmit the application package. Applicants can track the status of their application by logging in to Grants.gov.

Number 3 – The third notice is an acknowledgment of receipt in e-mail form from ONR within ten days from the proposal due date, if applicable. The e-mail is sent to the authorized representative for the institution. The e-mail for proposals notes that the proposal has been received and provides the assigned tracking number.
V. APPLICATION REVIEW INFORMATION

A. Evaluation Criteria

Awards under this FOA will be made to Offerors on the basis of the evaluation criteria listed below, and program balance to provide overall value to the Government. The Government reserves the right to request any additional, necessary documentation after the decision to award is made. The Government reserves the right to remove Offerors from award consideration should the parties fail to reach agreement on award terms, conditions, and cost/price within a reasonable time, or the Offeror fails to timely provide requested additional information.

The primary basis for selecting proposals for acceptance will be technical, importance to agency programs and fund availability. Cost realism and reasonableness will also be considered. The following criteria, all being of equal value, will be used for the technical evaluation:

1) Overall scientific and technical merits of the proposal and responsiveness to the topic.

2) Potential DoD relevance and contributions of the effort to the agency’s specific mission.

3) The offeror’s capabilities, related experience, facilities, techniques or unique combinations of these which are integral factors for achieving the proposal objectives.

4) The qualifications, capabilities and experience of the proposed PI, team leader and key personnel who are critical in achieving the proposal objectives.

The ultimate recommendation for award of proposals is made by ONR's scientific/technical community. Recommended proposals will be forwarded to the ONR Contracts and Grant Awards Management office. Any notification received from ONR that indicates that the Offeror's full proposal has been recommended does not ultimately guarantee an award will be made. This notice indicates that the proposal has been selected in accordance with the evaluation criteria above and has been sent to the contracting department to conduct cost analysis, determine the Offeror's responsibility, and to take other relevant steps necessary prior to commencing negotiations with the Offeror.

B. Options

The Government will evaluate options for award purposes by adding the total cost for all options to the total cost for the basic requirement. Evaluation of options will not obligate the Government to exercise the options during grant performance.

C. Evaluation Panel

Technical and cost proposals submitted under this FOA will be protected from unauthorized disclosure. The cognizant Program Officer and other Government scientific experts will perform the evaluation of technical proposals. Restrictive notices
notwithstanding, one or more support contractors may be utilized as subject-matter-expert technical consultants. However, proposal selection and award decisions are solely the responsibility of Government personnel. Each support contractor’s employee having access to technical and cost proposals submitted in response to this FOA will be required to sign a nondisclosure statement prior to receipt of any proposal submissions.

D. General Information Regarding the Review and Selection Process for Grants

i) Prior to making an award with total amount of Federal share greater than the simplified acquisition threshold, ONR shall review and consider any information about the applicant that is in the designated integrity and performance system accessible through SAM (currently FAPIIS).

ii) The applicant, at its option, may review information in the designated integrity and performance systems accessible through SAM and comment on any information about itself that a Federal awarding agency previously entered and is currently in the designated integrity and performance system accessible through SAM.

iii) ONR will consider any comments by the applicant, in addition to the other information in the designated integrity and performance system, in making a judgment about the applicant’s integrity, business ethics, and record of performance under Federal awards when completing the review of risk posed by the applicant as described in 2 CFR 200.205, Federal awarding agency review of risk posed by applicants.

VI. AWARD ADMINISTRATION INFORMATION

A. Administrative Requirements

System for Award Management (SAM): All Offerors submitting proposals or applications must:

1) be registered in the SAM prior to submission;
2) maintain an active SAM registration with current information at all times during which it has an active Federal award or an application under consideration by any agency; and
3) provide its DUNS number in each application or proposal it submits to the agency.

SAM may be accessed at https://www.sam.gov/portal/SAM/

B. Reporting

In general, for each grant award, annual research performance progress reports and a final report are required to summarize the technical progress and accomplishments during the performance period. These reports must be submitted electronically.

C. Access to your Grant Award

Office of Naval Research (ONR) award/modification documents are only available via the Department of Defense (DoD) Electronic Document Access System (EDA) within the
WideArea WorkFlow e-Business Suite (https://wawf.eb.mil/). Unless otherwise specified by the Offeror, notifications for the posting of award and modification documents to EDA will be directed to both the Technical Point of Contact and the Business Point of Contact identified in the Offeror’s proposal.

EDA is a Web-based system that provides secure online access, storage and retrieval of awards and modifications to DoD employees and vendors.

If you do not currently have access to EDA, you may complete a self-registration request as a “Vendor” via https://wawf.eb.mil/ following the steps below:

1) Click "Accept"
2) Click "Register" (top right)
3) Click "Agree"
4) In the "What type of user are you?" drop down, select "Vendor"
5) Select the systems you would like to access (iRAPT at a minimum)
6) Complete the User Profile and follow the site instructions

Allow five business days for your registration to be processed. EDA will notify you by email when your account is approved.

To access awards after your registration has been approved, log into https://wawf.eb.mil/, select "EDA", select either EDA location, Select "Contracts", select your search preference, enter the Grant Number in the Contract Number field, and select "View".

Registration questions may be directed to the EDA help desk toll free at 866-618-5988, commercial at 801-605-7095, or via email at disa.ogden.esd.mbx.cscassig@mail.mil (Subject: EDA Assistance).

VII. OTHER INFORMATION

A. Federal Funding Accountability and Transparency Act of 2006:

The Federal Funding Accountability and Transparency Act of 2006 (Public Law 109-282), as amended by Section 6202 of Public Law 110-252, requires that all agencies establish requirements for recipients reporting information on subawards and executive total compensation as codified in 2 CFR Part 170. Any company, non-profit agency or university that applies for financial assistance (either grants, cooperative agreements or other transaction agreements) as either a prime or sub-recipient under this FOA must provide information in its proposal that describes the necessary processes and systems in place to comply with the reporting requirements identified in 2 CFR Part 170 Appendix A. Entities are required to meet reporting requirements unless an exception or exemption applies. Please refer to 2 CFR Part 170, including Appendix A, for a detailed explanation of the requirements, exceptions, and exemptions.

B. Military Recruiting on Campus (DoDGARS Part 22.520):

Appropriate language from 32 CFR 22.520, Campus access for military recruiting and
Reserve Officer Training Corps (ROTC), will be incorporated in all university grant awards.

C. Certification regarding Restrictions on Lobbying:

Grant and Cooperative Agreement awards greater than $100,000, require a certification of compliance with a national policy mandate concerning lobbying. Grant applicants shall provide this certification by electronic submission of SF-424 (R&R) as a part of the electronic proposal submitted via Grants.gov (complete Block 17). The following certification applies:

(1) No Federal appropriated funds have been paid or will be paid by or on behalf of the applicant, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the Federal contract, grant, loan, or cooperative agreement, the applicant shall complete and submit Standard Form-LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.

(3) The applicant shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S.C. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

D. Representation Regarding an Unpaid Delinquent Tax Liability or a Felony Conviction Under any Federal Law - DOD Appropriations:

All grant applicants are required to complete the "Representation on Tax Delinquency and Felony Conviction" found at http://www.onr.navy.mil/Contracts-Grants/submit-proposal/grants-proposal.aspx by checking the "I agree" box in block 17 and attaching the representation to block 18. of the SF-424 (R&R) as part of the electronic proposal submitted via Grants.gov. The representation reads as follows:
(1) The applicant represents that it ____ is not ____ a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

(2) The applicant represents that it ____ is not ____ a corporation that was convicted of a felony criminal violation under any Federal law within the preceding 24 months. NOTE: If an applicant responds in the affirmative to either of the above representations, the applicant is ineligible to receive an award unless the agency suspension and debarment official (SDO) has considered suspension or debarment and determined that further action is not required to protect the Government's interests. The applicant therefore should provide information about its tax liability or conviction to the agency's SDO as soon as it can do so, to facilitate completion of the required consideration before award decisions are made.

E. Representation Regarding the Prohibition on Using Funds with Entities that Require Certain Internal Confidentiality Agreements

Agreement with the representation below will be affirmed by checking the "I agree" box in block 17 of the SF-424 (R&R) as part of the electronic proposal submitted via Grants.gov. The representation reads as follows:

By submission of its proposal or application, the applicant represents that it does not require any of its employees, contractors, or subrecipients seeking to report fraud, waste, or abuse to sign or comply with internal confidentiality agreements or statements prohibiting or otherwise restricting those employees, contractors, subrecipients from lawfully reporting that waste, fraud, or abuse to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information.

The basis for this representation is a found in section 743 of the Financial Services and General Government Appropriations Act, 2015, Pub. L. 113-235, which prohibits appropriated funds from being made available under a contract, grant or cooperative agreement to an entity that requires such confidentiality agreements. Section 743 also states that this prohibition does not contravene requirements applicable to SF-312, Form 4414, or any other form issued by a Federal department or agency governing the nondisclosure of classified information.

F. Applicants for grants, cooperative agreements, or other transaction agreements as applicable are required to comply with 2 CFR 215.42, Codes of Conduct, to prevent real or apparent conflicts of interest in the award and administration of any contracts supported by federal funds. This provision will be incorporated into all assistance instruments awarded under this FOA.

G. Security Classification:

**ONR does not provide access to classified material under grants.**
H. Use of Animals and Human Subjects in Research:

If animals are to be utilized in the research effort proposed, the Offeror must submit prior to award a Full Appendix or Abbreviated Appendix with supporting documentation (copies of IACUC Approval, IACUC Approved Protocol, and most recent USDA Inspection Report) prior to award. For assistance with submission of animal research related documentation, contact the ONR Animal Use Administrator at (703) 696-4046. Guidance: [http://www.onr.navy.mil/en/About-ONR/compliance-protections/Research-Protections/Animal-Recombinant-DNA.aspx](http://www.onr.navy.mil/en/About-ONR/compliance-protections/Research-Protections/Animal-Recombinant-DNA.aspx)

Use of Human Subjects in Research:

Similarly, for any proposal for research involving human subjects, the Offeror must submit prior to award: documentation of approval from an Institutional Review Board (IRB); IRB-approved research protocol; IRB- approved informed consent form; proof of completed human research training (e.g., training certificate or institutional verification of training); an application for a DoD- Navy Addendum to the Offeror’s DHHS-issued Federal wide Assurance (FWA) or the Offeror’s DoD-Navy Addendum. In the event that an exemption criterion under 32 CFR 219 101(b) is claimed, provide documentation of the determination by the Institutional Review Board (IRB) Chair, IRB vice Chair, designated IRB administrator or official of the human research protection program including the category of exemption and short rationale statement. Determinations that the activity is not research involving human subjects must also be provided. This documentation must be submitted to the ONR Human Research Protection Official (HRPO), by way of the ONR Program Officer. Information about assurance applications and forms can be obtained by contacting ONR_343_contact@navy.mil. If the research is determined by the IRB to be greater than minimal risk, the Offeror also must provide the name and contact information for the independent medical monitor. For assistance with submission of human subject research related documentation, contact the ONR Human Research Protection Official at (703) 696-4046.


I. Recombinant DNA:

Proposals which call for experiments using recombinant DNA must include documentation of compliance with Department of Health and Human Services (DHHS) recombinant DNA regulations, approval of the Institutional Biosafety Committee (IBC), and copies of the DHHS Approval of the IBC letter.

J. Institutional Dual Use Research of Concern:

As of September 24, 2015, all institutions and USG funding agencies subject to the United States Government Policy for Institutional Oversight of Life Sciences Dual Use Research of Concern must comply with all the requirements listed therein. If your research proposal directly involves certain biological agents or toxins, contact the cognizant Technical Point of Contact. U.S. Government Science, Safety, Security (S3) guidance may be found at [http://www.phe.gov/s3/dualuse](http://www.phe.gov/s3/dualuse).
K. Department of Defense High Performance Computing Program:

The DoD High Performance Computing Program (HPCMP) furnishes the DoD S&T and RDT&E communities with use-access to very powerful high performance computing systems. Awardees of ONR contracts, grants, and other assistance instruments may be eligible to use HPCMP assets in support of their funded activities if ONR Program Officer approval is obtained and if security/screening requirements are favorably completed. Additional information and an application may be found at http://www.hpcmo.hpc.mil/.

L. Project Meetings and Reviews:

Individual program reviews between the ONR sponsor and the performer may be held as necessary. Program status reviews may also be held to provide a forum for reviews of the latest results from experiments and any other incremental progress towards the major demonstrations. These meetings will be held at various sites throughout the country. For costing purposes, Offerors should assume that 40% of these meetings will be at or near ONR, Arlington VA and 60% at other contractor or government facilities.