



ONR FOA Announcement #N00014-19-S-F010

**FUNDING OPPORTUNITY ANNOUNCEMENT (FOA) FY2020 VANNEVAR
BUSH FACULTY FELLOWSHIP**

Deadlines

Acqtrak Deadline

Your registration must be completed no later than
14 August 2019 (Wednesday) at 11:59 PM Eastern Time

White Paper Deadline

Your white paper must be received no later than
16 August 2019 (Friday) at 11:59 PM Eastern Time

Inquiries and Questions Deadline

White Papers: **26 July 2019 (Friday)**
Invited Proposals: **13 January 2020 (Monday)**

Invited Proposal Deadline

Your proposal must be received no later than
17 January 2020 (Friday) at 11:59 PM Eastern Time

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I. INTRODUCTION

Dr. Vannevar Bush (1890-1974) was a forward-thinking policymaker who served as the director of the Office of Scientific Research and Development during World War II, coordinating the work of thousands of scientists in the service of ending the war. In his 1945 report to the President of the United States, "Science, The Endless Frontier," Bush called for an expansion of government support for science, and he pressed for the creation of the National Science Foundation. Dr. Bush was concerned about how the scientific research supported by the War Department during WWII could be sustained with a focus on peacetime goals. He believed that basic research was "the pacemaker of technological progress." "New products and new processes do not appear full-grown," Bush wrote. "They are founded on new principles and new conceptions, which in turn are painstakingly developed by research in the purest realms of science." Before World War II, Dr. Bush was a professor and Dean of Engineering at the Massachusetts Institute of Technology, and founded a large defense and electronics company. The DoD names this program after Dr. Vannevar Bush in his honor.

This document constitutes a Funding Opportunity Announcement (FOA) as contemplated in the Department of Defense Grants and Agreements Regulations (DoDGARS) 32 CFR 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 all, some or none of the proposals in response to this announcement. The ONR and other participating Department of Defense (DoD) agencies provide 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 as sensitive competitive information and to disclose their contents only for evaluation purposes.

Awards will take the form of grants. Any assistance instrument awarded under this announcement will be governed by the award terms and conditions that conform to DoD's implementation of the Office of Management and Budget (OMB) circulars applicable to financial assistance. Terms and conditions of new awards made after December 26, 2014, will include revisions to reflect DoD implementation of new OMB guidance in 2 CFR Part 200, "Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards."

A requirement that the project summary/abstract required in the submission of the proposal must be publically releasable is noted in Section II. D. 6. (2) [R&R Form: Project Abstract Form](#).

Potential applicants may obtain information by checking the following websites:

Information regarding this FOA and amendments: www.grants.gov or <https://www.onr.navy.mil/work-with-us/funding-opportunities/announcements>

Information regarding submission of white papers and supporting documentation will also be posted at: <https://acqupass.noblis.org/ApplyVBFF>

Information regarding submission of full proposal packages can be found at: <http://www.grants.gov/web/grants/applicants/apply-for-grants.html>

Information regarding Basic Research Office, Office of the Under Secretary of Defense for Research & Engineering: <http://basicresearch.defense.gov/>

Information regarding the Program overview and information: <https://basicresearch.defense.gov/Programs/Vannevar-Bush-Faculty-Fellowship/>

A. OVERVIEW

1. Federal Awarding Agency Name

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

2. Funding Opportunity Title

The Fiscal Year (FY) 2020 Vannevar Bush Faculty Fellowship (VBFF) program

3. Announcement Type

Initial Announcement

4. Funding Opportunity Number

N00014-19-S-F010

5. Catalog of Federal Domestic Assistance (CFDA) Numbers

12.300

6. Key Dates

Acqtrak Registration: No later than 11:59 pm Eastern Time on 14 August 2019 (Wednesday).

White Papers and Supporting Documentation: No later than 11:59 pm Eastern Time on 16 August 2019 (Friday).

Full Proposal and Confidential Letters of Recommendation: No later than 11:59 pm Eastern Time on 17 January 2020 (Friday).

For a full Table of Events, see Section II. D. 8. [Significant Dates and Times](#)

II. DETAILED INFORMATION ABOUT THE GRANT OPPORTUNITY

A. PROGRAM DESCRIPTION

The Vannevar Bush Faculty Fellowship (VBFF) program is sponsored by the Basic Research Office, Office of the Under Secretary of Defense for Research and Engineering (USD (R&E)). VBFF supports innovative basic research within academia, as well as opportunities intended to develop the next generation of scientists and engineers for the defense workforce.

The Office of Naval Research (ONR) manages the VBFF program for USD (R&E). To accomplish this task, ONR is soliciting proposals for the VBFF program through this FOA. This FOA seeks distinguished researchers for the purpose of conducting innovative basic research in areas of interest to the DoD and fostering long-term relationships between the VBFF Fellows and the DoD.

As defined by the DoD, basic research is “systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications towards processes or products in mind. It includes all scientific study and experimentation directed toward increasing fundamental knowledge and understanding in those fields of the physical, engineering, environmental, and life sciences related to long-term national security needs. It is farsighted high payoff research that provides the basis for technological progress.” (DoD 7000.14-R, vol. 2B, chap. 5, para. 050105.A) (http://comptroller.defense.gov/Portals/45/documents/fmr/Volume_02b.pdf) The DoD’s basic research program invests broadly in many scientific fields to ensure that it has early cognizance of new scientific knowledge.

VBFF is oriented towards bold and ambitious “blue sky” research that may lead to extraordinary outcomes such as revolutionizing entire disciplines, creating entirely new fields, or disrupting accepted theories and perspectives.

The long-term objectives of the program are to:

- Support unclassified basic scientific and engineering research that could be the foundation for future revolutionary new capabilities for DoD
- Educate and train student and post-doctoral researchers for the defense workforce
- Foster long-term relationships between university researchers and the DoD
- Familiarize university researchers and their students with DoD’s current and projected future challenges
- Increase the number of talented technical experts that DoD can call upon.

All awardees will receive a research grant and the title of VBFF Fellow. VBFF Fellows and their students are provided with opportunities that are designed to enhance their understanding of DoD’s critical research needs and interact with DoD senior Science and Technology (S&T) program leaders. Fellows and their students are expected to attend VBFF activities scheduled throughout the year. These activities may include an orientation meeting, site visits to DoD labs, technical workshops, and an annual meeting to report the progress of VBFF-sponsored research. VBFF Fellows may also be encouraged to serve as members of DoD advisory

boards, panels, or groups. For a list of current VBFF Fellows, refer to: <https://basicresearch.defense.gov/Programs/Vannevar-Bush-Faculty-Fellowship/>

This FOA is for single investigator grant proposals for basic research in one or more of the following technical subject categories of interest to the DoD.

1. Engineering Biology

Engineering biology is an emerging discipline of dramatic growth and intellectual vigor that is positioned to become a powerful technology for the potential production of DoD-relevant materials, the development of new sensing modalities, investigating revolutionary biochemical processes, and maintaining or enhancing warfighter resilience and performance. It applies biological principles to the engineering of living natural, synthetic, or artificial biological systems to develop novel systems or products. Revolutionary basic research in engineering biology could lead to new capabilities for the DoD in:

- Specialized Materials and Physical Structures - The commercial sector has examples of microorganisms engineered to produce commodity chemicals such as fuels and pharmaceuticals. However, the extraordinary range of optimized materials and complex physical structures found in nature is an inspiration for reaching beyond simple biomaterial manufacture. Can biological systems be engineered to produce more complex molecules or three-dimensional materials? Can we program genetic expression to control the chemical and enzymatic cascades necessary to realize the synthesis of complex and multi-functional physical structures in biological systems?
- Sensing - The DoD has unique sensing needs including the detection of unusual signatures, environmental biological molecules and chemicals, and stealthy sensing mechanisms. With optimized molecular interactions and precise, genomic control mechanisms, biological systems can be especially effective. Antibodies and RNA aptamers have been traditionally applied in this space and are a relatively mature technology. The DoD is interested in new and unique approaches to engineering biological systems as sensors.

The VBFF Program is particularly interested in innovative and fundamental, basic research that will enable engineering biology through the understanding and controlling of biochemical processes, with the eventual goal of facilitating the engineering of complex natural or synthetic biological systems. Multidisciplinary research, potentially combining theoretical, computational, developmental, systems, physical, biophysical, biochemical, physiological, and/or biomolecular approaches, are likely necessary to make biology a scalable top-down engineering discipline.

Basic research areas of interest to the VBFF include, but not limited to the following:

- Ground-breaking basic research that would expand the repertoire of biological engineering platforms from lab-based prokaryotic and eukaryotic organisms to more complex communities of organisms, potentially leveraging multiple characteristics of their evolutionary fitness, including sensing and locomotion abilities.
- Precise engineering of the programmability of biochemical and biophysical

functions, or transient response activity to environmental changes and stimulus. For engineering purposes, it is necessary to have precise and predictable control over synthetic, modified and inherent biological processes to allow biological systems to perform programmed functions and prevent undesired natural activity.

- Biological functions are also the result of collective self-organization across multiple scales, from complex biomolecular structures to subcellular and multi-cellular assemblies. The formation of specialized micro-structures, also a desired objective of engineered biology, is the result of a complex interplay between biochemical and physical processes. Improved understanding, prediction and control of these interactions towards revolutionary concepts of the first principles of biological processes and physical structures are of high interest.

VBFF funding is intended to allow exploration of potentially revolutionary ideas that do not necessarily have extensive preliminary data or previous attention in the literature.

2. Quantum Information Science

Quantum Information Science (QIS) focuses on the creation, control, and manipulation of non-classical states of light and matter with potential for exceeding classical limits in communications, sensing, metrology, imaging, computing and simulation. The development of QIS was precipitated by the demonstration of a "quantum advantage" in computing due to development of Shor's factoring algorithm and Grover's search algorithm in the mid-1990s, which offered quantum speedups (in the former case, what seems to be an exponential speedup).

The potential impacts of QIS on DoD capabilities may include ensuring information security, enabling novel materials design, attaining precise navigation and positioning even without GPS, greatly improved sensing (local and remote), and accomplishing significant improvements in high resolution imaging.

Developments of new algorithms that provide a "quantum advantage" are needed for quantum computing to be more than a niche application, and significant up-scaling of physical platforms is also required to extend the number of qubits, quantum gate accuracy, memory lifetime, and stability of the computing system as a whole, including modular interfaces and communication. Such advances may require radically new approaches, both experimental and theoretical, and these are of special interest to the VBFF program. Some research areas may include, but are not limited to the following.

- Foundational theoretical concepts that improve our understanding of quantum information and processes and expand the range of quantum complexity that can be realized and utilized. For example, quantum physics is contextual at its core, but the essence of its interpretation still remains the subject of studies and debate. Theoretical developments, combined with experimental demonstrations of proof-of-principle of such advanced concepts are of high potential interest.
- Multiple physical frameworks are being explored to support quantum information, from ion traps to superconducting circuits, polaritons, Rydberg atoms, etc. The VBFF program is potentially interested in material and physical approaches which are a departure from incremental improvements, and provide considerably novel and alternative paths to the

- physical realization of large-scale and robust quantum information systems.
- In addition to the fundamentals of computing, quantum physics also provides unique possibilities for detection. Quantum sensing takes full advantage of the high sensitivity to external perturbations, the main weakness for computing applications. The susceptibility and selectivity can be optimized via system parameter design, or by relying on the specific quantum properties such as entanglement. The VBFF is potentially interested in *new* and transformative approaches, beyond device and technology development and improvement, which offer great possibilities for military applications, in particular the detection of sources of nuclear radiation, rare chemicals, detection through obscurants and shields, through fundamental quantum effects by single devices or their networks.

3. Cognitive Neuroscience

Cognitive neuroscience—field of study focusing on the neural substrates of mental processes—combines the theories of cognitive psychology and computational modeling with experimental data about the brain while using the synergy of psychology and neuroscience, physiological psychology, cognitive psychology and neuropsychology. The VBFF Program is interested in forward-thinking theoretical, computational, and experimental, basic neuroscience research to study the mechanisms of human cognitive skills. Maintaining the effectiveness and resilience of human operators, as well as sustaining or enhancing their cognitive functions in stressful environments are of high importance to the DoD. Such advances may require radically new approaches, both experimental and theoretical, and these are of special interest to the VBFF program. Some research areas may include, but are not limited to the following.

- Fundamental research in neural activity and brain functions also can lead to the development of brain-machine interfaces (BMIs) to facilitate the integration of the warfighters and future artificial intelligence (AI) systems, provide new forms of control of weapon systems and platforms, offer new and enhanced sensing abilities, and allow smooth motion of enhancing devices (e.g. exo-skeletons) or prosthetics to restore abilities after injury. Similarly, such neural interfaces can help warfighters recover from brain injury.
- Warfighters are being increasingly exposed to high levels of physical and emotional stress, combined with greater cognitive demands from a data-rich operational environment. The volume of data, and the pace at which processing must be accomplished is already challenging the capabilities of the warfighter for decision-making. This challenge is expected to grow further as the weapon systems, platforms, and networks increase in complexity. Advances in neuroscience provide a fundamental understanding of these cognitive processes as function of the environment and human physiological state, and are therefore of high interest, with the potential for improved human capabilities such as speed and accuracy in information processing, improved and robust decision-making, emotional resilience, and communication effectiveness, including both human-human and human-machine teams
- Revolutionary research is needed to elucidate brain functions, their relationships with neuron structure, network topologies, brain chemistry, towards creating novel approaches in artificial intelligence. Recent advances in neuroscience have shown that activity is organized at the molecular, neuron, neural circuit, and brain structural levels.

Computational neuroscience is using empirical data to model functional activities at each of these levels. Fundamental research in neuroscience could then provide key insights into the ability to reproduce higher forms of reasoning in artificial neural networks (ANN). Novel neuro-imaging diagnostics, ANN architecture experimentations and new learning strategies, as well as improved mathematical tools, potentially provide a sufficient foundation for the inference of optimized neuromorphic architectures for high-level, human-like cognitive functions. This reverse-engineering of human and/or animal brain functions into ANNs could initiate an iterative feedback loop to bootstrap our understanding of the brain, make giant steps towards general AI, and design brain-machine interfaces that can repair or augment brain functions.

VBFF funding allows the exploration of potentially revolutionary ideas in cognitive neuroscience that do not necessarily have extensive preliminary data or previous attention in the literature, and which may not fall into the categories described above.

4. Novel Engineered Materials

Novel engineering materials research seeks to fund curiosity-driven research with the focus on the discovery of new materials that enable transformative functionalities and/or performance under extreme environmental or operational conditions. It is expected that new materials properties will emerge via the design and control of small scale architecture as opposed to the typical reliance of bulk material properties. However, when the structure control is brought down to the molecular or atomic scale, the two approaches become indistinguishable, except for characteristics related to the manufacturing process. Therefore, novel materials may build upon combinations of bulk, surface, and structural properties, as well as physical interactions between atomic, electronic, electro-magnetic, nuclear and other degrees of freedom. Such advances may require radically new approaches, both experimental and theoretical, and these are of special interest to the VBFF program. Some research areas may include, but are not limited to the following.

- Exploitation of novel materials properties with a profound impact on multiple technologies. Engineered materials exhibit behaviors that are not observed in naturally occurring materials, but rather originate from careful designs of the composition and structure. These include, for example, super-lattices, quantum dots, and ordered arrays of nano-holes which can form photonics waveguides. A typical example is a meta-material that can direct and focus light in ways that natural crystals cannot, slow down the light propagation speed, or even trap it. Such materials and structures continue to demonstrate remarkable properties for manipulating the propagation and transmittance properties of light waves or acoustic waves, from “cloaking” to optical black hole analogs. Geometric and topological properties are also leveraged to yield novel properties with a profound impact on multiple technologies, such as quantum circuits and memory, hyper-sensitive sensors, or novel forms of superconductivity. Thus, the design of combined bulk and structural properties from first principles could generate new classes of materials with extraordinary characteristics, by controlling the effective bulk properties and accessing non-equilibrium properties, for potentially revolutionary applications.
- The engineering of materials can also include dynamical behavior considerations.

Besides the modulation of light propagation by the designed meta-material, non-linear and dynamical coupling resulting in changes in the material properties can also be integrated in the ab-initio design process. Far-from equilibrium effects, extreme non-linearities, ultra-fast control can lead to new concepts of information processing, computation and sensing, and possibly other applications. Structural and physico-chemical dynamics can also lead to new capabilities in material adaptivity, from geometric and topological transformations to controlled phase change, for radically new concepts of operation and platform designs, and survivability under extreme environmental conditions.

The research areas mentioned above are broad, but do not constitute an exhaustive list. All revolutionary approaches in novel engineering materials are of potential interest, as long as they can be argued to have the capacity to radically transform the DoD's abilities and capabilities in the longer-term future.

5. Applied Mathematics and Computational Science

Advances in mathematics and their implementation on advanced information systems will provide the basis for critical capabilities across a broad range of DoD applications. These range from numerical simulations of physical systems with extreme complexities of scale and structure, to the most revolutionary approaches to artificial intelligence that may enable abstract reasoning abilities that match or exceed those of humans. Such advances may require radically new approaches and are of special interest to the VBFF program. Some research areas may include, but are not limited to the following.

- The numerical simulation of complex and large-scale physical phenomena associated with natural environments or engineered systems is one of the critical computational problems of interest to the DoD, such as dealing with extreme cases of multi-physics and multiscale problems. The ability to obtain accurate solutions at a very high rate is critical to evaluating the potential performance of future DoD engineered systems in their simulated operational environments, and is a key step in an inverse and iterative process that can revolutionize the approach to design, analysis and manufacture of future platforms and networks for national defense. By providing radical advances in computing abilities, basic research in applied mathematics can thus enable visionary concepts that involve complete virtual copies of physical systems, accurately simulated at operational speeds. Multiscale phenomena of interest also include very large-time scales, which are difficult to reproduce in laboratory conditions. As an example, understanding and predicting the aging of materials under various environmental conditions is a difficult problem that has a high impact on the life-cycle and cost of military systems. In addition, multiscale phenomena can be found in statistical information; rare and extreme events can be found in natural and engineered systems, and can have a profound impact on their survivability. Such events can be the result of complex non-linear effects, with correlated dynamics cascading across energy scales. Their prediction is difficult, as signs of instability can be easily hidden in a noisy background and are not readily captured by practical numerical models or data sampling. Fundamental advances in the detection and long-term prediction of such extreme events in a variety of physical, engineered or networked systems, is of significant interest.

- New mathematical concepts are also called for to model the extreme complexity of networks of systems, including their dynamics, optimization, resilience, and security, in a rapidly changing, stochastic and adversarial environment. This involves a wide range of physical interactions, as well as information resource management, cybersecurity, and social and psychological interactions with human agents. Fundamental research in the mathematics of compressive sensing, encryption and authentication, distributed optimization, and game theory are therefore highly relevant, in particular when combined for behavior prediction of large scale and coupled networks of machine and human agents interacting at multiple levels in often stochastic, irrational and adversarial fashion.
- Innovative mathematical concepts also provide the foundation for revolutionary advances in machine learning and artificial intelligence, going beyond data analysis and classification and into rapid and inductive learning, and high-level and abstract reasoning, for an AI that can ultimately match or exceed human-level reasoning abilities. These new mathematical approaches may rely on inspiration from disparate fields, whether as closely related as neuroscience or as remote as quantum information theory, but they must provide a reasonable pathway towards accurately and efficiently formulating key activities associated with human intelligence, including for example “common-sense” reasoning for resilience against false information, development of physical “intuition” to rapidly learn constraints, or a theory of mind when interacting with other AI agents. The mathematics may also be intimately related to the architecture underlying the computational processes, such as neural network topologies and non-linear thresholding, memory kernels, time delays and analog transforms.
- Among the possible areas of new, foundational mathematics, recent discoveries in type theory have led to new research directions in mathematics and computer science, paving the way for the field of Constructive Mathematics. Novel "synthetic" concepts of mathematics, motivated by geometry, topology, and logic, are emerging as potential substitutes for their non-constructive counterparts. At the same time, functional programming constructs based on synthetic mathematical objects (e.g., n-dimensional spheres and cubes) and operations (e.g., Kan operations) are providing an expressive formalism for a new foundation for mathematics as well as formalization of mathematics. Realizing such a long-term vision that makes all mathematical activities done by pencil and paper possible on computer platforms would be a revolutionary achievement of interest to the DoD.

The research areas mentioned above are broad, but do not constitute an exhaustive list. All revolutionary approaches in applied mathematics and computing are of potential interest, as long as they can be argued to have the capacity to radically transform our abilities in information science, whether modeling, computing, reasoning, and optimizing, enabling important DoD capabilities in the longer-term future.

6. Other fields of research with high potential

The list of subjects provided above is by no means a comprehensive list of topics for which white papers and proposals may be accepted. Proposed research in areas of relevance to DoD will be considered (e.g., combustion at high speed, multi-scale physical processes, propulsion, shielding concepts, etc.) as long as there is a transformative science problem to be investigated

and whose solution may open new ways of thinking about the phenomena that are being studied.

All proposers should ensure that they propose to conduct basic research as previously defined in this section. Proposed research should focus on developing a deep understanding of fundamental phenomena. Device development or equipment construction or integration is not a suitable end goal in itself; if proposed, it must be integral to research that will advance scientific knowledge. Risk-taking is encouraged; however, all proposals must demonstrate solid judgment and rationale.

B. FEDERAL AWARD INFORMATION

1. Funding Amount and Period of Performance

It is anticipated that awards will be made in the form of grants to U.S. institutions of higher education (universities). It is anticipated that the maximum award will be \$3 million per five years, with the actual amount contingent on availability of funds, the specific topic, and the scope of the proposed work.

There is no guarantee that any of the proposals submitted in a particular category will be recommended for funding. More than one proposal may be recommended for funding for a particular category. The Government reserves the right to select for negotiation all, some, one, or none of the proposals received in response to this announcement.

2. Pre-Award

An institution may, at its own risk and without prior approval, incur obligations and expenditures to cover costs up to 90 days before the beginning date of the initial budget period of a new or renewal award if such costs: 1) are necessary to conduct the project, and 2) would be allowable under the grant, if awarded, without prior approval.

All pre-award costs are incurred at the recipient's risk. DoD Research and Engineering Enterprise (USD (R&E)) and ONR are under no obligation to reimburse such costs, if for any reason the institution does not receive an award or if the award is less than anticipated and inadequate to cover such costs.

3. Peer Reviews

In the case of proposals funded as basic research, DoD may utilize peer reviewers from academia, industry, and Government agencies to assist in the periodic appraisal of performance under the awards, following the process outlined under ONR Instruction 3966.1A. Such periodic program reviews monitor technical performance of funded basic research efforts. 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. Applicants may include travel costs for the Principal Investigator (PI) to attend the peer review.

C. ELIGIBILITY INFORMATION

1. Eligible Institutions

Only accredited U.S. institutions of higher education (universities) with doctoral degree-granting programs are eligible to apply. DoD institutions are not eligible to apply.

Historically Black Colleges and Universities (HBCUs) and Minority Institutions (MIs) are encouraged to submit proposals and join others in submitting proposals. However, no portion of this FOA will be set aside for HBCU and MI participation, due to the impracticality of reserving discrete or severable items of this research for exclusive competition among such entities. Non-profit and for-profit organizations may collaborate on proposed research and may receive VBFF funds via subaward or subcontract. However, the VBFF program is oriented towards funding research at universities. Universities must perform the majority of the proposed work and receive the majority of funds.

Government agencies, DoD laboratories and universities, and Federally Funded Research and Development Centers (FFRDCs) may collaborate on proposed research, but may not receive VBFF funds, directly or via subaward.

Grants to a university may be terminated if the principal investigator (PI) severs connections with the university or is unable to continue active participation in the research. Grants to a university may also be terminated if the university severs connections with the PI.

2. Eligible Individuals

Faculty with tenure and full-time research staff with the skills, knowledge, and resources necessary to conduct the proposed research as the principal investigator (PI) are invited to submit an application. Applicants should have a record of substantial scientific contributions.

The PI must be a U.S. citizen or permanent resident.

3. Other Eligibility Criteria

Number of Applications: The PI may submit only one (1) application in response to this FOA. There is no limit to the number of applications that an institution may submit.

Number of PIs: Only one (1) PI may be designated on the application. While collaborations are encouraged, co- PIs are not permitted. The lead investigator must direct the work. Collaboration may be achieved at the PI's institution or via a subaward. If there is such collaboration envisioned, the PI must explain how the proposed team fits the single PI structure.

Resubmissions: Applicants invited to submit full proposals who have submitted Recommendation Letters for the VBFF program in a prior year must obtain and submit new letters. Previously submitted letters will not be retrieved. Documents dated prior to the posting date of this FOA will not be accepted.

D. APPLICATION AND SUBMISSION INFORMATION

1. Application and Submission Process

The application process is completed in three stages:

- (a) Online Registration via <https://acqupass.noblis.org/ApplyVBFF> (required)
- (b) White Paper and Supporting Documentation submission (<https://acqupass.noblis.org/ApplyVBFF>) (required)
- (c) Full Proposal submission (via grants.gov) (by invitation only) and Confidential Letters of Recommendation (required)

If an Applicant does not register and submit a White paper and Supporting Documentation before the due dates and times, the Applicant will not be eligible to participate in the remaining Full Proposal submission process and is not eligible for funding.

2. AcquTrak Online Registration

The AcquTrak Online Registration portal opens on 21 June 2019. All applicants must register on the AcquTrak website by 11:59 pm Eastern Time on 14 August 2019. Note: Applicants who registered at the AcquTrak website in a prior competition must re-register for this competition. Usernames and passwords used to submit previous applications will not be retrieved. Each applicant must provide the following information at the time of registration:

- PI's name, title, department, educational institution, phone number, and e-mail address
- Title of the PI's proposed research topic
- Technical subject category most appropriate for the proposed research from the list in Section II. A. [Program Description](#).

3. Content and Format of White Paper, Proposal Package, and Supporting Documentation

White Papers Supporting Documentation, and Full Proposals submitted under this FOA are expected to be unclassified; classified proposals are not permitted.

All proposal submissions will be protected from unauthorized disclosure in accordance with applicable law and DoD/DON regulations. Applicants are expected to appropriately mark each page of their submission that contains proprietary information.

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

Individual PIs must submit a Cover Page, Abstract, Basic Research Statement, White Paper, and Curriculum Vitae (CV). All documents must be submitted in PDF format in compliance with the guidelines below. When submitting the documents, the PI must upload the Cover Page, Abstract, Basic Research Statement, White Paper and CV as one PDF file.

4. Marking of White Papers and Full Proposals

ONR will make every effort to protect any proprietary information submitted in whitepapers and full proposals. Any proprietary information included in application materials must be identified. If the application includes such information, mark the white paper or full proposal as follows:

- (a) Include a cover page with the following legend: “The following contains proprietary/privileged information that (name of applicant) requests not be released to persons outside the Government, except for purposes of review and evaluation, or pre and post award administration.”
- (b) Clearly mark each page containing the proprietary/privileged information with the legend: "Use or disclosure of data contained on this page is subject to the restriction on the cover page of this document."

However, applicants should be aware that under the Freedom of Information Act (FOIA) requirements, proprietary information contained in whitepapers and proposals (marked or unmarked) may still potentially be subject to release.

It is the applicant’s responsibility to notify ONR of proposals containing proprietary information and to identify the relevant portions of their proposals that require protection. The entire proposal (or portions thereof) without protective markings or otherwise identified as requiring protection will be considered to be furnished voluntarily to ONR without restriction and will be treated as such for all purposes.

It is the intent of ONR to treat all white papers and full proposals as though they contain privileged information before the award and to disclose their contents only for the purpose of evaluation. Whitepapers may also be disclosed to reviewers for training purposes in future competitions.

5. White Paper and Supporting Documentation

- (a) Cover page: Include the PI’s name and university. Include a protective legend for proprietary information, if applicable.
- (b) Abstract (not to exceed 300 words): Describe the research objective, technical approaches, and anticipated outcome of the specific research. A non-proprietary version of the abstract must be submitted without other restrictions. The non-proprietary abstract must be a version that is releasable to the public under the Freedom of Information Act without changes.
- (c) Basic Research Statement (one (1) page limit, single-sided): Describe how the proposed research meets the DoD definition of basic research provided Section II. A. [Program Description](#) of this announcement. Describe the extraordinary outcomes that may be achieved as a result of the proposed project.
- (d) Identify anticipated human or animal subject research (where applicable).
- (e) White paper (three (3) page limit, single-sided): Describe the basic scientific or

technical research to be undertaken. Describe the technical approach. Summarize the state of the field and describe what is innovative about the proposed approach. Given the successful completion of the course of investigation, what results, new knowledge, or insights might it afford compared to alternate approaches other researchers in this field have taken. Include approximate yearly costs for the project. Reference citations are not required but may be included within the three-page limit.

(f) PI's Curriculum Vitae (CV) (two (2) page limit, single-sided) -The CV should include relevant experience, publications, and funding received in the area of interest, and any previous involvement and experiences with the DoD. List all previous DoD funding including project titles within the last eight years.

Documents must be submitted in the following format:

- Paper Size – 8.5 x 11 inch paper
- Margins - 1 inch
- Spacing – single spaced
- Font – Times New Roman, 12 point

Do not include proprietary information in the Cover Page, Abstract, or CV. Include appropriate markings on each page of the Basic Research Statement and White Paper that contains proprietary information or other restrictions.

When submitting the White Paper and Supporting Documentation, the PI must provide the title of the proposed research project, contact information (name, e-mail address, and phone number) for the Sponsored Programs Office at the university, and indicate whether he or she is a US citizen or permanent resident. In addition, the PI must select one (and only one) technical subject category most appropriate for the proposed research from the list given in Section II. A. [Program Description](#). The technical category designation will assist VBFF staff in assigning applications to appropriate reviewers.

The White Papers and Supporting Documentation must be submitted to AcquTrak (<https://acqpass.noblis.org/ApplyVBFF>) no later than 11:59 p.m. Eastern Time on 16 August 2019. Persons submitting the White Papers and Supporting Documentation must register on the website by 11:59 pm Eastern Time on 14 August 2019. The submission process could take several minutes depending on the network connection and the size of the file being submitted. The applicant is responsible for allowing enough time to complete the online form, upload the documents and press the submit button before the deadline. An e-mail confirmation will be sent to the applicant upon receipt of the submission.

Documents submitted after the deadline or found to be non-compliant will not be reviewed. Evaluation of the white paper will be issued via email notification. Any Applicant whose white paper was not identified as being of “particular value” to the DoD is ineligible to submit a full proposal under this FOA.

6. Full Proposal Package and Letters of Recommendation

Full Proposal Packages will only be accepted from PIs invited to submit full proposals.

Proposal packages must be submitted electronically to Grants.gov (<http://www.grants.gov/>)

no later than 11:59 p.m. Eastern Time on 17 January 2020.

Confidential Letters of Recommendation must be submitted to ONR via e-mail to Paula Barden at paula.barden.ctr@navy.mil no later than 11:59 p.m. Eastern Time on 17 January 2020.

Full Proposal Package – Format

Proposal package format must be as follows:

- Paper Size – 8.5 x 11 inch paper
- Margins – 1 inch (excluding the Summary Chart)
- Spacing – single spaced (excluding the Summary Chart)
- Font – Times New Roman, 12 point
- PI’s name and institution in header or footer
- Appropriate markings on each page that contains proprietary or confidential information (see Section II. D. 4. [Marking of White Papers and Full Proposals](#))
- PDF file type – Files that are attached to the forms must be in ADOBE portable document format (.pdf).

Full Proposal Package – Content

The following information must be completed as follows in the SF 424 located in the application package to ensure the application is directed to the correct individual for review.

Required Forms

(1) SF-424 Form (RESEARCH & RELATED) (Mandatory)

The SF-424 (R&R) form must be used as the cover page for all proposals. Complete all required fields in accordance with the “pop-up” instructions on the form and the following instructions for specific fields. Please complete the SF-424 first, as some fields on the SF-424 are used to auto-populate fields on other forms.

The completion of most fields is self-explanatory with the exception of the following special instructions:

- Field 3 - Date Received by State: The Date Received by State and the State Application Identifier are not applicable to research. Leave blank.
- Field 4a - Federal Identifier: Enter “N00014”.
- Field 4b - Agency Routing Number: Enter 03R [Livingston, Ellen].

Applicants who fail to provide an Agency Routing Number may receive a notice that their proposal is rejected.

- Field 4c - Previous Grants.gov Tracking ID: If this submission is for a Changed/Corrected Application, enter the Grants.gov tracking number of the previous proposal submission; otherwise, leave blank.
- Field 7 - Type of Applicant: Complete as indicated. If the organization is a Minority Institution, select “Other” and under “Other (Specify)” note that the institution is a Minority Institution (MI).
- Field 9 - Name of Federal Agency: List the Office of Naval Research as the reviewing agency. This field is pre-populated in Grants.gov.
- Field 16 - Is Application Subject to Review by State Executive Order 12372 Process? Choose “No”. Check “Program is Not Covered by Executive Order 12372.”
- Field 17 – Certification: All awards require some form of certifications of compliance with national policy requirements. By checking the “I agree” box in field 17, and attaching the representation to Field 18 of the SF424 (R&R) as part of the electronic proposal submitted via Grants.gov, the Grant Applicant is providing the certification on lobbying required by 32 CFR Part 28 and representation regarding an unpaid delinquent tax liability or a felony conviction under any federal law – DoD appropriations.

(2) R&R Form: Project Abstract Form (Mandatory)

The project abstract must identify the problem and objectives, technical approaches, anticipated outcome of the effort, if successful, and impact on DoD capabilities. 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 4,000 character limit including spaces.

Do not include proprietary or confidential information. The project abstract must be marked by the applicant as “Approved for Public Release.” Abstracts of all funded projects will be posted on the public DTIC website: <https://dodgrantawards.dtic.mil/grants>

(3) R&R Form: Research and Related Other Project Information (Mandatory)

- Fields 1 and 1a - Human Subject Use: Each proposal must address human subject involvement in the research by completing Fields 1 and 1a of the R&R Other Project Information form. For proposals containing activities that include or may include “research involving human subjects” as defined in DoDI 3216.02, prior to award, the Applicant must submit the documentation under “Use of Human Subjects in Research” ([Section II. H. 6.](#)).
- Fields 2 and 2a – Vertebrae Animal Use: Each proposal must address animal use protocols by addressing Fields 2 and 2a of the R&R Other Project Information form. If animals are to be utilized in the research effort proposed, the Applicant must

submit the documents described under “Use of Animals” ([Section II. H. 6.](#)).

- Fields 4a through 4d - Environmental Compliance: Address these fields and briefly indicate whether the intended research will result in environmental impacts outside the laboratory, and how the applicant will ensure compliance with environmental statutes and regulations.

Federal agencies making grant or cooperative agreement awards and recipients of such awards must comply with various environmental requirements. The National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. Sections 4321-4370 (a), requires that agencies consider the environmental impact of “major Federal actions” prior to any final agency decision. With respect to those awards which constitute “major Federal actions,” as defined in 40 CFR 1508.18, federal agencies may be required to comply with NEPA and prepare an environmental impact statement (EIS), even if the agency does no more than provide grant funds to the recipient.

Questions regarding NEPA compliance should be referred to the technical point of contact. Most research efforts funded by ONR will, however, qualify for a categorical exclusion from the need to prepare an EIS. Navy instructions/regulations provide for a categorical exclusion for basic and applied scientific research usually confined to the laboratory, if the research complies with all other applicable safety, environmental and natural resource conservation laws.

- Field 7 – Project Abstract: Leave Field 7 blank; complete Form SF424, Project Abstract.
- Field 8 – Project Narrative: Describe clearly the project, including the objective and approach to be performed, keeping in mind the evaluation criteria. Attach the entire Project Narrative to R&R Other Project Information form in Field 8. To attach a Project Narrative in Field 8 click on “Add Attachment” and attach the technical proposal as a single PDF file. (Save the file as “Technical Proposal,” as typing in the box is prohibited).

The Project Narrative should describe the research in sections as described below:

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

- (a) FOA Number: N00014-19-S-F010;
- (b) Title of Application;
- (c) Identity of prime Applicant and complete list of subawards, if applicable;
- (d) Technical contact (name, address, phone/fax, electronic mail address);
- (e) Administrative/business contact (name, address, phone/fax, electronic mail address) and;

(f) Proposed period of performance (identify both the base period and any options, if included); and

(g) Total proposed budget.

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

- Project Narrative - *Statement of Objectives*. Summarize the actual research to be completed, including goals and objectives, on one page titled Statement of Objectives. This statement of objectives may be incorporated into the award instead of the entire technical proposal. Active verbs should be used in this statement (for example, “conduct” research into a topic, “investigate” a problem, “determine” to test a hypothesis). It should not contain proprietary information.
- Project Narrative - *Research Effort* (15-page limit for this section, excluding list of references). Describe the basic scientific or technical concepts that will be investigated, giving the complete research plan. Describe the technical approach and what is innovative about the proposed approach. How does the proposed approach compare to alternate approaches other researchers in this field have taken? Given the successful completion of the five-year course of investigation, what results, new knowledge, or insights, might it afford?
- Project Narrative – *Management Approach*. Describe the overall management approach and provide rationale for participation of key team members. Describe the planned relationships with any subawardees or collaborators. This is a single PI award; if there are subawardees or collaborators, explain how the proposed team fits the single PI structure. Describe mentoring plan for students and their involvement within the project. If appropriate, briefly describe anticipated schedule.
- Project Narrative – *Principal Investigator (PI) Time*. PI time is required. A high level of PI engagement is critical to the success of this program. The full proposal should budget several trips per year to VBFF-related activities, which include attending program reviews, interacting with service lab researchers, and participating in DoD-organized workshops. List the estimate of time the principal investigator and other senior professional personnel will devote to the research. This shall include information pertaining to other commitments of time, such as sabbatical or extended leave; and proportion of time to be devoted to this research and to other research. State the number of undergraduate students, graduate students, and postdoctoral researchers for whom each senior staff member is responsible. If the principal investigator or other key personnel is currently engaged in research under other auspices, or expects to receive support from other agencies for research during the time proposed for VBFF support, state the title of the other research, the proportion of time to be devoted to it, the amount of support, name of agency, dates, etc. Send any changes in this information as

soon as they are known. Submit a short abstract (including title, objectives, and approach) of that research and total amount of support for both current and pending research projects.

- **Project Narrative – *Facilities*.** Describe facilities available for performing the proposed research and any additional facilities or equipment the organization proposes to acquire at its own expense. Indicate government-owned facilities or equipment already possessed that will be used. Reference the facilities grant and/or contract number or, in the absence of a facilities grant/contract, the specific facilities or equipment and the number of the award under which they are accountable.
- **Project Narrative – *Special Test Equipment*.** List special test equipment or other property required to perform the proposed research. Segregate items to be acquired with award funds from those to be furnished by the Government. When practical, give a description or title and estimated cost of each item. When information on individual items is unknown or not available, group the items by class and estimate the values. In addition, state why it is necessary to acquire the property with award funds. Justify the need for each equipment item. Additional facilities and equipment will not be provided unless the research cannot be completed by any other practical means. Include the proposed life expectancy of the equipment and whether it will be integrated with a larger assemblage or apparatus. If so, state who owns the existing apparatus.

(4) R&R Form: Research & Related Budget

The applicant must use the Grants.gov forms from the application package template associated with the BAA on the Grants.gov web site located at <https://www.grants.gov/>. If options are proposed, the budget 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.

Estimate the total research project cost. Categorize funds by year. Provide separate annual budgets for each of the five years of the VBFF award. For planning purposes, assume that grants will start between June and September 2019.

A separate Adobe .pdf document should be included in the application that provides appropriate budget justification and/or supporting documentation for each element of cost proposed, clearly explaining the need for each item. This document shall be attached under Section K. “Budget Justification” of the Research and Related Budget form. Click “Add Attachment” to attach.

The itemized budget should 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 should 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 principals.
- Subawards/Subcontracts – Provide a description of the work to be performed by the subrecipient/subcontractor. For each subaward, a detailed budget is required to be submitted by the subrecipient(s). A proposal and any supporting documentation must be received and reviewed before the Government can complete its cost analysis of the proposal. ONR's preferred method of receiving subcontract information is for this information to be included with the Prime's proposal. However, a subcontractor's budget can be provided via email directly to the Program Officer at the same time the prime proposal is submitted. The email should identify the proposal title, the prime Applicant and that the attached proposal is a subcontract.
- Consultants – Provide a breakdown of the consultant's hours, the hourly rate proposed, and 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.

(5) Research and Related (R&R) Senior/Key Person Profile (Expanded)

To evaluate compliance with Title IX of the Education Amendments of 1972 (20 U.S.C. A § 1681 Et.Seq.), the Department of Defense is collecting certain demographic and career information to be able to assess the success rates of women who are proposed for key roles in applications in STEM disciplines. In addition, the National Defense Authorization Act (NDAA) for FY 2019, Section 1286, directs the Secretary of Defense to protect intellectual property, controlled information, key personnel, and information about critical technologies relevant to national security and limit undue influence, including foreign talent programs by countries that desire to exploit United States' technology within the DoD research, science and technology, and innovation enterprise.

The R&R Senior/Key Person Profile (Expanded) form will be used to collect the following information for all senior/key personnel, including Project Director/Principal Investigator and Co-Project Director/Co-Principal Investigator, whether or not the individuals' efforts under the project are to be funded by the DoD:

- Degree Type and Degree Year fields as the source for career information.
- A list of all current projects the individual is working on, in addition to any future support the individual has applied to receive, regardless of the source.
- Title and objectives of the other research projects.
- The percentage per year to be devoted to the other projects.

- The total amount of support the individual is receiving in connection to each of the other research projects or will receive if other proposals are awarded.
- Name and address of the agencies and/or other parties supporting the other research projects.
- Period of performance for the other research projects.

Additional senior/key persons can be added by selecting the “Next Person” button. Note that, although applications without these fields completed may pass Grants.gov edit checks, if ONR receives an application without the required information, ONR may determine that the application is incomplete and may cause it to be returned without further review. DoD reserves the right to request further details from the applicant before making a final determination on funding the effort.

Page limits for attachments:

- PI Curriculum Vitae (five (5) page limit)
- Key Personnel Curricula Vitae (two (2) page limit each)

(6) Research and Related Personal Data (Mandatory)

This form will be used by DoD as the source of demographic information, such as gender, race, ethnicity, and disability information for the Project Director/Principal Investigator and all other persons identified as Co-Project Director(s)/Co-Principal Investigator(s). Each application must include this form with the name fields of the Project Director/Principal Investigator and any Co-Project Director(s)/Co-Principal Investigator(s) completed; however, provision of the demographic information in the form is voluntary. If completing the form for multiple individuals, each Co-Director/Co-Principal Investigator can be added by selecting the “Next Person” button. The demographic information, if provided, will be used for statistical purposes only and will not be made available to merit reviewers. Applicants who do not wish to provide some or all of the information should check or select the “Do not wish to provide” option.

NOTE: The Government Accountability Office, in its report GAO-16-14, WOMEN IN STEM RESEARCH: Better Data and Information Sharing Could Improve Oversight of Federal Grant-making and Title IX Compliance, December 3, 2015, recommended that the Department of Defense collect certain demographic and career information to be able to assess the success rates of women who are proposed for key roles in applications in science, technology, engineering, or mathematics disciplines. To enable this assessment, each application must include the following forms completed as indicated.

(7) Attachments Form

List of References - Identify and list three (and only three) persons who have been asked to submit confidential letters of recommendation. Also, provide the name, e-mail address,

phone number, and professional relationship with these persons. Refer back to Section II. D. 6. [Full Proposal Package and Letters of Recommendation](#) for instructions on the submission of these letters. No more than three letters will be forwarded to evaluators.

Include letters of support from proposed collaborators or subawardees.

Summary Chart (one (1) page limit, single-sided) – A completed summary chart must be submitted with the full proposal. This summary chart should be in quad chart format which will include objectives, technical approach, anticipated DoD benefit, and budget.

(a) **Grants.gov Application Submission and Receipt Procedures**

NOTE: White Papers must **not** be submitted through the Grants.gov application process. For instructions, see Section II. D. 2. [AcquTrak Online Registration](#)

How to Register to Apply through Grants.gov

a. *Instructions:* Applicants should read the registration instructions carefully and prepare the information requested before beginning the registration process. Reviewing and assembling the required information before beginning the registration process will alleviate last-minute searches for required information.

The registration process can take up to four weeks to complete. Therefore, registration should be done in sufficient time to ensure it does not impact your ability to meet required application submission deadlines.

If individual applicants are eligible to apply for this grant funding opportunity, refer to: <https://www.grants.gov/web/grants/applicants/registration.html>

Organization applicants can find complete instructions here:
<https://www.grants.gov/web/grants/applicants/organization-registration.html>

(1) *Obtain a DUNS Number:* All entities applying for funding, including renewal funding, must have a Data Universal Numbering System (DUNS) number from Dun & Bradstreet (D&B). Applicants must enter the DUNS number in the data entry field labeled "Organizational DUNS" on the SF-424 form.

For more detailed instructions for obtaining a DUNS number, refer to:
<https://www.grants.gov/web/grants/applicants/organization-registration/step-1-obtain-duns-number.html>

(2) *Register with SAM:* In addition to having a DUNS number, organizations applying online through Grants.gov must register with the System for Award Management

(SAM). All organizations must register with SAM in order to apply online. Failure to register with SAM will prevent your organization from applying through Grants.gov.

For more detailed instructions for registering with SAM, refer to:

<https://www.grants.gov/web/grants/applicants/organization-registration/step-2-register-with-sam.html>

(3) *Create a Grants.gov Account*: The next step in the registration process is to create an account with Grants.gov. Applicants must know their organization's DUNS number to complete this process. Completing this process automatically triggers an email request for applicant roles to the organization's E-Business Point of Contact (EBiz POC) for review. The EBiz POC is a representative from your organization who is the contact listed for SAM. To apply for grants on behalf of your organization, you will need the Authorized Organizational Representative (AOR) role.

For more detailed instructions about creating a profile on Grants.gov, refer to:

<https://www.grants.gov/web/grants/applicants/organization-registration.html>

(4) *Authorize Grants.gov Roles*: After creating an account on Grants.gov, the EBiz POC receives an email notifying them of your registration and request for roles. The EBiz POC will then log in to Grants.gov and authorize the appropriate roles, which may include the AOR role, thereby giving you permission to complete and submit applications on behalf of the organization. You will be able to submit your application online anytime after you have been approved as an AOR.

For more detailed instructions about creating a profile on Grants.gov, refer to:

<https://www.grants.gov/web/grants/applicants/organization-registration.html>

5) *Track Role Status*: To track your role request, refer to:

<https://www.grants.gov/web/grants/applicants/registration/track-role-status.html>

b. *Electronic Signature*: When applications are submitted through Grants.gov, the name of the organization's AOR that submitted the application is inserted into the signature line of the application, serving as the electronic signature. The EBiz POC **must** authorize individuals who are able to make legally binding commitments on behalf of the organization as an AOR; **this step is often missed and it is crucial for valid and timely submissions.**

How to Submit an Application to ONR via Grants.gov

Grants.gov applicants can apply online using Workspace. Workspace is a shared, online environment where members of a grant team may simultaneously access and edit different webforms within an application. For each funding opportunity announcement (FOA), you can create individual instances of a workspace.

Below is an overview of applying on Grants.gov. For access to complete instructions on how to apply for opportunities, refer to:

<https://www.grants.gov/web/grants/applicants/apply-for-grants.html>

a. *Create a Workspace*: Creating a workspace allows you to complete it online and route it through your organization for review before submitting.

b. *Complete a Workspace*: Add participants to the workspace, complete all the required forms, and check for errors before submission.

1. *Adobe Reader*: If you decide not to apply by filling out webforms you can download individual PDF forms in Workspace so that they will appear similar to other Standard or ONR forms. The individual PDF forms can be downloaded and saved to your local device storage, network drive(s), or external drives, then accessed through Adobe Reader.

NOTE: Visit the Adobe Software Compatibility page on Grants.gov to download the appropriate version of the software at:

<https://www.grants.gov/web/grants/applicants/adobe-software-compatibility.html>

2. *Mandatory Fields in Forms*: In the forms, you will note fields marked with an asterisk and a different background color. These fields are mandatory fields that must be completed to successfully submit your application.

3. *Complete SF-424 Fields First*: The forms are designed to fill in common required fields across other forms, such as the applicant name, address, and DUNS number. To trigger this feature, an applicant must complete the SF-424 information first. Once it is completed, the information will transfer to the other forms.

c. *Submit a Workspace*: An application may be submitted through workspace by clicking the Sign and Submit button on the Manage Workspace page, under the Forms tab. Grants.gov recommends submitting your application package at least 24-48 hours prior to the close date to provide you with time to correct any potential technical issues that may disrupt the application submission.

d. *Track a Workspace*: After successfully submitting a workspace package, a Grants.gov Tracking Number (GRANTXXXXXXXX) is automatically assigned to the package. The number will be listed on the Confirmation page that is generated after submission.

For additional training resources, including video tutorials, refer to:

<https://www.grants.gov/web/grants/applicants/applicant-training.html>

Applicant Support: Grants.gov provides applicants 24/7 support via the toll-free number 1-800-518-4726 and email at support@grants.gov. For questions related to the specific grant opportunity, contact the number listed in the application package of the grant you are applying for.

If you are experiencing difficulties with your submission, it is best to call the Grants.gov Support Center and get a ticket number. The Support Center ticket number will assist the ONR with tracking your issue and understanding background information on the issue.

Timely Receipt Requirements and Proof of Timely Submission

a. *Online Submission.* All applications must be received by 11:59pm Eastern time on the due date established. Proof of timely submission is automatically recorded by Grants.gov. An electronic date/time stamp is generated within the system when the application is successfully received by Grants.gov. The applicant AOR will receive an acknowledgement of receipt and a tracking number (GRANTXXXXXXXX) from Grants.gov with the successful transmission of their application. Applicant AORs will also receive the official date/time stamp and Grants.gov Tracking number in an email serving as proof of their timely submission.

When ONR successfully retrieves the application from Grants.gov, and acknowledges the download of submissions, Grants.gov will provide an electronic acknowledgment of receipt of the application to the email address of the applicant with the AOR role. Again, proof of timely submission shall be the official date and time that Grants.gov receives your application.

Applications received by Grants.gov after the established due date for the program will be considered late and will not be considered for funding by ONR.

Applicants using slow internet, such as dial-up connections, should be aware that transmission can take some time before Grants.gov receives your application. Again, Grants.gov will provide either an error or a successfully received transmission in the form of an email sent to the applicant with the AOR role. The Grants.gov Support Center reports that some applicants end the transmission because they think that nothing is occurring during the transmission process. Please be patient and give the system time to process the application.

b. *Proposal Receipt Notices.* After a proposal is submitted through Grants.gov, the Authorized Organization Representative (AOR) will receive a series of three emails. It is extremely important that the AOR watch for and save each of the emails. You will know that your proposal has reached ONR when the AOR receives email Number 3. You will need the Submission Receipt Number (email Number 1) to track a submission. The three emails 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 email 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 email form from ONR within ten days from the proposal due date, if applicable. The email is sent to the authorized representative for the institution. The email for proposals notes that the proposal has been received and provides the assigned tracking number.

8. Significant Dates and Times

| Schedule of Events | | |
|---|---------------------------------------|-----------------------|
| Event | Date | Time |
| AcquTrak website open for registration and submission | 21 June 2019 | |
| Questions Regarding White Paper and Supporting Documentation (submitted by) | 26 July 2019* | |
| AcquTrak Registration (required by) | 14 August 2019 | 11:59 PM Eastern Time |
| White Paper and Supporting Documentation (required by) | 16 August 2019 | 11:59 PM Eastern Time |
| Notification of White Paper Selection | 28 October 2019** | |
| Proposal and Confidential Letters of Recommendation (by invitation only) | 17 January 2020 | 11:59 PM Eastern Time |
| Notification of Selection for Award | 27 March 2020** | |
| Start Date of Grant | 01 June 2020** to 30 September 2020** | |

* Questions submitted after the Q&A deadline as noted in the table above may not be answered.

** These dates are estimates as of the date of this announcement.

E. APPLICATION REVIEW INFORMATION

1. Evaluation Criteria

The VBFF program seeks to invest in basic research and to identify challenging fundamental scientific areas of investigation that may have potential for long term benefit to DoD. Proposed research should describe cutting-edge efforts on basic scientific problems. White papers deemed to be applied research, as opposed to basic research, will not advance to the proposal stage of the competition.

Subject to funding availability, white papers and proposals deemed to be basic research will be evaluated under the following criteria:

- Scientific and technical merits of the proposed research;
- The principal investigator's qualifications, ability to perform the proposed work, and the overall management approach;
- Relevance of the proposed research to the DoD and to its VBFF program; and
- The reasonableness of proposed costs.

The U.S. Government does not guarantee an award in each research area. Further, be advised that as funds are limited, otherwise meritorious proposals may not be funded.

All, some, one, or none of the applicants may be contacted after the full proposal review process by phone by the Director of the Basic Research Office, USD (R&E) to clarify certain aspects of their proposed research efforts.

2. Evaluation Panel

White papers and proposals submitted under this FOA are evaluated through a peer or scientific review process. Evaluation will use merit-based competitive procedures according to Department of Defense Grant and Agreement Regulations (DoDGARs) citation of 32 C.F.R Sec 22.315. White papers and proposals will be evaluated by Government personnel and Non-Government reviewers. Non-Government reviewers will include university faculty and staff researchers. Each reviewer is required to sign a conflict-of-interest and confidentiality statement attesting that the reviewer has no known conflicts of interest, and that application and evaluation information will not be disclosed outside the evaluation panel. The names and affiliations of reviewers are not disclosed.

White papers that best fulfill the evaluation criteria will be identified by members of the white paper evaluation panels and recommended to the Assistant Secretary of Defense for Research & Engineering (USD (R&E)). USD (R&E) will invite individual PIs to submit full proposals. Feedback on white papers will be provided only to those invited to submit a full proposal.

Proposals that best meet the evaluation criteria will be recommended for funding. The Government reserves the right to select and fund for award all, some, one, or none of the proposals in response to this announcement.

Employees of commercial firms under contract to USD (R&E) and ONR may be used to

process white papers and proposals. By submitting a proposal, applicants consent to allowing access to their proposals by these support contractors, whose support contracts include nondisclosure agreements prohibiting contractor employees from disclosing any information submitted by other contractors.

3. General Information Regarding the Review and Selection Process

In accordance with Office of Management and Budget (OMB) guidance in parts 180 and 200 of Title 2, CFR, it is DoD policy that DoD Components must report and use integrity and performance information in the Federal Awardee Performance and Integrity Information System (FAPIIS), or any successor system designated by OMB, concerning grants, cooperative agreements, and TIA's as follows:

If the total Federal share will be greater than the simplified acquisition threshold on a Federal award under a notice of funding opportunity (see 2 CFR 200.88 Simplified Acquisition Threshold):

- a. The Federal awarding agency, prior to making a Federal award with a total amount of Federal share greater than the simplified acquisition threshold, will review and consider any information about the applicant that is in the designated integrity and performance system accessible through SAM (currently FAPIIS) (see 41 U.S.C. 2313);
- b. An 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;
- c. The Federal awarding agency 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 applicants as described in 2 CFR 200.205 Federal awarding agency review of risk posed by applicants.

F. FEDERAL AWARD ADMINISTRATION INFORMATION

1. Unique Entity Identifier and System for Award Management (SAM)

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

- a. Be registered in the SAM prior to submission;
- b. 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
- c. Provide its DUNS number in each application or proposal it submits to the

agency.

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

2. Federal Award Notices

a. Applicants whose proposals are recommended for award may be contacted by a Contract or Grant specialist to discuss additional information required for award. This may include representations and certifications, revised budgets or budget explanations, certificate of current cost or pricing data, subcontracting plan for small businesses, and/or other information as applicable to the proposed award.

The notification e-mail must not be regarded as an authorization to commit or expend funds. The Government is not obligated to provide any funding until a Government Contracting Officer or Grants Officer, as applicable, signs the award document.

The award document signed by the Contracting Officer or Grants Officer is the official and authorizing award instrument.

b. Office of Naval Research (ONR) award/modification documents are only available via the Department of Defense (DoD) Electronic Document Access System (EDA) within the Wide Area WorkFlow e-Business Suite (<https://wawf.eb.mil/>).

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

ONR creates an award notification profile for every award.

For grants, the notification profile will use the email addresses from the Application for Federal Assistance, SF424, to notify the recipient of an award. ONR recommends that organizations provide a global business address for their entity in Field 5 (Application Information) of the SF424. ONR is using the following three email addresses entered by the grantee on the SF424 application to create the EDA notification profile:

- i. Applicant Information (Field 5 - Email)
- ii. Project Director / Principal Investigator (Field 14 - Email)
- iii. Authorized Representative (Field 19 - Email)

For all other awards, the notification profile will use the email address from the Business Point of Contact to notify the recipient of an award.

IMPORTANT: In some cases, EDA notifications are appearing in recipients' Junk Email folder. If you are experiencing issues receiving EDA notifications, please check your junk email. If found, please mark EDA notifications as "not junk." 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 Contract Number (or, if applicable, 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).

3. Reporting

If the Federal share of any Federal award may include more than \$500,000 over the period of performance, the post award reporting requirements, Award Term and Condition for Recipient Integrity and Performance Matters (2 U.S.C. 200 Appendix XII), is applicable as follows:

a. Reporting of Matters Related to Recipient Integrity and Performance

(1) General Reporting Requirement. If the total value of your currently active grants, cooperative agreements, and procurement contracts from all Federal awarding agencies exceeds \$10,000,000 for any period of time during the period of performance of this Federal award, then you as the recipient during that period of time must maintain the currency of information reported to the System for Award Management (SAM) that is made available in the designated integrity and performance system (currently the Federal Awardee Performance and Integrity Information System (FAPIIS)) about civil, criminal, or administrative proceedings described in paragraph 2 of this award term and condition. This is a statutory requirement under section 872 of Public Law 110-417, as amended (41 U.S.C. 2313). As required by section 3010 of Public Law 111-212, all information posted in the designated integrity and performance system on or after April 15, 2011, except past performance reviews required for Federal procurement contracts, will be publicly available.

(2) Proceedings About Which You Must Report. Submit the information required about each proceeding that:

- a. Is in connection with the award or performance of a grant, cooperative agreement, or procurement contract from the Federal Government;
- b. Reached its final disposition during the most recent five year period; and
- c. Is one of the following:

- (i) A criminal proceeding that resulted in a conviction, as defined in paragraph 5 of this award term and condition;
- (ii) A civil proceeding that resulted in a finding of fault and liability and payment of a monetary fine, penalty, reimbursement, restitution, or damages of \$5,000 or more;
- (iii) An administrative proceeding, as defined in paragraph 5. of this award term and condition, that resulted in a finding of fault and liability and your payment of either a monetary fine or penalty of \$5,000 or more or reimbursement, restitution, or damages in excess of \$100,000; or
- (iv) Any other criminal, civil, or administrative proceeding if:
 - (a) It could have led to an outcome described in paragraph 2.c.(i), (ii), or (b) of this award term and condition;
 - (c) It had a different disposition arrived at by consent or compromise with an acknowledgment of fault on your part; and
 - (d) The requirement in this award term and condition to disclose information about the proceeding does not conflict with applicable laws and regulations.

3. Reporting Procedures. Enter in the SAM Entity Management area the information that SAM requires about each proceeding described in paragraph 2 of this award term and condition. You do not need to submit the information a second time under assistance awards that you received if you already provided the information through SAM because you were required to do so under Federal procurement contracts that you were awarded.

4. Reporting Frequency. During any period of time when you are subject to the requirement in paragraph 1 of this award term and condition, you must report proceedings information through SAM for the most recent five-year period, either to report new information about any proceeding(s) that you have not reported previously or affirm that there is no new information to report. Recipients that have Federal contract, grant, and cooperative agreement awards with a cumulative total value greater than \$10,000,000 must disclose semiannually any information about the criminal, civil, and administrative proceedings.

5. Definitions. For purposes of this award term and condition:

a. Administrative proceeding means a non-judicial process that is adjudicatory in nature in order to make a determination of fault or liability (e.g., Securities and Exchange Commission Administrative proceedings, Civilian Board of Contract Appeals proceedings, and Armed Services Board of Contract Appeals proceedings). This includes proceedings at the Federal and State level but only in connection with performance of a Federal contract or grant. It does not include

audits, site visits, corrective plans, or inspection of deliverables.

b. Conviction, for purposes of this award term and condition, means a judgment or conviction of a criminal offense by any court of competent jurisdiction, whether entered upon a verdict or a plea, and includes a conviction entered upon a plea of nolo contendere.

c. Total value of currently active grants, cooperative agreements, and procurement contracts includes:

(i) Only the Federal share of the funding under any Federal award with a recipient cost share or match; and

(ii) The value of all expected funding increments under a Federal award and options, even if not yet exercised.

G. FEDERAL AWARDING AGENCY CONTACTS

VBFF Program Point of Contact:

Dr. Reginald Williams
Office of Naval Research
One Liberty Center - Suite 660
875 North Randolph Street
Arlington, VA 22203-1995
Email Address: reginald.g.williams@navy.mil

Business Point of Contact:

Ms. Veronica Lacey
Office of Naval Research
One Liberty Center – Suite W1253
875 N. Randolph Street
Arlington, VA 22203-1995
Email Address: veronica.lacey@navy.mil

Questions concerning White Papers, Supporting Documentation should be submitted by 26 July 2019 to the VBFF program point of contact with a copy to the business point of contact.

Questions received after the deadlines may not be answered, and the due date for submission of application materials will not be extended.

Answers to substantive questions submitted in response to this FOA will be addressed in the form of an amendment and will be posted to one or more of the following web pages:

Grants.gov Webpage – <http://www.grants.gov/>

ONR Funding Opportunity Announcement (FOA) Webpage – <https://www.onr.navy.mil/en/work-with-us/funding-opportunities/announcements>

Applicants should be alert for any amendments that may modify the announcement.

H. OTHER INFORMATION

1. 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 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. Refer to 2 CFR Part 170, including Appendix A, for a detailed explanation of the requirements, exceptions, and exemptions.

2. Certification regarding Restrictions on Lobbying

Grant and Cooperative Agreement awards greater than \$100,000, as well as OTAs not under 10 U.S.C. 2371b, require a certification of compliance with a national policy mandate concerning lobbying. Grant applicants shall provide this certification by electronic submission of SF424 (R&R) as a part of the electronic proposal submitted via [Grants.gov](http://www.grants.gov) (complete Block 17). The following certification applies likewise to each Cooperative Agreement and normal OTA applicant seeking federal assistance funds exceeding \$100,000:

a. 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.

b. 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.

c. 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.

3. 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 Regarding an Unpaid Delinquent Tax Liability or a Felony Conviction under Any Federal Law – DoD Appropriations " found at <https://www.onr.navy.mil/work-with-us/how-to-apply/submit-grant-application> by checking the "I agree" box in Field 17 and attaching the representation to Field 18 of the SF424 (R&R) as part of the electronic proposal submitted via Grants.gov. The representation reads as follows:

a. The applicant represents that it is/ 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.

b. The applicant represents that it is/ 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 must 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.

4. 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 Field 17 of the SF424 (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.

Note that, as applicable, the bases for this representation are the prohibition(s) as follow:

1. Section 743 of the Financial Services and General Government Appropriation Act, 2015 (Division E of the Consolidated and Further Continuing Appropriations Act, 2015, Pub. L. 113-235).
2. Section 101(a) of the Continuing Appropriation Act, 2016 (Pub. L. 114-53) and any subsequent FY2016 appropriations act that extends to FY2016 the same restrictions as are contained in section 743 of Division E, title VII of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub L. 113-235).
3. Pub. L. 114-223, Continuing Appropriations Act, 2017, or any other Act that extends to fiscal year 2017 funds the same prohibitions as contained in section 743, Division E, title VII, of the Consolidated Appropriations Act, 2016 (Pub. L. 114-113).
4. Any successor provision of law on making funds available through grants and cooperative agreements to entities with certain internal confidentiality agreements or statements.

The prohibitions stated above do not contravene requirements applicable to Standard Form 312, Form 4414, or any other form issued by a Federal department or agency governing the nondisclosure of classified information.

5. Code of Conduct

Applicants for grants, cooperative agreements, or other transaction agreements as applicable are required to comply with 2 CFR 200.318(c), 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.

6. Requirements Concerning Live Organisms

1. Use of Animals:

If animals are to be utilized in the research effort proposed, the Applicant must submit 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: <https://www.onr.navy.mil/work-with-us/how-to-apply/compliance-protections/research-protections/recombinant-or-synthetic-nucleic-acid-molecules>

2. Use of Human Subjects in Research:

- a. You must protect the rights and welfare of individuals who participate as

human subjects in research under this award and comply with the requirements of the Common Rule at 32 CFR part 219 and applicable provisions of DoD Instruction 3216.02, Protection of Human Subjects and Adherence to Ethical Standards in DoD-Supported Research (2011), the DON implementation of the human research protection program contained in SECNAVINST 3900.39D (or its replacement), 10 USC 980 “Limitation on Use of Humans as Experimental Subjects,” and when applicable, Food and Drug Administration (FDA) and other federal and state law and regulations.

b. For proposals containing activities that include or may include “research involving human subjects” as defined in DoDI 3216.02, prior to award, the Applicant must submit documentation of:

(1) Approval from an Institutional Review Board (IRB) (IRB-approved research protocol, IRB- approved informed consent document, and other material they considered); proof of completed human research training (e.g., training certificate or institutional verification of training for the Project Director / Principal Investigator, co-investigators); and the Applicant’s Department of Health and Human Services (DHHS)-issued Federalwide Assurance (FWA#),

(2) Any claimed exemption under 32 CFR 219 101(b), including the category of exemption, supporting documentation considered by your institution in making the determination (e.g., protocol, data collection tools, advertisements, etc.). The documentation shall include a short rationale supporting the exemption determination. This documentation should be signed by the IRB Chair or IRB vice Chair, designated IRB administrator or official of the human research protection program.

(3) Any determinations that the proposal does not contain activities that constitute research involving human subjects, including supporting documentation considered by your institution in making the determination. This documentation should be issued by the IRB Chair or IRB vice Chair, designated IRB administrator or official of the human research protection program.

c. Documentation must be submitted to the ONR Human Research Protection Official (HRPO), by way of the ONR Program Officer. If the research is determined by the IRB to be greater than minimal risk, you also must provide the name and contact information for the independent research monitor and a written summary of the monitors’ duties, authorities, and responsibilities as approved by the IRB. For assistance with submission of human subject research related documentation, contact the ONR Human Research Protection Official (HRPO) at (703) 696-4046.

d. Research involving human subjects must not be commenced under any award or modification or any subcontract or grant subaward or modification until awardee receives notification from the Grants Officer that the HRPO has

approved the assurance as appropriate for the research under the award or modification and that the HRPO has reviewed the protocol and accepted the IRB approval or determination for compliance with Federal, DoD and DON research protection requirements. See, DFARS 252.235-7004. Guidance:

<https://www.onr.navy.mil/work-with-us/how-to-apply/compliance-protections/research-protections/Human-Subject-Research>

3. Use of Recombinant DNA or Synthetic Nucleic Acid Molecules:

Proposals which call for experiments using recombinant or synthetic nucleic acid molecules must include documentation of compliance with NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules (NIH Guidelines), approval of the Institutional Biosafety Committee (IBC), and copies of the DHHS Approval of the IBC letter. Guidance: <https://www.onr.navy.mil/work-with-us/how-to-apply/compliance-protections/research-protections/recombinant-or-synthetic-nucleic-acid-molecules>

7. Institutional Dual Use Research of Concern

As of September 24, 2015, all institutions and United States Government (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 <https://www.phe.gov/s3/dualuse>.

8. 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 <https://www.hpc.mil/>.

9. Project Meetings and Reviews

Individual program reviews between the 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, applicants must assume that 40% of these meetings will be at or near the government sponsor location and 60% at other contractor or government facilities. Interim meetings are likely, but these will be accomplished via video telephone conferences, telephone conferences, or via web-based collaboration tools.