



Cyber-enabled Manufacturing Systems for Direct Digital Manufacturing (CeMS-DDM)

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INTRODUCTION:

This publication constitutes a Broad Agency Announcement (BAA) as contemplated in the Department of Defense Grants and Agreements Regulations (DoDGARS) 22.315(a). A formal Request for Proposals (RFP), other solicitation, 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 fund all, some or none of the proposals received under this BAA. ONR provides no funding for direct reimbursement of proposal development costs. Technical and cost proposals (or any other material) submitted in response to this BAA 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 the purposes of evaluation.

I GENERAL INFORMATION:

1. Agency Name - Office of Naval Research

2. Research Opportunity Title - Cyber-enabled Manufacturing Systems for Direct Digital Manufacturing (CeMS-DDM)

3. Program Name - Manufacturing Science

4. Research Opportunity Number - 14-004

5. Response Date -

White Papers: 12/30/2013

Full Proposals: 2/13/2014

6. Research Opportunity Description -

The Office of Naval Research (ONR) is interested in receiving proposals for Cyber-enabled Manufacturing Systems for Direct Digital Manufacturing (CeMS-DDM). The objective of this research opportunity is to develop the fundamental principles for CeMS-DDM with the goal of closely coupling computation and manufacturing. The program develops computation models and tools for the design of components and their manufacture by additive processes. This includes computational models that enable prediction and control over manufacturing processes, which anticipate defect formation and initiate corrective actions during manufacture in real-time. These models will involve explicit representations for sensing and actuating, process planning and distributed control. The program develops computation and physical models based on fundamental materials behavior, models for in situ process visualization, sensing, monitoring and control. It develops physical processes at material- and system-levels. It develops real-time

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closed-loop feedback control systems for incremental, voxel-by-voxel, layer-by-layer (DDM) processes. It will produce critical components for integration into useful engineered systems of interest to the Navy. It considers all length-scales (nano-, micro-, meso-, and macro-scales) and develops designs and processing across multiple length scales. To ensure product quality and production reliability, a program objective is to meet the military requirements of qualification, verification and validation (QVV) for processes and products. CeMS-DDM develops concepts for 'certify-as-you-build' paradigm, which is essential for producing parts and components in small lots or lot-sizes-of-one. The program addresses build model quality and validation as native CAD files are translated to the STL format. The program requires experimental verification for the proposed concepts. Its interests are in ideas that minimize or eliminate post-processing and assembly, achieve desired surface finish, and meet or exceed Mil-Spec property specifications.

This program takes a multi-disciplinary approach that seeks to integrate computational processes in cyber-physical systems (CPS) with DDM processes that will enable entirely new production capabilities. The proposed approaches must have joint CPS and DDM concepts. Cyber Physical Systems are integrations of computation (software) and physical (manufacturing) processes. The attributes of CPS are physical processes, engineered systems and intimate coupling. Physical processes are monitored and controlled by embedded computers and networks, usually with feedback loops where physical processes affect computations and vice versa. Engineered systems are those whose operations are monitored, coordinated, controlled and integrated by a computation and communication core. Intimate coupling is that between the cyber and the physical manifested from nano-world to large-scale wide-area systems of systems and at multiple time-scales

Manufacturing Domain: Of particular interest are components and systems for structural and mechanical, power and energy, and electronic and optoelectronic applications. The proposal must identify a specific three-dimensional geometry, part or component that will be studied in this program and that could be part of an engineered system.

In summary, the proposed research for CeMS-DDM seeks to:

- Understand physical processes at different length and time scales,
- Explore and leverage the relationships among models of physical processes from a dynamic real-time computational perspective,
- Enable new manufacturing technology linking network and information technology with physical and materials processing, and
- Address design and development of a challenge component using DDM technologies.

Work funded under a BAA may include basic research, applied research and some advanced technology development (ATD). With regard to any restrictions on the conduct or outcome of work funded under this BAA, ONR will follow the guidance on and definition of "contracted fundamental research" as provided in the Under Secretary of Defense (Acquisition, Technology and Logistics) Memorandum of 24 May 2010. As defined therein the definition of "contracted fundamental research", in a DoD contractual context, includes [research performed under] grants and contracts that are (a) funded by Research, Development, Test, and Evaluation Budget Activity 1 (Basic Research), whether performed by universities or industry or (b) funded by Budget Activity 2 (Applied Research) and performed on campus at a university. The research shall not be ONR BAA 14-004

considered fundamental in those rare and exceptional circumstances where the applied research effort presents a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense, and where agreement on restrictions have been recorded in the contract or grant.

Pursuant to DoD policy, research performed under grants and contracts that are a) funded by Budget Category 6.2 (Applied Research) and NOT performed on-campus at a university or b) funded by Budget Category 6.3 (Advanced Research) does not meet the definition of "contracted fundamental research." In conformance with the USD(AT&L) guidance and National Security Decision Direction 189, ONR will place no restriction on the conduct or reporting of unclassified "contracted fundamental research," except as otherwise required by statute, regulation or Executive Order. For certain research projects, it may be possible that although the research being performed by the prime contractor is restricted research, a subcontractor may be conducting "contracted fundamental research." In those cases, it is the *prime contractor's responsibility* in the proposal to identify and describe the subcontracted unclassified research and include a statement confirming that the work has been scoped, negotiated, and determined to be fundamental research according to the prime contractor and research performer.

Normally, fundamental research is awarded under grants with universities and under contracts with industry. ATD is normally awarded under contracts and may require restrictions during the conduct of the research and DoD pre-publication review of research results due to subject matter sensitivity.

FAR Part 35 restricts the use of the Broad Agency Announcements (BAAs), such as this, to the acquisition of basic and applied research and that portion of advanced technology development not related to the development of a specific system or hardware procurement. Contracts and grants and other assistance agreements made under BAAs are for scientific study and experimentation directed towards advancing the state of the art and increasing knowledge or understanding.

As regards to the present BAA, the Research and Development efforts to be funded will consist of basic research. The funds available to support awards are Budget Activity 1.

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

7. Point(s) of Contact -

Questions of a technical nature should be submitted to:

Program Manager Name: Dr. Khershed P. Cooper
Address: 875 North Randolph Street, Arlington, VA 22203
Code: ONR 03TMT
Phone: 202-767-0181
Email: khershed.cooper@nrl.navy.mil

Questions of a business nature should be submitted to:
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Name: Mr. Patrick Sisk
Address: 875 North Randolph Street, Arlington, VA 22203
Code: ONR BD02
Phone: 703-696-6804
Email: patrick.sisk@navy.mil

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

Comments or questions submitted should be concise and to the point, eliminating any unnecessary verbiage. In addition, the relevant part and paragraph of the Broad Agency Announcement (BAA) should be referenced.

Questions submitted within 2 weeks prior to a deadline may not be answered, and the due date for submission of the white paper and/or full proposal will not be extended.

Amendments will be posted to one or more of the following webpages:

- Federal Business Opportunities (FEDBIZOPPS) Webpage - <https://www.fbo.gov/>
- Grants.gov Webpage - <http://www.grants.gov/>
- ONR Broad Agency Announcement (BAA) Webpage - <http://www.onr.navy.mil/en/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements.aspx>

Questions of a security nature should be submitted to:

Diana Pacheco
Industrial Security Specialist
Office of Naval Research
Security Department, Code 43
One Liberty Center
875 N. Randolph Street
Arlington, VA 22203-1995
Email Address: diana.pacheco@navy.mil

Note: All UNCLASSIFIED communications shall be submitted via e-mail to the Technical Point of Contract (POC) with a copy to the designated Business POC.

CLASSIFIED questions shall be handled through the ONR Security POC. Specifically, any entity wanting to ask a CLASSIFIED question shall send an email to the ONR Security POC with copy to both the Technical POC and the Business POC stating that the entity would like to ask a CLASSIFIED question. DO NOT EMAIL ANY CLASSIFIED QUESTIONS. The Security POC will contact the entity and arrange for the CLASSIFIED question to be asked through a secure

method of communication.

8. Instrument Type(s) - Grants

Awards may take the form of Grants as appropriate. ONR reserves the right to award a different instrument type if deemed to be in the best interest of the Government.

Any contract awards resulting from this BAA will incorporate the most current FAR, DFARS, NMCARS and ONR clauses.

Examples of model grants can be found on the ONR website at the following link:

<http://www.onr.navy.mil/en/Contracts-Grants/submit-proposal/grants-proposal/model-grant.aspx>.

9. Catalog of Federal Domestic Assistance (CFDA) Numbers -

12.300

10. Catalog of Federal Domestic Assistance (CFDA) Titles -

Basic & Applied Scientific Research

11. Other Information -

II. AWARD INFORMATION

1. Amount and Period of Performance-

Anticipated Number of Awards: 4-6.

Anticipated Range of Individual Award Amounts: 100-150K/year.

Anticipated Period of Performance: 3 years

* For the past three years Congress has placed limits on the percentage of indirect costs that can be paid by the government using basic research (6.1) funds. Currently indirect costs paid under contracts and grants for the performance of basic research may not exceed 35 percent. It is unknown at present whether a similar indirect cost restriction will apply to 6.1 funds in FY 2011 or thereafter.

The award(s) will be made for the full performance period requested. Options will not be utilized.

III. ELIGIBILITY INFORMATION

All responsible sources from academia and industry may submit proposals under this BAA. 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 BAA will be set aside for HBCU and MI participation.

Federally Funded Research & Development Centers (FFRDCs), including Department of Energy National Laboratories, are not eligible to receive awards under this BAA. However, teaming arrangements between FFRDCs and eligible principal bidders are allowed so long as they are permitted under the sponsoring agreement between the Government and the specific FFRDC.

Navy laboratories and warfare centers as well as other Department of Defense and civilian agency laboratories are also not eligible to receive awards under this BAA and should not directly submit either white papers or full proposals in response to this BAA. If any such organization is interested in one or more of the programs described herein, the organization should contact an appropriate ONR POC to discuss its area of interest. The various scientific divisions of ONR are identified at <http://www.onr.navy.mil/>. As with FFRDCs, these types of federal organizations may team with other responsible sources from academia and industry that are submitting proposals under this BAA.

University Affiliated Research Centers (UARC) are eligible to submit proposals under this BAA unless precluded from doing so by their Department of Defense UARC contracts.

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

Some topics cover export controlled technologies. Research in these areas is limited to "U.S. persons" as defined in the International Traffic in Arms Regulations (ITAR) - 22 CFR § 1201.1 et seq.

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 33.110. Any company, non-profit agency or university that applies for financial assistance (either grants, cooperative agreements or other transaction agreements) as either a prime or sub-recipient under this BAA must provide information in their proposal that describes the necessary processes and systems in place to comply with the reporting requirements identified in 2 CFR 33.220 and Appendix A. Entities are **exempt** from this requirement **UNLESS** in the preceding fiscal year, it received: a) 80 percent or more of its annual gross revenue in Federal contracts (and subcontracts), loans, grants (and subgrants), and cooperative agreements; b) \$25 million or more in annual gross revenue from Federal contracts (and subcontracts), loans, grants (and subgrants), and cooperative agreements; and c) the public does not have access to information about the compensation of the senior executives through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 or section 6104 of the Internal Revenue Code of 1986.

IV. APPLICATION AND SUBMISSION INFORMATION

1. Application and Submission Process - White Paper, Full Proposals

White papers should briefly describe the proposed research, its technical scope, objectives, approach, expected outcomes, qualifications of principal investigators and the requested annual budget.

White papers must be sent to khershed.cooper@nrl.navy.mil
Full proposals must address most requirements of the BAA as described.

2. Content and Format of White Papers/Full Proposals -

White Papers and Full Proposals submitted under the BAA are expected to be unclassified ; however, confidential/classified responses are permitted. If a classified proposal is submitted, the resultant contract will be unclassified. .

Unclassified Proposal Instructions:

Unclassified White Papers and Full Proposals shall be submitted in accordance with Section IV. Application and Submission Information.

Classified Proposal Instructions:

Classified White Papers and Full Proposals shall be submitted directly to the attention of ONR's Document Control Unit at the following address:

OUTSIDE ENVELOPE (no classification marking):

Office of Naval Research
Document Control Unit
ONR Code 43
875 North Randolph Street
Arlington, VA 22203-1995

The inner wrapper of the classified proposal should be addressed to the attention of Cooper, Khershed (khershed.cooper@nrl.navy.mil), ONR Code 03TMT and marked in the following manner:

INNER ENVELOPE (stamped with the overall classification of the material)
Program: Cyber-enabled Manufacturing Systems for Direct Digital Manufacturing (CeMS-DDM)
Office of Naval Research
Attn: Cooper, Khershed
ONR Code: 03TMT
875 North Randolph Street
Arlington, VA 22203-1995

An 'unclassified' Statement of Work (SOW) must accompany any classified proposal.

Proposal submissions will be protected from unauthorized disclosure in accordance with FAR Subpart 15.207, applicable law, and DoD/DoN regulations. Offerors 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.

Alternatives to the format and content identified below may be appropriate depending on the scope and nature of the proposed effort. Coordinate any alternative proposal formats and contents relating to white papers and technical proposals (Volume 1 of the full proposal) with the cognizant ONR Program Officer, who is listed in Section I.7. Alternative formats and content may be directed by the ONR Program Officer or may result from Offerors' suggestions approved by the ONR Program Officer.

a. WHITE PAPERS

White Paper Format

- Paper Size - 8.5 x 11 inch paper
- Margins - 1 inch
- Spacing - single spaced
- Font - Times New Roman, 12 point
- Max. Number of Pages permitted: 5 pages (excluding cover page, resumes, bibliographies, and table of contents)
- Copies - One (1) electronic copy in Adobe PDF or Word 2007 delivered via email. Electronic (email) submissions should be sent to the attention of the TPOC at: (Email Address of the TPOC, e.g. jane.doe@navy.mil). The subject line of the email shall read "ONR BAA 14-004 White Paper Submission."

NOTE:

- 1. Do not send hardcopies of White Papers (including Facsimiles) as only electronic submissions will be accepted and reviewed;**
- 2. Do not send .ZIP files.**
- 3. Do not send password protected files.**

In order to provide traceability and evidence of submission, Offerors may wish to use the "Delivery Receipt" option available from Microsoft Outlook and other email programs that will automatically generate a response when the subject email is delivered to the recipient's email system. Consult the User's Manual for your email software for further details on this feature.

White Paper Content

- **Cover Page:** The Cover Page shall be labeled "WHITE PAPER", and shall include the BAA number, proposed title, Offeror's administrative and technical points of contact, with telephone numbers, facsimile numbers, and Internet addresses, and shall be signed by an authorized officer.
- **White Paper Technical Content:** A description of the technology innovation and technical risk areas.

The white paper must address a scientific gap in cyber-enabled manufacturing systems for direct digital manufacturing and briefly propose basic research to overcome this gap.
- **Future Naval Relevance:** A description of potential Naval relevance and contributions of the effort to the agency's specific mission.
- **Other Requirements:** Rough Order of Magnitude (ROM) (where applicable).

b. FULL PROPOSALS

ii. INSTRUCTIONS FOR GRANTS

The following information must be completed as follows in the SF 424 located on www.grants.gov to ensure that the application is directed to the correct individual for review: **Block 4a**, Federal Identifier: Enter the previous ONR award number, or **N00014** if the application is not a renewal or expansion of an existing award; **Block 4b**, Agency Routing Number: **Enter the three (3) digit Program Office Code and the Program Officer's name, last name first, in brackets (i.e., [Shifler, David])**. Applicants who fail to provide a Program Officer code identifier may receive a notice that their proposal is rejected.

To attach the technical proposal in Grants.gov, download the application package

Click on "Research and Related Other Project Information"

Click on "Move form to Submission List"

Click on "Open Form"

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

Block 7 is the Project Summary/Abstract -> click on "Add attachment" and attach the project summary/abstract. (You will not be able to type in the box, therefore, save the file you want to attach as Project Summary or Abstract).

Block 8 is the Project Narrative -> click on Add attachment and attach the technical proposal. (Save the file as Volume I- Technical Proposal since you will not be able to type in the box).

Full Proposal Format - Volume 1 - Technical Proposal and Volume 2 - Cost Proposal

- Paper Size - 8.5 x 11 inch paper
- Margins - 1 inch
- Spacing - single-spaced
- Font - Times New Roman, 12 point
- Number of Pages - Volume (Vol. 1) is limited to no more than 15 pages. Limitations within sections of the proposal, if any, are indicated in the individual descriptions shown below. The cover page, table of contents, resumes and current and pending project and proposal submissions information are excluded from the page limitations. Full Proposals exceeding the page limit may not be evaluated. There are no page limitations to Volume 2.
- Copies - the full proposal should be submitted electronically at <http://www.grants.gov> as delineated in paragraph 5 below.

Volume 1: Technical Proposal

- **Cover Page:** This should include the words "Technical Proposal" and the following:
 1. BAA number 14-004;
 2. Title of Proposal;
 3. Identity of prime Offeror and complete list of subawards, if applicable;
 4. Technical contact (name, address, phone/fax, electronic mail address)
 5. Administrative/business contact (name, address, phone/fax, electronic mail address) and;
 6. Proposed period of performance (Awards will be made without options);
 7. Signature of Authorized Representative.
- **Table of Contents:** An alphabetical/numerical listing of the sections within the proposal, including corresponding page numbers.
- **Technical Approach and Justification:** The major portion of the proposal should consist of a clear description of the technical approach being proposed. This discussion should provide the technical foundation / justification for pursuing this particular approach / direction and why one would expect it to enable the objectives of the proposal to be met.
 - **Future Naval Relevance:** A description of potential Naval relevance and contributions of the effort to the agency's specific mission.

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

Reports:

The following are sample reports that are typically required under a research effort:

- Technical and Financial Progress Reports
- Presentation Materials
- Final Report

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

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

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

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

Qualifications: A discussion of the qualifications of the proposed Principal Investigator and any other key personnel. Include resumes for the Principal Investigator and other key personnel and full curricula vitae for Principal Investigators and consultants. The resumes and curricula vitae shall be attached to the proposal and will not count toward the page limitations.

VOLUME 2: Cost Proposal

The offeror must use the Grants.gov forms (including the Standard Form (SF) Research and Related (R&R) Budget Form) from the application package template associated with the BAA on the Grants.gov web Site located at <http://www.grants.gov/>. If options are proposed, the cost proposal must provide the pricing information for the option periods; failure to include the proposed costs for the option periods will result in the options not being included in the award. Assume that performance will start no earlier than 1 months after the date the cost proposal is submitted. A separate Adobe .pdf document should be included in the application that provides appropriate justification and/or supporting documentation for each element of cost proposed.

Part 1: The itemized budget must include the following

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

Administrative and clerical labor Salaries of administrative and clerical staff are normally indirect costs (and included in an indirect cost rate). Direct charging of these costs may be appropriate when a major project requires an extensive amount of administrative or clerical support significantly greater than normal and routine levels of support. Budgets proposing direct charging of administrative or clerical salaries must be supported with a budget justification which adequately describes the major project and the administrative and/or clerical work to be performed.

- **Fringe Benefits and Indirect Costs** - (i.e., 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 should 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. Offerors may include travel costs for the Principal Investigator to attend the peer reviews described in Section II of this BAA.

- Subawards/subcontracts - Provide a description of the work to be performed by the subrecipient/subcontractor. For each subaward, a detailed cost proposal is required to be submitted by the subrecipient(s). A proposal and supporting documentation must be received and reviewed before the Government can complete its cost analysis of the proposal and enter negotiations. ONR's preferred method of receiving subcontract information is for this information to be included with the Prime's proposal. However, a subcontractor's cost proposal can be provided in a sealed envelope with the recipient's cost proposal or via e'mail directly to both the Program Officer and the business point of contact at the same time the prime proposal is submitted. The e'mail should identify the proposal title, the prime Offeror and that the attached proposal is a subcontract. Fee/profit is unallowable on subawards.
- Consultants - Provide a breakdown of the consultant's hours, the hourly rate proposed, any other proposed consultant costs, a copy of the signed Consulting Agreement or other documentation supporting the proposed consultant rate/cost, and a copy of the consultant's proposed statement of work if it is not already separately identified in the prime contractor's proposal.
- Materials & Supplies - Provide an itemized list of all proposed materials and supplies including quantities, unit prices, and the basis for the estimate (e.g., quotes, prior purchases, catalog price lists).
- Recipient Acquired Equipment or Facilities - Equipment and/or facilities are normally furnished by the Recipient. If acquisition of equipment and/or facilities is proposed, a justification for the purchase of the items must be provided. Provide an itemized list of all equipment and/or facilities costs and the basis for the estimate (e.g., quotes, prior purchases, catalog price lists). Allowable items normally are limited to research equipment not already available for the project. General purpose equipment (i.e., equipment not used exclusively for research, scientific or other technical activities, such as personal computers, laptops, office equipment) should not be requested unless they will be used primarily or exclusively for the project. For computer/laptop purchases and other general purpose equipment, if proposed, include a statement indicating how each item of equipment will be integrated into the program or used as an integral part of the research effort.
- Other Direct Costs - Provide an itemized list of all other proposed other direct costs such as Graduate Assistant tuition, laboratory fees, report and publication costs, and the basis for the estimate (e.g., quotes, prior purchases, catalog price lists).

NOTE: If the grant proposal is for a conference, workshop or symposium:

1. *ONR will not sponsor ONR, Navy, or DoD driven event. Provide a list of other sponsors and the requested amounts to be funded by all sponsors.*
2. *The funds provided by ONR may be used to pay for food or beverages as a direct cost only in exceptional circumstances. The funds will not be used for food or beverages unless*
 - a. *the grant proposal contains a request for such funding that is fully supported factually in accordance with the cost principles of the relevant OMB Circular, and*
 - b. *the grants officer determines that the funding is a reasonable, allocable,*

allowable expense under the relevant cost principles.

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

Part 2 - Cost breakdown by Government fiscal year and task/sub-task corresponding to the same task breakdown in the proposed Statement of Work.

3. Significant Dates and Times -

Event	Date	Time
White Paper Due Date	12/30/2013	5:00 PM Eastern Standard Time
Notification of White Paper Evaluation*	1/13/2014	
Full Proposal Due Date	2/13/2014	5:00 PM Eastern Standard Time
Notification of Selection: Full Proposals*	3/6/2014	
Awards*	7/6/2014	

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

4. Submission of Late Proposals -

Any proposal, modification, or revision that is received at the designated Government office after the exact time specified for receipt of proposals is "late" and will not be considered unless it is received before award is made, the contracting officer determines that accepting the late proposal would not unduly delay the acquisition and:

- a. If it was transmitted through an electronic commerce method authorized by the announcement, it was received at the initial point of entry to the Government infrastructure not later than 5:00 P.M. one working day prior to the date specified for receipt of proposals; or
- b. There is acceptable evidence to establish that it was received at the Government installation designated for receipt of proposals and was under the Government's control prior to the time set for receipt of proposals; or
- c. It was the only proposal received.

However, a late modification of an otherwise timely and successful proposal that makes its terms more favorable to the Government will be considered at any time it is received and may be

accepted.

Acceptable evidence to establish the time or receipt at the Government installation includes the time/date stamp of that installation on the proposal wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

If an emergency or unanticipated event interrupts normal Government processes so that proposals cannot be received at the Government office designated for receipt of proposals by the exact time specified in the announcement, and urgent Government requirements preclude amendment of the announcement closing date, the time specified for receipt of proposals will be deemed to be extended to the same time of day specified in the announcement on the first work day on which normal Government processes resume.

The contracting officer must promptly notify any offeror if its proposal, modifications, or revision was received late and must inform the offeror whether its proposal will be considered.

5. Submission of Grant Proposals through Grants.gov

Detailed instructions entitled "Grants.Gov Electronic Application and Submission Information" on how to submit a Grant proposal through Grants.gov are under the Submit Proposals section of the website at <http://www.onr.navy.mil/Contracts-Grants/submit-proposal/grants-proposal/grants-gov.aspx>

White Papers should not be submitted through the Grants.gov Apply process, but rather should be sent directly to ONR. White Papers should be e-mailed directly to the Technical Point of Contact. White Paper format requirements are found in Section IV, item 2a above.

By completing Block 17, the Grant Applicant is providing the certification on lobbying required by 32 CFR Part 28. Refer to Section VI, "Award Administration Information" entitled "Certifications" for further information.

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

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

applicants) or support@grants.gov.

Special Notices Relative to Grant Applications to be submitted through Grants.Gov:

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

Applicants who have registered with Grants.gov are urged to submit their proposals electronically *at least* three days before the date and time that proposals are due so that they will not be received late and be ineligible for award consideration.

Proposal Receipt Notices:

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

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

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

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

6. Address for the Submission of White Papers for Grants.

V. EVALUATION INFORMATION

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1. Evaluation Criteria -

Awards under this BAA will be made to proposers on the basis of the evaluation criteria listed below, and program balance to provide overall value to the Government. The Government reserves the right to request any additional, necessary documentation once it makes the award instrument determination. The Government reserves the right to remove proposers from award consideration should the parties fail to reach agreement on award terms, conditions, and cost/price within a reasonable time, or the proposer fails to timely provide requested additional information. Evaluations will be conducted using the following evaluation criteria:

1. Overall scientific and technical merits of the proposal;
2. The qualifications, capabilities and experience of the proposed Principal Investigator (PI), team leader and key personnel who are critical in achieving the proposal objectives;
3. The offeror's capabilities, related experience, facilities, techniques or unique combinations of these which are integral factors for achieving the proposal objectives;
4. Potential Naval relevance and contributions of the effort to the agency's specific mission and
5. The realism of the proposed costs and availability of funds.

Criteria 1 - 4 above are significantly more important than Criteria 5, and Criteria 1 through 4 are of equal value. The primary bases for selecting proposals for acceptance shall be technical, importance to agency programs and fund availability. Cost realism and reasonableness shall also be considered to the extent appropriate.

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

3. Options -

Options will not be utilized.

4. Evaluation Panel -

Technical and cost proposals submitted under this BAA will be protected from unauthorized disclosure in accordance with FAR 3.104-4 and 15.207. The cognizant Program Officer and other Government scientific experts will perform the evaluation of technical proposals. Restrictive notices notwithstanding, one or more support contractors may be utilized as subject-matter-expert technical consultants. However, proposal selection and award decisions are solely the responsibility of Government personnel. Each support contractor's employee having access to technical and cost proposals submitted in response to this BAA will be required to sign a non-

disclosure statement prior to receipt of any proposal submissions.

VI. AWARD ADMINISTRATION INFORMATION

1. Administrative Requirements -

- North American Industry Classification System (NAICS) code - The NAICS code for this announcement is "541712" with a small business size standard of "500 employees".
- System for Award Management (SAM): All Offerors 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.

The System for Award Management (SAM) is a free web site that consolidates the capabilities you used to find in CCR/FedReg, ORCA, and EPLS. Future phases of SAM will add the capabilities of other systems used in Federal procurement and awards processes.

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

- Access to your Grant, Cooperative Agreement, Other Transaction and Contract Award

Effective 01 October 2011, hard copies of award/modification documents are no longer be mailed to Offerors. All Office of Naval Research (ONR) award/modification documents will be available via the Department of Defense (DoD) Electronic Document Access System (EDA).

EDA

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

If you do not currently have access to EDA, complete a self-registration request as a "Vendor" via <http://eda.ogden.disa.mil> following the steps below:

Click "New User Registration" (from the left Menu)
Click "Begin VENDOR User Registration Process"
Click "EDA Registration Form" under Username/Password (enter the appropriate data)
Complete & Submit Registration form

Allow five (5) business days for your registration to be processed. EDA will notify you by email when your account is approved.

Registration questions may be directed to the EDA help desk toll free at 1-866-618-5988, Commercial at 801-605-7095, or via email at cscassig@csd.disa.mil (Subject: EDA Assistance)

Grants:

Grant and Cooperative Agreement awards greater than \$100,000, as well as OTAs not under Section 845, 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 (complete Block 17). The following certification likewise applies to each cooperative agreement and normal OTA applicant seeking federal assistance funds exceeding \$100,000:

CERTIFICATION REGARDING LOBBYING ACTIVITIES

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

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

(3) The applicant shall require that the language of this certification be included in the award documents for all sub awards at all tiers (including sub contracts, sub grants, and contracts under grants, loans, and cooperative agreements) and that all sub recipients 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.

VII. OTHER INFORMATION

1. Government Property/Government Furnished Equipment (GFE) and Facilities

Government research facilities and operational military units are available and should be considered as potential government-furnished equipment/facilities. These facilities and resources

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are of high value and some are in constant demand by multiple programs. It is unlikely that all facilities would be used for any one specific program. The use of these facilities and resources will be negotiated as the program unfolds. Offerors submitting proposals for contracts, cooperative agreements and Other Transaction Agreements should indicate in the Technical Proposal Template, Section II, Blocks 8 and 9, which of these facilities are critical for the project's success. Offerors submitting proposals for grants should address the need for government-furnished facilities in their technical proposal.

2. Security Classification

RESERVED

3. Use of Animals and Human Subjects in Research

If animals are to be utilized in the research effort proposed, the Offeror must complete a DoD Animal Use Protocol with supporting documentation (copies of AALAC accreditation and/or NIH assurance, IACUC approval, research literature database searches, and the two most recent USDA inspection reports) prior to award. For assistance with submission of animal research related documentation, contact the ONR Animal Use Administrator at (703) 696-4046.

Similarly, for any proposal for research involving human subjects, the Offeror must submit or indicate an intention to submit prior to award: documentation of approval from an Institutional Review Board (IRB); IRB-approved research protocol; IRB-approved informed consent form; proof of completed human research training (e.g., training certificate or institutional verification of training); an application for a DoD-Navy Addendum to the Offeror's DHHS-issued Federal wide Assurance (FWA) or the Offeror's DoD-Navy Addendum. In the event that an exemption criterion under 32 CFR.219.101 (b) is claimed, provide documentation of the determination by the Institutional Review Board (IRB) Chair, IRB vice Chair, designated IRB administrator or official of the human research protection program including the category of exemption and short rationale statement. This documentation must be submitted to the ONR Human Research Protection Official (HRPO), by way of the ONR Program Officer. Information about assurance applications and forms can be obtained by contacting ONR_343_contact@navy.mil. If the research is determined by the IRB to be greater than minimal risk, the Offeror also must provide the name and contact information for the independent medical monitor. For assistance with submission of human subject research related documentation, contact the ONR Human Research Protection Official at (703) 696-4046.

For contracts and orders, the award and execution of the contract, order, or modification to an existing contract or order serves as notification from the Contracting Officer to the Contractor that the HRPO has approved the assurance as appropriate for the research under the Statement of Work and also that the HRPO has reviewed the protocol and accepted the IRB approval or exemption determination for compliance with the DoD Component policies. See, DFARS 252.235-7004.

4. Recombinant DNA

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RESERVED

5. Use of Arms, Ammunition and Explosives

RESERVED

6. 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 assistance instruments may be eligible to use HPCMP assets in support of their funded activities if ONR Program Officer approval is obtained and if security/screening requirements are favorably completed. Additional information and an application may be found at <http://www.hpcmo.hpc.mil/>.

7. Organizational Conflicts of Interest

All Offerors and proposed subcontractors must affirm whether they are providing scientific, engineering, and technical assistance (SETA) or similar support to any ONR technical office(s) through an active contract or subcontract. All affirmations must state which office(s) the offeror supports and identify the prime contract numbers. Affirmations shall be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest (FAR 9.5) must be disclosed. The disclosure shall include a description of the action the offeror has taken or proposes to take to avoid, neutralize, or mitigate such conflict. In accordance with FAR 9.503 and without prior approval, a contractor cannot simultaneously be a SETA and a research and development performer. Proposals that fail to fully disclose potential conflicts of interests or do not have acceptable plans to mitigate identified conflicts will be rejected without technical evaluation and withdrawn from further consideration for award. Additional ONR OCI guidance can be found at <http://www.onr.navy.mil/About-ONR/compliance-protections/Organizational-Conflicts-Interest.aspx>. If a prospective offeror believes that any conflict of interest exists or may exist (whether organizational or otherwise), the offeror should promptly raise the issue with ONR by sending his/her contact information and a summary of the potential conflict by e-mail to the Business Point of Contact in Section I, item 7 above, before time and effort are expended in preparing a proposal and mitigation plan. If, in the sole opinion of the Government after full consideration of the circumstances, any conflict situation cannot be effectively avoided, the proposal may be rejected without technical evaluation and withdrawn from further consideration for award under this BAA.

8. Project Meetings and Reviews

Individual program reviews between the ONR sponsor and the performer may be held as necessary. Program status reviews may also be held to provide a forum for reviews of the latest results from experiments and any other incremental progress towards the major demonstrations. These meetings will be held at various sites throughout the country. For costing purposes, offerors should assume that 40% of these meetings will be at or near ONR, Arlington VA and 60% at other ONR BAA 14-004

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.

9. Executive Compensation and First-Tier Subcontract Reporting (APPLIES ONLY TO CONTRACTS)

RESERVED

10. Military Recruiting On Campus (APPLIES ONLY TO GRANTS & COOPERATIVE AGREEMENTS)

Military Recruiting on Campus (DoDGARS Part 22.520) applies to domestic U. S. colleges and universities. Appropriate language from 32CFR22.520 Campus access for military recruiting and Reserve Officer Training Corps (ROTC) will be incorporated in all grant awards.

11. Combating Trafficking in Persons (APPLIES ONLY TO CONTRACTS)

RESERVED

12. Updates of Information regarding Responsibility Matters (APPLIES ONLY TO CONTRACTS)

RESERVED

13. Employment Eligibility Verification (APPLIES ONLY TO CONTRACTS)

RESERVED

14. Central Contractor Registration (CCR) (APPLIES ONLY TO CONTRACTS)

RESERVED

15. Other Guidance, Instructions, and Information

None