

Special Notice 12-SN-0016

Special Program Announcement for 2012 Office of Naval Research

“Ultra-Light Weight Armor Systems”

I. INTRODUCTION:

This announcement describes a discovery and invention opportunity, entitled Ultra-Light Weight Armor Systems, to be launched under the ONRBAA12-001, Long Range Broad Agency Announcement for Navy and Marine Corps Science and Technology which can be found at <http://www.onr.navy.mil/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements.aspx>. The research opportunity described in this announcement specifically falls under numbered paragraph 8 of the Maneuver (Code 30) sub-section under Survivability. The submission of proposals, their evaluation, and the placement of applied research contracts and grants will be carried out as described in that Broad Agency Announcement.

The purpose of this announcement is to focus attention of the scientific community on (1) the area to be studied, and (2) the planned timetable for the submission of white papers and proposals.

II. TOPIC DESCRIPTION

Ultra-Light Weight Armor Systems:

The purpose of this topic is to identify potential performers to provide novel concepts for ultra-light weight armor systems. This notice serves as a request for interested parties to submit white papers and full proposals to the BAA referenced above. The objectives of the research opportunity are described below.

Background:

Office of Naval Research (ONR), Code 30, Expeditionary Maneuver Warfare and Combating Terrorism Department, Maneuver Thrust Area is seeking FY13 white paper and full proposals. The Maneuver Thrust explores technologies to increase the warfighting capabilities and effectiveness of the US Navy and Marine Corps Air Ground Task Force with emphasis on improving survivability and enhancing maneuver and maneuver-enabling systems in both decentralized and asymmetric warfare. White papers and full proposals must focus on providing tools, technologies, and/or methodologies to support the Survivability technology area of investment.

Research Areas:

- **Lightweight Novel Armor Solutions to defeat 30 caliber ball rounds at muzzle velocity and Zero degrees of obliquity at the initial strike face:** Develop advanced material or unique spaced array solutions to defeat the 30 caliber ball threat. The weight of the integrated armor solution must be less than 2.5 lbs/ ft² installed, including environmental and other coatings, hardware and gap protection for a notional coverage area of 2000 ft² with a notional ratio of 42% (840 linear ft) of gaps (value represents gaps between adjacent panels in a notional design where full protection is required to be maintained across the gap, but does not represent edges like the intersection of a bulkhead and deck, where no protection is required or provided on the adjacent surface). All materials, hardware and coatings are compatible with the maritime environment and reduce or eliminate lifecycle costs to maintain the material when directly exposed to seawater.
 - Achieve a state of the art solution that could take advantage of a close fit with an overall thickness (including any standoff required) of up to 2.5 inches and alternate solutions up to an allowable total thickness of 1 foot.
 - Alternative to a base material solution; novel integration methods, materials and seam protection methods (i.e. overlaps, improved edge effectiveness, etc.) as well as materials suitable for narrow applications and gap protection where needed that can save system weight to achieve necessary weight savings for future platforms are of interest.
- **Lightweight Novel Armor Solutions to defeat 30 caliber AP rounds at muzzle velocity and Zero degrees of obliquity at the initial strike face:** Develop advanced material or unique spaced array solutions to defeat the 30 caliber AP threat. The weight of the armor solution must be less than 3.6 lbs/ft² for a coverage area of 2000 ft² with a notional ratio of 42% (840 linear ft) of gaps (value represents gaps between adjacent panels in a notional design where full protection is required to be maintained across the gap, but does not represent edges like the intersection of a bulkhead and deck, where no protection is required or provided on the adjacent surface). All materials, hardware and coatings are compatible with the maritime environment and reduce or eliminate lifecycle costs to maintain the material when directly exposed to seawater.
 - Achieve a state of the art solution that could take advantage of a close fit with an overall thickness (including any standoff required) of up to 2.5 inches and alternate solutions up to an allowable total thickness of 1 foot. Solutions
 - Alternative to a base material solution; novel integration methods, materials and seam protection methods (i.e. overlaps, improved edge effectiveness, etc.) and materials suitable for narrow applications and also useable for gap protection where needed that can save system weight to achieve necessary weight savings for future platforms are of interest.
- **Lightweight Novel Solutions to reduce ricochet against 30 caliber ball and armor piercing (AP) rounds at muzzle velocity and 75-85 degrees of obliquity at the initial strike face:**

Develop advanced material or unique solutions for the 30 caliber Ball and AP threat at low angles of incidence that minimizes (70% reduction (T), 90% reduction (O)) ricochet of rounds or round fragments from the surface of the base material solution and integration hardware. An allowable total thickness against both threats is 2.5 inches (T) and 1 inch (O) in addition to the base material solution thickness. The weight of the ricochet solution must be less than 1.5 lb/ft² (30 caliber ball) and 2 lb/ft² (30 caliber AP). It is only applied to specialty areas and is not to be considered as an allowable additional weight to achieve zero degree obliquity impact protection.. All materials, hardware and coatings are compatible with the maritime environment and reduce or eliminate lifecycle costs to maintain the material when directly exposed to seawater.

(T) = Threshold Goal

(O)= Objective Goal

III. WHITE PAPER SUBMISSION

White papers are required for all offerors seeking funding. Each white paper will be evaluated by the Government to determine whether the technology advancement proposed appears to be of particular value to the Department of the Navy. Only the authors of white papers that appear to be of particular value to the Department of the Navy will be invited to submit full proposals. Initial Government evaluations and feedback will be issued via e-mail notification from the Technical Point of Contact. Authors of white papers that have not been selected for full proposals may not submit one. White papers should be submitted electronically to the program technical points of contact, Rod Peterson. These white papers shall be in Microsoft Word or Adobe PDF format.

White papers should not exceed four (4) single-sided pages, exclusive of cover page and resume of principal investigator, and should be in 12-point Times New Roman font with margins not less than one (1) inch. The cover page should be labeled "White Paper for 2013 Ultra-Light Weight Armor Systems" and include the following information: title of the proposed effort, technical point of contact, telephone number, fax numbers, e-mail address, and Research Area(s) that are being addressed. The 4-page body of the white paper should include the following information: (1) Principal Investigator; (2) Relevance of the proposed effort to the research areas described in Section II; (3) Technical objective of the proposed effort; (4) Technical approach that will be pursued to meet the objective; (5) A summary of recent relevant technical breakthroughs; and (6) A funding plan showing requested funding per fiscal year. A resume of the principal investigator, not to exceed one (1) page, should also be included after the 4-page body of the white paper.

To ensure full, timely consideration for funding, white papers should be submitted to Mr. Rod Peterson, Program Officer, rodney.peterson@navy.mil no later than 2:00 PM Eastern Daylight Time (EDT) on 29 August 2012. White papers received after that date will be considered as time and availability of funding permit.

Authors of white papers for which the government does not find of particular value will also receive an e-mail notification of same and are not eligible to submit a full proposal.

Detailed full proposals (Technical and Cost volumes) will be subsequently encouraged from those offerors whose proposed technologies have been identified through the above referenced e-mail as

being of “particular value” to the Government. However, any such encouragement does not assure a subsequent award. Full Proposals may not be submitted by any offeror whose white paper was not identified as being of particular value to the Government or by any offeror who did not submit a white paper.

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

The anticipated date for notification is 2:00 PM Eastern Daylight Time (EDT) on 19 September 2012.

IV. FULL PROPOSAL SUBMISSION AND AWARD INFORMATION

Full proposals (including one (1) technical volume and one (1) cost volume) should be submitted under ONRBAA12-001 by 2:00 PM Eastern Daylight time (EDT) on 19 October 2012. Full Proposals under this Announcement received after that date will be considered as time and availability of funding permit.

ONR anticipates that grants and contracts will be issued for this effort. Full Proposals for contracts should be submitted in accordance with the instructions at Section IV, Application and Submission Information, item 2.b, Full Proposals. Full proposals for grants should be submitted in accordance with the instructions at Section IV, Application and Submission Information, item 5, Submission of Grant Proposals through Grants.gov. All full proposals for grants must be submitted through www.grants.gov. The following information must be completed as follows in the SF 424 to ensure that the application is directed to the correct individual for review: Block 4a, In the “Federal Identifier” field, all offerors should insert “N00014”. Block 4b, Agency Routing Number, Enter the Program Office (Code 30) and the Program Officer’s name, last name, first name in brackets (“[Peterson, Rod]”). All attachments to the application should also include this identifier to ensure the proposal and its attachments are received by the appropriate Program Office.

ONR plans to fund three (3) to five (5) individual awards with a value of \$300K per year, using Discovery and Invention funds. However, lower and higher cost proposals will be considered. The period of performance for projects may be from one (1) to four (4) years.

Although ONR expects the above described program plan to be executed, ONR reserves the right to change the respective program.

Funding decisions should be made by 07 November 2012. Projects will have an estimated award date of 25 March 2013.

V. SIGNIFICANT DATES AND TIMES

Event / Dates / Times

Recommended White Paper Submission Date:	29 August 2012, 2:00 PM EDT
Recommendation for full proposal:	19 September 2012*
Recommended Full Proposal Submission Date:	19 October 2012, 2:00PM EDT
Awards:	25 March 2013*

Note:* These are approximate dates.

VI. POINTS OF CONTACT

In addition to the points of contact listed in ONRBAA12-001, the specific points of contact for this announcement are listed below:

Technical Points of Contact:

Mr. Rod Peterson, Program Officer, rodney.peterson@navy.mil

Business Point of Contact:

Mr. Joseph Cloft, Contracting Officer, Code 255; Joseph.Cloft@navy.mil

Secondary Business Point of Contact:

Millie Abdi, Contracting Officer, Code 255; Misale.Abdi@navy.mil

VII. Submission of Questions

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

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

- Federal Business Opportunities (FEDBIZOPPS) Webpage – <https://www.fbo.gov/>
- Grants.gov Webpage – <http://www.grants.gov/>
- ONR Special Notice Webpage - <http://www.onr.navy.mil/Contracts-Grants/Funding-Opportunities/Special-Notices.aspx>

Questions regarding **White Papers or Full Proposals** should be submitted NLT two weeks before the dates recommended for receipt of White Papers and/or Full Proposals. Questions after this date may not be answered.