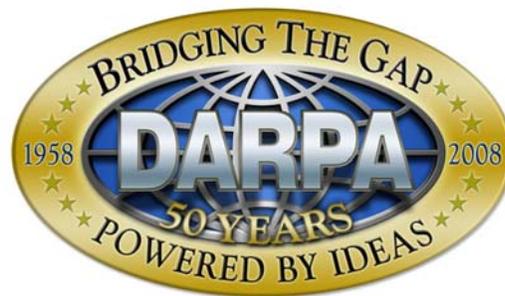


- **Federal Agency Name** – Defense Advanced Research Projects Agency (DARPA)/  
Microsystems Technology Office (MTO)
- **Funding Opportunity Title** – Surface Enhanced Raman Scattering Science and  
Technology Fundamentals (SERS S&T Fundamentals)
- **Announcement Type** – Initial Announcement
- **Catalog of Federal Domestic Assistance Numbers (CFDA)** – N/A
- **Important Dates**
  - Proposal due no later than 4:00 p.m. Eastern Time on Thursday, October 31,  
2007.
- **Anticipated individual awards** – Multiple awards are anticipated.
- **Types of instruments that may be awarded** -- Procurement contract, grant,  
cooperative agreement or other transaction.
- **The technical POC for this effort is:**  
Dennis Polla, Ph.D.  
Program Manager  
DARPA/MTO  
3701 North Fairfax Drive  
Arlington, VA 22203-1714  
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**BAA 07-61**

**Surface Enhanced Raman Scattering Science and  
Technology Fundamentals (SERS S&T Fundamentals)**



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## **SECTION I: FUNDING OPPORTUNITY DESCRIPTION**

The Defense Advanced Research Projects Agency (DARPA) often selects its research efforts through the Broad Agency Announcement (BAA) process. The BAA will appear first on the FedBizOpps website, <http://www.fedbizopps.gov/> and Grants.gov website at <http://www.grants.gov/>. The following information is for those wishing to respond to the BAA.

DARPA is soliciting innovative research and development (R&D) proposals in the area of Surface Enhanced Raman Scattering Science and Technology Fundamentals (SERS S&T Fundamentals). The goal of this program is to understand the physical origin of SERS enhancement factor and to prepare functionalized nanoparticles and other substrates optimized for future chemical and biochemical nanosensor technologies.

SERS was originally discovered in the 1970s with the observation that organic molecules adsorbed on a metal surface exhibit greatly enhanced Raman scattered light intensities when illuminated with a laser source. Enhancements of  $10^6$  or higher over regular Raman scattering have been commonly observed. More recently, observations of single-molecule SERS have demonstrated enhancement factors of  $>10^{13}$  but so far are not well understood due to lack of theoretical understanding and lack of methodical characterization of the SERS mechanism itself.

The ability to reproducibly achieve a large SERS enhancement factor on metal surfaces represents an extremely powerful technique for the sensitive and selective detection of low-concentration analytes as commonly encountered in the detection of toxic industrial chemicals, chemical warfare agents, biochemicals, and in other sensing applications. The detailed understanding of the physical origins of SERS associated with nanoparticles and nanostructured surfaces and associated reproducibility is the fundamental research topic of this BAA.

DARPA is therefore interested in both theoretical and experimental approaches aimed at understanding SERS phenomena. In particular, research directed toward the fundamental understanding of both electromagnetic enhancement (EM) and chemical enhancement (CE) mechanisms commonly cited in the literature are sought through this BAA. Understanding of the electromagnetic mechanism where illumination intensity is enhanced due to sharp metal surfaces, plasmonic effects, or near-field coupling between metal particles in “nanoantenna-like” structures is of interest. In particular, understanding the EM phenomena often described by plasmonic excitation leading to “hot spots” around nanometer-sized metal particles is desired. Similarly, research directed toward understanding the nature of chemical enhancement associated with the charge transfer excitation between molecules and metal particles is also of interest.

## Background and Description

Raman spectra contain sharp, distinct features that are characteristic of the atomic structure of the molecules under study. Hence, a Raman spectrum provides an excellent fingerprint for the detection and identification of substances. Unfortunately, the intensities of the scattered laser light in a Raman measurement are smaller than the intensities of other spectroscopic analytical methods. Raman cross sections can be significantly enhanced by placing the sample molecules in the vicinity of rough metal surfaces or metal nanoparticles. This may be due to coupling with the plasmonic resonance of the metal surfaces or nanoparticles, which may be considered as optical antennas that provide increased coupling efficiency for the laser pump radiation as well as increased collection efficiency for the Raman scattered radiation. SERS enhancement factors as large as  $10^{15}$  have been observed for single molecules attached to clusters of silver nanoparticles in a colloidal solution. Thus, SERS-based sensors can be expected to have great utility for the detection and identification of chemical warfare agents, biological warfare agents, improvised explosive devices, and other weapons of asymmetrical warfare.

SERS as an optical spectroscopy method is made challenging by the fact that only a small fraction of pump electromagnetic energy incident upon a single molecule of interest is Raman scattered; the process is therefore an inherently low-efficiency one. Radio wave technology, however, has been confronted with problems similar to those of single molecule spectroscopy since its inception. In radio engineering, antennas are used to couple electromagnetic energy into devices across feed gaps whose widths are small compared to the wavelength. Proper tuning of the receiver/transmitter-antenna structure can greatly increase the capture cross section efficiency of an antenna while coherently coupling a collection of sub-wavelength elements distributed over an area greater than  $\lambda^2$  can significantly increase the directionality (focusing) of its radiation pattern.

The application of antenna engineering to SERS presents an opportunity for achieving the electromagnetic field enhancement necessary for single-molecule Raman spectroscopy in a highly reproducible manner. Single molecules have dimensions of  $\sim 1$  nm, and may therefore be considered to be antennas with very small receiving cross sections and low directionality. At these very small dimensions dipole modes dominate and the radiation efficiency (coupling to freely propagating modes) varies as  $\sim a_0^2$  where  $a_0$  is the physical dimension of the radiating dipole. This large dependence on  $a_0$  suggests that any phenomenon that results in an effective increase in  $a_0$  can result in a very large increase in radiation efficiency. Attaching single molecules to metal nanoparticles, or other nanostructures, in a controlled manner presents an opportunity to improve the efficiency of the transfer of energy from the illuminating laser to the molecule and subsequent re-radiation of the scattered energy. Improved directionality also reduces the angular range over which a molecule emits its Raman scattered photons, increasing the fraction of energy that can be collected.

The technical challenges to be addressed include developing the science and technology necessary to understand SERS enhancement factor and to develop the engineering methods required for fabricating high enhancement factor SERS nanoparticles. This effort seeks a combined theoretical and experimental approach to understanding SERS enhancement factor that would include understanding the near-field electromagnetic coupling between metal particles/surfaces, including extension and application of established physics and engineering knowledge for radio antennas, plasmonic effects, materials composition, size and shape of the metal nanoparticles and nanostructures, and the chemical interaction of analyte molecules with SERS substrates.

## Program Requirements

DARPA is seeking research proposals for SERS S&T Fundamentals that will contribute to better understanding of the mechanism of SERS, SERS enhancement factor, nanoparticles, and substrates for the development of chem/bio sensors with enhanced sensitivity and selectivity. Successful proposals may focus on the following areas of study:

**Enhancement Factor: Design, Modeling, and Verification.** At present there is significant (orders of magnitude) discrepancy between predicted and measured values of the SERS enhancement factor. It is important to develop models that are able to predict the enhancement factor for metal nanoparticles as a function of the metal composition, size, shape, and the wavelength of the pump light, as well as a function of the distance of the molecule from the nanoparticle. Studies are needed that provide experimental verification of the developed models. It is also important to develop measurement techniques and characterization methods for reliable measurement of the enhancement factors for nanoparticles of reproducible composition, size, and shape.

**Metallic Nanoparticles and Nanostructures: Design and Fabrication.** There is a need to design and fabricate nanoparticles and substrates with metal nanostructures, which provide high enhancement factor but are easy to fabricate in large quantities at an affordable cost. Of particular interest are “nanoantenna-like” structures such as lithographically-defined “bowties” (or nanoantenna-like structures of other geometries) that consist of two metallic triangles facing tip-to-tip and separated by a very small gap. The development of analytical models, nanofabrication methods, and characterization of resulting nanostructures are desired. Fabrication methods that can be scaled to realize liter quantities of monodispersed SERS nanoparticles with enhancement factors of  $10^{12}$ , or higher on 6-inch silicon or other substrates completely covered with “hot spots” are the goal.

**Substrate Binding:** Given the wide assortment of potential analytes, metal surfaces that selectively bind these analytes need to be found. The extent of resonance enhancement also needs to be determined, based both on metal composition and substrate identity. The ability to select an ideal wavelength for a given analyte would be an obvious goal.

The focus of this effort is on SERS S&T Fundamentals. DARPA is specifically not interested at this time in proposals that develop sensors, systems, or analytical techniques based on the SERS effect. Any proposals that are directed toward development of nanosensor device designs or systems applications will be determined to be non-responsive to this BAA.

### **Technical Areas of Interest**

The objective of the SERS S&T Fundamentals program is to develop a research understanding of the SERS effect and realize reproducible fabrication methods potentially useful in SERS-based nanosensors.

The SERS S&T Fundamentals program will therefore focus on basic research and technology development with:

- **Analytical modeling of Electromagnetic Enhancement Factor:** Near-field electromagnetic calculation and modeling of “nanoantenna-like” structures; plasmonic coupling between metal nanoparticles of varying size, geometry, and aggregation; and nanostructured surfaces.
- **Analytical modeling of Chemical Enhancement Factor:** Models to describe charge transfer between reporter molecules and SERS nanoparticle substrates are of interest.
- **Synthesis and Fabrication of SERS nanoparticles and structures:** Methods to develop well characterized SERS nanoparticles and substrate surfaces.
- **Characterization:** New methods to accurately characterize SERS nanoparticles, including enhancement factor and single-molecule SERS.

### **SERS S&T Fundamentals Program Go/NoGo Metrics and Milestones**

Selected performers on the contemplated SERS S&T Fundamentals program will be expected to achieve clearly identified milestones, the most critical of which will be referred to as Go/No-Go (GNG) metrics. Proposals submitted in response to this BAA should very clearly identify a milestones schedule consistent with their own proposed efforts. Proposers must define their SERS S&T Fundamentals approach and describe in detail how the performance metrics of their models, designs, and fabricated structures will satisfy the requirements of the program. In general, a 12-month Phase I is envisioned to establish models, synthesis methods, and characterization techniques. A 12-month Phase II is envisioned to correlate models with SERS measured performance. In a final 12-month Phase III, effort should be

directed toward optimization and engineering reproducibility of SERS structures. The performance parameters and research milestones associated with this program will therefore depend on the particular research proposed. Some guidance is given below.

1. DARPA is interested in obtaining fundamental knowledge of the operational physics of SERS; therefore, theoretical modeling of the SERS mechanism is encouraged. Models, however, should be developed in conjunction with experimental methods aimed at validating these theoretical models. In order to effectively connect experiment with theory, multi-investigator teams with capabilities in theory, fabrication, and characterization are encouraged.
2. It is essential that theoretical modeling, nanoparticle synthesis / nanostructure fabrication, and experimental modeling conclusively establish an understanding of enhancement factor. Therefore, each performer is expected to attain experimentally measured enhancement factors in their test structures of at least  $1 \times 10^7$ ,  $1 \times 10^9$ , and  $1 \times 10^{12}$  at the conclusion of Phase I, II, and III, respectively.
3. Fundamental studies directed toward understanding a particular structure (i.e., electromagnetic bowties, dimers, nanowires, clusters, and other geometric structures, etc.) are encouraged.
4. Final deliverables in the program should consist of validated theoretical models and engineering manufacturing methods capable of realizing liter-sized quantities of monodispersed SERS nanoparticles or batches of 6-in diameter substrates containing packed surfaces of SERS nanoparticles with an average enhancement factor  $> 10^{12}$ .

## **Deliverables**

The primary data deliverables will include quarterly reports throughout the program and participation in quarterly progress reviews (either on site or at DARPA PI meetings).

In Phase 1 we seek provable connections that affect SERS enhancement factors between analytes and metal nanoparticle with an enhancement factor of  $>1 \times 10^7$ :

- Composition (metal content)
- Size and shape
- Degree and pattern of aggregation
- Encapsulation (including metal-dielectric effects)

Additional deliverables include 10 samples of SERS-active particles with reproducible enhancement factors of  $>1 \times 10^9$  at the end of Phase II, and 10 samples of SERS-active particles with reproducible enhancement factors of  $>1 \times 10^{12}$  at the end of Phase III.

## **Program Scope**

The SERS S&T Fundamentals program will consist of three phases. The length of each phase should be decided by the proposer. The focus of each phase is described below:

Phase I. *SERS Modeling, Design, and Synthesis*. In this phase, performers are expected to develop physical models for the SERS effect, materials synthesis methods, fabrication of SERS-active nanostructures, and analytical characterization methods.

Phase II. *SERS Enhancement Factor Characterization and Optimization*. In this phase, preliminary reliability tests will be carried out, and some 1-inch diameter samples will be delivered for testing in DoD labs.

Phase III. *Performance Optimization and Scale-up*. In this phase, adjustments to design and fabrication of SERS nanostructures will be undertaken. Six-inch diameter samples will be delivered for testing in DoD labs.

## **SECTION II: AWARD INFORMATION**

Multiple awards are anticipated. The amount of resources made available under this BAA will depend on the quality of the proposals received and the availability of funds.

The Government reserves the right to select for negotiation all, some, one, or none of the proposals received in response to this solicitation, and to make awards without discussions with offerors. The Government also reserves the right to conduct discussions if the Source Selection Authority later determines them to be necessary. If warranted, portions of resulting awards may be segregated into pre-priced options. Additionally, DARPA reserves the right to accept proposals in their entirety or to select only portions of proposals for award. In the event that DARPA desires to award only portions of a proposal, negotiations may be opened with that offeror. If the proposed effort is inherently divisible and nothing is gained from the aggregation, offerors should consider submitting it as multiple independent efforts. The Government reserves the right to fund proposals in phases with options for continued work at the end of one or more of the phases.

Awards under this BAA will be made to offerors on the basis of the evaluation criteria listed below (see section labeled “Application Review Information”, Sec. V.), and program balance to provide overall value to the Government. Proposals identified for negotiation may result in a procurement contract, grant, cooperative agreement, or other transaction depending upon the nature of the work proposed, the required degree of interaction between parties, and other factors.

### **SECTION III: ELIGIBILITY INFORMATION**

#### **A. Eligible Applicants**

All responsible sources capable of satisfying the Government's needs may submit a proposal that shall be considered by DARPA. Historically Black Colleges and Universities (HBCUs), Small Businesses, Small Disadvantaged Businesses and Minority Institutions (MIs) are encouraged to submit proposals and join others in submitting proposals; however, no portion of this announcement will be set aside for these organizations' participation due to the impracticality of reserving discrete or severable areas of this research for exclusive competition among these entities. Independent proposals from Government/National laboratories may be subject to applicable direct competition limitations, though certain Federally Funded Research and Development Centers are excepted per P.L. 103-337§ 217 and P.L 105-261 § 3136.

Foreign participants and/or individuals may participate to the extent that such participants comply with any necessary Non-Disclosure Agreements, Security Regulations, Export Control Laws, and other governing statutes applicable under the circumstances.

#### **1. Procurement Integrity, Standards of Conduct, Ethical Considerations, and Organizational Conflicts of Interest**

Certain post-employment restrictions on former federal officers and employees may exist, including special Government employees (including, but not limited to, Title 18, Section 207, United States Code, the Procurement Integrity Act, 41 U.S.C. 423, and FAR 3.104.) Current federal employees are prohibited from participating in particular matters involving conflicting financial, employment, and representational interests (18 USC 203, 205, and 208.) Prior to the start of proposal evaluations, the Government will assess whether any potential conflict of interest exists in regards to the DARPA Program Manager, as well as those individuals chosen to evaluate proposals received under this BAA. The Program Manager is required to review and evaluate all proposals received under this BAA and to manage all selected efforts. *Proposers should be aware the Program Manager responsible for this BAA is likely to have a conflict of interest with the University of Minnesota due to past or current affiliations. This conflict of interest issue applies to both a prime or subcontractor bidder. Proposers should carefully consider the composition of their performer team before submitting a proposal to this BAA.*

All Proposers and proposed subcontractors must affirm whether they are providing scientific, engineering, and technical assistance (SETA) or similar support to any DARPA technical office(s) through an active

contract or subcontract. All affirmations must state which office(s) the Proposer 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 Proposer has taken or proposes to take to avoid, neutralize, or mitigate such conflict. In accordance with FAR 9.503 and without prior approval or a waiver from the DARPA Director, a Contractor cannot simultaneously be a SETA and Performer. Proposals that fail to fully disclose potential conflicts of interests and include an effective mitigation plan, or that do not include a mitigation plan at all, will be returned without technical evaluation and withdrawn from further consideration for award.

If a prospective Proposer believes that any conflict of interest exists or may exist (whether organizational or otherwise), the Proposer should promptly raise the issue with DARPA by sending Proposer contact information and a summary of the potential conflict by email to the mailbox address for this BAA at [BAA07-61@darpa.mil](mailto:BAA07-61@darpa.mil), 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 mitigated, the proposal may be returned without technical evaluation and withdrawn from further consideration for award under this BAA.

## **B. Cost Sharing/Matching**

Cost sharing is not required for this particular program; however, cost sharing will be carefully considered where there is an applicable statutory condition relating to the selected funding instrument (e.g. for any Other Transactions under the authority of 10 U.S.C. § 2371). Cost sharing is encouraged where there is a reasonable probability of a potential commercial application related to the proposed research and development effort.

## **C. Other Eligibility Criteria**

### **1. Collaborative Efforts**

Collaborative efforts/teaming arrangements composed of partners from academia, industry, and national laboratories are encouraged and should be explained thoroughly in the full proposal. Integrated teams capable of addressing different technological and scientific aspects of the SERS S&T Fundamentals program will be highly valued. A website (<http://teaming.sysplan.com/BAA-07-61/>) has been established to facilitate formation of teaming arrangements between interested parties. Specific content, communications, networking, and team formation are the sole responsibility of the participants. Neither DARPA nor the

Department of Defense (DoD) endorses the destination web site or the information and organizations contained therein, nor does DARPA or the DoD exercise any responsibility at the destination. This website is provided consistent with the stated purpose of this BAA.

## **SECTION IV: APPLICATION AND SUBMISSION INFORMATION**

### **A. Address to Request Application Package**

This solicitation contains all information required to submit a proposal. No additional forms, kits, or other materials are needed. This notice constitutes the total BAA. No additional information is available, nor will a formal Request for Proposal (RFP) or additional solicitation regarding this announcement be issued. Requests for same will be disregarded.

### **B. Content and Form of Application Submission**

#### **1. Proposal Information**

The time and date for submission of proposals is specified in Section C below. DARPA will acknowledge receipt of the submission and assign a control number that should be used in all further correspondence regarding the proposal abstract.

Proposers are required to submit full proposals at the time and date specified in the BAA in order to be considered during the initial round of selections; however, proposals received after this deadline may be received and evaluated up to one year from date of posting on FedBizOpps and Grants.gov. Full proposals submitted after the due date stated in the BAA or due date otherwise specified by DARPA may be selected contingent on the availability of funds.

The typical proposal should express a consolidated effort in support of one or more related technical concepts or ideas. Disjointed efforts should not be included into a single proposal.

Restrictive notices notwithstanding, proposals may be handled, for administrative purposes only, by a support contractor. This support contractor is prohibited from competition in DARPA technical research and is bound by appropriate nondisclosure requirements. Proposals and proposed abstracts may not be submitted by fax or e-mail; any so sent will be disregarded.

Proposals not meeting the format described in the BAA may not be reviewed.

Proposals should be submitted electronically using one of the two submission methods. Note that neither dual submissions nor a paper copy are required. Please note that proposers will receive a confirmation email generated from the T-FIMS electronic system (described below) as receipt that their proposal has been received.

1. DARPA/MTO will employ an electronic upload process, the Technical Financial Information Management System (T-FIMS) Proposal Submission System, for proposal submissions to this BAA. Proposals should be in Microsoft Word format or PDF and submitted via a web site interface: <https://www.tfims.darpa.mil/baa>. \*Please note that T-FIMS will acknowledge receipt of the submission via e-mail. This e-mail will assign a control number that should be used in all correspondence regarding the proposal.\*

2. Offerors may elect to use the Grants.gov APPLY (<http://www.grants.gov/>) function if the applicant is seeking a grant or cooperative agreement. The APPLY function replaces the proposal submission process that other offerors follow. The APPLY function does not affect the proposal content or format. The APPLY function is electronic; offerors do not submit paper proposals in addition to the Grants.gov APPLY electronic submission.

DARPA will attempt to review proposal within thirty (30) calendar days after receipt. Full proposals will be reviewed as they are received. Early submissions of full proposals are strongly encouraged because selections may be made at any time during the evaluation process. Proposers submitting full proposals are required to do so no later than **4:00 p.m. Eastern Time on Thursday, October 31, 2007** in order to be considered during the initial round of selections; however, proposals received after this deadline may be evaluated up to one year from date of posting on FedBizOpps (<http://www.fedbizopps.gov/>) and Grants.gov (<http://www.grants.gov/>). Full proposals submitted after the due date stated in the BAA may be selected contingent on the availability of funds.

**Proposer Registration:** Organizations planning to submit proposals via T-FIMS must register at: <http://www.tfims.darpa.mil/baa>. Only the lead or prime organization should register. One registration per proposal should be submitted. This means that an organization wishing to submit to multiple technical topic areas should complete a single registration for each proposal. The proposer makes no commitment to submit by registering. Please note that it is recommended that proposers register on T-FIMS at least a week prior to the submission deadline to allow sufficient time for completing the registration process and uploading the submission. Please also note that proposers will receive a confirmation e-mail generated from the T-FIMS electronic system as receipt that their proposal has been received.

The T-FIMS Proposal Submission System supports the following file formats: Portable Document Format (PDF), Word Document (doc), Plain Text (txt), Comma-separated I-7 Values (CSV), PowerPoint Presentation (ppt), Excel Worksheet (xls), and Excel Workspace (xlw). Proposal submissions made through the T-FIMS Proposal Submission System must be no larger than 50 megabytes per file.

All material submitted electronically must be UNCLASSIFIED. Please DO NOT attempt to submit a CLASSIFIED material proposal through an electronic upload process as this is PROHIBITED. Offerors that intend to include classified, or potentially classified, information or data as part of their proposals shall submit an UNCLASSIFIED

PROPOSAL referring to a classified annex. The offeror should contact the Technical POC for this BAA, or the Security POC cited below, for guidance on submitting the classified annex.

All administrative correspondence and questions on this solicitation, including requests for information on how to submit a proposal to this BAA, should be directed to the administrative addresses below; e-mail or fax is preferred. A "Proposer's Questions," website will be posted for BAA 07-61 on the DARPA, Microsystems Technology Office solicitations page ([www.darpa.mil/mto/solicitations/index.html](http://www.darpa.mil/mto/solicitations/index.html)). If you would like to have a question answered and posted on this site, please send your question to the following address: [BAA07-61@darpa.mil](mailto:BAA07-61@darpa.mil). DARPA intends to use electronic mail and fax for correspondence regarding BAA 07-61. Proposals may not be submitted by fax or e-mail; any so sent will be disregarded. DARPA encourages use of the World Wide Web for retrieving the Broad Agency Announcement and any other related information that may subsequently be provided.

The administrative addresses for this BAA are:  
Fax: (703) 696-2206 (Addressed to: DARPA/MTO, BAA 07-61),  
Electronic Mail: [BAA07-61@darpa.mil](mailto:BAA07-61@darpa.mil)

*Full Proposal Format:* All full proposals must be in the format given below. Nonconforming proposals may be rejected without review. Proposals shall consist of two volumes. All pages shall be printable on 8-1/2 by 11 inch paper with type not smaller than 12 point. **The page limitation for full proposals includes all figures, tables, and charts.** Volume I, Technical and Management Proposal, may include an attached bibliography of relevant technical papers or research notes (published and unpublished) which document the technical ideas and approach upon which the proposal is based. Copies of not more than three (3) relevant papers can be included with the submission. The bibliography and attached papers are not included in the page counts given below. Inclusion of a single Power Point slide illustrating the proposed concept is required. The submission of other supporting materials along with the proposal is strongly discouraged and will not be considered for review. Except for the attached bibliography, Volume I shall not exceed **fifty five (55)** pages, not including Section IV. Maximum page lengths for each section are shown in braces { } below.

## 2. Volume I, Technical and Management Proposal

### Section I. Administrative

A. {1} **Cover sheet.** This should include: (1) BAA number; (2) Technical area; (3) Lead Organization Submitting proposal; (4) Type of business, selected among the following categories: "LARGE BUSINESS", "SMALL DISADVANTAGED BUSINESS", "OTHER SMALL BUSINESS", "HBCU", "MI", "OTHER EDUCATIONAL", or "OTHER NONPROFIT"; (5) Contractor's reference number

(if any); (6) Other team members (if applicable) and type of business for each; (7) Proposal title; (8) Technical point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available); (9) Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available), total funds requested from DARPA, and the amount of cost-share (if any); (10) date proposal was prepared; and (11) proposal expiration date.

B. {1} **Official transmittal letter.**

Section II. Summary of Proposal

A. {3} **Executive Summary.** This should clearly and concisely summarize the following:

- The quantitative end-of-program performance goals and the milestones associated with each Phase of the development effort. The milestones and performance goals should be listed in a single table (see below for an example table).
- An explanation of how the above goals and milestones compare to what has already been demonstrated.
- A description of the unique approaches and technical solutions proposed.
- An explanation of how and to what extent (being as quantitative as possible) the proposed work will benefit the Department of Defense.

Section III. Detailed Proposal Information

A. {20} **Technical Rationale & Approach.** A concise section outlining the scientific and technical challenges, unique approaches, and potential anticipated technical solutions to the challenges that will be addressed. This statement should demonstrate that the proposer has a clear understanding of the state-of-the-art; and should provide sufficient technical details so as to permit complete evaluation of the feasibility of the idea.

B. {7 + 1 for table} **Program Plan & Risk Assessment.** A narrative explaining the explicit timelines, milestone achievements, and quantitative metrics by which progress toward the goals can be evaluated. This plan should include a specific and detailed test plan detailing how performance of milestones, particularly the GNG metrics, will be measured. The proposed period of performance of the overall program and specifically of each program phase and demonstration should be clearly stated. Milestones must be associated with demonstrable, quantitative measures of performance, and should be summarized in a single table. **Measurable milestones should occur every six months after start of effort.** This section should also identify major technical risk elements specific to the proposed approach, estimate the risk magnitude for each such element, and describe specific plans to mitigate risk.

- C. {2} **Teaming & Management Plan.** A management plan that describes how the different members of the team will collaborate to demonstrate viable solutions to the program challenges.
- D. {5} **Capabilities.** A section describing relevant prior work, the background, qualifications and relevant experience of key individuals to be assigned to the program and the facilities and equipment to be utilized. Please do not attach supporting material (CDs, movies, etc.) to the proposal, except as noted in Section IV below.
- E. {5} **Slide Summary.** PowerPoint-type slides (i.e., landscape formatted for presentation) that succinctly highlight the major aspects of the proposal, including proposer-defined measurable metrics, in a manner suitable for presentation to DARPA management.
- F. {5} **Technology Transition & Business Plan.** A discussion outlining how the technology to be developed in this program will be commercialized and made available to DoD contractors. See also “Intellectual Property.”
- G. {5} **Statement of Work (SOW).** A document written in plain English, outlining the scope of the effort (by Phase) and citing specific tasks to be performed, contractor requirements, and data and/or material deliverables.

Section IV. Additional Information {Optional}

- A. A brief bibliography of relevant technical papers and research notes (published and unpublished) which document the technical ideas upon which the proposal is based may be provided. Copies of not more than three (3) relevant papers can be included in the submission. This Section does not count towards the overall page limit for Volume I.

**Volume II, Cost Proposal** – {No page limit}

Cover sheet to include: (1) BAA number; (2) Technical area; (3) Lead Organization Submitting proposal; (4) Type of business, selected among the following categories: "LARGE BUSINESS", "SMALL DISADVANTAGED BUSINESS", "OTHER SMALL BUSINESS", "HBCU", "MI", "OTHER EDUCATIONAL", or "OTHER NONPROFIT"; (5) Contractor's reference number (if any); (6) Other team members (if applicable) and type of business for each; (7) Proposal title; (8) Technical point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available); (9) Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), and electronic mail (if available); (10) Award instrument requested: cost-plus-fixed-fee (CPFF), cost-contract--no fee, cost sharing contract--no fee, or other type of procurement contract (specify), grant, cooperative agreement, or other transaction; (11) Place(s) and period(s) of performance; (12) Total proposed cost separated by basic award and option(s) (if any); (13) Name, address, and telephone number of the offeror's cognizant Defense Contract Management Agency (DCMA) administration office (if known); (14) Name, address, and telephone number of the offeror's cognizant Defense Contract Audit Agency

(DCAA) audit office (if known); (15) Date proposal was prepared; and (16) Dun and Bradstreet (DUN) Number; (17) Tax Identification Number (TIN); (18) Cage Code; (19) Subcontractor Information; and (20) Proposal validity period.

Detailed cost breakdown to include: (1) total program cost broken down by major cost items (direct labor, subcontracts, materials, other direct costs, overhead charges, etc.) and further broken down by year; (2) major program tasks by year; (3) an itemization of major subcontracts<sup>1</sup> and equipment purchases; (4) an itemization of any information technology (IT)<sup>2</sup> purchases; (5) a summary of projected funding requirements by month; and (6) the source, nature, and amount of any industry cost-sharing. Where the effort consists of multiple portions which could reasonably be partitioned for purposes of funding, these should be identified as options with separate cost estimates for each.

Supporting cost and pricing information in sufficient detail to substantiate the summary cost estimates in B. above. Include a description of the method used to estimate costs and supporting documentation. Note: “cost or pricing data” as defined in FAR Subpart 15.4 shall be required if the offeror is seeking a procurement contract award of \$650,000 or greater unless the offeror requests an exception from the requirement to submit cost or pricing data. “Cost or pricing data” are not required if the offeror proposes an award instrument other than a procurement contract (e.g., a grant, cooperative agreement, or other transaction). Please also provide any Forward Pricing Rate Agreement, other such Approved Rate Information (e.g., Rate Memo’s, etc.), or such other documentation that may assist in expediting negotiations (if not available, state so). All proprietary subcontractor proposal documentation of which cannot be uploaded to TFIMS shall be made immediately available to the Government, upon request, under separate cover (i.e., mail, electronic/email, etc.), either by the Proposer or by the subcontractor organization.

### **C. Submission Dates and Times**

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<sup>1</sup> To include similar cost breakdown as required by the offeror (prime).

<sup>2</sup> IT is defined as “any equipment, or interconnected system(s) or subsystem(s) of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by the agency. (a) For purposes of this definition, equipment is used by an agency if the equipment is used by the agency directly or is used by a contractor under a contract with the agency which – (1) Requires the use of such equipment; or (2) Requires the use, to a significant extent, of such equipment in the performance of a service or the furnishing of a product. (b) The term “information technology” includes computers, ancillary, software, firmware and similar procedures, services (including support services), and related resources. (c) The term “information technology” does not include – (1) Any equipment that is acquired by a contractor incidental to a contract; or (2) Any equipment that contains imbedded information technology that is used as an integral part of the product, but the principal function of which is not the acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. For example, HVAC (heating, ventilation, and air conditioning) equipment such as thermostats or temperature control devices, and medical equipment where information technology is integral to its operation, are not information technology.”

## **1. Period of Solicitation**

This BAA will remain open from 27 August 2007 through 26 August 2008.

## **2. Full Proposal Date**

The full proposal must be submitted to T-FIMS or Grants.gov no later than 4:00 p.m., Eastern Time, Thursday, October 31, 2007, in order to be considered during the initial round of selections; however, proposals received after this deadline may be received and evaluated up to one year from date of posting on FedBizOpps. Full proposals submitted after the due date specified in the BAA or due date otherwise specified by DARPA after review of proposal abstracts may be selected contingent upon the availability of funds.

DARPA will acknowledge receipt of complete submissions via email and assign control numbers that should be used in all further correspondence regarding proposals.

Failure to comply with the submission procedures may result in the submission not being evaluated.

## **SECTION V: APPLICATION REVIEW INFORMATION**

### **A. Evaluation Criteria**

Evaluation of proposals will be accomplished through a scientific/technical review of each proposal using the following criteria, which are listed in descending order of relative importance: (1) Overall Scientific and Technical Merit; (2) Proposer's Capabilities and/or Related Experience; (3) Realism of Proposed Schedule. (4) Potential Contribution and Relevance to the DARPA Mission; (5) Plans and Capability to Accomplish Technology Transition; and (6) Cost Realism. Proposals will not be evaluated against each other since they are not submitted in accordance with a common work statement. DARPA's intent is to review proposals as soon as possible after they arrive; proposals, however, may be reviewed periodically for administrative reasons. The following are descriptions of the above listed criteria:

#### **1. Overall Scientific and Technical Merit**

The proposed technical approach is feasible, achievable, complete and supported by a proposed technical team that has the expertise and experience to accomplish the proposed tasks. Task descriptions and associated technical elements provided are complete and in a logical sequence with all proposed deliverables clearly defined such that final results that achieve the goal can be expected as a result of award. The proposal identifies major technical risks and planned mitigation efforts are clearly defined and feasible.

#### **2. Proposer's Capabilities and/or Related Experience**

The proposer's prior experience in similar efforts must clearly demonstrate an ability to deliver results that meet the proposed technical performance within the proposed budget

and schedule. The proposed team has the expertise to manage the cost and schedule. Similar efforts completed/ongoing by the proposer in this area are fully described including identification of other Government sponsors.

### **3. Realism of Proposed Schedule**

The proposer's abilities to aggressively pursue performance metrics in the shortest timeframe and to accurately account for that timeframe will be evaluated.

### **4. Potential Contribution and Relevance to the DARPA Mission**

The potential contributions of the proposed effort with relevance to the national technology base will be evaluated. Specifically, DARPA's mission is to maintain the technological superiority of the U.S. military and prevent technological surprise from harming our national security by sponsoring revolutionary, high-payoff research that bridges the gap between fundamental discoveries and their military use.

### **5. Plans and Capability to Accomplish Technology Transition**

The offeror's plans and capability to transition the technology to the research, industrial, and operational military communities in such a way as to enhance U.S. defense, to include the extent to which intellectual property rights limitations creates a barrier to technology transition.

### **6. Cost Realism**

The objective of this criterion is to establish that the proposed costs are realistic for the technical and management approach offered, as well as to determine the proposer's practical understanding of the effort. This will be principally measured by cost per labor-hour and number of labor-hours proposed. The evaluation criterion recognize that undue emphasis on cost may motivate proposers to offer low-risk ideas with minimum uncertainty and to staff the effort with junior personnel in order to be in a more competitive posture. DARPA discourages such cost strategies. Cost reduction approaches that will be received favorably include innovative management concepts that maximize direct funding for technology and limit diversion of funds into overhead.

After selection and before award the contracting officer will negotiate cost/price reasonableness.

Award(s) will be made to proposers whose proposals are determined to be the most advantageous to the Government, all factors considered, including the potential contributions of the proposed work to the overall research program and the availability of funding for the effort. Award(s) may be made to any proposer(s) whose proposal(s) is determined selectable regardless of its overall rating.

*NOTE: PROPOSERS ARE CAUTIONED THAT EVALUATION RATINGS MAY BE LOWERED AND/OR PROPOSALS REJECTED IF SUBMITTAL INSTRUCTIONS ARE NOT FOLLOWED.*

## **B. Review and Selection Process**

It is the policy of DARPA to ensure impartial, equitable, comprehensive proposal evaluations and to select the source (or sources) whose offer meets the Government's technical, policy, and programmatic goals. Pursuant to FAR 35.016, the primary basis for selecting proposals for acceptance shall be technical, importance to agency programs, and fund availability. In order to provide the desired evaluation, qualified Government personnel will conduct reviews and (if necessary) convene panels of experts in the appropriate areas.

Proposals will not be evaluated against each other since they are not submitted in accordance with a common work statement. DARPA's intent is to review proposals as soon as possible after they arrive; however, proposals may be reviewed periodically for administrative reasons. For evaluation purposes, a proposal is the document described in "Proposal Information", Section IV.B. Other supporting or background materials submitted with the proposal will be considered for the reviewer's convenience only and not considered as part of the proposal.

Restrictive notices notwithstanding, proposals may be handled for administrative purposes by support contractors. These support contractors are prohibited from competition in DARPA technical research and are bound by appropriate non-disclosure requirements.

Subject to the restrictions set forth in FAR 37.203(d), input on technical aspects of the proposals may be solicited by DARPA from non-Government consultants /experts who are strictly bound by the appropriate non-disclosure requirements.

It is the policy of DARPA to treat all proposals as competitive information and to disclose their contents only for the purpose of evaluation. No proposals will be returned. Upon completion of the source selection process, the original of each proposal received will be retained at DARPA and all other copies will be destroyed.

## **SECTION VI: AWARD ADMINISTRATION INFORMATION**

### **A. Award Notices**

As soon as the evaluation of a proposal is complete, the offeror will be notified that 1) the proposal has been selected for funding pending contract negotiations, or 2) the proposal has not been selected. These official notifications will be sent via U. S. mail to the Technical POC identified on the proposal coversheet.

### **B. Administrative and National Policy Requirements**

#### **1. Security**

The Government anticipates that proposals submitted under this BAA will be unclassified. In the event that a proposer chooses to submit a classified proposal or submit any documentation that may be classified, the following information is applicable.

Security classification guidance on a DD Form 254 will not be provided at this time since DARPA is soliciting ideas only. After reviewing the incoming proposals, if a determination is made that the award instrument may result in access to classified information, a DD Form 254 will be issued and attached as part of the award. Proposers choosing to submit a classified proposal must first receive permission from the Original Classification Authority to use their information in replying to this BAA. Applicable classification guide(s) should be submitted to ensure that the proposal is protected appropriately.

Classified submissions shall be in accordance with the following guidance:

**Collateral Classified Information:** Use classification and marking guidance provided by previously issued security classification guides, the Information Security Regulation (DoD 5200.1-R), and the National Industrial Security Program Operating Manual (DoD 5220.22-M) when marking and transmitting information previously classified by another original classification authority. Classified information at the Confidential and Secret level may only be mailed via U.S. Postal Service (USPS) Registered Mail or U.S. Postal Service Express Mail. All classified information will be enclosed in opaque inner and outer covers and double wrapped. The inner envelope shall be sealed and plainly marked with the assigned classification and addresses of both sender and addressee. The inner envelope shall be address to:

Defense Advanced Research Projects Agency  
ATTN: (Microsystems Technology Office)  
Reference: (BAA 07-61)  
3701 North Fairfax Drive  
Arlington, VA 22203-1714

The outer envelope shall be sealed with no identification as to the classification of its contents and addressed to:

Defense Advanced Research Projects Agency  
Security & Intelligence Directorate, Attn: CDR  
3701 North Fairfax Drive  
Arlington, VA 22203-1714

All Top Secret materials should be hand carried via an authorized, two-person courier team to the DARPA CDR.

**Special Access Program (SAP) Information:** Contact the DARPA Special Access Program Central Office (SAPCO) 703-526-4052 for further guidance and instructions prior to transmitting SAP information to DARPA. Top Secret SAP, must be transmitted via approved methods for such material. Consult the DoD Overprint to the National Industrial Security Program Operating Manual for further guidance. *Prior to transmitting SAP material*, it is strongly recommended that you coordinate your submission with the DARPA SAPCO.

**Sensitive Compartmented Information (SCI) Data:** Contact the DARPA Special Security Office (SSO) at 703-812-1994/1984 for the correct SCI courier address and instructions. All SCI should be transmitted through your servicing Special Security Officer (SSO). SCI data must be transmitted through SCI channels only (i.e., approved SCI Facility to SCI facility via secure fax).

Proprietary Data: All proposals containing proprietary data should have the cover page and each page containing proprietary data clearly marked as containing proprietary data. It is the Offeror's responsibility to clearly define to the Government what is considered proprietary data.

Offerors must have existing and in-place prior to execution of an award, approved capabilities (personnel and facilities) to perform research and development at the classification level they propose. It is the policy of DARPA to treat all proposals as competitive information, and to disclose their contents only for the purpose of evaluation. Proposals will not be returned. The original of each proposal received will be retained at DARPA and all other non-required copies destroyed. A certification of destruction may be requested, provided that the formal request is received at this office within 5 days after unsuccessful notification.

## **2. Intellectual Property**

### *Procurement Contract Proposers*

#### **Noncommercial Items (Technical Data and Computer Software)**

Proposers responding to this BAA requesting a procurement contract to be issued under the FAR/DFARS, shall identify all noncommercial technical data, and noncommercial computer software that it plans to generate, develop, and/or deliver under any proposed award instrument in which the Government will acquire less than unlimited rights, and to assert specific restrictions on those deliverables. Proposers shall follow the format under DFARS 252.227-7017 for this stated purpose. In the event that proposers do not submit the list, the Government will assume that it automatically has "unlimited rights" to all noncommercial technical data and noncommercial computer software generated, developed, and/or delivered under any award instrument, unless it is substantiated that development of the noncommercial technical data and noncommercial computer software

occurred with mixed funding. If mixed funding is anticipated in the development of noncommercial technical data, and noncommercial computer software generated, developed, and/or delivered under any award instrument, then proposers should identify the data and software in question, as subject to Government Purpose Rights (GPR). In accordance with DFARS 252.227-7013 Rights in Technical Data - Noncommercial Items, and DFARS 252.227-7014 Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation, the Government will automatically assume that any such GPR restriction is limited to a period of five (5) years in accordance with the applicable DFARS clauses, at which time the Government will acquire “unlimited rights” unless the parties agree otherwise. Proposers are admonished that the Government will use the list during the source selection evaluation process to evaluate the impact of any identified restrictions, and may request additional information from the proposer, as may be necessary, to evaluate the proposer’s assertions. If no restrictions are intended, then the proposer should state “NONE.”

A sample list for complying with this request is as follows:

NONCOMMERCIAL			
Technical Data Computer Software To be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(LIST)	(LIST)	(LIST)	(LIST)

**Commercial Items (Technical Data and Computer Software)**

Proposers responding to this BAA requesting a procurement contract to be issued under the FAR/DFARS, shall identify all commercial technical data, and commercial computer software that may be embedded in any noncommercial deliverables contemplated under the research effort, along with any applicable restrictions on the Government’s use of such commercial technical data and/or commercial computer software. In the event that proposers do not submit the list, the Government will assume that there are no restrictions on the Government’s use of such commercial items. The Government may use the list during the source selection evaluation process to evaluate the impact of any identified restrictions, and may request additional information from the proposer, as may be necessary, to evaluate the proposer’s assertions. If no restrictions are intended, then the proposer should state “NONE.”

A sample list for complying with this request is as follows:

COMMERCIAL			
Technical Data Computer Software To	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions

be Furnished With Restrictions			
(LIST)	(LIST)	(LIST)	(LIST)

*NonProcurement Contract Proposers - Noncommercial and Commercial Items (Technical Data and Computer Software)*

Proposers responding to this BAA requesting a Grant, Cooperative Agreement, Technology Investment Agreement, or Other Transaction for Prototype shall follow the applicable rules and regulations governing these various award instruments, but in all cases should appropriately identify any potential restrictions on the Government’s use of any Intellectual Property contemplated under those award instruments in question. This includes both Noncommercial Items and Commercial Items. Although not required, proposers may use a format similar to that described in Paragraphs 1.a and 1.b above. The Government may use the list during the source selection evaluation process to evaluate the impact of any identified restrictions, and may request additional information from the proposer, as may be necessary, to evaluate the proposer’s assertions. If no restrictions are intended, then the proposer should state “NONE.”

**All Proposers – Patents**

Include documentation proving your ownership of or possession of appropriate licensing rights to all patented inventions (or inventions for which a patent application has been filed) that will be utilized under your proposal for the DARPA program. If a patent application has been filed for an invention that your proposal utilizes, but the application has not yet been made publicly available and contains proprietary information, you may provide only the patent number, inventor name(s), assignee names (if any), filing date, filing date of any related provisional application, and a summary of the patent title, together with either: 1) a representation that you own the invention, or 2) proof of possession of appropriate licensing rights in the invention.

**All Proposers-Intellectual Property Representations**

Provide a good faith representation that you either own or possess appropriate licensing rights to all other intellectual property that will be utilized under your proposal for the DARPA program. Additionally, offerors shall provide a short summary for each item asserted with less than unlimited rights that describes the nature of the restriction and the intended use of the intellectual property in the conduct of the proposed research.

**3. Meeting and travel requirements**

There will be a program kickoff meeting and annual PI meetings and all key participants are required to attend. Performers should also anticipate periodic site visits at the Program Manager’s discretion.

**4. Human use**

Proposals selected for contract award are required to comply with provisions of the Common Rule (32 CFR 219) on the protection of human subjects in research (<http://www.dtic.mil/biosys/downloads/32cfr219.pdf>) and the Department of Defense Directive 3216.2 (<http://www.dtic.mil/whs/directives/corres/html2/d32162x.htm>). All proposals that involve the use of human subjects are required to include documentation of their ability to follow Federal guidelines for the protection of human subjects. This includes, but is not limited to, protocol approval mechanisms, approved Institutional Review Boards, and Federal Wide Assurances. These requirements are based on expected human use issues sometime during the entire length of the proposed effort.

For proposals involving “greater than minimal risk” to human subjects within the first year of the project, performers must provide evidence of protocol submission to a federally approved IRB at the time of final proposal submission to DARPA. For proposals that are forecasted to involve “greater than minimal risk” after the first year, a discussion on how and when the offeror will comply with submission to a federally approved IRB needs to be provided in the submission. More information on applicable federal regulations can be found at the Department of Health and Human Services – Office of Human Research Protections website (<http://www.dhhs.gov/ohrp/>).

Any aspects of a proposal involving human use should be specifically called out as a separate element of the statement of work and cost proposal to allow for independent review and approval of those elements.

## **5. Animal Use**

Any Recipient performing research, experimentation, or testing involving the use of animals shall comply with the rules on animal acquisition, transport, care, handling, and use in: (i) 9 CFR parts 1-4, Department of Agriculture rules that implement the Laboratory Animal Welfare Act of 1966, as amended, (7 U.S.C. 2131-2159); and (ii) the guidelines described in National Institutes of Health Publication No. 86-23, “Guide for the Care and Use of Laboratory Animals.”

## **6. Publication approval**

Offerors are advised if they propose grants or cooperative agreements, DARPA may elect to award other award instruments. DARPA will make this election if it determines that the research resulting from the proposed program will present a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense. Any resulting award will include a requirement for DARPA permission before publishing any information or results on the program.

The following provision will be incorporated into any resultant procurement contract or other transaction:

There shall be no dissemination or publication, except within and between the Contractor and any subcontractors, of information developed under this contract or contained in the reports to be furnished pursuant to this contract without prior written approval of the Contracting Officer Representative (COR). All technical

reports will be given proper review by appropriate authority to determine which Distribution Statement is to be applied prior to the initial distribution of these reports by the Contractor. Papers resulting from unclassified contracted fundamental research are exempt from prepublication controls and this review requirement, pursuant to DoD Instruction 5230.27 dated October 6, 1987.

When submitting material for written approval for open publication as described in subparagraph (a) above, the Contractor/Awardee must submit a request for public release to the DARPA TIO and include the following information: 1) Document Information: document title, document author, short plain-language description of technology discussed in the material (approx. 30 words), number of pages (or minutes of video) and document type (briefing, report, abstract, article, or paper); 2) Event Information: event type (conference, principle investigator meeting, article or paper), event date, desired date for DARPA's approval; 3) DARPA Sponsor: DARPA Program Manager, DARPA office, and contract number; and 4) Contractor/Awardee's Information: POC name, e-mail and phone. Allow four weeks for processing; due dates under four weeks require a justification. Unusual electronic file formats may require additional processing time. Requests can be sent either via e-mail to [tio@darpa.mil](mailto:tio@darpa.mil) or via 3701 North Fairfax Drive, Arlington VA 22203-1714, telephone (571) 218-4235. Refer to [www.darpa.mil/tio](http://www.darpa.mil/tio) for information about DARPA's public release process.

## **7. Export Control**

The following provision will be incorporated into any resultant contract:

Should this project develop beyond fundamental research (basic and applied research ordinarily published and shared broadly within the scientific community) with military or dual-use applications the following apply:

(1) The Contractor shall comply with all U. S. export control laws and regulations, including the International Traffic in Arms Regulations (ITAR), 22 CFR Parts 120 through 130, and the Export Administration Regulations (EAR), 15 CFR Parts 730 through 799, in the performance of this contract. In the absence of available license exemptions/exceptions, the Contractor shall be responsible for obtaining the appropriate licenses or other approvals, for obtaining the appropriate licenses or other approvals, if required, for exports of (including deemed exports) hardware, technical data, and software, or for the provision of technical assistance.

(2) The Contractor shall be responsible for obtaining export licenses, if required, before utilizing foreign persons in the performance of this contract, including instances where the work is to be performed on-site at any Government installation (whether in or outside the United States), where the foreign person will have access to export-controlled technical data or software.

(3) The Contractor shall be responsible for all regulatory record keeping requirements associated with the use of licenses and license exemptions/exceptions.

(4) The Contractor shall be responsible for ensuring that the provisions of this clause apply to its subcontractors.

## **8. Subcontracting**

Pursuant to Section 8(d) of the Small Business Act (15 U.S.C. 637(d)), it is the policy of the Government to enable small business and small disadvantaged business concerns to be considered fairly as subcontractors to contractors performing work or rendering services as prime contractors or subcontractors under Government contracts, and to assure that prime contractors and subcontractors carry out this policy. Each proposer who submits a contract proposal and includes subcontractors is required to submit a subcontracting plan in accordance with FAR 19.702(a) (1) and (2) should do so with their proposal. The plan format is outlined in FAR 19.704.

## **9. Reporting**

The number and types of reports will be specified in the award document, but will include as a minimum quarterly financial and programmatic status reports. The reports shall be prepared and submitted in accordance with the procedures contained in the award document and mutually agreed on before award. Reports and briefing material will also be required as appropriate to document progress in accomplishing program metrics. A Final Report that summarizes the project and tasks will be required at the conclusion of the performance period for the award, notwithstanding the fact that the research may be continued under a follow-on vehicle.

## **10. Award Administration Information**

**Central Contractor Registration:** Selected proposers not already registered in the Central Contractor Registry (CCR) will be required to register in CCR prior to any award under this BAA. Information on CCR registration is available at <http://www.ccr.gov>.

**Representations and Certifications:** In accordance with FAR 4.1201, prospective proposers shall complete electronic annual representations and certifications at <http://orca.bpn.gov>.

**Wide Area WorkFlow (WAWF):** Unless using another approved electronic invoicing system, performers will be required to submit invoices for payment directly via the Internet/WAWF at <http://wawf.eb.mil>. Registration to WAWF will be required prior to any award under this BAA.

## **11. Confidentiality**

It is the policy of DARPA to treat all proposals as competitive information and to disclose their contents only for the purpose of evaluation. No proposals will be returned. The original of each proposal received will be retained at DARPA and all other copies of non-selected proposals destroyed. Documentation related to the source selection process will be marked SOURCE SELECTION INFORMATION – SEE FAR 2.101 AND 3.104

## **SECTION VII: AGENCY CONTACTS**

DARPA will use electronic mail for all technical and administrative correspondence regarding this BAA, with the exception of selected/not-selected notifications.

Administrative, technical or contractual questions should be sent via e-mail to [BAA07-61@darpa.mil](mailto:BAA07-61@darpa.mil). If e-mail is not available, fax questions to (703) 741-0079, Attention: BAA 07-61. All requests must include the name, email address, and phone number of a point of contact.

**The technical POC for this effort is:**

Dennis Polla, Ph.D.  
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DARPA/MTO  
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