

RFI Template

General Information

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Contracting Office Address

Other Defense Agencies, Defense Advanced Research Projects Agency,
Contracts Management Office, 3701 North Fairfax Drive, Arlington, VA,
22203-1714

Description

Small electric fields are produced by a wide variety of sources (for example, communications signal, electrical equipment, power lines, muscles) over a wide range of frequencies. Sensing these fields over large frequency ranges is very challenging. The Defense Advanced Research Projects Agency's (DARPA) Microsystems Technology Office (MTO) is requesting information on novel research ideas and approaches to detect small electric fields over large frequency ranges using a compact detector. No funding has currently been allocated to this effort, a Broad Agency Announcement and/or other solicitation may or may not result from the findings of this RFI.

Electric field sensing is often performed using an antenna and receiver combination. In these systems, the sensitivity is a function of the frequency of the signal and both high sensitivity and broad frequency response are not possible. In addition, the systems are relatively large (especially at lower frequencies) so that compact arrays for signal localization are not possible. Sensor architectures without an antenna are yet to be demonstrated to have the high sensitivity of antenna-based systems. DARPA/MTO is interested in electric field detection systems that have both high sensitivity and large frequency response in a small form factor. In order to focus onto technical approaches with the greatest potential, a preliminary set of system metrics have been formulated. These metrics are:

- 1) Sensitivity $0.1 \mu\text{V}/\text{m}\cdot\text{Hz}^{1/2}$
- 2) Bandwidth 1000 Hz
- 3) Frequency range $0.5 - 10^9$ Hz
- 4) Sensor size 1 mm^2

Interested parties should submit their position paper by responding to this RFI as described in the instructions below.

INSTRUCTIONS TO RESPONDERS

This announcement contains all information required to submit a position paper. No additional forms, kits, or other materials are needed.

DARPA appreciates responses from all capable and qualified sources, including but not limited to universities, university affiliated research centers, federally-funded research centers, private or public companies, and Government research laboratories. Position papers have the following formatting requirements:

- 1) A one page cover sheet that identifies the title, organization(s), responder's technical and administrative points of contact - including names, addresses, phone and fax numbers, and email addresses of all co-authors;
- 2) A single overview briefing chart graphically depicting the key ideas;
- 3) A technical description (limited to 5 pages in minimum 10 point font) of the technical challenges and approach (which includes a detailed calculation of the device parameters that will enable it to meet the proposed metrics). In addition, a pathway to achieve those parameters should be outlined.
- 4) A discussion, limited to one page, on the applications where the proposed technology would have the largest impact.
- 5) A list of citations (Any significant claims or reports of success must be accompanied by citations, and reference material **MUST** be attached).
- 6) The above should be submitted as MS Word, PDF, and/or MS PowerPoint documents.

Responders are requested to include "DARPA-SN-09-12" in the subject line of any email correspondence. Respondents must submit one original and two paper copies of the full response and one electronic copy of the full RFI response (in Microsoft Word, Adobe PDF, and/or Microsoft PowerPoint on a single CD ROM). Disks must be clearly labeled with "DARPA-SN-09-12," offeror organization, and points of contact. The full RFI response (original and designated number of hard and electronic copies) must be submitted to: DARPA/MTO, Attn: Dr. Devanand Shenoy, 3701 N. Fairfax Drive, Arlington, VA 22203-1714. Responses to this RFI are due no later than 4:00PM, Local Time, Arlington, VA, on January 16, 2009. **ANY INQUIRIES ON THIS RFI MUST BE SUBMITTED TO SN09-12@darpa.mil. NO TELEPHONIC INQUIRIES WILL BE ACCEPTED.**

DISCLAIMERS AND IMPORTANT NOTES

This is an RFI issued solely for information and new program planning purposes and does not constitute a solicitation. Respondents are

advised that DARPA is under no obligation to acknowledge receipt of the information received, or provide feedback to respondents with respect to any information submitted under this RFI.

In accordance with FAR 15.201(e), responses to this notice are not offers and cannot be accepted by the Government to form a binding contract. Responders are solely responsible for all expenses associated with responding to this RFI.

Original Point of Contact

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