# Microsystems Technology Office-Wide BAA 07-18

for

## Defense Advanced Research Projects Agency (DARPA)
## Microsystems Technology Office (MTO)

**********

This BAA will be open from 15 January 2007 through 14 January 2009 (2 Yr)

**********

# 1. INTRODUCTION

The Microsystems Technology Office's (MTO) mission is to exploit breakthroughs in materials, devices, circuits, and mathematics to develop beyond leading edge Microsystems components with revolutionary performance and functionality to enable new platform capability for the Department of Defense. To execute this mission, MTO supports revolutionary research in electronics, photonics, MEMS, algorithms, and combined Microsystems technology to deliver new capabilities to sense, communicate, energize, actuate, and process data and information for the war fighter.

## 1.1 TECHNICAL TOPIC AREAS

MTO regularly publishes Broad Agency Announcements requesting responses to specific program topics. This announcement seeks revolutionary research ideas for topics not being addressed by ongoing MTO programs or other published BAA solicitations. This BAA is primarily, but not solely, intended for early stage research that will lead to larger, focused, MTO programs in the future. Potential bidders are highly encouraged to review the current MTO programs listed on the MTO website at: http://www.darpa.mil/mto/radprograms.html and other MTO solicitations list at: http://www.darpa.mil/mto/solicitations/index.html to avoid proposing efforts to this BAA that duplicate existing activities or that are responsive to other published MTO BAA's. Contacting MTO program managers to discuss research interests is also encouraged. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice.

Research areas of current interest in MTO, include, but are not limited to:

1. Low power, high performance digital and analog data processing
2. Novel electronic and photonic device demonstrations
3. Novel semiconductor materials enabling new device concepts or capabilities
4. Nanophotonics and nanoelectronic device and circuit demonstrations
5. Power Electronics
6. RF technology
7. Biological and chemical sensors
8. Quantum information science and technology
9. Chip scale navigation, timing, and control
10. Three dimensional digital, rf, and imaging technologies
11. Integrated chip-scale photonics
12. Micro-scale power generation, control, and conversion
13. Infrared and ultraviolet detectors and imagers
14. Terahertz technology
15. Optical communication technology
16. Analog-to-digital conversion
17. Co-optimization of hardware and algorithms
18. Novel complex circuit design technology
19. Trusted design and hardware technology
20. Microsystems addressing challenges in complex systems architectures
21. Scaling of macro-systems to micro and nano-scale
22. Micro and NanoElectroMechanical Systems (MEMS and NEMS)

## 2. PROPOSAL EVALUATION

The criteria to be used to evaluate and select proposals for this project are described in the following paragraphs. The criteria to be used to evaluate and select offers under this BAA are, in order of descending importance: (a) Overall Scientific and Technical Merit; (b) Proposer's Capabilities and/or Related Experience; (c) Realism of Proposed Schedule. (d) Potential Contribution and Relevance to the DARPA Mission; (e) Plans and Capability to Accomplish Technology Transition; and (f) Cost Reasonableness and Realism; each proposal will be evaluated on its own merit and relevance rather than against other proposals in the same general area, since no common work statement exists. Proposals may be evaluated as they are received, or they may be collected and periodically reviewed.

Details regarding the white paper and proposal preparation and submission, and other administrative details, are found in the attached Proposer Information Pamphlet (PIP).