NRL BAA Announcement
#57-15-04

AIRBORNE ELECTRONIC WARFARE

The Aerospace Electronic Warfare Branch (AEWS) of the Naval Research Laboratory (NRL) conducts research and development into electronic warfare (EW) technologies, particularly in electronic attack (EA), that support future Navy/Marine aviation concepts and needs. The Branch researches and experiments with technologies that counter the threat kill chain from broad area surveillance to terminal defense. Countermeasure application areas include the suppression of enemy air defenses (SEAD) mission, command and control links, satellite navigation systems, passive coherent location (PCL) systems, non-cooperative target recognition radars (SAR, ISAR, IFSAR, HRR, Noise…), adaptive active/passive electronically steerable array acquisition and targeting radars, broad area surveillance radars including high frequency (HF) over-the-horizon and surface wave radars, millimeter wave, and multi-spectral threats.

The Airborne EW Systems Branch is interested in receiving proposals for research and development that support its mission. Specific areas of interest include, but are not limited to:

1) Very wideband electronic countermeasures (ECM) technologies, including amplifiers (tubes, solid state, and hybrids), power combiners, filters, circulators, isolators, and other discrete components;
2) Wideband, efficient, high power millimeter wave transmitter concepts and technologies;
3) Innovative and compact antenna designs for efficient transmission or reception of electromagnetic EM energy at long wavelengths;
4) Wideband, multifunction, or other special requirement antenna designs and technology;
5) Innovative conventional and non-conventional ECM techniques and systems for application in all phases of naval aviation activity including both the strike mission support and air-to-air engagements;
6) Innovative methods for the generation of cognitive adaptive optimized EA and Electronic Support (ES) techniques;;

7) Concepts and technologies to efficiently cue an EA exciter to select/generate appropriate EA techniques in a dense signal environment, especially with respect to the constrained payloads available to tactical airborne platforms including unmanned air vehicles (UAVs);
8) Concepts and technologies to support EA and ES from UAVs;
9) Network-centric approaches to the command and control of multiple UAVs performing an EA mission;
10) Innovative approaches to machine learning, signal identification, and signal classification;
11) Innovative and effective methods and technologies to enhance satellite navigation protection for blue forces or to counter satellite navigation by hostile forces;
12) Practical and accurate methods for determining in real time or near real time the effectiveness of EA techniques generated from airborne platforms.
13) Wideband transmitter and receiver hardware with high dynamic range and algorithms to increase the dynamic range of existing systems; and
14) Processing architectures that allow for implementation of massively parallel algorithms, especially those that are realizable in small size, weight, and power.

The foregoing description should be interpreted within the following guidelines which apply to all BAA topics but are stated here for emphasis: (1) NRL is not interested in concepts that have already been developed or proven (even if they have never been sold before), (2) NRL seeks proposals for scientific study and experimentation directed toward advancing the state-of-the-art or increasing knowledge or understanding and (3) deliverables should demonstrate the results of scientific study and experimentation rather than focus on a specific system or hardware solution. Proposals for portions or subsets of the above listed efforts are encouraged.

Address White Papers (WP) to Code5730@nrl.navy.mil. Allow one month before requesting confirmation of receipt of Initial Proposal, if confirmation is desired. Substantive contact should not take place prior to evaluation of an Initial Proposal by NRL. If necessary, NRL will initiate substantive contact.