NRL BAA Announcement
#53-09-04

ADVANCED COMPUTATIONAL ELECTROMAGNETICS

The Computational ElectroMagnetics (CEM) Group within the Radar Division of the Naval Research Laboratory (NRL) is interested in research that will lead to the accurate and timely analysis of CEM problems that are beyond the capability of the current state of the art computational methods to solve. The emphasis is on simulation of RADAR and antenna systems, but can be generalized to large electromagnetic structures that are multi-scale in nature – i.e. sub-wavelength features within systems that are many thousands of wavelengths in size. Proposals should address the following topics:

1) The ability to model with high-fidelity as well as visualize/manipulate electromagnetic objects having details on the order of fractions of a wavelength within composite systems that are several hundred to many thousands of wavelengths in size. Emphasis on innovative techniques for high-fidelity simulations and visualizations of RF circuits, antennas, antenna arrays and large EMI/EMC sensitive systems.
2) Techniques/algorithms that reduce the condition number of very large systems of equations.
3) Methods to reduce the number of data points needed for full/accurate characterization of a system over broad frequency ranges or scan/incidence angles.

Research is primarily academic in nature, but classified proposals are acceptable. If a formal (classified) proposal is requested by NRL, an unclassified executive summary should accompany the proposal.

Address White Papers (WP) for items to Code 5314 via email or fax 202-767-6276. Allow one month before requesting confirmation of receipt of WP, if confirmation is desired. Substantive contact should not take place prior to evaluation of a WP by NRL. If necessary, NRL will initiate substantive contact.