



**NRL BAA Announcement
#63-09-08**

TUNABLE ELECTROMAGNETIC DIELECTRICS

The Naval Research Laboratory (NRL) is seeking proposals for innovative research leading to new materials, devices, components and subsystems using field tunable electromagnetic dielectrics such as ferroelectrics, paraelectrics and multiferroics.

The goal of the NRL program is to develop highly frequency tunable materials for use in Navy and other DoD applications. Such materials would be employed in highly agile thin and thick films antennae, varactors (variable capacitors), phase shifters, tunable dielectric resonators, tunable impedance matching devices and tuned filters. In addition there is a need for low voltage materials and monolithically integrated tunable analog and radio frequency processing functions with semiconductor based digital signal and waveform processing circuits on a single substrate. These devices, in turn, would be appropriate for use in a number of applications including communication and remote sensing.

Ferroelectrics are the most common tunable dielectrics. Unfortunately, although there has been considerable progress in materials development, it is still true that the available ferroelectrics for uses in tunable devices have unacceptably high losses and limited tunability. In order for the widespread insertion of devices of the sort enumerated above to take place, new materials with much lower losses and improved tunability will have to be discovered and developed. Furthermore, they will also have to be available or have the potential to become available at much lower cost than is currently the case.

Address White Papers (WP) to Code 6301, or [e-mail](#), telephone (202) 767-2926. 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.