



## Research Funding Opportunity

Program Title	Materials Design – ARL Basic Scientific Research – Research Area 15.1
Solicitation/RFP Code	BAA W911NF-07-R-0001
Funding Organization(s)	U. S. Army Research Laboratory
Funding Amount(s)	Undefined – proposal & area specific
Application Deadlines	Continuous through 30 September 2011

### Program Summary

#### RESEARCH AREA 15 - MATERIALS SCIENCE

15.1. Materials Design. The objective of the materials design program is to tailor material properties for application-driven property requirements. The research should investigate property interrelationships in materials growth, processing or characterization with the approach eventually leading to stronger coupling of experimental research with theory or modeling (including phenomenological modeling).

There is particular interest in identifying new ways of combining similar and dissimilar materials which provide multifunctional capabilities, recognizing that functionality is often derived from properties very close to the interface. Processing models that build a solid theoretical underpinning will be a key to control/optimization of surface and interface properties. Surface and interface research in areas such as organic/semiconductor, bio/semiconductor, or bio/organic/semiconductor interfaces; dielectrics/semiconductor interfaces; transparent conductive thin films; dissimilar material and nano electrical contacts; and bonded or alternative substrates can be envisioned.

Another area of emphasis will be development of in-situ and ex-situ analytical methods for analysis over the appropriate dimensions, that is, methods with appropriate spatial resolution or appropriate sensitivity. The goal is to understand and control material and growth parameters that affect a desired or undesired property within a particular property range. Other areas of interest are investigations of high temperature materials and their relevant degradation modes; development of adaptive materials capable of response to internal or external stimuli; study of self-repair or self-healing effects; growth and characterization of embedded nano-sized constituents designed for material and performance health monitoring; and investigations of novel methods leading to large-scale, large-quantity processing of nanomaterials. It is intended that in addition to promoting convergence, combination and integration of similar and dissimilar materials the program also promotes convergence of and cross-disciplinary concepts for materials design.

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