



THE Ames Laboratory  
Creating Materials & Energy Solutions

## Research Programs

### Division of Materials Science and Engineering

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- ◆ Bioinspired Materials
- ◆ Complex Hydrides—A New Frontier for Future Energy Applications
- ◆ Complex States, Emergent Phenomena, and Superconductivity in Intermetallic and Metal-like Compounds
- ◆ Computational Materials Science Network. Predictive Modeling of the Growth and Properties of Energy-relevant Thin Films and Nanostructures
- ◆ Correlations and Competition between the Lattice, Electrons, and Magnetism
- ◆ Exploratory Development of Theoretical Methods
- ◆ Extraordinary Responsive Magnetic Rare Earth Materials
- ◆ Innovative and Complex Metal-Rich Materials
- ◆ Mechanical Behavior and Defects in Solids
- ◆ Metamaterials
- ◆ Multiferroic Materials
- ◆ Nanoscale and Ultrafast Correlations in Magnetic Materials
- ◆ Photonic Systems
- ◆ Rational Growth, Control and Modification of Novel Materials, and Materials Preparation Center
- ◆ Solid-State NMR
- ◆ Structure and Chemistry of Condensed Systems
- ◆ Surface Structures Far-from-Equilibrium

### Applied Mathematics and Computational Sciences

**Contact:** Mark Gordon, [mark@si.msg.chem.iastate.edu](mailto:mark@si.msg.chem.iastate.edu), 515-294-0452

The Scalable Computing Laboratory seeks to advance the use of scalable computing in scientific and engineering computation.

### Biological and Environmental Research

**Contact:** Pat Thiel, [thiel@ameslab.gov](mailto:thiel@ameslab.gov), 515-294-8985

Helps address the problem of our national dependence on nonrenewable resources as a primary source for energy in areas, such as life sciences, climate change research, environmental remediation, medical applications and facilities.

### Chemical and Biological Sciences

**Contact:** Victor Lin, [vsylin@iastate.edu](mailto:vsylin@iastate.edu), 515-294-3135

The Fundamental Interactions division focuses on the development and application of methods that enable the study of surface phenomena, heterogeneous catalysis, cluster science and nucleation theory, and mechanisms in organometallic chemistry. The Molecular Processes division focuses on catalysis, and chemical separations and analysis, with an emphasis on analytical applications.

### Environmental and Protection Sciences

**Contact:** David Baldwin, [dbaldwin@ameslab.gov](mailto:dbaldwin@ameslab.gov), 515-294-2069

Focuses on identifying and developing new technologies that can be applied to national problems that affect the environment, national security and forensic investigations.

### Simulation, Modeling and Decision Science

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Focuses on creating computer applications that convert large 3-D data sets into virtual models that perform just like real-world versions. Such computer programs can help engineers make faster and better design decisions through the use of virtual engineering software.

### Nondestructive Evaluation

**Contact:** Bruce Thompson, [rbthomps@iastate.edu](mailto:rbthomps@iastate.edu), 515-294-7864

Researchers efforts to develop in-service flaw detection techniques for forecasting materials and product lifetimes under varied service conditions.

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