



Air Force Research Laboratory



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Dynamic Materials and Interactions Portfolio Plan

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New AFOSR Portfolio: Dynamic Materials and Interactions



- **Description:** Fundamental understanding of the chemistry and physics of energetic materials.

Material Progression

Explosive

Organic explosive crystals, fuel and oxidizer additives with binder; optimized for detonation

Reactive Material, Structural Energetic, etc.

Metal-metal and metal-metal oxide reactions

Novel Energetic Materials

Core-shell nanoparticles; Energetic Co-Crystals; Poly-nitrogen

Thrust Areas

Shock and Detonation Physics

- Detonation of energetic materials
- Mesoscale models and validation of dynamic events, particularly EM initiation
- Shock phenomena in solids

Energetic Materials Composition

- New energetic materials
- Complex structures incorporating energetic materials – processes and characterization

Thermal and Electromagnetic Effects

- Thermal response of EMs
- Electromagnetic interactions with EMs

- Program ramps up in FY14
- Initial Portfolio Review tentatively planned for Oct 13
- Now seeking innovative research ideas

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