



NASA SBIR 2008 Phase I Solicitation

X4.02 Advanced Radiation Shielding Materials and Structures

Lead Center: LaRC

Participating Center(s): ARC, GSFC, MSFC

Advances in radiation shielding materials and structures technologies are needed to protect humans from the hazards of space radiation during NASA missions. The primary area of interest for this 2008 solicitation is radiation shielding materials and structures for protection from long-duration lunar surface galactic cosmic radiation (GCR). The particular radiation species of greatest concern are protons, light ions, heavy ions, and neutrons. Research should be conducted to demonstrate technical feasibility during Phase 1 and to show a path toward a Phase 2 technology demonstration. Specific areas in which SBIR-developed technologies can contribute to NASA's overall mission requirements for advanced radiation shielding materials and structures include the following:

- Innovative lightweight radiation shielding materials and structures to shield humans in crew exploration vehicles, landers, rovers, and habitats and during lunar surface operations.
- Physical, mechanical, structural, and other relevant characterization data to validate and qualify multifunctional radiation shielding materials and structures.
- Innovative processing methods to produce quality-controlled advanced radiation shielding materials of all forms - resins, fibers, fabrics, foams, composites, light alloys, and hybrid materials.
- Innovative concepts to reuse, recycle, and reprocess materials and structures in space for use as radiation shielding materials and structures.