



NASA SBIR 2011 Phase I Solicitation

X11.01 Radiation Shielding Materials Systems

Lead Center: LaRC

Participating Center(s): MSFC

Advances in radiation shielding materials technologies and systems are needed to protect humans from the hazards of space radiation during NASA missions. The primary areas of interest for this 2011 solicitation are radiation shielding materials systems for long-duration galactic cosmic radiation (GCR) and solar energetic particles (SEP) protection. Neutron protection and high-energy electron protection are also of interest. Research should be conducted to demonstrate technical feasibility during Phase I and to show a path toward a Phase II technology demonstration.

Physical, mechanical, structural, and/or other relevant characterization data to validate and qualify multifunctional radiation shielding materials should be demonstrated. Specific areas in which SBIR-developed technologies can contribute to NASA's overall mission requirements include the following:

- Innovative tailored materials for lightweight radiation shielding of humans.
- Innovative, multifunctional, integrated, or multipurpose structures (primary or secondary structures) for lightweight radiation shielding of humans.
- Innovative processes for developing radiation shielding materials.
- Smart, or sensing, radiation shielding materials.
- Radiation shielding materials demonstration experiments for MISSE (Materials International Space Station Experiment) or other ISS experiments.