

Solar Energetic Particles (SEP), Solar Modulation and Space Radiation: New Opportunities in the AMS-02 Era #2

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Solar Particle Event Protection Requirements for Exploration Habitats

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Under the Next Space Technologies for Exploration Partnerships (NextSTEP), NASA is collaborating with six companies to design, develop, and test habitat concepts for human missions beyond low Earth orbit. A method for protecting astronauts from the harmful effects of Solar Particle Events (SPEs) must be incorporated into these habitats. This radiation protection may take the form of a heavily shielded area within the habitat in which the astronauts can wait out a storm, a deployable shelter that can be set-up when a solar storm begins, or a shielding garment that can be donned at the onset of a storm. In anticipation of the NextSTEP design efforts, a set of SPE protection requirements has been developed and is currently being vetted. These new requirements include an exposure limit and a design basis SPE spectrum to be used in evaluating astronaut exposure. The proposed requirements will be presented and the relationship of these requirements to existing Permissible Exposure Limits (PELs) will be discussed.

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