

Abstract Submitted  
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**Future Directions of Space Radiation Protection** RAM TRIPATHI,  
NASA Langley Research Center — For the success of NASA's vision for space exploration to Moon, Mars and beyond, exposures from the hazards of severe space radiation in deep space long duration missions is a show stopper problem. The payload penalty demands a very stringent requirement on the design of the spacecrafts for human deep space missions. Langley has developed state-of-the-art radiation protection and shielding technology for space missions. The exploration beyond low Earth orbit (LEO) to enable routine access to more interesting regions of space will require protection from the hazards of the accumulated exposures of space radiation; trapped radiation, galactic cosmic Rays (GCR) and solar particle events (SPE), and minimizing the production of secondary radiation is a great advantage. It is desirable to divert them from the spacecraft without paying the payload penalty while taking advantage of the state-of-the-art material shielding. The goal is to repel enough positive charge ions so that they miss the spacecraft without attracting thermal electrons at the same time taking advantage of revolutionary next generation of shielding materials for Mars missions. Aspects of future directions of space radiation protection technology involving a combination of active-electrostatic and passive-material shielding will be presented.

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