

Abstract Submitted
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Radiation Protection Materials for Space Missions and Industries

RAM TRIPATHI, NASA Langley Research Center, Hampton, VA 23681 — NASA has a new vision for space exploration in the 21st Century encompassing a broad range of human and robotic missions including missions to Moon, Mars and beyond. Exposure from the hazards of severe space radiation in deep space long duration missions is “the show stopper.” The great cost of added radiation shielding is a potential limiting factor in deep space missions. In the enabling technology, we have developed methodology and concomitant technology for optimized shield design over multi-segmented missions involving multiple work and living areas in the transport and duty phase of space missions. The total shield mass over all pieces of equipment and habitats is optimized subject to career dose and dose rate constraints. Studies have been made for various missions. Current technology is adequate for low earth orbit missions. Revolutionary materials need to be developed for career astronauts and deep space missions. The details of this new technology and its impact on space missions and other technologies will be discussed.

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