

Abstract Submitted  
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**Efficacy of Cosmic Ray Shields** NICHOLAS RHODES, Columbia University — This research involved testing various types of shielding with a self-constructed Berkeley style cosmic ray detector, in order to evaluate the materials of each type of shielding's effectiveness at blocking cosmic rays and the cost- and size-efficiency of the shields as well. The detector was constructed, then tested for functionality and reliability. Following confirmation, the detector was then used at three different locations to observe if altitude or atmospheric conditions had any effect on the effectiveness of certain shields. Multiple types of shielding were tested with the detector, including combinations of several shields, primarily aluminum, high-iron steel, polyethylene plastic, water, lead, and a lead-alternative radiation shield utilized in radiology. These tests regarding both the base effectiveness and the overall efficiency of shields is designed to support future space exploratory missions where the risk of exposure to possibly lethal amounts of cosmic rays for crew and the damage caused to unshielded electronics are of serious concern.

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