

The shielding effect of space radiation by carbon fiber reinforced plastic and cooling gel sheets

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Carbon fiber reinforced plastic and cooling gel sheets are being considered for new space suit materials. In this study, we evaluated the shielding effect to space radiation based on the thickness of these materials. We compared the number of detected space radiation particles by placing carbon fiber reinforced plastic or cooling gel sheets of different thicknesses on top of a space radiation detector. As a result, with a thickness of 0.8 cm, carbon fiber reinforced plastic was able to shield about 20% of normal space radiation, while cooling gel sheets were able to shield about 10% of space radiation. Furthermore, when analyzing the energy intensity of space radiation, it was found that carbon fiber reinforced plastic is suitable for shielding relatively weak space radiation and moderately strong radiation (when the strength of space radiation is represented as ADC with a minimum value of 0 and a maximum value of 1023, around ADC 750). Similarly, cooling gel sheets were found to be suitable for shielding relatively weak space radiation and radiation around ADC 700. In addition, this presentation will also discuss the shielding effect of materials against natural sources of radiation, such as granite and low-salt salt containing ⁴⁰K.

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