2nd National Conference on Radiation Physics

15th – 16th December 2022

Book of Abstracts

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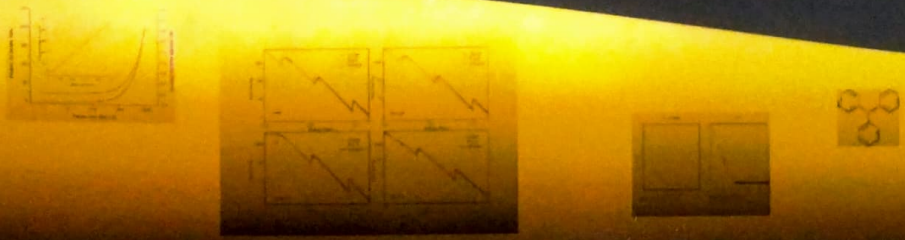

L. ADARSH RAJ

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An investigation on polymers for shielding of lunar cosmic radiation

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Abstract

In outer space, we find many types of radiations which are due to solar flares, radiation belt, cosmic rays etc. We are fortunate enough to be protected from these radiations on the surface of the Earth, whereas in other celestial objects such as planets, satellites etc., without protecting atmosphere, penetration of radiation which may be ionizing or non-ionizing are inevitable. Hence, studying radiation environments and its effect on such celestial objects are very important for establishing facilities such as satellites, payloads, vehicles and human exploration. For such cases manufacturing the products with lightweight, thermally stable, flexible, mechanically durable materials is essential and need to be studied for radiation effect. Hence, in the present work, we have made an attempt to calculate the rate of absorbed dose in case of polymers such as PVC, PTFE, mylar, polystyrene and zylon for lunar radiation environment. From the literature it is found that ions up to iron has lion share in the ionic radiation in space. The simulations were carried out for ions from hydrogen to iron using SRIM software with various energies. It is observed that the absorbed dose rate in the polymers increases with the increase in ion mass. Further, the study can be extended to get the information of various flexible materials for these ions from which a suitable material can be chosen for the different space applications.

Keywords: Lunar radiation environment, Polymers, SRIM, Dose, Space applications

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An investigation on polymers for shielding of Lunar Cosmic radiation.

in the **2nd National Conference on Radiation Physics (NCRP – 2022)** held at Bangalore University, Bengaluru during 15th -16th December 2022.

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