

Exploring the Cutting-Edge: The Latest Developments in Space Radiation Detector Technology and Their Non-Space Applications

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Space is an environment permeated by different forms of radiation, each with its own characteristics and effects. Studies in this scientific field offer a unique window into the universe, providing important information about the origin, composition, and evolution of the cosmos.

However, space radiation also poses significant challenges for space exploration. Radiation exposure in space has both immediate and long-term effects on astronauts, which can be direct (direct DNA damage) and indirect (changes in the biochemistry of cells and tissues, leading to altered genetic transcription and possibly even causing a DNA mutation).

The measurement of space radiation is therefore of fundamental importance both for space science and for space exploration, but certainly also for the safety of satellites and for remote sensing of the Earth.

That's why space radiation measurement techniques are constantly evolving, and new instruments are being developed to improve their accuracy, sensitivity, and reliability.

This paper presents some of the most recent studies carried out in the framework of cutting-edge research programs in the development and production of radiation detectors to be used in space for the protection and monitoring of human crews, systems in orbit around and for basic studies of the space radiative component, together with their specific and useful applications also on the ground in exposed and difficult to manage environments.

Collaboration

Role of Submitter

I am the presenter

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