

*16th Topical Seminar on Innovative Particle and Radiation Detectors*  
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**Presenter**

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**Abstract for oral presentation**

**ASI research programs in particle and radiation measurements in space**

The Universe is the most energetic particle accelerator available and, as such, is a unique tool to investigate diverse fields in modern physics.

Measuring the properties of cosmic rays in space provides a window to investigate the frontiers and open questions of fundamental physics in an approach that is synergic, yet complementary, to that pursued by research at ground facilities and at particle accelerators. Assessing the features of the space radiation environment is also one of the strategic objectives to tackle the issues related to the effects of radiation exposure during long-duration space flights and to consequently drive the development of the required enabling technologies to achieve the ambitious goal of deep space human exploration. The two objectives share variegated and common technological challenges.

The Italian Space Agency (ASI) has been participating since more than 30 years, in collaboration with universities, research institutes, industrial stakeholders and international space agencies, in the construction and operations of space instrumentation for measurement of cosmic rays and of the radiation environment in space.

ASI is now continuously leveraging on previous and ongoing space missions and R&D programs to propose, contribute and support research projects to advance in the technological and scientific state-of-the-art towards the modeling, development, optimization and construction of next-generation instrumentation and detectors for particle and radiation measurements in space.

In this contribution, we will provide an overview of the most recent ASI contributions to instrumentation R&D and space mission programs for particle and radiation measurements in space. We will also present the current Agency activities for the coordination of the national scientific community and for providing calls and accessible funding streams to support the scientific stakeholders in related research programs.