

Mini-EUSO space qualification and integration for high atmosphere phenomena and cosmic UV emissions study on board the International Space Station

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Mini-EUSO is a telescope launched on August 2019 with the Soyuz MS-14, hosted on board the Russian Zvezda module of the International Space Station, facing a UV-transparent window in Nadir mode. It belongs to a novel set of missions committed to evaluate, for the first time, the capability of observing Ultra High Energy Cosmic Rays from a space-based point of view but also to search for Strange Quark Matter and to observe Transient Luminous Event. Mini-EUSO consists of a main optical system sensitive to UV spectrum (300–400nm) and several ancillary sensors comprising a visible (400–780nm) and NIR (1500–1600nm) cameras and a 64 channels SiPM array which will increase the Technology Readiness Level of this ultrafast imaging sensor. The main detector has a field of view (44°) which allows to map a ground area of 263 x 263 km² thanks to the optics which comprises two Fresnel lenses focusing the radiation onto a 36 Multi- Anode PMT, each of 64 with a time resolution of 2.5 μs.

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