

Mini-EUSO telescope on board the International Space Station for terrestrial and cosmic UV emission observation

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The Mini-EUSO telescope is designed to observe UV (300 - 400 nm) Earth emission from a nadir-facing window in the Russian Zvezda module inside the International Space Station on the second half of 2019. As a pathfinder mission for Ultra High Energy Cosmic Rays detection from space, it will map the UV Earth's emission with a spatial-temporal resolution of 6.11 km every 2.5 μ s, offering also the opportunity to study a variety of atmospheric events such as Transient Luminous Events (TLEs), meteoroids, bioluminescence as well as searching for strange quark matter. Furthermore, Mini-EUSO could represent the first step in a roadmap of potential orbital debris removal via laser ablation. The instrument comprises a compact telescope with a large field of view ($\pm 22^\circ$), based on an optical system employing two Fresnel lenses. The light is focused onto an array of 36 Hamamatsu multi-anode photomultiplier tubes and the resulting signal is converted into digital, processed and stored via the electronics subsystems on-board. In addition, Mini-EUSO contains two ancillary cameras for complementary measurements in the near infrared (1500 - 1600 nm) and visible (400 - 780 nm) range and a 8x8 array of SiPM. The integration and the characterization of the instrument, currently underway at the University of Roma Tor Vergata, is at an advanced stage and results will be presented.

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