# Implications of Mini-EUSO measurements for a space-based observation of UHECRs 

Friday, 7 October 2022 11:50 (20 minutes)


#### Abstract

Mini-EUSO is a telescope launched on board the International Space Station in 2019 and currently located in the Russian section of the station and viewing our planet from a nadir-facing UV-transparent window in the Zvezda module. The instrument is based on an optical system employing two Fresnel lenses and a focal surface composed of 36 Multi-Anode Photomultiplier tubes, 64 channels each, for a total of 2304 channels with single photon counting sensitivity and an overall field of view of $44^{\circ}$. Mini-EUSO can map the night-time Earth in the near UV range (predominantly between $290-430 \mathrm{~nm}$ ), with a spatial resolution of about 6.3 km and different temporal resolutions of $2.5 \mu \mathrm{~s}, 320 \mu \mathrm{~s}$ and 41 ms . Mini-EUSO observations are extremely important to better assess the potential of a space-based detector of Ultra-High Energy Cosmic Rays (UHECRs) such as K-EUSO and POEMMA. In this contribution we focus the attention on the UV map measurements, the detection of clouds and of certain categories of events that Mini-EUSO triggers with the shortest temporal resolution and place them in the context of UHECR observations from space, namely estimation of exposure and sensitivity to EAS-like events.


Primary author: Prof. BERTAINA, Mario Edoardo (INFN \& Univ. Torino)
Presenter: Prof. BERTAINA, Mario Edoardo (INFN \& Univ. Torino)

