

Overview of the Mini-EUSO μs trigger logic performance

Wednesday 21 July 2021 13:18 (12 minutes)

Mini-EUSO is the first detector of the JEM-EUSO program deployed on the International Space Station (ISS). It is a wide field of view telescope currently operating from a nadir-facing UV-transparent window in the Russian Zvezda module on the ISS. It is based on an array of Multi-Anode Photomultiplier Tubes (MAPMTs) working in photon counting mode with a microsecond time resolution. Among the different scientific objectives it searches for light signals with time durations compatible to those expected from Extensive Air Showers generated by Extreme Energy Cosmic Rays (EECRs) interacting in the atmosphere. Although the energy threshold for cosmic ray showers is above $E > 10^{21} \text{ eV}$, due the constraints given by the size of the UV-transparent window, the dedicated trigger logic has been capable of the detection of other interesting classes of events, like elves, and ground flashers. An overview of the general performance of the trigger systems is provided, with a particular focus on the identification of classes of events responsible for the triggers

Keywords

Mini-EUSO; JEM-EUSO; ISS; UHECR; EECR; trigger; elves; ground flasher

other Collaboration

JEM-EUSO

Collaboration

Subcategory

Experimental Results

Primary author: BATTISTI, Matteo (Università di Torino - INFN Torino)

Co-authors: BELOV, Alexander (MSU, Moscow); CAPEL, Francesca (KTH Royal Institute of Technology); Dr MIYAMOTO, Hiroko (Università di Torino); Dr PIOTROWSKI, Lech Wiktor (Faculty of Physics, University of Warsaw,); Prof. CASOLINO, Marco (INFN Roma Tor Vergata - RIKEN); Mr MIGNONE, Marco (INFN Torino); BERTAINA, Mario (Universtiy of Turin); FOR THE JEM-EUSO COLLABORATION

Presenter: BATTISTI, Matteo (Università di Torino - INFN Torino)

Session Classification: Discussion

Track Classification: Scientific Field: CRI | Cosmic Ray Indirect