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EUSO-TA, a JEM-EUSO pathfinder at the Telescope Array site

EUSO-TA is one of the prototypes of the JEM-EUSO space telescope, realized in the framework of the EUSO project. Its aims are to calibrate the detector response, test its performance in air and space, raise the technological readiness level of some of the components and improve our knowledge of the various detector systems. EUSO-TA is located at the Telescope Array (TA) site in Black Rock Mesa, Utah, USA and is mainly devoted to study the detector response in conjunction with the TA fluorescence detector.

The telescope is housed in a shed located in front of one of the fluorescence detectors of the Telescope Array experiment, pointing in the direction of the ELS (Electron Light Source) and CLF (Central Laser Facility), i.e. the artificial light sources at the Telescope Array site.

The detector consists of two Fresnel lenses, 1x1 m² each, with a field of view of 11° x 11°, able to focus the ultraviolet light generated by cosmic-ray showers as well as from artificial sources, on a focal surface identical to the ones that will be employed in JEM-EUSO .

In this paper the telescope, and the main results obtained during the 2015 measurement campaigns are discussed.

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