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Performance of the ASTRI Mini-Array at the Observatorio del Teide

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The ASTRI Mini-Array is a project led by INAF to build and operate an observatory of next-generation Imaging Atmospheric Cherenkov Telescopes for ground-based gamma-ray astronomy in the energy range between 1 TeV and 200 TeV and beyond. It will be composed by 9 small-sized (4 meter in diameter) and large field-of-view (~10 degrees) double-mirror telescopes equipped with silicon photomultiplier cameras. The ASTRI Mini-Array will be deployed within the next few years at the Observatorio del Teide (Tenerife, Spain) and will perform deep observations of the galactic and extragalactic sky with a significantly improved performance at multi-TeV energies with respect to current arrays of Cherenkov telescopes. In order to assess the performance of the system at the Teide site and to generate suitable Instrument Response Functions for high-level scientific studies, dedicated Monte Carlo simulations have been generated and subsequently reduced with A-SciSoft (ASTRI Scientific Software), the official scientific software package of the ASTRI Project. In this contribution, we present the performance of the ASTRI Mini-Array achieved with the aforementioned Monte Carlo simulations and describe the main features of both the simulation and data processing chains.

Keywords

gamma rays; cosmic rays; Cherenkov telescopes; IACT technique; Monte Carlo simulations; data analysis

Collaboration

other Collaboration

ASTRI

Subcategory

Future projects

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