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ASTRI-1: Early Data and Performance Highlights

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The ASTRI Project is an international collaborative effort led by the Italian National Institute for Astrophysics (INAF) to develop, build, and operate a facility consisting of nine four-meter class Imaging Atmospheric Cherenkov Telescopes dedicated to gamma-ray astronomy in the 1–200 TeV range. The ASTRI Mini-Array is currently being installed in Tenerife at the Observatorio del Teide, and the first telescope, named ASTRI-1, is now fully operational.
The commissioning phase began in November 2024, and ASTRI-1 has been collecting data regularly from the Crab Nebula, the standard candle of very high-energy gamma-ray astronomy. The data sample consists of approximately 85 hours of observations at low zenith angles and 55 hours at higher zenith angles, collected between November 2024 and early 2025, under varying night sky illumination conditions (dark and moonlight). The Crab Nebula was observed in wobble mode, with equal amounts of data divided into four symmetrical positions with offset angles ranging from 0.5° to 4.5°.
In this contribution we present the telescope's performance evaluated in the current status of the commissioning phase. We also report on the first scientific highlights achieved, with a focus on the analysis of the Crab Nebula, which provides key insights into the telescope sensitivity and performance. These preliminary results provide a strong foundation for future studies and pave the way for the next steps in the development of the ASTRI Mini-Array.

Collaboration you are representing

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