

# Tools and Procedures for the ASTRI Mini-Array Calibration

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## **Abstract**

The ASTRI Mini-Array (ASTRI-MA) is an INAF project to construct and operate an array of Imaging Atmospheric Cherenkov Telescopes to study gamma-ray sources in the TeV range. The ASTRI-MA will consist of nine double-mirror telescopes that will be installed at the Teide Astronomical Observatory, Instituto de Astrofísica de Canarias, in Tenerife (Spain). Its main scientific goal is to perform very-high energy observations of galactic and extragalactic sources with sensitivity at multi-TeV energies better than any other telescopes currently in operation. Furthermore, the ASTRI-MA telescopes will also perform intensity interferometry observations of a selected sample of bright sources being each telescope equipped with a Stellar Intensity Interferometry Instrument.

The ASTRI-MA requires several calibration tasks, that concern specific subsystems (i.e., optical system, Cherenkov camera, intensity interferometry instrument), the entire telescope or the overall array. The ASTRI-MA calibration plan has the final aim to provide all the procedures and quantities necessary to correctly calibrate the scientific data. The calibration system will serve also to monitor the health of the telescopes and to provide the good time intervals during which the observational data can be considered of high quality.

Although all the ASTRI-MA subsystems will be calibrated during the assembly, integration, verification and commissioning phases, some calibration tasks need to be performed periodically for maintenance and some others every observing night for monitoring instrumental parameters that can change on a short time scale.

In this contribution we present the ASTRI-MA calibration plan together with methods and auxiliary equipment currently under development and testing.