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ASTRI SST-2M prototype and ASTRI mini-array data analysis and scientific prospects in the framework of the Cherenkov Telescope Array

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In the framework of the international Cherenkov Telescope Array (CTA) observatory, the Italian National Institute for Astrophysics (INAF) is developing the ASTRI SST-2M end-to-end prototype, installed at Mt. Etna (Italy) on September 2014, and is leading, in collaboration with Universities from Brazil and South Africa, the ASTRI mini-array composed of nine ASTRI small-sized, dual-mirror telescopes and proposed to be installed at the CTA southern site. The project is also including the full data handling chain from raw data up to final scientific products, and a dedicated software for data reduction and scientific analysis is under development for both the ASTRI SST-2M prototype and the ASTRI mini-array, in compliance with the CTA requirements. In this contribution, we discuss in detail the outcome of the developed scientific analysis on both ASTRI prototype and mini-array simulated data, in order to provide information on the expected sensitivities and to introduce the main scientific prospects for the mini-array.

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