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Microquasars in the TeV regime with ASTRI Mini-Array

The recent discovery of ultra-high-energy gamma-ray emission from a set of five Galactic microquasars by the LHAASO collaboration has significantly strengthened the case for this class of sources as potential accelerators of cosmic rays up to the knee region of the spectrum. This breakthrough opens a completely new window for studying the mechanisms of particle acceleration in binary systems with an accreting black hole. The next generation of Imaging Atmospheric Cherenkov Telescopes (IACTs) will play a crucial role in providing detailed spectro-morphological characterisations in the GeV-to-TeV energy band of these systems, which show relativistic outflows (jets) interacting with the environment, potentially revealing the sites of particle acceleration. In this contribution, we will discuss the prospects for observing bright microquasars in the TeV band with the ASTRI Mini-Array. It is an array of nine Cherenkov telescopes currently in the deployment phase at the Teide Observatory on the Canary Island of Tenerife, which will provide the best angular resolution (~0.06 deg) among current IACTs in the critical 1-200 TeV energy band. This capability, together with its good sensitivity and large field of view, will allow ASTRI Mini-Array to significantly advance our understanding of these extreme astrophysical environments.

Contribution

Oral talk

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