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Large zenith angle observation of the PeVatron candidate SNR G106.3+2.7 with LST-1 and MAGIC

The quest for PeVatrons, sources of Galactic cosmic rays accelerated up to PeV energies, saw an exciting development with the recent discoveries from the LHAASO Collaboration. Published in 2023, the first LHAASO catalog of Gamma-Ray sources presents 43 sources of ultra-high energy emissions. Among them, a promising hadronic PeVatron candidate is the supernova remnant SNR G106.3+2.7, for which the ultra-high energy emission has been interpreted using both hadronic and leptonic scenarios.

Imaging Atmospheric Cherenkov Telescopes (IACTs) are ideal instruments to investigate the nature of the most energetic sources of the Universe in the gamma-ray domain thanks to their optimal angular and energy resolution. Using the LST-1, the Large-Sized Telescope prototype of the Cherenkov Telescope Array, together with the two neighboring IACTs of the MAGIC telescopes, we are currently observing the SNR G106.3+2.7 at Large Zenith Angle (LZA), which allows us to explore the 1-50 TeV energy range.

Such observations raise challenges regarding the data reconstruction and analysis, for which we reduced the dependency to the zenith angle by optimizing the Random Forest-based reconstruction pipeline for LZA observations. In this contribution, we will present preliminary results of these SNR G106.3+2.7 observations including a first morphological and spectral analysis of the source.