

## Cherenkov Telescope Array Observatory sensitivity to heavy Galactic Cosmic Rays

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Finding the sources responsible for accelerating Galactic Cosmic-Rays (GCRs) to energies up to PeV remains a challenging research topic. Observations of high-energy gamma-rays by the Cherenkov Telescope Array Observatory (CTAO) would help us to identify these sources, called PeVatrons. These gamma-rays emerge from the interaction of CRs with surrounding matter through the  $\pi^0$  process and can be traced in the spectral shape of gamma-rays. Among the galactic sources, Supernova Remnants (SNRs) are considered as potential CR accelerators up to PeV energies due to their large energy budget. Based on the results of the multiwavelength analysis (MWL) of Galactic SNRs (Sharma et al., 2023), RX J1713.7-3946 and HAWC J2227+610 were studied to assess CTAO's sensitivity to observe CRs.

To perform this study, gamma-ray spectra were simulated using Gammapy and Naima for different CR compositions including light CRs (protons) and heavy CRs (CNO, Fe). The radiative model parameters were obtained from the previous MWL study.

The simulations revealed that the sensitivity of CTAO to the spectral shape of gamma-rays, would allow us to distinguish protons from heavy CRs, in case of both sources.

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