

Prospects on detection of the Fermi Bubbles with CTAO

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In 2010, the Fermi Gamma-ray Space Telescope observed two gamma-ray emitting structures, the Fermi Bubbles (FBs), that extend up to 55° above and below the Galactic plane and that seem to emanate from the Galactic center region. Although the spectrum at latitudes $|b| > 10^\circ$ has a softening or a cutoff around 100 GeV, the one at the base of the FBs, $|b| < 10^\circ$, extends up to about 1 TeV without a significant cutoff in the Fermi LAT data. The mechanism behind the FBs production is currently under debate. More observations of the FBs at different energies are required to improve our understanding of their origin.

Recently, H.E.S.S. and HAWC observatory have set upper limits on the FBs. In this work, we assess the sensitivity of the Cherenkov Telescope Array Observatory (CTAO) using the “alpha configuration” to detect the FBs and investigate the optimal strategies for their detection at low latitudes. We simulate the observations using the official CTAO science tool `gammapy`, considering several benchmark models for the FBs and the interstellar emission and test different observational strategies taking advantage of the proposed CTAO consortium surveys. We use these simulations to estimate the CTAO sensitivity to the FBs.

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