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Fermi-LAT Detection of the Low-luminosity Radio Galaxy NGC 4278 during the LHAASO Campaign

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The low-luminosity radio galaxy NGC 4278, with parsec-scale jets, was recently identified as a TeV source by the LHAASO collaboration during the 2020-2021 campaign. It is the first of its class detected above 100 GeV, challenging current models of particle acceleration in low-power radio galaxies.
In this contribution, we present the analysis of the LAT data in the region of 1LHAASO J1219+2915 at the time of the LHAASO detection. Our analysis revealed evidence for a new point-like source, detected at a statistical significance of TS~29, spatially consistent with the LHAASO detection and the radio position of NGC 4278. We observed a hard spectrum in the Fermi-LAT band, with two very high-energy (VHE) photons (~100 GeV) associated with NGC 4278 with a probability exceeding 99%.
Our results provide further support to the association between the LHAASO source and the NGC 4278, posing new challenges for our understanding of the physical processes acting in relativistic jets.

This finding demonstrates that not only blazars or bright extended radio galaxies but also compact, low-luminosity radio galaxies can surpass the sensitivity thresholds of GeV and TeV instruments, paving the way for future studies with the Cherenkov Telescope Array Observatory.

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