

Fermi-LAT analysis of the CSO NGC4278 detected by LHAASO

Monday 2 September 2024 17:00 (15 minutes)

Compact symmetric objects (CSOs) are sources with radio lobe emission on both sides of an active nucleus and an overall size of less than one kpc.

From the detection of 3 CSOs by the Large Area Telescope (LAT) on board the Fermi Gamma-ray Space Telescope, we know that the emission from these objects can extend into the GeV band. Surprisingly, the first LHAASO catalog reported a TeV source, 1LHAASO J1219+2915, detected up to 25 TeV and tentatively associated with the CSO NGC 4278.

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 CSO NGC 4278, posing new challenges for our understanding of the physical processes acting in relativistic jets.

Primary author: BRONZINI, Ettore (Istituto Nazionale di Astrofisica (INAF))

Co-authors: Dr TORRESI, Eleonora; GRANDI, Paola; BUSON, Sara

Presenter: BRONZINI, Ettore (Istituto Nazionale di Astrofisica (INAF))

Session Classification: Parallel 2