

Discovery of TXS 1515-273 at VHE gamma-rays and modelling of its Spectral Energy Distribution

Tuesday, July 13, 2021 7:18 PM (12 minutes)

In February 2019, a flaring state of the extreme blazar candidate TXS 1515-273 was registered by the Fermi-LAT, which triggered observations with the MAGIC telescopes and the X-ray satellites Swift, XMM-Newton and NuStar. The observations led to the discovery of the source at VHE gamma-rays and the detection of short time scales of variability (~1 h) in several X-ray bands.

The analysis of the observed variability helped us to constrain the emission region's physical parameters. Thanks to the high-quality X-ray data, the synchrotron peak location was determined. The source was classified as a high synchrotron peaked source during the flaring activity. We constructed the broadband spectral energy distribution from radio to TeV. We interpreted it assuming leptonic emission and taking into account the constraints from the X-ray variability. We tested two scenarios: a simple one-zone model and a two-component model. Both models were found to describe well the data from X-rays to VHE gamma rays, but the two-zone model allows for a more accurate modelling of the emission at radio and optical energies.

Keywords

agn, multiwavelength

Collaboration

MAGIC

other Collaboration

Fermi-LAT

Subcategory

Experimental Results

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Session Classification: Discussion

Track Classification: Scientific Field: GAI | Gamma Ray Indirect