

Mrk421 and Mrk501 as high-energy physics laboratories to study the nature of blazars

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The blazars Mrk421 and Mrk501 are among the brightest keV and TeV sources in the sky, and among the few sources whose (radio to VHE gamma-rays) Spectral Energy Distributions (SEDs) can be characterized by current instruments by means of relatively short observations (minutes to hours). Consequently, Mrk421 and Mrk501 can be studied with a larger degree of accuracy than most of the other blazars whose emissions are weaker or are located farther away. Since 2008, there has been an unprecedentedly long and dense monitoring of the broadband emission from these two archetypical TeV blazars, involving the participation of Fermi, MAGIC, VERITAS, FACT, F-GAMMA, Swift, RXTE, NuSTAR, GASP-WEBT, VLBA, and other collaborations/groups and instruments which have been providing the most detailed temporal and energy coverage on these sources to date. In the conference I will report some highlight results from these campaigns that have been recently published. Both Mrk421 and Mrk501 have shown a large complexity in the temporal evolution of their broadband SEDs, with the presence of different flavors of flaring activity. Despite some differences in their variability patterns, there are also a number of similarities that support a broadband emission dominated by leptonic scenarios, as well as indications for in situ electron acceleration in multiple compact regions.

Summary

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