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The extreme character of our closest VHE blazars, Mrk421 and Mrk501

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Owing to their brightness and proximity (z=0.03), Mrk 421 and Mrk 501 are among the blazars that can be studied with the greatest level of detail; and hence a sort of astrophysical laboratories to study the blazar's phenomena. In the conference I will report recent highlight results obtained from multiwavelength campaigns on these two objects. I will show that they can change their personality from one season to the next, sometimes showing a remarkably extreme character in the broadband SED, as well as in the variability and Doppler factors that are measured or inferred from the data. I will report detailed observational and theoretical results related to the 2-week long highest X-ray activity in Mrk501 observed with Swift-XRT since its launch 14 years ago, which suggests the presence of narrow spectral components at TeV energies. And I will also show an unprecedented correlation study of VHE gamma-rays and X-rays for Mrk421, revealing a large degree of complexity in these relations when quantified on different temporal and energy bins, and supporting the presence of multiple components in the X-ray and VHE gamma-ray emission. These multi-instrument observations on Mrk421 and Mrk501 have yielded thought-provoking results, and demonstrate the importance of performing a continuous monitoring over multi-year timescales to fully characterise the dynamics of blazars.

Are you presenting on behalf of collaborations or institutions?

on behalf of many collaborations and using many Instruments: Fermi, MAGIC, VERITAS, FACT, NuSTAR, RXTE, Swift, GASP-WEBT, F-GAMMA, SMA, VLBA, Metsahovi, OVRO, UMRAO, and others.

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