



Contribution ID: 42

Type: not specified

Multiwavelength behaviour of the blazar 3C 279: decade-long studies from γ -rays to radio.

Friday, 20 September 2019 09:50 (20 minutes)

We report the results of the decade-long (2008–2018) monitoring of the blazar 3C 279 from γ -rays to 1 GHz radio frequencies, including *Fermi* and *Swift* data, obtained within the frames of an intensive GASP-WEBT collaboration campaign as well as polarimetric and spectroscopic data, collected during the same time interval. We have found that: 1) the X-ray and γ -ray light curves correlate remarkably well, with no delay ≥ 3 hours, implying co-spatiality of the regions; 2) the γ -ray flux - optical flux relation depends on the source activity state, with a slope of the relation changing from a linear to a higher degree dependence; 3) Stokes parameters behaviour at optical and radio wavelengths, including imaging with the VLBA at 43 GHz, supports either a dominance of helical structure in the magnetic field configuration or motion of the radiating plasma along a spiral path. We analysed the temporal behaviour of MgII emission line and found that the line flux in “blue” and “red” wings of that line correlate with the continuum flux density. In radio bands we see progressive shifts of the most prominent light curve details with decreasing frequency, corresponding to the growth of the $\tau = 1$ surface. In addition, some details in the radio light curve emerge and disappear with the decreasing frequency that suggests different Doppler boosting of stratified radio-emitting zones in the jet.

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Session Classification: Quasars and Blazars: the heritage of 3C273, 3C279, and 3C454.3