

Results from the first multifrequency campaign on Mrk 421 with NuSTAR

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Abstract: The blazar Mrk 421 is one of the closest and brightest extragalactic very high energy (> 100 GeV, VHE) gamma-ray emitters, and hence one of the VHE objects that we can study best. Since 2009, Mrk 421 is yearly observed during 6 months with more than 25 instruments in the framework of extensive multi-wavelength campaigns. The 2013 multi-wavelength campaign on Mrk 421 benefits from the newest X-ray space observatory, the Nuclear Spectroscopic Telescope Array (NuSTAR), launched by NASA in June 2012, which provides unprecedented sensitivity at hard-X-ray energies from 5 to 80 keV. We will report the exquisite characterization and temporal evolution of the broadband spectral distribution (SED), with focus on the tail of the Synchrotron bump, and its variability and correlation with the TeV emission measured by MAGIC and VERITAS. We will also discuss the impact of these results for the theoretical models that aim to explain the blazar emission in VHE blazars.

Keywords: Mrk 421, gamma-ray, blazar, MAGIC, NuSTAR, Fermi-LAT, VERITAS