



Contribution ID: 972

Type: **Talk in the parallel session**

Could the flaring activities observed in Mrk 421 and 501 be explained in a lepto-hadronic scenario with two-zone emission?

Wednesday, 7 July 2021 08:50 (20 minutes)

The BL Lacs Mrk 421 and Mrk 501 show fast variability in the TeV-band flares, indicating a compact emission region. The lack of correlation between X-ray and TeV flux hints at more than one emission zone. Both sources have shown temporary extreme behavior. In this work, we used a lepto-hadronic model with two-zone emission to explain the spectral energy distribution during the very high-energy flare activity. The first zone can explain the fast variability in the TeV band via photo-pion interactions where the seed photons come from a pair-plasma launched since the nuclear region. The second zone follows the standard one-zone SSC model with the main contribution in X-rays and sub-TeV energies. In addition, the first zone could emit neutrinos in TeV-energy, which can be testable by the IceCube's observations.

Primary author: AGUILAR-RUIZ, Edilberto (Instituto de Astronomia, UNAM)

Co-authors: Dr FRAIJA, Nissim (Instituto Astronomía, UNAM); Mr GALVÁN, Antonio (Instituto Astronomía, UNAM)

Presenter: AGUILAR-RUIZ, Edilberto (Instituto de Astronomia, UNAM)

Session Classification: Multiwavelength and Multi-Messenger Observations of Active Galactic Nuclei

Track Classification: Active Galactic Nuclei: Multiwavelength and Multi-Messenger Observations of Active Galactic Nuclei