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Radio and GeV-TeV gamma-ray emission connection in the different blazar sub-classes

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Multi-frequency monitorings are an essential tool for investigating the possible connection between the different emission bands, allowing us to discern among the various emission mechanisms producing the observed radiation. In the case of blazars, a strong and significant correlation was found between radio emission and gamma-rays between 100 MeV and 100 GeV, by using both concurrent and non-concurrent observations. However, the possible connection between radio and very high energy (VHE, $E > 0.1$ TeV) emission still remains elusive, owing to the lack of a homogeneous VHE sky coverage.

In this talk I will present some results about a recent work in which we aimed to quantify and assess the significance of a possible connection between the radio emission on parsec scale measured by the very long baseline interferometry and GeV-TeV gamma-ray emission in blazars, which is a central issue for understanding the blazar physics. We use two large and unbiased Fermi-LAT AGN samples extracted from the 1FHL and 2FHL catalogs, and for comparison, we perform the same analysis by using the 3FGL 0.1-300 GeV gamma-ray energy flux.

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