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Investigating the radio and high-energy connection in a sample of gamma-ray emitting radio-loud AGN

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Relativistic jets are among the most variable objects in the Universe. Their variability is observed at all energy bands, from radio wavelengths to gamma rays. Despite decades of efforts, many aspects of the physics of relativistic jets remain elusive. In particular, the location and the mechanisms responsible for the high-energy emission and the connection with the variability at different wavelengths are among the greatest challenges in the study of AGN. High resolution Very Long Baseline Interferometry observations point out the emergence of superluminal jet components close in time with some strong gamma-ray flares. However, this is not a one-to-one relation. Neither all the gamma-ray flares are associated with a new superluminal component, like in the case of PKS 1510-089, nor any ejection of new jet knots occurs during a high activity period at high energy, like for SBS 0846+513.

In this contribution we discuss the gamma-ray properties of radio-loud AGN for which high resolution observations pointed out the ejection of a new superluminal component during the period the Large Area Telescope on board the Fermi satellite has been surveying the sky. In particular, we study the incidence of gamma-ray flares and changes in the radio structure of the relativistic jets.

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