

Redshift Determination of the Hard spectrum Fermi-LAT Gamma-Ray Blazars detectable with CTA

Wednesday 12 October 2022 16:00 (15 minutes)

Fermi-LAT has detected more than 3700 gamma-ray blazars, confirming that they are the largest group of high-energy gamma-ray emitters. In gamma-ray astronomy it is therefore crucial to understand their emission mechanisms and their population properties. In the same way they are also fundamental for indirect studies on topics such as the extragalactic background light and searches for the axion-like particles among others. Despite strong efforts by the astronomical community, unfortunately only about 50 % of BL Lacs, the most numerous class of gamma-ray blazars, have a measured spectroscopic redshift. Due to their nearly featureless optical spectra it is in fact challenging to measure solid redshifts for these objects.

This is particularly problematic for the next generation ground-based VHE gamma-ray observatory CTA which will detect and study a large amount of distant blazars. In preparation for the CTA observations, we devised an observing program aiming to measure the redshifts of bright, hard spectrum gamma-ray blazars that are likely to be detected with CTA. The sample was selected using the Monte Carlo simulations employing spectral parameters from the 3FHL Fermi catalog and public CTA response matrices. We have been performing spectroscopic and imaging observations in order to constrain the redshifts in the best way possible. The results are published incrementally as a contribution to the gamma-ray community. I will describe the scope of our project, its status and its future developments.

Track

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Session Classification: Parallel 9