

Southern African Large Telescope Spectroscopy of Fermi-LAT Blazars

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More than 250 galactic and extragalactic very-high energy gamma-ray sources have been detected to date with imaging atmospheric Cherenkov telescopes. At present, Active Galactic Nuclei (AGNs) make up about 35% of such sources, the majority of which are blazars, i.e. their jets are closely aligned with the line of sight to Earth. At lower energies, blazars also dominate the population of gamma-ray sources in the Fermi-LAT observations and catalogs. Three quarters of blazars are classified as the high-frequency peaked BL Lacertae objects (BL Lacs). One of the challenges to studies of the cosmological evolution of BL Lacs is the difficulty of obtaining redshifts from their nearly featureless, continuum-dominated spectra. It is expected that a significant fraction of the AGNs to be detected with the future world-wide Cherenkov Telescope Array (CTA) Observatory will have no spectroscopic redshifts, compromising the reliability of indirect studies of the extragalactic background light density and direct studies of BL Lac populations, particularly of their cosmic evolution. Driven by such concerns, a spectroscopic observing program was started under the CTA redshift determination group in 2019, involving the use of some of the world's most sensitive telescopes, including the Southern African Large Telescope (SALT), to measure the redshifts of a large fraction of blazars that are likely to be detected with CTA. The sample of objects that have been observed to date under the program was selected using the Fermi 3FHL catalog. In this contribution, I will present some results of the program, specifically those obtained from observations with SALT, the on-going collaborative efforts and plans for the future.

Track

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