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Optical spectropolarimetry monitoring of flaring blazars

Blazars are a radio-loud subclass of active galactic nuclei (AGN), with relativistic jets closely aligned with the line of sight. These sources are highly variable across all timescales, often displaying flares that are observed across multiple wavelength bands. Blazars emit non-thermal emission across all wavelength regimes, which is characterised by a double-humped structure in its spectral energy distribution (SED). The lower-energy component (radio through UV or soft X ray) is powered by leptonic synchrotron emission, while the high-energy component (X ray through gamma) is powered by either leptonic inverse Compton scattering or hadronic processes. At optical wavelengths, there are also contributions from thermal emission components, namely, the accretion disk, broad line region (BLR) and dusty torus. The aim of this project is to disentangle these components using optical spectropolarimetry to separate the thermal (non-polarised) components from the non-thermal (polarised) component. This will be complemented by optical photometry observations to improve flux calibration. As part of a long-term project, we are using the Southern African Large Telescope (SALT) to undertake spectropolarimetry observations of flaring blazars. We present results on the degree of linear polarization evolution from flaring to non-flaring state for a sample of blazars.

Apply to be considered for a student ; award (Yes / No)?

Yes

Level for award;(Hons, MSc, PhD, N/A)?

MSc

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