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Modelling the Spectral Energy Distribution and Polarisation of Blazars

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The optical emission from most blazars is dominated by the polarised synchrotron radiation of relativistic electrons in the jet, but the thermal radiation from the accretion-disk and host galaxy also contributes towards the high and low frequency ends of the optical spectrum. As the accretion-disk and host galaxy emissions are expected to be unpolarised, they reveal their presence in a decrease of the degree of polarisation towards the high- and low-frequency ends of the optical spectrum, respectively. This motivates a target-of-opportunity programme of spectropolarimetry observations of gamma-ray blazars with the Southern African Large Telescope (SALT). A model is constructed that combines modelling of the spectral energy distribution (SED) and of the degree of optical polarisation to constrain the accretion disk contributions in the spectra of blazars.

I will present the model fit to the Flat Spectrum Radio Quasar 4C+01.02 in its flare and quiescent state in which degeneracies of parameters such as the electron spectrum energies, accretion disk luminosity, ordering of the magnetic field of the jet and the mass of the black hole are constrained.

Presentation keywords: blazar, active galactic nuclei, spectropolarimetry, spectral energy distribution, optical polarisation

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