Contribution ID: **91** Type: **Poster**

Development of tools for SALT/RSS spectropolarimetry reduction: application to the blazar 3C279

Tuesday 14 September 2021 09:00 (15 minutes)

Blazars represent a subset of AGN with relativistic jets where the direction of a jet lies very close to our line of sight. The highly Doppler boosted emission from the blazar's jet results in high apparent luminosities, and blazars display variability on periods from less than one day up to years. At optical wavelengths, the observed emission of the blazar is a superposition of the polarized non-thermal synchrotron emission, arising from the jet, and the unpolarized thermal emission, arising from the disc, broad line region, torus, and host galaxy. Polarimetry observations can, therefore, serve as an important tool for diagnosing the emission from blazars. The RSS spectrograph, on SALT, can operate in spectropolarimetry mode, and is currently being used to undertake spectropolarimetric observations of transient blazar sources. We present additional tools developed to work in conjunction with the current reduction pipeline (polsalt) that aims to streamline the reduction of the SALT polarization data, including the testing of the wavelength calibration of the individual O and E beams. This is applied to observations of 3C 279 during flaring/non-flaring states in 2017/2018.

Abstract field

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Session Classification: Poster Session

Track Classification: Poster