

# Near-infrared spectropolarimetry of the strongly accreting T Tauri star RU Lup with SPIRou

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RU Lup is a strongly actively accreting classical T Tauri star, with mass accretion rates reaching up to  $\sim 10^{-7} M_{\odot}/\text{yr}$  (e.g. Wendeborn et al. 2024). We present the first near-infrared spectropolarimetric study of this system using 39 observations obtained with SPIRou at CFHT across two epochs (2020 and 2021). From LSD (Least-Squares Deconvolution) profiles, we measure the longitudinal magnetic field and refine the stellar rotation period to  $3.636 \pm 0.001$  d through Gaussian Process regression and MCMC sampling. We reconstruct the large-scale magnetic topology at the surface of RU Lup using Zeeman-Doppler Imaging for both epochs. We characterize the accretion and outflow properties through the analysis of key near-infrared emission lines and investigate their variability via 2D Lomb-Scargle periodograms. These results provide the first constraints on the magnetic field geometry of this strongly accreting system and its connection to the accretion/ejection processes at play.