Unraveling NIR Variability in Young Accreting Stars with SPIRou/CFHT

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Abstract

Accreting T Tauri stars exhibit photometric and spectroscopic variability across various timescales, ranging from seconds to decades, which can be attributed to different physical phenomena. The observed variability provides valuable insights into the underlying processes occurring within the circumstellar environment. We aim to analyze the variability patterns of the Bry and HeI (10830, A) line profiles in the complete sample of accrediting young stars observed by SPIRou / CFHT. The targets consist of Class II stars, as part of the SLS consortium, and Class I stars, as part of the PROMETHEE project. The analysis primarily involves measuring the near-infrared excess along the YJHK bands to understand its origin and timescale variability. Additionnaly, we aim to characterize the average profile shape and its variance over timescales ranging from days to months. Special attention has been given to studying the potential evolution of the accretion and/or ejection processes over a span of a few years. We discuss the implications of these results for the accretion and ejection mechanisms in young stars, exploring their connection with the stellar magnetic field.

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