

Magnetism plays a fundamental role in the early evolution of stars, regulating star-disk interactions and angular momentum transfer. While magnetic fields have been extensively studied in pre- and post-protostellar phases, their properties during the embedded protostellar stage remain poorly constrained.

SPIRou, the near-infrared spectropolarimeter at CFHT, provides a powerful tool to probe the magnetic properties of young stellar objects. Within the PROMETHEE (Protostellar Magnetism: Heritage vs Evolution) project, we obtained a set of spectropolarimetric observations of 16 Class I and flat-spectrum (FS) protostars, allowing us to detect and characterize their magnetic fields

By analyzing the polarized spectra of our sample using the Least-Squares Deconvolution (LSD) technique, we extract Zeeman signatures that reveal the presence and structure of magnetic fields in these young objects. From these profiles, we derive the first measurements of large-scale magnetic field strengths in Class I and FS protostars.

In this talk, I will present the first results from our SPIRou observations. I will discuss their implications for our understanding of magnetism during the embedded phase of star formation and the origin of stellar magnetic fields.