

**Presenting :**

Paul Charpentier<sup>1</sup>

**Authors :**

Paul Charpentier<sup>1</sup>

Claire Moutou<sup>1</sup>

Jean-François Donati<sup>1</sup>

Paul I. Cristofari<sup>1,2</sup>

Merwan Ould-Elhkim<sup>1</sup>

Étienne Artigau<sup>3</sup>

Sandie Marion<sup>4</sup>

**Title :**

Chasing activity indicators with SPIRou

**Abstract :**

Recent instruments have extended radial velocity observations from the optical to the near-infrared. This has in particular allowed the study of M dwarf stars, known to host a higher frequency of rocky planets. However, to search for planets around such stars, investigating the stellar magnetic activity is crucial. Indeed, the precision of spectrometers depends on both photon noise and intrinsic stellar variations. In this study, a selection of targets from the SPIRou Legacy Survey (SLS) was employed to identify new magnetic activity proxies. By comparing these with small-scale magnetic field measurements, we confirm a correlation between both signals. With the small-scale magnetic field being a well-established indicator that matches the RV activity jitter in solar studies and proven by recent studies to also be a reliable one for M dwarfs, further studies of these new activity indicators have promising potential in filtering out RV stellar jitter to uncover low mass exoplanets.

**Affiliations :**

<sup>1</sup> *Université de Toulouse, CNRS, IRAP, 14 av. Edouard Belin, 31400 Toulouse, France*

<sup>2</sup> *Center for Astrophysics | Harvard & Smithsonian, 60 Garden street, Cambridge, MA 02138, USA*

<sup>3</sup> *Université de Montréal, Département de Physique, IREX, Montréal, QC H3C 3J7, Canada*

<sup>4</sup> *Shark Robotics, 8 rue des Rivauds, 17000 La Rochelle, France*