
Magnetic fields in M-dwarf from high-resolution infrared spectroscopy

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Abstract

Accurate spectroscopic measurements of magnetic fields in low mass stars remain challenging because of their cool temperatures, strong line blending, and often fast rotation. This is why previous estimates were based either on the analysis of only a few lines or made use of some indirect techniques. This frequently led to noticeable scatter in obtained results. In this talk I will present and discuss new results on the determination of the intensity and geometry of the magnetic fields in M-dwarfs using IR observations obtained with CRIRES@VLT. The instrument provides unprecedented data of high resolution ($R=100000$) which is crucial for resolving individual magnetically broadened molecular and atomic lines. Such an in-depth analysis based on direct magnetic spectral synthesis opens a possibility to deduce both field intensity and geometry avoiding most of the limitation and assumptions made in previous studies.

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