ID de Contribution: **33** Type: **Oral presentation**

A New NeoNarval Pipeline with PyReduce

mercredi 28 février 2024 15:15 (15 minutes)

Since the commissioning of the NeoNarval instrument at TBL in 2019, concerns have been raised regarding the quality of results in polarimetry and precision in velocimetry. Data from NeoNarval fails to reproduce the 10% magnetic population in OB stars as obtained by its predecessor Narval among other instruments, and under-reports the field strength of well-studied magnetic stars. Investigations have revealed issues at the telescope, instrument and data reduction levels, which must be resolved in order to accurately exploit the data.
We present our discoveries of such issues, subsequent work performed to develop a new data reduction pipeline, and first results which we compare to those provided by TBL and data taken by other instruments. Building on PyReduce, an open-source reduction pipeline for echelle spectrographs, we have integrated polarimetric methods, as well as new routines to minimise the effect of instrumentation issues, allowing for the recovery of 4 years of previously obtained data.

Astrophysics Field

Solar & Stellar Physics

Day constraints

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Classification de Session: Session 3