


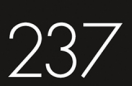

TO BINARY OR NOT TO BINARY: AN ANALYSIS OF WR 71's POLARIZED LINE PROFILES



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PROJECT OVERVIEW

GOALS

- WR 71 has been speculated to be a single star and part of a binary system, potentially with a compact object companion. I will shed light on its binary status with spectropolarimetric and a forthcoming X-ray observation.
- WR 71 is part of a larger study being conducted by our group. We are surveying Southern Hemisphere WR binary stars in order to better understand these massive star systems.

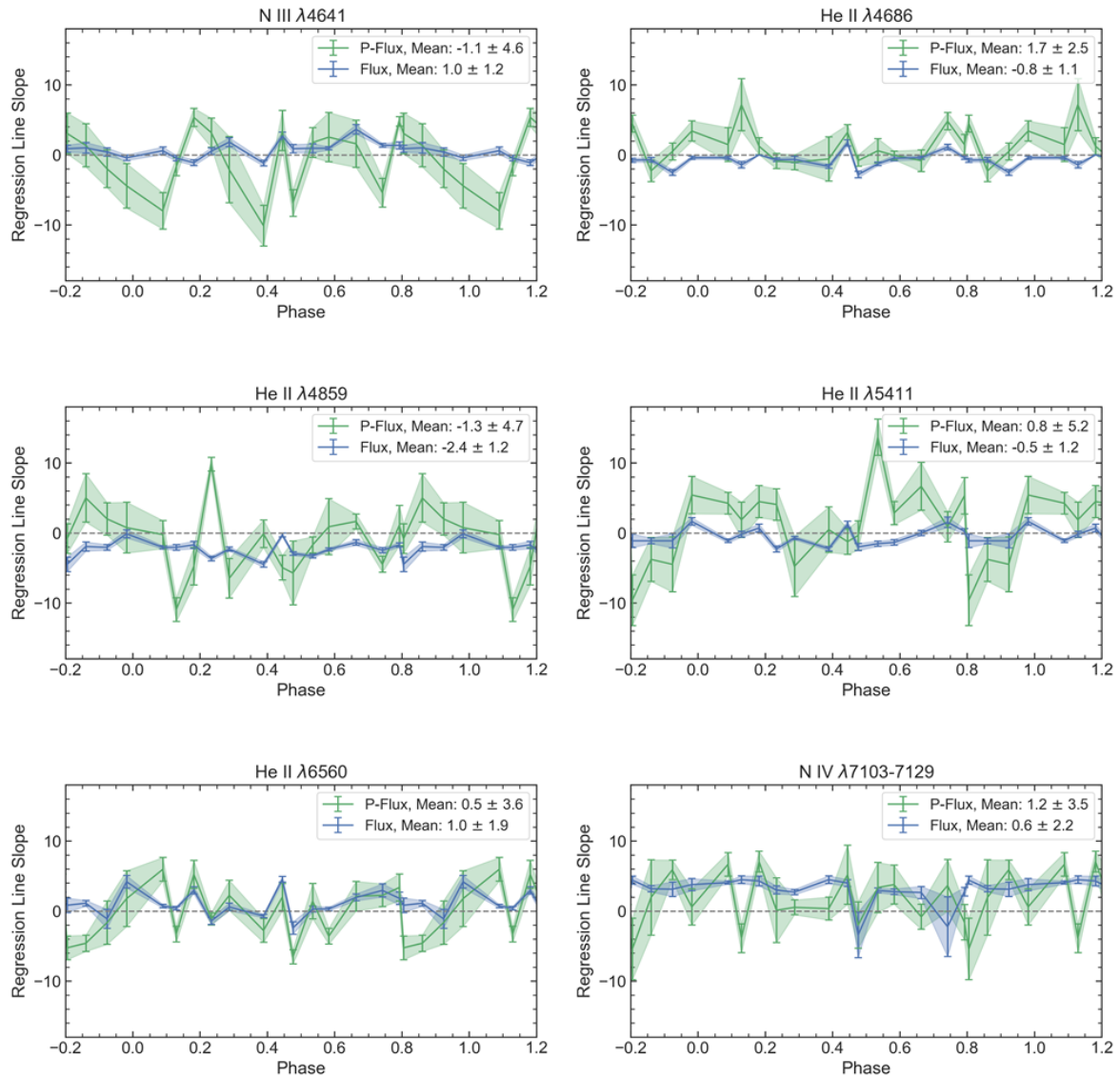
TOOLS

Spectropolarimetric observations of WR 71 were made with the RSS on the 11 meter South African Large Telescope (SALT).

LINE PROFILES

LINE POLARIZATION ASSYMMETRY

WR71 Flux and P-Flux Asymmetry



Prominent lines in the WR 71 spectra show significant asymmetry. More asymmetry exists in the polarized flux curves, indicating the presence of distinct emission and scattering regions within the wind. This indicates asymmetry in the stellar wind itself.

THE TARGET: WR 71

SPECTRAL PARAMETERS

	WR071
SPECTRAL TYPE	WN6-w
OBSERVATIONS / INSTRUMENT, OBSERVATORY	18 / RSS, SALT
P (D)	7.69
T* (kK)	52.6
R* (R_{\odot})	7.06
M (M_{\odot})	20
V (MAG)	10.10

WHY WE CARE

It is unknown if WR 71 is part of a binary system. Speculations span from it being a single star to it having a massive star or compact companion.

FUTURE WORK AND ACKNOWLEDGEMENTS

FUTURE WORK

- A snapshot observation of WR 71 has been approved with XMM-Newton to determine if it emits at X-ray wavelengths. Colliding wind binaries often have X-ray emission due to high impact interaction regions. If X-rays are detected, we will propose for follow-up observations.
- If it is determined to be part of a binary system, the mass loss and transfer within the system will also be measured in order to understand what type of supernovae it might produce upon its death.

ACKNOWLEDGEMENTS

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