Atmospheric composition and dynamics of the ultra-hot Jupiter WASP-178 b

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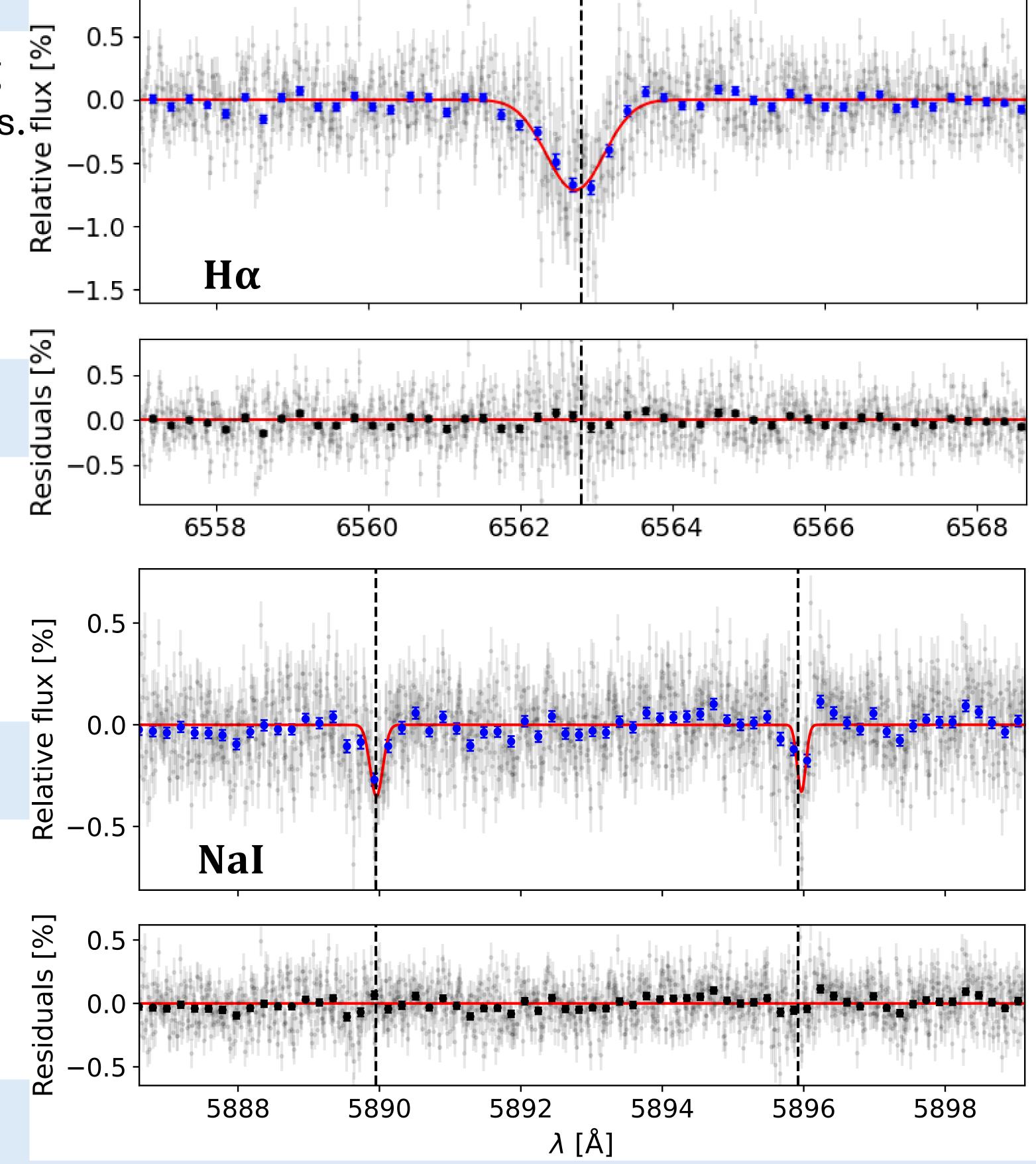
Background:

WASP-178 b is a **bloated ultra-hot Jupiter** (UHJ) orbiting a scorching A0 type star with an orbital period of 3.3 days. $\vec{=}$ It is thought to have strong day-to-night winds and high energy recirculation.

What can we find in its atmosphere?

Methods:

- We built the transmission spectrum of WASP-178 b with two ESPRESSO transits.
- We used narrow-band and cross-correlation techniques to search for absorption lines.



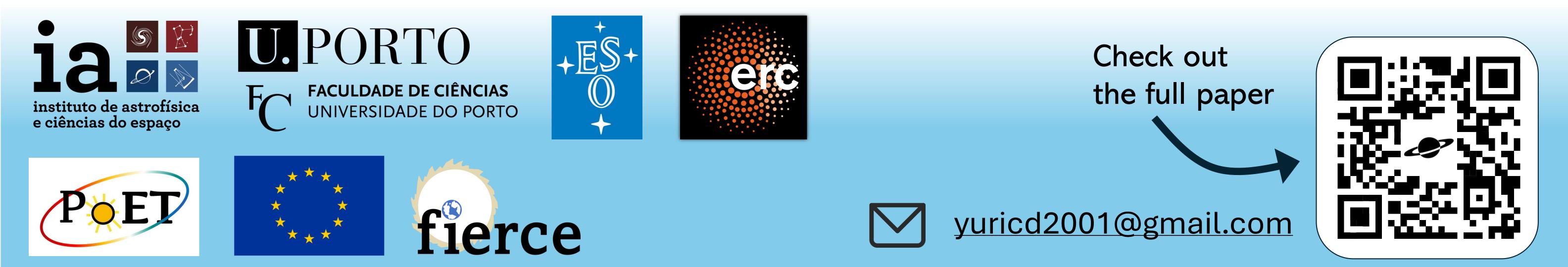
Results:

- Detection of NaI, H α , H β , FeI and FeII, with tentative MgI.
- All lines are broadened, yet only MgI, FeI and FeII appear blueshifted.

Conclusions:

- Possibility of hydrogen escaping high up due to its high velocity dispersion.
- The blueshifts for Fe and Mg indicate the existence of day-to-night winds, mainly in the lower regions where these reside.
- Further observations on WASP-178b can help unravel the mysteries of UHJ atmospheres.

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