Contribution ID: **44** Type: **Parallel talk**

Exoplanet meteorology? - Studying wind dynamics of far away worlds

Saturday 7 November 2020 11:00 (20 minutes)

Exoplanet research, despite its young age, has come a long way in recent years, and a plethora of elements have been discovered in their atmospheres to date, such as water, iron, sodium and others.
However, without the possibility of launching a probe to these far-away worlds, an in-depth study of their atmospheric structure remains a challenge. In this talk, I would like to summarise the current state of the art in studying exoplanet wind patterns, starting with the two extremes: the lower atmosphere with its jet-like structures much like our Jupiter and the far-out exosphere with huge streams of escaping particles (see Ehrenreich et al. 2015, Bourrier et al. 2018 and Parmentier et al. 2013, 2018).
I will then show how we can connect these two areas and provide a full picture of the exoplanet atmospheric dynamics by using spectroscopic lines to probe the intermediate layers of the atmosphere via Doppler-broadening (Seidel et al. 2019, 2020a).

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Session Classification: Talks from participants: Astrophysics (de/engl)