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Greetings !

I am an astronomer, specialized in the detection and characterization of extrasolar planets through velocimetry and transits. My main focus is on exoplanetary atmospheres, which I study via a combination of spectroscopic observations and numerical modeling to understand how they interact with their host star. I am also interested in orbital architectures (the shape of a planet orbit and its orientation relative to the star) and what they can tell us about the past dynamical evolution of planetary systems.

I combined both interests in the study of GJ436b, a Neptune-size planet orbiting close to a cool M dwarf. With my collaborators I showed that this warm Neptune orbits over the poles of its star and is surrounded by a gigantic cloud of gas escaping from its atmosphere. These surprising features are likely linked: the misalignment of GJ436b orbital plane suggests that it migrated close to its star in recent times under the influence of a yet-undetected companion, the increased heating by the star then triggering its atmospheric escape. The background, drawn by comic book artist Denis Bajram, illustrates nicely these results.

GJ436b stands at the edge of the Neptunian desert, a mysterious lack of hot Neptunes at short orbital distances. Thanks to an ERC Starting Grant I will now set up a team to work on SPICE DUNE, the project I devised to investigate the origins of the desert.

More about my research and career:

- Recent achievements
- Publications
- CV