
Magnetised stellar winds and their impact on exoplanets

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Abstract

In this talk, I will review the latest progress made in data-driven modelling of magnetised stellar winds. The proper characterisation of the background wind is crucial to constrain interactions between exoplanets and their host-star's winds and also essential for the study of propagation of CMEs and space weather events on exoplanets. Although the great majority of exoplanets discovered so far are orbiting cool, low-mass stars with properties (mass, radius and effective temperatures) similar to solar, the stellar magnetism can be significantly different from the solar one, both in topology and intensity. In addition, due to the current technology used in exoplanetary searches, most of the currently known exoplanets are found orbiting at extremely close distances to their host stars (< 0.1 au). The dramatic differences in stellar magnetism and orbital radius can make the interplanetary medium of exoplanetary systems remarkably distinct from the one present in the Solar System. I will also show that the interaction of the stellar winds with exoplanets can lead, among others, to observable signatures that are absent in our own solar system.

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