
Stellar magnetic fields, stellar winds, and their impact on exoplanets

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Stellar magnetic fields, in the form of magnetized winds and high energy radiation, are responsible for driving atmospheric heating, evolution and escape in (exo)planets. Understanding how a star's magnetic environment depends on its mass and rotation is an essential step towards characterization of planetary atmospheres outside of the solar system. In this presentation I will discuss how spectropolarimetric and multi-wavelength spectroscopic observations help us constrain the magnetic field and activity of exoplanet host stars. Additionally, I will discuss how these observations provide necessary constraints on the modeling of cool stellar winds. Finally, I will also mention new developments in solar wind observations and modeling led by Parker Solar Probe and Solar Orbiter missions, and how they can be applied in the study of exoplanet host stars in the era of JWST, Ariel and PLATO.