

MAGNETIC FIELDS AND CIRCUMSTELLAR  
ENVIRONMENT AROUND PLANET-HOSTING  
STARS

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Recent developments in instrumentation and observational techniques have opened a new window for stellar magnetic field studies. In particular Zeeman Doppler Imaging (ZDI) is now routinely used to recover the large scale magnetic field topologies of stars different from the Sun, including several planet-hosting stars. These stellar magnetic fields intimately affect the environment around late-type stars by driving the coronal high-energy radiation (EUV/X-rays), transient events (e.g. flares and coronal mass ejections), and the development of stellar winds and astrospheres. These elements can have a strong impact in the evolution of planetary systems via star-planet interactions and erosion of exoplanetary atmospheres. In this context, the results from a ZDI data-driven, detailed 3D MHD modelling of the coronal conditions and circumstellar environment around three planet hosting stars are presented. For one of the considered systems (HD 1237), we investigate the interactions of the magnetized stellar wind with the exoplanet, assuming a Jupiter-like magnetosphere around it.

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