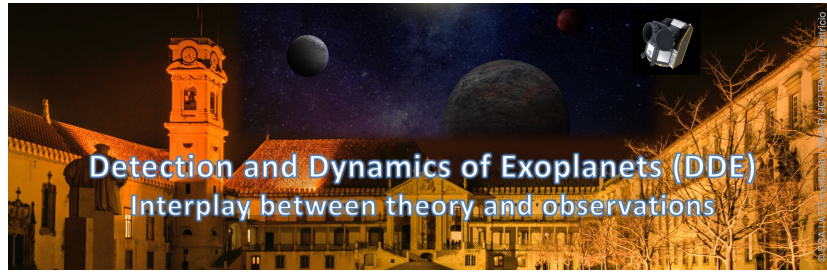


Detection and Dynamics of Exoplanets (DDE): Interplay between theory and observations



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Detection and Characterisation of S-type exoplanets in binaries

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In recent years, transiting circumstellar (or S-type) exoplanets in binary star systems have experienced a significant expansion, notably thanks to the successful TESS space mission. Binarity is expected to impact the formation and evolution of planets, particularly when the binary separation is smaller than a few hundred astronomical units, due to the truncation of the protoplanetary disk surrounding the individual stars. We aim to confirm and further study S-type exoplanets that are part of binary systems with separations less than 200-300 AU. To this end, we have initiated a follow-up observational program targeting TESS-identified S-type exoplanet candidates. We are utilizing the recently developed near-infrared spectrograph NIRPS installed on the ESO 3.6m telescope at La Silla, Chile. NIRPS is equipped with an adaptive optics system capable of resolving binary star components down to 0.4 arcseconds. We present here the initial findings of our program, which aims to characterize planets orbiting low-mass stars (K5-M9) within these binary systems, determine which star within the binary systems is hosting a transiting exoplanet, and to measure its mass and bulk density accurately.

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