

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



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From Misaligned Hot Jupiters to Aligned Warm Jupiters: Constraining Q_p of Jupiters

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One of the most surprising and intriguing findings in exoplanetary configurations is that hot Jupiters are often spin-orbit misaligned. In this talk, I will present new Rossiter–McLaughlin observations showing that, by contrast, single-star warm Jupiter systems tend to remain aligned. The sharp transition from misaligned hot Jupiters to aligned warm Jupiters suggests that high-eccentricity migration—effective only in producing very close-in planets (e.g., hot Jupiters) through tidal circularization—is responsible for these misalignments. This provides an unprecedented opportunity to constrain the tidal dissipation rates of Jupiters. I will discuss the new constraints we have placed on the effective equilibrium tidal factor and offer insights into the tidal dissipation rate during the high-eccentricity phase.

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Session Classification: Star-planet interactions and exoplanets' characterization