Contribution ID: **36** Type: **Contributed**

Constraints on transit-detected system architectures from formation and evolution studies

Thursday, 16 May 2024 09:50 (20 minutes)

Many tightly-packed transit-detected systems harbor complex dynamical evolution governed by two-body resonances and/or chains of resonances. I will discuss recent results showing how formation and evolution studies can be useful to constrain the orbital parameters of these systems, which generally suffer from significant observational uncertainties. More precisely, I will show how i) periodic orbits can serve as dynamical clues to validate the parametrization of detected systems, ii) TTVs keep track of the migration history of planetary systems and provide signatures of three-body resonances accessible by future monitoring of the systems, and iii) the offsets in resonant chains are shaped by planetary migration and tides raised by the star. Joint work with E. Agol, K.I. Antoniadou, C. Charalambous, and J. Teyssandier.

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Session Classification: Exoplanets Evolution