

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



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Diversities and similarities exhibited by multi-planetary systems

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The rich diversity of multi-planetary systems and their architectures is greatly contrasted by the uniformity exhibited within many of these systems. Previous studies have shown that compact Kepler systems often exhibit a peas-in-a-pod architecture: Planets in the same system tend to have similar sizes and masses and be regularly spaced in orbits with low eccentricities and small mutual inclinations. In this talk, I will introduce the work in my recent paper on the orbital architectures of most of the observed multi-planetary systems, including the Solar System. Compared to previous research, I examined a larger and more diverse sample of systems, focusing on the orbital spacings between adjacent planets as well as their relationships with the planets' sizes and masses. I also quantified the similarities of the sizes, masses, and spacings of the planets within each system, conducting both intra- and inter-system analyses. I will show some of the results from these investigations and present the main conclusions.

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