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



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The search for (Giant) Exorings and a Short Period Circumsecondary Disk Candidate in Orion

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In our Solar system all the giant planets have rings, but their origin and evolution are still uncertain. For exorings even less is known. I will discuss the importance of a large-scale systematic search for exorings and the steps I am taking towards achieving this. Once exoring candidates have been found then they need to be characterised. Therefore, I will also discuss the enigmatic 'Dusty Object'in Orion. Its eclipses were first observed by NGTS in 2017 with a 0.69-day period. The eclipses are extremely asymmetric, variable, and show substructure, while the out-of-eclipse light-curve shows strong modulations. These features cannot be explained by a simple transiting planet or brown dwarf. I will discuss some of the hypotheses for this object, specifically focusing on the potential of it being a circumsecondary disk with possible exorings.

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Session Classification: Exomoons, exorings, and trojan systems