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



Contribution ID: 117 Type: not specified

Large transiting exoring systems from the ASAS-SN survey

Tuesday 8 July 2025 09:45 (15 minutes)

Wide field surveys searching for transiting exoplanets also record and discover both known stellar variability and previously unknown phenomena. Deep and complex eclipses of otherwise unremarkable stars reveal eclipsing companions that have complex substructures. The ASAS-SN survey has now produced over a dozen complex eclipses that last from weeks to years, and we present our analyses of several of these light curves, including a multi-year ringed disk transit and more recently two eclipses that are indicative of ringed disks. Future wide and deep time domain surveys, such as the Vera C. Rubin Observatory and the upcoming release of Gaia DR4, will considerably increase the number of these objects.

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Session Classification: Exomoons, exorings, and trojan systems