Contribution ID: **44** Type: **Contributed**

The HD110067 sextuplet - detection of a unique resonant planetary system which could unlock planet formation

Thursday, May 16, 2024 10:30 AM (20 minutes)

Planetary formations naturally forms resonant chains of planets, but few such systems persist for more than 1Gyr due to evolutionary events such as destabilisation, planet-planet scattering, mass loss, etc. Therefore systems in resonant chains, especially pristine first-order chains of three-body Laplace resonances, are key windows for the charactersation of unmodified exoplanets. A system of six sub-Neptunes orbiting HD110067 was recently detected using TESS & CHEOPS photometry, and further characterised with HARPS-N & Carmenes RVs. This is the brightest system with more than 3 transiting planets yet found, and the most characterisable resonant system amenable to JWST atmospheric characterisation. Here I present the discovery of the HD110067 system, our ongoing characterisation efforts, and the potential for the system to provide tight constraints on planetary C/O ratio and bulk water composition as a function of orbital period from future JWST observations.

Author: OSBORN, Hugh (Bern)

Presenter: OSBORN, Hugh (Bern)

Session Classification: Exoplanets Evolution