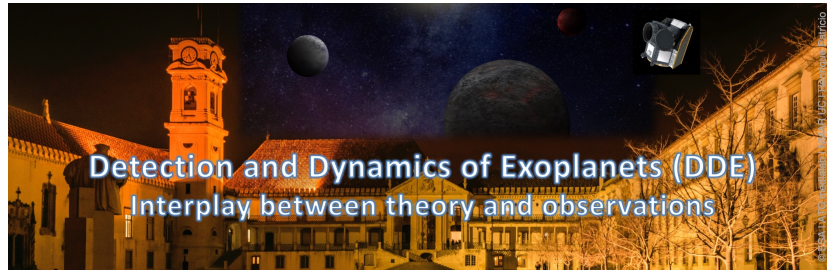


## Detection and Dynamics of Exoplanets (DDE): Interplay between theory and observations



Contribution ID: 53

Type: **not specified**

## Improving interior models of UltraHot Jupiters using constraints from Photometric observations

*Thursday 10 July 2025 14:30 (15 minutes)*

Ultra-hot Jupiters (UHJs) orbit very close to their host stars, experiencing strong irradiation and tidal forces that markedly distinguish them of the Solar System giant planets. How the interiors of these planets change due to the extreme conditions is not yet fully understood since standard interior modelling techniques using mass and radius measurements lead to degenerate results. The planet's response to tidal forces, its tidal deformation, provides the missing observable needed to constrain the interior structure. More precisely, phase curves and transits can be used to measure the second fluid Love number for radial deformation,  $h_2$ , which depends on the radial distribution of mass within the planet. In this talk, I will present a model for extracting precise  $h_2$  measurements from phase curves, showing an example of WASP-12b where the model was applied to TESS and CHEOPS observations. I will also present prospects for improving interior structure models of UHJs using Love number measurements.

**Presenter:** AKINSANMI, Babatunde (University of Geneva)

**Session Classification:** Star-planet interactions and exoplanets' characterization