



A Systematic Characterization of the HR8799 System with GRAVITY

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The four planets of the HR8799 system provide a benchmark for directly imaged exoplanets. As these planets share a formation history, variations between the planet's atmospheric properties - likely tracing their individual formation pathways - could provide insight into the details of the process of planet formation. In order to explore these atmospheres and their evolution, we use new data obtained with the GRAVITY instrument at the VLTI as part of the ExoGRAVITY campaign, combined with data from SPHERE, GPI, CHARIS, ALES and OSIRIS in order to provide the best picture of the planetary atmospheres across a broad wavelength range. Using petitRADTRANS in a Bayesian retrieval framework, we compare a suite of state-of-the-art models applied to each of the targets in order to measure atmospheric properties such as metallicity, molecular abundances, and the C/O ratio, which is a well known tracer of the formation history. In this talk I will describe the data processing and modelling efforts which allow us to peer into the atmospheres of the HR8799 planets, and will outline the steps needed to tie the newly retrieved planetary properties to the formation history of the system.

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