

## Determining the interior structure of exoplanets



The main goal of the project is to test what constraints can be put on the interior structure of exoplanets from observations of its mass, radius, and the chemical composition of the central star around which the exoplanet orbits.

One of the main research areas in exoplanetary science is the characterization of planet interiors. Constraining the interior structure of exoplanets is challenging because data are effectively restricted to mass, radius, and stellar abundance of major chemical elements. The inverse problem posed is highly degenerate, i.e., there are very different interior structures and compositions that have identical

mass and radius. Using a Bayesian analysis method, it is possible to quantify the degeneracy in structural parameters.

In this master thesis, we wish to test and understand the influence of various the parameters that bear on the interior: (1) composition, (2) temperature, and (3) prior modeling assumptions. This project is relevant for the interpretation of future data from space-missions that aim at characterizing exoplanets such as TESS, CHEOPS, or PLATO.

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