

Título/Title:

Planet-Planet interactions

Área/Area:

Exoplanets

Orientador/Supervisor:

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Local do Estágio/Host Place:

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Descrição/Description:

Our planet Earth is one of the nine planets which compose the Solar System. Similarly, extra-solar planets are often found in multi planetary systems. Planets in the same system inevitably interact with each other through the force of gravity. In the course of their orbit around their parent star, planets occasionally get close to one another. During these close encounters the gravitational pull that they apply on each other is strong enough to slightly accelerate one and slow the other down. Due to these small changes in orbital velocity, planets transit their host star slightly in advance or slightly late compared to what we would expect. This effect is called transit timing variations (TTV) and can be detected by space telescopes like the NASA-Kepler telescope.

The objective of this project is to perform the small modifications to an already existing code to be able to detect TTV. Then the student will apply it to data collected with the NASA-Kepler telescope and infer the masses of the two planets interacting with one another.

Requisitos/Requirements:

The project does not require prior knowledge of astronomy and/or exoplanets. The candidate is expected to have working knowledge of the computer programming language Python, since the code he will have to modify is written in this language.