

Título/Title:

Prioritisation of candidates of transiting exoplanets in K2 light curves

Orientador/Supervisor:

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Descrição/Description:

The K2-Kepler satellite is delivering many high precision light curves that allow us to detect new exoplanets, some of which in multi-planetary systems. A large number of these candidates are around bright stars that are amiable for further characterisation.

Our group has a pipeline to reduce K2 data and to search for new exoplanets producing a list of candidates that are then followed by a large international collaboration. The main follow-up consists in obtaining radial velocity observations to confirm the planets and derive the planetary masses.

The project is to prioritise the list of candidates for the last K2 campaign for follow-up.

Our candidate list contains some false positives, that is, light curves that look like planets but are due to instrumental noise or astrophysical mimics of transits. The student will develop methods to analyse the light curves in order to discard most of these false positives and prioritise the good candidates to follow-up. This is done by analysing the shape of the transit and other indicators present in the light curve.

This tool will be useful for other transits surveys like TESS and PLATO.

Requisitos/Requirements:

The project does not require prior knowledge of astronomy/exoplanets which will be learnt during the project.

The project is based on heavy programming in python. Therefore, the candidate should be able and willing to program in python.