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**TÍTULO:**

*PREPARATION OF EXTRASOLAR PLANETS' OBSERVATIONS*

**Trabajo dirigido por:**

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**RESUMEN/ABSTRACT:**

The first part of this thesis considers the three body problem. In a first approximation of the hierarchical restricted three body problem, it is studied the motion of a star gravitationally linked to a distant binary. This perturbation can mimic the reflex motion of a star caused by a planet, provoking a false detection by astrometric or radial velocity methods. Then, in the case of a multiple planet system, the perturbations in the time of arrival of the transit signals as well as their influence in the planetary detection are considered. Next, the photometric signal produced by a stellar spot is analyzed to recognize its differences with planetary transits: in some configurations spots can produce a similar signal. The techniques developed are applied to the study of planetary photometry. In particular, the mutual phenomena between a planet and a satellite (occultations and projections of shadows) are examined and the detailed analysis of the signal of a transit. Finally, a important part of the thesis has been devoted to the analysis of the data supplied by the mission CoRoT, committed to the search for extrasolar planets. Four times a year, the satellite furnishes ten thousand light-curves that must be filtered of instrumental noise and stellar activity prior to the search for planetary signals. Eventually, the candidates are followed photometrically and spectroscopically from ground to determine their mass. In the systems where a planet has been found, the time of arrival of the transits is studied looking for the perturbations described in the first part of the thesis.

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