
The Plato mission

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Abstract

PLATO has recently been selected for ESA's M3 launch opportunity. PLATO will revolutionize our understanding of extra-solar planets through its discovery and bulk characterization of planets around hundreds of thousands of stars. With launch foreseen in early 2024, PLATO will follow the very successful space missions CoRoT and Kepler, as well as ESA's first small mission CHEOPS and NASA's mission TESS. PLATO will carry out high-precision, long-term photometric and astroseismic monitoring of up to a million of stars covering over 50% of the sky, and provide orders of magnitudes more small planets around bright stars than the previous missions. Its exquisite sensitivity will ensure that it detects hundreds of small planets at intermediate distances, up to the habitable zone around solar-like stars. PLATO will characterize planets for their radius, mass, and age. It will provide the first large-scale catalogue of well-characterized small planets at intermediate orbital periods, relevant for a meaningful comparison to planet formation theories and providing targets for future atmosphere spectroscopy. This data base of bulk characterized small planets will provide a solid basis to put the Solar System into a wider context and allow for comparative exo-planetology. Furthermore, its precise lightcurves will allow us to search for e.g. exomoons, exo-rings, and binary planets.

In addition, the precise stellar parameters obtained by asteroseismic studies will open new doors to better understand stellar interiors and allow us to constrain poorly-understood physical processes, like convection, improve our understanding of stellar evolution, and determine precise ages of stars and planetary systems.

The talk will provide an overview of the PLATO mission and its science goals.

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