The PLATO Multiple Star Working Group

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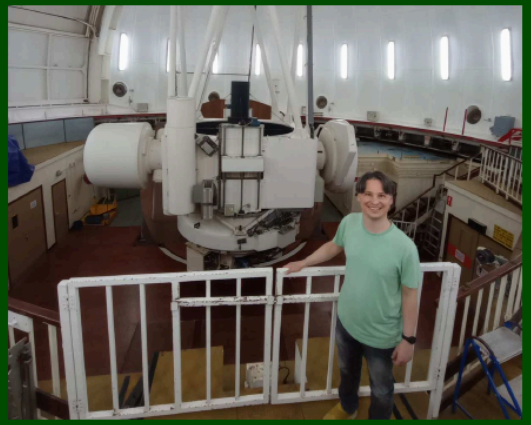
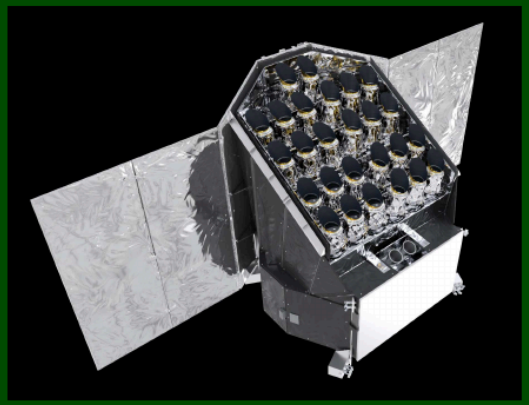


The PLATO mission (https://platomission.com/) is scheduled for launch in December 2026. It is an ESA M-class mission aiming to find small planets around bright stars via the transit technique. The light curves it obtains will be wonderful for other science goals, among which is the study of binary and multiple stars. We are creating the Multiple Star Working Group (MSWG) to co-ordinate the community to best exploit this unique opportunity. We will assemble the many science cases, create target lists, and co-ordinate applications for PLATO observations.



The PLATO concept. *Image credit: ESA.*

The PLATO mission

PLATO (Planetary Transits and Oscillations of Stars) was selected by ESA in 2014 as a mission to search for small transiting extrasolar planets (Rauer et al., arXiv:2406.05447). Its baseline aim is to to detect a $1\,R_\oplus$ planet orbiting in the habitable zone of a G0 V star of magnitude $V = 10$, and to determine the planetary radius to 3% and system age to 10%. The planet detection and characterisation will be from the transits, and the age determination from asteroseismology.

The baseline duration of the mission is 4 years, of which the first 2 years at least will be used to observe the LOPS2 field in the southern hemisphere (see below), but the spacecraft will hold consumables to last 8.5 years.

It is scheduled for launch in December 2026, and will take approximately 90 days to move to the second Lagrangian point in the Earth–Sun system. Its observations will be divided into 90-day segments between which the satellite will rotate by 90° to keep its solar panels pointed towards the Sun.

PLATO will consist of one spacecraft hosting 26 cameras. The 24 "normal" cameras (N-CAM) will each have a 20 cm aperture and a 4510×4510-pixel CCD, giving a field of view of 1037 deg^2 with a sampling of 15″ per pixel and a red passband (500-1000 nm). The two fast cameras (F-CAM) will be used for fine-pointing of the satellite and have smaller fields of view (610 deg^2) and different passbands (505–700 nm for the blue and 665–1000 nm for the red camera).