**About PLATO**

**A new type of space telescope**

PLATO is a completely new type of space telescope: it will use an array of telescopes rather than a single lens or mirror. It is similar in concept to the successful WASP planet-search facility, of which the OU is also a partner, which uses arrays of camera lenses to find large, close-in planets from the ground. PLATO will use top quality cameras, and will have the advantage of observing continuously from space, without the interruption of sunrise, or the blurring caused by the Earth’s atmosphere. This will allow PLATO to discover planets smaller than Earth, and planets at distances from their host stars similar to the Earth-Sun distance. So far, only a few small exoplanets are known at star-planet distances comparable to or greater than Earth’s. Unlike previous missions, PLATO will focus on these planets, which are expected to resemble our own Solar System planets.

**Europe will take on a leading role in the search for extrasolar planets**

PLATO is a lively and vigorous European collaboration – many European research institutions and hundreds of European researchers are working together, with scientists from all over the world completing the team. The catalogue of potentially habitable planets provided by PLATO will be the basis for follow-up measurements to confirm discoveries of new planets, using the European Southern Observatory’s European Extremely Large Telescope (E-ELT), or the next generation of large space telescopes, like the James Webb Space Telescope. With PLATO, Europe will be leading the search for habitable exoplanets.

**Pioneering work in the search for a candidate “second Solar System”**

Only a measurement of both the radius and the mass of a planet allows us to distinguish between a “mini-Neptune” with a high gas content, but a low density – like the two outermost planets in the Solar System – or a rocky planet with an iron core, like the Earth. Without this information the habitability of a planet cannot be determined. Some known extrasolar planets are “super-Earths” with sizes and masses somewhat larger than the Earth’s. These two fundamental parameters are not known with sufficient precision for most small exoplanets.

**Boosting stellar science**

PLATO will monitor 1,000,000 stellar lightcurves with high precision which will provide a legacy for scientists studying the evolution of stars in our Galaxy. In particular ages derived by PLATO asteroseismology will add to the information about stars obtained by ESA’s recently launched satellite Gaia and help understanding the evolution of our Galaxy better.

**The Open University** is the UK’s largest university and is a world leader in modern distance learning. It is the pioneer of teaching and learning methods which enable people to achieve their career and life goals studying at times and in places to suit them. Staff in the OU Department of Physical Sciences carry out research as part of the CEPSAR research centre, which focuses on the origins, systems and processes with respect to the evolution and chemistry of materials that form the stars and planetary bodies, the processes and natural systems that shape the environment of our habitable world now and in the past, and the essential properties of a Solar System that allows life to develop on one of its planets.