The SPECULOOS Project: New targets to hunt planets of Ultra-cool dwarfs.

Daniel Sebastian¹, Michael Gillon¹, Elsa Ducrot¹, Francisco J. Pozuelos¹,², Lionel J. Garcia¹, and the SPECULOOS science team

¹University of Liège, Institut d’Astrophysique et de Géophysique, ExoTIC Lab - UR Astrobiology, Belgium (dsebastian@uliege.be)
²University of Liège, Space Sciences, Technologies and Astrophysics Research (STAR) Institute, Belgium

*A full list of authors appears at the end of the abstract

One of the most promising roads for detailed analysis of temperate Earth-sized exoplanets is their detection in transit of small stars. If close enough, upcoming giant telescopes like ELT or JWST will make possible their thorough atmospheric characterisation. In this context, the TRAPPIST-1 planets form an unique benchmark system that has gathered broad interest in and out of the scientific community.

The SPECULOOS survey is a transit-search survey, targeting a volume-limited (40 pc) sample of ultracool dwarf stars (spectral type M7 and later). The survey is powered by a global network of dedicated robotic 1 m telescopes, and its strategy leverages on the synergy with TESS for its brighter and earlier targets. Given its detection potential, once completed, it will not only provide targets for atmospheric characterisation, but will also deliver robust constraints on the structure of planetary systems of ultracool dwarf stars.

In this talk, I will detail the SPECULOOS target selection process, including new ultracool dwarf candidates, and introduce to its observing strategy.