

CONTROL ID: 2569158

TITLE: Discovery of temperate Earth-sized planets transiting a nearby ultracool dwarf star

ABSTRACT BODY:

Abstract (2,250 Maximum Characters): We report the discovery of three short-period Earth-sized planets transiting a nearby ultracool dwarf star using data collected by the Liège TRAPPIST telescope, located in la Silla (Chile). TRAPPIST-1 is an isolated $M8.0\pm 0.5$ -type dwarf star at a distance of 12.0 ± 0.4 parsecs as measured by its trigonometric parallax, with an age constrained to be > 500 Myr, and with a luminosity, mass, and radius of 0.05%, 8% and 11.5% those of the Sun, respectively. The small size of the host star, only slightly larger than Jupiter, translates into Earth-like radii for the three discovered planets, as deduced from their transit depths. The inner two planets receive four and two times the irradiation of Earth, respectively, placing them close to the inner edge of the habitable zone of the star. Several orbits remain possible for the third planet based on our current data. The infrared brightness of the host star combined with its Jupiter-like size offer the possibility of thoroughly characterizing the components of this nearby planetary system.

CURRENT * CATEGORY: Extrasolar Planets and Systems: Discoveries

CURRENT : None

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