

Abstract Submitted
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Stable Orbits for Exomoons in Earths Cousin (Kepler-452b) Orbiting a Sun-like Star NIYOUSHA DAVACHI, MARIALIS ROSARIO-FRANCO, SERGIO GARZA, ZDZISLAW MUSIELAK, Univ of Texas, Arlington — Kepler 452b, also nicknamed Earths cousin, was discovered orbiting the habitable zone (HZ) of a G2 Star (Jenkins et al. 2015). This exoplanet is considered a super Earth, with a mass of 5.2 Mass of Earth and a radius of 1.11 Radius of Earth; and is arguably the first rocky, habitable exoplanet to orbit a sun-like star. With a period of 385 days, conditions are prompt to be similar to those of Earth, and while Kepler-452b orbits the HZ of its parent star, its habitability could also be affected by the presence of an exomoon. Motivated by the need to understand conditions of habitability and orbital stability of Kepler-45b, we have performed a series of N-body integrations to examine the possibility of the exoplanet hosting an exomoon(s). Our results give a range of physical parameters leading to stable orbits for exomoons around this habitable super Earth.

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