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Title: The Mass of an Earth-size Planet  
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Abstract: While population studies of the Kepler planets have demonstrated that Earth-size planets in short period orbits are abundant, it remains unclear if they are composed primarily of rock and iron like the Earth or if they are enveloped by thick layers of gas. Compositions remain largely uncertain because no Earth-size exoplanet has yet had its mass or density measured by Doppler spectroscopy or transit timing variations. Characterizing the mass-radius relationship for small planets will be important for interpretations of Kepler-based estimates of  $\eta_{\text{Earth}}$ , the frequency of Earth-size planets in habitable zone orbits. I will present the measurement of the mass of an Earth-size exoplanet, based on radial-velocity monitoring with Keck-HIRES. This planet orbits a relatively bright star in an ultrashort period orbit ( $< 1$  day), rendering it detectable by Doppler spectroscopy. I will discuss the mass, density, inferred composition, and other characteristics of this Earth-size planet.

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