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Title: What asteroseismology can do for exoplanets: obliquity, eccentricity and confirmation

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Abstract: KOI-42 consists of a blend between two bright objects of Kepler magnitudes 9.4 (KOI-42A) and

12 (KOI-42B). Analyzing the transit light curve, using the out of transit data for asteroseismology, and combining these results with adaptive optics and speckle images, we confirm that the transit

signal is caused by a 17.8 day period planet.

Employing asteroseismology allows us to precisely determine the stellar parameters of KOI-42A, as well as provide constraints on KOI-42B. Assuming the planet occurs on KOI-42A, we precisely determine the planetary radius of the Neptune size planet. In addition, we measure the inclination of the star against the orbital plane. Our measurement of an inclination of 82 \$\pm\$ 5 degrees, indicates a low obliquity in this system. Furthermore, the asteroseismology allows a photometric measurement of the eccentricity of the planet as 0.18\$^{+0.09}\_{-0.05}. We discuss the constraints on formation and evolution of this system as derived from our measurements.