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Title: Determining the orbital geometry of HAT-P-11b from photometry only using starspots

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Abstract: The presence of starspots on HAT-P-11 influence the stellar lightcurve in at least two ways: when

HAT- P-11b crosses in front of a spot, we observe an anomaly in the transit lightcurve. This effect depends on the projected spot positions. At the same time, as the star is rotating, the spots modulate the out-of-transit lightcurve. In addition to the positions of the spots, the rotational modulation depends on the rotational period and inclination of the star as well. We undertake an MCMC analysis of these two phenomena simultaneously, constraining the parameters of dozens of spots in each quarter of Kepler data, ultimately measuring the stellar inclination and the obliquity of the planetary orbit. This analysis is comlementary to the Rossiter-McLauglin effect, and is based on photometric measurements only. In addition, the spots influence radial velocity measurements, and such a complex analysis helps to

remove their contribution, therefore "cleaning" RV measurements.