

The formation and long-term evolution of circumbinary planetary systems across the H-R diagram

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Finding Circumbinary Planets: A Transit Detection Framework for TESS Eclipsing Binaries

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The detection of circumbinary planets (CBPs) represents an exciting breakthrough in exoplanetary science. However, the number of known CBPs remains small; out of the several thousand known transiting exoplanets, only 14 are CBPs. This small sample size presents a challenge for studying the formation, evolution, and bulk properties of CBPs. In this contribution, I will present a framework for detecting transiting CBP candidates from TESS light curves of eclipsing binaries. I will outline how the data are processed, as well as the procedure for detecting and vetting candidate transit events. By applying this framework to the known transiting CBPs, as well as performing injection-recovery tests, I will present my findings on the detection efficiency of the framework. Finally, I will highlight any potential candidates that have been identified so far and consider future applications of this work.

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