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Institution: Jet Propulsion Laboratory
Title: High Resolution Active Optics Observations from the Kepler Follow-up Observation Program
Type: Poster
Session: Exoplanet Statistics, False Positives, and Completeness Corrections
Abstract: Co-authors: D. Ciardi, J. Crepp, L. Hirsch and G. Marcy

The ground based follow-up observation program for candidate exoplanets discovered with the Kepler observatory has supported a major effort for high resolution imaging of candidate host stars using adaptive optics wave-front correction (AO), speckle imaging and lucky imaging*. These images allow examination of the sky as close as a few tenths of an arcsecond from the host stars to detect background objects that might be the source of the Kepler transit signal instead of the host star.

The AO cameras on the Keck, Palomar 5m and Shane 3m (Lick Observatory) have been used to obtain high resolution images of over 500 Kepler Object of Interest (KOI) exoplanet candidate host stars. All observations were made at near infrared wavelengths in the J, H and K bands, mostly using the host target star as the AO guide star. This poster details the sensitivity to background objects actually attained by these observations and reports the number of background objects discovered. Implications to the false positive rate of the Kepler candidates are also discussed.

*This poster reports on the AO observations with the Keck, Palomar 5m and Lick 3m telescopes. Other publications have covered speckle imaging, lucky imaging and AO observation with the ARIES camera at the MMT.