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Title: Planet Occurrence in the Kepler Era
Type: Invited Talk
Session: Exoplanet Statistics, False Positives, and Completeness Corrections
Abstract: The study of extra-solar planets has matured beyond individual discoveries to the characterization of the exoplanet population as a whole. In many respects, such population studies parallel the work of Hertzsprung, Russell, and others a century ago. Just as the HR diagram informed our understanding of stellar physics, planet occurrence as a function of period, size, host star type, etc. informs the theory of planet formation and evolution.

I will review the major accomplishments of RV occurrence work. RV surveys still provide the best constraints on planet occurrence among local stars (off the Kepler field) and beyond 1 AU (outside of the Kepler baseline). The Kepler mission, however, is ushering in exoplanet population studies of unprecedented precision and statistical integrity. As of January 2013, Kepler has netted nearly 3000 candidates with sizes ranging from larger than Jupiter to Moon-sized. Transforming such a catalog of planets into a measurement of planet occurrence requires careful de-biasing. One needs to carefully account for planets missed due to survey incompleteness as well as the pollution of the planet sample by false positives. I will highlight the statistical treatment of the Kepler planet sample and summarize our current understanding of the frequency of planets in the Kepler field.