Astrophysics Seminar

TUESDAY

SEPTEMBER 15

12:30 P.M.

RM 184 NSH

Synthesizing Results from Multiple Detection Techniques: The Demographics of Planetary Companions to M Dwarfs

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The results of several exoplanet discovery methods have begun to characterize the underlying population of planets in our galaxy. These studies have provided interesting results, but, individually, are constrained to limited regions of planet parameter space. Thus, exoplanet censuses constructed from the results of any individual technique are incomplete. Synthesizing results from multiple methods yields more powerful constraints on the demographics of exoplanets than is afforded by any individual technique, and is the only way to derive a statistically-complete census. I will provide a brief review of the four main exoplanet detection techniques and present the results of the first studies to synthesize results from microlensing, RV, and direct imaging surveys, where we demonstrate an ability to derive meaningful constraints on the demographics of planetary companions to M dwarfs that cover several orders of magnitude in planet mass and semimajor axis. Finally, I will include a discussion of ongoing and future projects to include results from transit surveys to improve our constraints on the relatively smaller, shorter-period planets, as well as the application of our synthesized results to free-floating planets and planet population synthesis models.