

UCLA Department of Physics & Astronomy

COLLOQUIUM

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The Origin of super-Earths and sub-Neptunes

Eric Petigura

UCLA



The universe is awash in planets unlike any found in our own solar system. The majority of Sun-like stars harbor at least one planet between the size of Earth and Neptune within Mercury's orbit — planet sizes and orbits absent from the solar system. Moreover, these small planets are bifurcated into two distinct populations: super-Earths and sub-Neptunes.

I will survey recent work at UCLA to understand the origin of these intriguing planets through measurements of their masses, sizes, orbital architectures, and host star properties. Some clues are only visible when hundreds of planets are studied as an ensemble, while others can be coaxed from a few exceptional systems. In recent years, this work has been powered by a remarkable cohort of space- and ground-based facilities, including TESS, Kepler, Gaia, and the newly commissioned Keck Planet Finder.