Constraints on planet formation from Kepler's multiple planet systems

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Abstract

The recent haul of hundreds of multiple planet systems discovered by Kepler provides a treasure trove of new clues for planet formation theories. The substantial amount of protoplanetary disk mass needed to form the most commonly observed multi-planet systems - small (Earth-sized to mini-Neptune-sized) planets close to their stars - argues against pure in situ formation and suggests that the planets in these systems must have undergone some form of migration. I will discuss the impact of resonances and giant planets (or the lack thereof) in the observed systems on these models, and will present results from numerical simulations of terrestrial planet formation that aim to reproduce the sizes and architecture of Kepler's multi-planet systems.

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