

P302a Diversity of Planetary Architecture Out of the Observed Protoplanetary Disks

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The configurations of exoplanetary systems were known to exhibit great diversities, including Hot Jupiters(HJs), misaligned and/or free-floating planets. Previous researches that attempted to account for this diversity started from ad-hoc initial conditions that were intentionally designed towards unstable systems. Meanwhile, recent observations from Atacama Large Millimetre Array have revealed around 10 proto-planetary disks with concentric rings and gaps, which are commonly interpreted as a result of orbital clearing due to the proto-planet formation. Simbulan et al.(2017) did the pioneering work which used HL-tau disk as initial conditions to predict the outcomes of dynamical evolution. In addition to the conventional N-body method, we incorporate the detailed planet-disk interaction during the gas-disk phase, and also improve the mass accretion model to give a better estimate of the planet's mass. We present the statistical distribution of final configurations and compare with the current exoplanet observations. We also give the fractions of planets that evolve to HJs, misaligned and/or free-floating planets. With the unbiased outcomes, we will discuss the validity of the previous ad-hoc initial conditions and examine if the planet-planet scattering dominates the formation channel for HJs and misaligned planets.