Gas Giant Formation with Small Cores Triggered by Envelope Pollution by Icy Planetesimals

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Core-Accretion Model

- Planetesimal
  - Core growth
  - Critical core mass
  - Runaway gas accretion
  - Gas giants

(e.g. Pollack et al. 1996)

Gas giants with small cores
--- LONG gas accretion timescale

Observed disk lifetimes: 1-10 Myr
(Haisch et al. 2001; Hernandez et al. 2007)

Envelope pollution

Icy planetesimals

Formation of Gas Giants with Small Cores