Advanced Earth and Planetary Sciences B 2019 Reference List

(Last updated: April 9)

- Protoplanetary disks
  - Weidenschilling (1977): A theory paper that first proposed the concept of the so-called minimum-mass solar nebula (MMSN). Read also pp.35–38 of Hayashi (1981), where the well-known power-law functions for the gas and dust surface densities in the MMSN are derived.
  - ALMA Partnership et al. (2015): High-resolution observations of HL Tau with ALMA. The observations led to the first discovery of multiple dust rings in a protoplanetary disk.
  - Ansdell et al. (2017): An ALMA survey of protoplanetary disks in an open cluster. The authors discuss how the disk's dust mass is related to the stellar mass.
- Dust motion in disks
  - Takeuchi & Lin (2005): A theoretical work discussing possible observational consequences of particle radial drift. Dust growth is also discussed.
  - Barge & Sommeria (1995): A classic theory paper on dust trapping by a vortex.
  - van der Marel et al. (2013): An ALMA observation showing possible evidence for dust trapping in a vortex. Read also Supplemental Materials (http://www.sciencemag.org/cgi/content/full/340/6137/1199/DC1)
- Turbulence in disk
  - Cuzzi et al. (2001): A theory paper studying concentration of chondrule-sized particles between small turbulent eddies (see also Figures 2 and 3 of Pan et al. 2011 for a visual representation of this process from a simualtion). The authors suggest this process could lead to planetesimal formation.
  - Pinte et al. (2016): By using a model for the HL Tau disk, the authors study dust settling in the HL Tau disk. Readers may skip Section 5.
- Particle sticking
  - Wada et al. (2009): The authors use particle simulations to study sticking and fragmentation of colliding dust aggregates.
  - Blum & Wurm (2000): An experimental work on the stickiness of aggregates made of micron-sized silica (SiO_2) particles. Comparison with theory is also presented.

  - Kudo et al. (2002): An experimental study on the viscoelastic properties of organic matter. A possibly scenario for planetesimal/asteroid formation is also presented.

- Planetesimal formation (and its problems)
  - Goldreich & Ward (1973): A theory paper proposing planetesimal formation via gravitational instability.
  - Sekiya (1998): theoretical work investigating how turbulence suppresses the gravitational instability of a dust layer.
  - Carrera et al. (2015): The authors carry out hydrodynamic simulations to study under what conditions dense particle clumps form through the streaming instability. Once formed, the dense clumps would then collapse and form planetesimals by their own gravity (which is not included in the simulations).
  - Okuzumi et al. (2012): A paper studying how dust aggregates grow and radially drift in a protoplanetary disk. Their simulation shows that "fluffy" (extremely low-density) aggregates can grow faster than they fall toward the central star.

- Snow lines
  - Ros & Johansen (2013): This paper proposes a new mechanism for dust growth: ice condensation behind the snow line.
  - Sato et al. (2016): Models suggest that water at 1 au in the solar nebula should have existed as ice in a late stage of nebula evolution. This paper discusses how our "dry" Earth could have formed in such an environment.
  - Morbidelli et al. (2016): This paper proposes that the proto-Jupiter formed early in the solar nebula and stoped icy particles from falling to the inner region of the nebula.

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