Astrophysics Seminar

Monday, November 13, 2017

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Observing the Evolution of Solids in Protoplanetary Disks

The canonical model for the formation of terrestrial planets and giant planet cores relies on an early and very efficient phase of planetesimal growth in a gas-rich circumstellar disk. But, as theorists have known for decades now, there are some formidable obstacles to meeting that requirement. Many of these problems, and potentially their solutions, are associated with the growth and migration of "pebbles" (mm/cm-sized particles) in the first few million years of a disk's lifetime. That is fortuitous, since the continuum emission from these particles in nearby disks can be readily detected and resolved with long-baseline radio interferometers (e.g., ALMA, VLA). In this talk, I will describe what we are learning about the evolution of solids from such data, including: (1) the signatures of particle growth and migration; and (2) the mounting evidence that small-scale substructures in the (gas) disk play fundamental - and perhaps mandatory - roles in the planet formation process.

3:30pm in CAS 502. *Refreshments served at 3:15pm in CAS 500.*

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Next Week

No Seminar