



**ASTROPHYSICS
SEMINAR SERIES**

"Tracking Planet Footprints in Dusty Disks"

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Monday, March 18, 2013
Refreshments at 3:30pm in CAS 500
Talk begins at 4:00pm in CAS 502

Abstract:

We know that most stars, if not all, were once surrounded by protoplanetary disks. How these young disks evolve into planetary systems is a fundamental question in astronomy. It is widely accepted that dust grain growth is the first step in creating the planetesimals that amalgamate into planets. Theoretical simulations then predict that a young, forming planet will clear the material around itself, leaving behind an observational signature in the form of a gap in the disk. I have identified a new class of disks that have gaps using Spitzer and ground-based infrared observations. These gapped disks are the strongest evidence for disk clearing by planets, making these disks the precursors of the exoplanet systems that have been detected to date. I will present this evidence and outline current and future research with Herschel, DCT, ALMA, and the next generation of telescopes, aiming to discover the earliest signs of planet formation in large populations of young disks. These observations will provide a far more complete and quantitative view of protoplanetary systems in the first million years after a star is formed.