



At the site of the Atacama Large Millimeter Array at 5000 meters altitude on the Altiplano de Chajnantor in northern Chile.

2017 Spitzer Lecturer

David Wilner

Harvard CfA

Colloquium

Tuesday, May 9, 2017 • 11:00-12:00

Peyton Hall Auditorium

followed by Bahcall Lunch, Joseph Henry Room Jadwin Hall

New Views of Debris Disks: Millimeter Emission from Dust and Gas

At least 20% of nearby main sequence stars are surrounded by disks of dusty material attributed to the collisional erosion of planetesimals, similar to comets in our Solar System. Since these dust-producing planetesimals can persist only in stable regions like belts and resonances, the locations, morphologies, and physical properties of dust in these "debris disks" provide probes of planetary system architecture and evolution. Observations at millimeter wavelengths offer a unique window, since the large grains that dominate emission at these long wavelengths trace reliably the underlying planetesimals, unlike the small grains seen in the optical that are rapidly redistributed by stellar radiation and winds. In this talk, I will present recent results on some of the most nearby debris disks that take advantage of the capabilities now available with Atacama Large Millimeter/submillimeter Array (ALMA) together with other radio interferometers. In particular, I will discuss tests of the collisional models of planetesimals, and the imaging of features that may relate to the presence of unseen planets.

Lecture 1

Wednesday, May 3

4:30-5:30

Peyton Hall Auditorium

New Views of Planet-
Forming Disks:
Millimeter Emission
from Solids

Lecture 2

Monday, May 8

3:00- 4:00

Peyton Hall Auditorium

New Views of Planet-
Forming Disks:
Millimeter Emission
from Molecules

Lecture 3

Wednesday, May 10

2:00-3:00

Peyton Hall Auditorium

Millimeter
Interferometry:
Progress and
Prospects