
Astrochemical modeling of protoplanetary disks and new challenges from high resolution observations

Ilse Cleeves*¹

¹Harvard-Smithsonian Center for Astrophysics (CFA) – 60 Garden Street, Cambridge, MA 02138,
United States

Abstract

Protoplanetary disks exhibit rich diversity in their physical structure as traced by dust, including gaps, asymmetries, and now fine rings. More recently, advances in sensitivity with the Atacama Large Millimeter/Submillimeter Array have uncovered equally rich structure in the molecular composition of disks, including symmetric and asymmetric features, vertically layered structure, and more. These new observations offer a unique opportunity to probe compositional properties across vastly different environments within a single source, from the icy midplane to the warm surface, and the optically shielded dense material to the irradiated layers. In this talk, I will review recent results regarding the molecular inventory of disks with ALMA, and how these efforts are uncovering new challenges for chemical models, including the impact of differential evolution of gas and ice-coated dust.

*Speaker