

Astrophysics Seminar

Monday, November 23, 2015

The Chemistry of Planet Formation

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Abstract:

Planets form from dust and gas in disks around young stars. The chemical composition and structures of these disks regulate planet formation efficiencies, bulk planet compositions (including their C/O ratio), and the volatile and organic content of nascent planets. Understanding disk chemical structures and inventories is therefore key to constrain planet formation and planet habitability. This talk will focus on three aspects of disk chemistry: snowlines or condensation fronts of major volatiles, disk organic chemistry, and isotopic tagging of volatiles. In the age of ALMA we can observe this chemistry on Solar System scales and the results are spectacular; recent highlights include observations of snowlines, intricate chemical ring structures that trace temperature- and radiation-regulated isotopologue chemistry, and the detection of the first complex organic molecule in a disk. I will discuss these new findings in light of Solar System observations, laboratory experiments on ice chemistry and physics, and theoretical studies on the chemistry and dynamics of volatiles in planet-forming disks.

3:15 pm

Refreshments
CAS Room 500

3:30 pm

Seminar
CAS Room 502

Next Week

- *Ryan Hickox*
Dartmouth College
- TBD

