# ISOTOPE FRACTIONATION IN PROTOPLANETARY DISKS AND COMETS

A. J. MARKWICK[a], *Space Science Division, NASA Ames Research Center, MS 245-3, Moffett Field, CA 94035, USA. ajm@ajmarkwick.com.*

New models of the chemistry occurring in protoplanetary disks similar to the protosolar nebula will be described. These models determine the spatial distribution of molecules in the inner 100 AU of the disk, thereby including the 5-40 AU comet-forming region. The chemistry and abundances of isotopically fractionated species, including multiply deuterated species like $D_2CO$ and $D_2O$, will be discussed in the light of future observations of comets. Any significant chemical variations between the long and short-period comet families will also be reported.

[a]NRC Resident Research Associate