



# *The Thursday Thing*

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## Interstellar and Cometary Ices

IR & radio astronomy play an important part in astrophysics. Ground and space based observers have identified several molecules in both the gas and solid phases. These molecules are found in a wide variety of environments such as the interstellar medium, young stellar objects and molecular clouds. The abundances of atoms and molecules in gas and solid phases are found to differ significantly in each of these environments.

Silicate grains acting as a core can grow an ice mantle in these environments. Water, CO, CO<sub>2</sub> are typical components of the grain mantles. It is suspected that a significant fraction of the interstellar O<sub>2</sub> and N<sub>2</sub> is condensed on these grains. However observations are difficult as both O<sub>2</sub> and N<sub>2</sub> are IR inactive under normal circumstances.

Ice grains have been found to play an important role in various chemical reactions, most notably the production on molecular hydrogen. Processing of space ices arises primarily from UV & cosmic ray radiation, from thermal annealing and from surface reactions with the local gas. It is possible to study some of these effects in the lab under vacuum cryogenic conditions.

In addition, with the passing of the comets Halley, Hyakutake and Hale-Bopp, researchers have had the opportunity to study the composition on cometary ices. Comparisons with interstellar ices are one avenue of current research.

My talk is aimed at giving the audience an overview on some of the current work in this field.

Date: Thursday, May 24, 2001

Place: MacNaughton 222

Time: 12:30 p.m.

**Cookies will be served. Don't forget your lunch.**