

Desorption of molecules from grain mantles

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Abstract. As a pre-requisite to returning to their molecular inventory to the gas phase, icy grain mantles must desorb from the refractory core material of the grain. This desorption process can be instigated through interactions with photons or cosmic rays but can equally well be thermally driven. In this invited paper, the application of thermal desorption techniques borrowed from ultrahigh vacuum surface science to problems of astronomical interest will be discussed. The experimental methods employed by surface scientists to probe thermal desorption processes will be described and the analysis of the resulting empirical data outlined. The results of recent laboratory measurements from a number of groups will be highlighted.

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