

Chemical Differentiation in Dense Cloud Cores

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Abstract. Dense dark clouds are expected to show substantial chemical differentiation, as molecular ices are continually being formed and destroyed on time-scales determined by the dynamical evolution. Theory predicts that the chemistry in these regions is permanently out of steady state, as embedded protostars disturb the parental molecular cloud. In the data we present here, taken towards a small sample of dense cloud cores, we demonstrate that a high degree of chemical differentiation is present in all of the observed cores. The dense cores have been extensively mapped in HC₃N, CH₃OH, SO and C¹⁸O, and we discuss the significance of the detected abundance anti-correlations.

Keywords. astrochemistry; stars: formation;
