PROBING GAS PHASE CHEMISTRY ABOVE ICE SURFACES WITH MILLIMETER/SUBMILLIMETER SPECTROSCOPY

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Chemical reactions involving the icy mantles of interstellar dust grains have been invoked in astrochemical models to explain the formation of complex organic molecules in interstellar clouds. Interstellar ices can act as a substrate to encourage reactions in three ways: reactions within the bulk ice, reactions between mobile species on the ice surface, or gas-phase reactions that are initiated by thermal desorption or photodesorption of the ice. We are building a new experiment that uses millimeter/submillimeter absorption spectroscopy to probe the gas-phase chemistry directly above the ice surface during thermal- or photo-processing. We will present the experimental design and preliminary results for pure water ices and water+ methanol ice mixtures.