

## Protonated Molecules at the Ice Surface: Implication for the Formation of Polyatomic Ions in Interstellar Clouds

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UV irradiation of water-ice films at low temperature (50-130 K) induces protonation of methylamine molecules adsorbed on the ice surface. This solid-phase protonation is explained by the photogeneration of long-lived protonic defects in ice, proton transfer to the adsorbate molecules, and kinetic stabilization of the protonated ions. Facile occurrence of this process in the low-temperature environment suggests that it may play an important role in producing polyatomic ions in interstellar space through grain surface reactions.

[ref.] C.-W. Lee et al., *J. Chem. Phys.* **127**, 084701 (2007).