

## UV Photolysis of Planetary-Type Ices

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Significant chemical and physical information about icy planets and satellites can be realized from their observation at near-infrared wavelengths. Work in the literature, often utilizing comparisons between the observed data and near-IR laboratory reflectance spectra of single-component unprocessed ices, has deduced the general composition of some icy surfaces. These single-component, unprocessed ice laboratory analogs do not represent a realistic analog of an icy surface's photochemical environment. Moreover, the literature to date has never included in these spectral comparisons, the spectrum of a UV photolyzed ice or ice mixture. An icy surface in the Solar System is subject to a variety of forms of energetic processing, and one of the most influential is the flux of Solar UV photons. At the University of Alabama at Birmingham (UAB), we are equipped to create samples of UV photolyzed ices and obtain their near-IR spectra. We present recent efforts to produced highly processed planetary-type ices. The spectra will provide fundamental data with which near-IR observations (e.g., from spacecraft instruments such as Galileo NIMS, Cassini VIMS, HST NICMOS, or JWST, or ground-based telescope instruments such as NIRSPEC on Keck or SpeX on the IRTF) may be compared.