INFRARED SPECTRAL STUDIES OF THE THERMALLY-DRIVEN CHEMISTRY PRESENT ON ICY SATELLITES

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Remote sensing of Jupiters icy satellites has revealed that even though their surfaces are composed mostly of water ice, molecules such as SO_2, CO_2, H_2O_2, O_2, and O_3 also are present. On Europa, a high radiation flux is believed to play a role in the formation of many of the minor species detected, and numerous laboratory studies have been devoted to explore this hypothesis. In this presentation we will discuss some of our recent research on another alteration pathway, thermally-driven chemical reactions, which are also important for understanding the chemical evolution of Europa's surface and sub-surface ices. We will focus on the infrared spectra of and reactions between H_2O, SO_2, and H_2O_2 at 80 - 130 K.