PROBING THE NATIVE SURFACE MODES OF ICE (Ih)

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The structure of the Sum Frequency Generation spectrum of the native surface of ice, in particular the *ppp* polarization combination will be discussed. The detailed structure of the spectrum allows the correlation of the SFG bands to the molecular motion of the ice surface. The bands seem to arise from strongly coupled global stretch vibrations, which explains their large oscillator strength. The quality of the SFG spectrum, in particular the *ppp* combination, is strongly affected by the quality and crystallinity of the ice surface. The samples on which the spectra were taken were cut from single domain ice samples of 3 in^3 in size. The cryptomorphological crystal growth methodology and subsequent characterization techniques prior to SFG interrogation will be described. Investigation of the degree of coupling between the oscillators by isotopic dilution is in progress.