DEVELOPMENT OF A SUPERSONIC EXPENSION SOURCE FOR HIGH-RESOLUTION INFRARED SPECTROSCOPY OF ISOPRENE

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Isoprene (C_5H_8) is a biogenic volatile organic compound (BVOC) found abundantly in our atmosphere. It is produced by plants and reacts in the atmosphere which leads to the production of aerosols and ozone. Previous spectra taken by our group have shown that, at room temperature, the infrared spectrum of isoprene is congested and difficult to assign, in part due to hot bands. We are currently building a supersonic expansion source that will allow us to cool the isoprene sample to a temperature of around 20 - 30 K. Lowering the temperature of the gas will eliminate hot bands and produce much clearer, less congested spectra. This will allow for a better understanding of isoprene's fundamental properties through spectral analysis. During this talk we will discuss the progress of the experiment and present preliminary spectra if available.