INFRARED ABSORPTION CROSS SECTIONS OF HYDROCARBONS

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Absorption cross sections for a range of small hydrocarbons, from C2-C4, in the far and mid IR spectral regions are presented. Cross sections were obtained from high resolution spectra recorded at cold temperatures from experiments performed at two synchrotron facilities: the Australian Synchrotron (AS) and the Canadian Light Source (CLS), as well as at Old Dominion University (ODU). The experimental conditions that were sampled (pressure, composition and temperature) were chosen to mimic those found in the planetary atmospheres of Titan, Saturn and Jupiter. These cross sections can be used to determine molecular abundances from remote sensing observations.