

INFRARED SPECTRA OF C₂H₂, C₂H₄, AND CH₃Cl AT PLANETARY ATMOSPHERIC TEMPERATURES

CHENGBO SUN, QUNJUN ZOU, YOU-KYOUNG CHUNG, PRASAD VARANASI, *Institute for Terrestrial and Planetary Atmospheres State University of New York at Stony Brook Stony Brook, NY11794-5000*
Email: pvaranasi@notes.cc.sunysb.edu.

We have measured the absolute intensities as well as H₂-, N₂- and He- broadened half-widths of lines in the P- and R- branches of the ν_5 - fundamental and hot bands of C₂H₂ at temperatures between 149K and 296K employing a Fourier-Transform-Spectrometer with spectral resolution as high as 0.0016 cm⁻¹. Our intensity values are about 10 percent larger than those in the HITRAN database. THE broadening coefficients are in good agreement with results of Bouanich etal (at 296K and 177K) and Dana etal (at room temperature). Intensity and self-broadening coefficients of hundreds of lines of CH₃Cl in the 670-770cm⁻¹ region have been measured at temperatures 296, 243 and 203 K. Comparison with the existing data banks was made upon line intensities. Measurements of lines of C₂H₄ were performed in 850-1100 cm⁻¹ spectral region. We present a preliminary set of results.