

PROGRESS IN THE KNOWLEDGE OF C₂H₂ SPECTROSCOPIC PARAMETERS IN THE IR

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The acetylene molecule is important for atmospheric, planetary, and astrophysics applications. In order to improve the knowledge of C₂H₂, systematic measurements of line parameters have been performed. Two main spectral regions have been studied in this work. First, in the 13.6- μm region, line intensities were revisited for the ν_5 band and determined for some hot bands, allowing us to update the HITRAN database. Second, in the 5- μm region, numerous line parameters, including positions, intensities, self-broadening coefficients, and self-shifting coefficients of lines belonging to 18 bands were measured for the first time. Intensities were also measured for some new lines in the 4.5- μm region, and a good agreement was observed between previous measurements. Concerning the 3- μm region, where two cold bands were already analyzed for positions and intensities, but where the intensities of numerous hot lines are missing in HITRAN, a study is in progress, and preliminary results will be presented.