ABSOLUTE LINE INTENSITIES FOR THE ν_6 BAND OF H_2O_2

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The purpose of this work was to obtain reliable absolute intensities for the ν_6 band of H_2O_2. This work was undertaken because strong discrepancies exist between the different ν_6 band intensities which are presently available in the literature [a] [b].

The method which was used in the present work is to use Fourier transform spectra of H_2O_2 recorded at Giessen in a spectral range (370-1270cm^{-1}) which covers both the R-branch of the torsion-rotation band at low wavenumber and the P-branch of the ν_6 band at high wavenumber.

- From the low wavenumber data, the partial pressure of H_2O_2 present in the cell during the recording of the spectra was determined by calibrating the observed absorptions in the torsion-rotation band with intensities computed [c] by using the permanent H_2O_2 dipole moment measured by Stark effect [d].
- In the high frequency range, this value of the partial pressure of H_2O_2 was used to measure absolute line intensities in the ν_6 band.

Finally, the line intensities in the ν_6 band were fitted using the theoretical methods described in detail in our previous works [a,c].

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[a] A. Perrin, A. Valentin, J.-M. Flaud, C. Camy-Peyret, L. Schriver, A. Schriver, and Ph. Arcas, J. Mol. Spectrosc. 171, 358 (1995).

[b] R. May, J. Quant. Radiat. Transfer. 45, 267 (1991).

[c] A. Perrin, J.-M. Flaud, C. Camy-Peyret, R. Schermaul, M. Winnewisser, J. Y. Mandin, V. Dana, M. Badaoui, and J. Koput, J. Mol. Spectrosc. 176, 287 (1996).

[d] E.A. Cohen, and H.M. Pickett, J. Mol. Spectrosc. 87, 582 (1981).