LINE INTENSITIES FOR THE 10 μm BANDS OF SO_2

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Using both high resolution ($R = 0.003$ cm^{-1}) and medium resolution ($R = 0.12$ cm^{-1}) Fourier transform spectra recorded at LPMA Orsay and Kitt Peak, and at NIST Gaithersburg respectively, it has been possible to measure a large set of individual line intensities for the ν_1 and ν_3 bands of SO_2 in the 950—1350 cm^{-1} spectral region. These intensities were introduced in a least squares fit calculation allowing one to get the expansion of the transition moment operator of the ν_1 and ν_3 bands of SO_2. For these intensities calculations, the theoretical model takes into account the vibration-rotation interactions linking the upper levels involved in the ν_1, $2\nu_2$ and ν_3 interacting bands of SO_2. Finally a synthetic spectrum of the 10 μm bands of SO_2 has been generated, using for the line intensities the dipole moment expansion determined in this work and for the line positions the parameters and the Hamiltonian matrix given in a previous analysis [J.-M. Flaud, A. Perrin, L. M. Salah, W. J. Lafferty and G. Guelachvili, J. Mol. Spectrosc. 160, 272—278 (1993)].