THE ν_1 AND ν_6 BANDS OF DIIODOMETHANE, CH_2I_2, AROUND 3.3 MICRONS STUDIED BY HIGH-RESOLUTION FOURIER-TRANSFORM SPECTROSCOPY

J. ORPHAL, N. IBRAHIM, *Laboratoire Interuniversitaire des Systémes Atmosphériques (LISA), CNRS UMR 7583, Université de Paris-XII, 91405 Créteil Cedex, France*; C. E. FELLOWS, *Laboratório de Espectroscopia e Laser, Instituto de Física, Universidade Federal Fluminense, Niterói, Rio de Janeiro, Brazil*.

Diiodomethane, CH_2I_2, is an important molecule in marine photochemistry. CH_2I_2 is produced by algae[1] and its photolysis is a source for tropospheric iodine which is very reactive towards other organic species and ozone; it is also an important source for marine particle formation[2]. CH_2I_2 is a rather heavy molecule and has low-lying vibrational modes, leading to a very dense spectrum. Its ground[3] and first excited[4] vibrational states have been studied in the past using Fourier-transform microwave spectroscopy. Very recently, quantitative infrared absorption spectra of CH_2I_2 were recorded at a spectral resolution of 0.1 cm^{-1} as part of the PNNL database of gas-phase infrared spectra.[5]

In this paper we present the first high-resolution spectra of the ν_1 and ν_6 bands of CH_2I_2 in the 3.3 μm region, recorded with a Bruker IFS-120 HR Fourier-transform spectrometer, using CH_2I_2 at its saturated vapour pressure at room temperature, with an absorption path of 300 cm and a spectral resolution of 0.002 cm^{-1}.

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