

THE ν_1 AND ν_6 BANDS OF DIIODOMETHANE, CH₂I₂, AROUND 3.3 MICRONS STUDIED BY HIGH-RESOLUTION FOURIER-TRANSFORM SPECTROSCOPY

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Diiodomethane, CH₂I₂, is an important molecule in marine photochemistry. CH₂I₂ is produced by algae¹ 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 formation². CH₂I₂ is a rather heavy molecule and has low-lying vibrational modes, leading to a very dense spectrum. Its ground³ and first excited⁴ vibrational states have been studied in the past using Fourier-transform microwave spectroscopy. Very recently, quantitative infrared absorption spectra of CH₂I₂ 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 CH₂I₂ in the 3.3 μm region, recorded with a Bruker IFS-120 HR Fourier-transform spectrometer, using CH₂I₂ 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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