

THE INFRARED SPECTRUM OF THE $^{10}\text{B}_2\text{H}_6$ BANDS IN THE BRIDGE B-H STRETCHING REGION

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We have been studying the spectrum of the ν_{13} region of $^{10}\text{B}_2\text{H}_6$ around $5\ \mu\text{m}$ using high resolution Fourier transformed spectra of a pure isotopic sample. The ν_{13} band, arising from the bridge-hydrogen stretching vibration, is highly perturbed by numerous nearby lying combination levels. At this point we have performed an almost complete assignment of the ν_{13} fundamental as well as the much stronger combination band, $\nu_9 + \nu_{15}$, and the $\nu_9 + \nu_{15}$ band. The energy level fitting has proven to be very difficult. At the present stage six interacting states are included, including the three bright states 13^1 , $5^1 1^5$ and $9^1 15^1$ and three dark states $7^1 14^1$, $4^1 18^1$ and $3^1 5^1$. The observed energy levels are calculated in a satisfactory way but not to within the experimental accuracy (about $0.0002\ \text{cm}^{-1}$). We hope to present a complete analysis including interaction constants between the resonating states.