COLOR-CENTER LASER SPECTRUM OF THIOPHENE
OBSERVED WITH THE PULSED SUPERSONIC JET EXPANSION TECHNIQUE

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The high resolution infrared spectrum of thiophene in the CH-stretch region (3070-3140 cm^{-1}) has been observed with a color-center laser spectrometer combined with a pulsed supersonic jet expandion technique. Of 4 fundamental bands (a_1;ν_1, ν_2, b_1; ν_{12}, ν_{13}) expected in this region, the ν_2 band was analyzed to the confirmation of previous vibrational assignment. [a] [b] The rotational constants and band origin were derived from the observed spectra while the ground state constants were fixed at the microwave values. [c] The ν_2 band was found to be overlapped by an a_1 vibrational band, which is denoted as ν_x. The ν_x band presumably borrows the intensity from the ν_2 band by Fermi resonance. The vibrational assignment of ν_x is not get clear, but the magnitude of the interaction between the ν_2 and ν_x states is calculated to be 0.8 cm^{-1} from the analysis of the intensity ratio of these bands.

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