

SYNCHROTRON-BASED HIGH RESOLUTION FAR INFRARED SPECTROSCOPY OF BENZALDEHYDE

YUE LIANG, ZENGKUI LIU, JIARUI MA, YICHI ZHANG, HAIHUA ZHOU, ZIQIU CHEN, *College of Chemistry and Chemical Engineering, Lanzhou University, Lanzhou, Gansu, China*; CSABA FÁBRI, *Laboratory of Molecular Structure and Dynamics, Eötvös University, Budapest, Hungary*; BRANT E. BILLINGHURST, JIANBAO ZHAO, *EFD, Canadian Light Source Inc., Saskatoon, Saskatchewan, Canada*.

The rotationally-resolved vibrational spectra of benzaldehyde have been recorded in the far infrared region at room temperature using the Bruker IFS125 Fourier Transform spectrometer at the Canadian Light Source with a resolution of 0.000959 cm^{-1} . The lowest frequency vibrational bands collected correspond to the fundamental and hotbands of the -CHO torsion at 110 cm^{-1} . The assignment and analysis of the dense spectral features in this region will be detailed. In addition, the newly obtained band origin of the -CHO torsional fundamental will be compared to *ab initio* results in relation to the discrepancy^a between theoretical and experimental values of the potential barrier to internal rotation in this molecule.

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