FIRST RESULTS FROM THE FAR INFRARED BEAMLINE AT THE CANADIAN LIGHT SOURCE: HIGH RESOLUTION ANALYSIS OF ACROLEIN IN THE 600 CM^{-1} REGION

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Synchrotron radiation from the new Canadian Light Source facility has been used to obtain a high resolution (0.0012 cm^{-1}) absorption spectrum of acrolein, CH_2CHCHO, in the 550-660 cm^{-1}region. Almost 2000 transitions have been included in a detailed analysis of the ν_{12} ($\sim$564 cm^{-1}) and ν_{17} ($\sim$593 cm^{-1}) fundamental bands to obtain precise values for the band origins, rotational and centrifugal distortion parameters. The analysis included the a- and b-type Coriolis interactions connecting ν_{12} and ν_{17}, as well as an a-type Coriolis interaction between ν_{17} and a "dark" perturbing state, identified as $4\nu_{18}$. We believe that this is the first high resolution infrared study of acrolein.