

THE ROVIBRATIONAL SPECTRUM OF THE RING PUCKERING AND NH BENDING MODES OF AZETIDINE

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High quality infrared spectra of the two lowest frequency modes of azetidine ($c\text{-C}_3\text{H}_6\text{NH}$) have been recorded between 100 and 700 cm^{-1} using the far infrared beamline at the Canadian Light Source in Saskatoon. The far infrared endstation couples highly spatially confined synchrotron light into a Bruker IFS125HR Fourier transform spectrometer and can achieve spectral resolution up to 0.000959 cm^{-1} . The observed modes correspond to the ring puckering mode (ν_{16}) at 207.2 cm^{-1} and the N-H bending mode (ν_{15}) at 648.2 cm^{-1} . Rotational analysis of the ring puckering mode confirmed our *ab initio* prediction that the band structure is governed by *a*-type selection rules rather than *c*-type transitions as reported for oxetane.^a The results of the rovibrational analysis of both bands will be presented and comparisons will be made between the synchrotron spectra and those collected using a conventional global source.

^aM. Winnewisser, M. Kunzmann, M. Lock, and B. P. Winnewisser, *J. Mol. Struct.* 561, 1 (2001).