

SYNCHROTRON BASED FOURIER TRANSFORM FAR-INFRARED SPECTROSCOPY OF CH₃NO₂

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As a slightly asymmetric top molecule ($\kappa = 0.25$) with both a free internal rotor and a methyl group, CH₃NO₂ is a benchmark system for studies of torsional motion in a 6-fold potential and of the coupling between a large amplitude vibration and other small-amplitude vibrations. For this purpose, rotationally resolved infrared spectra of CH₃NO₂, have been recorded using the Far-Infrared beamline at the Canadian Light Source, which is equipped with a high resolution Bruker IFS 125HR spectrometer. The observed infrared spectra, in the range 550-1000cm⁻¹, are the average of 300 interferometer scans collected at a nominal resolution of 0.00096cm⁻¹. Two a-type bands, centered at 657.08cm⁻¹ for NO symmetric bend and at 917.99cm⁻¹ for CN-stretch, have been measured. The initial analysis of a number of torsional states is currently being carried out and the progress will be reported in this talk.