GLOBAL FIT OF O-FLUOROTOLUENE TORSIONAL STATES FROM WAVEGUIDE CP-FTMW SPECTROSCOPY

J. H. WESTERFIELD, STEVEN SHIPMAN, *Department of Chemistry, New College of Florida, Sarasota, FL, USA*.

The microwave spectrum of o-fluorotuene has been investigated at -12 °C from 8.7-26.5 GHz with waveguide chirped-pulse Fourier transform microwave spectroscopy (CP-FTMW). This molecule has a measured V_3 barrier of 238.3 cm^{-1}. The low barrier height resulted in some challenges when fitting the excited states in XIAM. This work improves on our previous fit by extending into the 18-26.5 GHz frequency range and by switching to use the RAM36 fitting software instead. Based on newly collected data and our previous assignments of excited torsional states, a global fit of the ground and first two excited states has been conducted in RAM36. Additionally, scans were taken at 3 °C, 19 °C, and 35 °C to increase the population of the excited torsional modes. Details of the fit including improvements from previous work will be discussed in the talk.