SUBMILLIMETER ROTATIONAL SPECTRA OF METHYL NITRATE

BRIAN J. DROUIN, XU ZHANG, *Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA 91109-8099*; G. BARNEY ELLISON, *Department of Chemistry, University of Colorado, Boulder, CO 80302*.

Methyl nitrate is the simplest organic nitrate and subsequently the most important organic nitrate in atmospheric processes. The microwave spectrum has been previously exploited for structure and barrier determinations, but rotationally resolved spectra have not been reported above 40 GHz. We have recorded 40 GHz of continuous spectra from 400-440 GHz, essentially doubling the frequency coverage, and dramatically increasing the quantum number range of the data set. Even though the gas was cooled to 200 K there remain numerous satellite features that are readily assignable to the torsional modes using a Loomis-Woods procedure. We will present the experiment and analysis in the context of current theory and new infrared studies.