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Rotational Spectroscopy of the Excited States of Nitric Acid¹ PAUL HELMINGER, University of South Alabama, DOUGLAS T. PETKIE, Wright State University, IVAN MEDVEDEV, ATSUKO MAEDA, FRANK C. DE LUCIA, Ohio State University — Because it is an important molecular species in the ozone cycle in the upper atmosphere, nitric acid (HNO3) has been the subject of many studies in both the infrared and in the microwave region of the spectrum. Our microwave studies of the rotational spectrum of nitric acid now includes work on all of the excited states below 1200 cm-1 in energy as well a few states at higher energy, such as the v2 state at 1700 cm-1. Microwave studies of the rotational spectrum of HNO3 in excited vibration states contribute both to a better understanding of this fundamental molecule and to the construction of accurate spectral maps for infrared remote sensing. An overview of our studies of the rotational spectroscopy of the excited states will be presented, including our observation of torsion splitting in a number of states. Our recent progress on the assignment and analysis of transitions other states will also be presented.

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Paul Helminger University of South Alabama

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