THE SUB-MILLIMETERWAVE ROTATIONAL SPECTRUM OF SULFURIC ACID

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Sulfuric acid is a near spherical top molecule with $\kappa = 0.027$. The species is non-volatile at room temperature, and its corrosive nature increases with temperature, consequently, gas phase spectra have only been reported in two sources[a,b]. New spectra of sulfuric acid have been recorded up to 650 GHz with the JPL millimeter and sub-millimeter wave spectrometer. Assignments up to $J = 64$ include a full range of K. Data are consistent with a semi-rigid asymmetric top with C_2 symmetry. A prolate or oblate basis with either the symmetric or asymmetric reduction describe the observed spectra well. Each model requires centrifugal distortion constants to eighth order. Comparisons of the various Hamiltonian models are made.

[a] R. L. Kuczkowski, R. D. Suenram, F. J. Lovas *J. Am. Chem. Soc.* **103**(10), 2561-2566, 1981
[b] D. L. Fiacco, S. W. Hunt, K. R. Leopold *J. Am. Chem. Soc.* **124**(16), 4504-4511, 2002