THE ROTATIONAL SPECTRUM OF HOOOH IN THE GAS PHASE

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Dihydrogen trioxide, HOOOH, which is a species with fundamental importance for understanding the chain formation ability of the oxygen atom, was detected in a supersonic jet by a Fourier transform microwave spectrometer with a pulsed discharge nozzle, together with double-resonance and triple-resonance techniques. Its precise molecular structure was determined from the experimentally determined rotational constants of HOOOH and its isotopomer, DOOOD. Many of the microwave and millimeter wave transitions can now be accurately predicted, which could be facilitated for remote sensing of the molecule to elucidate its roles in various chemical processes.