ROTATIONAL SPECTRA OF CYCLOPENTADIENYLTUNGSTEN TRICARBONYL HYDRIDE COMPLEX USING PULSE BEAM FOURIER TRANSFORM MICROWAVE SPECTROMETER[a]

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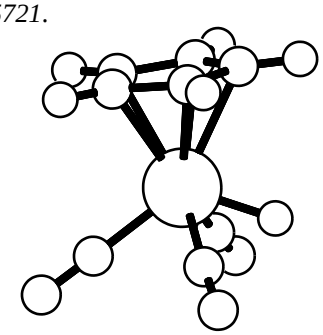
Transition metal carbonyl hydride complexes based on tungsten or molybdenum have recently been explored as possible agents for hydrogenation catalysts. This is the first measurement of rotational spectra for a tungsten hydride complex. The asymmetric-top spectra for the four tungsten isotopomers of cyclopentadienyltungsten tricarbonyl hydride complex were measured in the frequency range of 5-12 GHz using a Flygare-Balle type of spectrometer. The spectra have been assigned and rotational parameters have been derived from the least-squares fits. The preliminary fit results suggest that the complex behaves nearly like a rigid rotor. The work is in progress to obtain spectra for more isotopic species to solve the gas phase structure and obtain the hydrogen bond length of this complex.



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