INFRARED SPECTRA OF TWO ISOMERS OF THE OCS-C_2H_2 AND OCS-C_2D_2

MAHIN AFSHARI, M. DEHGHANY, J. N. OLIAEE, N. MOAZZEN-AHMADI, *Department of Physics and Astronomy, University of Calgary, Calgary, AB T2N 1N4, Canada*; A.R.W. MCKELLAR, *Steacie Institute for Molecular Sciences, National Research Council of Canada, Ottawa, ON K1A 0R6, Canada*.

Spectra of the weakly-bound OCS-C_2H_2 and OCS-C_2D_2 complexes in the region of the OCS ν_1 fundamental ($\sim$2062 cm^{-1}) are observed in a pulsed supersonic slit jet expansion probed with a tunable diode laser. For each complex two bands are observed and assigned to the near parallel and the T-shape isomers. The ground state rotational and centrifugal distortion parameters were previousely determined from microwave studies.[a] [b] Analysis of the infrared spectra gives accurate band origins as well as rotational and centrifugal distortion parameters for the upper states. All four bands show a red shift with respect to the monomer band origin, with the T-shape isomers having about 5.4 cm^{-1}larger shift than the corresponding near parallel isomers.

[a] S.A. Peebles and R.L. Kuczkowski, *J. Phys. Chem. A* **103**, 3884 (1999).
[b] S.A. Peebles and R.L. Kuczkowski, *Chem. Phys. Lett.* **312**, 357 (1999).