

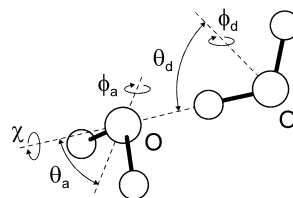
<b>274</b>	<b>H<sub>4</sub>O<sub>2</sub></b>	<b>Water dimer</b>	<b>C<sub>s</sub></b>
MW, Far IR		(weakly bound complex)	(effective symmetry class)
			(large-amplitude motion)
			(H <sub>2</sub> O) <sub>2</sub>

Information was obtained on two of the three major tunneling processes found in the water dimer: the tunneling interchange of the two protons/deuterons on the proton-acceptor subunit and the tunneling interchange of the two protons/deuterons on the proton-donor subunit.

Fraser, G.T., Lovas, F.J., Suenram, R.D., Karyakin, E.N., Grushow, A., Burns, W.A., Leopold, K.R.: J. Mol. Spectrosc. **181** (1997) 229.

MW

Vibration-rotation-tunneling (VRT) spectra were observed in terahertz region. Strong coupling is indicated between the low barrier tunneling motions and the intermolecular vibrations as well as among different vibrations. The vibrationally averaged water dimer structure is shown in the figure; an accepted set of structural parameters is O...O = 2.94 Å,  $\theta_a = 41^\circ$ ,  $\theta_d = 58^\circ$ ,  $\phi_a = 90^\circ$ ,  $\phi_d = 0^\circ$ , and  $\chi = 180^\circ$ .



Braly, L.B., Cruzan, J.D., Liu, K., Fellers, R.S., Saykally, R.J.: J. Chem. Phys. **112** (2000) 10293 [(D<sub>2</sub>O)<sub>2</sub>].

Braly, L.B., Liu, K., Brown, M.G., Keutsch, F.N., Fellers, R.S., Saykally, R.J.: J. Chem. Phys. **112** (2000) 10314 [(H<sub>2</sub>O)<sub>2</sub>].

[II/25A\(2, 752\)](#)