



Fig. S1: Experimental spectra of the ethanol dimer. In the He-backed expansion all three previously measured conformers are present, while in the Ar-backed expansion only G2G(O) is present. This indicates that G2G(O) is the ground state structure.

Peak assignments are from:

Hearn, J. P. I., Cobley, R. V., & Howard, B. J. (2005). High-resolution spectroscopy of induced chiral dimers: A study of the dimers of ethanol by Fourier transform microwave spectroscopy. *The Journal of Chemical Physics*, 123(13), 134324.