THE HIGH RESOLUTION $S_1 \leftarrow S_0$ SPECTRUM OF THE ANISOLE-WATER COMPLEX: WATER AS AN ACID. [a]

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The rotationally resolved $S_1 \leftarrow S_0$ electronic spectra of anisole and the 1:1 anisole-water complex have been recorded in a molecular beam. This is the first rotationally resolved electronic spectrum recorded in which water acts as an acid and the chromophore acts as base. The spectrum is split into two subbands separated by 730 MHz, having an intensity ratio of 3:1. This indicates that the water hydrogens are exchanged by a low barrier tunneling motion. The nature of this motion will be discussed.

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