ROTATIONALLY RESOLVED ELECTRONIC SPECTROSCOPY OF TRYPTAMINE AND ITS WATER CLUSTER. STRUCTURE, DYNAMICS, AND STARK EFFECT.[a]

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Tryptamine, the base of tryptophan, has attracted much interest due to its biological importance. Its flexible side chain gives rise to multiple possible conformations. In this work, the high resolution $S_1 \leftarrow S_0$ electronic spectra of several tryptamine conformers have been recorded and analyzed. Additionally, we observed and assigned the fully resolved spectrum of the tryptamine-water cluster. Application of an external electric field allows us to measure the dipole moments of tryptamine and its water cluster through the Stark effect. This combination of rotational constants and dipole moment components provides an unambiguous assignment of the conformers of tryptamine as well as the structure of the water cluster.

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