MEASUREMENT OF EXCITED STATE DIPOLE MOMENTS OF 7-AZAINDOLE IN THE GAS PHASE.[a]

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The rotationally resolved $S_1 \leftarrow S_0$ fluorescence excitation spectrum of 7-azaindole has been obtained in the presence of an external electric field. The Stark effect on the rotational energy levels allows us to accurately determine the values for each component of the dipole moment in both electronic states. The magnitudes of dipole moment components are μ_a (S_0) = 1.45 $\pm$ 0.01 D, μ_b (S_0) = 0.65 $\pm$ 0.06 D and μ_a (S_1) = 2.23 $\pm$ 0.01 D, μ_b (S_1) = 0.55 $\pm$ 0.07 D. The large increase in μ_a is a result of changes in the electron distribution in the S_1 state. A detailed discussion of these changes will be given.

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