HIGH RESOLUTION ELECTRONIC SPECTROSCOPY OF METHYL ANISOLES.[a]

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Rotationally resolved $S_1 \leftarrow S_0$ fluorescence excitation spectra of 2-methyl anisole (2MA) and 3-methyl anisole (3MA) have been obtained in the environment of a supersonic jet environment. The derived values of the rotational constants show that 2MA itself has a planar heavy-atom structure with trans-disposed methoxy groups in both electronic states. No evidence for any other conformational isomers was found. Also, 3MA itself has a planar heavy-atom structure but with trans- and cis-disposed methoxy groups in both electronic states. Even though both molecules exhibit hindered internal methyl rotation, the spectrum of 2MA shows only a single band, while 3MA shows multiple sub-bands within each band. These spectral features will be discussed further in detail.

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