# HIGH RESOLUTION ELECTRONIC SPECTROSCOPY OF METHYL ANISOLES IN THE GAS PHASE. BARRIER HEIGHT DETERMINATIONS FOR THE METHYL GROUP TORSIONAL MOTIONS [a]

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The high resolution electronic spectra of 2-methyl anisole (2MA) and 3-methyl anisole (3MA) have each been recorded in the collision free environment of a molecular beam. Each spectrum is split into two sub-bands owing to tunneling motions along the methyl group torsional coordinates. Analyses of these data provide information about the preferred orientations of the attached methyl groups and the barriers opposing methyl group torsional motions in both electronic states. Despite the similarities in their shapes, the properties of the PES's along this coordinate in 2MA and 3MA are quite different. Possible reasons for this behavior will be discussed.

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