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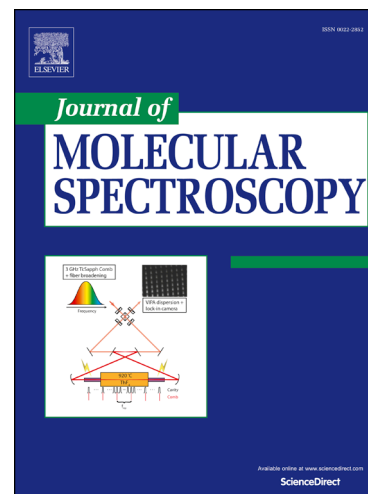
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# The Effect of Internal Rotation in *p*-Methyl Anisole Studied by Microwave Spectroscopy

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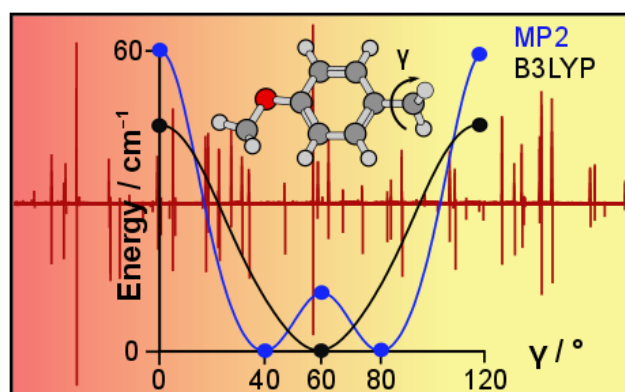
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## Abstract

The Fourier transform microwave spectrum of *p*-methyl anisole,  $\text{CH}_3\text{C}_6\text{H}_4\text{OCH}_3$ , was measured in the frequency range from 2 to 26.5 GHz under molecular jet conditions. The conformer analysis yielded only one stable conformer, in which all heavy atoms are co-planar, and which was identified after analyzing the spectrum by comparison with the results from quantum chemical calculations. The barrier of the  $V_3$  potential of the ring methyl rotor was found to be  $49.374548(1) \text{ cm}^{-1}$ , and was compared with that found in other para-substituted toluenes as well as in *o*-methyl anisole. A comparison between two theoretical approaches treating internal rotations, the rho axis method (program *BELGI-C<sub>s</sub>*) and combined axis method (program *XIAM*), is also performed.



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