TORSIONAL, VIBRATIONAL AND VIBRATION-TORSIONAL LEVELS IN THE S_1 AND GROUND CATIONIC D_0^+ STATES OF PARA-FLUOROTOLUENE

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The S_1 electronic state and ground state of the cation of *para*-fluorotoluene (*p*FT) have been investigated using resonance-enhanced multiphoton ionization (REMPI) spectroscopy and zero-kinetic-energy (ZEKE) spectroscopy.[a] Here we focus on the low wavenumber region where a number of "pure" torsional, fundamental vibrational and vibration-torsional levels are expected; assignments of observed transitions are discussed, which are compared to results of published work on toluene (methylbenzene) from the Lawrance group.[b] The similarity in the activity observed in the excitation spectrum of the two molecules is striking.

[a] A. M. Gardner, W. D. Tuttle, L. Whalley, A. Claydon, J. H. Carter and T. G. Wright, *J. Chem. Phys.*, **145**, 124307 (2016).
[b] J. R. Gascooke, E. A. Virgo, and W. D. Lawrance *J. Chem. Phys.*, **143**, 044313 (2015).