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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<sub>1</sub> 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.<sup>*a*</sup> 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.<sup>*b*</sup> The similarity in the activity observed in the excitation spectrum of the two molecules is striking.

<sup>&</sup>lt;sup>a</sup>A. M. Gardner, W. D. Tuttle, L. Whalley, A. Claydon, J. H. Carter and T. G. Wright, J. Chem. Phys., 145, 124307 (2016).

<sup>&</sup>lt;sup>b</sup>J. R. Gascooke, E. A. Virgo, and W. D. Lawrance J. Chem. Phys., **143**, 044313 (2015).