CURVE CROSSING DYNAMICS IN RYDBERG EXCITED TRIMETHYLAMINE

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Two-color multiphoton ionization photoelectron spectroscopy was employed to probe the dynamics of trimethylamine excited to the 3p and 3s Rydberg states associated with the first ionization potential. Internal conversion from the 3p states to 3s generates the molecule with a significant amount of vibrational energy that can lead to dissociation. Even so, on the time scale of the lifetime of 3s, no fragmentation is observed. The discussion focuses on the intricate details of the curve crossing dynamics from 3p to 3s, and the dependence of the 3s lifetime on the vibrational energy content.