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Neutral Excited State Dynamics Studied with Time-Resolved UV-VUV Pump-Probe Experiments[1] YUSONG LIU, SPENCER HORTON, State University of New York at Stonybrook, PRATIP CHAKRABORTY, SPIRIDOULA MATSIKA, Temple University, THOMAS WEINACHT, State University of New York at Stonybrook — We have conducted UV/VUV pump-probe experiments to study excited state dynamics in polyatomic molecules. We are particularly interested in the competition between internal conversion and dissociation or population trapping of prototypical molecular systems. Here we present measurements of dynamics in pyrrole and uracil. Our measurements for pyrrole, in conjunction with electronic structure calculations, indicate that pyrrole undergoes rapid internal conversion to the ground state in less than 300fs. We find that internal conversion to the ground state dominates over dissociation. In uracil, our measurements indicate that there is substantial population trapping in the excited state in addition to rapid internal conversion back to the ground state.

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