

Abstract Submitted
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Time-Resolved UV-Pump (4.8eV) and Vacuum-UV (8eV) Probe Experiments of Neutral Excited State Dynamics SPENCER HORTON, YU-SONG LIU, State Univ of NY- Stony Brook, SPIRIDOULA MATSIKA, Temple University, THOMAS WEINACHT, State Univ of NY- Stony Brook — Excited state dynamics in polyatomic molecules involve a rich mixture of internal conversion, intersystem crossing, isomerization, and dissociation. Probing these dynamics with ultrafast laser pulses poses a number of challenges, in terms of both the execution of the measurements and their interpretation. We have developed an apparatus for probing excited state dynamics using a 260nm UV-pump pulse and a 156nm Vacuum-UV (VUV) probe pulse. For many systems of interest, an 8eV probe pulse can ionize the molecule from essentially any position along the excited state potential, while not having a background ionization yield from the ground state. Furthermore, given the perturbative interaction of each pulse with the molecule, it is possible interpret and model the experimental results with greater ease and confidence than more complicated probe interactions such as strong field ionization. We compare UV-IR strong-field ionization pump-probe experiments previously conducted directly with our 8eV probing and explore the differences between the two.

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