Abstract Submitted
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Femtosecond time-resolved study of the dissociation of small molecules using a two-color vacuum ultraviolet pump and x-ray probe technique.[1] A. BELKACEM, Lawrence Berkeley National Laboratory, T. ALLISON, LBNL - UC Berkeley, C. KHURMI, Lawrence Berkeley National Laboratory, T. WRIGHT, LBNL - UC Davis, A. STOOKE, LBNL - UC Berkeley — We developed a unique two-color ultraviolet (UV) pump and extreme ultraviolet (EUV) probe capability to study molecular dissociation and non-adiabatic molecular dynamics of small to complex molecules excited in the UV regime. This capability revolves around the development of a very high intensity high harmonics source in combination with a split-mirror technique. The pump-probe delay has an interferometric stability of better than 100 attoseconds. We used this system to probe the femtosecond internal conversion of excited ethylene, water and oxygen molecules pumped with the 5th harmonic ($\sim$7.75 eV) and probed with the 19th harmonic ($\sim$29.45 eV). The results of these measurements will be presented.

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