Abstract Submitted
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Investigation of Ultrafast Dynamics in O-nitrophenol using Femtosecond UV/VUV/IR Pulses[1] NIRANJAN SHIVARAM, ELIO CHAMPENOIS, TRAVIS WRIGHT, Chemical Sciences Division, Lawrence Berkeley National Laboratory, JAMES CRYAN, PULSE Institue for Ultrafast Energy Science, SLAC National Accelerator Laboratory, TAYLOR WINGARD, University of California, Berkeley, KIRK LARSEN, DANIEL SLAUGHTER, ALI BELKACEM, Chemical Sciences Division, Lawrence Berkeley National Laboratory — Orthonitrophenol (C6H4OHNO2) has a high absorption cross section in the ultraviolet (UV) where excitations lead to different fragmentation pathways involving internal relaxation processes. Some of these pathways lead to elimination of the hydroxyl and nitro groups, internal re-arrangement of these neighboring groups and even formation of bonds between them. We use a 25 mJ, 1 kHz, 780 nm, 25 fs laser system to generate high flux vacuum ultraviolet (VUV)/extreme ultraviolet (XUV) high order harmonics in a gas such as argon or krypton. These harmonics are used to study ultrafast dynamics in neutral O-nitrophenol excited to states around 4.75 eV and probed with either higher harmonics or the IR pulse. In particular, we are interested in the mechanism of elimination of the NO molecule from the dissociation of O-Nitrophenol. A velocity map imaging spectrometer is used to obtain energy/angle resolved photo-fragment spectra as a function of pump-probe delay.

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