Abstract Submitted
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Direct observation of strong-field enhanced ionization in CO and N2 WEI LAI, CHUNLEI GUO, University of Rochester — Enhanced ionization (EI) of molecules has been predicted as a common process in molecular dissociative ionization in strong fields over two decades ago. However, direct evidence for EI has only been found in I2 and H2. In this work, we perform the first direct study of EI in CO and N2. In two sets of pump-probe experiments, one with 68-fs pulses and one with 45-fs pulses, we consistently observed a new dissociation channel in each of these two molecules following double ionization that has not been previously resolved. Interestingly, EI occurs only in the newly discovered channels with a lower kinetic energy release but, surprisingly, does not happen in the commonly-seen dissociation channels that were previously assigned undergoing EI.

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