Abstract Submitted
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**Influence of the Atomic Potential on Near-Threshold RABBITT Measurements**[1] DIETRICH KIESEWETTER, STEPHEN SCHOUN, ANTOINE CAMPER, PIERRE AGOSTINI, LOUIS DIMAURO, The Ohio State University, ROBERT JONES, University of Virginia — We have used the RABBITT technique [P. M. Paul et al., Science 292, 1689 (2001)] to study IR-induced continuum transitions involving near-threshold, XUV photoelectrons from He, Ne, and Ar atoms. Energy exchange between ionized electrons and intense oscillating fields plays an essential role in many strong field physics phenomena. For large fields and/or electron energies, the parent ion plays a negligible role in the energy transfer process. This fact is exploited by RABBITT and attosecond streaking techniques for characterizing attosecond pulse trains and isolated pulses, respectively. However, for low energy electrons in weak to moderate dressing fields, the atomic potential influences the energy transfer process [E. S. Shuman et al. Phys. Rev. Lett. 101, 263001 (2008)], modifying the relative phase and amplitude of photoelectron sidebands in a RABBITT measurement (or the final momentum and apparent photoionization delay in a streaking experiment). For the RABBITT experiments, intense 1.3 micron pulses are used to generate the XUV harmonics for photoionization, and provide the phase-locked dressing field. In principle, the energy-dependence of the measured side-band amplitudes and phases might be used to extract information about the atomic binding potential.

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