Abstract Submitted
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Few-XUV-photon laser-assisted double ionization of helium[1] AIHUA LUI, UWE THUMM, Physics Department, Kansas State University — We studied the few–photon IR laser–assisted double ionization of helium in ultrashort XUV pulse(s) by numerically solving the time-dependent Schrödinger equation in full dimensionality within a finite–element discrete–variable–representation scheme [1]. We calculated energy and joint angle distributions in coplanar geometry, where the emitted electron momenta and identical polarization axis of the linearly polarized XUV and IR pulses lie in a plane. By analyzing joint angle distributions and asymmetries for two-XUV–photon double ionization, we identify "sequential" and "non-sequential" contributions for ultrashort XUV pulses whose spectra overlap the sequential ($\hbar\omega > 54.4$ eV) and non-sequential (39.5 eV $< \hbar\omega <$ 54.4 eV) double ionization regimes. In addition, we show that emission angles between the two photoelectrons can be controlled by adjusting parameters of the XUV and assisting IR pulse.

[1] A. Liu and U. Thumm, Phys. Rev. A **89**, 063423 (2014).

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