

Abstract Submitted
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Recoil collisions as a portal to field assisted ionization in the strong field ionization of diatomic molecules AGAPI EMMANOUILIDOU, University of Massachusetts, Amherst — We explore the dependence of the double ionization of diatomic molecules on the frequency of a strong laser field while keeping the ponderomotive energy constant. For the case of the He atom we have recently found [1] that as we increase the frequency we find that the remarkable “finger-like” structure for high momenta recently found for $\omega=0.055$ a.u. for the double ionization of the He atom [2] persists for higher frequencies. We compare and discuss the differences between the “finger-like” structure in the correlated momenta of strongly driven diatomic molecules versus two electron atoms.

[1] A. Emmanouilidou, Phys. Rev. A 78, 023411 (2008).

[2] A. Staudte et al., Phys. Rev. Lett. 99, 263002 (2007); A. Rudenko et al., Phys. Rev. Lett. 99, 263003 (2007)

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