

Abstract Submitted
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The Role of Nuclear Motion in the Photo-Double Ionization of Molecular Hydrogen¹ THOMAS RESCIGNO, Lawrence Berkeley National Laboratory, DANIEL HORNER, Los Alamos National Laboratory, WIM VAN-ROOSE, Universiteit Antwerpen, FERNANDO MARTIN, Universidad Autonoma de Madrid, C. WILLIAM MCCURDY, LBNL/UC Davis — We explain the origin of recently observed variations with internuclear distance (R) of the fully differential cross sections for double ionization of aligned H_2 by a single photon. Using the results of converged numerical solutions of the Schrödinger equation, we show that these variations arise primarily from pronounced differences in the R -dependence of the parallel and perpendicular components of the ionization amplitude. We also predict that R -dependences should be readily observable in the asymmetry parameter for photo-double ionization, even in experimental measurements that are not differential in the energy sharings between ejected photo-electrons.

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