

Abstract Submitted
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Molecular dissociation with attosecond pulses: A double-slit with moving nuclei ANTONIO PICON, ALON BAHABAD, JILA, University of Colorado, Boulder, CO 80309-0440, MARGARET MURNANE, HENRY KAPTEYN, ANDREAS BECKER, JILA and Department of Physics, University of Colorado, Boulder, CO 80309-0440 — We have performed numerical simulations of the interaction of the hydrogen molecular ion with two attosecond laser pulses. The first pulse initiates the dissociation of the molecule, while the time-delayed second pulse probes the dissociating molecule at large internuclear distances by ionization. Our results show an oscillation of the ionization yield as a function of the time delay between the two pulses. We interpret the results as an interference effect between the electron wave packets emerging from the two protons. We will discuss the feasibility of such an atomic-scale Young-type double-slit experiment with moving nuclei with respect to the parameters of the two pulses.

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