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Generalized eikonal approximation for strong-field ionization[1]
KATARZYNA KRAJEWSKA, FELIPE CAJIAO VÉLEZ, JERZY KAMIŃSKI, Faculty of Physics, University of Warsaw — Strong-field ionization of atoms by short laser pulses is analyzed by means of the generalized eikonal approximation. This newly developed approach, in contrast to the ordinary eikonal approximation, avoids a singularity at the center of the Coulomb potential and, therefore, it allows for the treatment of rescattering phenomena in terms of quantum trajectories. Using this approach we demonstrate the appearance of coherent diffraction patterns in photoelectron energy spectra. We identify the conditions necessary to obtain such coherent patterns, with a decisive role played by the driving laser pulse.

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