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Classical Modeling of High-Order Harmonic Spectroscopy using an Elliptically Polarized Laser Field PAUL ABANADOR, FRANCOIS MAUGER, KENNETH LOPATA, METTE GAARDE, KENNETH SCHAFER, Louisiana State Univ - Baton Rouge — We model high harmonic generation (HHG) from atoms in elliptically polarized fields with purely classical electron trajectories initialized from a microcanonical ensemble. The trajectories are calculated in the presence of an atomic core potential and an elliptically polarized driving laser field. This numerical scheme allows the determination of the overall shape of the HHG spectrum from the statistics of electrons that return to the ionic core. We find that the threshold ellipticity, which is defined by the ellipticity where the relative intensity of a harmonic drops to 10% with respect to linear polarization, decreases as the harmonic order increases for both "short" and "long" trajectories. Our results also show that the presence of an atomic core potential can give rise to two possible sets of trajectories that return to the core with the same energy and at same time but that ionized at different times, a feature that is absent in the strong field approximation description of HHG.

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