Title:	Global control of attosecond photoionization of atoms through XUV dispersion
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Abstract:	We investigate attosecond control of photoionization of helium subject to an IR pulse and a phase-shaped XUV pulse by numerically solving the time-dependent Schrödinger equation. A series of several subcycle oscillations in photoionization at one-half, one-quarter, one-sixth, and one-eighth IR cycles is observed due to high-order multiphoton quantum path interferences between IR and XUV harmonics. A global control of net photoionization is demonstrated by controlling quantum phases of these subcycle ionization channels by introducing various linear, quadratic, and random phase dispersions in the XUV harmonics. Remarkably, for a phase randomized XUV pulse the attosecond resolution in the form of subcycle oscillations in such electronic processes is preserved and their control is significantly enhanced compared to the case of a transform-limited attosecond pulse train. These features are generic and robust over a range of IR intensities and XUV spectra.
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