

Abstract Submitted
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Theory of single-order high harmonic generation using waveform-synthesized chirped pulses¹ XU WANG, CHENG JIN, C.D. LIN, Department of Physics, Kansas State University — We show that it is possible to selectively generate a single-order high harmonic using waveform-synthesized chirped pulses. By synthesizing a multicycle 800nm pulse with its higher harmonics and adjusting the chirp of each pulse, a single high-harmonic order can be selectively enhanced while all other harmonic orders are greatly suppressed. The harmonic order of enhancement can be controlled continuously by changing the laser intensity. This single-order harmonic enhancement has been identified to be originated from quantum interference and the details of the physical process will be explained. Our simulation results agree qualitatively to and shed light on a recent experiment of single-order harmonic generation using three-color pulses [1].

[1] P. Wei et al., Phys. Rev. Lett. 110, 233903 (2013).

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