

Abstract Submitted
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Heterodyne control of attosecond pulse generation THOMAS PFEIFER, University of California, Berkeley & LBNL, LUKAS GALLMANN, ETH Zurich, MARK J. ABEL, PHILLIP M. NAGEL, AURELIE JULLIEN, DANIEL M. NEUMARK, STEPHEN R. LEONE, University of California, Berkeley & LBNL — Adding a weak laser field at a different color to the fundamental in high-order harmonic generation results in a new type of heterodyne mixing in the kinetic energy term of the active electron. Analytical calculations and quantum simulations show that the effect of the weak field is amplified by the strong fundamental laser field that acts as the local oscillator [1]. The photon energy of different attosecond pulses within the produced pulse trains can thus be significantly modified. Two important applications for this phenomenon are the generation of isolated attosecond pulses with multi-cycle driving fields and the shaping of attosecond pulse trains.

Ref.: [1] T. Pfeifer et al., Phys. Rev. Lett. 97, 163901 (2006)

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