

Abstract Submitted
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Quantum Phase Measurements in Two Color Above Threshold Ionization LUCAS ZIPP, ADI NATAN, PHILIP BUCKSBAUM, Stanford University — We have observed angle- and energy-dependent phase shifts between spectral peaks in above-threshold ionization of argon. We utilize a weak second field at half the frequency of the strong drive laser to form interfering pathways between neighboring peaks and measure the oscillations in the angular distribution as a function of relative optical delay, similar to RABBITT-type experiments. Our results show direct evidence of the Coulomb potential distortions on the quantum phases of strong field ionized electrons. There has been recent interest in the phase shifts and time delays in single-photon ionization of atoms by attosecond pulses. Our work extends these types of measurements for the first time into the strong field regime.

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