

Abstract Submitted
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Isolated 80 as XUV pulses characterized by PROOF KUN ZHAO, Department of Physics, Kansas State University, QI ZHANG, MICHAEL CHINI, Department of Physics and CREOL, University of Central Florida, SABIH KHAN, STEVE GILBERTSON, Department of Physics, Kansas State University, ZENGHU CHANG, Department of Physics, Kansas State University & Department of Physics and CREOL, University of Central Florida — Attosecond extreme ultraviolet (XUV) pulses are a useful tool for studying electron dynamics. Double optical gating (DOG) was developed to generate isolated attosecond pulses with broad XUV spectra, violating the central momentum approximation (CMA) of FROG-CRAB (frequency-resolved optical gating for complete reconstruction of Attosecond bursts) for characterizing attosecond pulses. For broadband pulses, PROOF (phase retrieval by omega oscillation filtering) was developed. The quantum interference of the continuum states in the dressing laser field in a streak camera was utilized to retrieve the spectral phase of the XUV pulses. PROOF does not rely on the CMA and sets no limit on the bandwidth. In the experiments, isolated attosecond pulses with continuous spectra from 25 to 80 eV were generated with DOG. The bandwidth is larger than the photoelectron center energy. The pulses are retrieved by FROG-CRAB and PROOF. While the two methods retrieve same 80 as pulses for a nearly transform-limited spectrum, they deviate significantly for a chirped spectrum due to the violation of the CMA in FROG-CRAB.

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