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Title:Electron wave packet sampling with laser-generated extreme ultraviolet and terahertz fields
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Abstract:We report on transferring the concept of light-field streaking with intense terahertz fields from free-electron lasers to the laboratory scale. Utilizing a commercial laser system, synchronized 300um terahertz and 13nm extreme ultraviolet pulses are generated by optical rectification and high harmonic generation, respectively. The terahertz fields are sufficiently strong to support electron wave packet sampling with a few fs resolution. The capability of this approach is demonstrated by measuring the duration of electron pulses formed by direct photoemission from a neon gas target.
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