

Abstract Submitted
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The effect of the attochirp on attosecond streaking¹ CORY GOLD-SMITH, JILA, Department of Chemistry, University of Colorado - Boulder, AGNIESZKA JARON-BECKER, ANDREAS BECKER, JILA, Department of Physics, University of Colorado - Boulder — Measurements invoking the use of attosecond pulses can be incorrectly interpreted if the chirp of such pulses is not taken into account. In this study, we use a physically intuitive analytical model to understand the effect a chirp in the extreme ultraviolet (XUV) attosecond pulse will have upon the delay observed in streaking experiments. It is known that both the photoionization cross-section of the system and the spectral and temporal characteristics of the attosecond pulse used will determine the relative time-dependent probability of absorbing a particular photon energy. We additionally use an analytical method to calculate the streaking delay as a function of the absorbed photon energy and the time delay between the XUV and streaking pulses. Equipped with this information, we determine the expected value of the streaking delay observed when a chirped attosecond XUV pulse is used to initiate streaking experiments. We then demonstrate that depending on the chirp, the streaking delay can be changed by several attoseconds, which is on the order of the delays usually observed in such experiments.

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