

ATTOSECOND STREAKING TIME DELAYS: FINITE-RANGE INTERPRETATION AND APPLICATIONS

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We present theoretical studies of the attosecond streaking time delay concept in photoionization via the investigation of the electron dynamics in the streaking field after the transition of the photoelectron into the continuum upon absorption of an extreme ultraviolet photon. Based on the results, a so-called finite range interpretation is introduced, that highlights that the delay is accumulated until the streaking pulse ends and, hence, over a finite range of the potential of the parent ion. We then summarize a few applications which provide insights into different aspects of the streaking time delay concept in photoionization, including the relation to the Wigner-Smith time delay, the role of the attochirp and the extension to two-photon processes.

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