

Abstract Submitted
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Ultrafast laser control of autoionizing resonances observed in attosecond transient absorption¹ CHEN-TING LIAO, NATHAN HARKEMA, ARVINDER SANDHU, University of Arizona — Attosecond and femtosecond extreme ultraviolet (XUV) pulses can be used to probe electron dynamics in high-lying excited states that autoionize on a femtosecond timescale, thus providing information on the process of Auger decay and its interference with the continua. Here we utilize XUV pulses in connection with infrared (IR) pulses to perform attosecond transient absorption spectroscopy of the impulsive response of argon autoionizing Rydberg states in the vicinity of the $3s^{-1}4p$ resonance. We show that by tuning the time delay and field polarization of IR pulse, it is possible to control the dipolar coupling between neighboring states and hence the spectral line shape of the resonance, such as the transition between Breit-Wigner to Beutler-Fano profiles.

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