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Application of tunable infrared pulses for pump-probe study of XUV photoionization and dissociation dynamics[1] DAKOTA WALDRIP, ALEXANDER PLUNKETT, JAMES WOOD, ARVINDER SANDHU, Univ of Arizona — We use tunable near-infrared and short-wave infrared pulses in conjunction with extreme ultraviolet (XUV) attosecond pulse trains to study the photoionization and photodissociation dynamics in atoms and molecules. The tunability of IR probe fields allows us to control the interferences between photoionization pathways of XUV excited Rydberg states. In an argon atom, we use tunable IR to control the outgoing electron energy relative to spin-orbit split ionization thresholds to understand the contributions of different angular momentum states. In another experiment, we explore changes in angular distributions of XUV ionized photoelectrons due to couplings introduced by an IR field. We also extend our tunable IR spectroscopy approach to study the photoionization and photodissociation of polyatomic molecules.

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