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EUV-Driven Attosecond Processes PREDRAG RANITOVIC, B. GRAMKOW, D. RAY, M. MAGRAKVELIDZE, I. BOCHAROVA, S. DE, H. MASHIKO, I. LITVINYUK, C.L. COCKE, Kansas State University, H. KAPTEYN, M. MURNANE, A. LYTLE, E. GAGNON, A. PAUL, Colorado Univ., A. SANDHU, Univ. of Arizona, G.G. PAULUS, Friedrich-Schiller-University, Jena, X.M. TONG, The Electrocommunication Univ., Japan, A. ALNASER, American Univ., UAE —
We have investigated the single ionization of He and double ionization of Ar on an attosecond time scale in a pump/probe geometry using an EUV attosecond pump (17-43 eV) and a femtosecond IR (800 nm) probe. The EUV photons are in the form of an attosecond pulse train (APT) generated by high-harmonic generation in Xe or Ar. We detect both ions and electrons in a COLTRIMS geometry. For both targets we found three pump-probe-delay regions of interest. When the IR precedes the APT, it has no effect on the ionization. When the IR pulse overlaps the APT, a large enhancemet of the ionization is observed, which, for the He case, oscillates with the relative phase of the IR and APT. When the IR comes after the APT but does not overlap it, a strong enhancement is observed but without oscillation. Possible explanations for this behavior will be discussed.

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