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High-repetition-rate setup for pump-probe time-resolved XUV-IR experiments employing ion and electron momentum imaging<sup>1</sup> SHASHANK PATHAK, SEYYED JAVAD ROBATJAZI, PEARSON WRIGHT LEE, KANAKA RAJU PANDIRI, DANIEL ROLLES, ARTEM RUDENKO, Kansas State University — J.R. Macdonald Laboratory, Department of Physics, Kansas State University, Manhattan KS, USA We report on the development of a versatile experimental setup for XUV-IR pump-probe experiments using a 10 kHz high-harmonic generation (HHG) source and two different charged-particle momentum imaging spectrometers. The HHG source, based on a commercial KM Labs eXtreme Ultraviolet Ultrafast Source, is capable of delivering XUV radiation of less than 30 fs pulse duration in the photon energy range of ~17 eV to 100 eV. It can be coupled either to a conventional velocity map imaging (VMI) setup with an atomic, molecular, or nanoparticle target; or to a novel double-sided VMI spectrometer equipped with two delay-line detectors for coincidence studies. An overview of the setup and results of first pump-probe experiments including studies of two-color double ionization of Xe and time-resolved dynamics of photoionized  $CO_2$  molecule will be presented.

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