VUV-Pumped, XUV-Probed Dissociation and Relaxation Dynamics

ELIO CHAMPENOIS, Department of Applied Science and Technology, University of California at Berkeley, JAMES CRYAN, NIRANJAN SHIVARAM, TRAVIS WRIGHT, Chemical Sciences Division, Lawrence Berkeley National Laboratory, CHAN-SHAN YANG, Department of Physics, National Tsing Hua University, ROGER FALCONE, Advanced Light Source, Lawrence Berkeley National Laboratory, ALI BELKACEM, Chemical Sciences Division, Lawrence Berkeley National Laboratory — We present a time-resolved study of ultrafast dynamics near conical intersections in ethylene. Using a bright high harmonic source, we excite the molecular system at 8 eV and probe the excited state wavepacket through photoionization by a second extreme ultraviolet (XUV) pulse. A Velocity Map Imaging spectrometer measures the kinetic energy release and angular distributions of the resultant photofragments. We also explore controlling the wavepacket dynamics with an infrared pulse preceding the XUV probe pulse.

1Supported by Chemical Sciences, Geosciences, and Biosciences Division of BES/DOE