Abstract Submitted
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Electron-Ion 3D momentum imaging of the dissociative single ionization of hydrogen molecules in the presence of a laser field[1] A. GATTON, K. LARSEN, E. CHAMPENOIS, W. ISKANDER, S. HECK, LBNL, D. REEDY, D. CALL, UN-Reno, T. SEVERT, B. JOCHIM, KSU, R. STROM, Auburn, J.B. WILLIAMS, UN-Reno, D. SLAUGHTER, LBNL, I. BEN-ITZAK, KSU, A.L. LANDERS, Auburn, TH. WEBER, LBNL — We present updated results from our 2-color IR laser+synchrotron Cold Target Recoil Ion Momentum Spectroscopy (COLTRIMS) experiments on the dissociative single ionization of H_2. Light from beamline 10.0.1 (17.9, 18.34 and 18.56eV, 80ps, 50meV resolution) at the Advanced Light Source was used to excite and ionize H_2 in the presence of pulsed laser field (1030nm, 12ps, $5 \times 10^{11} W/cm^2$). We refined the apparatus and collected an order of magnitude more data than our preliminary experiment at two specific laser delays: short (XUV+Laser overlapped) and long ($> 200ps$ time offset). We present more evidence for the interplay of photoelectron retro-action with the strong laser field in the dissociation of H_2^+. We also present evidence for the signature of light induced conical intersections in the dissociation of the laser dressed hydrogen cations, as recently reported by Natan et. al. (PRL 116, 143004 (2016)).

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