

Abstract Submitted  
for the DAMOP17 Meeting of  
The American Physical Society

**Fingerprints of core-hole localization in the inner shell ionization of carbon tetrachloride**<sup>1</sup> B. GAIRE, P. STAMMER, A. GATTON, LBNL, B. BERRY, T. SEVERT, KSU, J. RIST, S. ECKART, U-Frankfurt, J. WILLIAMS, UN-Reno, I. BEN-ITZHAK, KSU, R. DOERNER, U-Frankfurt, TH. WEBER, LBNL — We present innershell photoionization studies of single carbon tetrachloride molecules by ionizing electrons from the chlorine 2p orbital applying our COLTRIMS method, which we recently upgraded to accommodate low vapor pressure samples in the liquid form. Recoil frame photoelectron angular distributions (RFPADs) are generated by transforming the measured coincident electron-ion 3D-momentum vectors to body fixed frames. The RFPADs for the most prominent two ionic breakup channel are presented for three different photoelectron energies and orientations of the polarization direction of the incoming light with respect to the recoil axis. The asymmetric and rich structures of the electron emission patterns suggest the localization of the core hole at the Cl atom from which the 2p electron was released, similar to the case of the F K-shell ionization of carbon tetrafluoride where, in close collaboration with theory, a strong unambiguous core hole localization effect was identified.

<sup>1</sup>This research used the Advanced Light Source and was supported by DOE-BES under Contract No. DE-AC02-05CH11231 and DE-FG02-86ER13491, the ALS Doctoral Fellowship in Residence, and the DFG and DAAD.

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Date submitted: 27 Jan 2017

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