

Abstract Submitted  
for the DAMOP15 Meeting of  
The American Physical Society

**Competing parallel and perpendicular dissociation pathways of  $\text{CS}^{2+}$  in a strong laser field\*** T. SEVERT, M. ZOHRABI, M. HASTINGS, U. ABLIKIM, K.J. BETSCH, BEN BERRY, BETHANY JOCHIM, G.S.J. ARMSTRONG, D. WILSON, K.D. CARNES, C. TRALLERO-HERRERO, B.D. ESRY, I. BEN-ITZHAK, J.R. Macdonald Laboratory, Physics Department, Kansas State University, Manhattan, KS 66506, USA, T. UHLÍKOVÁ, Department of Analytical Chemistry, Institute of Chemical Technology, Prague Technická, Czech Republic — We investigate the competition between parallel and perpendicular transitions in the strong-field dissociation of  $\text{CS}^{2+}$ . The dominant dissociation pathway is understood to be a one-photon perpendicular transition from the  $X^3\Pi$  to the  $A^3\Sigma^-$  state. We hypothesize that the parallel component is due to a vibrational excitation to the continuum of the  $X^3\Pi$  electronic state, driven by a permanent-dipole transition. The dependence of this parallel transition's probability on the molecule's kinetic energy release as well as on the laser's pulse duration, intensity, and wavelength is explored.

\*Supported by the Chemical Sciences, Geosciences, and Biosciences Division, Office of Basic Energy Sciences, Office of Science, U.S. Department of Energy. MH was partially supported by NSF-REU under Grant No. Phy-1157044. BJ is supported by DOE-SCGF under Grant No. DE-AC05-06OR23100. DW is supported by NSF-GRF under Grant No. DGE-1247193. TU is supported by GACR and MetaCentrum.

Travis Severt  
J.R. Macdonald Laboratory, Physics Department,  
Kansas State University, Manhattan, KS 66506, USA

Date submitted: 30 Jan 2015

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