

Abstract Submitted  
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**Momentum imaging of the dissociation dynamics for dissociative electron attachment to  $\text{CF}_4$  and dipolar dissociation of  $\text{O}_2$** <sup>1</sup> D. REEDY, University of Nevada, Reno, A. NEMER, R. STROM, A. EDMONDS, Auburn University, T.J. GAY, University of Nebraska, E. MILIORDOS, A.L. LANDERS, M. FOGLE, Auburn University — We present experimental results for dissociative electron attachment (DEA) to  $\text{CF}_4$  and dipolar dissociation of  $\text{O}_2$ . From our ion-momentum imaging results we extract anion fragment kinetic energies and angular distributions with respect to the incoming electron beam. From these we can directly observe the dissociation dynamics associated to the formation of transitory negative ions. For the DEA to  $\text{CF}_4$ , we have measured both dissociation pathways which lead to  $\text{CF}_3^-$  and  $\text{F}^-$  anions. For the  $\text{CF}_3^-$  pathway, we have investigated the kinetic energy release (KER) as a function of incident electron energy and find a result that is contrary to previous experimental observations. For the  $\text{F}^-$  dissociation channel, we observe both high and low KER channels. We have made detailed investigations of these channels in terms of angular distributions, which suggest the state symmetries involved. For the dipolar dissociation of  $\text{O}_2$ , we investigate the formation of positive and negative ion pair production due to electron-impact excitation. We will compare theoretical calculations with the momentum imaging results.

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