

Abstract Submitted  
for the GEC09 Meeting of  
The American Physical Society

**(e,2e) ionization studies of diatomic & triatomic molecules** KATE NIXON, ANDREW MURRAY, CHRISTIAN KAISER, University of Manchester, OLA AL-HAGAN, Missouri University of Science & Technology, JAMES COLGAN, Los Alamos National Laboratory, DON MADISON, Missouri University of Science & Technology — (e,2e) studies yield the most detailed experimental data on electron impact ionization of atomic & molecular targets for comparison to quantum collision theories. Coincidence techniques are here used to measure the probability of ionization as a function of the incident electron scattering angle and angle of the electron ejected from the target. In Manchester we study this process at low energies, where the ionization probability is greatest & the interaction most complex. We recently considered ionization of simple molecules (eg H<sub>2</sub> & H<sub>2</sub>O) from a coplanar geometry to the perpendicular plane[1-4], and have discovered the interaction is far more complex than for ionization of atoms [5]. We here present comparisons between theory & experiment, and discuss new methods we intend to implement to study ionization from laser-aligned atoms & molecules. References. [1] J Colgan et al Phys Rev Lett 101 233201 (2008) [2] O Al-Hagan et al Nature Physics 5 59 (2009) [3] J Colgan et al Phys Rev A 79 052704 (2009) [4] C Kaiser et al J Phys B 40 2563 (2007) [5] A J Murray et al J Phys B 36 4875 (2003) & references therein

Andrew Murray  
University of Manchester

Date submitted: 11 Jun 2009

Electronic form version 1.4