

Abstract Submitted
for the DAMOP16 Meeting of
The American Physical Society

Radiative double electron capture (RDEC) by bare fluorine ions on a nitrogen target.* NUWAN KUMARA, DAVID LA MANTIA, ASGHAR KAYANI, Western Michigan University, ANNA SIMON, University of Notre Dame, JOHN TANIS, Western Michigan University — Unlike radiative electron capture (REC), in which a single photon is emitted due to capture of a single electron from the target to the projectile, radiative double electron capture (RDEC) involves two electrons accompanied by the emission of a single photon. Hence, RDEC can be considered as the inverse of double photoionization and used to study the role of electron correlation in causing the process. We report recent results obtained for 40 MeV F^{9+} ions incident on a nitrogen target, in which counts were observed in the calculated RDEC region (2.8-4.4 keV) for the system. Based on these observations an approximate value for the total RDEC cross section was estimated. Compared with the data obtained for 38 MeV O^{8+} ions incident on a carbon foil target¹, the present value is considerably smaller than the value found for carbon, but in better agreement with recent theory². *Supported in part by NSF. ¹A. Simon et al., PRL **104**, 123001 (2010); ² E. A. Mistonova et al., Phys. Rev. A **87**, 034702 (2013).

Nuwan Kumara
Western Michigan University

Date submitted: 28 Jan 2016

Electronic form version 1.4