

Abstract Submitted
for the DAMOP12 Meeting of
The American Physical Society

Differential cross sections for electron-impact excitation of the electronic states of pyrimidine MICHAEL BRUNGER¹, DARRYL JONES, SUSAN BELLM, ARC Centre for Antimatter-Matter Studies, School of Chemical and Physical Sciences, Flinders University, GPO Box 2100, Adelaide, SA 5001 Australia, ARC CENTRE FOR ANTIMATTER-MATTER STUDIES TEAM — Pyrimidine ($C_4N_2H_4$) is an important molecule, as it forms the basis of larger biomolecules, such as the DNA bases thymine, cytosine and uracil. There is a pressing demand for low-energy electron scattering data from such biological analogs in order to model radiation induced damage [1]. We therefore present the first measurements for absolute differential cross section data for low-energy electron-impact excitation of the electronic states of pyrimidine. The present measurements were performed using a crossed-beam apparatus [2] for incident electron energies ranging between 15 to 50eV while covering a 10 to 90° angular range. Here the absolute scale has been determined through a normalisation to the recently measured elastic scattering differential cross section data for pyrimidine [3]. [1] F. Ferreira da Silva, D. Almeida, G. Martins, A. R. Milosavljevic, B. P. Marinkovic, S. V. Hoffmann, N. J. Mason, Y. Nunes, G. Garcia and P. Lima-Vieira, *Phys Chem Chem Phys* **12**, 6717 (2010). [2] M. J. Brunger and P. J. O. Teubner, *Phys Rev A* **41**, 1413 (1990). [3] P. Pali-hawadana, J. Sullivan, M. Brunger, C. Winstead, V. McKoy, G. Garcia, F. Blanco and S. Buckman, *Phys Rev A* **84**, 062702 (2011).

¹Institute for Mathematical Sciences, University of Malaya, Kuala Lumpur 50603, Malaysia

Michael Brunger
ARC Centre for Antimatter-Matter Studies, School of Chemical and
Physical Sciences, Flinders University, GPO Box 2100,
Adelaide, SA 5001 Australia

Date submitted: 20 Jan 2012

Electronic form version 1.4