

Abstract Submitted
for the DAMOP05 Meeting of
The American Physical Society

Effective collision strengths for electron impact excitation of doubly ionized Aluminium¹ C.E. HUDSON, K.L. BELL, School of Maths and Physics, Queen's University Belfast, UK — Effective collision strengths for the electron impact excitation of doubly ionized aluminium have been determined using the R-matrix method. The lowest 10 *LS* states are included as targets in the expansion of the total wavefunction. The fine-structure electron collision strengths have been obtained by transforming to a *jj*-coupling scheme using the JAJOM program of Saraph (Comp. Phys. Commun. vol. 15 p. 247 (1978)) and these are determined at a sufficiently fine energy mesh to delineate properly the resonant structure. Effective collision strengths for the transitions between the resulting 17 fine structure levels have been obtained by averaging the electron collision strengths over a Maxwellian distribution of velocities. We make comparison of our data with the *LS* transition data from 3 other calculations - Kimura et al. (A&AS 132, 99 (1998)), Dufton & Kingston (J Phys B 20, 3899 (1987)) and Mitroy & Norcross (Phys Rev A 39, 537 (1989)). Significant discrepancies exist between these three earlier works, and the current work supports the calculation of Kimura et al.

¹Funded by PPARC(UK)

Kenneth Bell
School of Maths and Physics, Queen's University Belfast, UK

Date submitted: 23 Feb 2005

Electronic form version 1.4