

Abstract Submitted
for the GEC07 Meeting of
The American Physical Society

Electron impact excitation cross sections into $(3p)^55p$ levels from the $(3p)^54s$ metastable level of Ar by the Kim B-E-f Scaling method.¹

M.A. ALI, P.M. STONE, National Institute of Standards and Technology, Gaithersburg, MD — We present results for electron impact excitation cross sections from $(3p)^54s, 1s_5$ and $1s_3$ metastable states of Ar to $(3p)^55p$, $3p_1$ to $3p_{10}$ states, which are dipole allowed by the use of the Kim B-E-f Scaling procedure [1]. We use the experimental excitation energy for E-scaling and accurate f values of Zatsarinny and Bartschart [2] for f-scaling. We compare our results with apparent excitation cross sections recently reported by Jung et al. [3]. Our results suggest that cascade contributions for the upper levels are substantial. To gauge the accuracy of B-E-f scaling, we also present similar results for $(3p)^54s$, $1s_5$ and $1s_3$ metastable states to $(3p)^54p$, $2p_1$ to $2p_{10}$, dipole allowed states and compare with the distorted wave results of Srivastava et al. [4].

[1] Y-K. Kim, Phys. Rev. A 64 032713 (2001). [2] O. Zatsarinny and K. Bartschart J. Phys. B: At. Mol. Phys. 39 2145 (2006). [3] R. O. Jung, J. B. Boffard, L. W. Anderson, and C. C. Lin Phys. Rev. A 75 052707 (2007). [4] R. Srivastava, A. D. Stauffer, and L. Sharma Phys. Rev. A 74 012715 (2006).

¹This work was supported in part by the Office of Fusion Energy Sciences, US DOE

M.A. Ali
National Institute of Standards and Technology, Gaithersburg, MD

Date submitted: 01 Jun 2007

Electronic form version 1.4