

Abstract Submitted  
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**Electron Collision Cross Sections for Iodine<sup>1</sup>** K. BARTSCHAT, O. ZATSARINNY, Drake University, G. GARCIA, Instituto de Fisica Fundamental, Madrid, F. BLANCO, Universidad Complutense de Madrid, L.R. HARGREAVES, D.B. JONES, R. MURRIE, J.R. BRUNTON, M.J. BRUNGER, Flinders University, M. HOSHINO, Sophia University, S.J. BUCKMAN, Australian National University — We performed a joint experimental and theoretical study of elastic electron scattering from atomic and molecular iodine. The experimental results for atomic iodine were obtained by subtracting known cross sections from the measured data obtained with a pyrolyzed mixed beam containing a variety of atomic and molecular species. The calculations were performed using both a fully relativistic Dirac *B*-spline *R*-matrix (close-coupling) method [1] and an optical model potential approach [2]. The agreement between the two sets of theoretical predictions and the experimental data for the angle-differential and the angle-integrated elastic cross sections at 40 eV and 50 eV is very encouraging. It suggests that the present results are suitable for use in modeling plasma kinetic behavior when iodine is an important constituent.

[1] O. Zatsarinny and K. Bartschat, Phys. Rev. A **77** (2008) 062701.

[2] F. Blanco and G. Garcia, Phys. Lett. A **317** (2003) 458 (2003).

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