

Abstract Submitted  
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**Total cross sections for positron scattering from the noble gases**

ROBERT MCEACHRAN, Australian National University, ALLAN STAUFFER, York University — Our complex, relativistic optical potential method for the elastic scattering of electrons and positrons from atoms includes the effects of excitation and ionization of the target and thus produces elastic cross sections more accurately than using a purely real potential. We have used this method to calculate differential and integrated cross sections for scattering of electrons and positrons from the noble gases. Recently, we have included a simplified form of positronium formation in our formulation, resulting in very good agreement with experimental cross sections for positron scattering from the heavy noble gases at energies where positronium formation is important [1]. Since our method now produces results for total scattering cross sections (i.e. including contributions from elastic, excitation and ionization scattering as well as positronium formation) we can compare the results from our calculations with recent measurements of this quantity. Detailed comparisons will be made at energies above the positronium formation threshold which is the inelastic channel with the lowest energy threshold in positron scattering from the noble gases.

[1] R. P. McEachran and A. D. Stauffer, *J. Phys. B* **46** 075203 (2013).

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