Differential cross sections for modeling of noble gas plasmas ALLAN STAUFFER, York University, ROBERT MCEACHRAN, Australian National University — Differential cross sections are required to model the 3D diffusion of electrons in a gas under the influence of electromagnetic fields. In a low temperature plasma containing a noble gas elastic scattering from the neutral atoms is an important process governing this diffusion even at energies above the inelastic thresholds. We have calculated the phase shifts at such energies using our optical potential method [1] which takes account of open inelastic channels. This method yields much more accurate data than potential scattering calculations using only real potentials over a wide range of scattering energies. We will present analytic fits to our results so that cross sections may be calculated for arbitrary scattering energies.

[1] S. Chen, R. P. McEachran and A. D. Stauffer, J.Phys. B 41, 025201 (2008)

Allan Stauffer
York University

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