

Abstract Submitted  
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**Elastic scattering of electrons from the heavy noble gases** A.D. STAUFFER, York University, R.P. MCEACHRAN, Australian National University — Since the cross sections for elastic scattering of electrons from the noble gases are much larger than the excitation cross section, elastic scattering plays a dominant role in the diffusion of electrons through these gases. In order to study the spread of an electron cloud in a gas, differential cross sections are required. For the heavier noble gases such as krypton and xenon, the relativistic j-j coupling formulation provides a more accurate description of these atoms than the usual LS coupling scheme. We have developed an optical potential approach to elastic scattering within this formulation which takes account of the open inelastic channels within a single channel potential scattering approximation. This yields more accurate cross sections, particularly for large angle scattering which play a large role in the spread of electrons within a gas. We will present detailed results for differential cross sections in comparison with recent experiments which have measured differential scattering cross sections over the whole angular range. Our ultimate goal is to produce sufficient data to provide an accurate basis for modeling studies.

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