

Abstract Submitted
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Importance of Relativistic effects and Exchange between Bound and Continuum Electrons on Electron Impact Ionization of Xenon.¹ Z. STEGEN, D.H. MADISON, University of Missouri-Rolla, H.P. SAHA, University of Central Florida, K. BARTSCHAT, Drake University, S. BELLM, J. LOWER, R.P. MCEACHRAN, E. WEIGOLD, Australian National University — Exchange between bound and continuum electrons, known as exchange distortion, can have a significant effect in electron impact ionization, especially for the case of spin-polarized projectiles. A proper treatment of this effect can be done by using an R-matrix or Hartree-Fock calculation for the continuum electrons. Due to the computational demands of these methods, the Furness-McCarthy local potential approximation is often used. The validity of the Furness-McCarthy approximation will be determined by comparing individual partial waves from each approach. In addition to this, the importance of using relativistic wavefunctions and potentials will be examined. The theoretical results will be compared to experimental asymmetries and branching ratios from Australia National University.

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