Accuracy of the Gamow Factor for Approximating the PCI (Post Collision Interaction) in Electron-Impact Ionization of Atoms D.H. MADISON, Missouri S&T, Rolla, MO , H.P. SAHA, University of Central Florida, Orlando, FL, B. LOHMANN, M.A. STEVENSON, L.R. HARGREAVES, University of Adelaide, Adelaide, Australia — Recently Kheifets et al. (J. Phys. B, 41, 145201,2008) reported a distorted wave Born (DWBA) calculation for ionization of helium, neon and argon where the post collision interaction (PCI) between the two final state electrons was approximated using the Gamow-factor (which they called the G-factor). For cases where there was a large difference between experiment and theory at the recoil peak, the G-factor significantly improved agreement between experiment and theory. The G-factor is an approximation for including the final state Coulomb interaction between the two continuum electrons in the final state wavefunction which is attractive due to its simplicity. The 3DW (three-body-distorted-wave) method properly includes the Coulomb interaction in the final state wavefunction without approximation. We will examine the accuracy of the G-factor approximation by comparing 3DW results with G-factor results for ionization of neon, argon and xenon.

Don Madison
Missouri S&T, Rolla, MO

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