

Abstract Submitted
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Comparisons of sets of electron-neutral scattering cross sections and calculated swarm parameters in He and Ne S.F. BIAGI, Univ Liverpool, M.C. BORDAGE, G.J.M. HAGELAAR, L.C. PITCHFORD, LAPLACE, CNRS and Univ Toulouse, W.L. MORGAN, Kinema Software, A.V. PHELPS, JILA, NIST and Univ Colorado, V. PUECH, LPGP, CNRS and Univ Paris Sud — In the context of the recently initiated GEC Plasma Data Exchange project, we compare measured swarm parameters with those calculated using sets of cross sections, compiled by different authors, in helium and neon. These data are on-line at www.lxcat.laplace.univ-tlse.fr. The cross section compilations for electron scattering from ground state helium or neon vary mainly in the level of detail provided for inelastic excitation, ranging from one effective excitation level to many individual levels. The swarm parameters were calculated using a 2-term Boltzmann solver and a Monte Carlo simulation. Calculated swarm parameters from the various compilations show good agreement among themselves in both gases, and generally good agreement is obtained between calculated and measured swarm parameters except for ionization coefficients at low E/N where measured ionization coefficients in both gases show strong influences of Penning ionization of impurities. We conclude that the cross section compilations and their use in a 2-term Boltzmann solver yield results sufficiently accurate for plasma modeling purposes.

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