Abstract Submitted
for the GEC11 Meeting of
The American Physical Society

Comparisons of sets of electron-neutral scattering cross sections and calculated swarm parameters in Ar S.F. BIAGI, Univ Liverpool, L.L. ALVES, C.M. FERREIRA, IPFN/IST-UTL Lisbon, 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, O. ZATSARINNY, K. BARTSCHAT, Drake Univ — Extensive data are available in the literature for cross sections for electron-neutral scattering from argon and for swarm parameters in argon and argon-containing gas mixtures. Seven independently compiled sets of cross sections in argon are presently available on the LXCat web-site, including one set of data derived from theory. The recent theoretical elastic momentum transfer cross section is in excellent agreement with recent results from a swarm analysis. The purpose of this communication is to show intercomparisons of swarm parameters calculated using these different sets. For the most part and within the accuracy required for plasma modeling, calculated swarm parameters using the different cross section sets agree with experiement and among themselves. Swarm parameters calculated using classic 2-term Boltzmann solvers are in good agreement with those from Monte Carlo simulations except for the diffusion coefficients, where the 2-term approximation overestimates the values by about 30% in the 5 to 100 Td range. The cross section sets and measured swarm parameters used in this work are available on-line at www.lxcat.laplace.univ-tlse.fr.

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Date submitted: 19 Jul 2011 Electronic form version 1.4