

Abstract Submitted
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Arrival Time Spectra of Heavy Particles in Hydrogen Discharge

VLADIMIR STOJANOVIC, ZELJKA NIKITOVIC, ZORAN PETROVIC, Institute of Physics, LABORATORY FOR GASEOS ELECTRONICS TEAM — Arrival time spectrum of electrons and heavy particles in Townsend discharge at very high E/N is determined by using Monte Carlo technique. Three dimensional Monte Carlo codes are used for simulation of coupled kinetics of electrons, ions and fast neutrals. The electron collisions are represented by the anisotropic cross section set with available data for energy partitioning. Heavy particle collisions are represented by latest cross section set compiled by Phelps. Trajectories of H^+ , H_2^+ and H_3^+ ions, fast H and fast H₂ are followed up to the electrodes where arrival time is recorded. Energy relaxation of the neutral particles is followed down to the energy limit of 5 eV. These results are used to obtain the integrated particle flux data that can be compared either to experimental emission integrated data or to data obtained by current integration. The results of simulation allow us separation of different contributions and tests of models of interactions.

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