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Sensitivity analysis of PIC/MCC simulation results on the parameters of a realistic model for electron-surface interaction in low-pressure capacitively coupled radio-frequency discharges[1] A DERZSI, B HORVÁTH, P HARTMANN, Z DONKÓ, Wigner Research Centre for Physics, D SCHULENBERG, I KOROLOV, J SCHULZE, Ruhr-University Bochum — Recently, PIC/MCC simulations have been performed to study the role of electron-induced secondary electrons (δ-electrons) on the plasma parameters in low-pressure capacitively coupled radio-frequency (CCRF) discharges. In these studies, a realistic model has been used to describe the interaction of electrons with the boundary surfaces, which takes into account the elastic and inelastic reflection of electrons, as well as the emission of δ-electrons upon primary electron (PE) impact; the emission coefficients of these processes are functions of the energy and angle of incidence of PEs and depend on the surface properties. For this model, a number of material specific input parameters have to be specified, e.g. the maximum emission, the threshold energies for elastic reflection and δ-electron emission, etc., which have some uncertainty. However, these input parameters can have significant influence on the simulation outcome. Here, a sensitivity analysis of the numerical results on the parameters of the realistic electron-surface model is provided for low-pressure argon CCRF discharges.

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