Abstract Submitted
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The effects of elementary surface processes on the plasma parameters in capacitively coupled radiofrequency discharges[1] ARANKA DERZSI, West Virginia University, BENEDEK HORVATH, Wigner RCP, MANASWI DAKSHA, West Virginia University, BIRK BERGER, SEBASTIAN WILCZEK, JAN TRIESCHMANN, Ruhr-University Bochum, THOMAS MUSSENBROCK, Brandenburg University of Technology, Germany, PETER AWAKOWICZ, Ruhr-University Bochum, ZOLTAN DONKO, Wigner RCP, JULIAN SCHULZE, West Virginia University — The elementary processes taking place at the boundary surfaces in capacitively coupled plasmas (CCPs) can largely influence the electron power absorption dynamics. Here, the effects of plasma particle-surface processes on the discharge characteristics are investigated by PIC/MCC simulations. Realistic description of the secondary electron emission (SEE) induced by heavy particles and electrons is implemented in the PIC/MCC model. Simulations are performed for a wide range of operating conditions in Argon by switching on/off the different elementary surface processes. In this way the effects of the individual processes on the plasma properties are separated. The results show that the secondary electron yield strongly depends on the discharge conditions and surface properties. At low pressures, the electron induced SEE is found to have an important role in the ionization dynamics. Therefore, we propose this process to be included in PIC/MCC simulations of CCPs in order to obtain more realistic results.

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