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Particle-in-Cell and molecular dynamics simulation of plasma-surface interaction HANNO KAEHLERT, ITAP, Kiel University, ALEXEI FILINOV[1], ITAP, Kiel University and INP Greifswald, MICHAEL BONITZ, ITAP, Kiel University — Depending on their energy, particles from a plasma can initiate various processes on the surface of a solid. This includes, i.a., sputtering, adsorption of the particle on the surface, or the emission of secondary electrons back into the plasma. Particle-in-Cell simulations with Monte Carlo Collisions (PIC-MCC) have been used to investigate the influence of surface processes on the physical conditions in an rf discharge [1]. Here, we perform PIC-MCC simulations and focus on the physical parameters in the sheath region as the plasma-surface boundary layer from which energetic plasma particles reach the surface and into which particles from the solid are emitted. Molecular dynamics simulations are used to gain a better understanding of the microscopic processes on the surface.
[1] A. Derzsi *et al.*, Plasma Sources Sci. Technol. **24**, 034002 (2015).

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