

Abstract Submitted  
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**Spatial-grid-independent**

**1D hybrid kinetic-hydrodynamic plasma simulations for nanoparticle deposition** PAVLO RUTKEVYCH, Plasma Sources and Applications Center, NIE, Nanyang Technological University, Singapore — The present code is created in order to describe nanoparticle movement in a combined bulk-presheath-sheath region and confirm our earlier proposed simple models of nanoparticle deposition. The required quantities are densities and average velocities of each species at each spatial cell; the plasma particles are described according to their velocity distribution function, and they are moving with respect to their velocities. The time evolution is performed until the stabilization process is finished. The model is found to be sensitive to the time step (the optimum time step has been investigated for each species separately), however it is much less sensitive to the spatial grid, allowing strongly irregular coordinate cells. The model includes external electric field, collision with neutrals, ionization and various boundary conditions at the wall. Currently the model describes electrons, one kind of positive ions and nanoparticles, though it can be easily extended to a larger number of species, common for chemically-active discharges.

Pavlo Rutkevych  
PSAC/NIE/NTU, Singapore

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