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PIC Simulation of plasma detachment[1] SEIJI ISHIGURO, National Institute for Fusion Science, THEERASARN PIANPANIT, The Graduate University for Advanced Studies (Sokendai), HIROKI HASEGAWA, RYUTARO KANNO, National Institute for Fusion Science — The detached plasma, which is caused by gas puffing, has been proposed and it is the most promising way to reduce the heat load to the divertor plate of fusion oriented devices. Dynamical and kinetic behavior of the detached plasma is unresolved. So we are developing particle-in-cell simulation model with atomic processes such as line radiation, ionization, charge-exchange collision and recombination. As a first step, we have performed PIC simulation with Monte Carlo collisions, where spatial and velocity space distributions of charged particles, self-consistent electric field, and atomic processes such as ionization and charge exchange are included. Temperature decrease and density increase in front of the target is observed and electric potential structure along the axis is created.

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