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**Particle-in-Cell Simulation of Plasma Blob Dynamics** HIROKI HASEGAWA, SEIJI ISHIGURO, National Institute for Fusion Science — Recently, it has been reported that long-lived coherent structures "blobs" in scrape-off layer (SOL) of magnetic confinement fusion devices propagate from the edge of core plasma to the first wall. Blobs are thought to transport a plasma into the far (second) SOL across magnetic field lines. Many theoretical and numerical works based on two-dimensional reduced fluid models have been performed and dynamics of blobs have been investigated. However, in this kind of macroscopic model, kinetic effects, such as sheath formation between plasma and divertor plate, are treated under some assumptions and parameterization. In this study, for the purpose of investigating blob dynamics including such kinetic effects, we have developed a three dimensional electrostatic particle-in- cell simulation code with particle absorbing boundaries. Results of preliminary simulations show that blobs move to the first wall across the magnetic field lines and the relation between the observed propagation speed of the blob and the initial effective width of the blob in the poloidal direction is consistent with the fluid theory.

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