

Abstract Submitted  
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**Kinetic Effects on Plasma Blob Dynamics with Plasma Sheath<sup>1</sup>**

HIROKI HASEGAWA, SELJI ISHIGURO, National Institute for Fusion Science — Kinetic effects on plasma blob dynamics with plasma sheath have been studied with a three dimensional electrostatic plasma particle simulation code. In the particle simulation, an external magnetic field  $\mathbf{B}$  is pointing into the  $z$  direction (corresponding to the toroidal direction). The strength of ambient magnetic field increases in the positive  $x$  direction (corresponding to the counter radial direction), i.e.,  $\partial B/\partial x > 0$ . A coherent structure is initially set as a column along the external magnetic field<sup>2</sup>. In our previous study, we investigated kinetic effects on plasma blob dynamics in the system where the periodic boundary condition is applied in the  $z$  direction and found that the symmetry breaking in a blob profile occurs by the kinetic effect.<sup>3</sup> In this study, we have applied the particle absorbing boundaries to the ends in the  $z$  direction and studied such kinetic effects with the plasma sheath. In the simulation, not only the symmetry breaking shown in the previous study but also other properties which were not found in the periodic boundary case have been observed.

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<sup>2</sup>H. Hasegawa and S. Ishiguro, Plasma Fusion Res. **7**, 2401060 (2012).

<sup>3</sup>S. Ishiguro and H. Hasegawa, 55th APS-DPP meeting, PP8.39 (2013).

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