

Abstract Submitted
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Study of Sheath Potential and Plasma Density Profiles in the Presence of Strong Secondary Electron Emission from Walls¹ HUY-SINH TRUNG, University of Virginia, IGOR KAGANOVICH, ALEXANDER KHRABROV, Princeton Plasma Physics Laboratory — We study the behavior of plasmas confined within walls, which emit secondary electrons. A set of fluid equations for ions, the Vlasov equation for electrons, and Poisson's equation are solved together numerically to obtain potential and density distributions. We explore the transition to the space charge limited regime in the sheath. The potential and density profiles are monotonic if the emission coefficient is set below the critical emission coefficient. Above the critical emission coefficient, the profiles become non monotonic. We recover the results obtained by Hobbs & Wesson [1] and compare them to the full-scale simulation results of a particle-in-cell code, EDIPIC.

[1] G. D. Hobbs and J. A. Wesson, *Plasma Phys.*, 9:85–87, 1967.

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