

Abstract Submitted
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Plasma-Surface Interaction in Presence of Intense Electron Emission from Walls¹ I.D. KAGANOVICH, E.A. STARTSEV, Y. RAITSES, H. WANG, M.D. CAMPANELL, A.V. KHRABROV, Princeton Plasma Physics Laboratory, Princeton, NJ, A.N. ANDRONOV, A.S. SMIRNOV, State Polytechnic University, St. Petersburg, Russia, D. SYDORENKO, University of Alberta, Canada, V.I. DEMIDOV, West Virginia University, Morgantown, WV — The plasma-surface interaction in presence of strong thermionic or secondary electron emission has been studied theoretically and experimentally both as a basic phenomenon and in relation to numerous plasma applications such as, divertor plasma, particle accelerators, surface discharges, plasma thrusters and plasma processing [1-3]. Secondary electron emission (SEE) from walls can be induced by electron or ion impact. The SEE can greatly alter the plasma-wall interaction and modify the whole structure of the plasma and its stability. A review of present theoretical models and experimental methods of investigating emission properties of different materials will be given. We also review a recently proposed effect that the reflectivity of very low energy electrons from solid surface approaches unity in the limit of zero electron energy [2]. We report on recent experimental and particle-in-cell simulation studies on plasma-surface interaction in presence of electron emission [3,4].

[1] J. Cazaux. *J. Appl. Phys.* 111 064903 (2012). [2] R. Cimino, I.R. Collins. *Appl. Surface Scie.* **235**, 231 (2004). [3] Y. Raitses, et al, *IEEE Trans. on Plasma Scie.* **39**, 995 (2011). [4] M. D. Campanell, et al, *Phys. Rev. Lett.* **108**, 235001 and 255001 (2012).

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