

Abstract Submitted
for the GEC13 Meeting of
The American Physical Society

An experimental study of secondary electron emission in the limit of low electron energy¹ V.I. DEMIDOV, WVU, Morgantown, WV; SPbGU, St. Petersburg, Russia, I.D. KAGANOVICH, PPPL, Princeton, NJ, M.E. KOEPKE, WVU, Morgantown, WV — Study of secondary electron emission (SEE) from solid surfaces is important for many areas of science and technology, including but not limited to the formation of electron clouds in particle accelerators, plasma measurements by electrostatic probes and operation of Hall plasma thrusters [1]. The measurements at low incident electron energy below 2eV are very challenging. The goal of this work is to measure SEE coefficient for molybdenum surface in contact with plasmas. In this study nearly mono-energetic electrons arising in plasma-chemical reactions like pair collisions of metastable atoms have been used for the measurements. Variation of the target voltage and measurement of the corresponding electron current from the mono-energetic electrons allows us to obtain the SEE coefficient. It is experimentally demonstrated that the coefficient is close to zero (less than 0.1) for clean targets and may have much higher value for contaminated targets with some absorbed gas on the surface.

[1] J. Cazaux. J. Appl. Phys. 111 (2012) 064903.

¹This work has been supported by DoE contract No. DE-SC0001939 and SPbGU.

V. I. Demidov
WVU, Morgantown, WV; SPbGU, St. Petersburg, Russia

Date submitted: 11 Jun 2013

Electronic form version 1.4