

Abstract Submitted
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Diagnostic signature of low-energy secondary electron emission at the boundary of a partially-ionized plasma¹ V.I. DEMIDOV, WVU, S.F. ADAMS, AFRL, I.D. KAGANOVICH, PPPL, M.E. KOEPKE, WVU, I.P. KURLYANDSKAYA, ITMO, SPbGU — Effects of secondary electron emission (SEE) from a solid surface in contact with plasma are important for conducting and interpreting plasma experiments and modeling. Those effects are especially strong for contaminated surfaces. Measurements of SEE reported here are conducted in a plasma having a nearly mono-energetic population of electrons that is energetically well resolved and separated from a broader-energy-range electron population. By performing the SEE measurement in an afterglow or afterglow-like plasma, we take advantage of the nearly mono-energetic electron population that arises in ionizing plasma-chemical reactions, such as binary like-particle collisions of metastable atoms. We demonstrate a diagnostic method for measuring the low-energy electron absorption coefficient across the broader energy range and the effects of contamination on the swept-bias probe characteristic trace.

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