Abstract Submitted
for the DPP06 Meeting of
The American Physical Society

Characterization of the "Dose Effect" in secondary electron emission[1] PRASHANTH KUMAR, TENGIZ SVIMONISHVILI, CHRISTOPHER WATTS, MARK GILMORE, EDL SCHAMILOGLU, University of New Mexico — Secondary electron emission(SEE) results from bombarding materials with electrons, atoms, or ions. When studying SEE, one is interested in determining the ***true*** secondary electron yield (as opposed to scattered secondary electrons), defined as the number of secondary electrons produced per incident primary electron. It is well known that the amount of secondary emission depends on factors such as bulk and surface properties of materials, energy of incident particles, and their angle of incidence. However, it has been observed in experiments presented here that secondary electron yield also ***largely*** varies with the amount (dosage) of incident primary electrons. There has been little effort in the literature to quantify this effect. Experimental results presented here aim to fill this gap. It is also proposed that discrepancies observed in literature – such as large variations in secondary electron yield and temporal dependence – could arise due to usage of different primary doses. Experiments are conducted in the low-energy range (5eV to 2000eV) and in the DC regime. Cu, TiN, and plasma sprayed boron carbide samples were used. Characterization of surface modifications arising from different primary doses and pulsed measurements are planned for the future.

[1]Work supported by grant from AFOSR and HPCMPO.

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Date submitted: 23 Jul 2006 Electronic form version 1.4