PPPS 2019



Contribution ID: 1157

Type: Oral

SECONDARY ELECTRON YIELD MEASUREMENTS ON MATERIALS OF INTEREST TO HIGH VACUUM ELECTRONIC COMMUNICATION DEVICES

Tuesday 25 June 2019 17:15 (15 minutes)

Vacuum electronic communication devices, such as the traveling wave tube (TWT) and backward wave oscillator (BWO), can at times experience degraded performance up to complete failure due to the multipactor effect. This effect is tied to the production and acceleration of secondary electrons due to electron impact and coupling to the electromagnetic energy within the tube. As part of a Multidisciplinary University Research Initiative (MURI) led by Michigan State University, the University of New Mexico is carrying out a study of the SEY contribution from various materials used in high power vacuum electronic devices. This presentation describes SEY data from electron bombardment in the low energy regime, from 10 eV to 1 keV, on Cu (baseline), Monel, Kovar, Invar, Al of various tempers, Fe (Cu Plated) as well as silver- and gold-plated samples. Angular resolved measurement data will be presented. In addition, different surface cleaning treatment protocols employed in this study will be described. Experimental results are compared with available simulations and previous data published in the literature.

Authors: Mr MALIK, Talal Ahmed; Dr GILMORE, M. (University of New Mexico)

Co-authors: PORTILLO, Sal (PI); Mr CHEN, Joe; Mr GUTIERREZ, Raul; Mr JOHNSON, Ryan; SCHAMILOGLU, Edl (University of New Mexico)

Presenter: Mr MALIK, Talal Ahmed

Session Classification: 2.7 Microwave Plasma Interaction II

Track Classification: 2.7 Microwave Plasma Interaction