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Secondary Electron Yield from Plasma-Treated Niobium MILOS BASOVIC, RAJINTHA TISKUMARA, ANA SAMOLOV, FILIP CUCKOV, SVETOZAR POPOVIC, LEPOSAVA VUSKOVIC, Center for Accelerator Science, Old Dominion University — Future room-size linear accelerators, incorporated in compact light sources and medical therapeutic systems, will use Superconducting Radio Frequency (SRF) cavities to achieve the required beam energy over limited distances. The inhibiting phenomena in these designs are among others resonant multipactor discharges. Present study is intended to help complex cavity surface modification leading to mitigation of multipactors. Behavior of the multipactor discharges depends on the microwave field configuration and on the Secondary Electron Yield (SEY) from the cavity surface. Contaminated surfaces show substantial increase of SEY. Our aim is to reduce SEY using *in-situ* surface treatment with microwave discharge. We have developed an experimental set up to study the effect of plasma surface treatment on SEY. The system is designed to measure energy distribution of SEY on coin like samples under different incident angles. Clean, contaminated, and plasma-treated samples are placed in a carousel target manifold. Samples and the manifold are manipulated by robotic arm providing multiple degrees of freedom of a whole target system. Here we are reporting our progress and preliminary results from testing the Nb surface samples.

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