

Abstract Submitted
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Effects of Fluence and Charge Density for Pulsed, Low-Fluence Measurements of Electron Emission in Highly Insulating Materials RYAN HOFFMANN, J.R. DENNISON, Utah State University — Accurate measurements of the electron emission properties of extreme insulators require highly controlled experimental techniques. Due to the poor electron mobility in insulators, charge can accumulate which will affect future incident and secondary electrons; subsequently, the electron yield will evolve. This evolution is the prime difficulty in measuring the electron yield of insulators. Minimizing the charge in the electron probe using a pulsed, low-current electron beam will largely mitigate these effects. However, to accurately measure the insulator secondary and backscattered electron yields, careful control is required of the beam current magnitude and spatial charge density. Methods for accurately determining pulsed electron beam fluence and charge density profiles will be discussed. The effects on the yield, emission spectra and yield decay curves—as dose per unit area is varied—will also be presented.

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