

Abstract Submitted
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Comparison of Methods for Determining Crossover Energies in Insulators JONATHAN ABBOTT, RYAN HOFFMANN, J.R. DENNISON¹, SARAH BARTON, Brigham Young University — When a material is irradiated with energetic particles electrons can be emitted from the material. For electron-induced emission, the number of electrons that leave a particular material depends on the incident energy of the electrons, among other things. There are two critical energies where the ratio of emitted electrons to incident electrons crosses unity, called crossover energies. Measurements of the absolute total yield, secondary electron emission spectra, and sample and detector currents are used for a variety of methods to determine first and second crossover energies of both conductors and insulators. Precision is discussed for the following methods: i) Total Yield Curve, ii) Backscattered-to-Secondary Yield Ratio, iii) Mirror Potential, iv) Emission Spectral Shift, and v) Sample Null Current. Also, theoretical models for the Emission Spectral shift and Sample Null Current methods will be discussed. This work was funded by the NASA Space Environments and Effects Program, a Willard L. Eccles Undergraduate Research Fellowship, and a USU Undergraduate Research and Creative Opportunities award.

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