

Abstract Submitted
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Electron Yield of a Carbon-composite Nanodielectric MATTHEW ROBERTSON, JR DENNISON¹, JUSTIN CHRISTENSEN, Utah State University — Electron irradiation experiments were conducted to investigate the electron transport, charging, discharging, and emission properties epoxy/carbon-fiber composite material. We discuss how these results are influenced by the nanoscale structure of the conducting carbon fibers embedded in the dielectric epoxy matrix. Electron yield measurements were made in an ultrahigh vacuum electron emission test chamber, with electron beam energies ranging from 15 eV to 5000 eV. Related structural and charging properties have also been measured by scanning electron microscopy, energy dispersive x-ray analysis, cathodoluminescence, electron-induced arcing, and conductivity. The emission properties of the composite material are considered, in regard to models which combined the two component base material emission properties.

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