

Abstract Submitted
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Coupled Atomistic-Continuum Calculations of Ionizing Radiation Tracks in Insulators¹ HAROLD HJALMARSON, PAUL CROZIER, RUDOLPH MAGYAR, Sandia National Labs, RODERICK DEVINE, AFRL/RSVE Kirtland AFB, CAROLYN PHILLIPS, University of Michigan — Irradiation of an insulator by energetic ionizing radiation creates hot electrons and holes. In our work, the resulting radiation damage is computed using coupled atomistic and continuum calculations. The effects of electrons and holes are incorporated into the atomistic calculations by solving for the quasi-equilibrium hot carrier density. Results for silicon dioxide will be presented and discussed in the talk. The contributions of excitonic, Coulomb explosion and thermal spike mechanisms to the damage will be discussed. The transient electrical effects will also be discussed.

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