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Electron Stopping Power Simulated by Time-dependent Density Functional Theory¹ JIA-AN YAN, KALMAN VARGA, SOKRATES T. PANTELIDES, Department of Physics and Astronomy, Vanderbilt University, Nashville, Tennessee 37235 — We report results of a study of electron energy loss in a solid using time-dependent density functional theory. The scattering electron is modeled by a wave packet that enters a crystalline thin film with a predetermined velocity. The propagation of the wave packet is simulated in real time and real space. The electron stopping power is extracted from the energy loss of the wave packet during the time propagation through the material. Results for thin Si films will be presented.

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