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Size Dependence of Hot Electron Relaxation Dynamics in Silicon Quantum Dots JIAN CHENG WONG, LESHENG LI, YOSUKE KANAI, Univ of NC - Chapel Hill, KANAI GROUP TEAM — The size dependence on the dynamics of hot electron relaxation in fluorine-passivated silicon quantum dots is investigated via first-principles simulations. Using the fewest switches surface hopping simulation based on non-adiabatic couplings and energies from density functional theory calculations, we investigate the extent to which the quantum dot size influences the hot electron dynamics in comparison to the surface passivation. We will also discuss influences of decoherence on the excited electron dynamics.

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