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Calculations of optical injection and coherent control in graphene
JULIEN RIOUX, JOHN E. SIPE, Department of Physics and Institute for Optical Sciences, University of Toronto — We calculate injection spectra for one- and two-photon absorption in graphene, as well as optically injected currents from coherent control of $1 + 2$ excitation. We compare *ab initio* pseudopotential calculations to analytical expressions of an effective tight-binding model expanded in $\vec{k}$ about the K symmetric point. We find that the spectra from full-zone band structure calculations deviate from the simple model at energies above a few hundred meV's.

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