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标题: Nonequilibrium electron leakage in terahertz quantum cascade structures
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摘要: The nonequilibrium absorption of longitudinal-optical phonons by hot electrons are studied in terahertz quantum cascade structures. We present a method for including electron leakage to the continuum that takes into account the mobility of the electrons. This is incorporated into a density matrix Monte Carlo method that includes the optical field within the resonant cavity. The effects of electron leakage to the continuum as a function of lattice temperature are discussed. Results are compared with experiment and found to be consistent. It is shown that using only confined wave functions and thereby neglecting the leakage via tunneling is inadequate for describing the electron transport.
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