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标题: Emitter injection in terahertz quantum cascade lasers: Simulation of an open system
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摘要: We investigate the carrier transport properties of a three-well terahertz quantum cascade laser which is considered as an open system by using self-consistent Bloch-Poisson equations. The simulation results show that a dynamic equilibrium is achieved, and the electric potential of each period slightly changes with time. Compared to other simulation methods with the cyclic boundary condition approximation, our open system modeling gives more reliable results on the current density-applied electric field and population inversion-applied electric field characteristics. Our modeling method can give more realistic results of working terahertz quantum cascade lasers without increasing the simulation complexity. (C) 2012 American Institute of Physics. [http://dx.doi.org/10.1063/1.3692170]
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