

band to band tunneling pdf

Figure 3. Energy band diagram for a p-n diode with band-to-band tunneling. A particle with nonzero perpendicular momentum (as defined by momentum oriented within the plane of the junction) tunnels across the band gap from the valence band at E_v to the conduction band at E_c .

Band-to-band Tunneling in Silicon Diodes and Tunnel

A detailed study on the mechanism of band-to-band tunneling in carbon nanotube field-effect transistors (CNFETs) is presented. Through a dual-gated CNFET structure tunneling currents from the valence into the conduction band and vice versa can be enabled or disabled by changing the gate potential.

Band-to-Band Tunneling in Carbon Nanotube Field-Effect

In this thesis, the tunneling field-effect-transistor (TFET) is explored to replace conventional MOSFETs for low power applications. The band-to-band tunneling mechanism is looked into in order to develop a more accurate tunneling model that considers the change in effective mass during the transition between the conduction and valence band.

Band-to-Band Tunnel Transistor Design and Modeling for Low

Band-to-Band Tunneling Transistors: Scalability and Circuit Performance By Zachery A Jacobson A dissertation submitted in partial satisfaction of the

Band-to-Band Tunneling Transistors: Scalability and

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(PDF) Band-to-Band Tunneling (BBT) Induced Leakage Current

PDF | Germanium is a widely used material for tunnel FETs because of its small band gap and compatibility with silicon. Typically, only the indirect band gap of Ge at 0.66 eV is considered.

(PDF) Direct and Indirect Band-to-Band Tunneling in

Low Power Band to Band Tunnel Transistors By Anupama Bowonder A dissertation submitted in partial satisfaction of the requirements for the degree of

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papers either band-to-band tunneling or tunneling via bulk or surface traps was considered the leakage mechanism. The first calculation of the probability of phonon-assisted band-to-band tunneling transitions was presented by Keldysh in 1958 [132]. He used second order

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