

The Stability Diagram of Single-Electron Transistors

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A new novel approach to model a single-electron transistor for the stability analysis was shown analytically. The electrostatic energy of the SET was investigated to obtain the condition of the state transition. With its simplicity, the tunneling conditions were analytically solved, and hence the stability diagram was plotted to show the stable regions and the state-transition boundary. The result strongly agreed to the stability diagrams previously reported with the different approach.

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