Abstract

The inspiring aspect of SET technology is that it offers control over the movement of one individual electron in the SEC (single electron circuits). In this paper we present SET (single electron tunneling) gate based implementations of SR flip-flop, D flip-flop and T-flip-flops. The whole design and simulation is made using a Monte Carlo based tool. We propose gate based
design of these SECs and verify simulation results using Monte Carlo Simulator (SIMON 2.0). The operation of the basic flip flops is successfully demonstrated through SIMON circuit simulation.

Reference


**Index Terms**

| Computer Science | Communications |

**Key words**

Coulomb Blockade

Single Electron Transistor SET
tunneling
Quantum Dot
Tunneling Rate

SR flip flop
D flip flop and T flip flop
SIMON