

Abstract Submitted  
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**Si single electron tunneling transistor with tunable barriers**  
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oratories — We demonstrate the operation of single-electron tunneling (SET) tran-  
sistor using electrostatically induced barriers. The barriers are formed on a Silicon  
nanowire using metal-oxide-metal field effect transistor (MOSFET) gates. This al-  
lows us to control the conductance of the tunnel barriers by more than 3 orders of  
magnitude. It also allows for various configurations of charge islands (changing the  
gate used for the tunnel barrier changes the shape and size of the island ). Below 4 K,  
the Coulomb blockade oscillations obtained are highly periodic. We also report the  
excellent reproducibility of the value of gate capacitances between different devices  
(variation of about 1 aF). The excellent controllability in these devices increases  
their potential in a number of applications, like metrological current standard or  
multivalued memory.

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