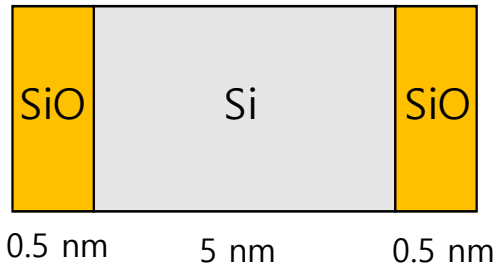
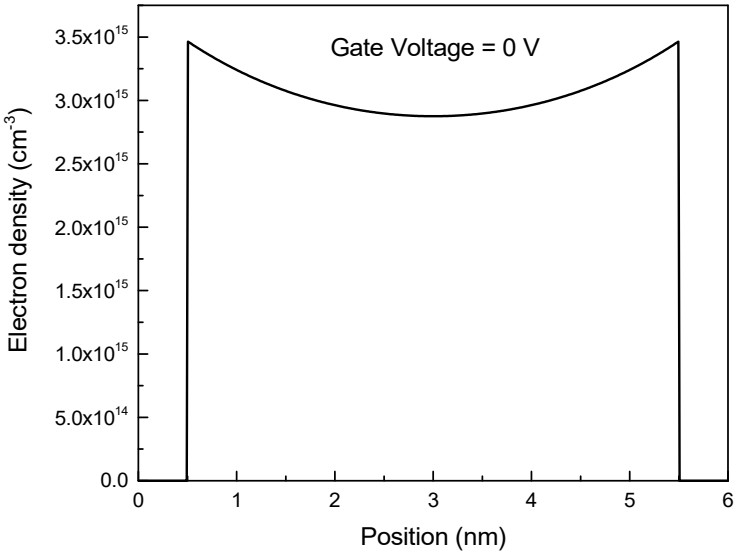
# Double gate MOSFET

$\phi_0 = 0.33347\ V$ $\phi_0 = 0.33347\ V$

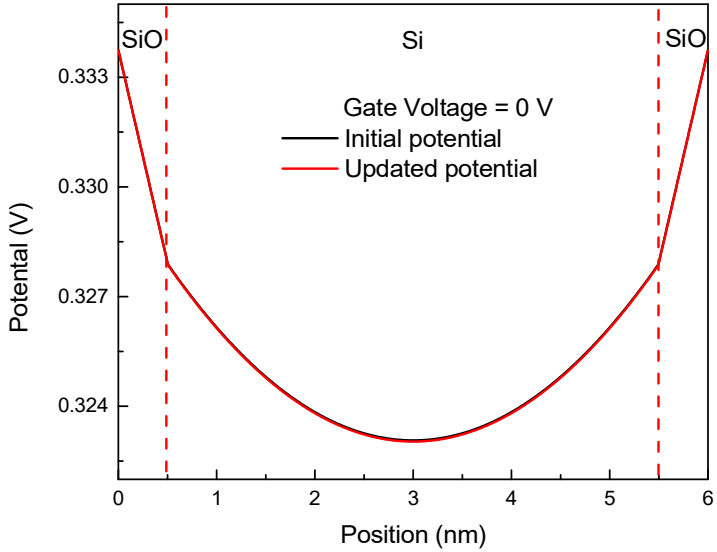



$\epsilon_{Si} = 11.7\epsilon_0$
$\epsilon_{SiO} = 3.9\epsilon_0$



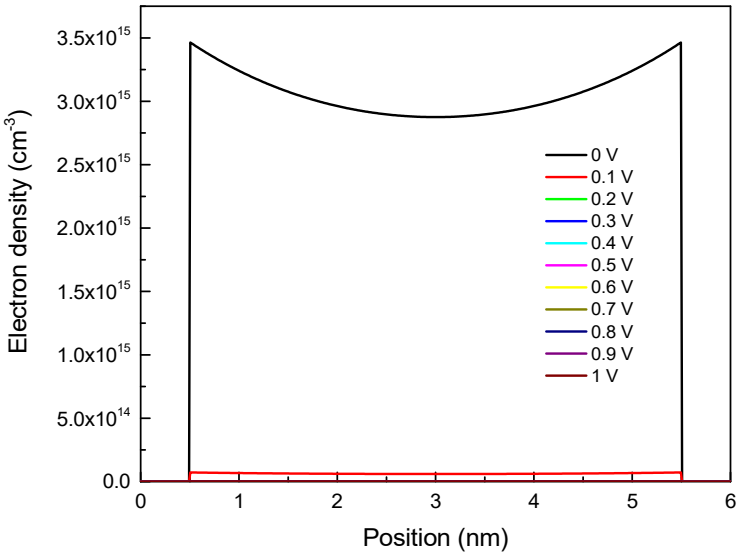

Depletion approximation (Initial potential) $\rho = qN_{acc}$

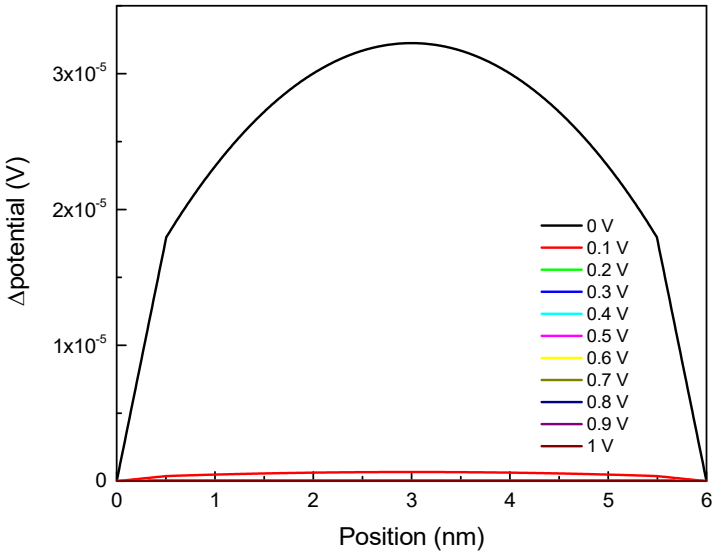
Including electron density (Updated potential) $\rho = qN + qN_{acc}$




- Electron density is small as much as negligible.

- Depletion approximation is available in this case.




- Potential difference between initial and updated is dramatically reduced as gate voltage increases.

- Electron density is also dramatically reduced as gate voltage increases. This implies that current induced by drain-source voltage is reduced as the gate voltage increases. It is opposite to real system.

- This mismatched result is caused by the regardless of Schottky barrier.