Home work #4

Dongkyu Kim(20162050)

September 17, 2017

Case1.

$N^- = 10^{15}[\text{cm}^{-3}]$ (0 to $1\mu m$), $N^+ = 10^{15}[\text{cm}^{-3}]$ (1 to $2\mu m$)

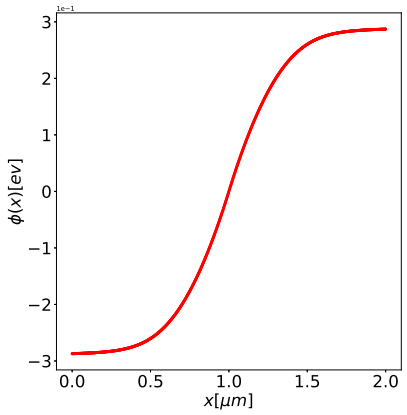

Figure 1: Energy $\phi(x)$[ev] versus $x[\mu m]$ with dopping density

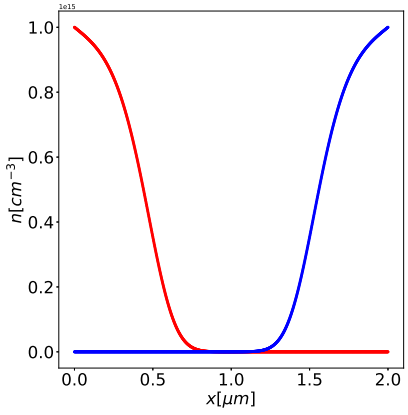

Figure 2: Electron carrier density(red) and hole carrier density(blue)

Case2.

$N^- = 10^{16}[\mathrm{cm}^{-3}]$ (0 to $1\mu m$), $N^+ = 10^{16}[\mathrm{cm}^{-3}]$ (1 to $2\mu m$)

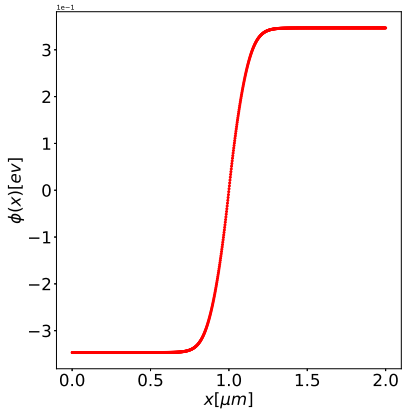

Figure 3: Energy $\phi(x)$[ev] versus $x[\mu m]$ with dopping density

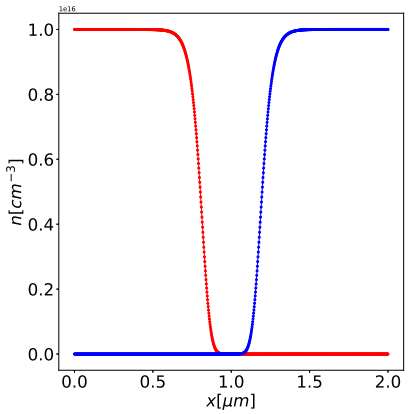

Figure 4: Electron carrier density(red) and hole carrier density(blue)

Case3.

$N^- = 10^{17}[\mathrm{cm}^{-3}]$ (0 to $1\mu m$), $N^+ = 10^{17}[\mathrm{cm}^{-3}]$ (1 to $2\mu m$)

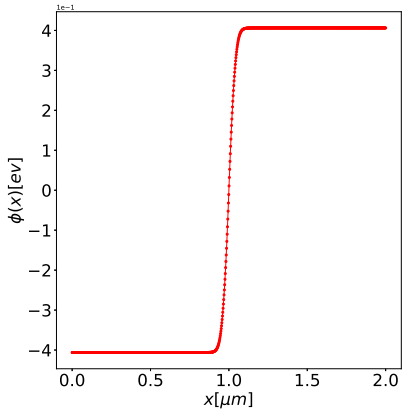

Figure 5: Energy $\phi(x)$[ev] versus $x[\mu m]$ with dopping density

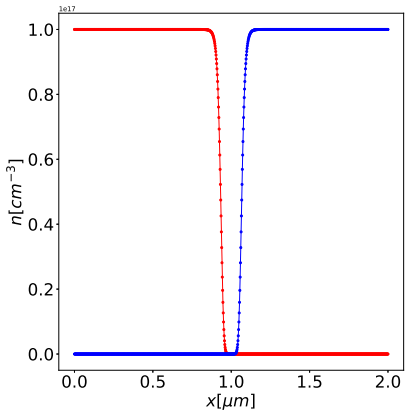

Figure 6: Electron carrier density(red) and hole carrier density(blue)

Case4.

$N^- = 10^{16}[\mathrm{cm}^{-3}]$ (0 to $1\mu m$), $N^+ = 10^{17}[\mathrm{cm}^{-3}]$ (1 to $2\mu m$)

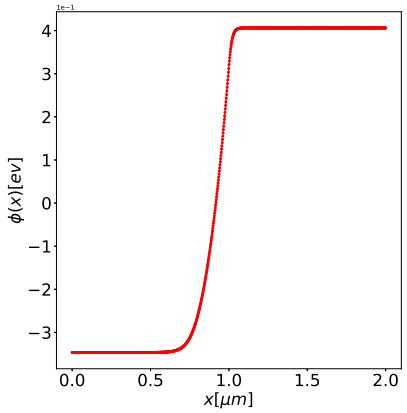

Figure 7: Energy $\phi(x)$[ev] versus $x[\mu m]$ with dopping density

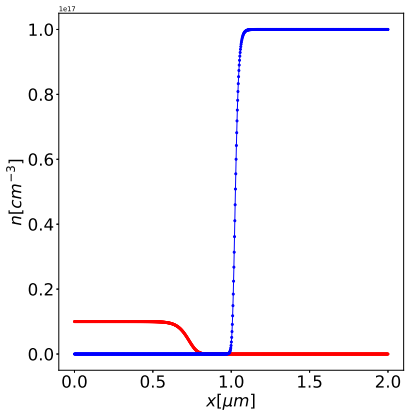

Figure 8: Electron carrier density(red) and hole carrier density(blue)