Channel length	20 nm,15 nm,10 nm
Oxide thickness (t_{ox})	1.5 nm
Silicon film (t_{Si})	1.5 nm
Source/Drain length	10 nm
Source/Drain doped	10^{20} /cm^3
Channel doped	undoped
Work function for gate	4.25 eV
Low-field mobility	120 cm^2/ V-sec
V_{GS}	0.4~0.55 V with 0.05 V step
V_{DS}	0.1~0.5 V with 0.1 V step
Temperature	300 K

Table 3-1 Simulation Specifications

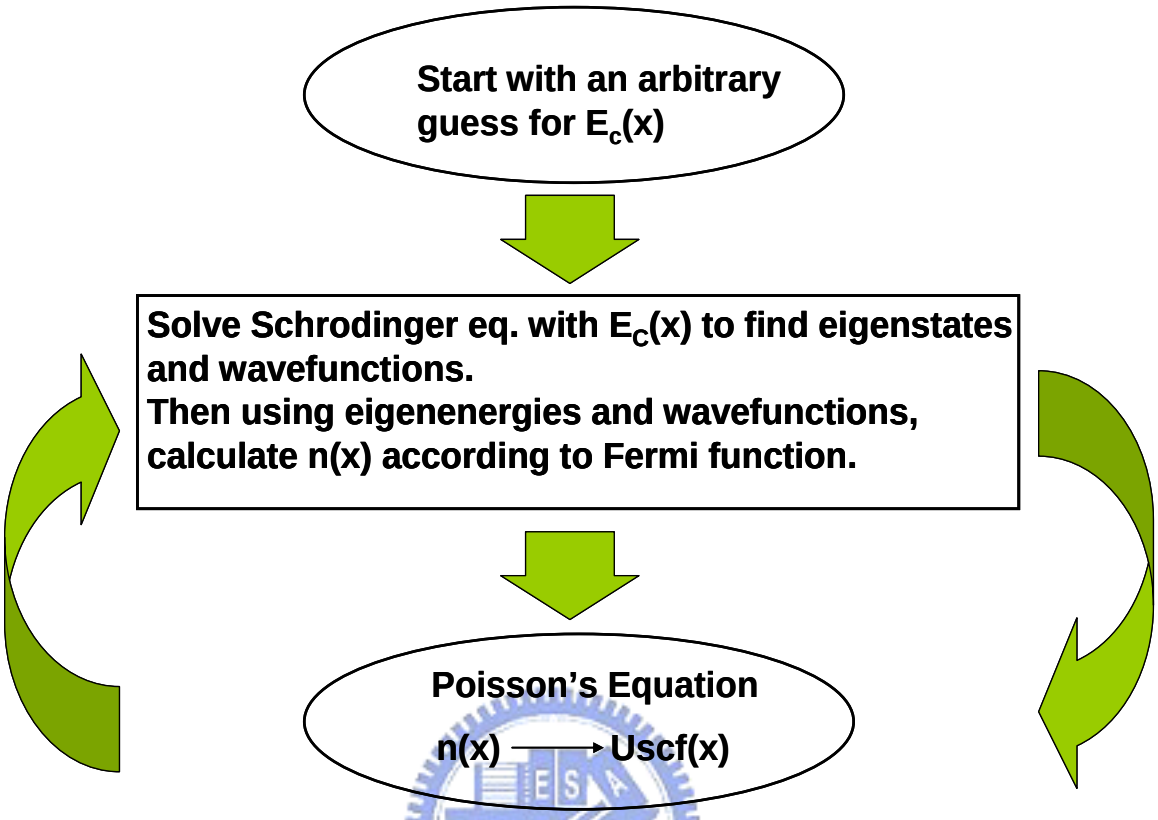

Fig. 2-1 The flow chart of self-consistently solving Schrödinger-Poisson equation.

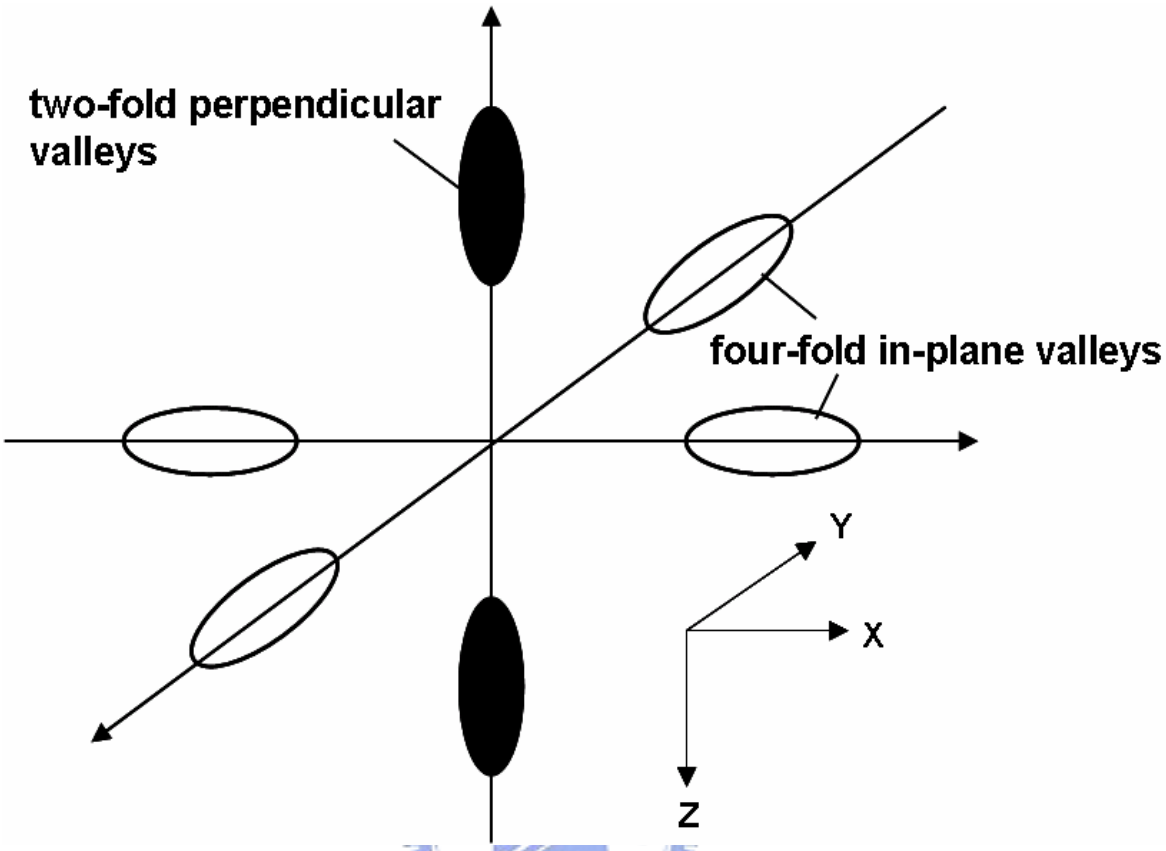

Fig. 2-2 Schematic band structure of conduction band electrons on (100).

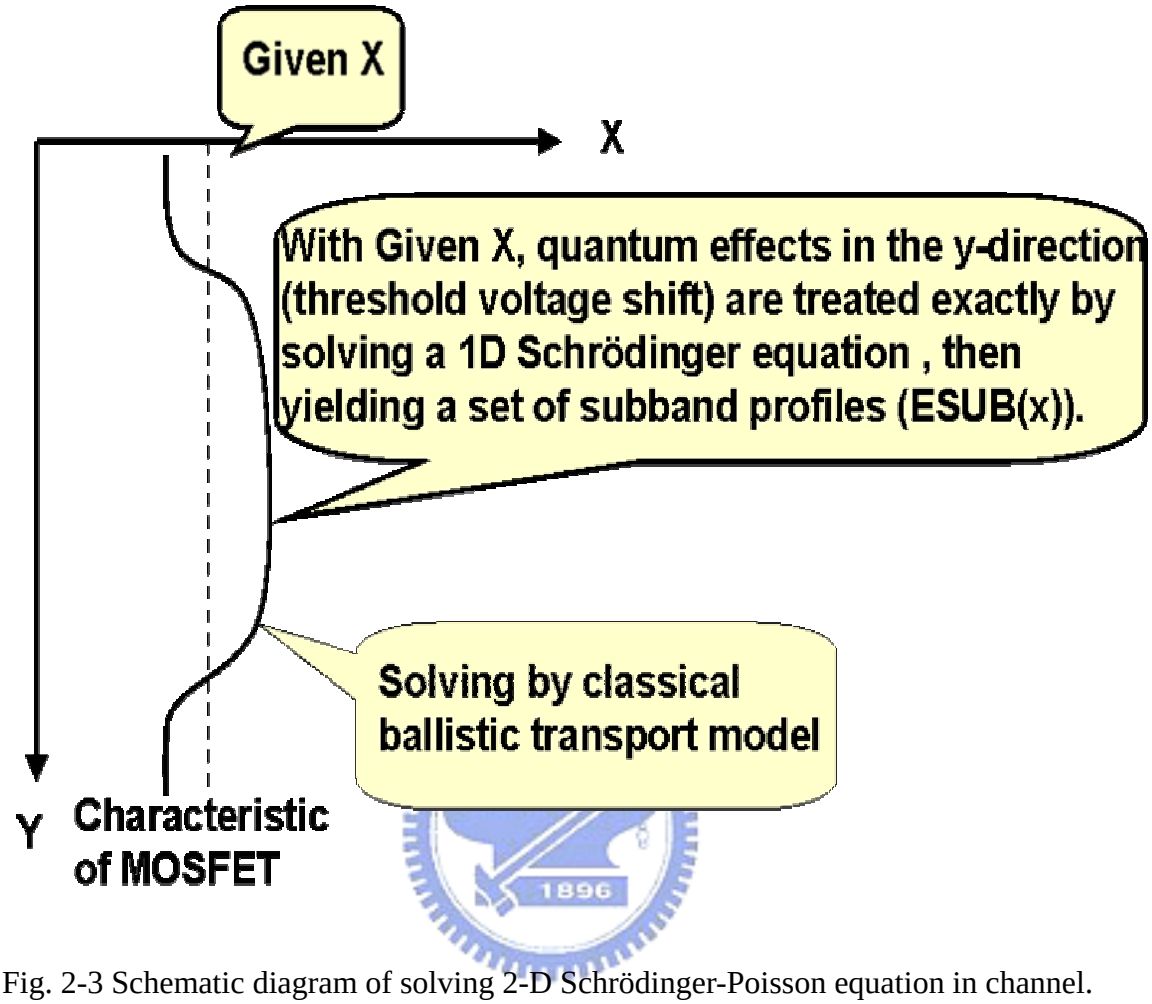

Fig. 2-3 Schematic diagram of solving 2-D Schrödinger-Poisson equation in channel.

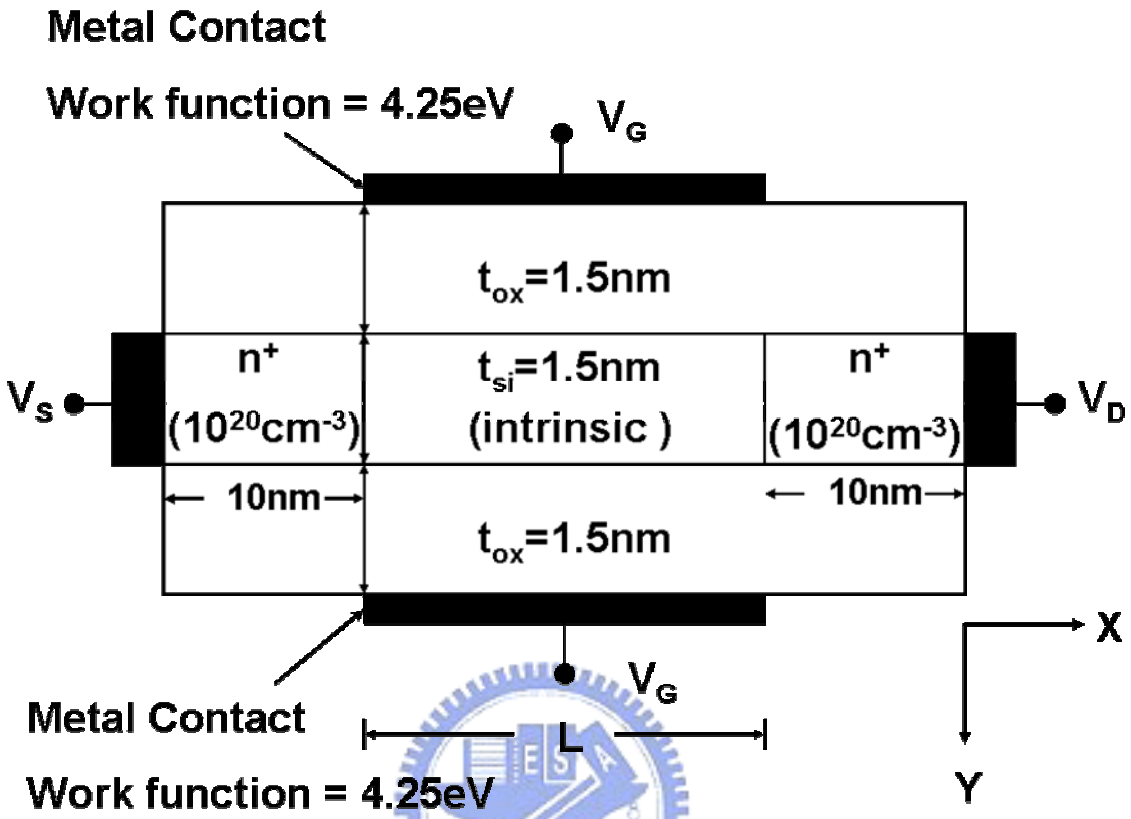

Fig. 3-1 Schematic cross section of the device under study.

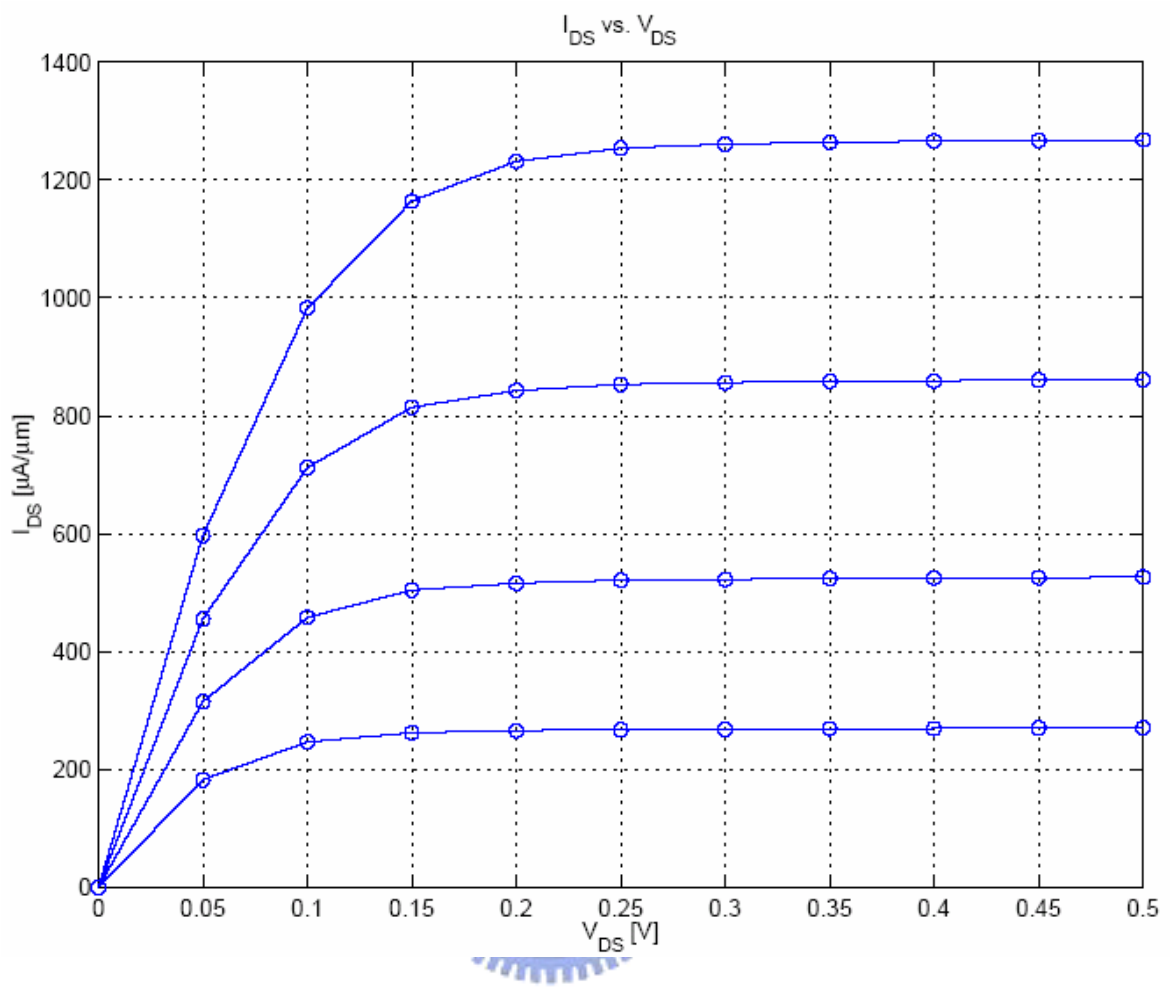

Fig. 3-2 Simulated I_{DS} versus V_{DS} with L=20nm.

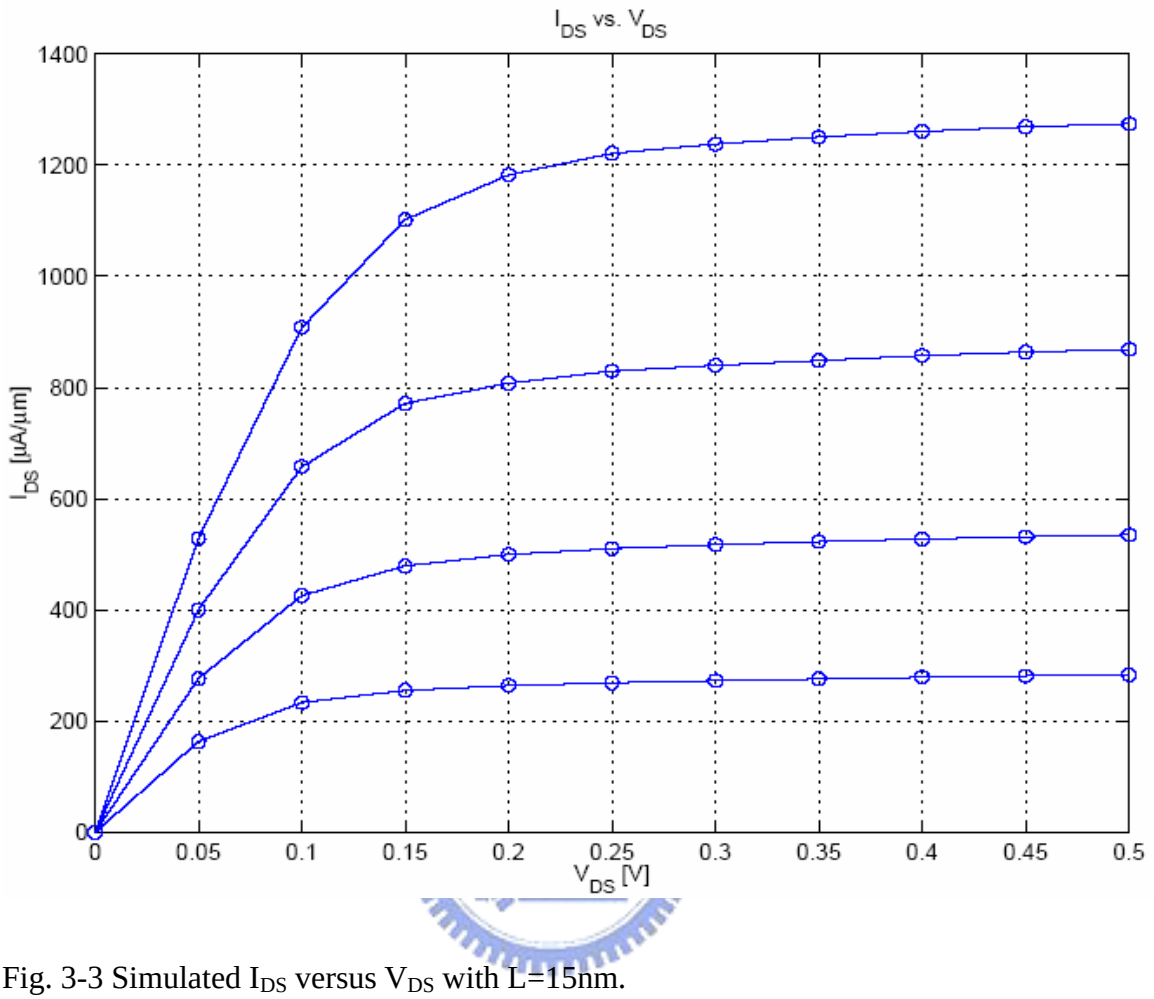

Fig. 3-3 Simulated I_{DS} versus V_{DS} with L=15nm.

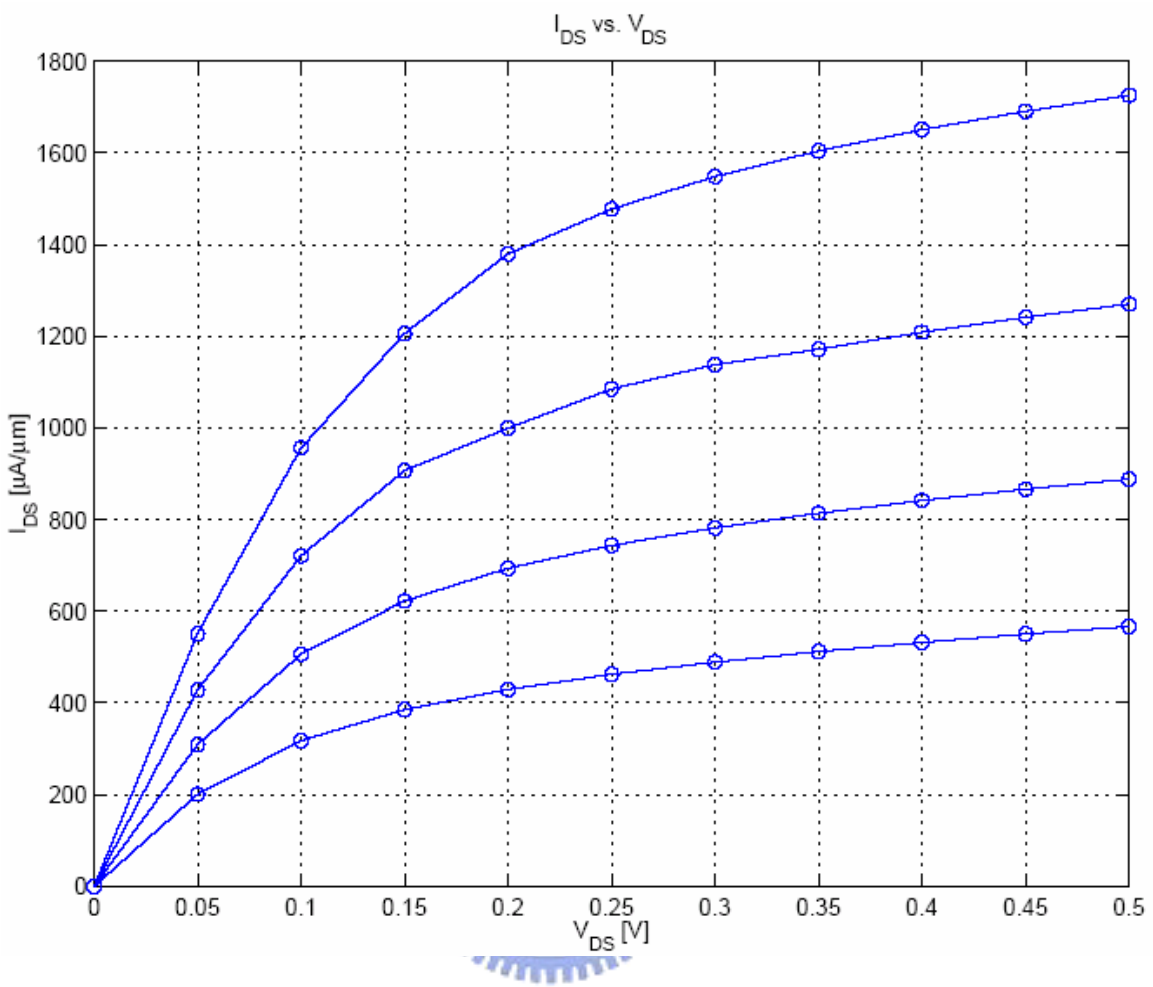

Fig. 3-4 Simulated I_{DS} versus V_{DS} with L=10nm.

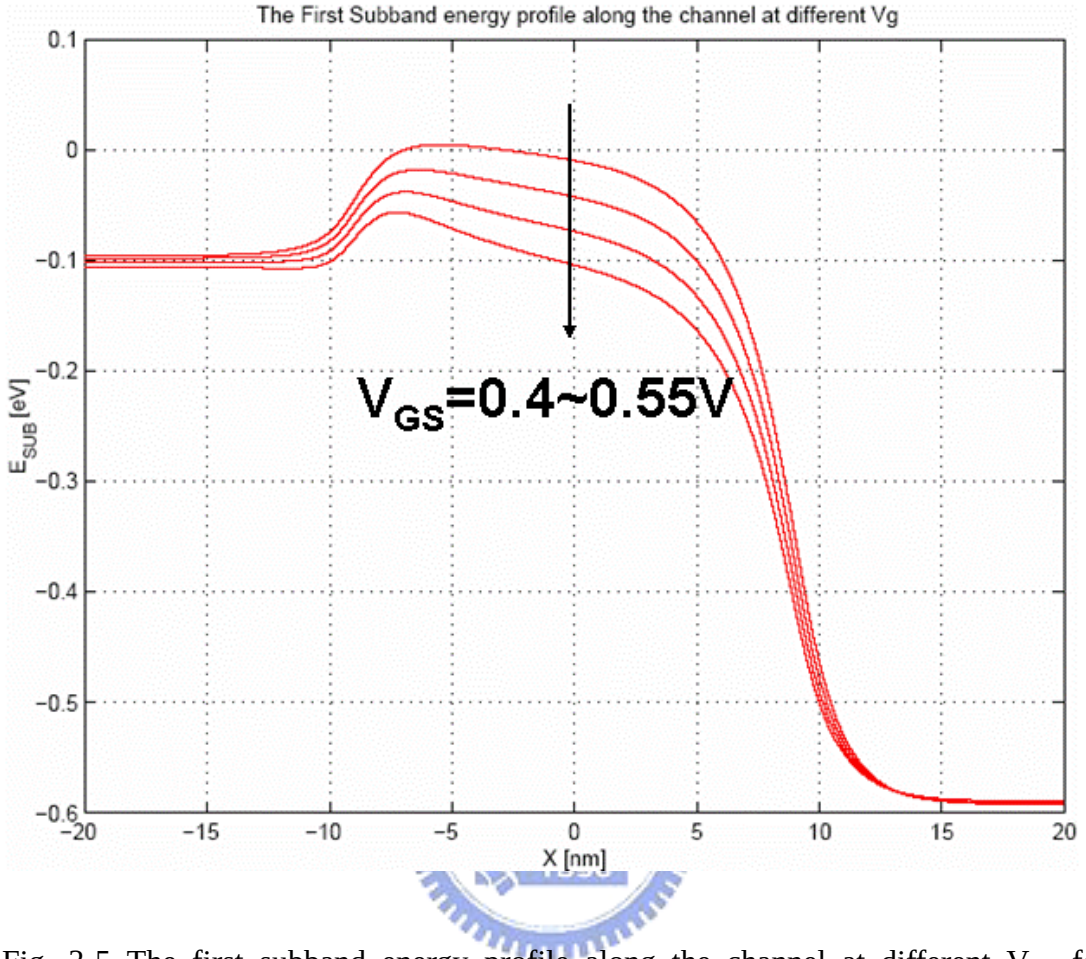

Fig. 3-5 The first subband energy profile along the channel at different V_{GS} for L=20nm.

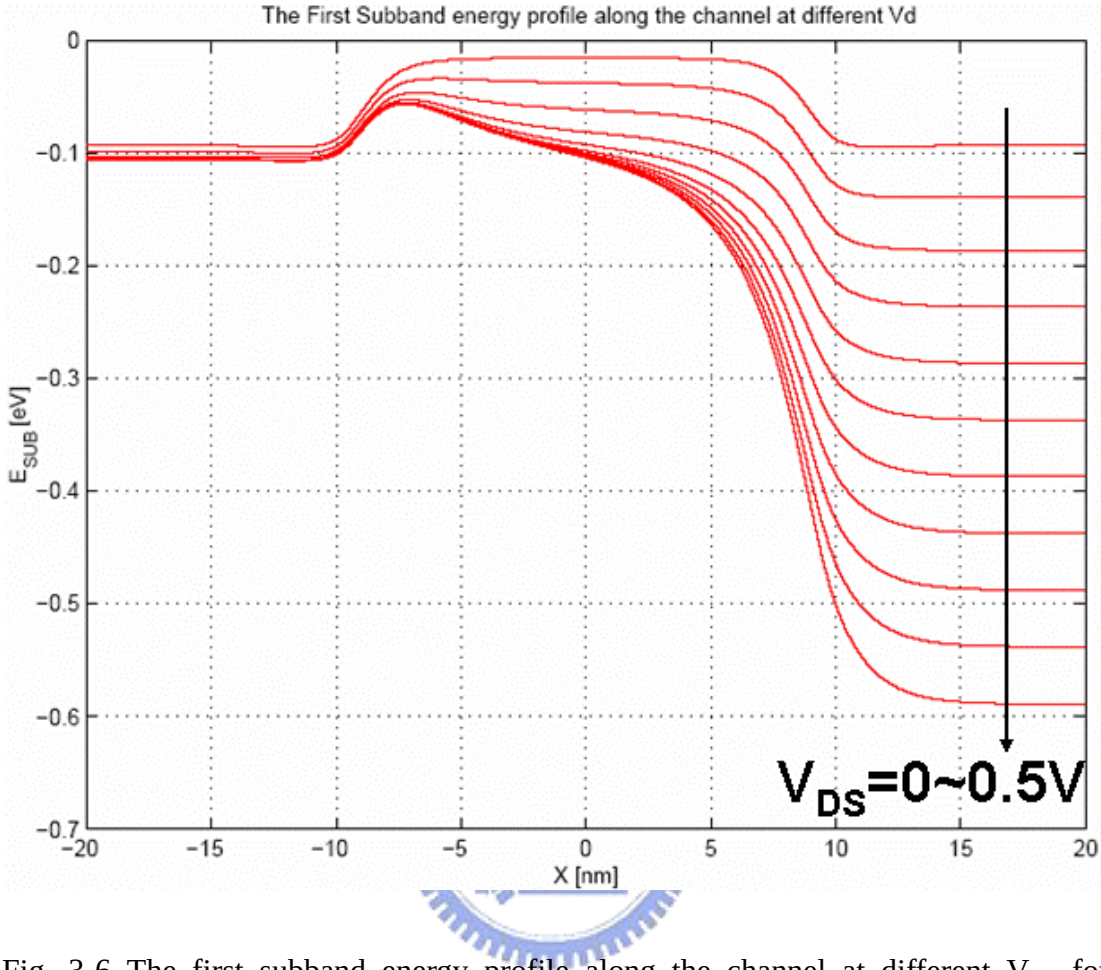

Fig. 3-6 The first subband energy profile along the channel at different V_{DS} for L=20nm.

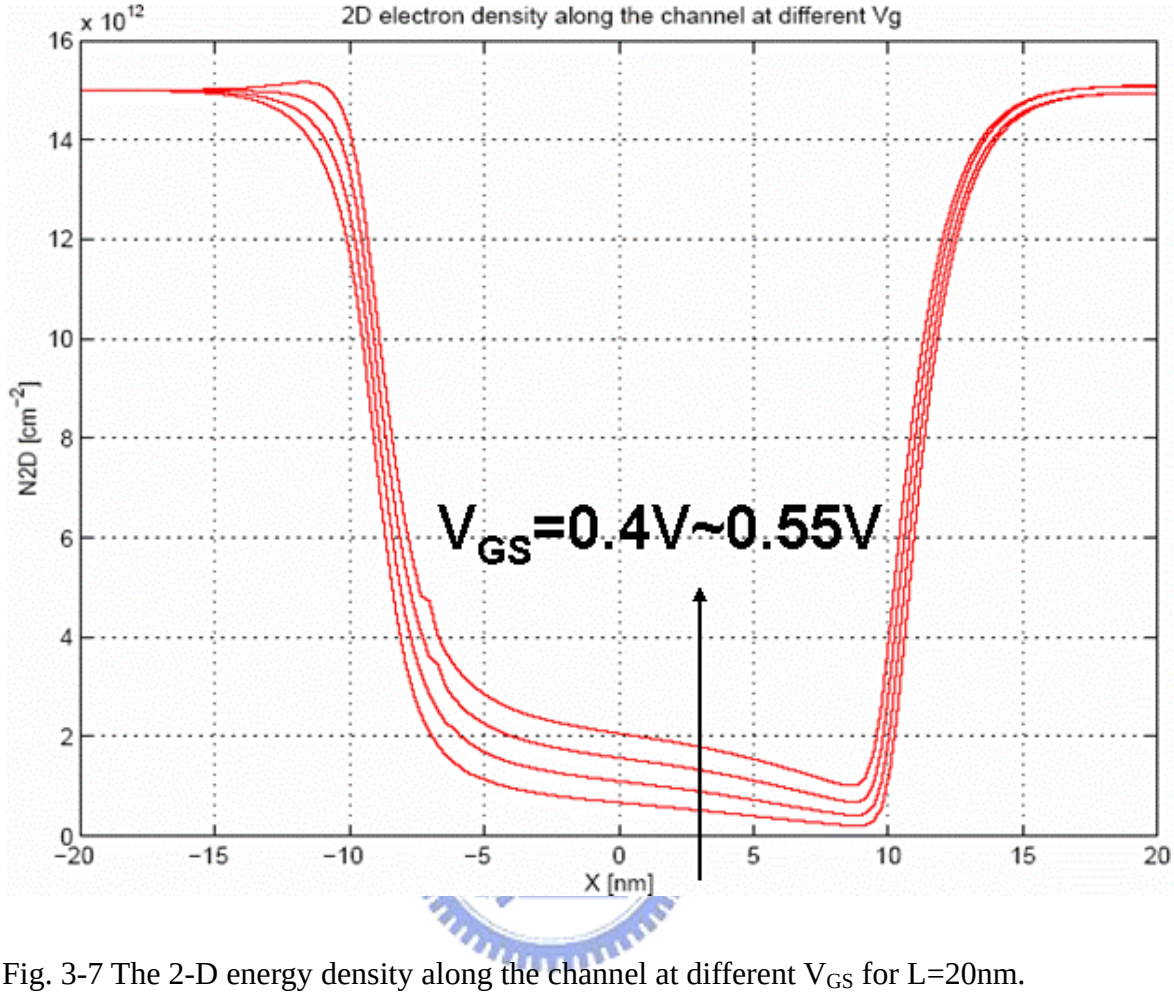

Fig. 3-7 The 2-D energy density along the channel at different V_{GS} for L=20nm.

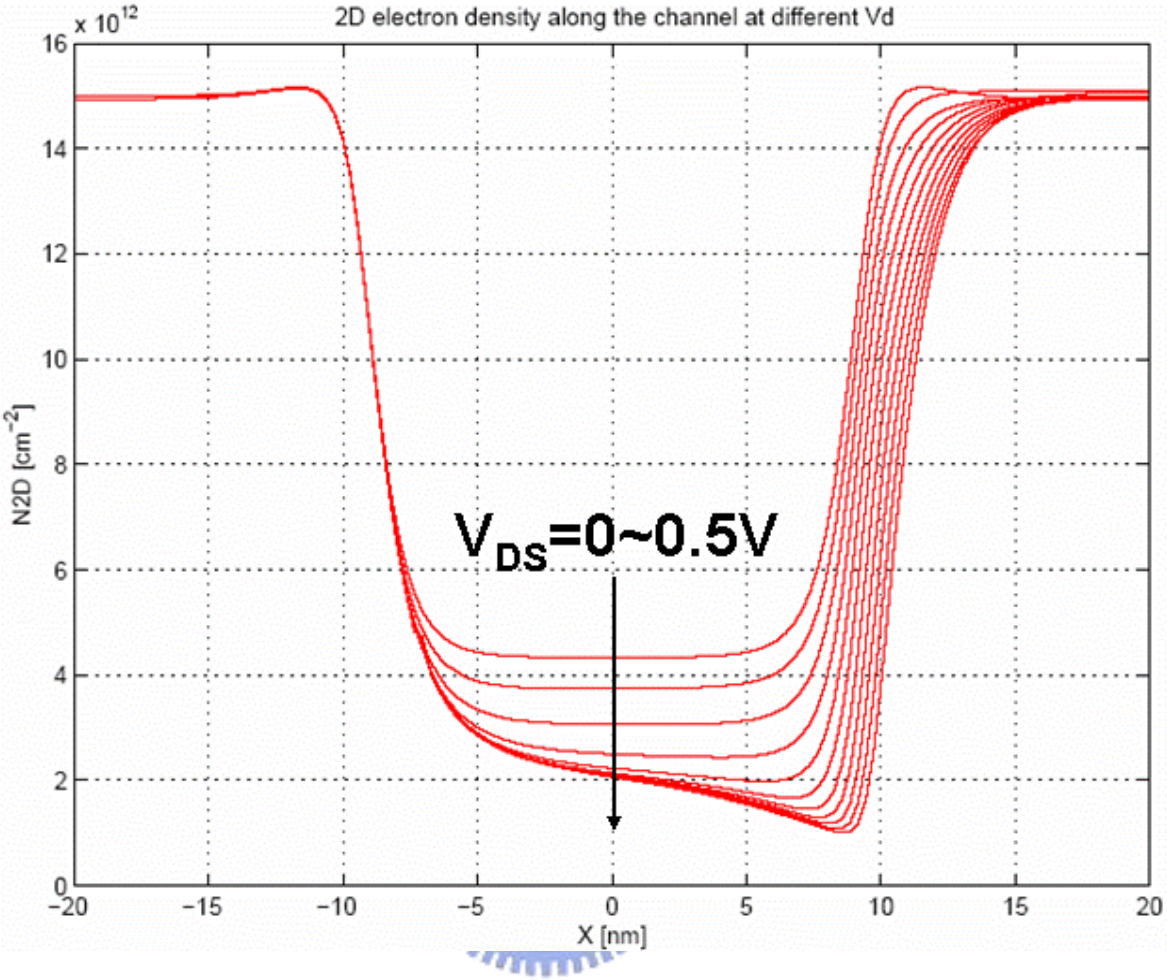

Fig. 3-8 The 2-D energy density along the channel at different V_{DS} for L=20nm.

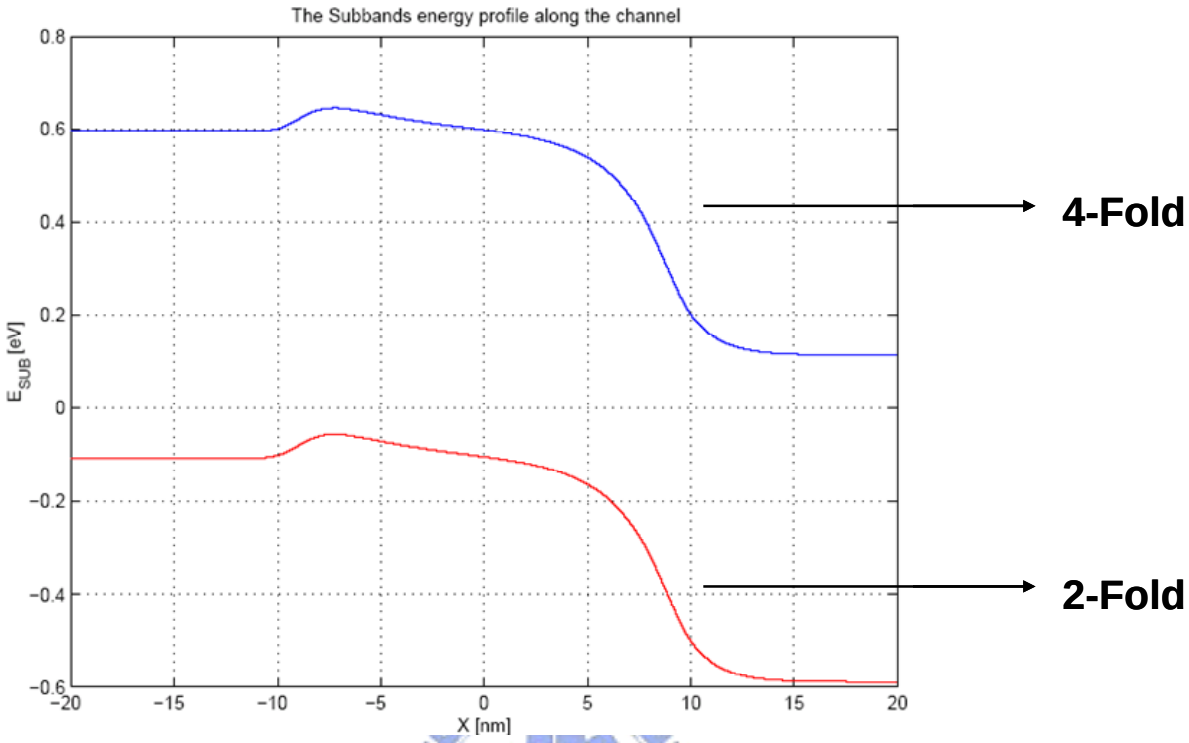

Fig. 3-9 The subband energy profile along the channel for L=20nm.

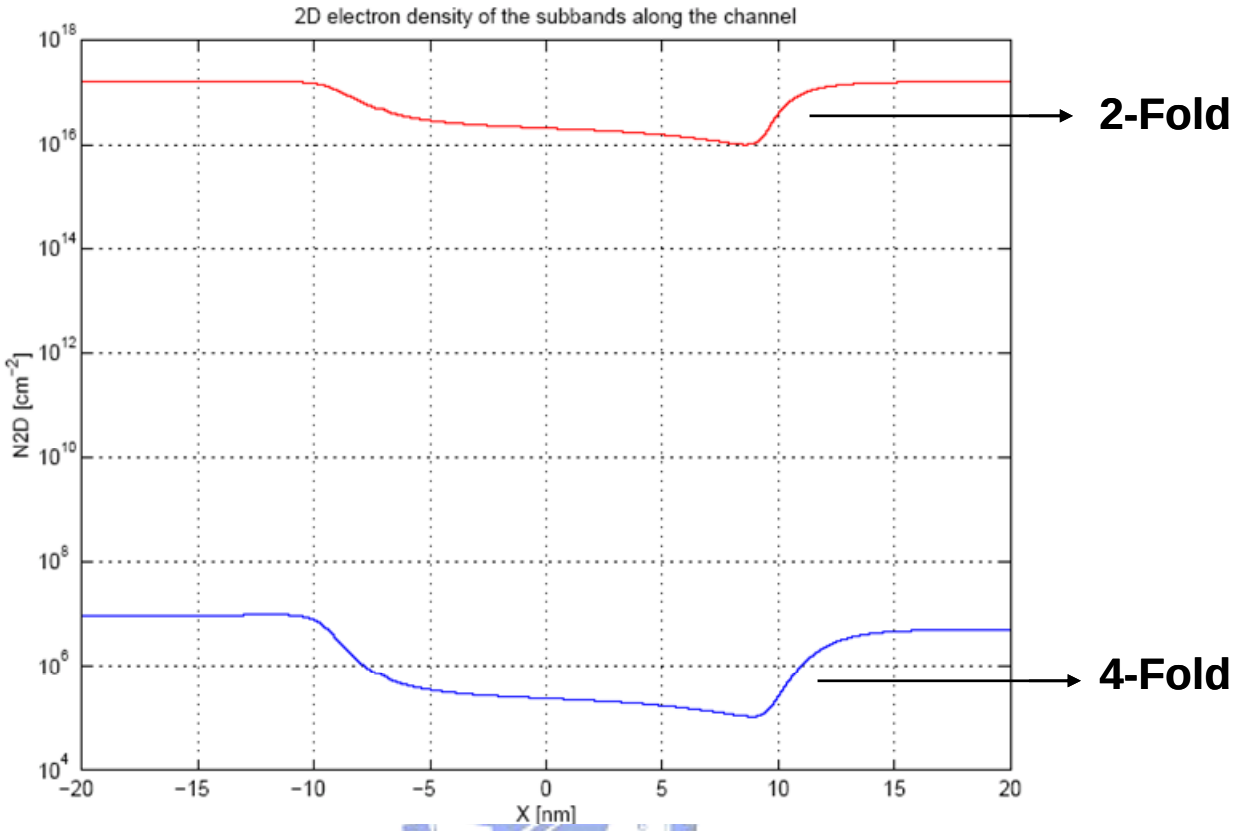

Fig. 3-10 The 2-D energy density along the channel for L=20nm.

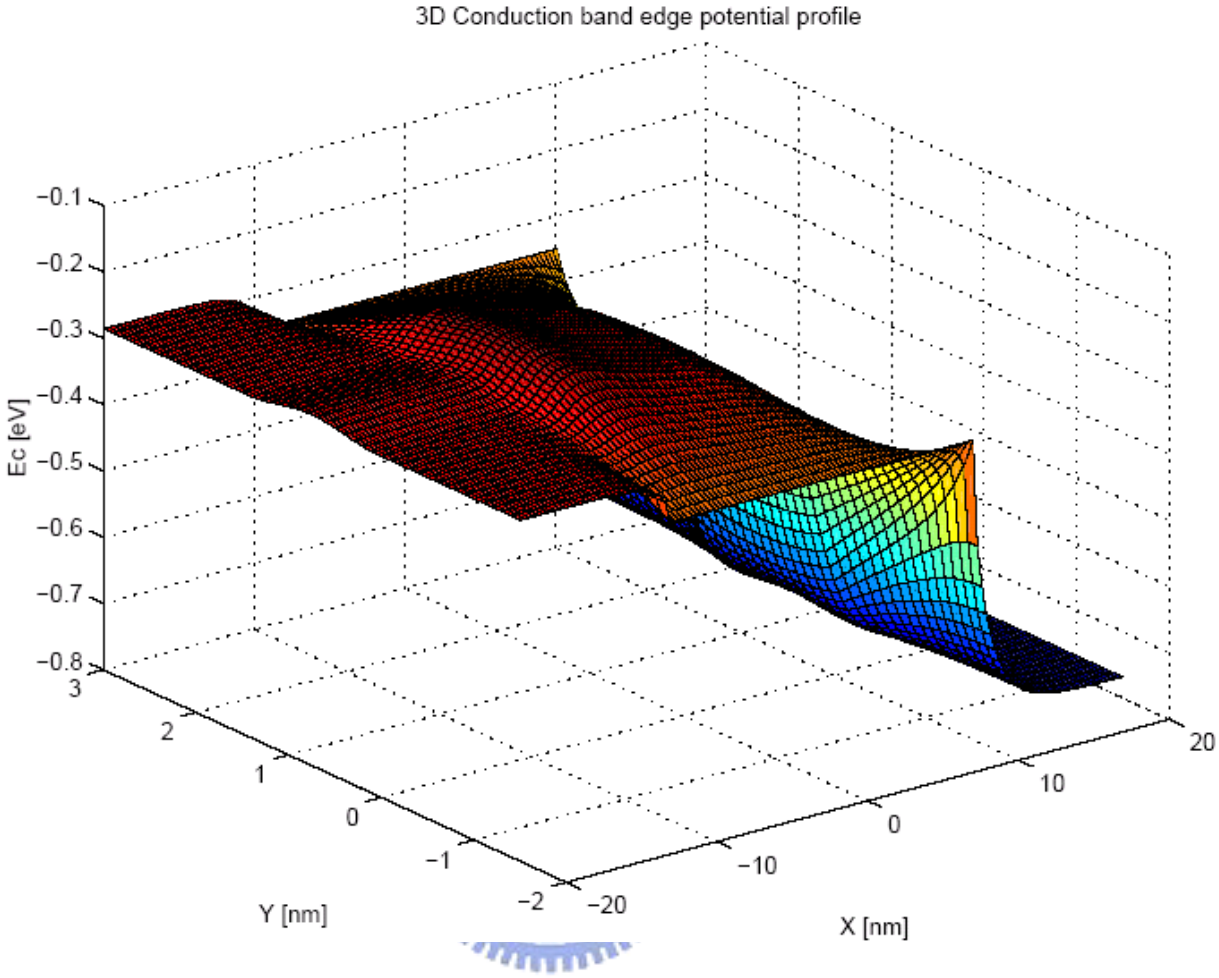

Fig. 3-11 3-D view of conduction band edge potential profile for L=20nm.