Computational Microelectronics [HW-7]

Professor: Sung-Min Hong

Data: 18/11/05

Student ID: 20172106

Student name: Hyo Seok, Kim

1. Simulation explanation

We would like to solve the toy problem that have the specific boundary conditions through the Laplace equation in 2-D. The example is shown at the Figure.1. Here, n_y=9 and n_z=9 .
We are going to consider four cases. The case 1 is the case that the red circles are located in the top/right position. In the case 2, the red circles are located in the top/left position, the case 3 is that the red circles are located in the bottom position, and finally, we will treat the case 4, where the red circles are located at all three positions above.
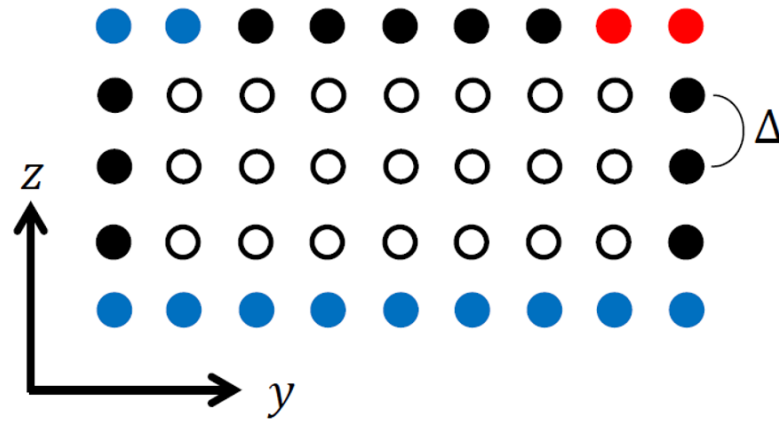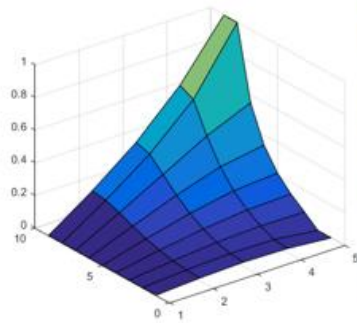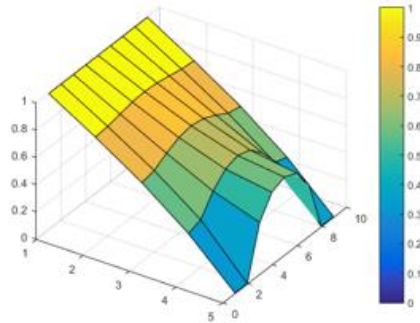
Figure 1. The example model. The empty circles are bulk nodes, the black circles are homogeneous Neumann boundary condition, the blue circles are zero, and the red circles are unities.
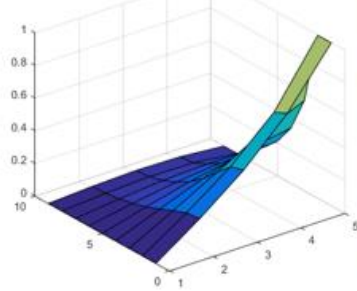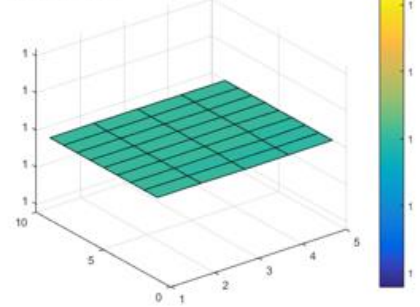
2. Results and discussion

Figure 2. Potential map on the 2-D yz-plane

For each cases, we drew 3-D graphs. You can see it at Figure 2. Through the Figure 2, we can observe that the region near the position, where the voltage is applied has the large potential values.