

Carleton University

Elec 4700- Modelling of integrated device

Assignment 2- Finite Difference Method

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Question 1:

Using the Finite Difference Method (matrix form $GV = F$) to solve for the electrostatic potential in the rectangular region $L \times W$ shown in Figure 1 using $(r^2)V = 0$.

- (a) Using $dV/dy = 0$ for the boundary conditions treating it as a 1-D case, we were able to plot.

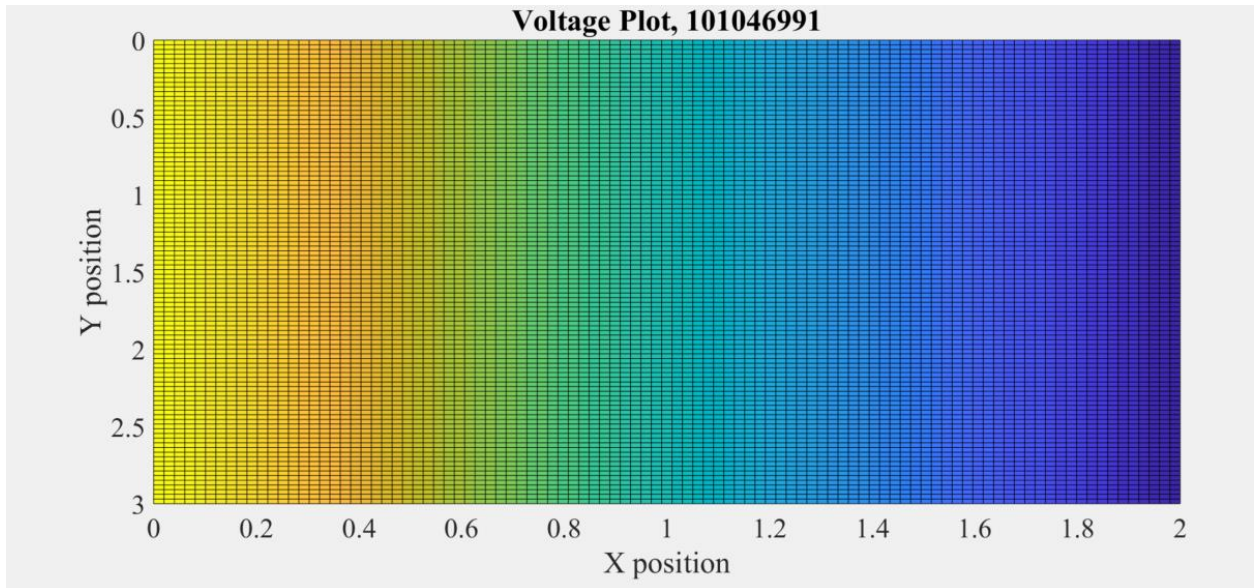


Figure 1: 1-D plot

- (b) This section shows a comparison the solution of a bunch of mesh sizes to the analytical series solutions.

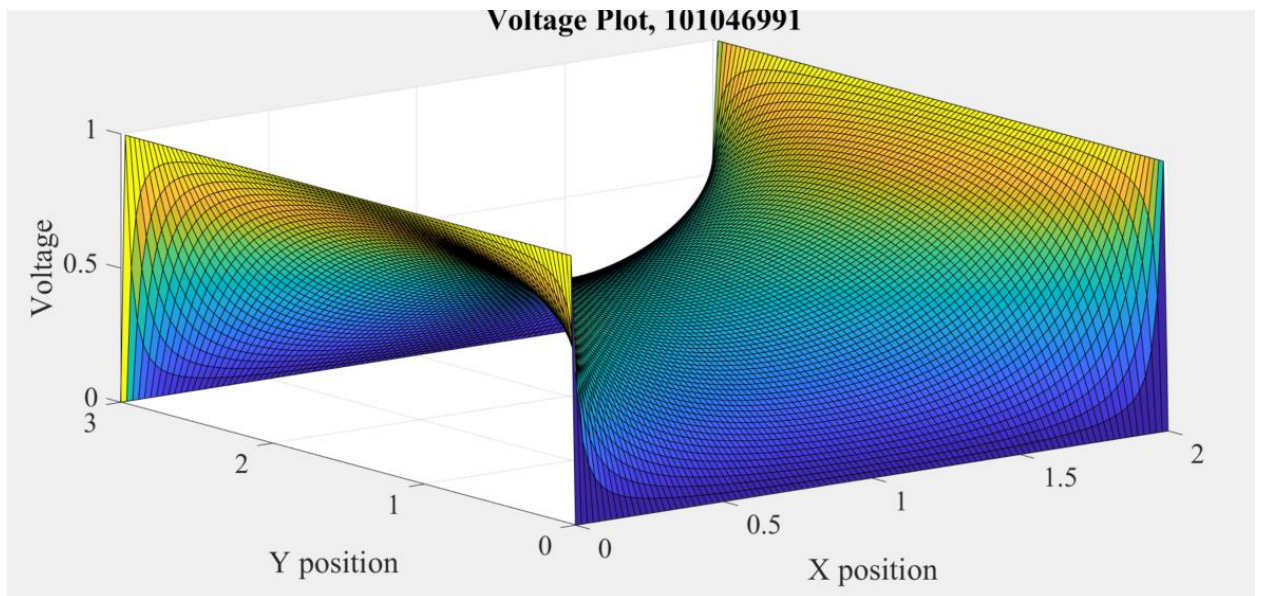


Figure 2: Mesh sizes

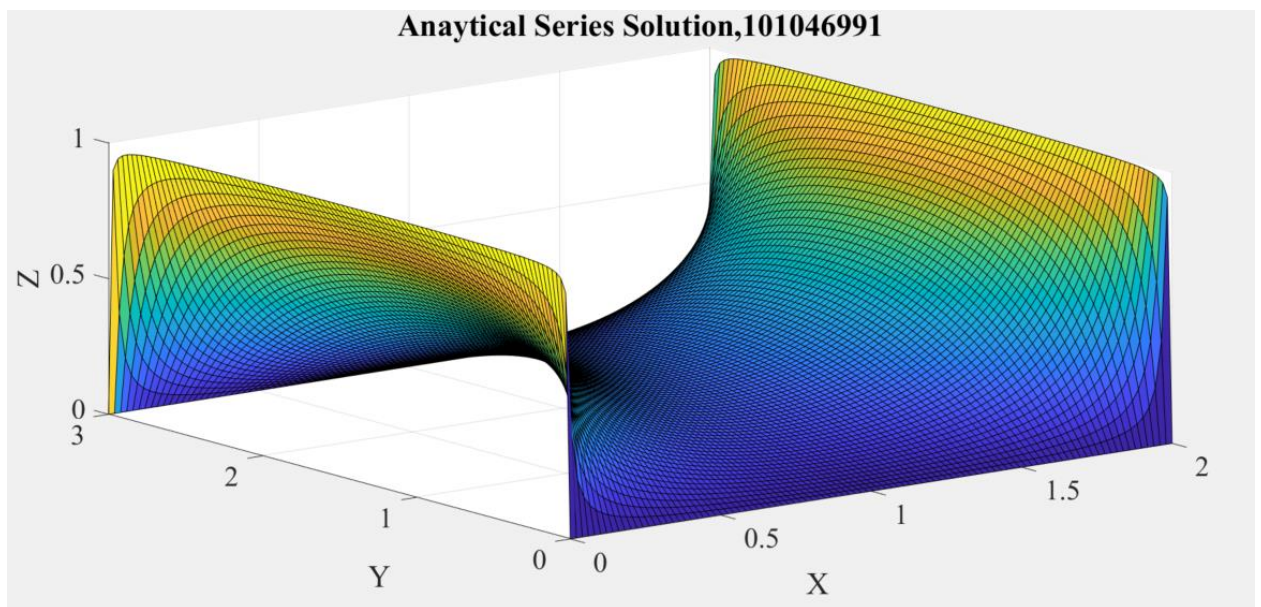


Figure 3: Analytical Solution