EE566 Solid State Devices

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Notes on 1D Poisson Simulator

1) Download the 1D Poisson software from Dr. Snider's website.
http://www.nd.edu/~gsnider/
It will download as a zip file. Save all the files to a directory of your choice. I am assuming that you are using a PC. Please consult senior grad students if you are using a Mac – I cannot help there.

2) Copy the 1DPoisson.exe file into the directory that has all the example files (e.g., DIODE.EX, etc etc). Double click on the 1DPoisson exe icon.

3) Select option 1. Enter the complete file name (with the extension) - for example, DIODE.EX

4) The program window should run and give you information about the convergence. When the simulation is over, look at the directory. There will be new files that the program has created – with extension names *.status, and *.out. If you run the Schrodinger equation during simulation, there will be a file with extension *.wav as well.

5) Use some graphical software that you are comfortable with (Origin, Kaleidagraph, MATLAB, gnuplot, …) to check the *.out file. You can even check it using the notepad facility in your PC. It should have columns with E_C, E_V, E_F, electric field, carrier concentrations, etc.

6) Plot the band diagram by selecting the correct columns. Similarly, you can plot the electric field profile, and the carrier concentrations.

7) Start creating your own files and run them.

More later.