I. Pre-Lab Assignment

This week, we will revisit the electric field simulator program from lab last week.


Read through the lab instructions, and complete the “model predictions” for each of the two charge distributions. These charge distributions are similar to the ones you will explore in lab.

For each of the charge geometry (separately) complete the following:

1. Using the simulator, construct the charge distribution as described in the lab instructions.

2. Plot 6-7 equipotential surfaces.

3. Draw a quick, rough sketch of what is being displayed. *We are not looking for a work of ART or a facsimile. Your goal is to sketch something you can use during the lab to remind yourself what you saw during the pre-lab assignment.* Bring both of your sketches to lab.

4. Answer the questions asked about the modeled geometry in sections A.1 and B.1 of the lab instructions.

5. Do the following only for the single positive point charge:

   a. Measure $V$ as a function of $r$ for the point charge (as defined in the instructions), and record your data in an Excel spreadsheet.

   b. Find the best fit function to your data ($V$ as a function of $r$). In a short paragraph, explain what function you chose and why.

You will need to be familiar with Fig. 25-6 and the subsection “A Cylindrical Capacitor” pages 721-2 of our textbook. Read these pages and bring your book (hardcopy or electronic copy) to lab.