Experiment ES1: Electrostatics

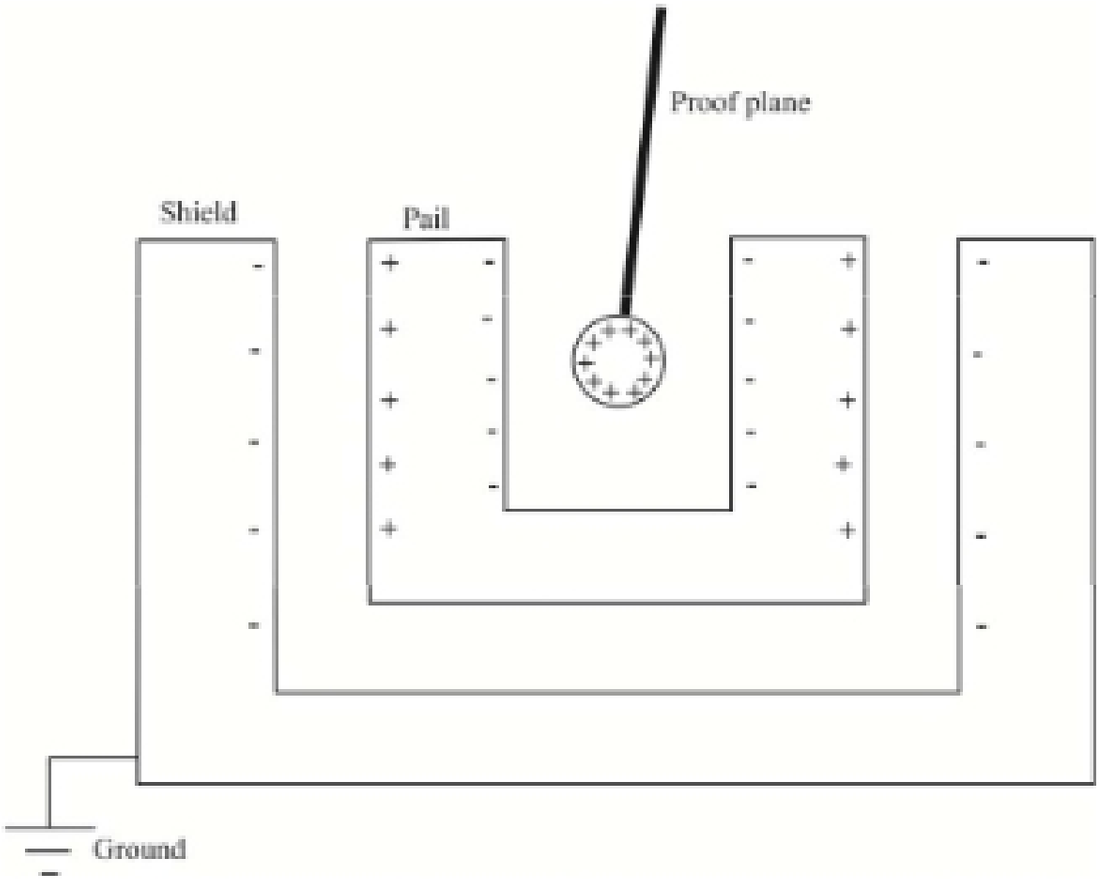
In this experiment you will accomplish the following tasks:

1) Determine the fraction of charge transferred during a conductive charge transfer.
2) Investigate the behavior of the Faraday Pail system including how it responds to changes in internal charge distributions and charging by induction.
3) Investigate conservation of charge

Reminder: Failure to show your work on your calculations will result in lost points.

It is very difficult to measure charge directly. We need to meet three conditions to carry out this experiment:

1) A device that we can place charges into.
2) A means of "scooping up" (sampling) charges to get them into this device
3) A way to measure some property of the device that is related to the charges that were placed in it.



The device that we will use is known as a Faraday Pail. The pail is an open ended conducting cylinder mounted on an insulator. It is surrounded by an open ended conducting cylindrical shield. These open ends make it easy to put charges into the pail.

This meets the first condition.