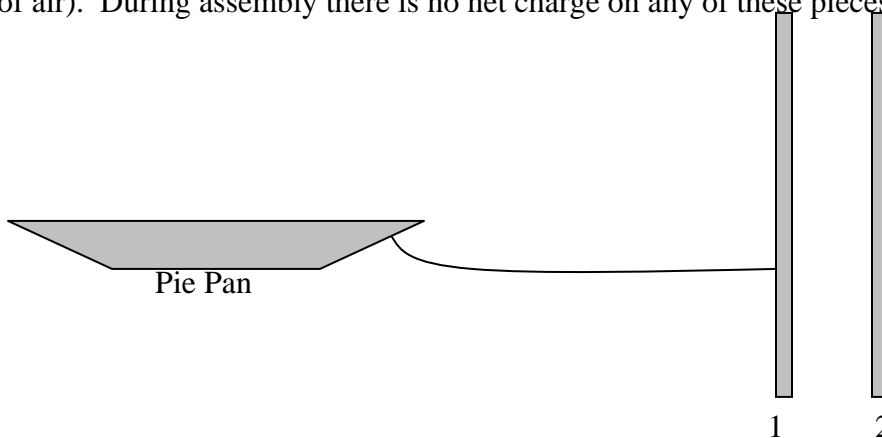


Physics 251 Pre-Lab 5

An aluminum pie pan is connected by a wire to a metal plate, called plate 1, as shown below. Sitting parallel to plate 1 is a second metal plate, called plate 2 (separated from plate 1 by a 3.0 cm gap of air). During assembly there is no net charge on any of these pieces.



A charged blue Styrofoam board is held to the left of the pie pan (close but not touching the pie pan).

- 1) Will there be a net charge on plate 1? EXPLAIN! If there is a net charge, what sign will it have? (HINT: it might be useful to look back through some of the lab experiments you have already done).
- 2) Will there be a net charge on plate 2? EXPLAIN! If there is a net charge, what sign will it have?
- 3) Now a second pie pan is added to the apparatus (see sketch shown below). During the assembly of this equipment no net charge is on any of the pieces. Now a charged foam board is brought near (but not touching) to the left of the pie pan connected to plate 1, then the wire is disconnected from plate 2, and finally the foam board is moved away from the pie pan. Will there be a net charge on plate 2? EXPLAIN. If there is a net charge, what sign will it have?

