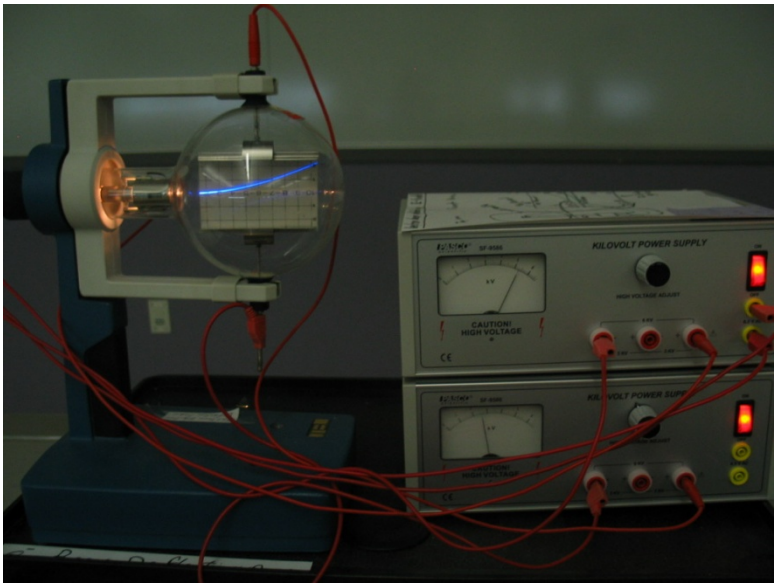
e^- Beam Deflection by Electric Field



Purpose: To demonstrate that an electron beam can be deflected by an electric field.

Location: Room 146; on a cart near the door to room 148

This apparatus should already be set up on the black cart near the door. If all leads and power supplies are not properly connected, there is a diagram with the cart on how to do so. The top kilovolt power supply provides voltage to accelerate the electrons as well as 6.3 VAC to the heater. The bottom kilovolt power supply provides a potential difference between two parallel plates, creating an electric field perpendicular to the electron beam. Plug the cart's power cord into an outlet and first turn on the top power supply. When set to 4-5 kV a horizontal electron beam will illuminate the screen. Turn on the second power supply and slowly increase the voltage. The beam will be deflected towards the positive plate. Switching the terminals of the bottom power supply will switch the direction that the beam is deflected.