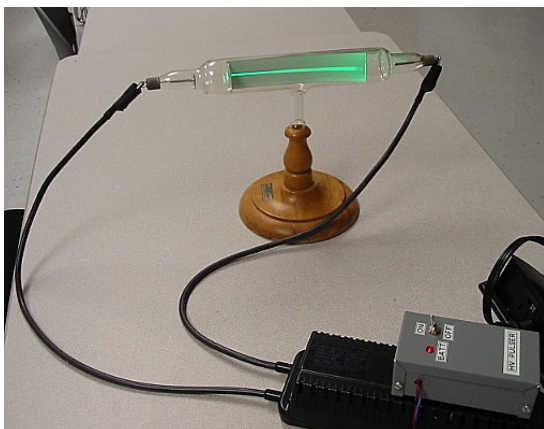
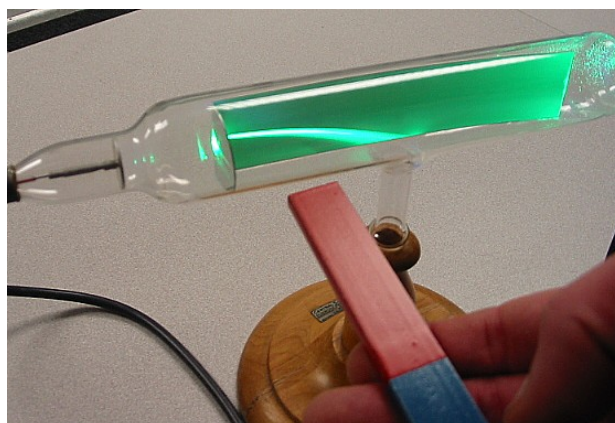


Lorentz Force



Pulsed Electron Beam



Beam deflected by B .

Purpose: Demonstrates $\mathbf{F} = q\mathbf{v} \times \mathbf{B}$.

This is a simple and useful demo. Connect the HV leads to the Crooke's tube, and plug in the supply. When the pulser is switched on, a pulsed electron beam shows in the tube's fluorescence plate. The direction of the beam is quite apparent.

By bringing a magnet up to the tube you can deflect the beam, and show how the right-hand rule gives the correct deflection. For example, in the photo shown B points away from the red (North) end of the magnet, and $-e\mathbf{v}$ points backwards, towards the cathode. Hence the force on the beam is downwards.

DANGER: This is HV with an appreciable current behind it! It is best to never fiddle with the leads while the supply is plugged in. (Do not give the demo of your life.)

Note: Please treat our Crooke's tube gently—you cannot buy them anymore.

Extra Equipment: None

Location: Shelf F3