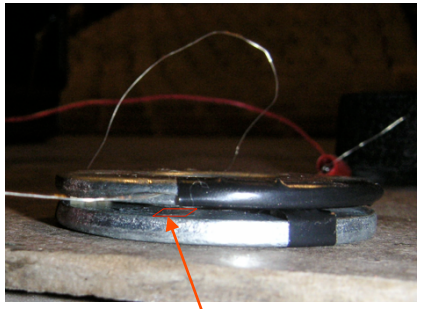
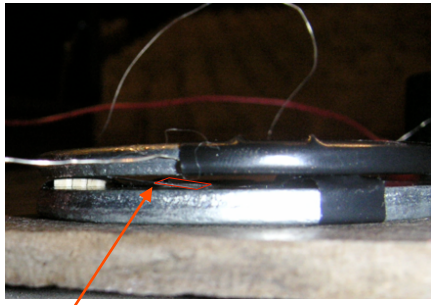
EF Experiment

Small V -
Foil lies on lower plate



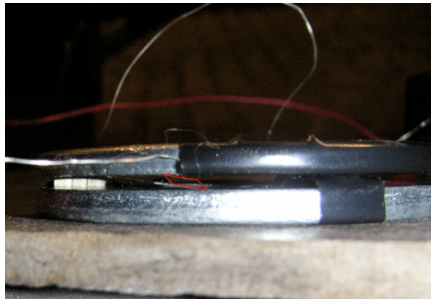
Bigger V -
Foil jumps up and connects washers



Aluminum Foil

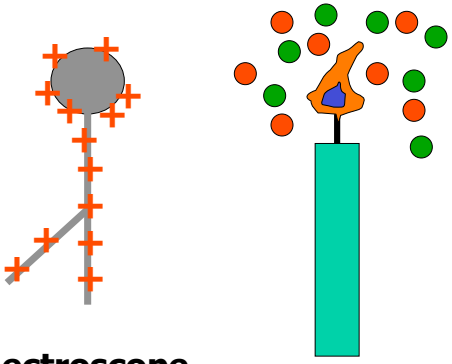
EF Experiment

Bigger V -
Foil jumps up and connects washers



- Make sure that foil is clean, flat and not too smooth
- Start with foil flat on lower washer and min HVPS voltage
- Slowly turn up HVPS until foil jumps
- Foil jumps when $V = V_{jump}$ such that electrostatic force balances weight of foil
- Repeat experiment several times for each foil to get consistent V_{jump}
- Repeat with foils folded to have 1, 2, 3 layers

Demo I

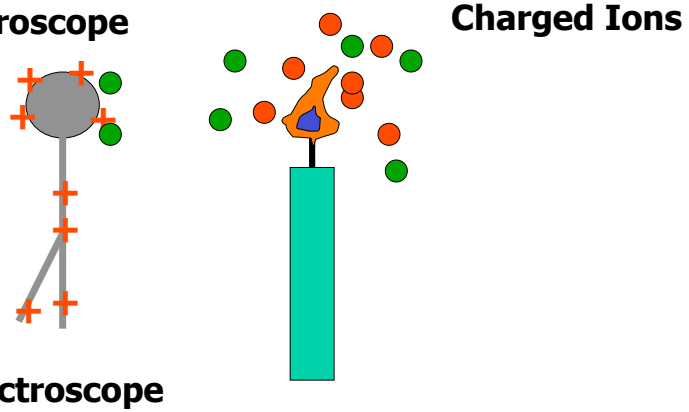


Charged Ions

Electroscope

Demo I

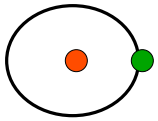
Ions discharge Electroscope



Charged Ions

Electroscope

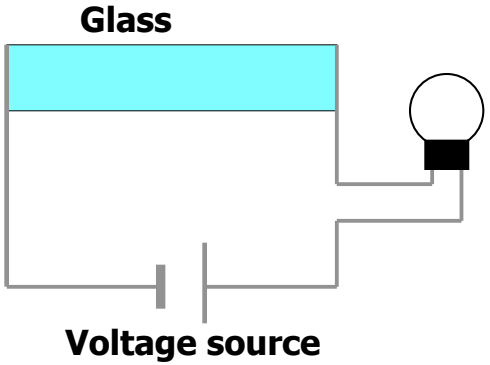
Demo I



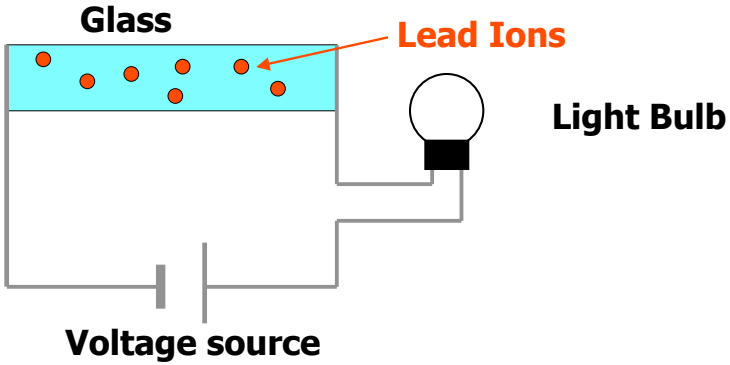
Neutral molecules:
Pos. and neg. charges move together -> No current!

Ions:
Pos. and neg. charges move separately -> Current $|I| > 0$!

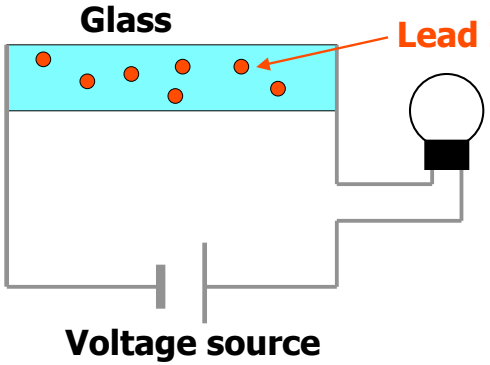
Demo II



Demo II

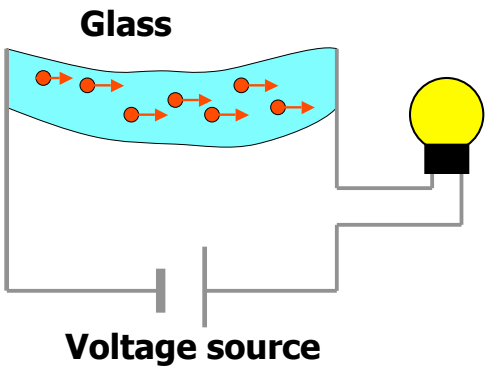


Demo II



Solid glass: Potential charge carriers are stuck!

Demo II



Molten glass: Charge carriers become mobile ->
Current flows -> Bulb lights up!