

Photoelectric Effect

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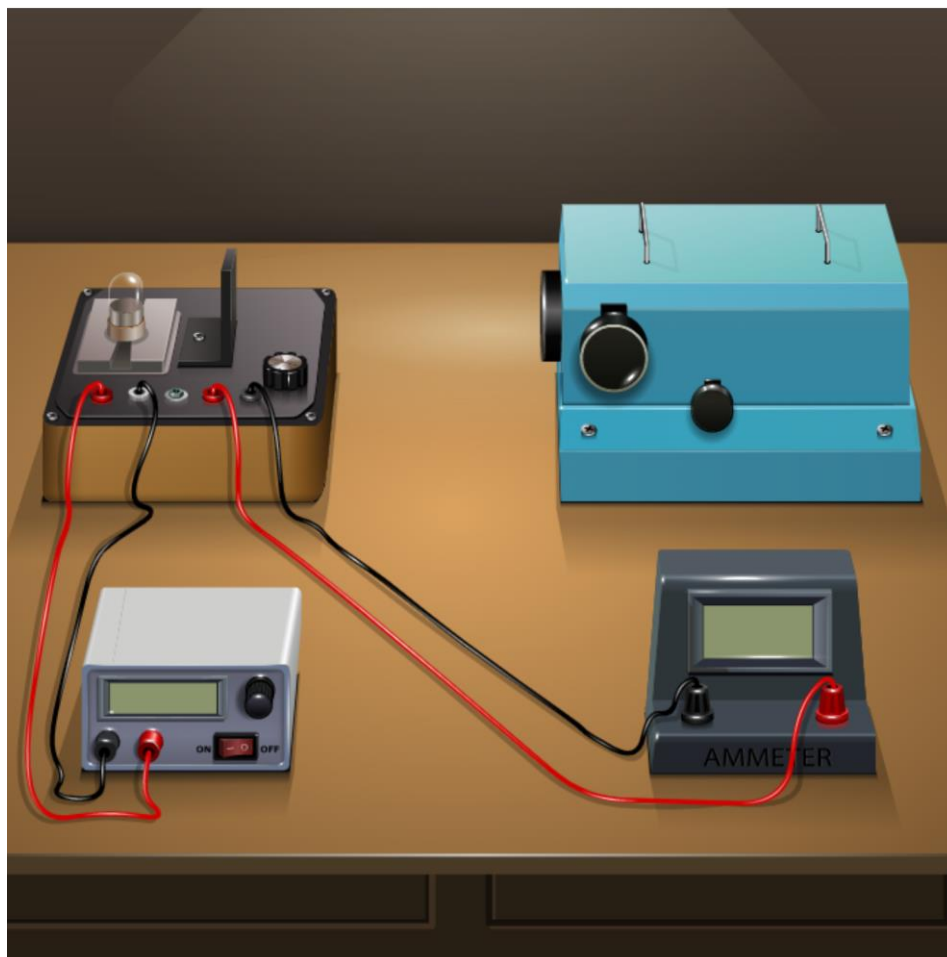
Aim: To understand the phenomenon Photoelectric effect as a whole.

To plot a graph connecting photocurrent and applied potential.

To determine the stopping potential for the photocurrent versus applied potential.

Apparatus: Voltmeter, Rheostat, Battery, Light source, Anode Material.

Diagram:



Observation Table:

Material: Sodium

Area of plates: 0.5 cm^2

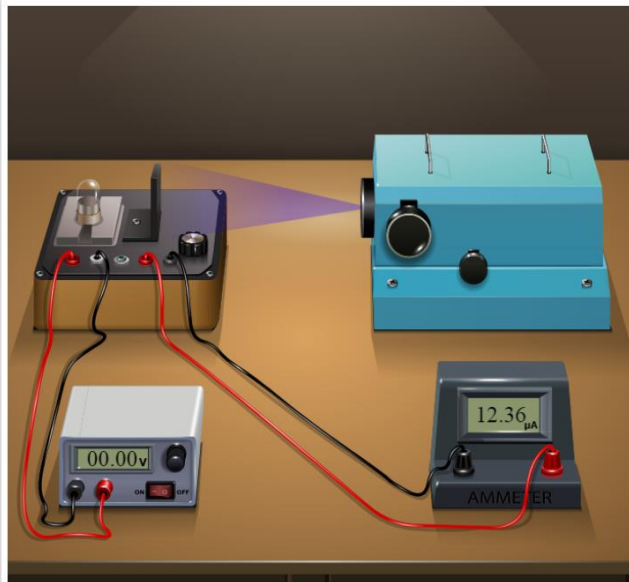
PART I: Fixed wavelength, varying intensity:

Wavelength: 150 nm (threshold wavelength = 500 - 600nm)					
Intensity = 15 W/m ²		Intensity = 20 W/m ²		Intensity = 25 W/m ²	
Voltage (V)	Current (μA)	Voltage (V)	Current (μA)	Voltage (V)	Current (μA)
0		0		0	
-1	37.48	-1	49.97	-1	62.46
-2	29.98	-2	39.97	-2	49.96
-3	22.48	-3	29.97	-3	37.46
-4	14.98	-4	19.97	-4	24.96
-5	7.48	-5	9.97	-5	12.46
-5.5	3.73	-5.5	4.97	-5.5	6.21
-6	0	-6	0	-6	0

PART II: Fixed intensity, varying wavelength:

Intensity: 30 W/m ²					
Wavelength = 200 nm		Wavelength = 300 nm		Wavelength = 400 nm	
Voltage (V)	Current (μA)	Voltage (V)	Current (μA)	Voltage (V)	Current (μA)
0	58.92	0	27.88	0	12.36
-1	43.92	-0.5	20.38	-0.1	10.86
-1.5	36.42	-1	12.88	-0.2	9.36
-2	28.92	-1.2	9.88	-0.4	6.36
-2.5	21.42	-1.4	6.88	-0.5	4.86
-3	13.92	-1.6	3.88	-0.6	3.36
-3.5	6.42	-1.8	0.88	-0.8	0.36
-4	0	-2	0	-1	0

Photo Electric Effect



VARIABLES

Choose Material:

Sodium

Area of Plate : 0.5 cm²

Intensity of Light : 30 w/m²

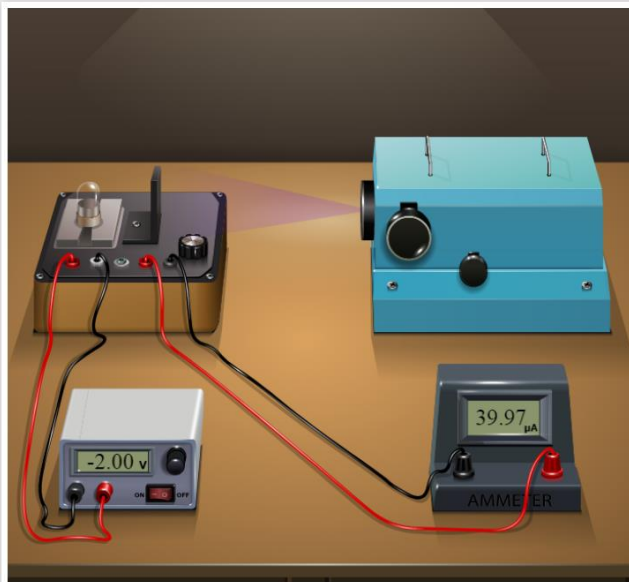
Voltage Applied : 0 V

Wavelength of Light : 400 nm

SWITCH OFF LIGHT

RESET

Photo Electric Effect



VARIABLES

Choose Material:

Sodium

Area of Plate : 0.5 cm²

Intensity of Light : 20 w/m²

Voltage Applied : -2 V

Wavelength of Light : 150 nm

SWITCH OFF LIGHT

RESET

Graphs:

1. Voltage (X-axis) v/s current (Y-axis) for different intensities.
2. Voltage (X-axis) v/s current (Y-axis) for different wavelengths.

