

Related Problems

Question 12.

Electrons are emitted with zero velocity from a metal surface when it is exposed to radiation of wavelength 6800 Å. Calculate threshold frequency (ν_0) and work function (W_0) of the metal.

Answer:

$$\text{Threshold frequency } (\nu_0) = \frac{c}{\lambda} = \frac{(3 \times 10^8 \text{ m s}^{-1})}{(68 \times 10^{-8} \text{ m})} = 4.41 \times 10^{14} \text{ s}^{-1}$$

$$\text{Work function } (W_0) = h\nu_0 = (6.626 \times 10^{-34} \text{ Js}) \times (4.41 \times 10^{14} \text{ s}^{-1}) = 2.92 \times 10^{-19} \text{ J.}$$