

Photoelectric Effect: Solution

1. When light of wavelength $\lambda = 400 \text{ nm}$ shines on lithium, the stopping voltage of the electrons is $V_{\text{stop}} = 0.21 \text{ V}$. What is the work function of lithium?

$$\begin{aligned}\Phi &= hf - eV_{\text{stop}} \\ &= 3.1 \text{ eV} - 0.21 \text{ eV} \\ &= 2.89 \text{ eV}\end{aligned}$$

Instead of hf , use hc/λ : $1240/400 = 3.1 \text{ eV}$

For $V_{\text{stop}} = 0.21 \text{ V}$, $eV_{\text{stop}} = 0.21 \text{ eV}$