

53. We use the result of Exercise 49: $\lambda = (1.226 \text{ nm} \cdot \text{eV}^{1/2})/\sqrt{K}$, where K is the kinetic energy. Thus

$$K = \left(\frac{1.226 \text{ nm} \cdot \text{eV}^{1/2}}{\lambda} \right)^2 = \left(\frac{1.226 \text{ nm} \cdot \text{eV}^{1/2}}{590 \text{ nm}} \right)^2 = 4.32 \times 10^{-6} \text{ eV} .$$