

61. We need to use the relativistic formula $p = \sqrt{(E/c)^2 - m_e^2 c^2} \approx E/c \approx K/c$ (since $E \gg m_e c^2$). So

$$\lambda = \frac{h}{p} \approx \frac{hc}{K} = \frac{1240 \text{ eV} \cdot \text{nm}}{50 \times 10^9 \text{ eV}} = 2.5 \times 10^{-8} \text{ nm} ,$$

which is about 200 times smaller than the radius of an average nucleus.