

48. The initial speed v_i of the electron satisfies $K_i = \frac{1}{2}m_e v_i^2 = e\Delta V$, which gives

$$v_i = \sqrt{\frac{2e\Delta V}{m_e}} = \sqrt{\frac{2(1.60 \times 10^{-19} \text{ J})(625 \text{ V})}{9.11 \times 10^{-31} \text{ kg}}} = 1.48 \times 10^7 \text{ m/s} .$$