# Units Derivation

In setting $\hbar = 1$ and $m = m_e$ our units for distance and time must effectively carry the units required to make this substitution happen. Our distance parameter x must then contain the inverse of $\frac{\hbar^2}{2m} \to \frac{eV^2s^2}{m_e}$ and likewise our time units must contain the inverse of $\hbar \to \frac{1}{eVs}$. Together with their natural units of distance and time this requires our units

$$[x] = \frac{m_e \cdot m}{eV^2s^2}, [t] = \frac{1}{eV}.$$

Expressed in standard units this relationship is,

$$[x] = \frac{s^2}{m^3kg}, [t] = \frac{s^3}{m^2kg}.$$