Exercise 4.1-1

Lifetime of Positrons

Illustration

Show that the solution of the differential equations for the positron concentrations n_1 and n_2

$$\frac{dn_1}{dt} = -(\lambda_1 + \nu \cdot c_V) \cdot n_1$$

$$\frac{dn_2}{dt} = -\lambda_2 \cdot n_2 + \nu \cdot c_V \cdot n_1$$

leads to the following formula for the average lifetime

$$\tau = \tau_1 \cdot \left(\frac{1 + \tau_2 \cdot \nu \cdot c_V}{1 + \tau_1 \cdot \nu \cdot c_V} \right)$$

Link to the Solution