

$$I = \frac{A_0}{\rho \Delta r (1 - e^{-\lambda \Delta t})} \int \sigma \frac{d\phi}{dE} \rightarrow \sigma = \frac{A_c}{\rho \Delta r I (1 - e^{-\lambda \Delta t})}$$

* ν = Decay mode branching ratio

$$\begin{aligned} \frac{\sigma_{60}^{56\text{Co}}}{\sigma_c} &= \sigma_i^{56\text{Co}} \nu \sigma_i^{56\text{Ni}} \\ &= \frac{A_{0,i}^{56\text{Co}}}{(\rho \Delta r)_{N_i} I (1 - e^{-\lambda_{60} \Delta t_{irr}})} + \frac{\nu A_{0,i}^{56\text{Ni}}}{(\rho \Delta r)_{N_i} I (1 - e^{-\lambda_{Ni} \Delta t_{irr}})} \\ &= \frac{1}{(\rho \Delta r)_{N_i} I} \left(\frac{A_{0,i}^{56\text{Co}}}{1 - e^{-\lambda_{60} \Delta t_{irr}}} + \frac{\nu A_{0,i}^{56\text{Ni}}}{1 - e^{-\lambda_{56\text{Ni}} \Delta t_{irr}}} \right) \end{aligned}$$

$$\Rightarrow I = \left(\frac{1}{(\rho \Delta r)_{N_i} \sigma_c^{56\text{Co}}} \right) \left(\frac{A_{0,i}^{56\text{Co}}}{1 - e^{-\lambda_{60} \Delta t_{irr}}} + \frac{\nu A_{0,i}^{56\text{Ni}}}{1 - e^{-\lambda_{56\text{Ni}} \Delta t_{irr}}} \right)$$

$$\begin{aligned} \left(\frac{\delta I}{I} \right)^2 &\approx \left(\frac{\delta(\rho \Delta r)}{\rho \Delta r} \right)^2 + \left(\frac{\delta \sigma_c^{56\text{Co}}}{\sigma_c^{56\text{Co}}} \right)^2 + \left(\frac{\delta A_{0,i}^{56\text{Co}}}{A_{0,i}^{56\text{Co}}} \right)^2 + \left(\frac{\delta A_{0,i}^{56\text{Ni}}}{A_{0,i}^{56\text{Ni}}} \right)^2 + \left(\frac{\delta \Delta t_{irr}}{\Delta t_{irr}} \right)^2 + \left(\frac{\delta \nu}{\nu} \right)^2 \\ &\quad + \left(\frac{\delta \lambda_{56\text{Ni}}}{\lambda_{56\text{Ni}}} \right)^2 + \left(\frac{\delta \lambda_{60}}{\lambda_{60}} \right)^2 \end{aligned}$$

