

rozsledka spojená s neutronem:

$$T_{1/2} = 15 \text{ min}$$

Lorentsova transformace:

$$\lambda' = \frac{\lambda - vT}{\sqrt{1 - v^2}} \quad (\text{ve směru osy } x) \quad \text{nebo } \lambda' = \frac{\lambda}{\gamma} \quad \text{nebo } \lambda' = \lambda \sqrt{1 - v^2}$$

nebo soustava se bude pohybovat ve směru osy x

$x=0$ po celou dobu, $t_0=0$ ← lze volit libovolně

$$\Rightarrow \lambda' = \frac{\lambda}{\gamma}$$

$$\lambda' = 3\lambda$$

$$3 = \frac{1}{\sqrt{1 - v^2}}$$

$$\Rightarrow 1 - v^2 = \frac{1}{9}$$

$$v = \pm \frac{2\sqrt{2}}{3}$$

$$E_{\text{elid}} = 939.6 \text{ MeV}$$

$$v = \pm \frac{2\sqrt{2}}{3} c$$

$$E = \gamma E_{\text{elid}} = 3 E_{\text{elid}} = 2818.8 \text{ MeV}$$

$$E_K = E - E_{\text{elid}} = (\gamma - 1) E_{\text{elid}} = 1879.2 \text{ MeV}$$

$$E = \hbar \omega = \hbar 2\pi \frac{c}{\lambda} \Rightarrow \lambda = \hbar 2\pi \frac{c}{E} = \hbar 2\pi \frac{c}{\gamma E_{\text{elid}}} \approx 7 \cdot 10^{-29} \frac{\text{J} \cdot \text{m}}{\text{MeV}} =$$

$$\approx 4,34 \cdot 10^{-16} \text{ m} = 0,434 \text{ fm}$$