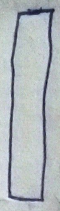
(5) Bi

$\sigma_{100} = 1999$ barn

$\sigma_{200} = 359$ barn

$\rho = 9780 \frac{kg}{m^3}$

$A_r = 208,98$



$d = 0,95$ mm

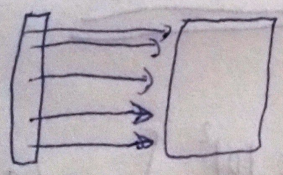
$$n_j = \frac{\rho}{A_r} \cdot N_A = \frac{9780}{208,98} \cdot N_A = 2,818 \cdot 10^{28}\ m^{-3}$$

$$\Sigma_{100} = \sigma_{100} \cdot n_j = 1999 \cdot 10^{-28} \cdot 2,818 \cdot 10^{28} = 5633,6\ m^{-1}$$

$$l_{100} = \frac{1}{\Sigma_{100}} = \underline{\underline{0,178}}\ mm$$

$$\Sigma_{200} = \sigma_{200} \cdot n_j = 1011,7\ m^{-1}$$

$$l_{200} = \frac{1}{\Sigma_{200}} = \underline{\underline{0,988}}\ mm$$



$$N_0 - N = N_0 (1 - e^{-n_j \sigma x})$$

$$N_0 - N = N_0 \left(1 - \frac{\int_0^{0,00095} e^{-n_j \sigma x}\, dx}{0,00095}\right)$$

$$1 - N = 1 + \frac{\left[e^{-n_j \sigma x}\right]_0^{0,00095}}{0,00095 \cdot n_j \sigma} = \begin{cases} 35,7\% \text{ pro } 100 keV \\ 81,4\% \text{ pro } 100 keV \end{cases}$$