ΤΥΠΟΛΟΓΙΟ

$1\ \text{amu} = 931.494\ \text{MeV}/c^2$

$m_e = 0.511\,\text{MeV}/c^2$

$m_\mu = 105.7\,\text{MeV}/c^2 \quad m_\pi = 139.6\ \text{MeV}/c^2$

$m_p = 938.3\ \text{MeV}/c^2 \quad m_n = 939.6\ \text{MeV}/c^2$

$m_W = 80.4\ \text{GeV}/c^2 \quad m_Z = 91.2\ \text{GeV}/c^2$

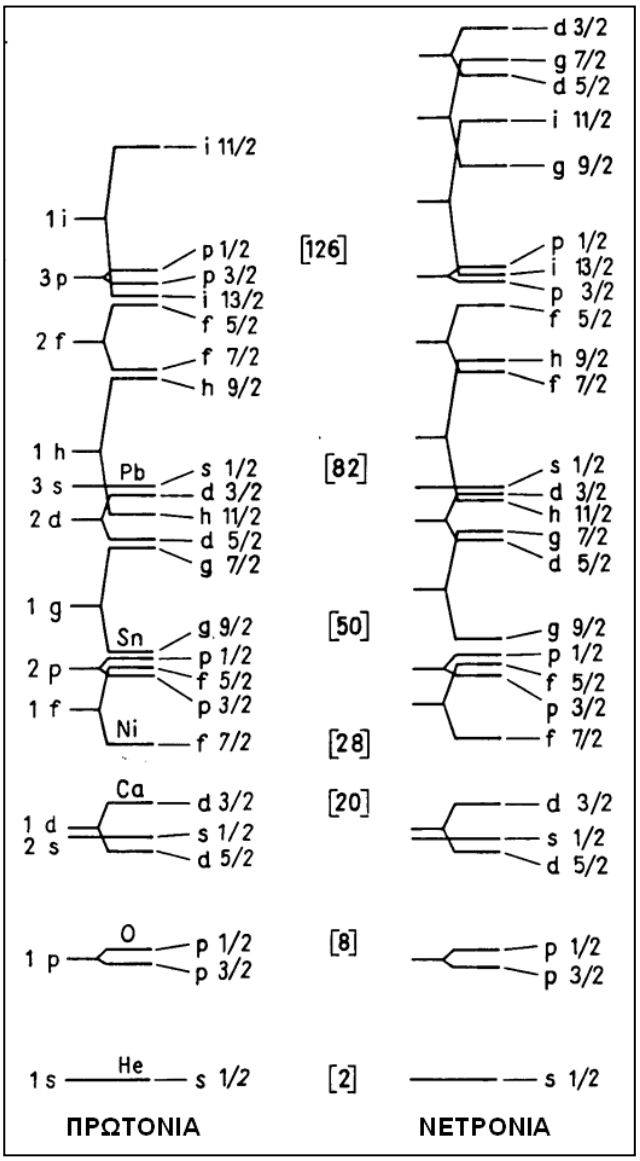
$c = 299792458\ \text{ms}^{-1}$

$e = 1.602177\cdot 10^{-19}\,\text{C}$

$N_A = 6.022\cdot 10^{23}\,\text{mol}^{-1}$

$\hbar c = 197.327\,\text{MeV fm}$

$$a = \frac{e^2}{4\pi\varepsilon_o}\frac{1}{\hbar c} = \frac{1}{137.036}$$



$$\rho(r) = \frac{\rho_o}{1+e^{(r-c)/a}} \qquad \rho_o = 0.17\text{N}/\text{fm}^3$$

$$R = r_o A^{1/3} \qquad r_o = 1.2\text{fm} \qquad r_N = 0.8\text{fm}$$

Woods-Saxon: $$V_{WS}(r) = \frac{V_o}{1+e^{(r-c)/a}}$$

Yukawa: $$V_Y(r) = \lambda\frac{e^{-mc|r_2-r_1|/\hbar}}{|r_2-r_1|}$$

$$B(N,Z) = aA - bA^{2/3} - s\frac{(N-Z)^2}{A} - d\frac{Z^2}{A^{1/3}} - \frac{\delta}{A^{1/2}}$$

$a = 15.84\ \text{MeV} \quad b = 18.33\ \text{MeV} \quad s = 23.20\ \text{MeV} \quad d = 0.714\ \text{MeV} \quad \delta = \{0, \pm 11.2\}\ \text{MeV}$

$$\mu = \mu_N\left[\frac{1}{2}(g_L+g_S)j + \frac{1}{2}(g_L-g_S)\frac{(l-s)(l+s+1)}{j+1}\right] \qquad g_s(p) = 5.59 \quad g_s(n) = -3.83 \quad \mu_N = e\hbar/2m_p$$

$$\left(\frac{d\sigma}{d\Omega}\right) = \left(\frac{d\sigma}{d\Omega}\right)_{\text{Mott}}|F(q)|^2 \qquad F(q) = \int\rho(r)\exp[i\,\vec{q}\cdot\vec{r}]dV \qquad \left(\frac{d\sigma}{d\Omega}\right)_{\text{Mott}} = \left(\frac{Ze^2}{2E}\right)\frac{\cos^2(\theta/2)}{\sin^4(\theta/2)}$$

$$q = 2E\sin(\theta/2) \qquad \nabla^2 = \frac{1}{r^2}\frac{\partial}{\partial r}\left(r^2\frac{\partial}{\partial r}\right)$$

$$\sigma = \frac{4\pi}{k^2}\sum_{L=0}^{\infty}(2L+1)\sin^2\delta_L \qquad \frac{d\sigma}{d\Omega} = |f(\theta)|^2 = \frac{1}{k^2}\left|\sum_L(2L+1)e^{i\delta_L}\sin\delta_L P_L(\cos\theta)\right|^2$$

$_1$H	$_2$He	$_3$Li	$_4$Be	$_5$B	$_6$C	$_7$N	$_8$O	$_9$F	$_{10}$Ne	$_{11}$Na	$_{12}$Mg	$_{13}$Al	$_{14}$Si	$_{15}$P
$_{16}$S	$_{17}$Cl	$_{18}$Ar	$_{19}$K	$_{20}$Ca	$_{21}$Sc	$_{22}$Ti	$_{23}$V	$_{24}$Cr	$_{25}$Mn	$_{26}$Fe	$_{27}$Co	$_{28}$Ni	$_{29}$Cu	$_{30}$Zn