

Some Coincidences

António Saraiva -- 2009-04-11
ajps2@hotmail.com

See Unified Absolute Relativity Theory at:

<http://www.wbabin.net/saraiva/saraiva105.pdf>

$$N_e^2 = \frac{1}{2x_e R_y} ; N_e = 137.036 \text{ -- Inverse fine structure constant}$$

x_e -- Electron Compton wavelength; R_y -- Rydberg constant

Electron g factor:

$$g = 2 + \frac{1}{\pi \cdot 137.036}$$

Strong force = Electric force = Unified force

$$F = \frac{q^2 \pi}{4\epsilon_0 x_p^2 N_p^4} = \frac{k h f_p^4}{w_p c^2}$$

q = elementary charge; ϵ_0 = vacuum permittivity; x_p = Proton Compton wavelength

N_p = Proton inverse fine structure; k = Saraiva's constant;

f_p = Proton Compton frequency; w_p = Proton field speed; c = light speed

h = Planck's constant

$$N_p^4 = \frac{q^2 \pi \cdot c^2 x_p^2}{4\epsilon_0 k h w_p^3} \Leftrightarrow N_p = 3.2$$

$$x_p = 1.32 \times 10^{-15}; f_p = 2.2686 \times 10^{23}; w_p = 2.99776 \times 10^8$$

Speed and radius of the proton:

$$v = \frac{c}{N_p} ; R = \frac{x_p N_p^2}{\pi}$$

Acceleration:

$$g = \frac{v^2}{R} = \frac{c^2 \pi}{N_p^4 x_p} = 2.04 \times 10^{30}$$

Unified acceleration:

$$g_p = \frac{k w_p f_p^3}{c^2} = 7.452 \times 10^{27}$$

$$g / g_p = 2 \times 137.036 \Leftrightarrow \frac{4c^2 \epsilon_0 h}{q^2 w_p} = 2 \times 137.036 = 2N_e$$

Mass of the proton

$$w_p = \frac{2c^2 \epsilon_0 h}{q^2 N_e} \quad \text{and} \quad m_p = \frac{h \sqrt{c^2 - w_p^2}}{\sqrt{k} w_p^2}$$

$$m_p = 1.6727 \times 10^{-27} \quad (\text{Not } 1.6726 \times 10^{-27})$$

Electron accelerations:

$$g_e = \frac{c^2 \pi}{N_e^4 x_e} = 3.3 \times 10^{20} ; \quad g = \frac{k f_e^3}{c} = 1.2 \times 10^{18}$$

$$g_e / g = 2 \times 137.036$$

$$\Leftrightarrow k = \frac{\pi \cdot x_e^2}{2N_e^5} \quad \text{or} \quad k = \frac{\pi \cdot x_p^2}{2N_p^4 N_e}$$

Orbital acceleration of the electron:

$$v = \frac{c}{N_e} ; \quad R = \frac{N_e x_e}{2\pi}$$

$$g = \frac{v^2}{R} = \frac{2\pi \cdot c^2}{N_e^3 x_e} = 9.045 \times 10^{22} ; \quad g_e = \frac{k f_e^3}{c} = 1.2 \times 10^{18}$$

$$g / g_e = 4N_e^2 \quad \Leftrightarrow \quad \frac{\pi \cdot x_e^2}{k} = 2N_e^5$$

Orbital acceleration of the proton:

$$v = \frac{c}{N_p} ; \quad R = \frac{N_p x_p}{2\pi}$$

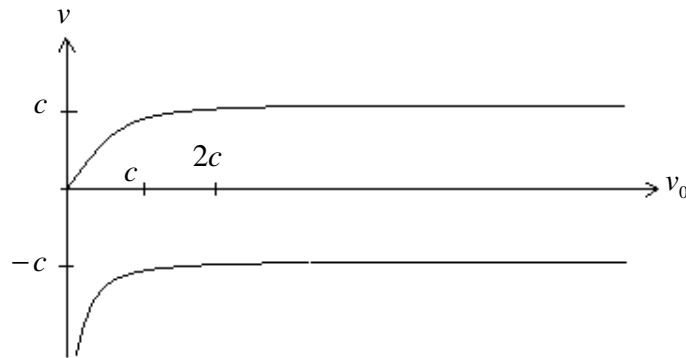
$$g = \frac{v^2}{R} = \frac{2\pi \cdot c^2}{N_p^3 x_p} = 1.3 \times 10^{31} ; \quad g_p = 7.452 \times 10^{27}$$

$$g / g_p = 4\pi 137.036$$

Relative units

Relative speed:

$$v = v_0(1 - v^2/c^2) \quad \Leftrightarrow \quad v = \frac{-c^2 \pm \sqrt{c^4 + 4c^2 v_0^2}}{2v_0}$$



Permittivity and permeability

$$\varepsilon = \varepsilon_0 / (1 - v^2/c^2)^{9/8} ; \quad \mu = \mu_0 / (1 - v^2/c^2)^{7/8}$$

Wavelength and period

$$x = x_0 \sqrt{1 - v^2/c^2} ; \quad t = t_0 / \sqrt{1 - v^2/c^2}$$

Frequency and speed

$$f = f_0 \sqrt{1 - v^2 / c^2} ; \quad w = w_0 (1 - v^2 / c^2)$$

Mass and acceleration

$$m = m_0 / (1 - v^2 / c^2)^{3/2} ; \quad a = a_0 (1 - v^2 / c^2)^{3/2}$$

Force and angular momentum

$$F = F_0 ; \quad h = h_0$$

Momentum and energy

$$p = p_0 / \sqrt{1 - v^2 / c^2} ; \quad E = E_0 / \sqrt{1 - v^2 / c^2}$$

Electric charge

$$q = q_0 / (1 - v^2 / c^2)$$