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Some Coincidences

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

See Unified Absolute Relativity Theory at:

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

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

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

Electron g factor:

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

Strong force = Electric force = Unified force

$$F = \frac{q^2\pi}{4\varepsilon_0 x_p^{\,2} N_p^{\,4}} = \frac{khf_p^{\,4}}{w_p c^2}$$

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

$$N_p^{\,4} = \frac{q^2\pi.c^2 x_p^{\,2}}{4\varepsilon_0 khw_p^{\,3}} \quad \Leftrightarrow \quad N_p = 3.2$$

$x_p = 1.32\times10^{-15}$; $f_p = 2.2686\times10^{23}$; $w_p = 2.99776\times10^{8}$

Speed and radius of the proton:

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

Acceleration:

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

Unified acceleration:

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

$$g / g_p = 2 \times 137.036 \quad \Leftrightarrow \quad \frac{4c^2 \varepsilon_0 h}{q^2 w_p} = 2 \times 137.036 = 2N_e$$

Mass of the proton

$$w_p = \frac{2c^2 \varepsilon_0 h}{q^2 N_e} \qquad \text{and} \qquad m_p = \frac{h\sqrt{c^2 - w_p{}^2}}{\sqrt{k} w_p{}^2}$$

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

Electron accelerations:

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

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

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

Orbital acceleration of the electron:

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

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

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

Orbital acceleration of the proton:

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

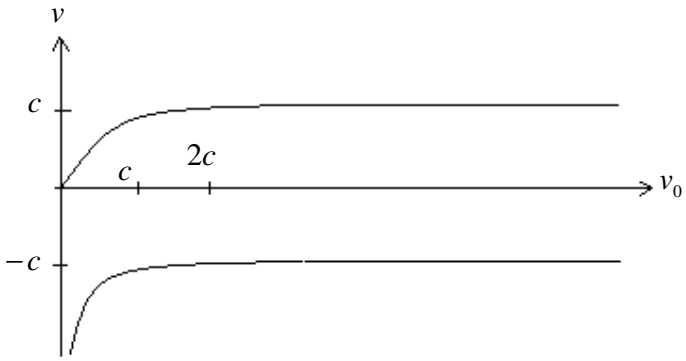
$$g = \frac{v^2}{R} = \frac{2\pi.c^2}{N_p{}^3 x_p} = 1.3\times 10^{31} \; ; \quad g_p = 7.452\times 10^{27}$$

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

Relative units

Relative speed:

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



Permittivity and permeability

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

Wavelength and period

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

Frequency and speed

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

Mass and acceleration

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

Force and angular momentum

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

Momentum and energy

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

Electric charge

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