the general science journal

Mass and Gravitation

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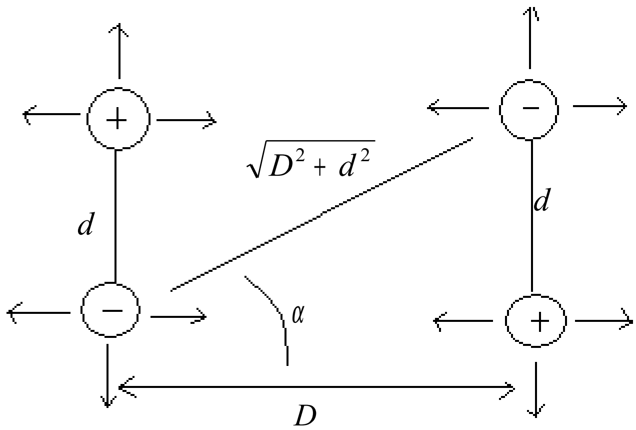
See Unified Absolute Relativity Theory at:

www.wbabin.net/saraiva/saraiva305.pdf
www.wbabin.net/saraiva/saraiva306.pdf
www.wbabin.net/saraiva/saraiva307.pdf
www.wbabin.net/saraiva/saraiva328.pdf

The gravitational force is the electric force between electric dipoles. The mass is the electric dipole moment.



$$\cos\alpha = \frac{D}{\sqrt{D^2 + d^2}} \; ; \qquad \sin\alpha = \frac{d}{\sqrt{D^2 + d^2}}$$

Attractive force between two dipoles:

$$F_A = \frac{2q^2}{4\pi\varepsilon_0 D^2} - \frac{2q^2 D}{4\pi\varepsilon_0 (D^2 + d^2)^{3/2}} = G\frac{m^2}{D^2}$$

$$m = \frac{qkc}{dw} \; ; \qquad w \approx c$$

q - Electron charge; D – Distance; d – Distance of the poles; k – Boltzmann constant; c – Light speed.

Repulsive force in the dipole. This force is responsible for the decrease of the sum of the masses.

$$F_R = \frac{q^2 d}{2\pi \varepsilon_0 (D^2 + d^2)^{3/2}}$$

Attractive force:

$$F_A = \frac{2q^2}{4\pi \varepsilon_0}\left(\frac{1}{D^2} - \frac{D}{(D^2 + d^2)^{3/2}}\right) = G\frac{q^2 k^2}{d^2 D^2} \quad ; \quad \text{D>>d}$$

$$\Leftrightarrow \qquad G = \frac{d^2}{2\pi \varepsilon_0 k^2}\left(1 - \sqrt{\frac{D^6}{D^6 + 3D^4 d^2}}\right)$$

$$G = \frac{3d^4}{4\pi \varepsilon_0 k^2 D^2} = 6.67\times 10^{-11} \qquad \text{and} \qquad \text{D = 1m}$$

$$d = 2.62\times 10^{-17} m$$

G is quantized:

$$d^4 = \frac{4\pi G\varepsilon_0 k^2 D^2}{3} \qquad \Leftrightarrow \qquad d^2 = 6.86\times 10^{-34} D$$

Only three constants in UART theory:

$$x_e = 2.426\times 10^{-12} m \;; \qquad c = 3\times 10^8 m/s \;; \qquad \varepsilon = \frac{1}{\sqrt[3]{G}} = 2.466\times 10^3 m$$

Wave speed and energy:

$$w^2 = \frac{1}{\varepsilon\mu} \qquad \text{and} \qquad E = \frac{\varepsilon^2}{\mu^2} \qquad \Leftrightarrow \qquad E = \varepsilon^4 w^4$$

$$\varepsilon^4 = \frac{E^3 S}{h^2 c^6} \qquad \Leftrightarrow \qquad E = 2.465\times 10^{29} eV$$

$$m = 4.4\times 10^{-7} kg \;; \qquad w = 0.18 m/s$$

True Planck units

Planck mass:

$$m_{PL} = \sqrt{\frac{hc\alpha}{2\pi .G}} \quad ; \quad \alpha \text{ - Fine structure constant.}$$

$$G = 6.67 \times 10^{-11} = \frac{q^2}{4\pi \varepsilon_0 m_{PL}^2} \quad \Leftrightarrow \quad m_{PL} = 1.86 \times 10^{-9} kg$$

True Planck length:

$$mwx = h \quad \text{and} \quad w = xf_M \quad \text{and} \quad f_M = \frac{c}{\sqrt{S}}$$

$$x^2 = \frac{h\sqrt{S}}{mc} \quad \Leftrightarrow \quad x_{PL} = 1.28 \times 10^{-25} m$$

$$w_{PL} = 2.78 m/s \quad ; \quad E_{PL} = 10^{18} GeV$$

Planck permittivity: $\varepsilon_{PL} = 40.9m$

The magnetic field is a speed

$$mv = I\pi .R^2 \quad \text{and} \quad B = \frac{\mu_0 I}{2R}$$

$$\Leftrightarrow \quad B = \frac{\mu_0 m}{2\pi .R^3} v$$

For the electron:

$$B = \frac{4\pi^2 \mu_0 m_e}{x_e^3} v \quad \Leftrightarrow \quad B = \pi .v$$

m – Mass; v – Speed of rotation; I – Electric current; R – Radius;
μ_0 - Vacuum permeability; x_e - Electron wavelength.

Usual values:

$$B = \frac{h}{2\pi .qR_B^2} = 2.35 \times 10^5 T$$

Electron speed: $v = \alpha .c = 2.188 \times 10^6 m/s \quad \Leftrightarrow \quad \frac{v}{B} \approx 3\pi$

Quantized vortices in super fluids/conductors:

$$vl = Bl = \frac{h}{m}$$