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General Permittivity and Permeability

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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

Energy:

$$E = \frac{\varepsilon^2}{\mu^2} \quad \text{and} \quad E = \frac{h.c^2 f}{w^2} = h.c^2 f \varepsilon \mu \; ; \quad w = \frac{1}{\sqrt{\varepsilon \mu}}$$

For charged particles:

$$f = c\frac{-hc + \sqrt{h^2c^2 + 4E^2S}}{2ES}$$

$$\Leftrightarrow \quad \varepsilon^2 = \frac{2SE^{5/2}}{hc^3\left(-hc + \sqrt{h^2c^2 + 4E^2S}\right)}$$

For $4E^2S >> h^2c^2$

$$\varepsilon^2 = \frac{\sqrt{S}E^{3/2}}{hc^3} \quad \text{and} \quad E = mc^2$$

Permittivity of the mass quantum:

$$\varepsilon^3 = \frac{1}{G} \quad \Leftrightarrow \quad \varepsilon = 2.466 \times 10^3 m..(L)$$

$$\Leftrightarrow \quad m = 4.4 \times 10^{-7} kg \; ; \quad \text{Planck mass} = 2.2 \times 10^{-8} kg$$

$$\mu^2 = \frac{\sqrt{SE}}{hc^3} \quad \Leftrightarrow \quad \mu = 1.24 \times 10^{-2}..(L^{-1}V^{-2})$$

E – Energy; ε -- Permittivity; μ -- Permeability; h – Planck constant; c – Light speed; f -- Frequency; w – Variable light speed; $S = 1.9 \times 10^{-34} m^2$;
G – Gravitational constant.

Correction of the mass formula
or electric dipole moment

$$m = \frac{q.k_B}{x}\frac{2\pi\sqrt{2}}{2\pi\sqrt{2}+\alpha}\ ; \qquad k_B = 1.38064302 \times 10^{-23} m^2\ ; \qquad \frac{\Delta k_B}{k_B} = 5.27 \times 10^{-6}$$

The entropy is an area as like in black holes.

m – Mass; q – Electric charge; k_B -- Boltzmann constant; x – Compton wavelength or distance; α -- Fine structure constant.

$$\frac{k_B}{x_e^{\,2}} = \frac{1}{2\sqrt{2\pi\ \alpha}}\ ; \qquad x_e \text{ -- Electron Compton wavelength.}$$

Electron's electric field:

$$E = \frac{\pi .c^2 me}{qx_e} = \frac{6\pi^{\,2} q}{x_e^{\,3}} = \frac{\pi .c^2 k_B}{x_e^{\,2}} = 6.62 \times 10^{17} = 2.34\pi .c^2$$

m_e -- Electron mass.

Electron energy relations:

$$E_e = \frac{E_0 \alpha}{2\pi\sqrt{2}} \qquad \text{and} \qquad E_0 = \frac{\varepsilon_0^{\,2}}{\mu_0^{\,2}} = 310 MeV$$

E_e -- Electron rest energy

$$13.6eV = \frac{E_0 \alpha^{\,3}}{2\pi\sqrt{2}}\ ; \qquad \frac{E_e}{13.6} = \frac{2}{\alpha^{\,2}}$$