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Three kinds of mass

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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

Mass can be generated by three kinds of dipoles: electric dipoles, magnetic dipoles and electromagnetic dipoles.

Electric dipole:

$$m = \frac{\sqrt{q_1.q_2}\,k_B}{d}$$

m – Mass; q – Electric charge; k_B -- Boltzmann constant; d – Distance between poles.

Magnetic dipole:

$$m = \frac{q_{m1}.q_{m2}.x^3}{2k_B d}$$

q_m -- Magnetic charge; x -- Compton wavelength.

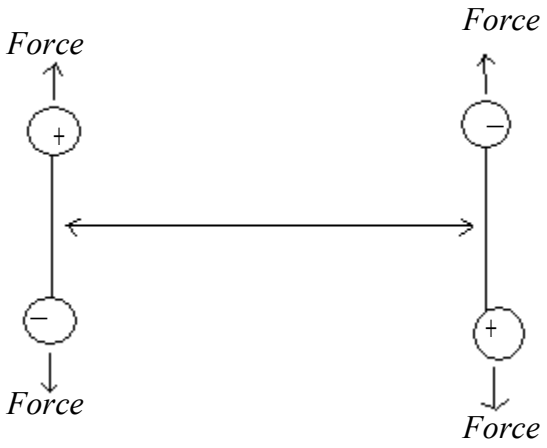
Electromagnetic dipole:

$$m = \frac{2q_m q_e}{cd} \quad ; \qquad \text{c – Light speed.}$$

There are only two fundamental particles. All other particles are composed of them. The unified force is the Cooper pair force.

Mass defect

When two neutral dipoles interact, it exists a force that stretches the dipoles. The distance of the dipoles increase so the mass becomes smaller.



For the proton in an alfa particle:

$$\frac{\Delta m_p}{m_p} = 0.724\% \quad \Leftrightarrow \quad d_2 = d(1+\alpha)$$

m_p -- Proton mass; α -- Fine structure constant.

The protons don't generate dipoles.

Mass oscillation

The magnetic dipoles can oscillate:

What does this means

Energy of the vacuum quantum:

$$E_0 = \frac{\varepsilon_0^{\,2}}{\mu_0^{\,2}} = 310MeV$$

Energy of the proton:

$$E_P \approx 3E_0$$

Energy of the W boson:

$$E_W = 1.9\frac{E_0}{\alpha}$$

Energy of the Z boson:

$$E_Z = 2.1\frac{E_0}{\alpha}$$

$$\frac{E_W + E_Z}{2} = 2\frac{E_0}{\alpha}$$

Neutral quantum of the vacuum

$E_0 = 310MeV$ and $\frac{m_e}{m_\nu} = \frac{\alpha^{-3}}{2\pi}$

m_e -- Electron mass; m_ν -- Neutrino mass.

$$m_0 = \frac{E_0}{c^2} = 5.526 \times 10^{-28} kg \quad \text{and} \quad \frac{m_0}{m_{0N}} = \frac{\alpha^{-3}}{2\pi}$$

$$m_{0N} = 1.35 \times 10^{-33} kg$$

$$E_{0N} = 756.864eV$$