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Vacuum structure and Energy Density

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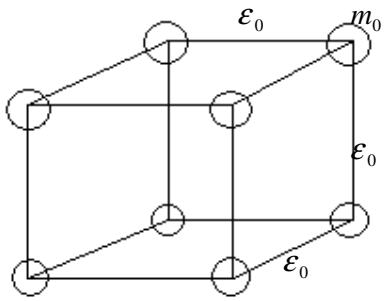
See Unified Absolute Relativity Theory at:

www.wbabin.net/saraiva/saraiva105.pdf
www.wbabin.net/saraiva/saraiva223.pdf

The vacuum is a superfluid and a superconductor. It's the gravitational field of the universe and behaves like a plasma.

Vacuum structure:



The vacuum is a cubic lattice of particles with mass m0.

Energy:

$$E_0 = \left(\frac{\varepsilon_0}{\mu_0}\right)^2 = 4.96\times10^{-11}\,J = 309.84MeV$$

ε_0 -- Vacuum permittivity; μ_0 -- Vacuum permeability.

Mass of the vacuon:

$$m_0 = 5.52\times10^{-28}\,kg \quad ; \qquad m_0 = \frac{{\varepsilon_0}^3}{\mu_0}$$

This mass don't produce gravitational effects because it's a black hole.

Energy density:

$$\rho_0 = \frac{m_0}{\varepsilon_0^{\,3}} = \frac{1}{\mu_0} = 7.96\times10^{5}$$

Vacuum gravitational constant:

$$G_0 = \frac{1}{\varepsilon_0^{\,3}} = 1.44\times10^{33}$$

It is a superconductor:

$$c^2 = \frac{G_0 m_0}{\varepsilon_0}$$

Magnetic field of the universe:

$$B_U = c \;; \qquad \frac{dB}{dx} = 2.3\times10^{-18}$$

Total mass of in the universe:

$$\rho_0 = \frac{M_T}{V_U} \;; \qquad V_U = \frac{4}{3}\pi R_U^{\,3} = 9.2\times10^{78}\, m^3$$

$$M_T = 7.3\times10^{84}\, kg \quad \text{(This is not the mass of the universe)}$$

Total energy:

$$E_T = M_T c^2 = 6.6\times10^{101}\, J = 3.6\times10^{120}\, eV$$

Locally the bodies are rotating at light speed but the vacuum is at rest relative to the center of our universe. The rotations at our level are quantized.

The cosmological constant doesn't exist. Dark energy doesn't exist also.

Dark matter is made of neutrinos.

The age of the universe is infinite.

Our universe is a black hole and we are living at its surface.

Each vacuon is also a black hole, like a Cooper pair.

Mass or energy density of the universe is a very different thing:

$$\rho_M = \frac{3M_U}{4\pi R_U^{\,3}} \;; \qquad M_U = 10^{53}\, kg \;; \qquad R_U = 1.3\times10^{26}\, m$$

$$\rho_M = 10^{-26} \qquad \Leftrightarrow \qquad \rho_E = \rho_M c^2 = 5.6\times10^{131}\, eV$$

There is no vacuum catastrophe.