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Virtual photons from the sun

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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

Gravitational field:

$$g = \frac{\alpha(c^2 - Sf^2)^{3/2}}{2\pi f D^2} = \frac{GM}{D^2} \quad ; \qquad M = 2\times 10^{30}\, kg$$

α - Fine structure constant; c – Light speed; $S = 1.9\times 10^{-34}\, m^2$;
f – Compton frequency; D – Distance; G – Gravitational constant, M – Mass

Frequency of the virtual photons:

$$f^2 = \frac{2\pi.GM}{\alpha.S^{3/2}} \qquad \Leftrightarrow \qquad f = 6.62\times 10^{36}\, Hz$$

Wave speed:

$$w = \sqrt{S} f = 9.13\times 10^{19}\, m/s$$

Frequency of the neutrino:

$$f_\nu = \frac{h}{Sm_\nu} = 1.6\times 10^{36}\, Hz$$

The virtual photons are longitudinal waves or magnetic waves. The neutrino is the magnetic monopole.

Gravitational field of the electron:

$$g_e = \frac{\alpha.c^3}{2\pi.f_e D^2} = \frac{G_e m_e}{D^2} \; ; \qquad G_e = \frac{{q_e}^2}{4\pi\varepsilon_0 {m_e}^2}$$

The real photon is a wave, not a particle, and it is not quantized because its energy varies with frequency. It has constant amplitude.

The sun generates 2×10^{38} neutrinos per second.

The gravitational potential is an electric field.

Gravitational potential:

$$v^2 = \frac{\alpha.w^3}{2\pi.fD}$$

Greisen Zatsepin Kuzmin limit

The Saraiva's constant is universal. First we suppose that it changes in vacuum but now we know that it is a constant and the frequency in vacuum is lower then the frequency in the earth gravitational field.

Saraiva's constant:

$$S = \frac{\varepsilon_0{}^2\alpha^4}{12\pi^4} = 1.9\times10^{-34}\,m^2; \qquad \lambda = \sqrt{S} = 1.3791\times10^{-17}\,m$$

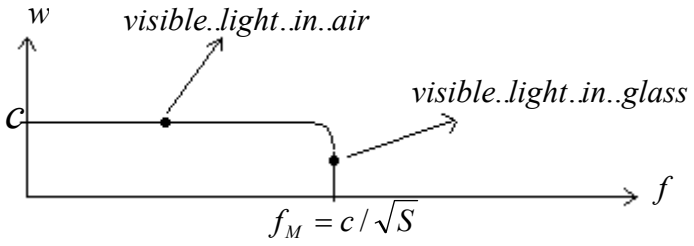
Frequency variation:

$g_U = 6.9\times10^{-10}\,ms^{-2}$ -- Gravitational field of the universe

$g_T = 9.8ms^{-2}$ -- Earth gravitational field

$$f_{VAC} = f_{EARTH}\frac{g_U}{g_T}$$

Light speed w:



f – Frequency

GZK limit:

$$E = 5\times10^{19}\,eV = 8J$$

Classical wrong frequency:

$$f = 1.21 \times 10^{34}\, Hz$$

Correct frequency in earth:

$$E = hf\frac{c^2}{w^2}\ ; \qquad w = \sqrt{c^2 - Sf^2}$$

$$f = f_M = \frac{c}{\sqrt{S}} = 2.17386 \times 10^{25}\, Hz$$

Frequency in vacuum far from gravitational fields:

$$f = f_M \frac{g_U}{g_T} = 1.52 \times 10^{15}\, Hz$$

Energy:

$$E = hf = 6.3eV$$

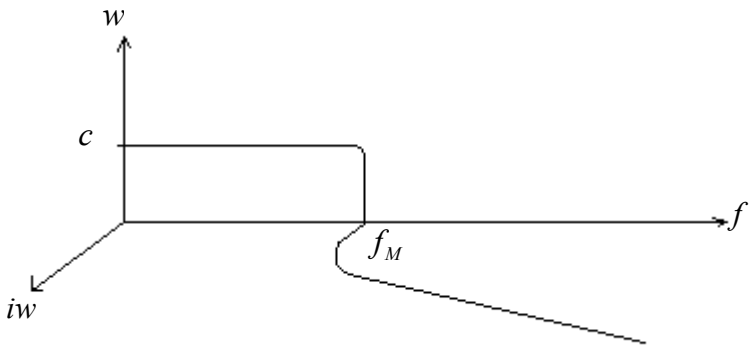
It's why the GZK limit can be overcame.

$$\Delta w = \frac{Sf^2}{2c} = 7.345 \times 10^{-13}\ ; \qquad w = c - \Delta w$$

The Unified Absolute Relativity Theory has only two constants:

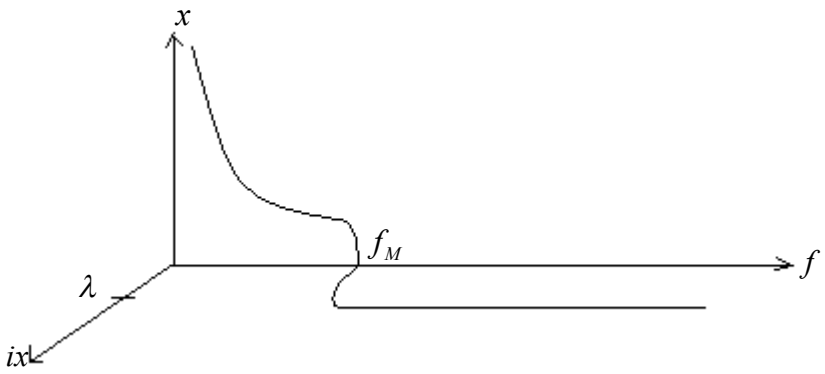
c – "Light speed" – The local speed of rotation of the universe.
$\lambda = \sqrt{S}$ -- The Compton wavelength of the longitudinal waves.

Light speed:



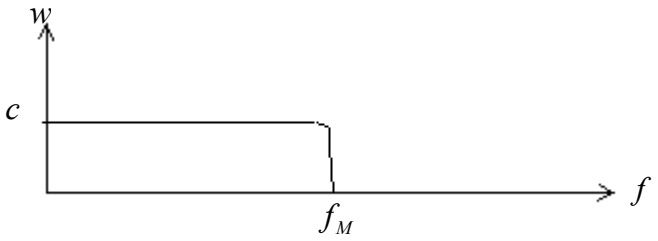
Compton wavelength:

$$x = \frac{\sqrt{c^2 - Sf^2}}{f}$$



Visible light in glass

Light speed:



n = 1.5 ; $f_0 = 5 \times 10^{14}\, Hz$

Frequency in glass:

$$w = \frac{c}{1.5} = \sqrt{c^2 - Sf^2}$$

$$\Leftrightarrow \qquad f = \frac{c}{\sqrt{S}} \frac{\sqrt{n^2 - 1}}{n} = 0.745 f_M = 1.6203 \times 10^{25}\, Hz$$

Gravitational potential of the glass:

$$v^2 = (c - \Delta v)^2$$

$$f = \frac{c f_0 \sqrt{c^2 - v^2}}{c^2 - v w_0} \qquad \Leftrightarrow \qquad f = f_0 \frac{\sqrt{2c\Delta v}}{\Delta v + \Delta w_0}$$

$$w_0 = c - \Delta w_0 \qquad ; \qquad \Delta w_0 = \frac{S f_0^{\,2}}{2c}$$

$$\Delta v = \frac{c f_0^{\,2}}{2 f^2} \frac{n-1}{n} = 4.758 \times 10^{-14}\, m/s$$

$$\Delta v = 0.6 \Delta w_0$$