the general science journal

Gravitational Potential of an Optical Medium

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See Unified Absolute Relativity Theory at:

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

$$w = c^2 \frac{w_0 - v}{c^2 - v w_0} \quad ; \quad w = \frac{c}{n} \quad ; \quad w_0 = c - \Delta w_0 \quad ; \quad v = c - \Delta v$$

$$\Leftrightarrow \qquad n = \frac{c\Delta v + c\Delta w_0 - \Delta v \Delta w_0}{c\Delta v - c\Delta w_0}$$

For vacuum: n = 1 $\Leftrightarrow$ $\Delta v = 2c$ $\Leftrightarrow$ $v = -c$

For matter (glass):

$$f_0 = 5\times10^{14}\,Hz \quad ; \quad n = 1.5 \; ; \quad \Delta w_0 = \frac{k f_0^{\;2}}{2c} = 7.98\times10^{-14}$$

$$\Delta v = \frac{n+1}{n-1}\Delta w_0 = 4\times10^{-13} \quad ; \quad v = c - 4\times10^{-13}$$

The gravitational potential of a medium is v^2
v is the escape speed of the atom or molecule of the medium

$$v = \sqrt{\frac{2G_e m}{R}} \quad ; \quad G_e = \frac{q_e^{\;2}}{4\pi\varepsilon_0 m_e^{\;2}} = 2.78\times10^{32}$$

$G_e =$ Gravitational constant of the electron

Element	v
Hydrogen	6.83×10^{7}
Helium	1.20×10^{8}
Al	3.35×10^{8}
Au	7.70×10^{8}

Water Gravitational Potential

$$f_0 = 5\times10^{14} \;; \qquad \text{n} = 1.333 \;; \qquad \Delta w_0 = 7.98\times10^{-14}$$

$$\Delta v = 5.6\times10^{-13} \;; \qquad v = c - 5.6\times10^{-13}$$

Density of the molecule: $\rho = 1000 kg / m^3$

Mass of the molecule: $m = 2\times1.67\times10^{-27} + 2.66\times10^{-26} = 3\times10^{-26} kg$

Radius of the molecule: $R = \sqrt[3]{\dfrac{3m}{4\pi\rho}} = 1.9263\times10^{-10} m$

Escape speed of the molecule: $v = \sqrt{\dfrac{2G_e m}{R}} = 2.943\times10^{8} m/s$

Gravitational potential: $v^2 = c^2$

The optical media are a kind of superconductors for photons.

An optical medium behaves as a black hole and at the surface of a black hole the force is zero.

$$v = 3\times10^{16} m^{1/3} \rho^{1/6}$$