My GUT Feeling About Gravity

- by -

Jerry E. Bayles

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The General Theory of Relativity limits the speed of gravity to the speed of light since relativity is founded on the notion that light speed is the limiting speed for all information transport. Also, since we are forced to accept that conclusion, then such things as 'waves' in the fabric of space-time can occur and possibly be detected. This would be a strong affirmation of Einstein's Theory concerning General Relativity.

In quantum mechanics, non-local action has been repeatedly demonstrated to occur instantly between photons born out of a splitting mechanism so that when separated by an arbitrary distance and traveling on separate paths, changing the phase of one will instantly change the phase of the other. A phase change must have a corresponding change on the momentum and thus the inertia by Heisenberg's formula, $mv * 2r = h/\pi$ where π is the phase change. Then a local inertia can be affected instantly with respect to a distant mass-energy change of inertia. No wonder Einstein did not like "spooky action at a distance." It proves the assumption in the General Theory wrong concerning gravitational action occurring at the limiting speed of light.

The mathematics of the General Relativity equation are impressive and can even be said to be beautiful. However, the mechanics are not right. Especially concerning the speed of action. The effects that are measurable conform to the theory. However, for most cases, the second order partial differential equations are not solvable for a general application. See the link: **http://en.wikipedia.org/wiki/Exact_solutions_in_general_relativity**

The fact that GPS uses the space-time correction necessary due to the gravitational field of the Earth does not mean that the mathematics was solved for. Only that trial and error did supply the necessary correction. Then General Relativity is valid in the sense that space-time is curved by a massive object or by mass generally. This is observable. This means that time and space *are* affected by a gravitational field. However, the speed of interaction being limited to the speed of light between quantum gravitational events is in question.

Special attention will be given to the T_{uv} energy density portion of the Einstein General Theory equation. A "black box" and holistic approach is used and will involve the use of Plank units as well as known quantum parameters to link the limits of the size of the observable universe to the smallest allowed Plank distance and time. In this manner, the mass-energy tensor T_{uv} is transformed into a quantum energy space source. I propose that all matter in normal space is supported by energy from energy space that is gated in by a weighted plank time and distance. Finally, it is that approach that sets the scales for the magnetic and electric as well as nuclear force fields.

GenRelMerged_Work.xmcd

$\Phi_o := 2.067834610 \cdot 10^{-15} weber$ Fluxoid quantum

$\varepsilon_o := 8.854187817 \cdot 10^{-12} \cdot farad \cdot m^{-1}$ Electric permittivity

$a_o := 5.291772490 \cdot 10^{-11} \cdot m$ Bohr radius

$c_{vel} := 2.997924580 \cdot 10^{08} \cdot m \cdot sec^{-1}$ Speed of light in vacuum

$h := 6.626075500 \cdot 10^{-34} \cdot joule \cdot sec$ Plank constant

$G_{const} := 6.672590000 \cdot 10^{-11} newton \cdot m^2 \cdot kg^{-2}$ Gravitational constant

$m_e := 9.109389700 \cdot 10^{-31} \cdot kg$ Electron rest mass

$r_p := \sqrt{\frac{G_{const} \cdot h}{c^3}}$ $r_p = 4.050833153880679 \times 10^{-35} m$ Plank least quantum length

$\mu_o := 4 \cdot \pi \cdot 1 \cdot 10^{-07} \cdot henry \cdot m^{-1}$ Magnetic permeability

$q_o := 1.602177330 \cdot 10^{-19} \cdot coul$ Electron charge

$\alpha := 7.297353080 \cdot 10^{-03}$ Fine structure constant

$l_q := 2.817940920 \cdot 10^{-15} \cdot m$ Classic electron radius

The Einstein field equation has the form: [1]

$$G_{u,v} = R_{u,v} - \frac{1}{2} \cdot g_{u,v} \cdot R + g_{u,v} \Lambda = \left(K_{const}\right) \cdot T_{u,v} \qquad 1)$$

The following analysis will use the "black box" approach for finding the T_{uv} value.

The units of the above equation are as follows:

Let $K_{const} := \frac{8\cdot\pi\cdot G_{const}}{c^4}$ $K_{const} = 2.076115391974129 \times 10^{-43}\frac{1}{N}$ 2)

The units of G, the gravitational constant, is: $G = \frac{N\cdot m^2}{kg^2}$ 3)

And for c, the speed of light, the units are: $c = \frac{m}{s}$ 4)

where, T_{uv} is $\frac{J}{m^3}$ g_{uv} is 1 5)

And, R_{uv} , Λ , and R is $\frac{1}{m^2}$ 6)

Since the output of either side of the Einstein field equation is in $\frac{1}{m^2}$ units, then the equation can be substituted for the $\frac{1}{m^2}$ portion of the Newton gravitational field equation.

Then in the below equation, the unknown variable is T_{uv} and this is solved for n1 of the Bohr hydrogen atom as:

$$\frac{1}{a_o^2} = \frac{8\cdot\pi\cdot G_{const}}{c_{vel}^4}\cdot T_{uv}$$ has solution(s) for T_{uv} of: $$\frac{c_{vel}^4}{8\cdot\pi\cdot G_{const}\cdot a_o^2}$$ 7)

$$T_{uv} := \frac{c_{vel}^4}{8\cdot\pi\cdot G_{const}\cdot a_o^2}$$ or, $$T_{uv} = 1.7200702454765524 \times 10^{63}\cdot\frac{J}{m^3}$$ 8)

Then T_{uv} is shown to be inversely proportional to the square of a_o.

From reference 2 (Plank Units) the **Plank energy density** is shown as:

$$E_{DenPlank} := \frac{c_{vel}^{07}}{h \cdot G_{const}^{2}} \qquad E_{DenPlank} = 7.377337631779754 \times 10^{112} \cdot \frac{J}{m^3}$$ **2.** 9)

While herein, the Plank energy density can be solved for in terms of r_p as:

$$Tuv_{Plank} := \frac{c_{vel}^{4}}{G_{const} \cdot r_p^{2}} \qquad Tuv_{Plank} = 7.377337631779753 \times 10^{112} \cdot \frac{J}{m^3}$$ 10)

The greater the energy density, the smaller is the action distance and the energy density varies as the inverse of the action distance.

When using the "black box" approach, if the output from something is known, you don't have to consider what is taking place on the inside. Then it is straightforward to use the known output for gathering information on the effect that output can have on other systems when those systems can have an effect on that output.

The energy density for equation 8 seems huge, especially for the case of the energy density at the radius of the first shell of the hydrogen atom. Even if we were only considering the energy density due to the electron mass-energy. If we find the radius required to match the energy density in eq. 8 we find:

$$rde_{n1} := \left(\frac{m_e \cdot c_{vel}^{2}}{T_{uv}} \right)^{\frac{1}{3}} \qquad rde_{n1} = 3.624055456044392 \times 10^{-26} \cdot m$$ 11)

This radius is much smaller than the classic electron radius $l_q = 2.81794092 \times 10^{-15} m$

Therefore, the energy density that is involved in T_{uv} is defined herein as that which is from non-local energy space. It is this approach which will unify the General Theory equation to the quantum theory. The idea of energy being input to local space from non-local energy space by a gated square of distance (like a window) is introduced in the following work. This is as valid as considering T_{uv} based on purely electromagnetic, dust, solid but elastic energy, etc. as in:

http://en.wikipedia.org/wiki/Exact_solutions_in_general_relativity

The Newtonian force at the n1 energy shell of the Bohr hydrogen atom in terms of Newton and the Einstein General Theory field equation can be stated as:

$$F_{NE} := m_e^{2} \cdot G_{const} \cdot \left[\frac{8 \cdot \pi \cdot G_{const}}{c_{vel}^{4}} \cdot (T_{uv}) \right] \quad \text{or,} \quad F_{NE} = 1.9772913889685189 \times 10^{-50} \text{N} \qquad 12)$$

This is for the simple case where the Einstein's General Field Theory reduces to Newton's gravitational field equation but where the expression for the units of the General Field Theory are included. Relativistically, as the field energy in T_{uv} increases, the internal metrics cause the distance associated with a_o to decrease which causes the total gravitational force to increase as a result. Space-time is affected by its own field energy in other words.

Thus we arrive at a Newtonian force result incorporating Einstein's General Theory of Relativity which incorporates the $1/r^2$ of the General Theory units result which ultimately fits and controls relativistically the $1/r^2$ requirement of the Newtonian equation.

My new expanded form of the gravitational constant G can be stated as shown below:

$$G_{EG} := c_{vel}^{2} \cdot \frac{1}{\mu_o} \cdot \frac{r_p^{2}}{q_o^{2}} \cdot 2 \cdot \alpha \quad \text{or,} \quad G_{EG} = 6.672590060922464 \times 10^{-11} \cdot \frac{\text{N} \cdot \text{m}^2}{\text{kg}^2} \qquad 13)$$

Where: $$G_{const} = 6.6725900000000005 \times 10^{-11} \cdot \frac{\text{N} \cdot \text{m}^2}{\text{kg}^2} \qquad \text{(Units SI)}$$

G_{EG} squared is: $$\left(c_{vel}^{2} \cdot \frac{1}{\mu_o} \cdot \frac{r_p^{2}}{q_o^{2}} \cdot 2 \cdot \alpha \right)^2 \quad \text{simplifies to} \quad \frac{4 \cdot \alpha^2 \cdot c_{vel}^{4} \cdot r_p^{4}}{q_o^{4} \cdot \mu_o^{2}} \qquad 14)$$

The mass of the electron can be stated in terms of the quantum of electric charge, the permeability of free space and the distance related to the classic electron radius as:

	Calculated	Constant SI	
$e_{mass} := \frac{\mu_o \cdot q_o^{2}}{4 \cdot \pi \cdot l_q}$	$e_{mass} = 9.109389691413147 \times 10^{-31} \text{kg}$	$m_e = 9.1093897 \times 10^{-31} \text{kg}$	15)

The expanded relativistic electrogravitational equation becomes:

$$\frac{\mu_o \cdot q_o^{2}}{4\cdot\pi\cdot l_q}\cdot\left(\frac{4\cdot\alpha^{2}\cdot c_{vel}^{4}\cdot r_p^{4}}{q_o^{4}\cdot\mu_o^{2}}\right)\cdot\left(\frac{8\cdot\pi\cdot T_{uv}}{c_{vel}^{4}}\right)\cdot\frac{\mu_o \cdot q_o^{2}}{4\cdot\pi\cdot l_q} = 1.9772914213471393 \times 10^{-50}\,N \qquad 16)$$

Where, $\frac{\mu_o \cdot q_o^{2}}{4\cdot\pi\cdot l_q}\cdot\left(\frac{4\cdot\alpha^{2}\cdot c_{vel}^{4}\cdot r_p^{4}}{q_o^{4}\cdot\mu_o^{2}}\right)\cdot\left(\frac{8\cdot\pi\cdot T_{uv}}{c_{vel}^{4}}\right)\cdot\frac{\mu_o \cdot q_o^{2}}{4\cdot\pi\cdot l_q}$ simplifies to $\frac{2\cdot T_{uv}\cdot\alpha^{2}\cdot r_p^{4}}{\pi\cdot l_q^{2}}$ 17)

Then the Electrogravitational equation that subsumes Einstein's General Theory of gravitation (and Newtons) is stated as:

$$FG_{ER} := \frac{2\cdot T_{uv}\cdot\alpha^{2}\cdot r_p^{4}}{\pi\cdot l_q^{2}} \qquad FG_{ER} = 1.97729142134714 \times 10^{-50}\,N \qquad 18)$$

and the result in this case is for the mass of two electrons in the n1 energy shell of the Bohr hydrogen atom separated a distance equal to the radius of that energy shell.

The r_p sets the scale for the magnetic, electric, and the strong force also. The distance r_p increases like a window width that gates energy through where the width is based on time by c*t_p = window width r_p. Plank time width t_p times the speed of light = window gate width in meters. This gate width determines the amount of energy input from energy space.

Let: $f_{LM} := 1.003224805\cdot 10^{1}\cdot Hz$ where, $r_p = 4.050833153880679 \times 10^{-35}\,m$

Least quantum Magnetic force: $F_M := h\cdot\frac{f_{LM}}{a_o}$ $F_M = 1.2561846364265705 \times 10^{-22}\,N$ 19)

N1 H atom Electric force: $F_E := \frac{q_o^{2}}{4\cdot\pi\cdot\varepsilon_o\cdot a_o^{2}}$ $F_E = 8.23872946602187 \times 10^{-8}\,N$ 20)

Tuv can be absorbed into the electrogravitational equation above:

Since $T_{uv} = \dfrac{c_{vel}^{4}}{8\cdot\pi\cdot G_{const}\cdot a_o^{2}}$ Then: 21)

$$F_{GUT} = \frac{2\cdot\left(\dfrac{c_{vel}^{4}}{8\cdot\pi\cdot G_{const}\cdot a_o^{2}}\right)\cdot\alpha^{2}\cdot r_p^{4}}{\pi\cdot l_q^{2}}$$

simplifies to

$$F_{GUT} = \frac{\alpha^{2}\cdot c_{vel}^{4}\cdot r_p^{4}}{4\cdot\pi^{2}\cdot G_{const}\cdot a_o^{2}\cdot l_q^{2}} \quad 22)$$

Check: $\dfrac{\alpha^{2}\cdot c_{vel}^{4}\cdot r_p^{4}}{4\cdot\pi^{2}\cdot G_{const}\cdot a_o^{2}\cdot l_q^{2}} = 1.9772914213471398\times 10^{-50}\,\mathrm{N}$ Where: 23)

$\left(\dfrac{\alpha^{2}\cdot c_{vel}^{4}\cdot r_p^{4}}{4\cdot\pi^{2}\cdot G_{const}^{2}\cdot l_q^{2}}\right)^{\frac{1}{2}} = 9.10938977458422\times 10^{-31}\,\mathrm{kg}$ yields a further reduction to: 24)

Mass) and: (Acceleration) 25 & 26)

$\dfrac{\alpha\cdot c_{vel}^{2}\cdot r_p^{2}}{2\cdot\pi\cdot G_{const}\cdot l_q} = 9.109389774584221\times 10^{-31}\,\mathrm{kg}$ $\dfrac{\alpha\cdot c_{vel}^{2}\cdot r_p^{2}}{2\cdot\pi\cdot a_o^{2}\cdot l_q} = 2.1706079883242113\times 10^{-20}\,\dfrac{\mathrm{m}}{\mathrm{s}^{2}}$

Check:

$$\frac{\alpha\cdot c_{vel}^{2}\cdot r_p^{2}}{2\cdot\pi\cdot G_{const}\cdot l_q}\cdot\frac{\alpha\cdot c_{vel}^{2}\cdot r_p^{2}}{2\cdot\pi\cdot a_o^{2}\cdot l_q} = 1.9772914213471398\times 10^{-50}\,\mathrm{N} \quad 27)$$

Without Plank radius and r_{n1} radius: $\dfrac{\alpha\cdot c_{vel}^{2}}{2\cdot\pi\cdot l_q} = 3.704205001998531\times 10^{28}\,\dfrac{\mathrm{m}}{\mathrm{s}^{2}}$ Big Bang Expansion phase acceleration? 28)

G and T_{uv} can be dropped from the gravitational equation as shown below:

Inserting the parameters for 1/G and simplifying:

$$F_{GUT} = \frac{\alpha^2 \cdot c_{vel}^4 \cdot r_p^4}{4 \cdot \pi^2 \cdot a_o^2 \cdot l_q^2} \cdot \left(\frac{\mu_o \cdot q_o^2}{c_{vel}^2 \cdot r_p^2 \cdot 2 \cdot \alpha} \right)$$ simplifies to $$F_{GUT} = \frac{\alpha \cdot c_{vel}^2 \cdot q_o^2 \cdot r_p^2 \cdot \mu_o}{8 \cdot \pi^2 \cdot a_o^2 \cdot l_q^2}$$ 29)

Mass in normal space can be taken to be the center of charges in energy space. Further, for the case of only two masses, a ratio of mass #1 to the mass of an electron = N1 times the ratio of mass #2 to the mass of an electron = N2 establishes the scaling factor for larger masses.

Then, the total electrogravitational equation becomes:

$$F_{GUT} = \frac{\alpha \cdot c_{vel}^2 \cdot q_o^2 \cdot r_p^2 \cdot \mu_o}{8 \cdot \pi^2 \cdot a_o^2 \cdot l_q^2} \cdot (N1 \cdot N2)$$ Where, $$N1 = \frac{M1}{m_e} \qquad N2 = \frac{M2}{m_e}$$ 30)

Rearranging for mass times acceleration equals force:

$$\frac{\mu_o \cdot q_o^2}{4 \cdot \pi \cdot l_q} \cdot \frac{\alpha \cdot c_{vel}^2 \cdot r_p^2}{2 \cdot \pi \cdot a_o^2 \cdot l_q} = 1.9772914032939601 \times 10^{-50} \text{N}$$ 31)

where, $$\frac{\mu_o \cdot q_o^2}{4 \cdot \pi \cdot l_q} = 9.109389691413147 \times 10^{-31} \text{kg}$$ 32)

and $$\frac{\alpha \cdot c_{vel}^2 \cdot r_p^2}{2 \cdot \pi \cdot a_o^2 \cdot l_q} = 2.1706079883242113 \times 10^{-20} \frac{\text{m}}{\text{s}^2}$$ 33)

The denominator $8 \cdot \pi^2 \cdot a_o^2 \cdot l_q^2$ has the dimensions of the area of a torus involving either ao or lq squared or a combination of the product of ao and lq times 4 pi squared.

$FG_{ER1} := FG_{ER}$ $\qquad F_{M1} := F_M$ $\qquad F_{E1} := F_E$

Solving for the square window width and height for the electrogravitational force field at n1:

$$FG_{ER1} = \frac{\alpha \cdot c_{vel}^2 \cdot q_o^2 \cdot r_p^2 \cdot \mu_o}{8 \cdot \pi^2 \cdot a_o^2 \cdot l_q^2} \quad \text{has solution(s)} \qquad 34)$$

$$\left| \begin{array}{l} \left(\begin{array}{c} \dfrac{\pi \cdot \sqrt{8} \cdot \sqrt{FG_{ER1}} \cdot a_o \cdot l_q}{\sqrt{\alpha} \cdot c_{vel} \cdot q_o \cdot \sqrt{\mu_o}} \\ -\dfrac{\pi \cdot \sqrt{8} \cdot \sqrt{FG_{ER1}} \cdot a_o \cdot l_q}{\sqrt{\alpha} \cdot c_{vel} \cdot q_o \cdot \sqrt{\mu_o}} \end{array} \right) \text{ if } \alpha \neq 0 \wedge c_{vel} \neq 0 \wedge q_o \neq 0 \wedge \mu_o \neq 0 \\ 0 \text{ if } FG_{ER1} = 0 \wedge \alpha = 0 \vee FG_{ER1} = 0 \wedge c_{vel} = 0 \vee FG_{ER1} = 0 \wedge q_o = 0 \vee FG_{ER1} = 0 \wedge \mu_o = 0 \end{array} \right.$$

$$r_{p1} := \frac{\pi \cdot \sqrt{8} \cdot \sqrt{FG_{ER1}} \cdot a_o \cdot l_q}{\sqrt{\alpha} \cdot c_{vel} \cdot q_o \cdot \sqrt{\mu_o}} \qquad r_{p1} = 4.0508331723732525 \times 10^{-35} \, m \qquad 35)$$

where, $r_p = 4.050833153880679 \times 10^{-35} \, m$

Solving for the square window width and height for the magnetic force field at n1:

$$F_{M1} = \frac{\alpha \cdot c_{vel}^2 \cdot q_o^2 \cdot r_{pM1}^2 \cdot \mu_o}{8 \cdot \pi^2 \cdot a_o^2 \cdot l_q^2} \quad \text{has solution(s)} \qquad 36)$$

$$\left| \begin{array}{l} \left(\begin{array}{c} \dfrac{\pi \cdot \sqrt{8} \cdot \sqrt{F_{M1}} \cdot a_o \cdot l_q}{\sqrt{\alpha} \cdot c_{vel} \cdot q_o \cdot \sqrt{\mu_o}} \\ -\dfrac{\pi \cdot \sqrt{8} \cdot \sqrt{F_{M1}} \cdot a_o \cdot l_q}{\sqrt{\alpha} \cdot c_{vel} \cdot q_o \cdot \sqrt{\mu_o}} \end{array} \right) \text{ if } \alpha \neq 0 \wedge c_{vel} \neq 0 \wedge q_o \neq 0 \wedge \mu_o \neq 0 \\ 0 \text{ if } F_{M1} = 0 \wedge \alpha = 0 \vee F_{M1} = 0 \wedge c_{vel} = 0 \vee F_{M1} = 0 \wedge q_o = 0 \vee F_{M1} = 0 \wedge \mu_o = 0 \end{array} \right.$$

$$r_{pM1} := \frac{\pi \cdot \sqrt{8} \cdot \sqrt{F_{M1}} \cdot a_o \cdot l_q}{\sqrt{\alpha} \cdot c_{vel} \cdot q_o \cdot \sqrt{\mu_o}} \qquad r_{pM1} = 3.2287599345773637 \times 10^{-21} \, m \qquad 37)$$

Solving for the square window width and height for the electric force field at n1:

$$F_{E1} = \frac{\alpha \cdot c_{vel}^{2} \cdot q_o^{2} \cdot r_{pE1}^{2} \cdot \mu_o}{8 \cdot \pi^{2} \cdot a_o^{2} \cdot l_q^{2}} \quad \text{has solution(s)} \qquad 38)$$

$$\left| \begin{array}{l} \left(\begin{array}{c} \dfrac{\pi \cdot \sqrt{8} \cdot \sqrt{F_{E1}} \cdot a_o \cdot l_q}{\sqrt{\alpha} \cdot c_{vel} \cdot q_o \cdot \sqrt{\mu_o}} \\ -\dfrac{\pi \cdot \sqrt{8} \cdot \sqrt{F_{E1}} \cdot a_o \cdot l_q}{\sqrt{\alpha} \cdot c_{vel} \cdot q_o \cdot \sqrt{\mu_o}} \end{array} \right) \text{ if } \alpha \neq 0 \wedge c_{vel} \neq 0 \wedge q_o \neq 0 \wedge \mu_o \neq 0 \\ 0 \ \text{ if } F_{E1} = 0 \wedge \alpha = 0 \vee F_{E1} = 0 \wedge c_{vel} = 0 \vee F_{E1} = 0 \wedge q_o = 0 \vee F_{E1} = 0 \wedge \mu_o = 0 \end{array} \right.$$

$$r_{pE1} := \frac{\pi \cdot \sqrt{8} \cdot \sqrt{F_{E1}} \cdot a_o \cdot l_q}{\sqrt{\alpha} \cdot c_{vel} \cdot q_o \cdot \sqrt{\mu_o}} \qquad r_{pE1} = 8.26873622078571 \times 10^{-14} \text{m} \qquad 39)$$

Then the above reinforces the idea of energy being gated or projected in from non-local energy space to support local space quantum space particles through the center of their Compton construct. In this concept, the centers of all quantum particles are connected together in non-local energy space so that all quantum particles are instantly aware and thus respond accordingly to all other quantum particles anywhere in local space and that is the fundamental basis of electrogravitation.

Without a steady energy input to keep the field energy stable, all force fields will collapse due to energy given up doing work on other fields or in the case of mass, gravitational field interaction.

In the General Theory of Relativity, bending space-time creates acceleration and that bending is accomplished by the existence of mass in the vicinity of the space-time being warped. (Whence comes the energy for this process??) If another mass is introduced into that space-time, the bent space gives up its field energy and thus the mechanism for acceleration (bent space) ceases to influence the new mass. Further, the entropy of the entire mechanism increases. Eventually no gravity anywhere.

Then the final result is flat space and the whole thing falls apart. That is the primary reason for adopting the energy space input concept in my theory.

Mult. by r_p and take the square root: $$\sqrt{\frac{\alpha \cdot c_{vel}^{2} \cdot r_p}{2 \cdot \pi \cdot l_q}} = 1.2249537309982894 \times 10^{-3} \frac{m}{s}$$ 40)

= velocity

Common terms:

$$K_{terms} := \frac{\alpha \cdot c_{vel}^{2} \cdot r_p}{2 \cdot \pi \cdot l_q} \qquad K_{terms} = 1.5005116430866299 \times 10^{-6} \frac{m^2}{s^2}$$ 41)

$$Press_{EGn1} := \frac{\alpha \cdot c_{vel}^{2} \cdot r_p}{2 \cdot \pi \cdot G_{const} \cdot l_q} \cdot \frac{\alpha \cdot c_{vel}^{2} \cdot r_p}{2 \cdot \pi \cdot a_o^{2} \cdot l_q} \qquad Press_{EGn1} = 1.2049859151736453 \times 10^{19} \cdot \frac{J}{m^3}$$ 42)

$$T_{uv} = \frac{\alpha \cdot c_{vel}^{2} \cdot r_T}{2 \cdot \pi \cdot G_{const} \cdot l_q} \cdot \frac{\alpha \cdot c_{vel}^{2} \cdot r_T}{2 \cdot \pi \cdot a_o^{2} \cdot l_q}$$

has solution(s) for r_T of:

$$\begin{cases} \begin{pmatrix} \dfrac{2 \cdot \pi \cdot \sqrt{G_{const}} \cdot \sqrt{T_{uv}} \cdot a_o \cdot l_q}{\alpha \cdot c_{vel}^{2}} \\ -\dfrac{2 \cdot \pi \cdot \sqrt{G_{const}} \cdot \sqrt{T_{uv}} \cdot a_o \cdot l_q}{\alpha \cdot c_{vel}^{2}} \end{pmatrix} & \text{if } \alpha \neq 0 \wedge c_{vel} \neq 0 \\ 0 & \text{if } (\alpha = 0 \vee c_{vel} = 0) \wedge T_{uv} = 0 \end{cases}$$

$$\frac{2 \cdot \pi \cdot \sqrt{G_{const}} \cdot \sqrt{T_{uv}} \cdot a_o \cdot l_q}{\alpha \cdot c_{vel}^{2}} = 4.839789379022137 \times 10^{-13} m$$ 43)

The solved for radius r_T makes $Press_{EGn1}$ equal to T_{uv} above. The radius is somewhat larger than the Compton radius of the electron. This difference is relativistic?

What would the energy related to T_{uv} be if we chose a radius of gravitational action equal to the radius of the observable universe?

The approximate ($\pm 20\%$) diameter of the universe presently is about 8.7 x 10^{26} meters.[2]
Then the diameter of the adjusted value below is set at:

$$U_{radius} := \frac{8.2589 \cdot 10^{26} \cdot m}{2} \qquad U_{radius} = 4.12945 \times 10^{26}\, m \tag{44}$$

In my previous work involving derived electrogravitational constants the least quantum electrogravitational wavelength was calculated to be:

$$\lambda_{LM} := \frac{h}{m_e \cdot \sqrt{\alpha} \cdot m \cdot sec^{-1}} \qquad \lambda_{LM} = 8.51499541615052 \times 10^{-3}\, m \tag{45}$$

$$T_{Urad} := \frac{c_{vel}^{\ 4}}{G_{const} \cdot \left(U_{radius}\right)^2} \qquad T_{Urad} = 7.09911068506805 \times 10^{-10} \cdot \frac{J}{m^3} \tag{46}$$

$$E_{Urad} := T_{Urad} \cdot \left(\lambda_{LM}\right)^3 \cdot \frac{1}{64 \cdot \pi} \qquad E_{Urad} = 2.1798537463911596 \times 10^{-18}\, J \tag{47}$$

The electron kinetic energy in the n1 shell of the hydrogen atom is:

$$E_{n1} := \frac{1}{2} \cdot \left[m_e \cdot \left(c_{vel} \cdot \alpha\right)^2\right] \qquad E_{n1} = 2.1798741016521404 \times 10^{-18}\, J \tag{48}$$

The two energies are close to equal.

$$\frac{E_{n1}}{\left(E_{Urad}\right)} = 1.000009337902148 \tag{49}$$

The above results suggest that the energy level of the n1 shell of the Bohr hydrogen atom depends on the diameter of the universe where the energy related to T_{uv} at the radius of the universe equals the energy in the n1 shell of hydrogen. Further, the information at the radius of the n1 shell concerning motion in that shell is instantly reflected to the diameter of the universe. Another way of looking at the huge value of T_{uv} calculated at the n1 radius, is that huge value spread over the radius of the universe equals the n1 energy level. Further, it is quantum and non-local Energy Space that is the source of the energy in T_{uv} . This could be related to Mach's principle wherein the size of the universe affects gravitation locally.

A relativistic velocity can be derived from gravitational acceleration working through a distance.

$M_{Earth} := 5.98 \cdot 10^{24} \cdot kg$

$R_{Earth} := 6.37 \cdot 10^{06} \cdot m$

$A_{Earth} := 9.806650000 \cdot m \cdot sec^{-2}$

$v_{rE} := \sqrt{A_{Earth} \cdot R_{Earth}}$ $\quad v_{rE} = 7.90369283942639 \times 10^{3} \frac{m}{s}$ = relativistic velocity. 50)

Entering this velocity into the special relativistic Lorentz transform:

$\Gamma E_{acc1} := \sqrt{1 - \frac{v_{rE}^{2}}{c_{vel}^{2}}}$ $\quad \Gamma E_{acc1} = 0.9999999996524729$ 51)

This is the amount of change per unit and for distance is a multiplier. For time and mass it is a divisor.

Acceleration is a function that is inverse to the square of the radius.

$A_{Gen1} := \frac{G_{const} \cdot M_{Earth}}{R_{Earth}^{2}}$ $\quad A_{Gen1} = 9.833695575561464 \frac{m}{s^{2}}$ Earth's surface. 52)

Let the radius be extended to 100 times the radius of the Earth.

$A_{Gen2} := \frac{G_{const} \cdot M_{Earth}}{(100 \cdot R_{Earth})^{2}}$ $\quad A_{Gen2} = 9.833695575561464 \times 10^{-4} \frac{m}{s^{2}}$ 53)

$v_{r2} := \sqrt{A_{Gen2} \cdot 100 \cdot R_{Earth}}$ $\quad v_{r2} = 791.4584058327167 \frac{m}{s}$ 54)

$\Gamma_{acc2} := \sqrt{1 - \frac{v_{r2}^{2}}{c_{vel}^{2}}}$ $\quad \Gamma_{acc2} = 0.9999999999965151$ $\quad \Gamma_{acc2} = 0.9999999999965151$ 55)

The differential time change comparison below says that there is a greater slowing of time near the surface of the Earth than at a distance of 100 radius units.

$$\Delta\Delta\Gamma E_{acc1} := \frac{1\cdot sec}{\Gamma E_{acc1}} - 1\cdot sec \qquad \Delta\Delta\Gamma E_{acc1} = 3.4752711819407978 \times 10^{-10}\, s \qquad 56)$$

$$\Delta\Delta\Gamma E_{acc2} := \frac{1\cdot sec}{\Gamma_{acc2}} - 1\cdot sec \qquad \Delta\Delta\Gamma E_{acc2} = 3.4849900742983664 \times 10^{-12}\, s \qquad 57)$$

For the sun, the following data is of interest relativistically..

$$M_{Sun} := 1.99\cdot 10^{30}\cdot kg \qquad R_{Sun} := 6.96\cdot 10^{8}\cdot m \qquad R_{Sun} = 6.96 \times 10^{5}\cdot km$$

$$A_{Sun} := \frac{G_{const}\cdot M_{Sun}}{R_{Sun}^{2}} \qquad A_{Sun} = 274.1126242733518\, \frac{m}{s^{2}} \qquad 58)$$

$$v_{rS} := \sqrt{A_{Sun}\cdot R_{Sun}} \qquad v_{rS} = 4.367864312158207 \times 10^{5}\, \frac{m}{s} \text{ = relativistic velocity.} \qquad 59)$$

$$\Gamma S_{acc} := \sqrt{1 - \frac{v_{rS}^{2}}{c_{vel}^{2}}} \qquad \Gamma S_{acc} = 0.9999989386292716 \qquad 60)$$

$$\frac{1\cdot sec}{\Gamma S_{acc}} - 1\cdot sec = 1.0613718548491136 \times 10^{-6}\, s \qquad 61)$$

The larger the mass, the greater is the time shift in the region local to that mass.

It is of interest that these relativistic results are based on the Newtonian gravitational equation and the special theory of relativity. Further, the requirement that the gravitational action be transmitted at the speed of light in free space does not appear as a requirement.

The Great Pyramid at Giza may utilize the relativistic effects of Earth's gravity to generate frequencies at the Hydrogen wavelength of 21 cm as well as the acoustic frequency basic to the Grand Gallery in that same pyramid.

$$\Delta v_{rE} := v_{rE}$$ 62)

$$\Delta\Gamma E_{acc1} := \sqrt{1 - \frac{\Delta v_{rE}^{2}}{c_{vel}^{2}}} \qquad \Delta\Gamma E_{acc1} = 0.9999999996524729$$ 63)

$$\Delta t_{Earth} := \frac{R_{Earth}}{\Delta v_{rE}} \qquad \Delta t_{Earth} = 805.9523730760648\,s$$ 64)

$$\Delta d_{rx} := A_{Earth} \cdot \Delta t_{Earth}^{2} \qquad \Delta d_{rx} = 6.37 \times 10^{6}\,m$$ 65)

$$\Delta_{RE} := \Delta d_{rx} - \left(\Delta d_{rx} \cdot \Gamma E_{acc1}\right) \qquad \Delta_{RE} = 2.2137481719255447 \times 10^{-3}\,m$$ 66)

$$2 \cdot \pi \cdot \Delta_{RE} = 0.01390938998763825\,m$$ 67)

Allow for a natural decay spiral to increase the delta radius so that:

$$f_{H1r} := \frac{c_{vel} \cdot .9986981309783}{\left(2 \cdot \pi \cdot \Delta_{RE}\right) \cdot e^{e}} \qquad f_{H1r} = 1.4204045596383807 \times 10^{9} \cdot Hz$$ 68)

In the horizontal Earth's longitudinal direction.

$$1.420405 \cdot 10^{09} \cdot Hz - f_{H1r} = 440.3616192340851 \cdot Hz$$ 69)

The acoustic frequency of 440.3636...Hz is very close to the actual measured frequency of 438.3 Hz as measured using electronic counters.

The Great Pyramid at Giza has been estimated by some investigators to be greater than 12,000 years old and as such suggest that a very advanced race built the Great Pyramid at Giza using sophisticated scientific technology that does not exist even today.

If one considers the units in Einstein's General Relativity Tensor equation, the statement that gravitation is not a force cannot stand when the units of the tensors are examined. Specifically, the stress-energy tensor Tuv of the equation Guv = K * T_{uv} where T_{uv} has the units of energy per meter cubed which amounts to newton per meter squared which is pressure.

The contemporary explanation of the general theory is that gravity is the final result of primal acceleration provided by the tensor action acting tangent to curved space. Therefore, tangential sheer acceleration results from the curved space caused by mass-energy in that region. In other words, cause precedes the effect and then the effect is promoted as the cause!! What a neat way to prevent the unification of the force fields when the establishment says that gravity is not a force!! I have to ask: Why then is the stress-energy tensor expressed in terms of force per meter squared? Further, the constant K involves the use of Newton's gravitational constant expressed in newtons times meters squared all divided by kilograms squared. Therefore, it appears that the General Theory of Relativity is still fundamentally based on Newton's work.

Conclusion: Gravitational action arises from a non-local force primal. Force (cause) is the action, acceleration (effect) is the reaction. Acceleration cannot come first. First comes force, then comes the acceleration product with mass. The bending of space can be observed to be true. It is more the effect than the cause. F = MA; Period.

References:

1. http://physics.stackexchange.com/questions/34977/what-are-the-units-of-the-quantities-in-the-einstein-field-equation

2. http://en.wikipedia.org/wiki/Plank_units

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