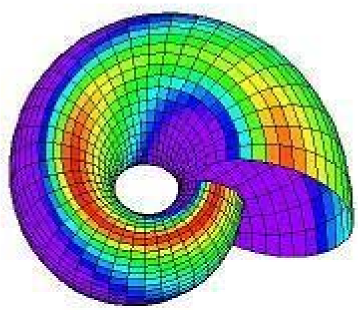

Grand Unification Theory Electrogravitation

by

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Abstract

Numerous attempts have been made over many years to provide a theory that unifies gravity with the other forces. The attempt to do this demands that Einsteins General Theory of Relativity has to be an integral part since the General Theory of Relativity supposedly provides the framework for the gravitational field. Further, quantum field theory has not been combined or unified with the General Theory of Relativity although string theory claims a solution is somewhere in an unlimited number of solutions.

This paper presents a form of calculating gravitational force based on a formula that is purely electrical and magnetic which makes it seamlessly interface with the forces electric, magnetic, strong and weak. As such, the quantum realm is also easily interfaced to the electrogravitational equation as presented in this paper. Herein, the electric and magnetic parameters in the electrogravitational equation are functionally equal to mass and the so-called gravitational constant, G. Within the new electric and magnetic form of G, the Plank length is utilized to connect to what I call energy space, the same space that created the Big Bang. As such, the concept of instantaneous gravitational action independent of distance is established. This can be regarded as the fundamental quantum aspect of gravity.

This newest form of the elctrogravitational equation is the long sought after format which not only provides the same result numerically as Newton's gravitational formula but also the single Newton force parameter result. As such, it stands as the first real unification. of the fields of force.

The Newtonian gravitational equation is given as: $F = \frac{G \cdot m1 \cdot m2}{r^2}$ 1)

where F = force in Newtons, G is the gravitational constant, m1 and m2 are the two masses set apart, and r is the distance between the centers of the masses. It is the purpose of this paper to convert the above gravitational equation into electric and magnetic terms so as to unify the gravitational equation with the other known electric and magnetic forces.

The gravitational equation can be expressed in the form: $F = \left(\frac{m1}{r}\right) \cdot G \cdot \left(\frac{m2}{r}\right)$ 2)

which is mass per meter times the gravitational constant times mass per meter. Let r be the radius in meters of the n1 shell of the hydrogen atom and the two masses be the mass of two electrons separated by that distance. Further, let the vector magnetic potential (A_{vec}) related to mass per unit distance be stated as:

$$A_{vec} = \frac{\Phi_o}{a_o} \cdot \left(\frac{4}{\pi}\right)^{\frac{1}{2}}$$ where, 3)

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

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

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

Then: $A_{vec} := \frac{\Phi_o}{a_o} \cdot \left(\frac{4}{\pi}\right)^{\frac{1}{2}}$ $A_{vec} = 4.4093004741 \times 10^{-5} \cdot \frac{\text{volt} \cdot \text{sec}}{\text{m}}$ 4)

The Hn1 quantum Avec field expression equivalent to mass per meter is therefore,

$m_\lambda := \varepsilon_o \cdot A_{vec}^{2}$ or, $m_\lambda = 1.7214250569 \times 10^{-20} \frac{\text{kg}}{\text{m}}$ 5)

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

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

Then the standard gravitational equation yields:

$$F_{grav} := \frac{m_e \cdot G_{const} \cdot m_e}{a_o^{\,2}} \qquad F_{grav} = 1.977291389 \times 10^{-50} N \qquad 6)$$

Substituting the quantum A_{vec} field expression equivalent to mass per meter:

$$F1_{EG} := m_\lambda \cdot G_{const} \cdot m_\lambda \qquad F1_{EG} = 1.9772914149 \times 10^{-50} N \qquad 7)$$

Then we see that the two forms quantum field and Newtonian are equivalent. However, we must now complete the conversion of G to also be expressed in quantum electric and magnetic terms.

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

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

$$r_p := \sqrt{\frac{G_{const} \cdot h}{c^3}} \qquad r_p = 4.0508331539 \times 10^{-35} m \qquad \text{Plank least quantum length} \qquad 8)$$

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

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

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

$$G_{EGQ} := c^2 \cdot \left(\frac{1}{\mu_o}\right) \cdot \left(\frac{r_p^{\,2}}{q_o^{\,2}}\right) \cdot \alpha \cdot 2 \qquad G_{EGQ} = 6.6725900609 \times 10^{-11} \cdot newton \cdot m^2 \cdot kg^{-2} \qquad 9)$$

The Newtonian and electrogravitational forms above are shown to be equivalent.

$$\frac{G_{EGQ}}{G_{const}} = 1.0000000091 \qquad 10)$$

Finally, we can now state the equivalent electrogravitational equation that is equivalent to the standard Newtonian gravitation as:

$$F_{EGQ} := m_{\lambda} \cdot G_{EGQ} \cdot m_{\lambda} \qquad F_{EGQ} = 1.9772914329 \times 10^{-50} \cdot newton \qquad 11)$$

$$\frac{F_{grav}}{F_{EGQ}} = 0.9999999778 \qquad 12)$$

The fields Newtonian and Electrogravitation are effectively unified.

QED

Note that in deriving the electrogravitational form of G_{EGQ}, the Plank least quantum distance r_p is fundamental and thus the connector is established for gravitation as taking place in that least quantum Plank distance. That supports my previous postulate that gravitation is connected in energy space which is that same space that is connected instantly to all matter throughout normal space.

The total electrogravitational equation expanded from the above is:

kg/m G kg/m

$$F_{EGQtotal} := \left[\varepsilon_o \cdot \left[\frac{\Phi_o}{a_o} \cdot \left(\frac{4}{\pi}\right)^{\frac{1}{2}}\right]^2\right] \cdot \left[c^2 \cdot \left(\frac{1}{\mu_o}\right) \cdot \left(\frac{r_p^{\,2}}{q_o^{\,2}}\right) \cdot \alpha \cdot 2\right] \cdot \left[\varepsilon_o \cdot \left[\frac{\Phi_o}{a_o} \cdot \left(\frac{4}{\pi}\right)^{\frac{1}{2}}\right]^2\right] \qquad 13)$$

$$F_{EGQtotal} = 1.9772914329 \times 10^{-50} N$$

The extra Newton and henry per meter terms in my other solution online is now removed and the above result is exactly equal in unit terms to the standard Newtonian equation as well as in the required degree of accuracy numerically.

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Addendum

The three states of field may be considered as mass, momentum and energy. Then the formulae may be stated such that a force for a given field, (gravitational, magnetic, electric and strong force), will yield the same force for each of the three field states. Then twelve total formulae will result from this conceptual approach to field unification.

For the-two system quantum electrogravitational momentum interaction:

now let: $v_{LM} := \sqrt{\alpha} \cdot m \cdot sec^{-1}$ Where: $v_{LM} = 0.0854245461 \frac{m}{s}$ Then,

$$G_{EGQP} := c^2 \cdot \left(\frac{1}{\mu_o}\right) \cdot \left(\frac{r_p^{\ 2}}{q_o^{\ 2}}\right) \cdot 2 \cdot \alpha \cdot \frac{\alpha}{\left(\alpha \cdot \frac{m}{sec}\right)^2} \qquad G_{EGQP} = 9.1438498148 \times 10^{-9} \frac{m}{kg} \qquad 14)$$

From equation 15 above: $v_{LM} = 0.0854245461 \frac{m}{s}$

Then: $\frac{m_e \cdot v_{LM}}{a_o} = 1.470519532 \times 10^{-21} \frac{kg}{s}$ (= Least quantum momentum.)

$$\frac{m_e \cdot v_{LM}}{a_o} \cdot G_{EGQP} \cdot \frac{m_e \cdot v_{LM}}{a_o} = 1.977291407 \times 10^{-50} N \qquad 15)$$

Adapting G_{EGQ} for the two-system quantum electrogravitational energy interaction:

$$G_{EGQE} := c^2 \cdot \left(\frac{1}{\mu_o}\right) \cdot \left(\frac{r_p^{\ 2}}{q_o^{\ 2}}\right) \cdot 2 \cdot \alpha \cdot \frac{\alpha^2}{\left(\alpha \cdot \frac{m}{sec}\right)^4} \qquad G_{EGQE} = 1.2530365072 \times 10^{-6} \cdot \frac{1}{newton} \qquad 16)$$

Check on conversion constant for G_{EGE1}:

EG Units

$$\frac{m_e \cdot (v_{LM})^2}{a_o} \cdot G_{EGQE} \cdot \frac{m_e \cdot (v_{LM})^2}{a_o} = 1.977291407 \times 10^{-50} \cdot newton \qquad 17)$$

The three states of field for the magnetic force are considered next.

$$FM_{n1} := \frac{m_e \cdot v_{LM}^2}{a_o} \qquad FM_{n1} = 1.2561846359 \times 10^{-22} \cdot \text{newton} \qquad 18)$$

The magnetic force is part of the electrogravitational force.

In the below formula, we will allow r_p to increase so as to allow the force FM_{n1} to be the result in a two system interaction. The magnetic force result will be based solely on a two system mass interaction. The below formula is the mass only solution for the two system magnetic force case.

$$FM_{n1} = \frac{m_e}{a_o} \cdot \left[c^2 \cdot \left(\frac{1}{\mu_o}\right) \cdot \left(\frac{r_p^2}{q_o^2}\right) \cdot \alpha \cdot 2 \right] \cdot \frac{m_e}{a_o} \qquad 19)$$

has solution(s) for r_p of:

$$\left| \begin{array}{l} \left(\begin{array}{c} \dfrac{\sqrt{2} \cdot \sqrt{FM_{n1}} \cdot a_o \cdot q_o \cdot \sqrt{\mu_o}}{2 \cdot \sqrt{\alpha} \cdot c \cdot m_e} \\ -\dfrac{\sqrt{2} \cdot \sqrt{FM_{n1}} \cdot a_o \cdot q_o \cdot \sqrt{\mu_o}}{2 \cdot \sqrt{\alpha} \cdot c \cdot m_e} \end{array} \right) \text{ if } \alpha \neq 0 \wedge c \neq 0 \wedge m_e \neq 0 \\ 0 \text{ if } FM_{n1} = 0 \wedge \alpha = 0 \vee FM_{n1} = 0 \wedge c = 0 \vee FM_{n1} = 0 \wedge m_e = 0 \end{array} \right. \qquad 20)$$

Let r_p be stated as r_M

$$r_M := \frac{\sqrt{2} \cdot \sqrt{FM_{n1}} \cdot a_o \cdot q_o \cdot \sqrt{\mu_o}}{2 \cdot \sqrt{\alpha} \cdot c \cdot m_e} \qquad r_M = 3.2287599308 \times 10^{-21} \text{m} \qquad \text{Then:} \qquad 21)$$

$$FMm_{n1} := \frac{m_e}{a_o} \cdot \left[c^2 \cdot \left(\frac{1}{\mu_o}\right) \cdot \left(\frac{r_M^2}{q_o^2}\right) \cdot \alpha \cdot 2 \right] \cdot \frac{m_e}{a_o} \qquad FMm_{n1} = 1.2561846359 \times 10^{-22} \text{N} \qquad 22)$$

Then magnetic force may exist locally in the n1 shell of hydrogen for example, or it also may exist in a two system interaction involving mass only between two atoms at an arbitrary distance. The force connector is modified in the r_p parameter to open up a larger energy gate for the force constant to act on particles between one system to the other instantly. Here we define the pulse width as meters of opening based on Plank time times the speed of light. Modified Plank time can be defined as based on relativistic increase of time. The opening is an area since it is squared. I am tempted to call this "God's Energy Gate".

$$t_p := \sqrt{\frac{G_{const} \cdot h}{c^5}} \qquad \text{or,} \qquad t_p = 1.3512124958 \times 10^{-43}\,\text{s} \qquad = \text{Plank time} \qquad \text{Then:}$$ 23)

$$r_{pt} := (c) \cdot t_p \qquad \text{or,} \qquad r_{pt} = 4.0508331539 \times 10^{-35}\,\text{m} \qquad \text{where,} \qquad r_p = 4.0508331539 \times 10^{-35}\,\text{m}$$ 24)

Since local magnetic force varies as 1/r, we can allow for it to be taken for or related closely to the electroweak force.

The next step up is momentum in the magnetic force state and is shown below.

$$FMp_{n1} := \frac{m_e \cdot v_{LM}}{a_o} \cdot \left[c^2 \cdot \left(\frac{1}{\mu_o} \right) \cdot \left(\frac{r_M{}^2}{q_o{}^2} \right) \cdot \alpha \cdot 2 \right] \cdot \frac{m_e \cdot v_{LM}}{a_o} \cdot \frac{\alpha}{\left(\alpha \cdot \frac{m}{sec} \right)^2}$$ 25)

The force is: $FMp_{n1} = 1.2561846359 \times 10^{-22}\,\text{N}$ 26)

By now the reader should have realized that this progression reveals that motion we observe is originally dependant on a fundamental basic velocity that is much less. The connector, with the variable opening to energy space, is what creates the force that eventually causes the observed velocity even when the fundamental beginning velocity is what I have termed previously as "least quantum velocity." The next formula shows the energy field related to the magnetic force.

$$FM_{En1} := \frac{m_e \cdot v_{LM}{}^2}{a_o} \cdot \left[c^2 \cdot \left(\frac{1}{\mu_o} \right) \cdot \left(\frac{r_M{}^2}{q_o{}^2} \right) \cdot \alpha \cdot 2 \right] \cdot \frac{m_e \cdot v_{LM}{}^2}{a_o} \cdot \frac{\alpha^2}{\left(\alpha \cdot \frac{m}{sec} \right)^4}$$ where, 27)

$$FM_{En1} = 1.2561846359 \times 10^{-22}\,\text{N}$$ 28)

The electric field of force at the n1 shell of the hydrogen atom is considered next for mass, momentum and energy as for the previous force fields. The force related to the electric field can be stated as:

$$FE_{n1} := \frac{q_o}{a_o}\cdot\frac{1}{4\cdot\pi\cdot\varepsilon_o}\cdot\frac{q_o}{a_o} \qquad FE_{n1} = 8.238729466\times10^{-8}\,N \tag{29}$$

Then the solution for the gate width related to an increased r_p is:

$$FE_{n1} = \frac{m_e}{a_o}\cdot\left[c^2\cdot\left(\frac{1}{\mu_o}\right)\cdot\left(\frac{r_p^{\,2}}{q_o^{\,2}}\right)\cdot\alpha\cdot2\right]\cdot\frac{m_e}{a_o} \qquad \text{has solution(s) for } r_p \text{ of:} \tag{30}$$

$$\left|\begin{array}{l} \left(\begin{array}{c} \dfrac{\sqrt{2}\cdot\sqrt{FE_{n1}}\cdot a_o\cdot q_o\cdot\sqrt{\mu_o}}{2\cdot\sqrt{\alpha}\cdot c\cdot m_e} \\ -\dfrac{\sqrt{2}\cdot\sqrt{FE_{n1}}\cdot a_o\cdot q_o\cdot\sqrt{\mu_o}}{2\cdot\sqrt{\alpha}\cdot c\cdot m_e} \end{array}\right) \text{ if } \alpha\neq0\wedge c\neq0\wedge m_e\neq0 \\ 0 \text{ if } FE_{n1}=0\wedge\alpha=0\vee FE_{n1}=0\wedge c=0\vee FE_{n1}=0\wedge m_e=0 \end{array}\right. \tag{31}$$

Then the increased gate width for the electric force connector is:

$$r_E := \frac{\sqrt{2}\cdot\sqrt{FE_{n1}}\cdot a_o\cdot q_o\cdot\sqrt{\mu_o}}{2\cdot\sqrt{\alpha}\cdot c\cdot m_e} \qquad \text{or,} \qquad r_E = 8.268736213\times10^{-14}\,m \tag{32}$$

Stating the force formula in the electric field for mass only:

$$FEm_{n1} := \frac{m_e}{a_o}\cdot\left[c^2\cdot\left(\frac{1}{\mu_o}\right)\cdot\left(\frac{r_E^{\,2}}{q_o^{\,2}}\right)\cdot\alpha\cdot2\right]\cdot\frac{m_e}{a_o} \qquad \text{or,} \qquad FEm_{n1} = 8.238729466\times10^{-8}\,N \tag{33}$$

We see that in this process, *the connector* term again continues to control the force via the energy gate width while the mass, momentum and energy remain fixed.

The next step up is momentum in the electric field force state and is shown below.

$$FEp_{n1} := \frac{m_e \cdot v_{LM}}{a_o} \cdot \left[c^2 \cdot \left(\frac{1}{\mu_o}\right) \cdot \left(\frac{r_E^{\,2}}{q_o^{\,2}}\right) \cdot \alpha \cdot 2 \right] \cdot \frac{m_e \cdot v_{LM}}{a_o} \cdot \frac{\alpha}{\left(\alpha \cdot \frac{m}{sec}\right)^2} \qquad 34)$$

The force is: $FEp_{n1} = 8.238729466 \times 10^{-8} N$ 35)

The final step up is the energy of the electric field and this is shown below.

$$FE_{En1} := \frac{m_e \cdot v_{LM}^{\,2}}{a_o} \cdot \left[c^2 \cdot \left(\frac{1}{\mu_o}\right) \cdot \left(\frac{r_E^{\,2}}{q_o^{\,2}}\right) \cdot \alpha \cdot 2 \right] \cdot \frac{m_e \cdot v_{LM}^{\,2}}{a_o} \cdot \frac{\alpha^2}{\left(\alpha \cdot \frac{m}{sec}\right)^4} \qquad 36)$$

The force is: $FE_{En1} = 8.238729466 \times 10^{-8} N$

The mechanics of the above force field analysis derive the proper force but notice that for the electric force field the velocity is very low. The force derived is based on the mechanics of the energy gate connector and is non-local in its action. The *reaction local space* contains the observable result. We know that force = mass times velocity squared all divided by the radius.

Then: $v_{n1} := \sqrt{\frac{FE_{En1} \cdot a_o}{m_e}}$ $\quad v_{n1} = 2.1876914144 \times 10^{6} \frac{m}{s}$ = n1 velocity. 37)

where, $c \cdot \alpha = 2.1876914167 \times 10^{6} \frac{m}{s}$ 38)

Then it is the unseen force in non-local space as derived for the non-local space connectors that eventually create the observed velocities for local space from the very small least quantum velocity v_{LM}. The least quantum velocity is fundamental to all of the forces and resides in non-local space. Tests that I have performed on rotating magnet systems have revealed the least quantum velocity's existence by the frequency of rotation difference as measured in the below videos. The 285 Mb file is the best for viewing and requires the Apple QuickTime Player.

See: **http://www.electrogravity.com/BMRT/BalMagResTests.wmv** 44 Mb

Also: **http://www.electrogravity.com/BMRT/BalMagResTests_6.mov** 285 Mb

The magnets used have a radius of 2.54 cm. (= 1 inch) Therefore, the difference frequency related to that radius to arrive at a difference velocity equal to v_{LM} is:

$$v_{LM} = 2\cdot\pi\cdot\Delta f\cdot r_{disk} \qquad r_{disk} := 2.54\cdot cm \qquad \Delta f := \frac{v_{LM}}{2\cdot\pi\cdot r_{disk}} \qquad \Delta f = 0.5352653062\cdot Hz \tag{39)}$$

Finally: $7.83\cdot Hz - \Delta f = 7.2947346938\cdot Hz$ which is the test result in the video.

The connector constants are listed below for review.

Mass:

$$G_{EGQ} = 6.6725900609\times 10^{-11}\cdot\frac{N\cdot m^2}{kg^2}$$ eq.9

Momentum:

$$G_{EGQP} = 9.1438498148\times 10^{-9}\,\frac{m}{kg}$$ eq. 14

Energy:

$$G_{EGQE} = 1.2530365072\times 10^{-6}\,\frac{1}{N}$$ eq. 16

The connector constants above have a progressive dimensional as well as magnitude relationship that allows for a prediction to be made for further dimensional constants. Starting with the mass connector constant we notice that moving down a power of one in newton and meter units while moving up a power of one in mass units gives the units of dimensional expression for the momentum connector constant. Also at the same time the magnitude increases from the mass connector value by the inverse of the fine structure constant which by itself is expressed as meter squared per second squared also known as the sievert which is known as radiation dose. The same can be said for moving up from the momentum connector constant to the energy connector constant.

Let $G_{EGQX} := G_{EGQE}\cdot\left(v_{LM}{}^2\right)^{-1}$ or, $G_{EGQX} = 1.7171109763\times 10^{-4}\,\frac{1}{m}\cdot\frac{kg}{N^2}$ 40)

Then the new unknown connector constant for unknown force follows the same progression.

The nuclear strong force actually is in the 10^-15 meter range as shown in the below chart.

(See: **http://en.wikipedia.org/wiki/Fundamental_interaction**)

scheme that is still the subject of ongoing research.

Interaction	Current theory	Mediators	Relative strength[2]	Long-distance behavior	Range (m)
Strong	Quantum chromodynamics (QCD)	gluons	10^{38}	1 (see discussion below)	10^{-15}
Electromagnetic	Quantum electrodynamics (QED)	photons	10^{36}	$\frac{1}{r^2}$	∞
Weak	Electroweak Theory (EWT)	W and Z bosons	10^{25}	$\frac{1}{r}\,e^{-m_{W,Z}\,r}$	10^{-18}
Gravitation	General Relativity (GR)	gravitons (hypothetical)	1	$\frac{1}{r^2}$	∞

The electromagnetic force is actually the electric force field derived from photon energy action although it is not clarified as such in contemporary physics. I propose that the so called electroweak force is in general derived from a portion of a force constant expression such as:

$$F_{EW} = \left(\frac{h \cdot f_X}{r_X}\right)$$ which fits the format of the weak force 1/r in the above table of forces. 41)

The *quantum magnetic force field* is NOT the magnetic field portion of a boson or photon which is equal in energy to the electric field in same said boson or photon. See eq. 18 above. It is totally an entity by itself.

The three connector gate width dimensions are stated below for review.

$r_p = 4.0508331539 \times 10^{-35}\,m \qquad r_M = 3.2287599308 \times 10^{-21}\,m \qquad r_E = 8.268736213 \times 10^{-14}\,m$ 42)

The strong force will follow the above force analysis format for the gravitational, magnetic and electric fields except that the strong force is known to be 100 times stronger than the electric field force at a given distance. Therefore:

$FN_{n1} := 100 \cdot FE_{n1}$ where the energy gate width and height increase by a factor of 10 each.

Then: $r_N := 10 \cdot r_E$ or, $r_N = 8.268736213 \times 10^{-13}\,m$ 43)

The Compton radius of the electron is: $r_{elctn} := 3.861593223 \cdot 10^{-13} \cdot m$

The golden ratio appears in the ratio of the Compton radius of the electron and the nuclear force energy gate width.

$$R_{force} := \frac{r_N}{r_{elctn}} \qquad \text{where,} \qquad \sqrt{2 \cdot \ln\left(R_{force}\right)^{-1}} = 1.6207201789$$ 44)

$$\Phi_{gold} := \frac{1+\sqrt{5}}{2} \qquad \text{or,} \qquad \Phi_{gold} = 1.6180339887$$ (Near match.) 45)

If it were possible to control the force gate width, unlimited force field energy would be available. Force fields could be generated for energy supplies, weapons, energy transmission over unlimited distances and instantaneous communications.

Inertia comes about through the construct of the force generating connector since it is the connector that allows for the force to be passed from non-local space to local space. Action passes through the connector from one local space system to another instantly but reaction from the connector to the local space primary action requires a finite time.

In summation, all the forces in local space depends on the non-local least quantum velocity v_{LM} and the force connector that sets the scale of the force. The energy gate width in meters squared is the window from energy space that controls the magnitude of the force connector.

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