The Derivation Of The Least Quantum Electrogravitational Frequency

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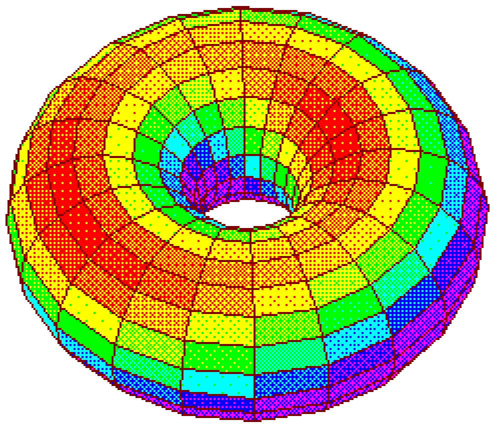

Abstract:

This paper presents a proof, based on fundamental empirically established quantum constants, of the necessary existence of a frequency equal to what I have previously termed the least quantum electrogravitational frequency. This frequency is solved for in negative as well as positive solutions wherein the sum is non-zero and negative in the macroscopic. The frequency represents energy related to angular momentum in standing waves. Thus it cannot be detected as a coherent electromagnetic wave since it does not radiate electromagnetically. The total electrogravitational action occurs non-locally between two systems of standing waves, wherein the two systems have conjugate spin energy. Thus, electrogravitational action must occur non-locally as the action while the reaction is in local space. Also, mass is defined as standing wave energy.

In my ebook "Electrogravitation As A Unified Field Theory," [1] I postulated the existence of that frequency to fit my equation of electrogravitation. It allowed for the force Newtonian be be arrived at using the parameters of the electrogravitational equation. It turned out that the frequency arrived at an energy by E = hf that yielded a velocity equal to the square root of the fine structure constant with an added unit of meter per second. Until the proof provided by this paper, there existed no other explanation for the added unit of velocity associated with the fine structure constant nor for the possible existence of the quantum electrogravitational frequency.

The most concise form of the electrogravitational equation is shown immediately below:

System 1 System 2

$$F_{EG} = \left(\frac{h \cdot f_{LM}}{R}\right) \cdot \mu_o \cdot \left(\frac{h \cdot f_{LM}}{R}\right)$$

The terms in the equation are Plank's constant h, the permeability of free space μ_o, the distance between the respective systems 1 and 2 and finally f_{LM}, which is the aforementioned least quantum electrogravitational frequency. The terms are in system international, or S.I. units.

I submit that this paper constitutes a proof since to disprove the result is to change the accepted foundation constants which support the conclusion. In otherwords, the results are derived from well established and universally accepted first principles.

First, the required parameters of calculation are stated below:

$h := 6.626075500 \cdot 10^{-34} \cdot \text{joule} \cdot \text{sec}$ (Plank's constant) $m_e := 9.109389700 \cdot 10^{-31} \cdot \text{kg}$ (Electron mass)

$q_o := 1.602177330 \cdot 10^{-19} \cdot \text{coul}$ (Electron charge) $c := 2.997924580 \cdot 10^{08} \cdot \text{m} \cdot \text{sec}^{-1}$ (Speed of light)

$\text{Energy}_e := m_e \cdot c^2$ $\text{Energy}_e = 8.187111168 \times 10^{-14}\,\text{joule}$

$t_e := h \cdot \text{Energy}_e^{-1}$ $t_e = 8.0933009996 \times 10^{-21}\,\text{sec}$ 1)

$V_e := \text{Energy}_e \cdot q_o^{-1}$ $V_e = 5.109990645 \times 10^{5}\,\text{volt}$ 2)

$\lambda_e := \dfrac{h}{m_e \cdot c}$ $\lambda_e = 2.4263106 \times 10^{-12}\,\text{m}$ 3)

$E_{v\_m} := \dfrac{V_e}{\lambda_e}$ $E_{v\_m} = 2.1060744016 \times 10^{17}\,\dfrac{\text{volt}}{\text{m}}$ 4)

$T_{vsec\_m3} := V_e \cdot t_e \cdot \lambda_e^{-3}$ $T_{vsec\_m3} = 2.8953869393 \times 10^{20}\,\text{m}^{-1}\,\text{tesla}$ 5)

The above Tesla form expresses magnetic flux density in wavelength cubed terms in the denominator instead of wavelength squared. Normally, Tesla is expressed as volt-sec all divided by meter^2, or a form of area.

Now let the new fine structure constant parameter be stated as shown below:

$\alpha_{new} := 7.297353080 \cdot 10^{-03} \cdot i \cdot \text{m}^2 \cdot \text{sec}^{-2}$ This is equivalent to my previous work where the least quantum electrogravitational velocity V_{LM} was found to be equal to the square root of the fine structure constant as shown at the left. Note the imaginary value for the fine structure constant. portion

Or: $V_{LM} := \left|\sqrt{\alpha_{new}}\right|$ $V_{LM} = 0.0854245461\,\text{m}\,\text{sec}^{-1}$ (Absolute value.) 6)

The derivation of the least quantum electrogravitational frequency is shown below in terms of a magnetic flux in three dimensions instead of the normal two along with the new form of the fine structure constant. The frequency f_{LM} is independent of velocity since quantum wavelength is also determined by velocity.

$f_{LM} := \dfrac{T_{vsec\_m3}}{E_{v\_m}} \cdot \alpha_{new}$ $f_{LM} = 10.0322480455i\,\text{Hz}$ **Eureka!!!** 7)

The above frequency is **exactly** equal to my postulated quantum electrogravitational frequency derived in a totally different form from the original. Also, the format of the fine structure constant being expressed in terms of meter^2 per second^2 is also justified as the result above demonstrates.

Let the normal area form of the Compton electron tesla be stated below as:

$T_{vsec\_m2} := V_e \cdot t_e \cdot \lambda_e^{-2}$ Then: $T_{vsec\_m2} = 7.0251080219 \times 10^{8}\,\text{tesla}$ 8)

Then the derivative with respect to wavelength of the electron is taken in the tesla term as shown below. A very interesting result is that the answer is a negative frequency which is equivalent to a negative energy and also a negative time. It also is twice the absolute magnitude of the positive value for f_{LM}.

$$f_{LMneg} := \left[\frac{d}{d\lambda_e}\left(\frac{V_e \cdot t_e \cdot \lambda_e^{-2}}{E_{v\_m}}\right)\right] \cdot \alpha_{new} \qquad f_{LMneg} = -20.064496091i\ \mathrm{Hz} \qquad 9)$$

What does the above formula mean? It is stating that an extremely low spin related frequency is generated by the change of one Compton wavelength in obtaining the cubic form of the magnetic field related to the electron Compton area in the numerator. This frequency is further brought about by the transfer mechanism of the special case fine structure constant in (meter^2 per second^2) terms. That is, when the plane area changes to a volume in the magnetic field.

The positive result for f_{LM} is stated below in terms of a change of one Compton wavelength related to the E field of the electron. The derivative with respect to one Compton wavelength yields a potential without the reference "per meter" since the derivative raises the power to zero of the wavelength.

$$f_{LMpos} := \left[\frac{d}{d\lambda_e}\left(\frac{T_{vsec\_m2}}{V_e \cdot \lambda_e^{-1}}\right)\right] \cdot \alpha_{new} \qquad f_{LMpos} = 10.0322480455i\ \mathrm{Hz} \qquad 10)$$

Or, $\dfrac{T_{vsec\_m2}}{V_e \cdot \lambda_e^{0}} \cdot \alpha_{new} = 10.0322480455i\ \mathrm{Hz}$ where, $\lambda_e^{0} = 1$

The case for electrogravitational attraction is now stated at the R_{n1} distance between two field conjugated electrons separated by a local space distance equal to the Bohr n1 shell radius of the Hydrogen H1 atom.

Let: $R_{n1} := 5.291772490 \cdot 10^{-11} \cdot \mathrm{m}$ $\mu_o := 1.256637061 \cdot 10^{-06} \cdot \mathrm{henry} \cdot \mathrm{m}^{-1}$ Then: 11)

$$F_{EG} := \frac{h \cdot (f_{LMpos} + f_{LMneg})}{R_{n1}} \cdot \mu_o \cdot \frac{h \cdot (f_{LMneg} + f_{LMpos})}{R_{n1}} \qquad F_{EG} = -1.9829730804 \times 10^{-50} \frac{\mathrm{henry}}{\mathrm{m}} \cdot \mathrm{newton}^2$$

The force is negative which by definition is attraction. One Newton term and the permeability constant are both considered constants making the result inverse to the square of the distance.

The standard gravitational constant G is redefined to be equal to the square of the new alpha in squared meter per second units times the permeability constant u_o.

$$G_{EG} := \mu_o \cdot \alpha_{new}^{2} \qquad G_{EG} = -6.6917635005 \times 10^{-11}\ \mathrm{henry} \cdot \left(\frac{\mathrm{m}^3}{\mathrm{sec}^4}\right) \qquad 12)$$

= (henry/m) x ((velocity)4 per sec).

$$F_G := \frac{m_e}{R_{n1}} \cdot G_{EG} \cdot \frac{m_e}{R_{n1}} \qquad F_G = -1.9829730804 \times 10^{-50}\ \mathrm{newton} \cdot \frac{\mathrm{henry}}{\mathrm{m}} \cdot \mathrm{newton} \qquad 13)$$

The G standard value is: $G := 6.672590000 \cdot 10^{-11} \cdot \mathrm{newton} \cdot \mathrm{m}^2 \cdot \mathrm{kg}^{-2}$ 14)

Finally, the electrogravitational constant G_{EG} to G ratio: $\dfrac{G_{EG}}{G} = -1.002873472\ \mathrm{m}^{-1}\ \mathrm{newton} \cdot \mathrm{henry}$ 15)

Next, the speed of light is derived as the ratio of E in volts per meter to B or Tesla in volt seconds per meter squared as shown below. This is expected by the usual expression of E = cB for the case of the electromagnetic field in free space.

$$\frac{E_{v\_m}}{T_{vsec\_m2}} = 2.99792458 \times 10^{8}\,m\,sec^{-1} \qquad \text{where,} \qquad c = 2.99792458 \times 10^{8}\,m\,sec^{-1} \qquad 16)$$

Then the electron mass is defined in terms of the cubic magnetic field divided by the electric field and all multiplied by plank's constant as shown below.

$$\left(\frac{T_{vsec\_m3}}{E_{v\_m}}\right)\cdot h = 9.1093897 \times 10^{-31}\,kg \qquad \text{where,} \qquad m_e = 9.1093897 \times 10^{-31}\,kg \qquad 17)$$

Note that:

$$\frac{T_{vsec\_m3}}{E_{v\_m}} = 1.3747790378 \times 10^{3}\,sec\,m^{-2} \qquad \text{and the inverse is shown as:} \qquad 18)$$

$$\frac{E_{v\_m}}{T_{vsec\_m3}} = 7.2738961865 \times 10^{-4}\,m^{2}\,sec^{-1} \qquad 19)$$

which is the circulation constant in the Heisenberg expression.

That is:

$$m_e\cdot\left(\frac{E_{v\_m}}{T_{vsec\_m3}}\right) = 6.6260755 \times 10^{-34}\,joule\cdot sec \qquad 20)$$

which is plank's constant. Or: $h = 6.6260755 \times 10^{-34}\,joule\cdot sec$

as stated in the defined constants at the beginning of this paper.

If it is desired to calculate the force between a proton and electron at the R_{n1} radius instead of two electrons as shown in equation 11 above, the negative frequency term in the electrogravitational equation (left of the permeability constant μ_o) is simply multiplied by the ratio of the proton mass to electron mass. This by reason that I have previously defined a negative pressure wave as existing associated with the proton energy.

In conclusion, I stress that the solution of the electrogravitational frequency from basic principles based on the E and B fields as well as the fundamental quantum constants related to the electron (or proton) are as important as Einstein's $E = mc^2$ if not more so since it is established that there exists an ELF (extreme low frequency) that is fundamental to the action of gravity and which may supply an explanation of the standard mass losing mass over time as well as the existence of dark matter and negative energy in the universe. Then, electrogravitational action tends to subtract energy from a system of mass.

Finally, if we consider that twice the positive electrogravitational ELF energy in the universe is negative as shown by equations 9, 10 and 11 above, the net sum is not zero. This may provide an explanation for the negative energy in the universe since it does not dissappear after the action-reaction but rather adds to the total energy in the universe over time. The main reason the frequency cannot be detected as an electromagnetic wave is that it is a standing wave of spin energy that cannot radiate. It can however connect non-locally to other standing wave systems that have conjugate energy and spin as for eq. 11 above.

End of first body of this paper.

The fundamental quantum physics constant called the "quantum of circulation"[2] is given below as:

$$Cir_Q := \frac{h}{m_e} \qquad \text{where,} \qquad Cir_Q = 7.2738961865 \times 10^{-4}\, m^2\, sec^{-1} \qquad 21)$$

This is a fundamental constant parameter of Heisenberg's uncertainty expressions wherein the uncertainty of momentum times the uncertainty of position is equal to Plank's constant, h. Further, the uncertainty in energy times the uncertainty in time is also equal to h. In both expressions, the velocity times position and the square of velocity times time are both equal to the quantum of circulation. This analysis uses the Compton values related to the electron as the example but is germain to matter in general.

The purpose of the below analysis is firstly to present a steady state solution for time related to the fine structure constant in meter^2 per second^2 derived from the quantum of circulation. Secondly, to derive a changing time or time interval that is related to parameters in the least quantum of circulation that are changing with respect to time. Thus two distinct frequencies will be derived that apply firstly to the steady state field and then to the dynamic field that will yield the special case of the alpha constant in (meter/second) squared units.

For the steady-state magnetic field condition related to the solution for a frequency that will yield the special case of alpha in (meter/second) squared:

$$t_{LM} := f_{LM}^{-1} \qquad t_{LM} = -0.0996785561i\ sec \qquad 22)$$

$$\frac{V_e \cdot \lambda_e^{-1}}{V_e \cdot t_e \cdot \lambda_e^{-3}} = 7.2738961865 \times 10^{-4}\, m^2\, sec^{-1} \qquad \text{Least quantum of circulation} \qquad 23)$$

24)

$$\frac{E_{v\_m}}{V_e \cdot t_e \cdot \lambda_e^{-3} \cdot t_{LM}} = 7.29735308i \times 10^{-3}\, m^2\, sec^{-2} \qquad \alpha_{new} = 7.29735308i \times 10^{-3}\, m^2\, sec^{-2}$$

where also, $$\frac{h}{m_e} \cdot f_{LM} = 7.29735308i \times 10^{-3}\, m^2\, sec^{-2} \qquad 25)$$

Therefore, it is verified by the above that the **steady state** condition for the magnetic field related to the least quantum of circulation constant is arrived at by use of the previously solved for electrogravitational spin frequency, which is f_{LM}.

To solve for the time necessary for the **dynamic** magnetic field (changing as a function of time) which will also yield α_{new} in (meter/second) squared units, we utilize the Mathcad symbolic engine to solve for a time t_x in a derivative with respect to time of the quantum circulation that will also yield the necessary time that will yield the new value of α_{new} in (meter/second)^2 units.

First the following equality is stated: $$\frac{d}{dt_x} \frac{V_e \cdot \lambda_e^{-1}}{V_e \cdot t_x \cdot \lambda_e^{-3}} = \frac{h}{m_e} \cdot f_{LM} \qquad 26)$$

Next, we solve for an expression that will allow for t_x to be used in a derivative that will yield the new alpha.

Therefore, t_x has solution(s)

$$\begin{bmatrix} \dfrac{-1}{(h\cdot f_{LM})}\cdot\sqrt{-h\cdot f_{LM}\cdot\lambda_e^{2}\cdot m_e} \\ \dfrac{1}{(h\cdot f_{LM})}\cdot\sqrt{-h\cdot f_{LM}\cdot\lambda_e^{2}\cdot m_e} \end{bmatrix}$$

We see that t_x has negative and positive solutions. 27)

Further, we see that the solutions are also in the imaginary plane as shown by the included imaginary operator i.

$$t_{xneg} := \frac{-1}{(h\cdot f_{LM})}\cdot\sqrt{-h\cdot f_{LM}\cdot\lambda_e^{2}\cdot m_e} \qquad t_{xneg} = 2.0083930866\times10^{-11} + 2.0083930866i\times10^{-11}\,sec \tag{28}$$

$$f_{xpos} := \frac{1}{t_{xneg}} \qquad f_{xpos} = 2.4895524852\times10^{10} - 2.4895524852i\times10^{10}\,Hz \quad \arg(f_{xpos}) = -45\,deg \tag{29}$$

$$t_{xpos} := \frac{1}{(h\cdot f_{LM})}\cdot\sqrt{-h\cdot f_{LM}\cdot\lambda_e^{2}\cdot m_e} \qquad t_{xpos} = -2.0083930866\times10^{-11} - 2.0083930866i\times10^{-11}\,sec \tag{30}$$

$$f_{xneg} := \frac{1}{t_{xpos}} \qquad f_{xneg} = -2.4895524852\times10^{10} + 2.4895524852i\times10^{10}\,Hz \quad \arg(f_{xneg}) = 135\,deg \tag{31}$$

Finally, we see that both solutions arrive at the new alpha form as shown below.

$$\frac{d}{dt_{xneg}}\frac{V_e\cdot\lambda_e^{-1}}{V_e\cdot t_{xneg}\cdot\lambda_e^{-3}} = 6.7066086521\times10^{-18} + 7.29735308i\times10^{-3}\,m^2\,sec^{-2} \tag{32}$$

Where, $\alpha_{new} = 7.29735308i\times10^{-3}\,m^2\,sec^{-2}$

$$\frac{d}{dt_{xpos}}\frac{V_e\cdot\lambda_e^{-1}}{V_e\cdot t_{xpos}\cdot\lambda_e^{-3}} = 6.7066086521\times10^{-18} + 7.29735308i\times10^{-3}\,m^2\,sec^{-2} \tag{33}$$

Next, the quantum of circulation is solved in terms of a derivative with respect to the Compton wavelength of the electron related to ts rest mass::

$$\left(\frac{d}{d\lambda_e}\frac{V_e\cdot\lambda_e^{-1}}{V_e\cdot t_e\cdot\lambda_e^{-4}}\right)\cdot\frac{1}{3} = 7.2738961865\times10^{-4}\,m^2\,sec^{-1} \tag{34}$$

Where, $Cir_Q = 7.2738961865\times10^{-4}\,m^2\,sec^{-1}$

(States the case for changing distance that will yield the least quantum of circulation. Note the fractional multiplier of 1/3 which may be linked to why quarks have fractional charges equal to 1/3.)

Then also changing with respect to time t_x as well as λ_e , we arrive at the total expression:

$$\frac{d}{dt_{xpos}}\left[\frac{d}{d\lambda_e}\frac{V_e\cdot\lambda_e^{-1}}{V_e\cdot(t_{xpos})\cdot\lambda_e^{-4}}\right]\cdot\frac{1}{3} = 1.9608514919\times 10^{-15} + 7.29735308i\times 10^{-3}\,m^2\,sec^{-2} \qquad 35)$$

Where, $\alpha_{new} = 7.29735308i\times 10^{-3}\,m^2\,sec^{-2}$

$$\frac{d}{dt_{xneg}}\left[\frac{d}{d\lambda_e}\frac{V_e\cdot\lambda_e^{-1}}{V_e\cdot(t_{xneg})\cdot\lambda_e^{-4}}\right]\cdot\frac{1}{3} = 1.9608514919\times 10^{-15} + 7.29735308i\times 10^{-3}\,m^2\,sec^{-2} \qquad 36)$$

It turns out that f_{xpos} and f_{xneg} are related to a very important frequency that was presented by my previous work "A_frequency4.pdf", [1] equations 14 & 15 results, which are shown below:

eq. 14:. $A'_t := \left(9.5235895041\cdot 10^{13}\cdot Hz\right)^{-1}$ eq. 15: $t'_{FQK} := \left(9.5235895242\cdot 10^{13}\cdot Hz\right)^{-1}$ 37)

The above frequencies were derived from the universal electrogravitational vector magnetic potential as well as the electrogravitational force constant presented in the paper, "A_frequency4.pdf ". As such, they are fundamental frequencies common to not only the electrogravitational force but all of the other known forces.

Let $\alpha_{classic}$ be stated as: $\alpha_{classic} := 7.297353080\cdot 10^{-03}$ (No units.)

Where then: $$\frac{\alpha_{classic}}{A'_t\cdot 2\cdot\pi^2} = 3.5207589066\times 10^{10}\,Hz \qquad 38)$$

There is a direct geometric correlation in the above result to f_{xpos} and f_{xneg} above.

Where: $\left|f_{xpos}\right| = 3.5207588889\times 10^{10}\,Hz$ and $\left|f_{xneg}\right| = 3.5207588889\times 10^{10}\,Hz$ 39)

If we divide the absolute value of the 'dynamic' or frequency change represented by f_{xpos} or f_{xneg} into the speed of light, we will arrive at a very important wavelength.

$\lambda_{LMneg} := \dfrac{c}{\left|f_{xpos}\right|}$ $\lambda_{LMneg} = 8.5149954162\times 10^{-3}\,m$ 40)

$\lambda_{LMpos} := \dfrac{c}{\left|f_{xneg}\right|}$ $\lambda_{LMpos} = 8.5149954162\times 10^{-3}\,m$ 41)

Both results are the electrogravitational wavelength absolute values.

The above wavelengths are related to the absolute electrogravitational frequency f_{LM} as:

$f_{LMneg} := \left|\sqrt{\alpha_{new}}\right|\cdot\lambda_{LMpos}^{-1}$ $f_{LMneg} = 10.0322480455\,Hz$ 42)

$f_{LMpos} := \left|\sqrt{\alpha_{new}}\right|\cdot\lambda_{LMneg}^{-1}$ $f_{LMpos} = 10.0322480455\,Hz$ 43)

What does the alpha in meter^2/second^2 units mean? Normally, the alpha is understood to be a pure ratio involving no units. My answer is that it may be taken as the **smallest allowed angular velocity** that can exist. Further, when attached to mass, it becomes the **smallest allowed momentum** and when squared, it becomes the **smallest allowed energy**. One might ask, what is the velocity relative to? My answer is that it is **rotational** standing wave velocity. Rotational velocity can be defined in terms of a point moving circularly about another point and the two points having a finite distance between them forming a finite radius.

One can visualize moving as an observer with another object at exactly the same velocity in circular fashion. The least quantum velocity also says that is impossible. That is, there has to be at least the difference in velocity equal to the least quantum velocity v_{LM} between the observer and the object and that is what is so very important. I am saying that the new fine structure constant may well exist apart from matter, an entity unto itself. It can attach itself to matter however and matter cannot as a result have a zero angular velocity. This is to be expected since it is an integral part of Heisenberg's uncertainty principle. Finally, as an example, angular momentum is connected to the imaginary operator in the atom as the below well known equation shows.

$$m \cdot v \cdot (2 \cdot \pi \cdot r) = (i \cdot n \cdot h) \qquad 44)$$

That is, 2 π times the angular momentum of a shell is equal to the imaginary operator i times the shell number times plank's constant.

Building an x-ray type tube operated at the voltage equal to the rest mass energy of the electron (510 KV) and modulating that same tubes' electron beam at the frequency 35.207 GHz, the output electromagnetic ray would likely affect matter in some very important ways. Perhaps causing matter to accelerate, attract or repel gravity, or even disintegrate. Perhaps this is very near to what Nikoli Tesla was trying to accomplish with his high voltage x-ray tube death-ray experiments. A free electron laser, or FEL, might also be employed.

Conclusion:
Generating a frequency near or equal to the inverse of the time t_x should cause the quantum of circulation to be interfered with, possibly allowing direct manipulation of not only gravitational forces, but the forces that hold everything together.

Reference:

1. http://www.electrogravity.com

2 Parker, Sybil P., McGraw-Hill Dictionary of Scientific And Technical Terms, Fifth Edition, copyright 1994, p. A11.

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