A Testable Dual Frequency Solution For The Electrogravitational Action Mechanism
(Verified)

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Abstract:
Recent theoretical investigations into possible frequency constants associated with the main form of my electrogravitational equation shown below have led to some testable results involving the predicted frequency constants associated with the associated force constant that connects all particles through non-local energy space to a frequency constant associated with the vector magnetic potential (**A** vector) in local normal space. The predicted main frequencies are dual in the sense of one being connected to the local space electromagnetic realm and the other connected to the quantum space realm and both share the same wavelength although they are orthogonal to each other. The cross product of the local space electromagnetic frequency with the quantum non-local space frequency creates a third vector 90 degrees to them both and when each are provided with the appropriate units, creates a third vertical vector which yields vertical action power.

Further, the frequency associated with the force constant may be related to sub frequencies which are found by multiplying the main frequency by the fine structure constant, each result also being multiplied by the fine structure constant, etc.

The main Electrogravitational two-system equation is shown below.

System 1 **Energy Space Connector** **System 2**

<------A vector-----> <-----------Force Constant F_{QK}-----------> <------A vector----->

$$F_{EG} = \left(\frac{\mu_o \cdot i_{LM} \cdot \lambda_{LM}}{4 \cdot \pi \cdot \Delta R_x}\right) \cdot \left[\left(\frac{i_{LM} \cdot \lambda_{LM}}{l_q}\right) \cdot \mu_o \cdot \left(\frac{i_{LM} \cdot \lambda_{LM}}{l_q}\right)\right] \cdot \left(\frac{\mu_o \cdot i_{LM} \cdot \lambda_{LM}}{4 \cdot \pi \cdot \Delta R_x}\right)$$

The following constants related to the equations in Mathcad are established first as shown below.

$q_o := 1.602177330 \cdot 10^{-19} \cdot coul$ Standard S.I. Units Electron charge.

$\mu_o := 1.256637061 \cdot 10^{-06} \cdot henry \cdot m^{-1}$ Standard S.I. Units Permeability of free space.

$\Phi_o := 2.067834610 \cdot 10^{-15} weber$ Standard S.I. Units Quantum Fluxoid.

$l_q := 2.817940920 \cdot 10^{-15} \cdot m$ Standard S.I. Units Classic Electron Radius.

$h := 6.626075500 \cdot 10^{-34} \cdot joule \cdot sec$ Standard S.I. Units Plank Constant.

$R_{n1} := 5.291772490 \cdot 10^{-11} \cdot m$ Standard S.I. Units Bohr Radius Of Hydrogen n1.

$f_{LM} := 1.003224805 \cdot 10^{01} \cdot Hz$ <u>Basic Quantum Electrogravitational Frequency.</u>

$t_{LM} := f_{LM}^{-1}$ <u>Basic Quantum Electrogravitational Time.</u>

$\lambda_{LM} := 8.514995416 \cdot 10^{-03} \cdot m$ <u>Basic Quantum Electrogravitational Wavelength.</u>

$i_{LM} := 1.607344039 \cdot 10^{-18} \cdot amp$ <u>Basic Quantum Electrogravitational Current.</u>

$$\Phi_{ALM} := \frac{\mu_o \cdot i_{LM} \cdot \lambda_{LM}}{4 \cdot \pi} \qquad \Phi_{ALM} = 1.3686527119 \times 10^{-27}\,Wb$$ Basic Quantum Electro-gravitational Fluxoid 1)

$$A_t := \frac{\Phi_{ALM}}{\Phi_o \cdot (f_{LM})} \qquad A_t = 6.5974969884 \times 10^{-14}\,s$$ **A** vector electrogravitational Time constant. 2)

$$A_f := A_t^{-1} \qquad A_f = 1.5157263456 \times 10^{13}\,Hz$$ <u>**A** vector electrogravitational frequency constant.</u> 3)

$$F_{QK} := \frac{i_{LM} \cdot \lambda_{LM}}{l_q} \cdot \mu_o \cdot \frac{i_{LM} \cdot \lambda_{LM}}{l_q} \qquad F_{QK} = 2.9643714476 \times 10^{-17}\,N$$ EG force constant. 4)

$$f_{FQK} := \frac{F_{QK} \cdot (\lambda_{LM})}{h} \qquad f_{FQK} = 3.8094358097 \times 10^{14}\,Hz$$ <u>Force constant frequency.</u> 5)

The ratio of the two E.G. frequency constants above is exactly equal to 8 pi as shown below:

$$f_{ratio} := \frac{f_{FQK}}{A_f} \qquad f_{ratio} = 2.5132741282 \times 10^{1}$$ Note: $$\frac{f_{ratio}}{\pi} = 8.0000000169 \times 10^{0}$$ 6)

(06-28-2004) Changing (**A**) vector Per Unit Time x Charge Yields Force

$$Avec := \frac{\mu_o \cdot i_{LM} \cdot \lambda_{LM}}{4 \cdot \pi \cdot R_{n1}} \qquad Avec = 2.5863785991 \times 10^{-17} \frac{volt \cdot sec}{m} \qquad \text{(At Rn1)} \qquad 7)$$

$$Amom := q_o \cdot \frac{\mu_o \cdot i_{LM} \cdot \lambda_{LM}}{4 \cdot \pi \cdot R_{n1}} \qquad Amom = 4.1438371582 \times 10^{-36} \frac{kg\,m}{s} \qquad \text{(At Rn1)} \qquad 8)$$

Letting R_{n1} be increased to λ_{LM} , (canceling the numerator λ_{LM} term), dividing the A_t time by 2π and combining the q_o terms:

Set: $$A'_t := \frac{A_t}{2 \cdot \pi} \qquad A'_t = 1.0500242577 \times 10^{-14}\,s \qquad 9)$$

$$Aforce := \frac{d}{dA'_t}\left[\left(\frac{\mu_o}{4 \cdot \pi}\right) \cdot \frac{q_o^{\,2}}{A'_t}\right] \cdot 1 \qquad Aforce = -2.3282118753 \times 10^{-17}\,newton \qquad 10)$$

Note the result is a negative force and therefore is a force of attraction.

The ratio: $$\frac{F_{QK}}{Aforce} = -1.2732395531 \times 10^{0} \quad \text{where:} \quad \frac{4}{\pi} = 1.2732395447 \times 10^{0} \qquad 11)$$

Taking the derivative with respect to the Avec time of the momentum (Amom) develops a negative force vector 90 degrees to the force constant F_{QK} and the resultant atan of the ratio of the force constant to the force resultant of the derivative of the Amom is equal to the angle of rise of the side of the Great Pyramid. This suggests that the geometry of the Great Pyramid is tapping into the energy space associated with the force constant.

If the time related to the frequency of the force constant is multiplied by 4 and this time is used in the derivative of the momentum vector (Amom) with respect to time, a force is arrived at that is shown below to have a ratio equal to the negative of the square root of the golden ratio as was shown above. This suggests that an even multiple of 4 times the force constant time (when expressed as a rate of change of the Amom with respect to that time) interfaces with the force constant at a ratio equal to the square root of the golden ratio.

$$t'_{FQK} := \frac{4}{f_{FQK}} \qquad t'_{FQK} = 1.0500242555 \times 10^{-14}\,s \qquad 12)$$

(Same as eq. 9 for A'_t above.)

$$Force_{FQKtime} := \frac{d}{dt'_{FQK}}\left[\left(\frac{\mu_o}{4 \cdot \pi}\right) \cdot \frac{q_o^{\,2}}{t'_{FQK}}\right] \qquad Force_{FQKtime} = -2.3282118851 \times 10^{-17}\,N \qquad 13)$$

The ratio: $$\frac{F_{QK}}{Force_{FQKtime}} = -1.2732395477 \times 10^{0}$$

$$A'_t{}^{-1} = 9.5235895041 \times 10^{13}\,Hz \qquad 14)$$

$$t'_{FQK}{}^{-1} = 9.5235895242 \times 10^{13}\,Hz \qquad 15)$$

The perimeter of the Great Pyramid can be set equal to 2 pi on a side which is 8 pi total circumference. The height is then equal to 4. Thus the height to 1/2 the length of a side is equal to 4/pi. This is extremely close to the square root of the golden mean. The pi from the center of the base to the middle of a perimeter side and the height (4) are 90 degrees to each other.

In a previous paper, "*EGPhoton.MCD*," I investigated the concept of the actual electrogravitational capacitive and inductive reactance values being 1/2 pi and 2 pi respectively of the quantum ohm. Please view at: **(http://www.electrogravity.com/MasterEQ/EGPhoton.pdf)** . I have also previously presented the concept that quantum action is similar to waveguide or transmission line action wherein the time related to propagation is equal to the square root of the product of the inductance and capacitance. On the other hand, the square root of the product of the inductance and capacitance values does require a multiplier of 2 pi when solving for time and thus frequency of resonance in an ordinary LC circuit configuration.

In the above paper, it was brought forward that as the angle of action approached zero, the energy related to that angle approached infinity.

The fact that the electrogravitational inductive reactance and the capacitve reactance are not equal means that the relationship is not naturally electrically resonant.

It is of interest that the 1/(2 pi) and 2 pi are inverse to each other. Note that for the Great Pyramid, the height of 4 over total circumference of 8 pi is equal to 1/(2 pi) and the inverse (8 pi over 4) is equal to 2 pi. Thus, the Great Pyramid has a geometry that suggests it connects the ordinary electromagnetic field to the quantum field action of electrogravitation as described in the above mentioned paper. Note that in eq. 6 above, f_{ratio} (the ratio of the force constant frequency to the A vector constant frequency) was also exactly equal to 8 pi.

The action of dividing time A_t by 2 pi (say, by a suitable timing perturbation) allows for a match to a frequency equal to 1/4 that of the frequency associated with F_{QK} above. Thus energy is absorbed into the **A** vector from the force constant F_{QK}. As a result, energy will build due to the interaction of A_t with F_{QK} over time. This can be put to immediate use since the frequency related to A'_t is in the infrared and may be used directly as a heat source. The frequency of **$1/A'_t$ is equal to $9.5235895242 \times 10^{13}$ Hz** which has an equivalent temperature close to **900 degrees Kelvin**. This is close to **627 degrees centigrade** or **1161 degrees Fahrenheit.** Also, a fine grid etched in metal of about **3.14 micrometers** in spacing of the grid lines when swept by an electron beam across the grid may generate the correct electrogravitational interaction frequency.

Of a related note, I remember a UFO story where a fellow was about to touch the surface of a UFO that had just landed when a voice in his head warned of the surface still being *hot*. I also remember other stories of heat being felt in close proximity to similar craft. Perhaps the frequency above is ubiquitous to electrogravitational energy interaction and may serve as the key to controlling gravitational action-reaction by controlling the interaction of the **A** vector with the electrogravitational coupling mechanism force constant F_{QK}. Shining a beam of energy of the above frequency related to the inverse of the time A'_t on matter in general may affect such matter that so it loses gravitational coupling via the force constant or even induces or extracts energy into the matter from energy space depending on the phasing or frequency of the beam.

The generation of the above frequency related to A'_t may also be done via maser action or a suitable atomic lattice spacing in a crystal or crystal compound.

A recent experiment by Jeff Cook involves an open flame provided by an ordinary hand held butane lighter, the flame of which is similar to a candle flame. His test seemed to indicate that the flame was attracted or repulsed according to the d.c. polarity of the coil's supply battery. A video and pictures of his work is located at: **http://www.electrogravity.com/index19.html**. This may be a serendipitous result in the sense that the above frequency of **$9.5235895242 \times 10^{13}$ Hz** has an equivalent temperature very close to the deep red portion of an ordinary candle flame.

The following is provided as relative information concerning the actual temperatures of a candle flame.

QUOTE:(From **http://hypertextbook.com/facts/1999/JaneFishler.shtml**): "Color tells us about the temperature of a candle flame. The outer core of the candle flame is light blue -- 1670 K (1400 °C). That is the hottest part of the flame. The color inside the flame becomes yellow, orange and finally red. The further you reach to the center of the flame, the lower the temperature will be. The red portion is around 1070 K (800 °C)." UNQUOTE.

It is immediately apparent that the **627 degree centigrade** temperature related to the master interaction frequency above is within the lowest range of a candle flame temperature and very likely also within the lowest temperature of a hand held butane lighter.

To my knowledge, no other experimenters to date have replicated Jeff Cook's results but I am not prepared to say that the effect he claimed to achieve in his tests does not exist. Especially in light of my calculated electrogravitational interaction frequency equivalent temperature above. Perhaps some slight additional unknown factor as yet unaccounted for would allow others to replicate his test. For now, I can only guess that it may be as simple as the lighter manufacture's design, a slight difference in the coil construction or perhaps Jeff's particular electromagnetic body field.

It is of interest that a standing wave has a frequency that does not radiate and is a frequency measured as a rate of rotation in radians per second equal to 2 pi times the frequency of rotation. Standing waves are at the heart of atomic orbital stability and I have also proposed in past papers that the electron is a standing wave of energy. I have also proposed that energy may be induced into the electron or any other standing wave from energy space in order to preserve the integrity of that standing wave. Thus standing waves are special in that once established, they tend to want to remain as a standing wave whereas a radiated wave will naturally tend to dissipate as it spreads out into a volume with the passage of time. For example, it has been demonstrated that a resonant acoustical cavity can force a tuning fork of the same frequency to deliver more energy to the cavity than the tuning fork could be expected to have without the resonant cavity being present. Quote: "If the damping becomes effectively zero, momentarily, or even negative, as can happen under certain peculiar circumstances, the power withdrawal may become so great as to lead to runaway vibration that may destroy the resonator." **Ref. *Encyclopedia Britannica*, 15th ed., s.v. "Vibration."** Tesla also demonstrated this effect by nearly bringing down a building on top of his laboratory and scared the wits out of his neighbors.

Starting with the rotation rate of the n1 orbital of Hydrogen, it is of interest that sub frequencies of rotation can be derived that coincide with predicted electrogravitational frequencies as well as with the hyperfine structure of Hydrogen 1 and Deuterium 2. First we define some related natural constants (S.I. units) as:

$\alpha := 7.297353080 \cdot 10^{-03}$ $\quad c := 2.997924580 \cdot 10^{08} \cdot m \cdot sec^{-1}$ $\quad m_e := 9.109389700 \cdot 10^{-31} \cdot kg$

where α can represent the ratio of the field energy at the Compton radius of the electron to its rest mass energy as well as the ratio of the n1 orbital velocity to the speed of light for another example.

$$f_{n1} := m_e \cdot (c \cdot \alpha)^2 \cdot h^{-1} \qquad f_{n1} = 6.5796838616 \times 10^{15}\,\mathrm{Hz} \tag{16}$$

The above frequency is the rate of rotation of the electron in the n1 orbital of Hydrogen and it is a standing wave electrically and in the quantum matter wave sense. Next, we derive A'_f which is compared to eq. 3 above as:

$$A'_f := \frac{f_{n1} \cdot \alpha}{\pi} \qquad A'_f = 1.5283418822 \times 10^{13}\,\mathrm{Hz} \quad \text{where,} \quad A_f = 1.5157263456 \times 10^{13}\,\mathrm{Hz} \tag{17}$$

which is a very close match to each other. Next we derive the electrogravitational electromagnetic equivalent frequency below which is based on the speed of light.

$$f_{EGC} := \frac{c}{\lambda_{LM}} \qquad f_{EGC} = 3.5207588889 \times 10^{10}\,\mathrm{Hz} \tag{18}$$

Main electrogravitational electromagnetic frequency.

Then we derive the same frequency based on A_f in eq. 3 as:

$$f'_{EGC} := \frac{A_f \cdot \alpha}{\pi} \qquad f'_{EGC} = 3.5207589067 \times 10^{10}\,\mathrm{Hz} \tag{19}$$

which again is a very close match to each other. Next, a very special property emerges as we reduce f'_{EGC} to the Hyperfine Hydrogen 1 frequency which is measured as a standard precise frequency of 1.420405751 x 10^9 Hz.

$$f_{hypfine1} := \frac{f_{EGC}}{8 \cdot \pi} \qquad f_{hypfine1} = 1.4008654586 \times 10^{9}\,\mathrm{Hz} \tag{20}$$

Note our old friend, the 8 pi divisor! The next electrogravitational reduction in frequency is straightforward and is shown below.

$$f_{EGC256} := f_{EGC} \cdot \alpha \qquad f_{EGC256} = 2.5692220851 \times 10^{8}\,\mathrm{Hz} \tag{21}$$

The Hyperfine frequency of Deuterium 2 is close to 327 MHz and the ratio between 327 MHz and the f_{EGC256} value is very close to the square root of the golden mean as shown below.

$$\Phi_{ratio} := \frac{327 \cdot 10^{06} \cdot Hz}{f_{EGC256}} \qquad \Phi_{ratio} = 1.2727587930 \times 10^{0} \quad \text{where,} \quad \frac{4}{\pi} = 1.2732395447 \times 10^{0} \qquad 22)$$

At the time of this work, I do not have available the exact frequency of the Deuterium 2 Hyperfine frequency. The agreement above with the 4/pi ratio must be regarded as very significant.

It is shown by eq. 16-22 above that a fundamental relationship exists between the standing wave frequencies and the radiative electromagnetic frequencies and the reductions are based on the fine structure constant and divisors of pi or multiples of pi which determine whether the frequency is electromagnetically radiative or is of a quantum rotating motion causing a standing 'matter' wave. We can expect to add or subtract energy from a standing wave by nearly matching the frequency of rotation with a suitable electromagnetic wave. The difference in frequency when close translates to a phase pertubation. **If we nearly match the frequency in eq. 14 and 15, we can expect to control the gravitational action itself while also extracting energy.**

On the bottom of page 2 above, a wavelength of about 3.14 micrometers was stated relative to the electromagnetic free field possibility of the frequency of **$1/A'_t$. Let $1/A'_t = A_{egf} = 9.5235895242 \times 10^{13}$ Hz.** Then a more exact λ'_{fc} wavelength result is:

$$A_{egf} := 9.5235895242 \cdot 10^{13} \cdot Hz \quad \text{then:} \quad \lambda'_{fc} := \frac{c}{A_{egf}} \quad \text{or,} \quad \lambda'_{fc} = 3.1478935252 \times 10^{-6} m \qquad 23)$$

I propose that a crossed field action (crossing at 90 degrees for maximum action) will generate a third action 90 degrees to the original two fields. Further, one of the fields in the crossed field scenario is a free field electromagnetic wave while the other field is a quantum DeBroglie wave. It will be shown below that the two fields will have different wavelengths. The DeBroglie matter wave electron wavelength related to A_{egf} is calculated as:

$$\lambda'_{db} := \frac{h}{m_e \cdot \sqrt{\frac{h \cdot A_{egf}}{m_e}}} \quad \text{or,} \quad \lambda'_{db} = 2.7636511046 \times 10^{-9} m \qquad 24)$$

The ratio of λ'_{fc} and λ'_{db} is:

$$\frac{\lambda'_{fc}}{\lambda'_{db}} = 1.1390343448 \times 10^{3} \qquad 25)$$

Check below: (o.k.)

$$\frac{\sqrt{\frac{h \cdot A_{egf}}{m_e}}}{\lambda'_{db}} = 9.5235895242 \times 10^{13} Hz$$

The ratio above is not a whole number result and it does not seem to lend itself to being divided by pi or even the golden mean to make it so. This may be a necessary criteria for having two frequencies which will yield the same wavelength that will not interfere with each other. 26)

The quantum matter wave velocity is the numerator portion of eq. 26 above.

Where: $V_{A'f} := \sqrt{\frac{h \cdot A_{egf}}{m_e}}$ $V_{A'f} = 2.6319878708 \times 10^5 \frac{m}{s}$ Matter wave velocity. 27)

I now propose that adjusting the matter wave frequency so that the DeBroglie wavelength is then either equal to the electromagnetic wavelength or some multiple of pi will cause a third vector wave to be generated and that the DeBroglie wave and the electromagnetic wave will begin to rotate around the axis of the newly created third vector wave or *action*.

First, let the two crossed field waves be set equal to the λ'_{fc} wavelength and let the fundamental quantum frequency be as calculated in eq. 29 below as:

$$\lambda'_{fc} = \frac{h}{m_e \cdot \sqrt{\frac{h \cdot A'_{dbf}}{m_e}}}$$ (Solving for A'_{dbf} frequency that will yield the λ'_{fc}), 28)

$$A'_{dbf} := \frac{h}{\lambda'^{2}_{fc} \cdot m_e}$$ or, $A'_{dbf} = 7.3405234414 \times 10^7 \, Hz$ **This is the mass motional vibration rate forming the De Broglie matter wave.** 29)

Check: $$\frac{h}{m_e \cdot \sqrt{\frac{h \cdot A'_{dbf}}{m_e}}} = 3.1478935252 \times 10^{-6} \, m$$ Result at left is exactly equal to the fundamental wavelength in eq. 23 above. 30)

$\lambda'_{fc} = 3.1478935252 \times 10^{-6} \, m$

The ratio of the two frequencies is: $\left(\frac{A_{egf}}{A'_{dbf}}\right) = 1.2973992387 \times 10^6$ 31)

Note:

$$\left(\frac{A_{egf} \cdot \alpha}{A'_{dbf} \cdot 8 \cdot \pi}\right) = 3.7670305217 \times 10^2 \quad \text{(A)} \qquad \left(\frac{A_{egf}}{A'_{dbf} \cdot 16 \cdot \pi}\right) = 2.5810937750 \times 10^4 \quad \text{(B)}$$ 32)

Very close to the <u>free space impedance</u> without the ohms units.

Very close to the <u>quantum ohm value</u> without the ohms units.

If we let A_{egf} have volts•Hz in the field and A'_{dbf} have amperes•Hz in the field, and divide the the volts•Hz by amperes•Hz, the result is ohms. This would take into account the combined free space and quantum field nature of the action.

The appearance of the fine structure constant and 8 pi and 16 pi are interesting in terms of the Great Pyramid discussion above. The crossed field structure has a voltage in the electromagnetic frequency and a current (charge per second) in the DeBroglie frequency which may cause a third vector 90 degrees to the two fields that has an ability to generate force while also, the two action frequencies are 90 degrees to each other and are perhaps rotating around the newly created force vector 90 degrees to them both. Thus, tornados or whirlwinds may have two distinct frequencies orthogonal to each other, both being in the horizontal plane relative to the surface of the Earth, with the third resultant force then laying along a vertical perpendicular to the surface of the Earth. One of the action frequencies is electrical while the other is mass motional.

I am reminded of a test involving the smaller pyramid next to the Great Pyramid called Kephren, which was investigated back in 1968 utilizing cosmic rays as the ambient radiation source from the sky. Numerous recordings were made utilizing cosmic ray detectors to look for possible hidden rooms inside the pyramid. I remember that people were saying that some scientists thought that the data showed a mass that appeared to be moving around or circulating inside the pyramid. I suspect that an internal rotating *mass field* as explained above may have showed up in the measurements. The whole thing was eventually written off as bad interpretation of the data by scientists at the Berkeley end of the test and the identical computer located at Cairo must have somehow been programmed wrong. I personally wonder if that was the end to the investigation.

More recently, a small door at the top of an airshaft of the Queen's chamber of the Great Pyramid was penetrated by a small robot with a drill and when examined via a small camera, only a small, empty box shaped space was observed. Before this occurred, it was noted by some researchers that bags of debris from stone cutting were being created and stored in one of the upper spaces above the King's chamber. I wonder if the delay in allowing the investigation of what might be behind this door was to allow for a false result in the findings by digging to the space and modifying it. We may never know.

It is a fact that each corner of the Great Pyramid rests on a square of different area than the other corners and that if we start from the smallest square, we can rotate CCW around from the largest (S.E. corner) to the smallest (S.W. corner) in order of size. As viewed from the top of the pyramid, the "sockets" decrease in size from the largest to the smallest in counterclockwise fashion. See: **"Secrets Of The Great Pyramid," by Peter Tompkins, copyright 1971, Harper & Row Publishers, p. 45.** This suggests a rotation and I suspect it has to do with an expansion of radius from the first to the last socket size from the main vertical axis based on the Golden Mean. If we divide the side of the largest socket by a side of the smallest socket, a number very close to the golden mean approximation is reached, or 1.666 vs 1.618.

As the energy in the field vertically rises from the bottom of the pyramid, the energy density would be forced to increase. This would be a nonlinear increase with each unit increase in height as the mass field rotated around the vertical axis, somewhat the reverse of a tornado.

In general, the electromagnetic field velocity would depend on the medium and so would the acoustic matter wave velocity so that raising of stones for example would require the calculation of the required frequencies based on the correct medium characteristics. Experimentation with suitable instrumentation would doubtless reveal the salient field velocity information.

It is of interest what the vertical units of action will be if we do a cross-product of the A_{egf} and the A'_{dbf} above with the added volts and amps for each, respectively.

$$A'_{fvolt} := A_{egf} \cdot 1 \cdot volt \qquad A'_{fvolt} = 9.5235895242 \times 10^{13}\ Hz \cdot volt \qquad 33)$$

$$A'_{dbfamp} := A'_{dbf} \cdot 1 \cdot amp \qquad A'_{dbfamp} = 7.3405234414 \times 10^{7}\ Hz \cdot amp \qquad 34)$$

$$S_{action} := \begin{pmatrix} A'_{fvolt} \\ 0 \\ 0 \end{pmatrix} \times \begin{pmatrix} 0 \\ A'_{dbfamp} \\ 0 \end{pmatrix} \qquad S_{action} = \begin{pmatrix} 0.0000000000 \times 10^{0} \\ 0.0000000000 \times 10^{0} \\ 6.9908132148 \times 10^{21} \end{pmatrix} \frac{1}{s^2}\ watt \qquad 35)$$

The watt per second squared is accelerated or nonlinear power in the vertical direction and at a considerable magnitude. Perhaps the volts and amps units need to be scaled down for a more realistic result, such as the quantum volt below and quantum amp unit above.

Let: $\quad v_{LM} := 4.149005947 \cdot 10^{-14} \cdot volt$ and $\quad i_{LM} = 1.6073440390 \times 10^{-18}\ A$

$$A'_{fvolt} := A_{egf} \cdot v_{LM} \qquad A'_{fvolt} = 3.9513429573 \times 10^{0}\ volt \cdot Hz \qquad 36)$$

$$A'_{dbfamp} := A'_{dbf} \cdot i_{LM} \qquad A'_{dbfamp} = 1.1798746597 \times 10^{-10}\ Hz \cdot amp \qquad 37)$$

$$S'_{action} := \begin{pmatrix} A'_{fvolt} \\ 0 \\ 0 \end{pmatrix} \times \begin{pmatrix} 0 \\ A'_{dbfamp} \\ 0 \end{pmatrix} \qquad S'_{action} = \begin{pmatrix} 0.0000000000 \times 10^{0} \\ 0.0000000000 \times 10^{0} \\ 4.6620894269 \times 10^{-10} \end{pmatrix} \frac{1}{s^2}\ watt \qquad 38)$$

The above result is much smaller and more in line for a single electron action.

The two frequency cross product result for horizontal action that creates a vertical action reminds me of some of my previous work where for example I presented an equation that had a free field frequency denoted as f_{high} and a quantum frequency denoted as f_{low}. **This is eq. 56, from page 22 of my online book, "Electrogravitation As A Unified Field Theory"** in Adobe Acrobat format. This book is available on the web at: **http://www.electrogravity.com**. The equation result is acceleration, which may be a vector somewhere between the main acceleration F_{QK} and another acceleration as will be shown below. It is presented below where the acceleration is related to the single electron which is the particle of interest.

$$a_{action} := \sqrt{\frac{h \cdot A_{egf} \cdot {A'_{dbf}}^2}{m_e}} \qquad \text{where:} \qquad a_{action} = 1.9320168663 \times 10^{13} \frac{m}{s^2} \qquad 39)$$

The force on the single electron is thus:

$$F_{electron} := m_e \cdot a_{action} \qquad F_{electron} = 1.7599494542 \times 10^{-17} N \qquad 40)$$

It is noted that the EG force constant is: $F_{QK} = 2.9643714476 \times 10^{-17} N$

The ratio of the smaller to the larger force is: $\frac{F_{electron}}{F_{QK}} = 5.9370071712 \times 10^{-1}$ 41)

$$\operatorname{acos}\left(\frac{F_{electron}}{F_{QK}}\right) = 5.3579935509 \times 10^{1} \deg \qquad \operatorname{asin}\left(\frac{F_{electron}}{F_{QK}}\right) = 3.6420064491 \times 10^{1} \deg \qquad 42)$$

The angle result for the cosine is close to the angle of rise of the apothem, or side of the Great Pyramid which is 51.853 degrees. Then the vertical force may be calculated as the square root of the difference of squares of F_{QK} and $F_{electron}$ above.

$$F_{vert} := \sqrt{{F_{QK}}^2 - {F_{electron}}^2} \qquad F_{vert} = 2.3853880183 \times 10^{-17} N \qquad 43)$$

Therefore, the atan of the ratio of F_{vert} to $F_{electron}$ is:

$$\operatorname{atan}\left(\frac{F_{vert}}{F_{electron}}\right) = 5.3579935509 \times 10^{1} \deg \qquad 44)$$

Note that a horizontal acceleration is assumed for $F_{electron}$ and as a result F_{QK} is the hypotenuse or the apothem force in relation to the Great Pyramid geometry. The F_{QK} hypotenuse line of action would approximate the edge or shape of a tornado in a general sense, looking like an inverted funnel, which is the shape of most tornadoes.

Perhaps the quantum frequency A'_{dbf} of 73.405.... MHz may cause charged ions in a tornado to vibrate at the same rate and thus cause electromagnetic radiation that could be picked up by a small hand held antenna. (Much like type of antenna I observed a fellow pointing at a tornado in a video I watched on t.v. recently.) The size was about right for the above frequency and was of collinear beam construction.

Concerning the tornado, I visualize the DeBroglie matter wave circulating in the horizontal plane, expanding its radius in spiral fashion, rising with the air mass due to the vertical nonlinear energy vector and particles such as dust and molecules of air are attempting to follow this wave since it is a quantum matter wave. The electric field wave(s) would be horizontal across the diameter, possibly with a center charge of one polarity and opposite charges at the perimeter. The DeBroglie and the electric field waves would have the frequencies as outlined above of A'_{dbf} and A_{egf} respectively.

It occurred to me that I may be able to use a small television to tune into the 73.405 MHz frequency and use it as a sort of spectrum analyzer but to my chagrin, there is no t.v. channel for that frequency. Ordinary television sets do not tune to that frequency range. **Strangely, there is a gap in the VHF bands allocated for channels 4 and 5**. Channel 4 is 66 to 72 MHz, channel 5 is 76 to 82 MHz which leaves a 4 MHz gap! From channel 2 to 4, the range is normally 6 MHz bandwidth per channel. Likewise for channels 5 to 6. The rest of the VHF bands from 174 to 216 MHz are likewise 6 MHz bandwidth each for channels 7 through 13. Why the strange gap of 4 MHz between channels 4 and 5? Might there be a lot of *noise* caused by A'_{dbf} above?

After pondering the above possibility of noise between channels 4 and 5, I remembered that I had a small emergency radio that was tuned manually, that is, by a continuously variable tuner and did indeed cover the region between channels 4 and 5 for those who might wish to hear the audio part of the t.v. programs. While carefully tuning the radio, suddenly a loud buzz of noise came from the speaker. I walked around the property for several hundred feet (East to West) and the noise was pretty much everywhere. It was noted that at an average of every 20 to 30 feet while moving from East to West, the noise faded but came back as I moved on. The quiet node was rather sharp, being about 2 to 3 feet in width. The dial is not a digital readout and as a result, further investigation using a more sophisticated tuner or spectrum analyzer is necessary. Also, a much wider area of measurement, both in noisy and quiet environments is necessary.

Finally, it is of interest that the mechanics of a constant force are proven to occur in the structure of the gluon which holds together the quarks in the nucleus of the proton and neutron.

Below is a quote from the book, **Facts and Mysteries in Elementary Particle Physics" by Martinus Veltman, Copyright 2003 by World Scientific Publishing Co., pp. 223-224.** "As the quarks are moved apart more and more gluon matter builds up between quarks, requiring energy, and that energy keeps on increasing no matter how far the quarks are separated." Further, on p. 225 is quoted: "The peculiar thing is that the force with which the two quarks are held together apparently remains roughly the same no matter how much they have been pulled apart."

I am encouraged by this agreement with my electrogravitational equation on the main page of my website at **http://www.electrogravitation.com** where there is a force constant connecting the two system (**A**) vector expressions. My suggestion is now made that all gluons may interact with each other through non-local space and thus all matter is connected at the most basic nuclear level, thus forming the partial mechanism of electrogravitational force the total mechanism residing in the gluon interactions and the two-system (**A**) vector interaction between non-local and local space for the total visible reaction.

A further quote from the above reference book, p. 223, is: "Bound states of quarks are complicated structures. The reason is that gluons, responsible for the strong interactions between the quarks, also interact with themselves, and there are big globs of gluons to keep the quarks bound."

It is suggested that gluons are all connected to each other through what I call energy space where all of normal space is a single point. Thus higher dimensions are not needed for unification since everything can be constructed from a beginning single point. Finally, a single point is the most fundamental beginning and can connect all higher dimensions.

Let us return now to the possible "noise" located at 7.340523441 x 10^{07} Hz from eq. 28, 29 and 30, p. 6 above. It is of interest to calculate the wavelength related directly to the force constant F_{QK} for the possible existence of lower frequencies that may be found by multiplying by the fine structure constant which is related directly to quantum harmonics or sub-harmonics. Again, we hold the wavelength as a fundamental constant of electrogravitation where both the electromagnetic and quantum wavelength is equal.

From p. 6 above: $f_{FQK} = 3.8094358097 \times 10^{14}\,\mathrm{Hz}$

$\lambda''_{fc} := \dfrac{(2)\cdot c}{f_{FQK}}$ where, $\lambda''_{fc} = 1.5739467626 \times 10^{-6}\,\mathrm{m}$ 45)

$\lambda''_{fc} = \dfrac{h}{m_e \cdot \sqrt{\dfrac{h \cdot A_{FQK}}{m_e}}}$ (Solving for A_{FQK} frequency that will yield the λ''_{fc}), 46)

$A_{FQK} := \dfrac{h}{\left(\lambda''_{fc}\right)^2 \cdot m_e}$ or, $A_{FQK} = 2.9362093765 \times 10^{8}\,\mathrm{Hz}$ **This is the mass motional vibration rate forming the De Broglie matter wave for the F_{QK} frequency.** 47)

Check: $\dfrac{h}{m_e \cdot \sqrt{\dfrac{h \cdot A_{FQK}}{m_e}}} = 1.5739467626 \times 10^{-6}\,\mathrm{m}$ Result at left is exactly equal to the fundamental F_{QK} wavelength in eq. 45 above. 48)

The ratio of the original wavelength to the new wavelength is:

$\dfrac{\lambda'_{fc}}{\lambda''_{fc}} = 2.0000000000 \times 10^{0}$ where, $\lambda'_{fc} = 3.1478935252 \times 10^{-6}\,\mathrm{m}$ 49)

The ratio of the F_{QK} frequency to the A'_{dbf} frequency is:

$$\frac{A_{FQK}}{A'_{dbf}} = 4.0000000000 \times 10^{0} \quad \text{where,} \quad A'_{dbf} = 7.3405234414 \times 10^{7}\,\text{Hz} \qquad 50)$$

$$\text{and} \quad A_{FQK} = 2.9362093765 \times 10^{8}\,\text{Hz}$$

Let us reduce A_{FQK} by alpha and alpha squared to see what sub frequencies may exist for analysis as shown below.

$$A_{FQK}\cdot\alpha = 2.1426556537 \times 10^{6}\,\text{Hz} \qquad A_{FQK}\cdot\alpha^{2} = 1.5635714834 \times 10^{4}\,\text{Hz} \qquad 51)$$

Actual Test Results:
When the audio output from a radio tuned to the VHF band between t.v. channels 4 and 5 (specifically to 7.340523441 x 10^{7} Hz) is examined carefully on an oscilloscope, there is measured a shifting but sometimes stable train of pulses having a frequency very close to the frequency of 1.5635714834 x 10^{4} Hz. I propose that there may also exist a signal at 2.1426556537 x 10^{6} Hz as shown above. (It is not possible to measure this frequency based on the audio bandwidth available from the radio's audio output.) It is also possible that the above frequencies may be measured worldwide and possibly inside shielded compartments. The fundamental quantum mass motional frequency A_{FQK} of 2.9362093765 x 10^{8} Hz is of special interest.

The above test results were obtained by myself on July 06, 2004 and are considered to be a preliminary indicator pointing to a way of proving the main thrust of this paper. That is, that the force constant has two main frequency constants consisting of both electromagnetic as well as quantum frequencies, and the same may be said for the vector magnetic potential A vector electromagnetic and quantum frequency constants.

Further, the 2 pi relationship as discussed on p. 2 above may be investigated by building a suitable structure which could have the geometry changed with regard to the height divided by 1/2 the equivalent base length equal to pi. Previous work of mine has suggested that energy would be induced if the cotangent of the angle related to 2 pi were reduced towards zero. At zero, the induced energy would theoretically be infinite.

In my previous paper, "Electrogravitational Energy Resonance As A Vertical Energy Ladder To Space," **http://www.electrogravity.com/PyramidEnergyResonance/index.html** , the frequency associated with the electrogravitational field at the surface of the Earth was derived to be 115.115 Hz which is very close to a frequency of 114.0993318 Hz which is obtained by multiplying the above frequency of 1.5635714834 times 10^{4} Hz by the fine structure constant. Further, if I were going to build a structure such as the Great Pyramid to interface with the sub frequency related to the force constant frequency, it would be good to locate it very close to the average mean radius of the Earth.

Finally, it would be very helpful for other people to attempt to measure for the noise at 73.405223441 MHz as I did and report to me (**j.e.bayles@worldnet.att.net**) if they were successful in measuring the noise as I did above.

A_frequency.MCD>A_frequency1.MCD **(Addendum 1, July 13, 2004)**

It is possible to calculate the physical velocity of rotation related to the DeBroglie related frequency A'_{dbf} on p. 8, eq. 29 and this is shown below in eq. 52 as:

Where,

$$v_{dbf} := \sqrt{\frac{h \cdot A'_{dbf}}{m_e}} \quad \text{or,} \quad v_{dbf} = 2.3107186213 \times 10^2 \, \frac{m}{s} \qquad A'_{dbf} = 7.3405234414 \times 10^7 \, Hz \qquad 52)$$

The above velocity related to linear rotation can be easily be achieved by small electric motors. Let us calculate the revolutions per minute of a small disk 62 mm in diameter that will yield the above velocity at the rim of the disk. First, we will use Mathcad's symbolic processor to solve for the f_{disk} in relation to the known velocity and disk radius.

$$v_{dbf} = 2 \cdot \pi \cdot f_{disk} \cdot r_{disk}$$

has solution(s) $\frac{1}{2} \cdot \frac{v_{dbf}}{\pi \cdot r_{disk}}$ where, $r_{disk} := .031 \cdot m$ 53)

Then:

$$f_{disk} := \frac{1}{2} \cdot \frac{v_{dbf}}{\pi \cdot r_{disk}} \qquad f_{disk} = 1.1863299699 \times 10^3 \, Hz \qquad \text{(Rotations/second.)} \qquad 54)$$

If we allow for 8 charge-points around the rim spaced equidistant from each other, the actual required velocity related to 1 charge passing a given point is the above frequency divided by 8, or:

$$f_{disk8} := \frac{f_{disk}}{8} \qquad f_{disk8} = 1.4829124624 \times 10^2 \, Hz \qquad \text{(Rotations/second.)} \qquad 55)$$

Finally, the revolutions required per minute is:

$$f_{disk8rpm} := f_{disk8} \cdot 60 \qquad f_{disk8rpm} = 8.8974747743 \times 10^3 \, Hz \qquad \text{(Rotations/minute.)} \qquad 56)$$

A hobby type battery operated Dremel tool is quite capable of 10,000 rpm and thus the above required disk rpm with 8 charge-points around the rim can be easily achieved. In a balance beam type of setup, an interaction with the electrogravitational Earth field may possibly be measured with suitable electronic balance detectors and/or timing equipment.

It is of interest that on the web there is described an experiment called the Kowsky-Frost experiment, (**http://www.keelynet.com/gravity/KFrost.htm**), wherein a quartz crystal is impinged by a high voltage oscillating radio wave and it stretched out to approximately 20 times its original length on all sides and lifted a weight equal to 55 pounds along with itself and the suspension apparatus.

It is of further interest that the results of the 1919 Kowsky-Frost experiment depended upon the temperature of the center of the crystal should be maintained below 10 degrees centigrade, or 283 degrees Kelvin. When we look at the wavelength related to this energy, we find that it is very close to a whole number multiple of 4 times the fundamental electrogravitational wavelength in eq. 23 and 30 above, or very near 12.59157413 micrometers which is four times the fundamental electrogravitational wavelength of 3.147893532 micrometers.

A quote from the article in the web site referenced above is: "While experimenting with the constants of very short waves, carried on by means of quartz resonators, a piece of quartz which was used, suddenly showed a clearly altered appearance. It was easily seen that in the center of the crystal, especially when a constant temperature not exceeding ten degrees C. (50 degrees F.) was maintained, milky cloudiness appeared which gradually developed to complete opacity." End of quote.

If we look at the wavelength of the force constant F_{QK} and multiply it by 4, we arrive at the fundamental electrogravitational wavelength of 3.147893532 micrometers. Further, if we multiply the fundamental electrogravitational wavelength by 4 we arrive at the temperature related wavelength limit set by the Kowsky-Frost experiment as described above.

Finally, it is of interest that if the interatomic lattice spacing of the quartz crystal were to be multiplied by 20, the wavelength may approach the fundamental electrogravitational wavelength of the force constant, or an even submultiple thereof which would cause direct interaction with the fundamental electrogravitational action wavelength.

It is of importance that quantum standing waves, such as those in the 'orbitals' of the Hydrogen atom, are related to each other by a whole number change in velocity. If we were to consider a frequency spectrum wherein we start from the fundamental wavelength of 3.147893532 micrometers from eq. 23, 29 and 30 above and then multiply it by 4, then take the result and multiply it again by 4, we will land in the immediate proximity of the cosmic background wavelength, the Hydrogen-1 and then the Deuterium-2 wavelengths respectively.

$f0 := \frac{c}{\lambda'_{fc}}$ $\quad f0 = 9.5235895242 \times 10^{13}\,\mathrm{Hz}$ Fundamental E.G. freq.,(See eq. 14 & 15).

Let: $n := 0, 1 .. 39$ Where, $\lambda'_{fc} = 3.1478935252 \times 10^{-6}\,\mathrm{m}$ Then:

$$f(n) := \frac{c}{\lambda'_{fc} \cdot 4^{n}} \qquad \lambda(n) := \frac{c}{f(n)} \qquad 57)$$

The resultant tables for the related electromagnetic frequency and wavelength are shown below.

Table 1

$f(n) =$ (Hz)

f(n)		
$9.5235895242 \cdot 10^{13}$	Hz	
$2.3808973811 \cdot 10^{13}$		1/4 freq.
$5.9522434526 \cdot 10^{12}$		
$1.4880608632 \cdot 10^{12}$		
$3.7201521579 \cdot 10^{11}$		~C.B.R. freq.
$9.3003803947 \cdot 10^{10}$		
$2.3250950987 \cdot 10^{10}$		
$5.8127377467 \cdot 10^{9}$		
$1.4531844367 \cdot 10^{9}$		~Hyd-1 freq
$3.6329610917 \cdot 10^{8}$		~Deut-2 freq
$9.0824027292 \cdot 10^{7}$		
$2.2706006823 \cdot 10^{7}$		

Table 2

$\lambda(n) =$ (m)

$\lambda(n)$		
$3.1478935252 \cdot 10^{-6}$	m	
$1.2591574101 \cdot 10^{-5}$		4 x λ
$5.0366296403 \cdot 10^{-5}$		
$2.0146518561 \cdot 10^{-4}$		
$8.0586074245 \cdot 10^{-4}$		~C.B.R. λ
$3.2234429698 \cdot 10^{-3}$		
$1.2893771879 \cdot 10^{-2}$		
$5.1575087517 \cdot 10^{-2}$		
$2.0630035007 \cdot 10^{-1}$		~Hyd-1 λ
$8.2520140027 \cdot 10^{-1}$		~Deut-2 λ
$3.3008056011 \cdot 10^{0}$		
$1.3203222404 \cdot 10^{1}$		

The calculations above are based on electromagnetic radiation relative to the velocity of light in free space. Let us calculate the frequencies, wavelengths and quantum velocities based on the DeBroglie wavelengths method for the sake of comparison.

$$f_{db}(n) := \frac{h}{\left(\lambda'_{fc} \cdot 4^{n}\right)^{2} \cdot m_e} \qquad \lambda'_{fcdb}(n) := \frac{h}{m_e \cdot \sqrt{\dfrac{h \cdot f_{db}(n)}{m_e}}} \qquad vel_{db}(n) := \sqrt{\frac{h \cdot f_{db}(n)}{m_e}} \qquad 58)$$

Note that table 2 and table 4 match which amounts to holding the wavelength equal for each electromagnetic and DeBroglie frequency step.

Table 3: $f_{db}(n) =$ (Hz)	Table 4: $\lambda'_{fcdb}(n) =$ (m)	Table 5: $vel_{db}(n) =$ ($\frac{m}{s}$)
$7.3405234414 \cdot 10^{7}$	$3.1478935252 \cdot 10^{-6}$	$2.3107186213 \cdot 10^{2}$
$4.5878271508 \cdot 10^{6}$	$1.2591574101 \cdot 10^{-5}$	$5.7767965532 \cdot 10^{1}$
$2.8673919693 \cdot 10^{5}$	$5.0366296403 \cdot 10^{-5}$	$1.4441991383 \cdot 10^{1}$
$1.7921199808 \cdot 10^{4}$	$2.0146518561 \cdot 10^{-4}$	$3.6104978457 \cdot 10^{0}$
$1.1200749880 \cdot 10^{3}$	$8.0586074245 \cdot 10^{-4}$	$9.0262446143 \cdot 10^{-1}$
$7.0004686750 \cdot 10^{1}$	$3.2234429698 \cdot 10^{-3}$	$2.2565611536 \cdot 10^{-1}$
$4.3752929219 \cdot 10^{0}$	$1.2893771879 \cdot 10^{-2}$	$5.6414028840 \cdot 10^{-2}$
$2.7345580762 \cdot 10^{-1}$	$5.1575087517 \cdot 10^{-2}$	$1.4103507210 \cdot 10^{-2}$
$1.7090987976 \cdot 10^{-2}$	$2.0630035007 \cdot 10^{-1}$	$3.5258768025 \cdot 10^{-3}$
$1.0681867485 \cdot 10^{-3}$	$8.2520140027 \cdot 10^{-1}$	$8.8146920062 \cdot 10^{-4}$
$6.6761671782 \cdot 10^{-5}$	$3.3008056011 \cdot 10^{0}$	$2.2036730015 \cdot 10^{-4}$
$4.1726044863 \cdot 10^{-6}$	$1.3203222404 \cdot 10^{1}$	$5.5091825039 \cdot 10^{-5}$

Finally, the iterated method of the above DeBroglie result is applied to the F_{disk} solution as a function of n below.

$$f_{disk}(n) := \frac{1}{2}\cdot\frac{vel_{db}(n)}{\pi\cdot r_{disk}} \qquad f_{disk8}(n) := \frac{1}{2}\cdot\frac{vel_{db}(n)}{\pi\cdot 8\cdot r_{disk}} \qquad f_{disk8\_60}(n) := \frac{1}{2}\cdot\frac{vel_{db}(n)}{\pi\cdot 8\cdot r_{disk}}\cdot 60$$

Basic rev/sec — Table 6 — $f_{disk}(n) =$ (Hz)

Rev/sec w/8 charge pts. — Table 7 — $f_{disk8}(n) =$ (Hz)

Rev/min w/8 charge pts. — Table 8 — $f_{disk8\_60}(n) =$ (Hz)

Table 6: $f_{disk}(n)$ (Hz)	Table 7: $f_{disk8}(n)$ (Hz)	Table 8: $f_{disk8\_60}(n)$ (Hz)
$1.1863299699\cdot10^{3}$	$1.4829124624\cdot10^{2}$	$8.8974747743\cdot10^{3}$
$2.9658249248\cdot10^{2}$	$3.7072811559\cdot10^{1}$	$2.2243686936\cdot10^{3}$
$7.4145623119\cdot10^{1}$	$9.2682028899\cdot10^{0}$	$5.5609217339\cdot10^{2}$
$1.8536405780\cdot10^{1}$	$2.3170507225\cdot10^{0}$	$1.3902304335\cdot10^{2}$
$4.6341014449\cdot10^{0}$	$5.7926268062\cdot10^{-1}$	$3.4755760837\cdot10^{1}$
$1.1585253612\cdot10^{0}$	$1.4481567015\cdot10^{-1}$	$8.6889402092\cdot10^{0}$
$2.8963134031\cdot10^{-1}$	$3.6203917539\cdot10^{-2}$	$2.1722350523\cdot10^{0}$
$7.2407835077\cdot10^{-2}$	$9.0509793846\cdot10^{-3}$	$5.4305876308\cdot10^{-1}$
$1.8101958769\cdot10^{-2}$	$2.2627448462\cdot10^{-3}$	$1.3576469077\cdot10^{-1}$
$4.5254896923\cdot10^{-3}$	$5.6568621154\cdot10^{-4}$	$3.3941172692\cdot10^{-2}$
$1.1313724231\cdot10^{-3}$	$1.4142155288\cdot10^{-4}$	$8.4852931731\cdot10^{-3}$
$2.8284310577\cdot10^{-4}$	$3.5355388221\cdot10^{-5}$	$2.1213232933\cdot10^{-3}$

The above results are frequencies and wavelengths that are sub multiples of the fundamental frequency and wavelength starting with the fundamental quantum electrogravitational velocity in eq. 52 above and thus may also be expected to interact electrogravitationally with the ambient gravitational field of the Earth. For example, see eq. 54, 55 and 56 above and note that the values match the beginning values in tables 6 through 8 above and that the beginning values are based on the fundamental quantum De Broglie velocity and frequency of eq. 52.

An actual measurement may consist of holding the disk rotation to a value specified revolutions per second in table 6 above and looking for a rise or fall of the disk over some period of time. A very sensitive measurement would be an oscillating balance beam activated by a kicker electromagnet and looking for a change in the number of balance beam oscillations over time in a comparison mode. One set of readings would be taken when the voltage to the edge of the disk was absent and another set of readings taken when the disk had a high d. c. voltage across it in the vertical direction, the disk spinning in the horizontal plane relative to the surface of the Earth.

Finally, it is possible to prove that the fundamental quantum wavelength λ'_{fc} can be derived from the fundamental electrogravitational wavelength λ_{LM}. This is shown in eq. 59 below.

$\lambda_{LM} = 8.5149954160 \times 10^{-3}\,m$ and, $\lambda'_{fc} = 3.1478935252 \times 10^{-6}\,m$

Note that: $$\frac{\lambda_{LM} \cdot \alpha}{2 \cdot \pi^2} = 3.1478935477 \times 10^{-6}\,m \qquad 59)$$

Eq. 59 above shows that λ_{LM} and λ'_{fc} are related by the fine structure constant α and 2 times pi squared. We have now come full circle and closed in on the fundamental electrogravitational wavelength as set forth in the beginning of this paper. Using the fine structure constant, pi and sub multiples of the Compton electron rest mass energy equivalent frequency, we enclose and embrace all of my electrogravitational **A** vector and force constant frequencies as well as the Hydrogen-1 and Deuterium-2 hyperfine frequencies which eventually land us on my fundamental electrogravitational wavelength λ_{LM}. The scale is vast and interlocks via α and pi sort of like a brick road. Not a yellow brick road as leading to the land of Oz, but a mathematical relationship built on ratio and scale that leads us to a much better understanding of the total field of force which now must include the force of gravity.

I am in the process of building a test device along the lines discussed above of an electrically charged about the rim spinning aluminum oxide disk 62 mm in diameter which will be held at various constant velocities as set forth by table 5 which will yield the disk rotation frequencies in tables 6, 7 and 8 above. I will look for any observable rise or fall of a balance beam that the disk and motor that drives the disk is mounted on.

Jerry E. Bayles
July 19, 2004

A_frequency1.MCD>A_frequency2.MCD **(Addendum 2, August 09, 2004)**

The basic electrogravitational equation shown on the first page of this paper may be examined to determine fundamental ultrasonic and audio frequency constants related to the force constant portion as well as the magnetic flux constant in the vector magnetic potential portions on the right and left hand sides of the force constant portion of the electrogravitational equation. Also, there is a frequency constant associated with each portion of the total expressions on each side of the magnetic permeability of free space, wherein part of the force constant expression is united with the magnetic flux constant and the frequency derived is the fundamental infrasonic electrogravitational frequency f_{LM} as originally determined to exist in my book, "**Electrogravitation As A Unified Field Theory**," available online on my website at: **http://www.electrogravity.com**.

In brief summary, there is a frequency constant relative to the least quantum **A** vector of 1.5157263456 x 10^{13} Hz, as well as a frequency constant relative to the least quantum force constant of 3.8094358097 x 10^{14} Hz and from those two frequencies, a common mode frequency was arrived at of 9.5235895242 x 10^{13} Hz where we derived the master wavelength of λ'_{fc} of 3.1478935252 x 10^{-06} meter.

A common VLF (ultrasonic) frequency may also be related to the force constant and **A** vector.

Solving for t_{ALM} below in the magnetic flux constant: where, $\lambda'_{fc} = 3.1478935252 \times 10^{-6}\,m$

$$\Phi_{ALM} = \frac{\mu_o \cdot q_o \cdot \lambda'_{fc}}{4 \cdot \pi \cdot t_{ALM}} \quad \text{has solution(s)} \quad \frac{1}{4} \cdot \mu_o \cdot q_o \cdot \frac{\lambda'_{fc}}{\Phi_{ALM} \cdot \pi} \qquad 60)$$

$$t_{ALM} := \frac{1}{4} \cdot \mu_o \cdot q_o \cdot \frac{\lambda'_{fc}}{\Phi_{ALM} \cdot \pi} \qquad t_{ALM} = 3.6849988296 \times 10^{-5}\,s$$

$$f_{ALM} := \frac{1}{t_{ALM}} \qquad f_{ALM} = 2.7137050681 \times 10^{4}\,Hz$$

Solving for t_{FQK} below in the force constant equation:

$$F_{QK} = \left(\frac{q_o}{t_{FQK}} \cdot \frac{\lambda'_{fc}}{l_q}\right) \cdot \mu_o \cdot \left(\frac{q_o}{t_{FQK}} \cdot \frac{\lambda'_{fc}}{l_q}\right) \quad \text{has solution(s)} \qquad 61)$$

$$\begin{bmatrix} \frac{1}{F_{QK}} \cdot \left(F_{QK} \cdot \mu_o\right)^{\frac{1}{2}} \cdot \lambda'_{fc} \cdot \frac{q_o}{l_q} \\ \frac{-1}{F_{QK}} \cdot \left(F_{QK} \cdot \mu_o\right)^{\frac{1}{2}} \cdot \lambda'_{fc} \cdot \frac{q_o}{l_q} \end{bmatrix}$$

$$t_{FQKplus} := \frac{1}{F_{QK}} \cdot \left(F_{QK} \cdot \mu_o\right)^{\frac{1}{2}} \cdot \lambda'_{fc} \cdot \frac{q_o}{l_q} \qquad 62)$$

$$t_{FQKminus} := \frac{-1}{F_{QK}} \cdot \left(F_{QK} \cdot \mu_o\right)^{\frac{1}{2}} \cdot \lambda'_{fc} \cdot \frac{q_o}{l_q} \qquad 63)$$

$$f_{FQKplus} := t_{FQKplus}^{-1} \qquad f_{FQKplus} = 2.7137050681 \times 10^{4}\,Hz \qquad 64)$$

$$f_{FQKminus} := t_{FQKminus}^{-1} \qquad f_{FQKminus} = -2.7137050681 \times 10^{4}\,Hz \qquad 65)$$

The electrogravitational equation at R_{n1} is expressed in terms of eq. 62 and 63 time as:

$$F_{EG} := \frac{\mu_o \cdot q_o \cdot \lambda'_{fc}}{4 \cdot \pi \cdot t_{ALM} \cdot R_{n1}} \cdot \left[\left(\frac{q_o}{t_{FQKplus}} \cdot \frac{\lambda'_{fc}}{l_q}\right) \cdot \mu_o \cdot \left(\frac{q_o}{t_{FQKminus}} \cdot \frac{\lambda'_{fc}}{l_q}\right)\right] \cdot \frac{\mu_o \cdot q_o \cdot \lambda'_{fc}}{4 \cdot \pi \cdot t_{ALM} \cdot R_{n1}} \qquad 66)$$

$F_{EG} = -1.9829730764 \times 10^{-50}\,newton \cdot \frac{henry}{m} \cdot newton$ = force of attraction.

The force constant F_{QK} has the value shown below as:

$$\left(\frac{q_o}{t_{FQKplus}}\cdot\frac{\lambda'_{fc}}{l_q}\right)\cdot\mu_o\cdot\left(\frac{q_o}{t_{FQKminus}}\cdot\frac{\lambda'_{fc}}{l_q}\right) = -2.9643714476\times 10^{-17}\,\text{newton} \qquad 67)$$

Note that: $t_{FQKplus} + t_{FQKminus} = 0.0000000000\times 10^{0}\,\text{sec}$

which suggests that the force constant has a parameter which has a null or zero time when the sums of the plus and minus time solutions are considered.

Another part of the electrogravitational equation is shown below wherein it is the left side containing the vector magnetic potential (without the variable radius of action Rn1 term) multiplied by part of the force constant expression. This will yield energy based on constants and the energy constant result can be related to a frequency constant by dividing by Plank's constant.

$$f_{partpos} := \frac{\mu_o\cdot q_o\cdot\lambda'_{fc}}{4\cdot\pi\cdot t_{ALM}}\cdot\left(\frac{q_o}{t_{FQKplus}}\cdot\frac{\lambda'_{fc}}{l_q}\right)\cdot h^{-1} \qquad f_{partpos} = 1.0032248035\times 10^{1}\,\text{Hz} \qquad 68)$$

Note that: $f_{LM} = 1.0032248050\times 10^{1}\,\text{Hz}$

The result is the base electrogravitational frequency f_{LM}. The result is the same if the parameters are used in the standard equation above of λ_{LM} and i_{LM}. The possibility exists for a negative sign for f_{part} since the time can also be negative as in $t_{FQKminus}$.

$$f_{partneg} := \frac{\mu_o\cdot q_o\cdot\lambda'_{fc}}{4\cdot\pi\cdot t_{ALM}}\cdot\left(\frac{q_o}{t_{FQKminus}}\cdot\frac{\lambda'_{fc}}{l_q}\right)\cdot h^{-1} \qquad f_{partneg} = -1.0032248035\times 10^{1}\,\text{Hz} \qquad 69)$$

Therefore, it is obvious that in the electrogravitational equation, $f_{FQKplus}$, $f_{FQKminus}$, $f_{partpos}$ and $f_{partneg}$ are fundamental constants. Furthermore, the derivation of f_{ALM}, $f_{FQKplus}$ and $f_{FQKminus}$ is not arbitrary since the wavelength constant λ'_{fc} forms a cornerstone of the electromagnetic and DeBroglie calculations.

It is of interest that eq. 29, p. 6 above established A'_{dbf} as a fundamental DeBroglie frequency based on λ'_{fc} which is the fundamental wavelength derived in eq. 23 as based also on the fundamental infrared spectrum frequency of **9.5235895242 x 10^{13} Hz** as derived from eqs. 9-15 above. The fundamental infrared spectrum frequency may be common to both the A vector as well as the force constant portion of the electrogravitational equation. A'_{dbf}, λ'_{fc} and f_{ALM} are stated below as an aid to memory.

$A'_{dbf} = 7.3405234414\times 10^{7}\,\text{Hz}$ $\quad \lambda'_{fc} = 3.1478935252\times 10^{-6}\,\text{m}$ $\quad f_{ALM} = 2.7137050681\times 10^{4}\,\text{Hz}$

It is of interest that f_{ALM} of eq. 60 and related frequencies $f_{FQKplus}$ and $f_{FQKminus}$ may be derived by scaling frequency A'_{dbf} by multiplying it by the fine structure and then dividing by 2 x pi^2.

$$\frac{A'_{dbf}\cdot\alpha}{2\cdot\pi^2} = 2.7137050872\times 10^4\,\text{Hz} \quad \text{where,} \qquad f_{ALM} = 2.7137050681\times 10^4\,\text{Hz} \qquad 70)$$

Whenever the fine structure constant appears as a scaling factor, it is of importance since it is fundamental to the structure of particle physics as a whole.

Back on p. 12, eq. 51 derived a frequency very close to the common television (60 Hz powerline based) horizontal sweep frequency of 15,750 Hz. It can also be derived from A'_{dbf} as shown below, again by scaling it by the very important fine structure constant.

$$f_{audio} := 4\cdot A'_{dbf}\cdot\alpha^2 \qquad \text{or,} \qquad f_{audio} = 1.5635714834\times 10^4\,\text{Hz} \qquad 71)$$

Note that: $f_{audio} - 15750\cdot\text{Hz} = -1.1428516578\times 10^2\,\text{Hz}$ 72)

Further: $f_{audio}\cdot\alpha = 1.1409933180\times 10^2\,\text{Hz}$ ~Piano Note A_2 73)

And $f_{ALM}\cdot\alpha = 1.9802864037\times 10^2\,\text{Hz}$ ~Piano Note G_3 74)

Where: $\operatorname{atan}\left(\frac{f_{ALM}}{f_{audio}}\right) = 6.0050490089\times 10^1\,\text{deg}$ The beginning of a hexagon. 75)

Next, a very important frequency is derived via scaling f_{ALM} by multiplying f_{ALM} by the fine structure constant and then dividing by 8 pi. The result is a frequency very close to the Earth atmospheric cavity resonance fundamental of 7.83 Hz.

$$f_{schum} := \frac{f_{ALM}\cdot\alpha}{8\cdot\pi} \qquad \text{where,} \qquad f_{schum} = 7.8793092472\times 10^0\,\text{Hz} \qquad 76)$$

Again, our old friend 8 pi appears in the denominator.

The next equation brings it all together rather conclusively as:

$$f''_{LM} := f_{schum}\cdot\frac{4}{\pi} \quad \text{or,} \quad f''_{LM} = 1.0032248119\times 10^1\,\text{Hz} \;\text{where,} \quad f_{LM} = 1.0032248050\times 10^1\,\text{Hz} \qquad 77)$$

<u>The result is exactly equal to the originally derived electrogravitational frequency f_{LM} and is in extremely close agreement with eq. 68 and 69 above.</u> I now suggest that f_{LM} is an internal action frequency of the magnetic action and interfering with it by invoking interference of the higher fundamental frequencies such as A_f or f_{FQK}, (eq. 3 and 5) may cause magnetic field enhancement or perhaps attenuation depending on the phasing of the field.

The wavelength associated with the force constant is in the near infrared spectrum just below the deepest red as is derived below as:

$\lambda_{FQK} := \dfrac{c}{f_{FQK}}$ or, $\lambda_{FQK} = 7.8697338130 \times 10^{-7}\,\mathrm{m}$ lote: $f_{FQK} = 3.8094358097 \times 10^{14}\,\mathrm{Hz}$ 78)

This leads the discussion back to some of the fundamental geometry of the Great Pyramid of Giza where the magnitudes of the perimeter and the height are equivalent to 8 pi and 4/pi respectively. This means that the distance from the center of the bottom to the bottom edge forming a right angle of 90 degrees (center of the side) is equal to pi. A small pyramid based on the frequencies of A_f and f_{FQK} is naturally constructed corresponding to the 8 pi perimeter and 4/pi height.

$\left(\lambda_{FQK} \cdot 8 \cdot \pi\right) = 1.9778798346 \times 10^{-5}\,\mathrm{m}$ AND, $\dfrac{c}{A_f} = 1.9778798388 \times 10^{-5}\,\mathrm{m}$ 79)

Multiplying λ_{FQK} by pi, we arrive at an equivalent wavelength equal to 1/2 the length of one side or:

$\lambda_{FQKhalfside} := \lambda_{FQK} \cdot \pi$ or, $\lambda_{FQKhalfside} = 2.4723497933 \times 10^{-6}\,\mathrm{m}$ 80)

Multiplying the above result by 4/pi, we arrive at the cornerstone frequency of λ'_{fc} as shown below.

$\lambda_{FQKhalfside} \cdot \dfrac{4}{\pi} = 3.1478935252 \times 10^{-6}\,\mathrm{m}$ where, $\lambda'_{fc} = 3.1478935252 \times 10^{-6}\,\mathrm{m}$ 81)

The above wavelength is equivalent to the vertical height of the pyramid geometry. It is associated therefore with the vertical energy gradient.

Finally, multiplying the half side wavelength by 8 we arrive back at the perimeter wavelength.

$\lambda_{FQKhalfside} \cdot 8 = 1.9778798346 \times 10^{-5}\,\mathrm{m}$ where, $\dfrac{c}{A_f} = 1.9778798388 \times 10^{-5}\,\mathrm{m}$ 82)

which corresponds to the fundamental vector magnetic potential wavelength. Interfering with this wavelength may allow for the direct manipulation of magnetic fields such as enhancement or attenuation of the field strength. Eq. 78 derives the fundamental force constant wavelength and is a wavelength of interest if we wish to interfere with the energy space force coupling constant mechanism. This may allow for energy extraction directly from energy space as well as control of the electrogravitational action.

It is of interest that the shaft leading to the Queen's Chamber of the Great Pyramid is aligned North-South, thus taking maximum advantage of the Earth's ambient magnetic field. Further, the Grand Gallery length is naturally resonant acoustically at 7.83 Hz and rises at about 26.3 degrees while the shaft leading to the Queens chamber is of the length that would resonate acoustically at 10.03 Hz and is effectively horizontal. This relates directly to eq. 76 and 77 above which are derived from the fundamental electrogravitational parameters A_f and f_{FQK} at the beginning of this work.

Thus, the Queen's chamber shaft may have exploited the ambient magnetic field while the Grand Gallery exploited the Schumann electric field. The Grand Gallery rooftop length is about 153.7 feet while the Queens Chamber shaft is about 120.7 feet.

$$\frac{153.7}{120.7} = 1.2734051367 \times 10^{0} \qquad \text{and} \qquad \frac{4}{\pi} = 1.2732395447 \times 10^{0} \qquad 83)$$

The result of the ratio above is very close to the square root of the golden mean. This suggests again that the Great Pyramid had a purpose much along the lines of a power generator and that the square root of the golden mean was a fundamental key to its working properly.

The Grand Gallery is said to resonate acoustically to a note of 438.5 Hz. If we look at the niches carved along the bottom edge of both sides of the gallery, we find 27 equally spaced grooves. That amounts to 28 equal distance spaces along the total length. The acoustic frequency of 219.24 Hz fits into the length of one of the spaces and twice that frequency equals 438.48 Hz. Perhaps there were acoustic mechanisms that boosted the energy at the 219.24 Hz frequency.

In closing, some may feel that considering the Great Pyramid as anything else but a giant tomb is not science. I must say that if we look objectively at the science involved in the structure that is the Great Pyramid of Giza, we must conclude that the facts cry out that thinking of the Great Pyramid as just a giant tomb is not a valid scientific conclusion.

Finally, I am almost certain that a laser capable of generating the key infrared frequencies relative to A_f and f_{FQK} and aimed at suitable targets will yield very interesting results.

Jerry E. Bayles
August 08, 2004

A_frequency2.MCD>A_frequency3.MCD **(Addendum 3, August 26, 2004)**

It is of interest that in the electrogravitational equation shown in eq. 66, the permeability of free space constant μ_o exists in the **A** vector parameters on either side of the force constant as well as in the force constant parameter itself. Solving for a least quantum time constant relative to the permeability constant would enable interaction or interference and possibly even some control in a quantum sense of <u>all fields and matter</u> containing the permeability constant. This would even include the mass of the electron, where I consider it to be constructed of standing waves for example, as well as ordinary free space electromagnetic waves. Magnetic fields would also be controllable at the quantum level directly in the field itself. It will be developed by the following presentation that the frequency of interest is obtained by dividing the **A** vector frequency A_f by 2 pi which suggests that the 2 pi factor is remarkably important overall to this analysis.

First we will state the internationally established standard S.I. values of the permeability of free space as well as the least quantum fluxoid and then derive what I have termed in my previous works as the least quantum electrogravitationally related inductance L_Q.

$$\mu_o = 1.2566370610 \times 10^{-6} \frac{henry}{m} \qquad \Phi_o = 2.0678346100 \times 10^{-15} volt \cdot sec$$

$$L_Q := \frac{2 \cdot \Phi_o}{i_{LM}}$$ Henry = (volt x sec) /amp where, $$L_Q = 2.5729832069 \times 10^{3} henry \qquad 84)$$

Next, the least quantum potential is derived based on the least quantum electrogravitational frequency f_{LM}.

$$v_{\mu o} := 2 \cdot \left(\Phi_o \cdot f_{LM} \right) \qquad v_{\mu o} = 4.1490059468 \times 10^{-14} V$$ Solving for time $t_{\mu o}$, 85)

$$\mu_o = \frac{v_{\mu o} \cdot t_{\mu o}}{i_{LM} \cdot \lambda_{LM}}$$ has the solution of: $$\frac{\mu_o}{v_{\mu o}} \cdot i_{LM} \cdot \lambda_{LM}$$

Then: $$t_{\mu o} := \frac{\mu_o}{v_{\mu o}} \cdot i_{LM} \cdot \lambda_{LM}$$ or, $$t_{\mu o} = 4.1453296141 \times 10^{-13} s \qquad 86)$$

$$f_{\mu o} := t_{\mu o}^{-1} \qquad f_{\mu o} = 2.4123534027 \times 10^{12} Hz \qquad 87)$$

<u>The frequency constant $f_{\mu o}$ is fundamental to the permeability of free space constant and is therefore fundamental to all fields containing μ_o in any expression.</u> Causing interference at the $f_{\mu o}$ frequency, which is fundamental to the permeability of free space, interferes with all fields (or mass) that contain the μ_o constant as a necessary constant in the related equation.

Note that: $$\frac{A_f}{f_{\mu o}} = 6.2831853072 \times 10^{0}$$ and $$2 \cdot \pi = 6.2831853072 \times 10^{0} \qquad 88)$$

A simple reduction of frequency of the **A** vector constant frequency of eq. 3 above by dividing by 2 pi yields the $f_{\mu o}$ frequency constant. Again, the importance of 2 pi is demonstrated.

Solving for the related quantum ohm unit:

$$R_Q := \frac{\mu_o \cdot \lambda_{LM}}{t_{\mu o}} \qquad R_Q = 2.5812805760 \times 10^{4} \Omega$$ <u>which is equal to the standard value S.I. unit Quantum Ohm.</u> 89)

The mass of the electron may be expressed in terms of μ_o as:

Standard S.I. units electron mass:

$$m'_e := \frac{\mu_o \cdot q_o^2}{4 \cdot \pi \cdot l_q} \qquad m'_e = 9.1093896883 \times 10^{-31}\,kg \qquad m_e = 9.1093897000 \times 10^{-31}\,kg \tag{90}$$

$$m''_e := \frac{R_Q \cdot t_{\mu o}}{\lambda_{LM}} \cdot \frac{q_o^2}{4 \cdot \pi \cdot l_q} \qquad m''_e = 9.1093896883 \times 10^{-31}\,kg$$

Mass is directly proportional to time $t_{\mu o}$.

Thus, even mass may be affected by the frequency related to $t_{\mu o}$ and therefore the gravitational action will be affected for both the mass and electrogravitational forms of mathematical expression. Note that the time $t_{\mu o}$ must be the value computed above in order for the mass to be correct, all other parameters being constants. Magnetic permeability now has the expression:

S.I. Standard Value:

$$\mu'_o := \frac{R_Q \cdot t_{\mu o}}{\lambda_{LM}} \qquad \mu'_o = 1.2566370610 \times 10^{-6}\,\frac{henry}{m} \qquad \mu_o = 1.2566370610 \times 10^{-6}\,\frac{henry}{m}$$

Where,

$$vel_{\mu o} := \lambda_{LM} \cdot f_{\mu o} \qquad vel_{\mu o} = 2.0541178166 \times 10^{10}\,\frac{m}{s} \quad \text{and} \quad \frac{c}{2 \cdot \alpha} = 2.0541178062 \times 10^{10}\,\frac{m}{s} \tag{91}$$

Thus part of the structure of the permeability expression is faster than the velocity of light by the $c/2\alpha$ ratio shown above.

Note:

$$l_q \cdot f_{\mu o} \cdot 4 \cdot \pi = 8.5424545853 \times 10^{-2}\,\frac{m}{s} \tag{92}$$

which is the previously established least quantum velocity V_{LM}. (Numerous previous papers online at http://www.electrogravity.com.)

Or:

$$V_{LM} := \sqrt{\frac{h \cdot f_{LM}}{m_e}} \qquad V_{LM} = 8.5424546140 \times 10^{-2}\,\frac{m}{s} \tag{93}$$

It can easily be developed that the established gravitational constant G will also be affected by the least quantum permeability frequency $f_{\mu o}$ as shown on the next page. It is in terms of the permeability of free space times the fourth power of the least quantum electrogravitational velocity.

$$G_{eg} := \frac{R_Q \cdot t_{\mu o}}{\lambda_{LM}} \cdot \left(l_q \cdot f_{\mu o} \cdot 4 \cdot \pi\right)^4 \qquad G_{eg} = 6.6917634167 \times 10^{-11} \frac{\text{henry}}{\text{m}} \cdot \frac{\text{m}^4}{\text{sec}^4} \qquad 94)$$

Where the standard S.I. value of G is: $G_{Newton} := 6.672590000 \cdot 10^{-11} \cdot \text{newton} \cdot \text{m}^2 \cdot \text{kg}^{-2}$

The units relate to a constant result in both cases and each fits the mechanics of the science being considered.

Therefore, the electrogravitational field will also be affected by $f_{\mu o}$. The result of the above for the electrogravitational force verses the Newtonian force respectively at the Bohr n1 orbital between two electrons is given below.

$$F_{Geg} := \frac{G_{eg} \cdot m_e \cdot m_e}{R_{n1}^2} \qquad F_{Geg} = 1.9829730556 \times 10^{-50} \text{newton} \cdot \frac{\text{henry}}{\text{m}} \cdot \text{newton} \qquad 95)$$

$$F_{GNewton} := \frac{G_{Newton} \cdot m_e \cdot m_e}{R_{n1}^2} \qquad F_{GNewton} = 1.9772913890 \times 10^{-50} \text{N} \qquad 96)$$

In the electrogravitational equation, the henry/meter as well as <u>one</u> of the newton terms is considered to be a constant by reason of the force constant term. If a force of proton to electron is being considered, the Compton radius of the proton instead of the electron applies in the denominator (eq. 90) and therefore the mass change is gravitationally accounted for as has been shown in previous works. Thus, 2 pi is fundamentally important in the scale of frequencies related to this analysis as the following will demonstrate using the fundamental wavelength from eq. 23.

$2 \cdot \pi \cdot \lambda'_{fc} = 1.9778798346 \times 10^{-5} \text{m}$ = A_f , the **A** vector electrogravitational frequency constant of eq. 3 above if divided into c, the velocity of light. 97)

$(2 \cdot \pi)^2 \cdot \lambda'_{fc} = 1.2427385516 \times 10^{-4} \text{m}$ = $f_{\mu o}$ of eq. 87 if divided into c, the velocity of light. 98)

Finally: $\dfrac{4 \cdot \pi^2 \cdot \lambda'_{fc}}{2 \cdot \alpha} = 8.5149953552 \times 10^{-3} \text{m}$ where, $\lambda_{LM} = 8.5149954160 \times 10^{-3} \text{m}$ 99)

= fundamental electrogravitational wavelength

It is of interest that the Curie temperature is about **770 degrees Centigrade** for iron which is where the atomic alignment in the magnetic domains disappears and a ferromagnetic material becomes nearly paramagnetic. This is in the vicinity of **627 degrees Centigrade** and that temperature is very close to the main frequency of eq. 23 (A_{egf}) of **9.5235895242 x 10^{13} Hz.** The magnetic domains in iron are about 5 x 10^{-05} meter across. This makes the circumference equal to pi x diameter, or λ_{domain} **= 1.571 x 10^{-04} meter**. Then:

$$\lambda_{\mu o} := (2\cdot\pi)^2\cdot\lambda'_{fc} \qquad \lambda_{\mu o} = 1.2427385516\times 10^{-4}\,\mathrm{m} \qquad PHI_{sqrt} := \frac{4}{\pi} \qquad 100)$$

$$\lambda_{\mu o}\cdot PHI_{sqrt} = 1.5823038677\times 10^{-4}\,\mathrm{m} \quad \sim \lambda_{domain}$$

which suggests a connection to the square root of the Golden Mean equal to 4/pi. Finally, the ratio of 770 deg. C to the 627 deg. C above = 1.228 which is approximately equal to 4/pi.

In conclusion, the ratio of frequencies equal to 2 pi or multiples of 2 pi appear throughout this analysis which strongly suggests there is an important fundamental mechanism at work concerning the frequencies related to the above presentation. I am reminded of the fundamental quantum angular momentum statement shown below for the atomic shells of the Bohr atom.

$$m\cdot v\cdot r = \frac{i\cdot n\cdot h}{2\cdot\pi} \qquad 101)$$

The expression on the left is in units of angular momentum and is a fundamental statement for the angular momentum in the Bohr 'orbitals' of the Hydrogen atom where i is the square root of -1, n is the orbital number, h is Plank's constant, m is the mass of the electron, v is the orbital velocity and r is the radius of the orbit. The probability wave says the electron cannot occupy a definite orbital radius according to present day quantum mechanics but a very precise predictable energy is always associated with the energy differences of the 'orbitals' in spite of the so-called uncertainty of where the electron is at any given time. This is indeed a curious fact. Therefore a great deal of Bohr's atomic model of the atom is still directly applicable to quantum mechanics in general.

Finally, it is possible that eq. 101 above may have solutions involving multiples of the 2 pi constant and even squares and square roots of the constant 2 pi which may also be relevant to the content of this paper. Dividing 360 degrees by 2 pi is equal to 1 radian and 1 radian was fundamental to my previous published papers involving wavefunctions related to electrogravitation. Lest we forget, 2 pi is also very important in the basic construct of the Great Pyramid.

Jerry E. Bayles
August 27, 2004

A_frequency3.MCD>A_frequency4.MCD **(Addendum 4, Sept. 17, 2004)**

Creation of a field mass by splitting the frequency of a photon

An ordinary photon of electromagnetic energy exhibits the impedance of free space which is calculated as the magnetic permeability of free space times the free space velocity of light. Further, it may be calculated as the inverse of the product of the electric permittivity of free space times the velocity of light in free space.

Light is said to have energy but no rest mass as does an electron for example. Light of course travels at the velocity of light in free space and a particle with rest mass cannot owing to the relativistic increase in mass which would require an infinite amount of energy input to attempt to bring any particle with rest mass to the velocity of light.

I propose that light is actually composed of two frequencies, and further that the magnetic permeability and the electric permittivity of free space can each create a characteristic frequency which also depends on the nature of the impedance. If the particle impedance is equal to what is known as the free space impedance of electromagnetic fields, then the two frequencies are equal to each other and the velocity result is the velocity of light. The particle is thus a photon and can be said to have zero rest mass.

However, if the particle impedance is equal to the quantum ohm, then the particle has two frequencies that are not the same and can be derived based on the quantum ohm value as well as the magnetic permeability and electric permittivity constants which are the same constants as used for the photon calculations. The wavelength is held as common to each calculation.

We begin by calculating the frequencies based on the free space impedance R_s below for the case of a photon of electromagnetic energy at the wavelength of eq. 23, p. 5 above of λ'_{fc}. The calculations involve the magnetic permeability and the electric permittivity constants of free space and we will see that the result yields the main electrogravitational frequency common to both the **A** vector and the force constant of my electrogravitational equation shown above on the beginning abstract page.

$R_s := \mu_o \cdot c$ $\quad R_s = 3.7673031333 \times 10^2\,\mathrm{ohm}$ $\quad \varepsilon_o := 8.854187817 \cdot 10^{-12} \cdot \dfrac{\mathrm{farad}}{\mathrm{m}}$

$f_{Rs\mu o} := \dfrac{R_s}{\mu_o \cdot \lambda'_{fc}}$ $\quad f_{Rs\mu o} = 9.5235895242 \times 10^{13}\,\mathrm{Hz}$ (See eq. 14 & 15 above.) 102)

$f_{Rs\varepsilon o} := \dfrac{1}{\varepsilon_o \cdot R_s \cdot \lambda'_{fc}}$ $\quad f_{Rs\varepsilon o} = 9.5235895282 \times 10^{13}\,\mathrm{Hz}$ Results are effectively equal. 103)

Therefore, it is demonstrated by eq. 102 and 103 above that the two resulting frequencies are equal. This is not the case if we now use the quantum hall ohm constant as will be shown below.

$$R'_Q := \frac{h}{q_o^{\,2}} \qquad R'_Q = 2.5812805874 \times 10^4\, \text{ohm}$$ where, $$R_Q = 2.5812805760 \times 10^4\, \text{ohm}$$

(R_Q=S.I. Standard Value)

$$f_{Rq\mu o} := \frac{R_Q}{\mu_o \cdot \lambda'_{fc}} \qquad f_{Rq\mu o} = 6.5253726028 \times 10^{15}\, \text{Hz}$$ (~R_{n1} Bohr atom frequency) 104)

$$f_{Rq\varepsilon o} := \frac{1}{\left(\varepsilon_o \cdot R_Q \cdot \lambda'_{fc}\right)} \qquad f_{Rq\varepsilon o} = 1.3899399005 \times 10^{12}\, \text{Hz}$$ Which is equal to (2 pi)^2 times F_{EGC}, eq. 18 above. 105)

It is readily seen that there are now two distinct frequencies related to the quantum ohm impedance calculations above. I propose that this is a property of rest mass since the quantum ohm is present in calculations involving wavefunctions of particles having rest mass moving at various velocities.

It turns out that there is a local natural phenomena that can be correlated to the above calculations. There is a place in Gold Hill Oregon called the Oregon Vortex. Basically, there exists a hemisphere of energy that is half above and half below the ground level which creates a circular line of demarcation having a knife edge of thickness. The diameter of the circle inscribed by the equator of the hemisphere is 165.375 feet, or 50.4063 meters. Let us calculate the circumference related to this diameter and use it as a wavelength in the equations shown in eq. 104 and 105 above.

$$\lambda_{vortex} := \pi \cdot 50.4063 \cdot \text{m}$$ or, $$\lambda_{vortex} = 1.5835606177 \times 10^2\, \text{m}$$

$$f_{Rq\mu o\lambda vortex} := \frac{R_Q}{\mu_o \cdot \lambda_{vortex}} \qquad f_{Rq\mu o\lambda vortex} = 1.2971513648 \times 10^8\, \text{Hz}$$ 106)

$$f_{Rq\varepsilon o\lambda vortex} := \frac{1}{\varepsilon_o \cdot R_Q \cdot \lambda_{vortex}} \qquad f_{Rq\varepsilon o\lambda vortex} = 2.7630030478 \times 10^4\, \text{Hz}$$ 107)

Note: Page 18, eq. 60 above presented a unique ultrasonic frequency f_{ALM} which is very close to the above frequency in eq. 107.

$$f_{ALM} = 2.7137050681 \times 10^4\, \text{Hz} \qquad \frac{f_{Rq\varepsilon o\lambda vortex}}{f_{ALM}} = 1.0181662998 \times 10^0$$ 108)

A corrected vortex wavelength is related to the electrogravitational wavelength fundamental as:

$$\lambda'_{vortex} := \frac{\lambda_{LM}}{\alpha^2} \qquad \lambda'_{vortex} = 1.5990192739 \times 10^2\, \text{m}$$ This result is a <u>fundamentally important</u> electrogravitational correlation to the vortex. 109)

This is very feasible since the vortex diameter changes slightly according to the time of day, (J. Litster, 1960). See full reference at end of paper.

Let the corrected wavelength in eq. 109 be used to calculate the new ultrasonic frequency related to ε_o as well as the higher frequency related to the permeability μ_o.

$$f'_{Rq\varepsilon o\lambda vortex} := \frac{1}{\varepsilon_o \cdot R_Q \cdot \lambda'_{vortex}} \qquad f'_{Rq\varepsilon o\lambda vortex} = 2.7362914785 \times 10^4\,\mathrm{Hz} \qquad 110$$

$$f'_{Rq\mu o\lambda vortex} := \frac{R_Q}{\mu_o \cdot \lambda'_{vortex}} \qquad f'_{Rq\mu o\lambda vortex} = 1.2846110426 \times 10^8\,\mathrm{Hz} \qquad 111)$$

$$\frac{f'_{Rq\varepsilon o\lambda vortex}}{f_{ALM}} = 1.0083230896 \times 10^0$$ which is much closer than eq. 108 above. 112)

$$\frac{f_{EGC256}}{f'_{Rq\mu o\lambda vortex}} = 2.0000000000 \times 10^0$$ which means the predicted μ_o vortex frequency is exactly 1/2 of eq. 21 above which was one of the electrogravitational sub-frequencies calculated on p. 4 above. 113)

Result: I view the above analysis of the Oregon Vortex as pointing to a natural proof of the electrogravitational action as presented in my theory.

If we were to use the free space impedance to calculate the frequencies related to the wavelength of the Oregon Vortex as given above, we would arrive at the following results. This would be an electromagnetic frequency radiated as from an antenna where the quantum ohm solutions most likely represent standing waves.

$$f'_{Rs\varepsilon o\lambda vortex} := \frac{1}{\varepsilon_o \cdot R_s \cdot \lambda'_{vortex}} \qquad f'_{Rs\varepsilon o\lambda vortex} = 1.8748520610 \times 10^6\,\mathrm{Hz} \qquad 114)$$

$$f'_{Rs\mu o\lambda vortex} := \frac{R_s}{\mu_o \cdot \lambda'_{vortex}} \qquad f'_{Rs\mu o\lambda vortex} = 1.8748520602 \times 10^6\,\mathrm{Hz} \qquad 115)$$

If there exists the radiated frequencies as calculated above, perhaps these could be used as a power source. In fact all of the calculated frequencies may be tapped into for power extraction.

Finally, it is of interest what the wavelength may be to equation 111 if the resulting frequency of eq. 3 is used. This may result in minor vortices inside the established major vortex.

$$\lambda_{minvortex} := \frac{R_Q}{\mu_o \cdot A_f} \qquad \lambda_{minvortex} = 1.3552036109 \times 10^{-3}\,\mathrm{m} \qquad 116)$$

which is exactly equal to the fundamental electrogravitational radius which is λ_{LM} divided by 2 pi.

It is known that a photon with at least twice the energy of the rest mass energy of one electron will split into an electron and positron if the path of the photon is directed near a heavy nucleus. This is called pair production. I propose that the field of the nucleus causes the two frequencies of the photon to separate from being the same and when this happens, energy to mass conversion occurs. Perhaps an experiment could be devised to look for two distinct frequencies such as my theory predicts should be there for mass to exist.

It may be postulated that a change in the velocity per unit time of a photon may engender the creation of mass, if the photon is acted upon by the right energy and rate of change of velocity per unit time, which amounts to acceleration. Then it can be further postulated in summing up action on the photon that the <u>acceleration of charge creates a photon and given the right conditions, accelerating a photon may engender the transformation of a photon into rest mass plus left over kinetic energy.</u>

It is possible to unite photon energy with macroscopic terms involving kinetic rest mass energy and solve for the acceleration parameter related to both. This in turn may be solved for the time parameter which is responsible for the change of photon energy with no rest mass to mass with left over kinetic energy.

Force times distance is equal to energy. Photon energy Ep is stated as planks constant h times the frequency f of the photon. Further, mass times acceleration times distance is also equal to energy. Distance is also equal to 1/2 acceleration times the square of time.

$$\mathrm{Force}\cdot\mathrm{Dist} = h\cdot f \qquad h\cdot f = \mathrm{mass}\cdot\mathrm{accel}\cdot\frac{1}{2}\cdot\mathrm{accel}\cdot\mathrm{time}^2$$

Then, the hf zero rest mass energy can be set equal to the rest mass kinetic energy expression to solve for the acceleration related to the two frequencies that result in the creation of mass from a photon.

First, let the frequencies related to the fundamental electrogravitational wavelength be established utilizing the approach set forth by eq. 104 and 105 above.

$$f_{Rq\mu o\lambda LM} := \frac{R_Q}{\mu_o\cdot\lambda_{LM}} \qquad f_{Rq\mu o\lambda LM} = 2.4123534027\times 10^{12}\,\mathrm{Hz} \qquad 117)$$

$$f_{Rq\varepsilon o\lambda LM} := \frac{1}{\left(\varepsilon_o\cdot R_Q\cdot\lambda_{LM}\right)} \qquad f_{Rq\varepsilon o\lambda LM} = 5.1384441207\times 10^{8}\,\mathrm{Hz} \qquad 118)$$

The basic equation relating zero rest mass photon energy to kinetic energy involving rest mass is shown below.

$$hf_{high} = m\cdot\frac{1}{2}\cdot a_{LM}^{\ 2}\cdot\left(t_{low}\right)^2 \qquad 119)$$

where the t_{low} term can be set to the inverse of t for frequency low. Or,

$$h \cdot f_{high} = m \cdot \frac{1}{2} \cdot \frac{a_{LM}^{2}}{f_{low}^{2}} \qquad \text{or,} \qquad \frac{2 \cdot \left[\left(h \cdot f_{high} \right) \cdot f_{low}^{2} \right]}{m} = a_{LM}^{2} \qquad 120)$$

The required energy to mass conversion acceleration term a_{LM} can be solved for as shown below.

$$a_{LM} := \sqrt{\frac{2 \cdot \left(h \cdot f_{Rq\mu o\lambda LM} \right) \cdot \left(f_{Rq\varepsilon o\lambda LM} \right)^{2}}{m_e}} \qquad a_{LM} = 3.0440420723 \times 10^{13} \, \frac{m}{s^2} \qquad 121)$$

In the above equation, the high frequency term is assigned to the μ_o parameter and the low frequency term is assigned to the ε_o parameter.

The time or frequency may now be determined from the acceleration since we know the wavelength parameter is a constant equal to λ_{LM} .

$$\lambda_{LM} = \frac{1}{2} \cdot a_{LM} \cdot t_a^{2} \qquad \text{or,} \qquad t_a := \sqrt{\frac{2 \cdot \lambda_{LM}}{a_{LM}}} \qquad t_a = 2.3652763086 \times 10^{-8} \, s \qquad 122)$$

Finally: $f_a := t_a^{-1}$ or, $f_a = 4.2278358615 \times 10^{7} \, Hz$

The above frequency is below both the high and low frequencies used in the calculations for the two frequencies related to the fundamental electrogravitational wavelength λ_{LM}. Eq. 29 of p. 6 derived a fundamental frequency related to the **A** vector as well as the force constant in my electrogravitational equation. If we divide the above frequency by that fundamental frequency we solve for a critical angle between the two as shown below.

$$\text{Angle}_{critical} := \text{atan}\left(\frac{A'_{dbf}}{f_a} \right) \qquad \text{Angle}_{critical} = 6.0059848832 \times 10^{1} \, deg \qquad 123)$$

Again we arrive at a 60 degree angle which happens to be a fundamental angle in crystals as well as many atomic elements. (See eq. 75 above.)

It may be possible to utilize the frequency f_a to generate field mass directly from basic electrogravitational energy. First, let us find the frequencies for an ordinary photon having the free space impedance equal to R_s.

$$f_{Rs\mu o\lambda LM} := \frac{R_s}{\mu_o \cdot \lambda_{LM}} \qquad f_{Rs\mu o\lambda LM} = 3.5207588889 \times 10^{10} \, Hz \qquad 124)$$

$$f_{Rs\varepsilon o\lambda LM} := \frac{1}{\left(\varepsilon_o \cdot R_s \cdot \lambda_{LM}\right)} \qquad f_{Rs\varepsilon o\lambda LM} = 3.5207588904 \times 10^{10}\,\mathrm{Hz} \qquad 125)$$

Both frequency results in eqs. 124 and 125 are the same and thus represent a photon of zero rest mass. The result is also equal to eq. 10 f_{EGC} result.

Perturbing the equal frequency photon result above with the f_a frequency may accelerate the frequency related to μ_o while at the same time decelerate the frequency related to ε_o and after sufficient time, (determined as shown above), the two generated frequencies would be far enough apart to generate rest mass equivalent to m_e, the rest mass of the electron or a positron rest mass if the frequencies were switched in the order of acceleration and deceleration.

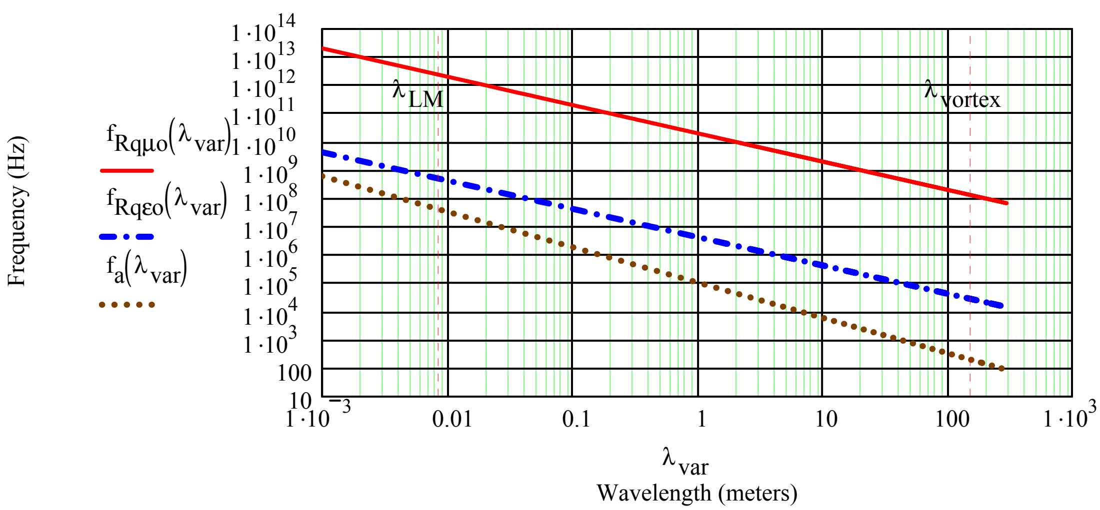
Equations 117 and 118 may be solved in general for any arbitrary wavelength by allowing the wavelength to be a variable and then plotting the result for the required acceleration frequency as in eq 122 above.

Let λ be set as: $\lambda_{var} := .001 \cdot m, .010 \cdot m .. 300 \cdot m$ Then:

$$f_{Rq\mu o}\left(\lambda_{var}\right) := \frac{R_Q}{\mu_o \cdot \lambda_{var}} \qquad f_{Rq\varepsilon o}\left(\lambda_{var}\right) := \frac{1}{\left(\varepsilon_o \cdot R_Q \cdot \lambda_{var}\right)} \qquad 126)$$

$$A_{LM}\left(\lambda_{var}\right) := \sqrt{\frac{2 \cdot \left(h \cdot f_{Rq\mu o}\left(\lambda_{var}\right)\right) \cdot \left(f_{Rq\varepsilon o}\left(\lambda_{var}\right)\right)^2}{m_e}} \qquad f_a\left(\lambda_{var}\right) := \left(\sqrt{\frac{2 \cdot \lambda_{var}}{A_{LM}\left(\lambda_{var}\right)}}\right)^{-1}$$

FIGURE 1



Mass Creation Accel. Freq. (BRN)

The above chart is a dual logarithmic chart in both the X and Y axis and can be used to find the required acceleration frequency for a given wavelength. For example, this would apply to calculating the required frequency f_a for a saucer of a wavelength corresponding to the circumference of the rim. According to the above chart, a frequency close to 192 Hz would correspond to a wavelength λ_{vortex} equal to the circumference of the Oregon Vortex circle. (This is obtained by utilizing Mathcad's chart trace function.) Concerning f_a being a frequency, I prefer to think of it as the rate of how many accelerations could be done in one second, each acceleration action having a time equal to $1/f_a$, or t_a of eq. 122 above. This would appear as a series of pulses of changing frequencies related to the frequencies being acted upon, which would ultimately appear as a physical acceleration field, like the gravitational acceleration of the Earth's field for example.

The importance of the acceleration frequency f_a is that since the permeability and permittivity parameters can be taken as a cross-product to obtain a third vector, if the permeability component frequency were accelerated and the permittivity component frequency were decelerated, then mass as a projected field would be the result. A negative mass would be generated if the reverse order of acceleration and deceleration were to occur regarding the permeability and permittivity parameters. Then the crop circle phenomena is explained as the result of a projected and rotating mass field, probably best described by the cylindrical coordinate system.

The permittivity vector would be radial from the top and bottom center of the saucer outwards towards the rim while the permeability **B** field vector would be circular and in a rotating plane around the permittivity vector and 90 degrees to the permittivity vector. The third vector would be the circularly polarized mass field projected into space 90 degrees to the magnetic flux field and also 90 degrees to the **E** field permittivity vector. The mass field thus created would quite likely have a fairly long retention aspect which would explain why compass needles continue to rotate when placed in the center of some real crop circles. Visualize cones rolling around the surface of the saucer where the B field base of the cones ride around the rim as the B field rotates and the E field apex of each cone is at or near the top and bottom of the saucer. The base of each cone moving outwards from the e field axis is the mass field. The cones thus generated are growing larger in an exponential fashion due to the acceleration frequency f_a. The result is a field mass.

Since a physical acceleration field is generated according to the above discussion, then eq. 121 above can be solved for the mass term that would be generated by arbitrary accelerations of corresponding permittivity and permeability frequencies. Since we have already solved for acceleration field according to eq. 121, a quick check is afforded by the below equation which solves for the mass field and we see it is equal to the rest mass of the electron.

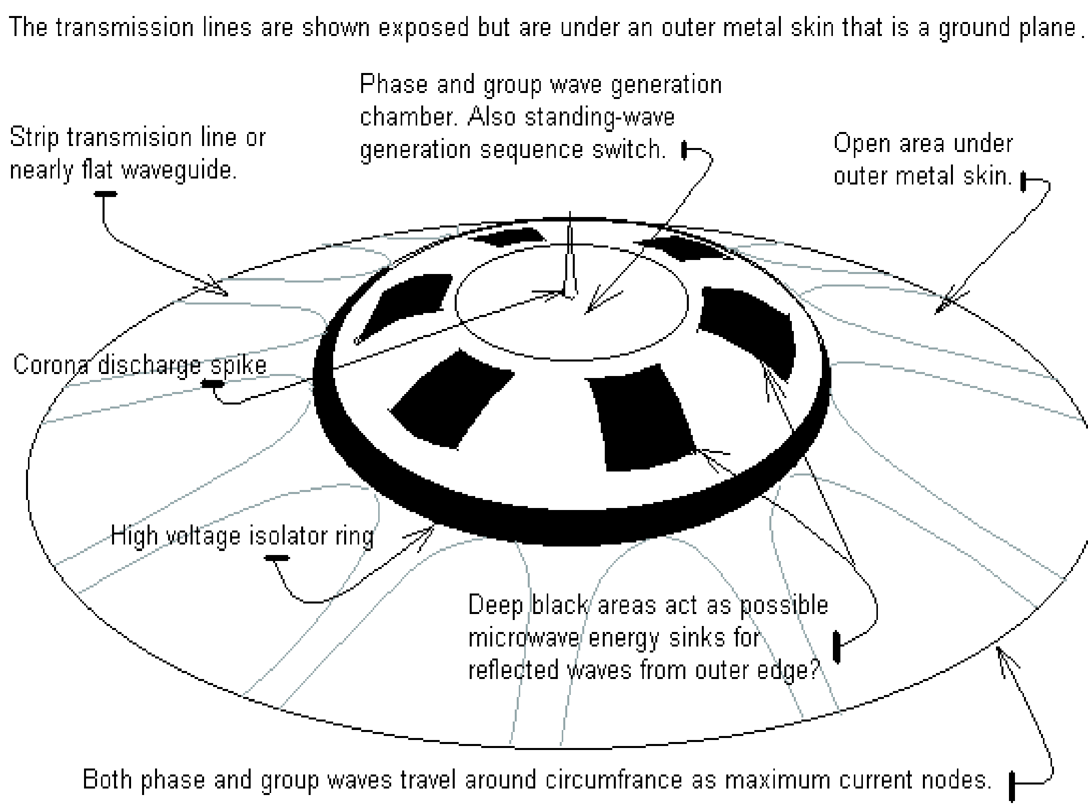
$$m_{field} := \frac{2 \cdot h \cdot \left(f_{Rq\mu o\lambda LM}\right) \cdot \left(f_{Rq\varepsilon o\lambda LM}\right)^2}{a_{LM}{}^2} \qquad \text{or,} \qquad m_{field} = 9.1093897000 \times 10^{-31}\, kg \qquad 127)$$

The acceleration term in eq. 127 above can be derived from figure one above or an arbitrary acceleration term can be used providing the correct permittivity and permeability frequencies are also used. A mass beam could be projected as a weapon from a saucer which would do a lot more damage than just flattening some grass.

The simplist method of causing a change in the frequencies related to the magnetic and permittivity parameters is to change the impedance per unit length of the active wavelength. For example, utilizing a strip transmission line having a variable width of strip over a ground plane forms a variable impedance line which would cause frequency splitting. (See eq. 102-105 above.)

Chapter 12, p. 198, Figure 14 of my book, "Electrogravitation As A Unified Field Theory" shows a drawing of the Bob Lazar UFO sold as a model by the Testors corporation. This is shown as figure 2 below. Please pay particular attention to the variable width strip transmission lines.

FIGURE 2



Testors S-4 Area "Sport Model" UFO Reproduced As A Sketch Above.

The main electromagnetic frequency would be split apart as it moves along the strip lines.

Eq. 126 and figure 1 on p. 32 above show the electromagnetic split frequencies as a function of a variable wavelength based on the quantum Hall ohm constant R_Q. It can be demonstrated by the below equation for strip line impedance that the frequency split as a function of impedance is more to the point concerning the required parameters related to actual saucer construction in figure 2 above. The impedance calculation equation for strip lines immediately below (Eq. 128) is from the book, "*The ARRL UHF/Microwave Experimenters Manual*," publication # 118 of the Radio Amateurs Library, copyright 1990-1997 by The American Radio Relay League, 4th. printing, 1997, p. 5-34, eq. 49. Briefly, it shows that the wider the strip, the lower the impedance for a given separation distance and dielectric constant. Width & height of strip line based on 1/48 scale conversions.

$\varepsilon_r := 2.0$ $\qquad$ $ht := .0127 \cdot m$ $\qquad$ $wdth := 2.1336 \cdot m, 2.03336 \cdot m .. 0.4876 \cdot m$

where ε_r is the relative permittivity due to the dielectric constant, wdth is the width of the strip above or below the ground plane and ht is the separation of the strip and the ground plane, all in meters.

$$Z_o(wdth) := \frac{120 \cdot \pi}{\left(\frac{wdth}{ht} + 1\right) \cdot \sqrt{\varepsilon_r + \sqrt{\varepsilon_r}}} \cdot ohm$$

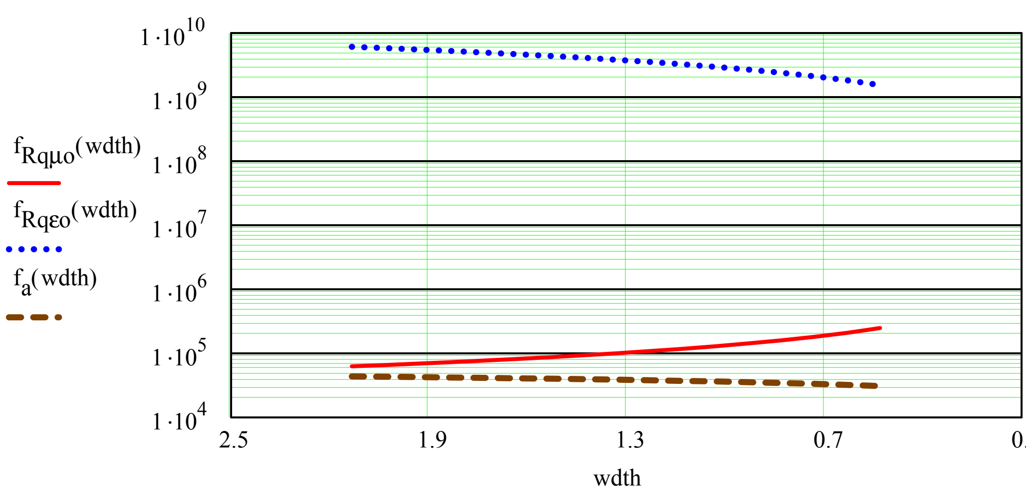
Let λ be set as: $\qquad \lambda_m := 15.36192 \cdot m$ $\qquad$ 128)

(Equal to 4 times the strip length on top.)

Then: $$f_{Rq\mu o}(wdth) := \frac{Z_o(wdth)}{\mu_o \cdot \lambda_m} \qquad f_{Rq\varepsilon o}(wdth) := \frac{1}{\left(\varepsilon_o \cdot Z_o(wdth) \cdot \lambda_m\right)} \qquad 129)$$

$$A_{LM}(wdth) := \sqrt{\frac{2 \cdot h \cdot \left(f_{Rq\mu o}(wdth)\right) \cdot \left(f_{Rq\varepsilon o}(wdth)\right)^2}{m_e}} \qquad f_a(wdth) := \left(\sqrt{\frac{2 \cdot \lambda_m}{A_{LM}(wdth)}}\right)^{-1} \qquad 130)$$

FIGURE 3



The above chart in figure 3 above readily shows a frequency split and this action would most likely occur via a large and very fast rise time electromagnetic energy impulse fed from one of the dark window areas on the saucer top which look like dark windows but are more likely electromagnetic cavities which are switched in sequence to start the cones of two frequency field mass rotating around the saucer rim as previously explained at the bottom of p. 33 above. It is of interest that the mean width of the black window area is about 0.7925 meters, which for waveguide frequency cutoff principles, cutoff is equal to twice the widest width. The cutoff frequency is then about 190 MHz. This is well within the range of the frequency split in figure 3 above.

It is also useful to plot the impedance of the strip line from the widest to the narrowest part as well as the acceleration field. This is shown below in figures 4 and 5 respectively.

FIGURE 4

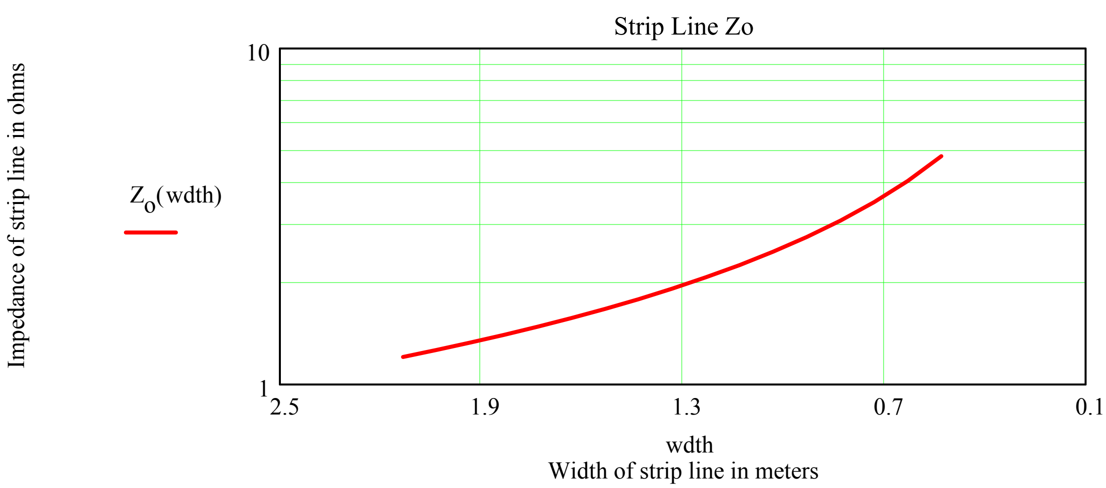
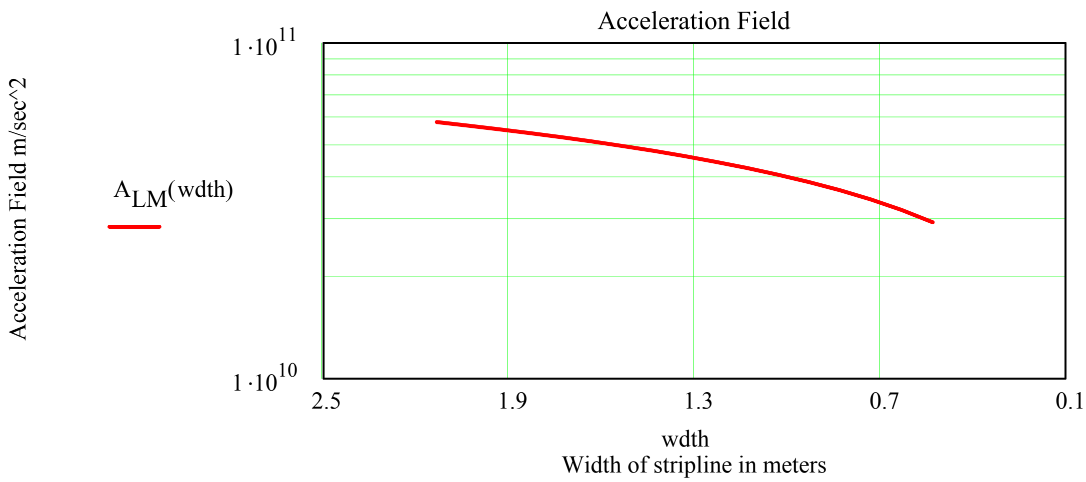


FIGURE 5



As the width of the strip narrows it is apparent that the impedance grows larger and the acceleration field becomes smaller. Again, it is the frequency splitting action which I suggest is what happens in pair production when the free space impedance is converted to the quantum Hall impedance and previous equations above prove that when the impedance is that of free space, the frequencies are equal. (See eqs. 124 and 125 above.) At all other impedances, they are not.

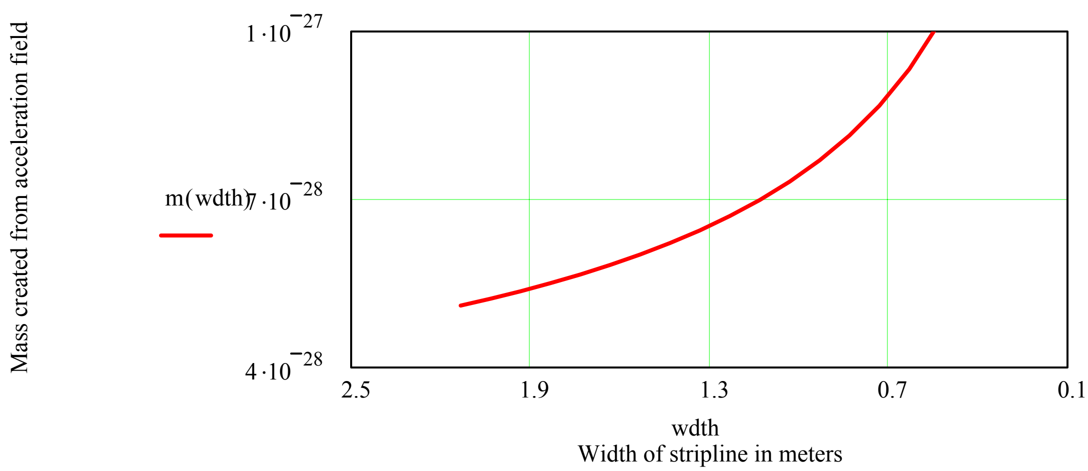
I remember reading somewhere that finding the prime and secondary main resonant acoustic frequencies of a large stone enabled persons with flutes and other musical instruments to cause the stone to levitated scores of feet and land on a cliff above them. It is also been reported the Edward Leedskalnin of Coral Castle fame also used interacting electrical/acoustic frequencies to levitate blocks of coral weighing many tons by himself. Thus a two frequency action which is properly applied seems to be able to lift or levitate large ponderous mass and do it without the input of a large amount of power. I am also reminded of the Kowski-Frost experiment which used a quartz crystal and impinging electric and electromagnetic frequencies to levitate heavy weight. A quartz crystal has an acoustic (mechanical) frequency axis as well as an electrical frequency axis.

The acceleration field can be shown to have real physical significance by employing the force constant and solving for mass in the field related to the acceleration field as shown below. This is based on Newton's law stating that force = mass times acceleration. The resulting field mass would be for each charge involved in creating the total field.

$$m(wdth) := \frac{F_{QK}}{A_{LM}(wdth)}$$

The force constant F_{QK} is from eq. 4 above and is the non-local connector through energy space to all other matter having the **A**-vector field. Thus, field mass is derived by the acceleration field creating it from energy space. 131)

FIGURE 5

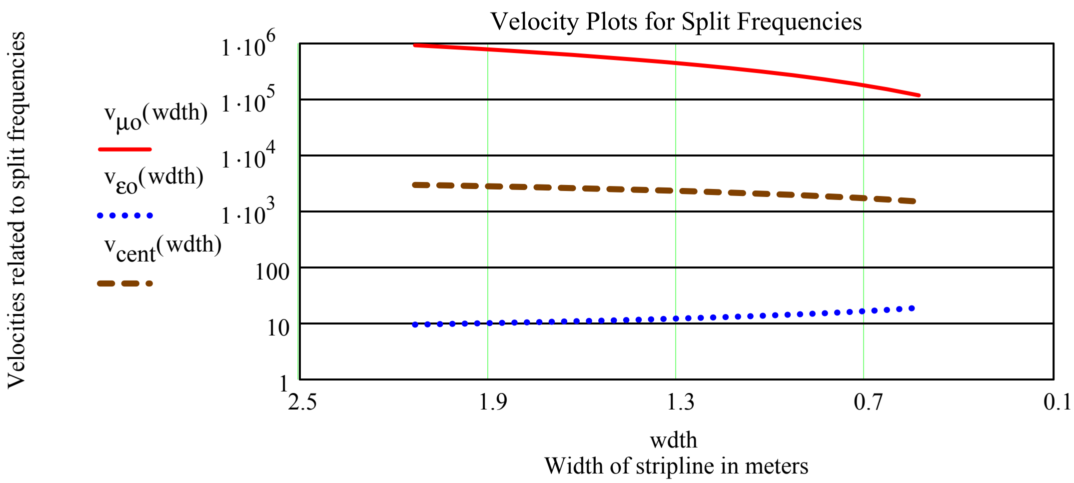


Perhaps dark matter is generated by such a process. Once created, it may exist forever.

Once field mass is created from energy space, kinetic energy can be attributed to the field mass since it will have field velocities related to the separate frequencies and thus related energies.

$$v_{\mu o}(wdth) := \frac{A_{LM}(wdth)}{f_{Rq\mu o}(wdth)} \qquad v_{\varepsilon o}(wdth) := \frac{A_{LM}(wdth)}{f_{Rq\varepsilon o}(wdth)} \qquad v_{cent}(wdth) := \sqrt{v_{\mu o}(wdth) \cdot v_{\varepsilon o}(wdth)}$$

FIGURE 6 (A) (B) (C) 132)



$v_{\mu o}(wdth) =$ (m/s)

$9.2882391848\cdot10^{5}$
$8.6452050770\cdot10^{5}$
$8.0177358981\cdot10^{5}$
$7.4062277849\cdot10^{5}$
$6.8111087612\cdot10^{5}$
$6.2328432614\cdot10^{5}$
$5.6719376071\cdot10^{5}$
$5.1289467119\cdot10^{5}$
$4.6044823931\cdot10^{5}$
$4.0992238227\cdot10^{5}$
$3.6139308816\cdot10^{5}$
$3.1494615473\cdot10^{5}$

$v_{\varepsilon o}(wdth) =$ (m/s)

$9.5382873505\cdot10^{0}$
$9.7691422187\cdot10^{0}$
$1.0017613764\cdot10^{1}$
$1.0286062931\cdot10^{1}$
$1.0577318787\cdot10^{1}$
$1.0894805050\cdot10^{1}$
$1.1242711088\cdot10^{1}$
$1.1626227130\cdot10^{1}$
$1.2051874294\cdot10^{1}$
$1.2527978173\cdot10^{1}$
$1.3065366136\cdot10^{1}$
$1.3678425056\cdot10^{1}$

$v_{cent}(wdth) =$ (m/s)

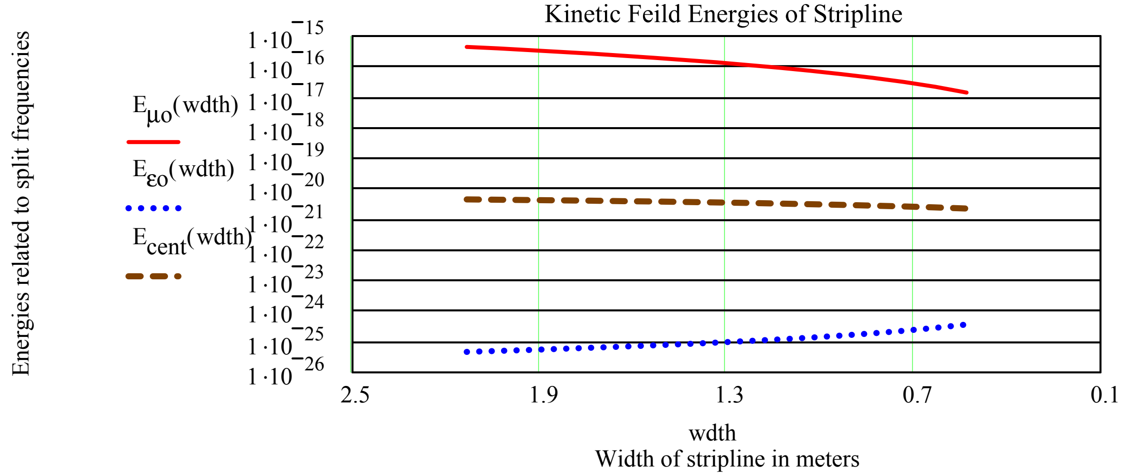
$2.9764726494\cdot10^{3}$
$2.9061355424\cdot10^{3}$
$2.8340533074\cdot10^{3}$
$2.7600892209\cdot10^{3}$
$2.6840877157\cdot10^{3}$
$2.6058705310\cdot10^{3}$
$2.5252317879\cdot10^{3}$
$2.4419316003\cdot10^{3}$
$2.3556876489\cdot10^{3}$
$2.2661638638\cdot10^{3}$
$2.1729549042\cdot10^{3}$
$2.0755643508\cdot10^{3}$

Then the kinetic field mass energies may be plotted for each velocity as shown below. Like field mass being associated with dark mass, the field energy may be associated with dark energy.

A) $E_{\mu o}(wdth) := m(wdth)\cdot\left(v_{\mu o}(wdth)\right)^2$ B) $E_{\varepsilon o}(wdth) := m(wdth)\cdot\left(v_{\varepsilon o}(wdth)\right)^2$ 133)

FIGURE 7

C) $E_{cent}(wdth) := m(wdth)\cdot\left(v_{\mu o}(wdth)\right)\cdot\left(v_{\varepsilon o}(wdth)\right)$



The quantum related frequencies that are related to the energy created from the force constant's connection to energy space by the action of the acceleration field is plotted below in figure 8.

A) B) C) 134)

$$f_{QE\mu o}(wdth) := \frac{E_{\mu o}(wdth)}{h} \qquad f_{QE\varepsilon o}(wdth) := \frac{E_{\varepsilon o}(wdth)}{h} \qquad f_{QEcent}(wdth) := \frac{E_{cent}(wdth)}{h}$$

FIGURE 8

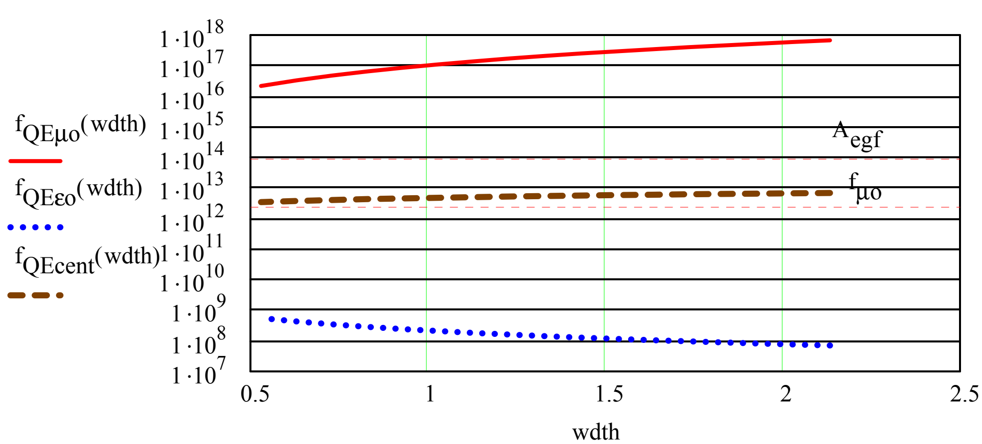


Figure 8 above illustrates the wide range of quantum generated frequencies resulting from the acceleration field tapping into energy space via the electrogravitational constant force connector. The main electrogravitational frequency from p. 5, eq. 23 (A_{egf}) is shown along with the main magnetic permeability frequency from p. 23, eq. 87 ($f_{\mu o}$). The range of frequencies brackets the frequencies on page 4 and includes the visible spectrum.

In order that the generated field mass may be enhanced, very small particles of ferrous material could be injected into the field and become a dynamic part of the field formation. This would explain the embedded ferrous particles in the stems of the grass of real crop circles.

Finally, there exist on display at the vortex site office pictures of what looks like miniature tornadoes of energy, 3 to 4 feet high and about equal in radius to the result of eq. 116 above. These were sent to the owners of the vortex by persons who had accidentally captured the miniature vortices of energy on high speed film and with the camera shutter at the appropriate opening and time setting. They were very surprised to see them on the film and shared them with the owners. There are numerous photos from more than just a few people that show similar phenomena. The Oregon Vortex contact information is presented below. Maria D. Cooper is the manager.

Oregon Vortex
4303 Sardine Creek Road
Gold Hill, OR 97525
http://www.oregonvortex.com
email: mystery@oregonvortex.com
Tel: 541-855-1543
Fax: 541-855-5582

I hope to be able to obtain permission to make some field measurements at the Oregon Vortex site to see if the frequencies in the above analysis can be detected. Specifically, eq. 106, 107 and perhaps 114 also. The book which contains salient data concerning the vortex circle as well as shifts in the diameter of the circle and much more such as vintage original photographs can be obtained from the above address.

The book: *The Oregon Vortex* by John Litster, Copyright 1960 by Ernie and Irene Cooper, Gold Hill, Oregon.

Author, Jerry E. Bayles
Sept. 17, 2004