The active constants needed for the presentation of chapter three are again presented below.

1. Gravitational Constant, $G := 6.672590000 \cdot 10^{-11} \cdot \frac{m^3}{kg \cdot sec^2}$

2. Speed of light, c, $c := 2.997924580000000 \cdot 10^{8} \cdot m \cdot sec^{-1}$

3. Magnetic permeability, u_o, $\mu_o := 1.256637061000001 \cdot 10^{-6} \cdot \frac{newton}{amp^2}$

4. Electric permittivity, e_o, $\varepsilon_o := 8.854187817000001 \cdot 10^{-12} \cdot \frac{farad}{m}$

5. Bohr n1 Velocity, V_{n1}, $V_{n1} := 2.187691415844453 \cdot 10^{6} \cdot \frac{m}{sec}$

6. Electron charge, q_o, $q_o := 1.602177330000001 \cdot 10^{-19} \cdot coul$

7. Electron mass, m_e, $m_e := 9.109389700000001 \cdot 10^{-31} \cdot kg$

8. Compton Electron radius, r_c, $r_c := 3.861593228000001 \cdot 10^{-13} \cdot m$

9. Bohr Radius, r_{n1}, $r_{n1} := 5.291772490000000 \cdot 10^{-11} \cdot m$

10. Fine structure constant, a, $\alpha := 7.297353080000001 \cdot 10^{-03}$

11. Plank constant, h, $h := 6.6260755 \cdot 10^{-34} \cdot joule \cdot sec$

12. Compton Electron time, t_c, $t_c := 8.0933010000001 \cdot 10^{-21} \cdot sec$

13. Quantum electromagnetic frequency, f_{Lm}, $f_{LM} := 1.00322480500001 \cdot 10^{1} \cdot Hz$

14. Quantum electric field frequency, f_h, $f_h := 9.016534884 \cdot 10^{17} \cdot Hz$

15. Quantum acceleration field constant, A_{em}, $A_{em} := 3.007592302 \cdot 10^{09} \cdot \frac{m}{sec^2}$

16. Field acceleration frequency constant, f_a, $f_a := 3.520758889 \cdot 10^{10} \cdot Hz$

17. Free space resistance, R_s, $R_s := \mu_o \cdot c$ and $1 \cdot \Omega = 1 \cdot kg \cdot m^2 \cdot sec^{-1} \cdot coul^{-2}$

$$R_s = 376.7303133310863 \cdot ohm$$

and/or... $R_s := \frac{1}{\varepsilon_o \cdot c}$

$$R_s = 376.730313488167 \cdot ohm$$

18. Quantum Hall Ohm, R_Q, $R_Q := \frac{h}{q_o^2}$

$$R_Q = 2.58128058743606 \cdot 10^4 \cdot ohm$$

Additional related constants are included for the discussions past page 21 below.

(SUN MASS) **(SUN rad.)**

$m_r := 1.99 \cdot 10^{30} \cdot kg$ **= 1.99 x 10^30** kg $r_s := 6.96 \cdot 10^8 \cdot m$ **= 6.96 x 10^8** m

$\pi := 3.141592654000001$

$m_p := 1.672623100000001 \cdot 10^{-27} \cdot kg$

$m_e := 9.109389700000001 \cdot 10^{-31} \cdot kg$

$l_q := 2.817940920000001 \cdot 10^{-15} \cdot m$

$m_a := 1.660540200000001 \cdot 10^{-27} \cdot kg$ = AMU

Note............. ((V_{n1} & V_{LM} are <u>SELECT</u>))

$V_{n1} := 2.187691415844453 \cdot 10^6 \cdot m \cdot sec^{-1}$

$V_{LM} := -0.085363289893272 \cdot m \cdot sec^{-1}$

NOTE: $\frac{V_{n1}}{V_{LM}^2} = 3.002228710934959 \cdot 10^8 \cdot m^{-1} \cdot sec$ $V_n := \frac{V_{n1}}{\alpha}$

$$\frac{V_n}{c} = 0.999999999587411$$

$\lambda_\Delta := 2 \cdot \pi \cdot r_{n1}$ $m_\Delta := m_e$ $t_\Delta := \frac{h}{m_e \cdot V_{n1}^2}$ $r_x := r_{n1}$

$t_h := \frac{t_c}{\alpha}$ $f_h := \frac{1}{t_h}$ and constants in general that are also used are:

$t := 1 \cdot sec$ $Q_i := q_o \cdot t^{-1}$ $L := 1 \cdot m$

Electrogravitation and The General Theory

Chapter 3

The following formulae will demonstrate how the electrogravitational expressions previously presented in (76, 78, & 79) can be modified by adding an expression that shortens the effective Compton radius by an amount related to the Lorentz transform and the effect of increasing velocity relative to an outside observer. Added to this special theory effect on relative force increase there is lumped in the additional force increase caused by near mass and then the entire effect is classified as a general theory of electrogravitation. Equation (95) below derives the velocity that is a vector rotational velocity from the cancellation of like terms in (94) above.

The Sun mass and radius are used in the following example of the above proposed combined action force result and the equations themselves are iterated so as to demonstrate that if the mass becomes large enough or the relative velocity becomes large enough then the electrogravitational action force becomes chaotic and terms become imaginary. This can also happen if the radius of the action force becomes smaller by a critical amount or the radius of the near-field mass becomes small enough.

Included below the electrogravitational equations are surface plots for the real and imaginary force amplitudes. These plots are then followed by regular x-y plots that reveal the chaotic nature of the individual (t) and (u) sub system component equations of the total electrogravitational equation. Please feel free to experiment by changing the variables such as mass, radius, or the equation forms themselves bearing in mind however that the original equation form should be saved beforehand or the new forms saved under a different filename.

Let the following constants for the purpose of calculation be established:

	(SUN MASS)		(SUN rad.)
$m_r := 3.995 \cdot 10^{26} \cdot kg$	**=1.99 x 10^30**	$r_s := 6.96 \cdot 10^{08} \cdot m$	**=6.96 x 10^8**

The below equation is given as an example of near-mass related velocity that has a relativistic effect on its own individual electrons.

(95) $$v_{rel} := \sqrt{\frac{G \cdot m_r}{r_s}} \qquad v_{rel} = 6.188722252437582 \cdot 10^{3} \cdot m \cdot sec^{-1}$$

Next, plug in the assumed particle velocity in the Sun (Which is likely close to c.)

(96) $$V_n := 2.997924579 \cdot 10^{08} \cdot m \cdot sec^{-1} \qquad \text{Where,} \quad \frac{V_n}{c} = 0.999999999666436$$

The below equations are the iteration engine from 1 to N.

$N := 20 \qquad t := 0 .. N$

(97) $$\begin{bmatrix} V_0 \\ L_0 \\ R_0 \\ B_0 \end{bmatrix} := \begin{bmatrix} \left(\frac{G \cdot m_r}{r_s}\right)^{\frac{1}{2}} \\ 1 \\ r_s \\ m_r \end{bmatrix} \qquad \begin{bmatrix} V_{(t+1)} \\ L_{(t+1)} \\ R_{(t+1)} \\ B_{(t+1)} \end{bmatrix} := \begin{bmatrix} \left(\frac{G \cdot B_t}{R_t}\right)^{\frac{1}{2}} \\ \left[1 - \frac{\left(V_n + V_t\right)^2}{c^2}\right]^{\frac{1}{2}} \\ L_t \cdot r_s \\ \frac{m_r}{L_t} \end{bmatrix}$$

$u := 0 .. N$

(98)

$$\begin{bmatrix} V_0 \\ L_0 \\ R_0 \\ B_0 \end{bmatrix} := \begin{bmatrix} \left(\frac{G \cdot m_r}{r_s}\right)^{\frac{1}{2}} \\ 1 \\ r_s \\ m_r \end{bmatrix} \qquad \begin{bmatrix} V_{(u+1)} \\ L_{(u+1)} \\ R_{(u+1)} \\ B_{(u+1)} \end{bmatrix} := \begin{bmatrix} \dfrac{\left(\frac{G \cdot B_u}{R_u}\right)^{\frac{1}{2}}}{\left[1 - \frac{\left(V_n + V_u\right)^2}{c^2}\right]^{\frac{1}{2}}} \\ L_u \cdot r_s \\ \dfrac{m_r}{L_u} \end{bmatrix}$$

$r_x := r_{n1}$ $r_n := r_{n1}$ $l_{A1} := l_q$ $r_c := \dfrac{h}{2 \cdot \pi \cdot m_e \cdot c}$

$V_{LM} = -0.085363289893272 \cdot m \cdot sec^{-1}$ $r_c = 3.861593254172486 \cdot 10^{-13} \cdot m$

= Compton radius of the electron

(99)

$$x_t := \left[\left[\frac{q_o^{\,2}}{4 \cdot \pi \cdot \varepsilon_o \cdot r_n \cdot \left(L_t\right) \cdot r_c} - \frac{\mu_o \cdot q_o^{\,2}}{4 \cdot \pi \cdot l_q \cdot \left(L_t\right) \cdot r_c} \cdot V_{n1}^{\,2}\right] - \left[\frac{\mu_o \cdot q_o^{\,2}}{4 \cdot \pi \cdot l_{A1} \cdot \left(L_t\right) \cdot r_x} \cdot V_{LM}^{\,2}\right]\right]$$

$$x_t := \frac{-1}{4} \cdot q_o^{\,2} \cdot \frac{\left(-l_q \cdot l_{A1} \cdot r_x + \mu_o \cdot V_{n1}^{\,2} \cdot \varepsilon_o \cdot r_n \cdot l_{A1} \cdot r_x + \mu_o \cdot V_{LM}^{\,2} \cdot \varepsilon_o \cdot r_n \cdot r_c \cdot l_q\right)}{\left[\pi \cdot \left[\varepsilon_o \cdot \left[r_n \cdot \left[L_t \cdot \left[r_c \cdot \left[l_q \cdot \left(l_{A1} \cdot r_x\right)\right]\right]\right]\right]\right]\right]}$$

(100)

$$y_u := \left[\left[\frac{q_o^{\,2}}{4 \cdot \pi \cdot \varepsilon_o \cdot r_n \cdot \left(L_u\right) \cdot r_c} - \frac{\mu_o \cdot q_o^{\,2}}{4 \cdot \pi \cdot l_q \cdot \left(L_u\right) \cdot r_c} \cdot V_{n1}^{\,2}\right] + \left[\frac{\mu_o \cdot q_o^{\,2}}{4 \cdot \pi \cdot l_{A1} \cdot \left(L_u\right) \cdot r_x} \cdot V_{LM}^{\,2}\right]\right]$$

$$y_u := \frac{-1}{4} \cdot q_o^{\,2} \cdot \frac{\left(-l_q \cdot l_{A1} \cdot r_x + \mu_o \cdot V_{n1}^{\,2} \cdot \varepsilon_o \cdot r_n \cdot l_{A1} \cdot r_x - \mu_o \cdot V_{LM}^{\,2} \cdot \varepsilon_o \cdot r_n \cdot r_c \cdot l_q\right)}{\left[\pi \cdot \left[\varepsilon_o \cdot \left[r_n \cdot \left[L_u \cdot \left[r_c \cdot \left[l_q \cdot \left(l_{A1} \cdot r_x\right)\right]\right]\right]\right]\right]\right]}$$

(101) $F_{(t,u)} := x_t \cdot \mu_o \cdot y_u$ (Total iterated gravitational force.)

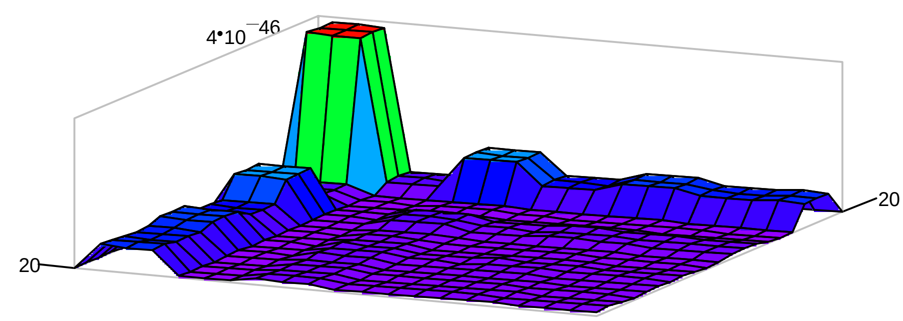
The following plots 1 through 4 serve to show that large mass and near light velocities can cause instability in the gravitational force.

Define: $f(x,y) := x\cdot\mu_o\cdot y$ and, $M_{(t,u)} := f(x_t, y_u)$

then:

$Mr := Re(M)$

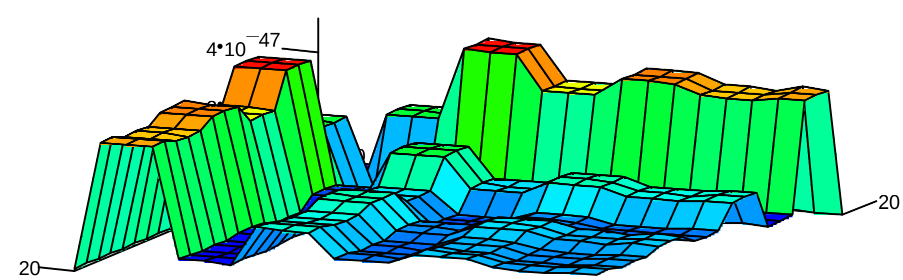
Real 3D, Plot #1



Mr

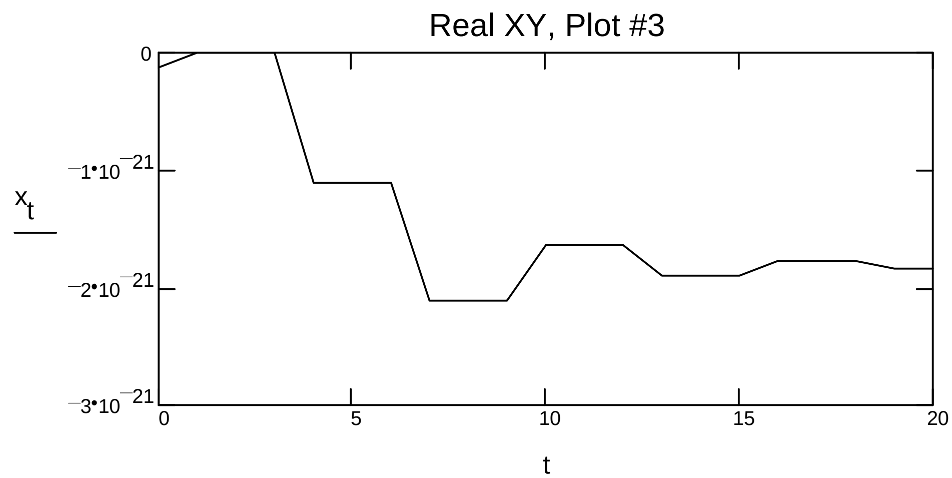
$Mi := Im(M)$

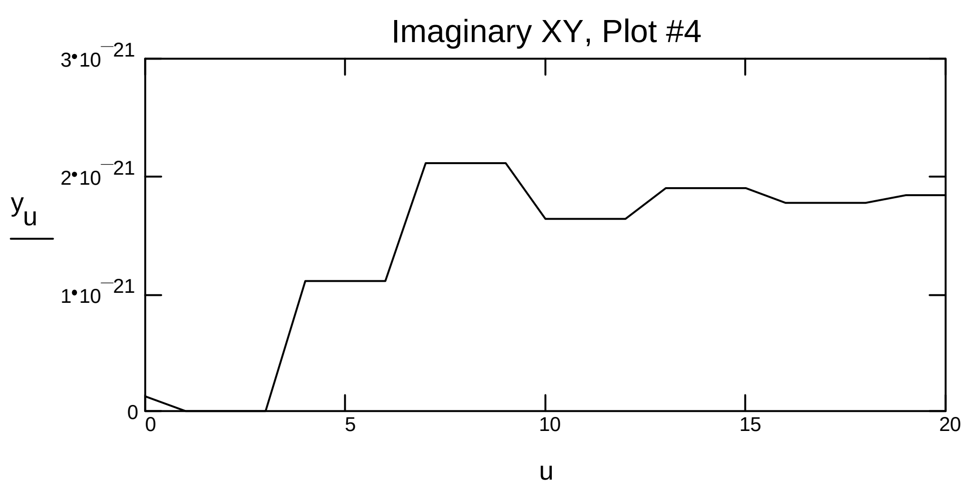
Imaginary 3D, Plot #2



Mi

Note that in the below plots 3 & 4 that a zero force can occure.





Notice that in the example above, a mass is chosen that is four orders of magnitude less than the actual Earth mass. Notice also the instability that results through the total iteration. If, however, the actual mass is used in the iteration process, the instability settles rapidly. Therefore I suggest that as our Sun loses mass through radiation, it may become unstable at the mass chosen above which is about 86% of its present mass. It may pulsate or actually ring like a very large bell.

It may be of interest to input V_{rel} in (95) above in the Lorentz transform and apply that to degrees related to rotational motion. This will relate that mass related velocity to the bending of light near the surface of a large mass such as the surface of our Sun.

Let $m_r := 1.99 \cdot 10^{30} \cdot kg$ Then:

(102) $$v_{rel} := \sqrt{\frac{G \cdot m_r}{r_s}} \qquad v_{rel} = 4.367864312158207 \cdot 10^{5} \cdot m \cdot sec^{-1}$$

and,

(103) $$\gamma' := \left[1 - \left(\frac{v_{rel}}{c}\right)^2\right]^{\left(-\frac{1}{2}\right)}$$ which is a form of the Lorentz transform in Special Relativity

or, $\gamma' = 1.000001061371855$

$$\gamma'' := 2 \cdot \pi \cdot (\gamma' - 1)$$

$\gamma'' = 6.668796044712661 \cdot 10^{-6} \cdot rad$ equals $3.820938678 \cdot 10^{-4} \cdot deg$

which is equivalent to 0 deg., 0 min., 1.38 sec. of arc since there are 2pi rad. in 360 degrees and is in the range predicted by Einstein's formula below:

where; $\gamma := 1$

(104) $$\theta_E := \frac{(1+\gamma) \cdot 2 \cdot G \cdot m_r}{c^2 \cdot r_s} \qquad \theta_E = 8.490961321074942 \cdot 10^{-6} \cdot rad$$

or,

(105) $$\theta_E := \frac{4 \cdot {v_{rel}}^2}{c^2} \qquad \theta_{Edeg} := \theta_E \cdot 57.29577951 \cdot \frac{deg}{rad}$$

or, $\theta_{Edeg} = 4.864962476802483 \cdot 10^{-4} \cdot deg$

which is equivalent to 0 deg., 0 min., 1.75 sec. of arc which is the value that has been verified by measurement according to the Encyclopedia Of Modern Physics, page 605 of the General Relativity section, 1989.

The above discussion of the bending of light near the surface of the sun brings out the fact that the units involved are directly related to angular velocity and further that gravitational action on near-field mass has rotational motion or rotating vector forces that impart that motion in the form of an arc to passing particles. It is therefore herein suggested that gravitational forces are born of rotational motion and are thus able to impart that motion to other systems when acting on those systems at the quantum level. Thus the equations (80a) and (80b) are the electrogravitational equivalent of the mv^2/r rotational force.

Since mass was previously defined as the result of a torus shaped arrangement of quantum state magnetic fields in a standing wave rotational action then one possible way to interact or counteract it would be to form standing waves on a conductive surface wherein the entire surface would be covered with continuously linked bubbles of these standing waves where each bubble was phase locked in counter rotation with its neighboring bubble-field neighbor. This would be most efficient on a super conducting surface and a likely frequency would be related to the quantum magnetic frequency f_{LM} as in equation (106) on the next page. First let us establish the quantum electrogravitational radius as:

$$r_{LM} := \frac{h}{2\cdot\pi\cdot m_e\cdot\left|V_{LM}\right|} \qquad \text{or,} \qquad r_{LM} = 1.356176097373951\cdot 10^{-3}\cdot m$$

Then the electromagnetic frequency related to the least quantum electrogravitational radius is:

(106) $$f_{atc} := \left|\frac{c}{2\cdot\pi\cdot r_{LM}}\right|$$ or, $$f_{atc} = 3.518234223308455\cdot10^{10}\cdot Hz$$

This frequency is also defined as the quantum acceleration frequency constant as well as the f_{at} frequency of equation (61) previous. Standing waves do not radiate energy and as such they may build to extremely high levels without being dissipated. Therefore they may be able to block completely the electrogravitational energy which of course would have at least two interesting results. The first would be the obvious counter-gravitation and the second would be the building of gravitational energy within the confines of the gravity shield. This energy would arise due to the entropic radiation of the field mass inside the shield that is still able to radiate away gravitons assuming the shield was able to stop them from going out and was able to stop outside ones from going in. This is also assuming that the normal case for gravity allows not only for the absorption of the electrogravitation on the one side of an interacting particle but later on the emission of the same energy on the opposite side in the original direction giving the necessary attraction action that we observe as gravity. However the particle acted on still emits gravitons as a result of the normal gravitational entropic action and therefore not only counter-gravitation is a serious consideration but a way to harness gravitational energy directly might be possible in a properly designed and constructed pondermotive force vehicle. This force field could be directed much like a phased array by suitable magnetic fields behind the skin of a surface conductor that would allow for the direction and concentration of the repelling forces in the desired direction. This would very likely have to be computer controlled as fast control would be essential for a stable and controllable field action to be possible.

The suggested conclusion from the preceding pages is that gravity is the result of a rotational magnetic vector having a basic frequency f_{LM} and a basic radius related to its quantum wavelength of λ_{LM}. Further, this action is carried by a type of particle that has the geometry of the formulas in (80a and b) and also can impart a reverse pondermotive action force that cannot be shielded against by normal means of shielding such as with a wire cage and the like. The magnetic vector potential is closely related to this action force if not the same. I suggest that not only can anti-gravity be developed but that it very likely already is.

A scheme for the technical workings of a propulsion system for gravitating is now presented by the author with the basics foremost in mind. Variations on the scheme are quite possible.

The author is now asking the reader to visualize a saucer shaped metal covered craft that is mostly hollow with the exception of a centrally located engine that vaporizes a fuel that is ionized totally and the electrons are stored in a ring that contains them by the use of magnetic force and they circulate around a heavily insulated metal rod that is connected to the metal skin of the craft. The protons are jetted out of the craft to allow the surface of the craft to become highly charged and the protons will be skating around the superconducting surface. Next the circulating electrons in the centrally located gravitational wave resonance oscillator will be allowed to jump back and forth by changing the path radius through switching the intensity of the magnetic field that controls the force that confines the electrons. This will couple the negative pulsating charge field to the surface of the craft through the highly insulated center rod that is connected to the outside conductive skin and the protons will move in sympathetic alternating motion towards and away from the surface of the craft. The magnetic vector potential is in-line to the motion of the charge particle and therefore in-line also with the incoming electrogravitons. The change of distance of the radius of the electron orbit in the gravity oscillator is equal to or multiples of the previously calculated r_{LM} in (85) previous. The rate of pulsation will determine the amount of force and shifting the action center on the surface will determine the translational motion of the craft. The incoming electrogravitation interacts at the Compton wavelength of the proton and not with the electric field of the proton externally. The action is electromagnetic internally in the proton wavelength however.

There is now hypothesized a line of matter-wave action that can be drawn from the protons to the electrons at the center of the craft and any matter that existed in between would be influenced by those matter-wave action lines. I propose that the in-between matter becomes phase locked between the two oscillating fields and therefore becomes immobilized in direct proportion to the strength of the crafts pondermotive fields. Thus the craft could make abrupt changes in velocity and the cargo or passengers would be atomically restrained and thus feel no stress at all. The material to be vaporized for ionization purposes should have as heavy a proton count as possible for the highest plant efficiency and preferably not naturally radioactive. The skin of the craft should be superconductive if possible.

I have seen craft that convinced me that something along the lines of what is herein described as a possible construct is a very elegant and efficient way to mote indeed. I would be very happy in the endeavor of actually constructing one if allowed the possibility. With what has been presented in this paper and the new materials and technology that is emerging in high temperature superconductivity, I feel that the possibility that we can construct such a craft is very close to becoming a reality.

The next chapter expands on the concept of a least quantum energy being available at the r_{n1} level of Hydrogen. The concept is not limited to the atomic level but is applicable to the elementary particles such as the electron and proton also.

From that concept, it is then suggested that energy may be extracted from matter by properly phasing a stimulus of coherent electromagnetic energy to cause the system to either release more energy or take in more energy. All of this as a result of the centripetal force being slightly greater than the coulomb and magnetic forces respectively. The difference is the electrogravitational force.