A NEW ELECTROSTATIC FIELD GEOMETRY

by

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INTRODUCTION

The purpose of this paper is to present the electrostatic field in geometrical terms similar to that of the electrogravitational equation. Since the simple forms of the electrostatic, magnetic and gravitational equations are similar, it is natural that this principle be connected to the more complex form of the electrogravitational equation.

Many years ago, I determined that a numerical magnitude relationship existed concerning the ratio of the electrostatic force to the gravitational force wherein the electrostatic force was very close to $\sqrt{3}$ times c^5 larger in magnitude than the gravitational force between two electrons at a given distance. Here, c is the velocity of light in free space.

The result of fusing the velocity of light into the electrogravitational equation not only yields a new form for the electrostatic equation but a startling result occurs wherein a power flow occurs at the force interface between interacting fields.

Since a bare electron has the capability of extending its field energy out to infinity, then theoretically, it is capable of an infinite amount of self-energy. If we define that "self-energy" as coming from a place called energy-space, then we have not violated the normal space laws of physics wherein energy cannot be created or destroyed, but only changed in form. Further, a conjugate termination of that energy removes it from normal space. If we define that energy as purely reactive and not real, as in reactive verses real power, no heat is lost and thus none is left behind even though a real force was engendered during the 'force-action'.

A force between constant fields of non-changing magnitude has formerly been defined as static force field. This implies a zero exchange of energy flow and thus zero power expended. It is my contention that there is no way that a force may be engendered by a *static field* without a flow of energy and thus a power being utilized. The basic definition of force by Newton is $F = m(\Delta v / \Delta t)$. This must apply even to forces between so-called *static fields*. I propose that this force is achieved by an exchange of reactive power from energy space through the transforming action of the quantum geometry of the particles themselves.

A new Watt Constant is derived in equation 3 below that fits very well into the above idea of power being necessary to create force. Therefore, a force cannot exist (via a static field or otherwise) apart from power which is the rate of energy flow.

The new derived Watt Constant will be shown to have an intimate relationship to the electron torus geometry as well as the square root of three, which has connections to the angle of 120 degrees of three phase power as well as molecular and nuclear geometry. The $\sqrt{3}$ will be shown to have a direct connection to quarks

From Chapter 11, page 180 of Electrogravitation As A Unified Field Theory, the electrogravitational action geometry is applied to the electrostatic force structure so that the electrostatic expression resembles the electrogravitational expression.

First, related constants are introduced below:

$f_{LM} := 1.003224805 \cdot 10^{1} \cdot Hz$ Least quantum frequency.

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

$i_{LM} := q_o \cdot f_{LM}$ or,

$i_{LM} = 1.607344039464671 \cdot 10^{-18} \cdot amp$ (= Least quantum amp.)

$R_{n1} := 5.291772490 \cdot 10^{-11} \cdot m$ Bohr radius of Hydrogen.

$\mu_o := 1.256637061 \cdot 10^{-06} \cdot henry \cdot m^{-1}$ Magnetic permeability.

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

$\lambda_{LM} := 8.514995416 \cdot 10^{-03} \cdot m$ Quantum Magnetic Wavelength

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

Equation 319 of page 180 is repeated below which is the electrogravitational equation. For simplification, the example radius of interaction is shown at the Bohr n1 radius between two electrons.

1) (A) F_{QK} (A)

variable |------constant newton------| variable

weber/meter (amp) (amp) weber/meter

$$F_{EG} := \left(\frac{\mu_o \cdot i_{LM} \cdot \lambda_{LM}}{4 \cdot \pi \cdot R_{n1}}\right) \cdot \left[\left(\frac{i_{LM} \cdot \lambda_{LM}}{l_q}\right) \cdot \mu_o \cdot \left(\frac{i_{LM} \cdot \lambda_{LM}}{l_q}\right)\right] \cdot \left(\frac{\mu_o \cdot i_{LM} \cdot \lambda_{LM}}{4 \cdot \pi \cdot R_{n1}}\right)$$

$$F_{EG} = 1.982973078718267 \cdot 10^{-50} \cdot \frac{weber}{m} \cdot newton \cdot \frac{weber}{m}$$

We begin by making the electric force equation resemble the form of the electrogravitational equation with changes as shown below.

2) $F_E := \dfrac{i_{LM} \cdot \lambda_{LM}}{4 \cdot \pi \cdot \varepsilon_o \cdot R_{n1}}$ or, $F_E = 2.32452116172757 \cdot weber \cdot \left(\dfrac{m}{sec^2}\right)$

The dimensional units imply a built-in acceleration of the field potential.

In the preceding page, equation (2) takes the place of the **A** vector terms of the electrogravitational equation (1). It is the result of multiplying the weber/m terms by c^2. Next, the force constant term F_{QK} in (1) is replaced by the expression below.

3) $$P_{EQK} := \left[\left(\frac{i_{LM}\cdot\lambda_{LM}}{I_q}\right)\cdot\left(\sqrt{\frac{3\cdot\mu_o}{\varepsilon_o}}\right)\cdot\left(\frac{i_{LM}\cdot\lambda_{LM}}{I_q}\right)\right]$$ or,

$P_{EQK} = 1.539266976766775\cdot 10^{-8}\cdot\text{watt}$ which is a power constant per interaction.

This implies an energy per unit time (power) flow occurs even though it is a so-called *electrostatic* interaction. It is the result of multiplying the Constant Newton term in equation 1 by $\sqrt{3}$ times c. Then, the expanded terms expression for the electrostatic force is arrived at in the below equation as:

(Volt*m/sec)(-----------Watt Constant-----------)(Volt*m/sec)

4) $$F_{EE} := \left(\frac{i_{LM}\cdot\lambda_{LM}}{4\cdot\pi\cdot\varepsilon_o\cdot R_{n1}}\right)\cdot\left[\left(\frac{i_{LM}\cdot\lambda_{LM}}{I_q}\right)\cdot\sqrt{\frac{3\cdot\mu_o}{\varepsilon_o}}\cdot\left(\frac{i_{LM}\cdot\lambda_{LM}}{I_q}\right)\right]\cdot\left(\frac{i_{LM}\cdot\lambda_{LM}}{4\cdot\pi\cdot\varepsilon_o\cdot R_{n1}}\right)$$

or, $$F_{EE} = 8.31727307549658\cdot 10^{-8}\cdot\frac{\text{volt}\cdot\text{m}}{\text{sec}}\cdot\left(\frac{\text{newton}\cdot\text{m}}{\text{sec}}\right)\cdot\frac{\text{volt}\cdot\text{m}}{\text{sec}}$$

Compare this to the standard electrostatic force equation below:

5) $$F_{SE} := \frac{q_o^2}{4\cdot\pi\cdot\varepsilon_o\cdot R_{n1}^2}$$ or, $F_{SE} = 8.23872946602187\cdot 10^{-8}\cdot\text{newton}$

Note that the middle term of the Watt Constant of equation 4 has the units of:

6) $$R_K := \sqrt{\frac{3\cdot\mu_o}{\varepsilon_o}}$$ where $R_K = 652.5160435768199\cdot\text{ohm}$

And now introducing the quantum Hall Ohm as: $R_Q := 2.581280560\cdot 10^{04}\cdot\text{ohm}$

then the ratio: $\dfrac{R_Q}{4\cdot\pi^2\cdot R_K} = 1.002038203606889$ suggests that the Quantum Hall Ohm is related to the electrostatic Watt Constant R_K through the torus geometry associated with the $4\cdot\pi^2$ in the divisor above. (Torus area = $4\cdot\pi^2 r_1 r_2$.)

The R_{n1} radius of action may be taken as a variable. Then all other terms being held constant, the force expression for both the electrogravitational and electrostatic forces varies inversely as $1/r^2$.

Also, in the above ratio, where the $4 \cdot \pi^2$ is related directly to torus geometry, it was previously presented in chapter 1 that the torus was fundamental to the geometry of the structure of the electron. (Also possibly related to the nucleus.)

The R_K impedance above is related to the free space impedance for electromagnetic waves as is shown below.

7) $$\frac{R_K}{\sqrt{3}} = 376.7303134096266 \cdot \mathrm{ohm}$$

The next step requires stating the free space standard velocity of light::

$$c := 2.997924580 \cdot 10^{08} \cdot \mathrm{m} \cdot \mathrm{sec}^{-1}$$

Then, $Z_s := \mu_o \cdot c$ or, $Z_s = 376.7303133310859 \cdot \mathrm{ohm}$

It is demonstrated by the above that the so called 'electrostatic' force has an impedance that is greater than the free space impedance for an electromagnetic wave by the multiplier of the square root of three.

The square root of three has special significance in three phase power distribution networks. It is related very closely to the fact that the three phases are separated in phase by 120 degrees, which is also the angle between the vertical currents that apply directly to the rotating vector magnetic potential of my previously presented theory as well as the empirical proof experiments. Ergo:

$\tan(120 \cdot \deg) = -1.732050807568877$ and, $\tan(240 \cdot \deg) = 1.732050807568879$

where;

$\tan(120 \cdot \deg)^2 = 2.999999999999997$ and, $\tan(240 \cdot \deg)^2 = 3.000000000000006$

The simple water molecule demonstrates that this angle also exists naturally in the electrostatic bond between the Hydrogen and Oxygen molecule where the two Hydrogen atoms are spaced 120 degrees apart around the Oxygen atom. Therefore, the $\sqrt{3}$ parameter is likely very fundamental concerning the electrostatic field geometry and in fact may play a role even in the geometry of quarks involving the 1/3 and 2/3 numbers where the electrostatic coulomb force plays a major role at the very small nuclear radii involved. The basic nucleus quark constituents also number 3.

It is interesting that the magnetic force equation (318) of page 180 of my book yields a result that is expressed directly in newton units alone, or:

(**A**) (amp)

8) $$F_{LM} := \left(\frac{\mu_o \cdot i_{LM} \cdot \lambda_{LM}}{4 \cdot \pi \cdot R_{n1}}\right) \cdot \left(\frac{i_{LM} \cdot \lambda_{LM}}{I_q}\right)$$ Quantum Magnetic Force proportional to 1/r.

where, $F_{LM} = 1.256184635325646 \cdot 10^{-22} \cdot \text{newton}$

Equation 8 above is also found on the right and left sides of equation 1 above. It is postulated by this author that this may be an expression of a monopole action. It is also an action that cannot be shielded against since it involves the Vector Magnetic Potential (**A**).

Note that the power constant of chapter 5, page 96, equation 92 result:

$$ScK := 8.886962025439721 \cdot 10^{-9} \cdot \text{watt}$$

when divided into the power constant P_{EQK} of equation 3 above yields $\sqrt{3}$; or:

9) $$\frac{P_{EQK}}{ScK} = 1.732050809219716 \qquad \text{and} \qquad \sqrt{3} = 1.732050807568877$$

Several experiments involving highly charged disks and inline capacitor-plate arrangements have been reported to achieve an observed acceleration along the line of electric flux. (Notably, the Biefield-Brown effect and a device called the "electric rocket".) The above formula (4) suggests that there is a quantum constant power available for that effect.

The new electrostatic equation (4) previous may be used in both the weak and strong force equations from my book, chapter 1, pages 17 and 18, equations #(41) and #(45) respectively. First related constants are defined and then the equations are repeated for quick reference.

$r_c := 3.861593255 \cdot 10^{-13} \cdot m$ = Compton radius of electron

$V_{LM} := 8.542454612 \cdot 10^{-02} \cdot \frac{m}{sec}$ = Least quantum electromagnetic velocity.

$r_x := 1.91604 \cdot 10^{-16} \cdot m$ = .911059 times the Compton proton radius.*

*--Adjusted for best fit to ratios below and the lesser radius value may account for the nuclear zone of repulsion.

The Weak Force

First, the weak force equation is repeated below as:

10) $$F_{Wt1} := \frac{q_o^2}{4\cdot\pi\cdot\varepsilon_o\cdot r_x^2}\cdot\left(\frac{\pi}{\varepsilon_o}\right)\cdot\frac{\mu_o\cdot q_o^2\cdot V_{LM}^2}{4\cdot\pi\cdot r_c\cdot r_x}$$

$$F_{Wt1} = 5.645078643643715\cdot 10^{-4}\cdot kg^{-1}\cdot henry\cdot newton^3$$

which is now restated as:

11) $$F_{Wt2} := \frac{\sqrt{3}\cdot q_o^2}{4\cdot\pi\cdot\varepsilon_o\cdot r_x^2}\cdot\left(\frac{\pi^2}{\varepsilon_o}\right)\cdot\frac{\mu_o\cdot i_{LM}^2\cdot\lambda_{LM}^2}{4\cdot\pi\cdot r_x^2}$$

$$F_{Wt2} = 6.190738405579863\cdot kg^{-1}\cdot henry\cdot newton^3$$

Equation 11 is now restated in terms of equation 4 previous which replaces the $\left(\frac{q_o^2}{4\cdot\pi\cdot\varepsilon_o\cdot r_x^2}\right)$ in equation 11 above with complete expression of equation 4.

12) (------------------------------------ F_{EE} ------------------------------------) (Nuclear Magnetic Force)

$$F_{Wt3} := \left[\left(\frac{i_{LM}\cdot\lambda_{LM}}{4\cdot\pi\cdot\varepsilon_o\cdot r_x}\right)\cdot\left[\left(\frac{i_{LM}\cdot\lambda_{LM}}{l_q}\right)\cdot\left[(3)\cdot\sqrt{\frac{\mu_o}{\varepsilon_o}}\right]\cdot\left(\frac{i_{LM}\cdot\lambda_{LM}}{l_q}\right)\right]\cdot\left(\frac{i_{LM}\cdot\lambda_{LM}}{4\cdot\pi\cdot\varepsilon_o\cdot r_x}\right)\right]\cdot\left[\frac{(\pi)^2}{\varepsilon_o}\right]\cdot\left(\frac{\mu_o\cdot i_{LM}^2\cdot\lambda_{LM}^2}{4\cdot\pi\cdot r_x^2}\right)$$

simplifies to:

13) $$F_{Wt3} := \frac{3}{64}\cdot i_{LM}^6\cdot\frac{\lambda_{LM}^6}{\left[\varepsilon_o^{\left(\frac{7}{2}\right)}\cdot\left(r_x^4\cdot l_q^2\right)\right]}\cdot\frac{\mu_o^{\left(\frac{3}{2}\right)}}{\pi}$$

and therefore:

$$F_{Wt3} = 6.249757571301149\cdot\left[\frac{volt\cdot m}{sec}\cdot\left(\frac{newton\cdot m}{sec}\right)\cdot\frac{volt\cdot m}{sec}\right]\cdot\left(joule^2\cdot coul^{-2}\right)$$

Note that equation 12 above has also been modified by terms of 3 and π in the numerator to trim the ratio answers below.

In the manner of page 5 above concerning the weak force equation, the strong force equation is presented below. Rn1 may apply to the fact that the first orbital around the proton is established by the proton field geometry.

The Strong Force

14) $$F_{St1} := \frac{q_o^2}{4\cdot\pi\cdot\varepsilon_o\cdot r_x^2}\cdot\left(\frac{2\cdot\pi\cdot R_{n1}}{\varepsilon_o\cdot r_x}\right)\cdot\frac{\mu_o\cdot q_o^2\cdot V_{LM}^2}{4\cdot\pi\cdot r_x^2}$$

$$F_{St1} = 6.284323613081061\cdot 10^5\cdot kg^{-1}\cdot henry\cdot newton^3$$

Then replacing the $\dfrac{q_o^2}{4\cdot\pi\cdot\varepsilon_o\cdot r_x^2}$ term in equation 14 above with the expression in equation 4, we arrive at the new strong force expression below.

15) (--------------------------------- F_{EE} ---------------------------------) (Nuclear Magnetic Force)

$$F_{St2} := \left[\left(\frac{i_{LM}\cdot\lambda_{LM}}{4\cdot\pi\cdot\varepsilon_o\cdot r_x}\right)\cdot\left[\left(\frac{i_{LM}\cdot\lambda_{LM}}{l_q}\right)\cdot\sqrt{\frac{3\cdot\mu_o}{\varepsilon_o}}\cdot\left(\frac{i_{LM}\cdot\lambda_{LM}}{l_q}\right)\right]\cdot\left(\frac{i_{LM}\cdot\lambda_{LM}}{4\cdot\pi\cdot\varepsilon_o\cdot r_x}\right)\right]\cdot\left(\frac{2\cdot\pi\cdot R_{n1}}{\varepsilon_o\cdot r_x}\right)\cdot\left(\frac{\mu_o\cdot i_{LM}^2\cdot\lambda_{LM}^2}{4\cdot\pi\cdot r_x^2}\right)$$

simplifies to

16) $$F_{St2} := \frac{1}{32}\cdot i_{LM}^6\cdot\frac{\lambda_{LM}^6}{\left[\pi^2\cdot\left[\varepsilon_o^{\left(\frac{7}{2}\right)}\cdot\left(r_x^5\cdot l_q^2\right)\right]\right]}\cdot\sqrt{3}\cdot\mu_o^{\left(\frac{3}{2}\right)}\cdot R_{n1}$$

or,

$$F_{St2} = 6.344234975400245\cdot 10^5\cdot\left[\frac{volt\cdot m}{sec}\cdot\left(\frac{newton\cdot m}{sec}\right)\cdot\frac{volt\cdot m}{sec}\right]\cdot joule^2\cdot coul^{-2}$$

and therefore, the ratio of the strong force to the weak force is:

17) $$\frac{F_{St2}}{F_{Wt3}} = 1.015116971021874\cdot 10^5$$ = a dimensionless number.

and now let the coulomb force in equation (4) above be restated as:

18) $$F_Q := \left(\frac{i_{LM}\cdot\lambda_{LM}}{4\cdot\pi\cdot\varepsilon_o\cdot r_x}\right)\cdot\left[\left(\frac{i_{LM}\cdot\lambda_{LM}}{l_q}\right)\cdot\sqrt{\frac{3\cdot\mu_o}{\varepsilon_o}}\cdot\left(\frac{i_{LM}\cdot\lambda_{LM}}{l_q}\right)\right]\cdot\frac{i_{LM}\cdot\lambda_{LM}}{4\cdot\pi\cdot\varepsilon_o\cdot r_x}$$

where, $F_Q = 6.344160277861576 \cdot 10^3 \cdot \frac{volt \cdot m}{sec} \cdot \left(\frac{newton \cdot m}{sec}\right) \cdot \frac{volt \cdot m}{sec}$

Then, the ratio of the strong force to the coulomb force is:

19) $$\frac{F_{St2}}{F_Q} = 100.0011774219975 \cdot joule^2 \cdot coul^{-2}$$

Also of interest, the ratio of the electromagnetic (coulomb electric) force to the weak force is:

20) $$\frac{F_Q}{F_{Wt3}} = 1.015105018952083 \cdot 10^3 \cdot joule^{-2} \cdot coul^2$$

And finally, the ratio of the strong force to the electrogravitational force at the nuclear r_x distance above is:

21) $$\frac{F_{St2}}{F_{EG}} = 3.199355071174726 \cdot 10^{55} \cdot m^5 \cdot sec^{-5} \cdot coul^{-2} \cdot joule^2$$

Notice in equation 21 above that the $(m/sec)^5$ dimensions imply that the nuclear strong force is fifth dimensional. Current theoretical physics has placed emphasis on higher dimensions in the attempt to unify the forces.

Just as the big bang gave birth to all of the forces in descending order of magnitude as the energy density decreased over time, the dimensions may also decrease in accordance with the decreasing force magnitudes appearing over time. Thus, in the beginning, all dimensions possible also existed before the big bang.

Note: To help put the above in perspective as far as force-field magnitudes are concerned for a given distance of particle separation, page 110 of Scientific American (January 1990) in the article "Handedness of the Universe" states that "The weak force is 1000 times less powerful than the electromagnetic force and 100,000 times less powerful than the strong nuclear force."

In conclusion:

Let us return to equation 4 and restate it below for the purpose of further discussion of the parameters involved.

(Volt*m/sec)(-----------Watt Constant-----------)(Volt*m/sec)

22) $$F_{EE} := \left(\frac{i_{LM}\cdot\lambda_{LM}}{4\cdot\pi\cdot\varepsilon_o\cdot R_{n1}}\right)\cdot\left[\left(\frac{i_{LM}\cdot\lambda_{LM}}{l_q}\right)\cdot\sqrt{\frac{3\cdot\mu_o}{\varepsilon_o}}\cdot\left(\frac{i_{LM}\cdot\lambda_{LM}}{l_q}\right)\right]\cdot\left(\frac{i_{LM}\cdot\lambda_{LM}}{4\cdot\pi\cdot\varepsilon_o\cdot R_{n1}}\right)$$

The above equation suggests that any two voltages in motion with respect to each other will be coupled by the watt constant as shown. Then drawing off the power contained in the watt constant by a suitable load cell* would require that the power be replaced, possibly from the zero-point energy/second of energy space. This may be the mechanism that enables the Searl motor to work as it does. It would cause cooling in the vicinity of the motor since the energy in the space around the motor is being sucked into the motor as explained above. This could be used as a source of energy to power an interstellar craft such as described in chapter 12 of my book, "Electrogravitation As A Unified Field Theory."

Ω

*-- The load cell should match the impedance as given in equation 6 above

determined by $R_K := \sqrt{\frac{3\cdot\mu_o}{\varepsilon_o}}$

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