Single Field Universe Update

By Michael Griffin, MLS

Abstract

More features are presented to fit a single-field version for a unified field theory, based upon Euler's equation as the hidden variable to model enfielding of energy into matter. The spin values and their range spectrum are revised to fit estimates for the different magnitudes of gravity and electromagnetism. Features of Maxwell's equations on a larger scale are considered. A conservation principle for total velocities is also proposed.

Use of Euler Field Factors

This paper is a sequel to my first paper on this topic (2021). As per the drawing (fig. 1), Euler's equation e to the pi i plus 1 equals zero: e^(πi) + 1= 0 or e^(πi) = –1, can model the reverse direction of a photon as it is enfielded into spinning matter. This can have the number of spins n as a hidden variable to make the Euler field factor e^(nπi). To go from the level of a single photon to a mass particle or charge, then the factor would represent a net average result of total spins similar to the modeling of mass or charge as single points. The factor would be placed with a mass in the inverse-square law for gravity or the charge in Coulomb's law. Two multiplying charges or masses would add the Euler exponents, but regardless those products would be dismissable as only $\pm\ 1$.

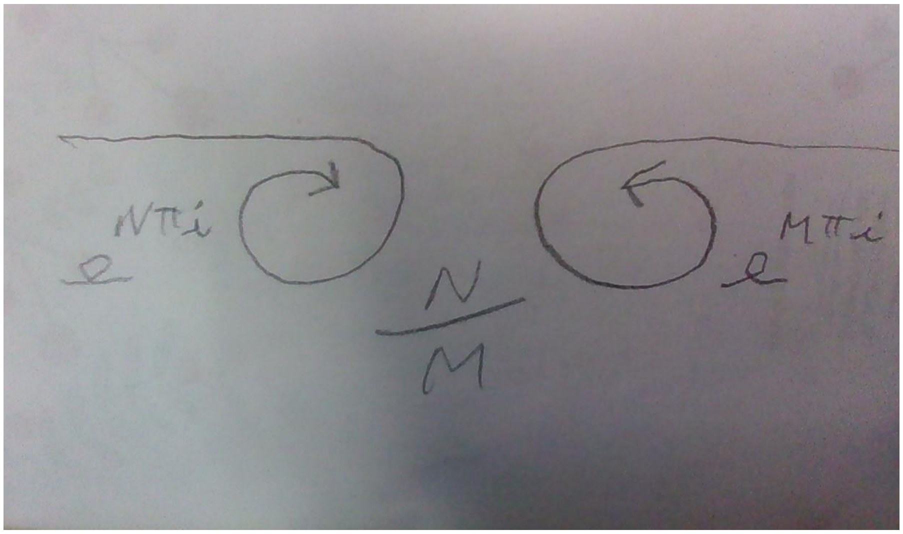

Figure 1

What would explain a single field inverse-square law could be the relative values of n-spins in any interacting pair of charges or masses. The greater the difference, the greater the magnitude, if another field factor were next to the single inverse-square law: e^(n/mπi) where n is the greater spin and m is the lesser spin. Also to get the other three forces, the i in e^(n/mπi) also disappears as just a positive one to be ignored. The same inverse-square law could scale up or down to make any magnitude, including the four fundamental forces.

For example, if we use Newton's law with constant G, then to get the other three forces it looks like:

$$F = e\text{^}(n/m\pi i)\ G\ \frac{e\text{^}(n\pi i)M_n\ e\text{^}(m\pi i)M_m}{d\text{^}2} \quad \text{or} \quad F = e\text{^}(n/m\pi)\ G\ \frac{M_n\ M_m}{d\text{^}2}$$

If on the other hand we use Coulomb's law with constant k, then to get the other three forces it looks like:

$$F = e^{(n/m\pi i)}\, k\, \frac{e^{(n\pi i)}Q_n\, e^{(m\pi i)}Q_m}{r^2} \quad \text{or} \quad F = e^{(n/m\pi)}\, k\, \frac{Q_n\, Q_m}{r^2}$$

Whichever inverse-square law we used as our starting base, when the n/m ratio equals one then the i would be working to make the outside factor also only ± 1. Or at least we will treat it as so. It could be that the expression is still working without i, giving e^π which is roughly equal to 23. This factor of 23 may be contained in both constants G and K such that it would be a hidden value which is actively used. We shall see in Table 2 that there is not much use in having the outside factor with Coulomb's law if we are interested in finding spin values.

Constants G and K

If there is a single inverse square relation then there should also be just a single constant to go with it, which now manifests as two separate constants, the gravitational G and the electrical K:

$G = 6.7 \times 10^{-11}$ N m^2 / kg^2 rounding the numbers roughly, and

$K = 9 \times 10^9$ N m^2 / Q^2 writing coulombs as charge Q

As the next section explains, we shall use 10^{36} as the order of magnitude difference between gravity and electricity, which works out to 27.4 relative n/m spins. This may be a hidden variable, but its observational result is to change not only the forces but the values and magnitudes of the constants when measuring charge instead of mass. The relative magnitude difference between constants K and G is:

K/G = (9 x 10^9) / (6.7 x 10^-11)

which equals 1.34 x 10^20 instead of 10^36, leaving a power of 10^16 expressed in the product of charges compared to the product of masses in the inverse square relation. This is a product of charge Q times charge Q or mass times mass in kilograms. These are what is spinning, not the constant, and the relative spin whether mass or charge is a difference of 27.4. Now to divide up that 27.4 relative spins among the constant or the factors. First, how many spins make up a magnitude of 10^20. Treating both i and spin m as = 1, then:

n = (20 ln10) / (πi) = 14.66 spins' worth affecting the change in constant value from G to K.

What this means is that about half of the relative spins' force alters the value of the constant and this might be interpreted as a drag effect of space-time. If this drag effect varies by the spins' force then we could posit hypothetical constants for the strong and weak forces by similarly taking half of their relative spins. A later section gives the value for strong spins as 29 and weak spins as 19.3. Let us then say that 15 strong spins and 10 week spins have their force diverted into constants. We can now solve for the magnitude difference from the gravitational G.

For the strong spins we get:

15 = (Xln10) / (πi) so then 15πi/ln10 = X magnitude, ignoring i

Then X = 20.5 rounded, so the magnitude difference is 10^20.5

Then the constant's force is (10^-11)(10^20.5) = 10^9.5

For the weak spins we get:

10 = (Xln10) / (πi) so then 10πi/ln10 = X magnitude, ignoring i

Then X = 13.6 rounded, so the magnitude difference is 10^13.6

Then the constant's force is (10^-11)(10^13.6) = 10^2.6

This does make an orderly progression in the value of constants from 10^ -11 to 10^2.6 to 10^9 to 10^9.5 and presumably as N m^2 / Q^2 for all except G.

Orders of Magnitude Table

A prior calculation of relative spins used forces magnitudes derived from an astronomy book's table. In my previous paper, for the gravity field G and the electromagnetic field Q the ratio or fraction Q/G equaled 10^28. Both fields were treated as if they were single spins instead of spins of pairs. With G set as just one spin, then the value of Q's Euler factor's n is 21.5 or 21 and a half spins. However, one can have different estimates of the relative forces. Using the following Wikipedia table, subtracting exponents makes a 10^39 difference instead of 10^28:

Factor (N)	**Value**	**Item**
10^-47	3.6× 10^−17 qN	Gravitational attraction of the proton and electron in hydrogen atom
10^-8	8.2× 10^−8 N	Force on an electron in a hydrogen atom

Table 1: from Wikipedia

Or if we just google the question, the most common answer for the difference between electromagnetism and gravity is 10^36. Using that value, we get:

e^(nπi) / e^(πi) = 10^36. This simplifies to e^((n-1)πi) = 10^36. Solving for n we get:

n = (36 ln10) / (πi) + 1 = 26.3856815597 + 1 = 27.4 spins, treating i as just one.

So whatever the actual number of spins, one mass or charge is spinning 27.4 more times than the other one to make the force between them of electromagnetic strength. The relative spin value is an index of angular speed or frequency. And it is not a problem for different masses to have the same amount of charge force, like a proton and an electron.

Spin Range Spectrum of Forces

Changing the spin value will accordingly change the spectrum range of relative forces. This spectrum is based on relative spins which themselves are derived from relative magnitudes. If you google the question of relative strengths it is astonishing how different the answers are from seemingly credible sources. The revised table below is based upon my perceived most common trends among the different answers:

Force	Magnitude	Frequency Hz	Relative n/m	Relative n/m
strong	1	10^43	29	2.5
electromagnetic	10^-2	10^41	27.4	1
weak	10^-13	10^30	19.3	-7.1
gravity	10^-38	10^5	1	-25.4

Table 2: Relative Comparisons

For the frequency column in the table we retain the Planck frequency as the highest possible value for the strong nuclear force and then adjust the other frequencies accordingly based on the declines in magnitude. Spin values for strong and weak forces are recalculated in the same manner as above:

Solving for the strong n we get:

$n = (38 \ln 10) / (\pi i) + 1 = 27.8515527574 + 1 = 29$ spins

Solving for the weak n we get:

$n = (25 \ln 10) / (\pi i) + 1 = 18.323389972 + 1 = 19.3$ spins

The final column in the table shows the impracticality of using Coulomb's law to define a spin as n equals one. If we do that we get negative spin values for the lesser forces because the starting fractions had the greater charge value in the denominator: weak/Q and G/Q.

The table column of “Relative n/m” for G = 1 is all we can know for the spectrum range of relative forces since a relative spin necessarily involves both masses or charges in the inverse square law. The forces spectrum may then define as:

Gravitic: 1 to 10,

weak: 10 to 19,

electromagnetic: 19 to 27,

strong: 27 to 29 ?

How the force is defined would depend upon the context of measurement. More subtle distinctions of spin ranges may divide the spectrum into more forces than just the fundamental four, depending on what we observe and discover.

Evidence of Right Hand Rule

Features of Maxwell's equations should show up on a larger or smaller scale if there is really only a single inverse square law. The intensity of electromagnetic behavior would be attenuated on a larger gravitic scale or increased in an atomic orbital or nuclear scale. An easy place to look for obvious evidence of this could be if planetary orbits or other stellar motion might fit the right hand rule. For example, the planets of our solar system roughly conform to paths which rotate counterclockwise when viewed from the sun's North Pole. This would make the path of the sun itself a current flow (fig. 2).

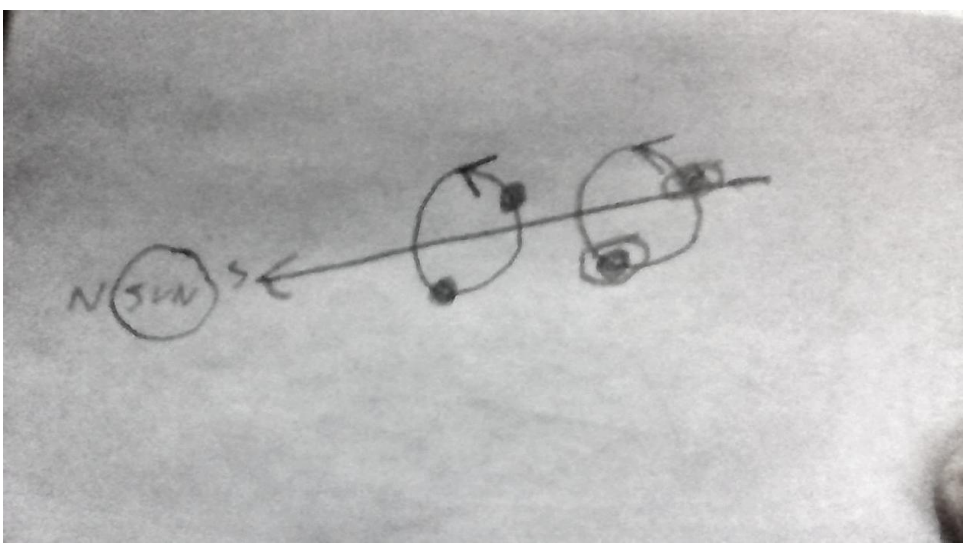

Figure 2

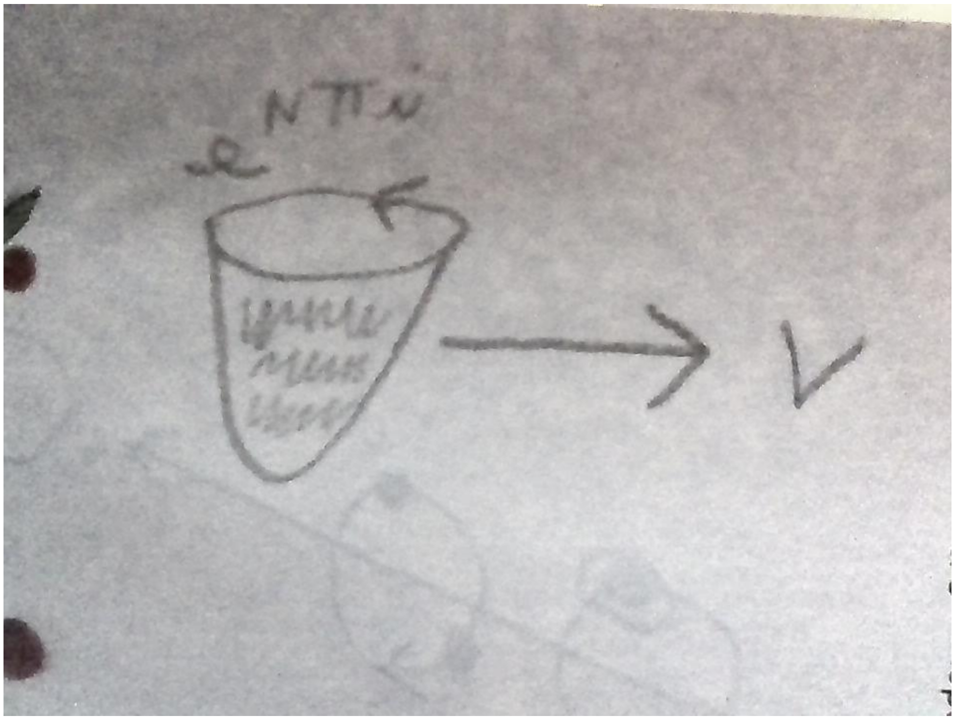

Figure 3

Conservation

To help clarify the difference between spin-n-values in the table and Hertz frequencies I will make an analogy as the child's toy of a spinning top on the ground, only instead of the typical wooden top with a metal post let us imagine it as a hollow plastic top (fig. 3). Of course the spinning of the top is the space-time spin of enfielding which continues as long as it has mass in the traditional sense. As it spins it is also moving along the ground In some kind of path, and this is the inertial velocity of a fielded mass, or the current flow of a charge.   Within the hollow plastic top there could be waves or particles vibrating around, and these would be the characteristic wave functions of electromagnetic photons or larger mass particles, $\lambda f < C$ now, in either case what could be called a wavicle. We do not want to violate relativity, so from any point of view the total velocity should never exceed the speed of light. This leads to a conservation of velocity principle implicating the speed of light:

$\Sigma v = c$ Or the sum of all velocities adds up to the speed of light C.

If this were so, then we might find some further relations between the quantum equation and the Euler field factor:

E = nHf = MC^2 = M(inertial v + λf + n-spins speed)^2

This assumes that wavelength λ times frequency f and the n-spins speed are not one and the same thing, which they might be. Here the spin unit n is part of the exponent of the Euler factor e^(nπi) where, once fielded by e^(πi), any further rotation by n spins makes the vortex effect in space-time to give field strength and matching to any of the drawings presented in this and the previous paper. A better analogy than vortex would be like a fishing line reel that increases tension as it is wound up. This is a new property of space-time.

Simultaneity Principle

A single field approach has an efficiency over classical and modern theories in that it does not partake of what could be called a simultaneity principle, in which different fields of force are acting upon the same things at the same time. In standard physics an atom has strong and weak forces and electromagnetism and gravity compared to any other atom. Standard unified field theories try to combine these separate forces into a single framework yet retain their separate simultaneous activity. A single field means that any pair of interacting objects only has one force occurring, which can manifest as strong weak electromagnetic or gravity depending on the context. This is how standard physics models behavior anyway, but it maintains the unspoken assumption of a simultaneity principle which would just be irrelevant difficulty for calculations. With a single field the universe should still hold together as it really does. There is a new type of simultaneity in which any paired objects have one field strength but the same object can simultaneously have a different field strength if it is part of a different pair.

Figure 4 below illustrates why gravitation can be universal in spite of single field interactions between pairs. Say that point pairs AB have the same n/m spin ratio as the pair CD far across the universe, outside of their field range of c/v for any single point. Then AB are not directly attracted to CD. AB do match to point E within range, so these share a field. E shares a different n/m ratio with point F and their own field range. The process continues endlessly to points G,H, … eventually matching to CD sharing an n/m ratio of one which is gravity strength. Given overlapping fields, CD is indirectly attracted to AB. Apparently when all of these uncountable interactions are averaged out we arrive at Newton’s constant G which is still used in general relativity.

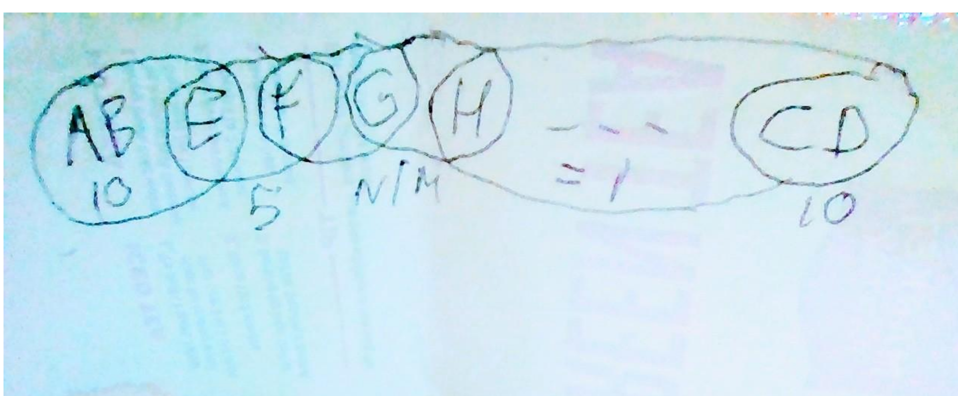

Figure 4

Earlier it was said that half of the relative spins' force alters the value of the constant and this might be interpreted as a drag effect of space-time. Yet, starting with gravity the value of the constant is the basis of field strength. From mass in kilograms to charge Q there is still a 10^16 force difference beyond their constants' Newtons. That can be interpreted as a current flow of that many masses or as due to the n/m spin ratio. When single point interactions such as atomic structure are considered, n/m spin ratio does provide an explanation.

Sources

Griffin, Michael. 'A Universe a Single Field Can Play in.' *Vixra.org.* [v1] 2021-11-05

https://vixra.org/abs/2111.0031

Orders of magnitude (force)

From *Wikipedia, the free encyclopedia*

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https://en.wikipedia.org/wiki/Orders_of_magnitude_(force)#Below_1_N