# Golden Ratio Axioms of Time and Space

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**Abstract:** This sequel to "Gravity's Emergence from Electrodynamics" will more closely examine the golden ratio time-equation when applied to space. Here, we shall develop a wave-function equation for $\pi$, the fine structure constant, a determination for the speed of light, while also confirming through these independent equations the idea of the Uncertainty Principle and Quantum Entanglement. More specifically, a number of fundamental things to be demonstrated here using the golden ratio time-equation include deriving the dipole of magnetism, the electrical monopole field, and their relation to the Fine Structure Constant, charge of the electron, the speed of light, and elementary particle traits.

**Keywords:** golden ratio; time; space; fine structure constant; pi; quantum entanglement; uncertainty principle; Rydberg equation; Brownian motion; fractal; electron shell

## 1. Introduction

In the first paper "Gravity's Emergence from Electrodynamics" [1] the idea of applying a new algorithm to "time" was addressed. Subsequently it was demonstrated how this new algorithm could be utilised in the general equations for electromagnetism and gravity, together with electron-shell modelling.

In this paper, we will dive a step deeper into the potential spatial structure of the golden ratio time-equation [2], highlighting why there are three spatial dimensions, why the fine structure constant [3] is the value it is, why the speed of light is what it is [4], and why in space there the propagation of a "c" based spherical [5] wave-front from a point source, all very fundamental concepts that should not necessarily be assumed via measured observations alone.

Science in the absence of a complete theory is at best a process of "measuring" features of space and time and formulating theories as to how each of these measurements relate with each other. Here we will be diving within the idea of measuring by using the golden ratio time-equation for space. First, we shall explain why we need this review of the current a priori for space and time in the first place.

## 2. Physics, and the problem of “solving” physical phenomena

Physics is “knowledge of nature” [6]. It involves the study of matter and its motion and behavior through space and time, including concepts such as energy and force, while endeavoring to deliver an understanding of the universe. As a discipline, it employs the scientific method [7] to test the validity of a physical theory by using a methodical approach of experiment and research to test the theoretical proposals thereof.

Much of what we know of physics started with basic measurements of observable phenomena, measurements to find the mechanism and associated predictability of those mass-based events in nature. Theories then developed to join these basic mass-based observable dots; initially we applied rulers to measure distances between mass-objects, and dials to measure time through the varying shades and positions of celestial rotations. Space [8] took on the definition of three dimensions, while time [9] was left as “something that a clock measures”. And there’s our problem, “something that a clock measures”. If we are content with that definition, then why not label space as “something that a ruler measures”? The proposal here is that time and space perhaps deserve greater scrutiny of definition.

Let us therefore give more definition to time as per what was presented in the first paper, “Gravity’s Emergence from Electrodynamics” [1], and apply this measurement of time to space, such that space becomes “something that the golden ratio for time measures”. Presented here thus is a new axiom for time that provides exactly that. The new axiom for time here cleans up much of scientific theory regarding light/energy, mass, field forces, and so on, everything that has embedded in it an equation for time. All physics’ predecessor concepts and associated equations will be supplemented with a more advanced understanding of time, which paradoxically result in a cleaner and simpler description of all that physics aims to understand of space and time.

One of the key flaws to physics today is where to go with cosmology [10]; a big bang [11], a steady state [12], or the infinite multiverse [13]? What if the problem is how we register light to our perception? If the fundamental basis of an idea is wrong, the development of that idea no matter how slightly incorrect, will always result in unstable theories unless the conclusions that result “require” an amendment to the fundamental idea that the conclusions sprung from. For if cosmology depends much on the fine structure behaviour of the atom, if our awareness of cosmology is wrong, then so is the very fundamental basis we regard the atom. If our calculations though seem to be right, the problems aren’t with our calculations, but how we perceive, and in this case how we regard not space, but “time”. The current trend in physics is to support the idea of an accelerating expanding universe and associated cause being as the big bang, the fundamental theoretical offspring of the redshift of light. The argument presented here is “what if light isn’t a singular dimensional entity entwined with space, yet an entity of its own with accelerating expansive temporal properties that constitutes the phenomena of entropy [14], spatial asymmetry [15], chirality [16], quantum entanglement [17], and “all” the properties of energy, force, and motion? If such were the case, with that algorithm, that time-equation, physics should be far easier inclined to understand space and time as a mathematics based on that algorithmic foundation of time.

Conversely in the absence of this common start-point algorithm, physics has become vastly complex as it seeks to explain primarily mass in space and time, using numbers associated to equations/descriptors of tried and tested phenomena, to link such mass-based phenomena with new equations and associated theories to arrive at an equation and associated theory of everything, all the way to a Planck scale [18], a sought-for common end/start-point, to explain our origins and to then maybe better understand our future purpose. Modern physics though, in starting off on the wrong foot, with the wrong a priori, only becomes a quagmire of ideas and equations never reaching their intended goal of fitting together as one, ideas leading to false conclusions that don’t add up in the far distant universe, ideas that make assumptions about new realities as the only fix. This offering thus proposes

a change to the current process of physics research with a new a priori for time and space. All the fragments of contemporary physics theory are nonetheless explained in the correct context of a new axiomatic base for space and time, not as some may expect, but the explanation of the fundamental tenets of time and space that make all observed calculations in our natural world a logical and accurate inclusion to embracing what is real.

## 3. The time-equation solution

The initial paper "Gravity's Emergence from Electrodynamics" [1] was a general overview of the fundamental reasoning behind gravity emerging from electrodynamics, as per using the golden ratio as a time-equation, detailing the two possible outcomes for each quantum step of determination of wave-function expression of light as "time", as per using the two results of the golden ratio equation.

Although paper 1 [1] merely proposed that the idea of a sinusoidal wave for time "could" represent the dual outcome consistent with the two results for the golden ratio for time ([1]; eq. 3,4), we didn't prove time would be a sinusoidal wave. We didn't even demonstrate why space has three dimensions and why light emanates from a point source in all directions in a 3-d space manifold. We also assumed two very fundamental constants, $\pi$ and the fine structure constant, relying on measured research only. Here we shall provide the very key to unlocking the fundamental basis for time as that sinusoidal algorithm in a 3-d spatial manifold, a sinusoidal curvature that imparts itself such on 3-d space "in all axial directions", and how this effect of light, although limited at a constant speed, gives the effect of accelerating expansive 3-d space, and thus the illusion likewise of such a universe we would consider to live in, together with deriving the value for $\pi$ in the context of fine structure constant of the atom. First, we shall undertake a brief review of the new definitions for time and space from the first paper with a few additional descriptors taking us to the sinusoidal time-equation wave construction.

Consider the list of diagrams and equations from the first paper ([1]; figures 1-12, equations 1-9). All the data contained in those equations and diagrams and associated descriptors are considered pre-required for this discussion.

In that set of equations and figures the overall outline for space and time was formed as a golden ratio algorithm, establishing nonetheless with the general golden ratio equation how a basic link could be established between the equations of gravity and electromagnetism, while detailing the process of atomic modelling and spatial dynamic construction, as per the derivation of the Rydberg formula ([1]; p13-15). It was thus considered that using the golden ratio (as a time-algorithm) was successful in linking gravity with electromagnetism, in theory. Yet is this the "only" way to achieve a link between the forces of gravity and electromagnetism together with the Rydberg formula [19]? Can another algorithm, more complex, be used? Can another algorithm or first principle mechanism suggest other possible "realities" including the one we are in, a type of basic multiverse-algorithm? To know this, we need to examine more fundamentally the properties of time and space, such as "why" does space have three dimensions, and why is the fine structure constant set at the value it is set at, and why does it require the use of "$\pi$" in reference to the wavelength of an electron, or as the initial paper [1] suggests, "time"? To answer these questions, we will continue to investigate the use of the golden ratio for time given its utility thus far.

### *3.1 A closer look at the axioms for space and time*

To consider a "moment", as time not passing, it may as well be infinite time from the reference of another process of time. Thus, obviously the definition of time here requires two references held in the same context of

laws of the flow of time. The initial paper presented time to represent the three basic equations: $t_A = t_B^2, t_N = 1$, $t_N = t_A - t_B$, ([1]; eq. 3, 4, 5), giving rise to $\frac{t_A + t_B}{t_A} = \frac{t_A}{t_B}$ ([1]; eq. 6), providing two outcomes, two concepts, for time, $\varphi$ $(1.61803)$ and $\frac{-1}{\varphi}$ $(-0.61803)$, as per the golden ratio. In short, the underlying premise was that time needs to be relative to itself somehow to effect the idea of "flow". The most basic mechanism we use is "before" and "after", yet as the initial paper [1] highlighted it is more complicated than this.

In now developing upon the initial paper [1], let us label the two features of the golden ratio $\varphi$ and $\frac{-1}{\varphi}$ to $t_B$. We can suggest that the two outcomes for time would be at right angles to each other in terms of a temporal axes alignment if indeed one value is one axis and the other value another axis. Note also that we are regarding time "before" $t_B$ in considering $\varphi$ and $\frac{-1}{\varphi}$, given time "now" $t_N$ is defined as "1", and the future $t_A$ as $t_B^2$. We also suggested that time was a complex axis at right angles to space ([1]; p4-6). Now, to work with these features, let us take two axes for time before $t_B$, one as $\varphi$ the other as $\frac{-1}{\varphi}$ (fig. 1.). If we apply "both" results to each other as a vector function in our interest of applying this to 0-scalar space as a $t_A$ entity, and thus $t_B^2$, we arrive at (eq. 1.) (fig 2.):

$$\left(\frac{-1}{\varphi}\right)^2 + \varphi^2 = \sim 3 \qquad (1)$$

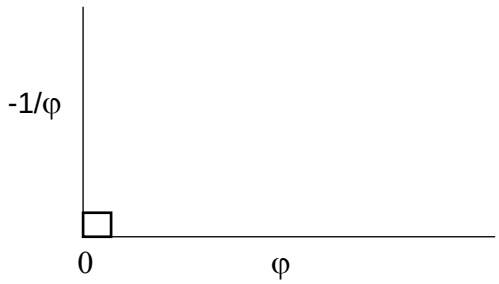



**Figure 1***:* two axes of time, $\frac{-1}{\varphi}$ and $\varphi$,

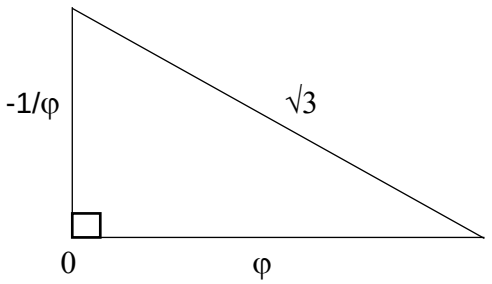



**Figure 2***:* two axes of time, $\frac{-1}{\varphi}$ and $\varphi$, which then result in the value of $\sim \sqrt{3}$ (in a squared relationship).

Yet it is not as simple as this, for in using "both" factors of time, one axis remains complex and the other in being at right angles to the time-axis becomes embedded in a spatial axis, which is a "square" value of the time axis as per $t_A = t_B^2$, given that $t_A$ would represent the feature of time imbedded in the $t_B$ reference of the fundamental time axis, and that $t_A$ would be represented in the spatial dimension. Simply, if we consider that time is the essential "before" ($t_B$) time step, as we only can, "space" in being an independent entity to time would be the "after" ($t_A$) time step including the "now" ($t_N$) step, obviously. And so, we need to calculate the vectors for space in the after-event ($t_A$) and the now-event ($t_N$) for time to understand what is happening with theoretical 0-scalar space.

### *3.2 Applying the axioms of time to space (space as an "after" and "now" event)*

As suggested, in applying both results of the golden ratio as an "after" event we would have a value of "3" ($t_B^2$) for space (eq. 1). We can perhaps propose with hypothetical licence that this "3" value can as a spatial vector represent the 3 dimensions of 0-scalar space, 3 "now" ($t_N = 1$) timelines in space (fig. 3).

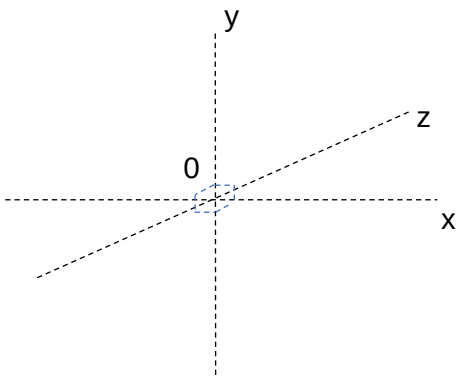



**Figure 3:** 3-dimensional space ($3 \cdot 1t_N$ space*)*

Such (3-d space) is what was assumed in the first paper regarding 0-scalar space ([1]; p1-3). Let us take a step back though. The $\sqrt{3}$ value (fig. 2.) as $t_B$ ($\sqrt{t_A}$), our time platform of consideration, "should" still be at right angles to the overall "1" $t_N$ outcome (as the three dimensions for space) (fig. 4.):

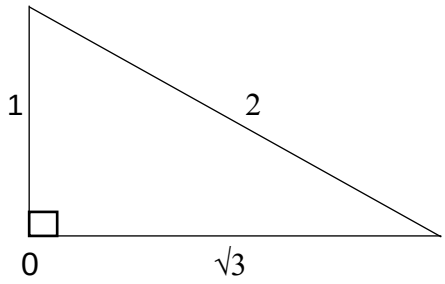



**Figure 4***:* two axes of time, 1 and $\sqrt{3}$, which then result in the value of 2 (in a squared relationship).

Thus, we can say that time as $t_B$ when applied this way to "1" reaches a value of "2" (which would be integral to $t_B$); "2" represents a double $t_N$ (1), meaning there are two $t_N$ applications for $t_B$. Of course, we know there are two golden ratio values, yet these two values are already factored in, so we must entertain a new concept when applied to space. Thus, for space we would have 3 dimensions incorporating two time outcomes for each of the 3 axes. Thus, we can say that these two results represent "2" $t_B$ time applications in a 3-d matrix for each axis. We could say that if we create a zero reference for each 3-d spatial matrix, the "2" value represents the dual directions on each axis away from the zero point (fig. 5.):

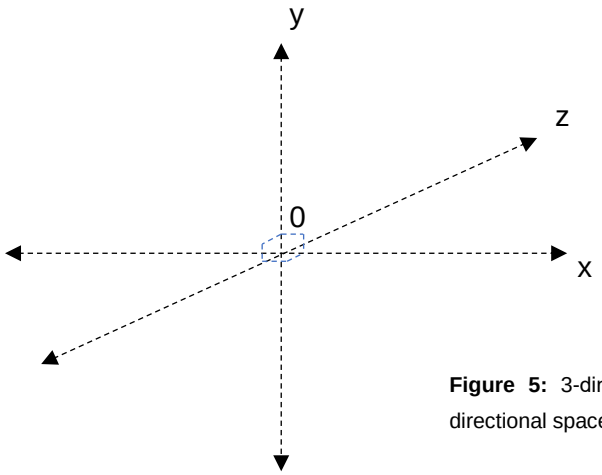



**Figure 5:** 3-dimensional ($3{\cdot}1t_N$ space) dual directional space.

### *3.3 Developing the wavefront for time in space*

Now then let us look at this dual time point modelling in 3-d space. It would be simple to say that if we "multiply" each time result we get the value of "-1", which we do as $\varphi \cdot \frac{-1}{\varphi} = -1$. That's how we have the "1" feature of time as time "now", the negative inverse of this value as when time is applied to space. Simply, if we are applying one time value to another, they are separated by a value of "1". When we apply this to a basic (non-dual-directional) 3-d 0-scalar spatial grid though we arrive at what appears to be an anomaly (fig. 6):

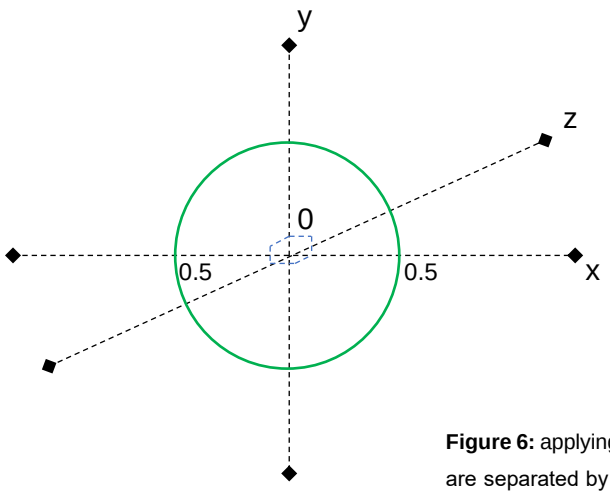



**Figure 6:** applying a time value to another, they are separated by a value of "1" circumscribing a circle around the z axis with a 0-scalar spatial central reference.

Nonetheless, assuming any orientation of axes, we would have to have a spherical time front if time moves in two directions along each axis according to the same "flow" rate, and thus for each axis we would trace a circle around each associated axis the value of $\pi$ (fig. 7):

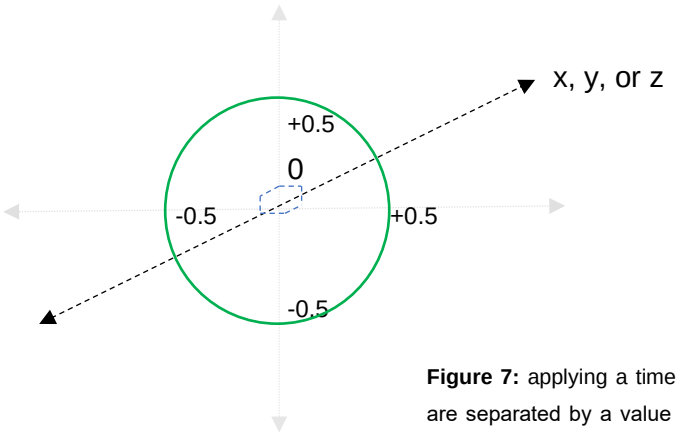



**Figure 7:** applying a time value to another, they are separated by a value of "1" circumscribing a circle around the x, y, or z axis.

This is so because both time points are separated by a value of 1 and thus could exist anywhere spherically around that 3-d 0-scalar dual directional 3-axis grid as for a required uniform time progression (as $t_N$, as the value of 1 dictates). Note that the value of "1" is being transferred into a spatial consideration as per eq. 1, namely that we applied $\sqrt{3}$ to "1" to get two results for time, which brings inclusivity of "1" as a value into spatial consideration. Note also that each circle being traced around each subsequent axis fits the idea of time being a complex axis ([1]; p4-6) compared to space, and thus at right angles to the spatial axes. Basically, $t_B$ as a complex "$i$" is at right angles to the space, and so would trace a circumference around each axis as a spatial construct. Thus, we can rightly consider that the distance between one time point to the next as each of the two outcomes would trace the circumference of a circle with a diameter-equivalence of "1" giving the value of $\pi$, as per a spatial application of time. The way though time is applied as a $\varphi$ or $\frac{-1}{\varphi}$ entity as $t_B$ to space is of course with the factor of "$\sqrt{3}$", and a factor of "2". Not only this, it is a "negative" construct in regard to space, it has to be, as much as the two values of the golden ratio ($\varphi$, $\frac{-1}{\varphi}$) when applied to each other is the value of -1, because that's how we're applying this to space, ultimately, two values considered equally proportionally to space. Thus, for ($\varphi$, $\frac{-1}{\varphi}$) as $t_B$ we would have to factor in the value of $-2\sqrt{3}$. Thus, the equation we arrive at for time's flow calculated in space becomes:

$$(t_B \cdot -2\sqrt{3}) + 1 = \pi \qquad (2)$$

It is not as simple as this though. It is a "condition" of time being applied to space, but it is not the exact topography that needs to unfold. "Time" would seek to be a circle along each spatial axis in each of the two directions around a central 0-scalar spatial reference. In therefore time needing to trace a value of $\pi$ in space via along each axis direction, we can only consider fig. 8. to hold true for the x-axis:

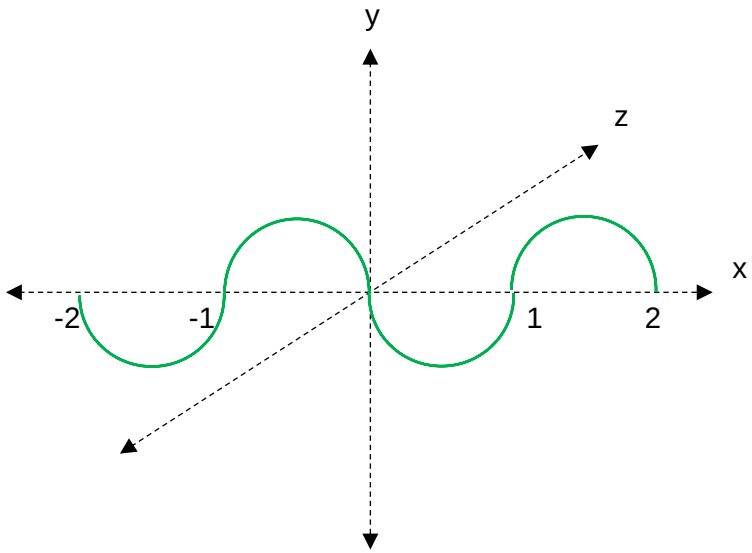



**Figure 8:** for the trace value of $\frac{-1}{\varphi}$ we would reach a value of π in each direction of the x-axis (here as the value of "2" in each direction of the x-axis, the overall trace length for this sinusoidal wave would represent a value of 2π in factoring in the dual directions along the x-axis from the 0 reference, π along each direction symbolised as "2" semicircular diameters.

Note that the two possible outcomes for each axis represents the two directions time would move along each axis, one needing to be the opposite direction of the other, and thus inverse wave-sign value (-, +). Note also that along each axis we know we must satisfy each time point to having traversed along each directional axis the value of "$\pi$". Only logically can we suggest that we have the development of a sinusoidal wave given that time must move a value of $\pi$ in each directional axis from the 0-scalar spatial reference point "0".

Why though would we assume that time as this wave would "move" through the axes of space continually, extending outwards to infinity, as opposed to just going back and forth along a "1" and "-1" 3-d axial grid? It's all about the time equation and how we've installed time into space. Installing time into space requires the time equation to be modified. We can't modify $t_N$, only how time as $\varphi$ or a $\frac{-1}{\varphi}$ entity is applied to space as an "after" and "now" event. We do know though that $t_A$ must aim (as a mechanism of future placement) to equal the value of $\pi$, the length in space time has moved along an axis (eq. 2).

If we now factor in each value for the golden ratio we get the following two equations (barring the assumption $t_A$ must equal $\pi$ for the time being) (eq. 3, 4.).

$$(\frac{-1}{\varphi} \cdot -2\sqrt{3}) + 1 = 3.140919 \quad (3)$$

$$(\varphi \cdot -2\sqrt{3}) + 1 = -4.605020 \quad (4)$$

The results of these two equations appear anomalous for the *exact* value of $\pi$, as only the value for $\frac{-1}{\varphi}$ appears close to the value of $\pi$ (0.021% error). Yet are these results anomalous? Not necessarily. For the value of

$\frac{-1}{\varphi}$ we would reach a value of $\pi$ in each direction of the axis as per fig. 8. Yet for the value for $\varphi$ we reach the following graph (fig 9.):

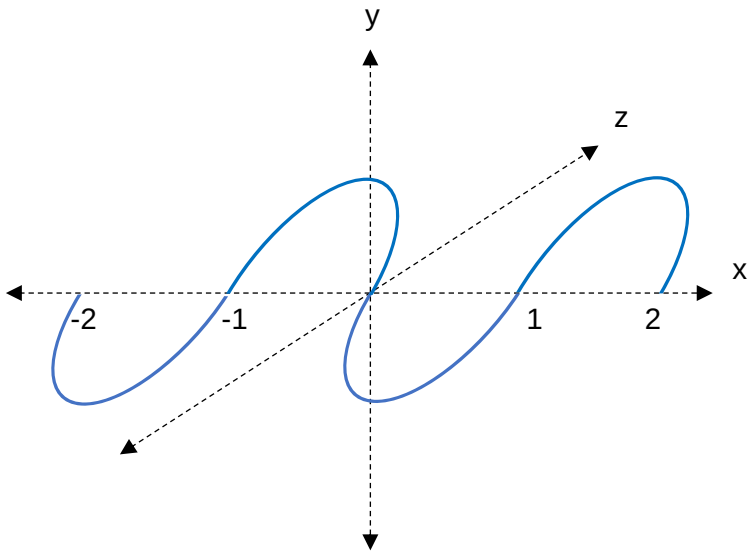



**Figure 9**: for the trace value of $\varphi$ we would reach a value of 4.6 in each direction of the axis, the overall trace length for this sinusoidal wave would represent a value of 9.2 in factoring in the dual directions along the x-axis from the 0 reference.

According to the initial paper, time exists as electromagnetism, and thus two features ([1]; p6-8). Without much ado, let us suggest that the result for $\frac{-1}{\varphi}$ is the electrical component and the value for $\varphi$ is the magnetic component. Why? Because we can only suggest that the value for $\varphi$ is an ellipse [20], has a greater circumference than an ideally perfect circle, and thus has a dual pole centre of circumscribing, as an ellipse does. Consider fig. 10. if we are considering $\varphi$ as magnetism and $\frac{-1}{\varphi}$ as electricity (value for $\pi$ tracing a circle) as analogous to fig. 6:

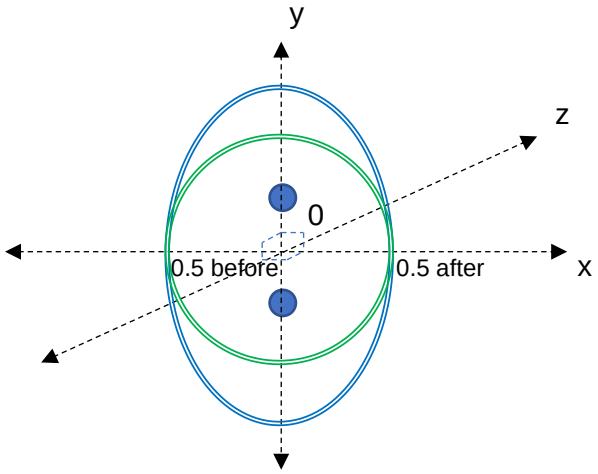



**Figure 10**: The circle $(\frac{-1}{\varphi})$ as the electrical component (green) is a circumferential value of π, the ellipse (φ) as the magnetic component (blue) is a circumferential value of 4.6.

Now putting this as a wave function as per fig. 8, fig. 9, and factoring in electricity is out of phase with magnetism as per the initial paper ([1]; p6-7):

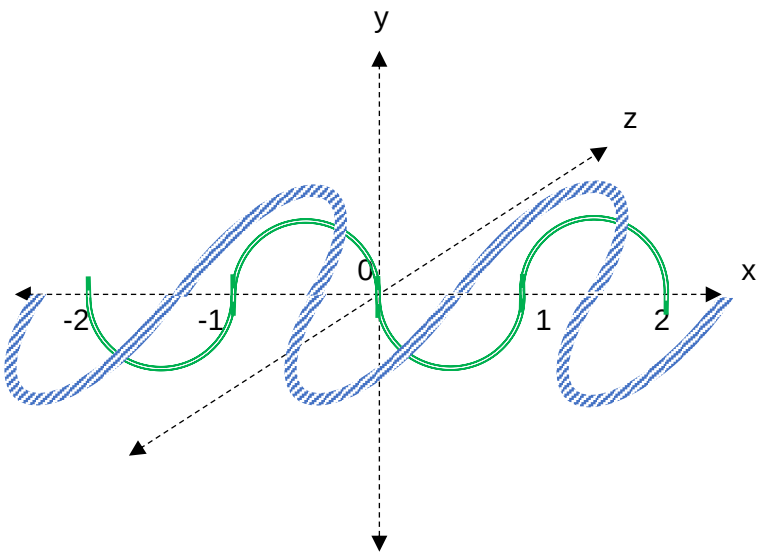



**Figure 11:** Green line electrical component (x,y), blue line magnetic component (x,z), both waves out of phase with each other and perpendicular to each other.

Note as from the previous paper we are considering that electricity is out of phase with magnetism in a spatial grid sense ([1] see table 1, figures 10,11,12). Yet here we are confirming that magnetism exists with a binary pole, and the electrical component of time in space is mono-polar. Once again, what does the ellipsoid stretch mean though? A dipole exists with magnetism at right angles to the spatial direction of time, to the sinusoidal wave of $\pi$ for electricity, and thus appears greater as a field entity. Note also that this graph would apply not just to the dual-direction time line of the x axis, but would also need to be applied to the time lines of the z and y axes. As per the initial paper [1], we proposed the magnetic component is at right angles to the electrical as a field, so as the electrical field extends outwards as per fig. 8, the magnetic component is at right angles as a dual-pole wave. Furthermore, it was explained how magnetism tries to negate electricity, and here it seems its effect is beyond electricity, as per an ellipse. Electricity though would still need to be connected to the greater magnetic arc, and as we shall now demonstrate this.

### *3.4 Completing the wavefront for time in space*

So how do we perfect the wavefront value of $\pi$ as a $t_A$ result for $\frac{-1}{\varphi}$ as $t_B^2$, as $t_A = t_B^2$ is a condition for applying time to space as a perfect circle? If we consider that $t_A = t_B^2$ (in ignoring the value of $\pi$ as $t_A$ for the moment) we get the following results for the golden ratio equation:

$$(\frac{-1}{\varphi} \cdot -2\sqrt{3})^2 = 4.583533 \quad (5)$$

$$(\varphi \cdot -2\sqrt{3})^2 = 31.416253 \quad (6)$$

Note the squared value for $\frac{-1}{\varphi}$ (electricity) (eq. 5) is roughly the negative of the value of time for $\varphi$ (magnetism) (eq. 4), suggesting an embedded "negative" connection between electricity and magnetism in this networked time looping between electricity and magnetism. Basically, when electricity ($\frac{-1}{\varphi}$) is used as $t_B{}^2$ the result should be 4.6 as the time equation for magnetism, except as a negative value (given their negative inverse wave properties upon each other) ([1]; p4-7), yet this is the feature of the interlaced electromagnetic sinusoidal wave going from a positive curve to a negative in an out-of-phase (electricity to magnetism) manner. The importance of this value is to maintain the electrical effect of magnetism despite magnetism reaching a greater arc distance as an ellipse.

Note now the squared value for $\varphi$; we can say that it appears the value for $\varphi$ offers the idea of "10" $\pi$-steps (eq. 6), and thus what would appear to be 10 ($\frac{-1}{\varphi}$), (the true value for $\pi$) steps to arrive at the almost exact value for $\pi$. Yet of course this is a value for a $t_B$ value of magnetism ($\varphi$) by considering using $10\pi$ $t_A$ steps as an "electrical" ($\frac{-1}{\varphi}$) component, such on a spatial grid (fig. 12):

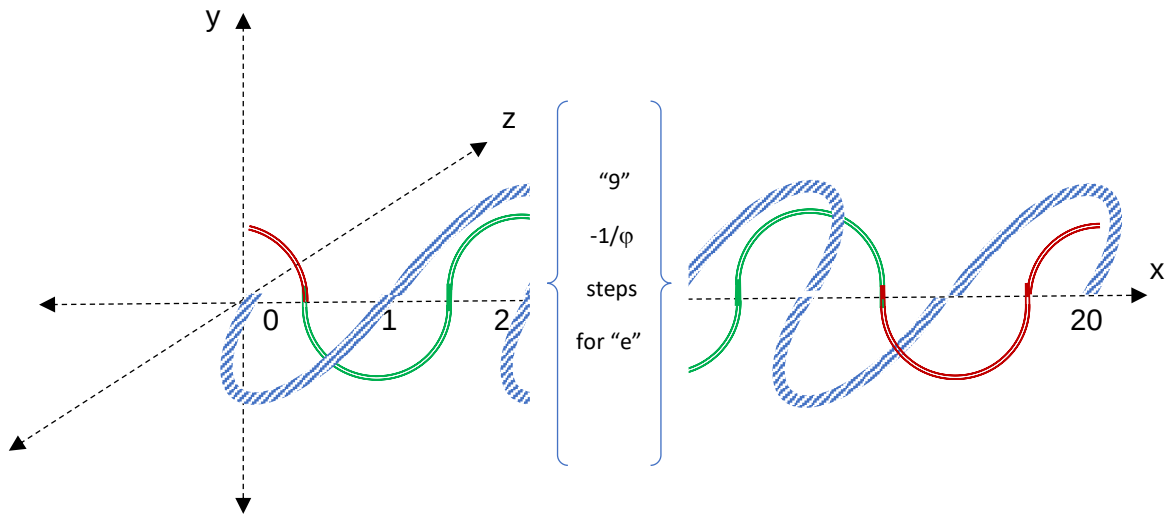



**Figure 12:** Green line electrical component (x,y), blue line magnetic component (x,z), both waves out of phase with each other and perpendicular to each other, magnetic wave used as the 0 start point extending 10 wavelengths ahead. Note the red line area though regarding the electrical component, and only 9 full electrical wavelengths have been completed, leaving another two partial wavelengths.

At the start of the magnetic wave, we have a partial electrical component, and so too at the end of the magnetic wave (see the red shaded line). Yet as per the initial paper, according to quanta being a package of a full wavelength ([1]; p13-15) we have to consider that if we are to annex the use of a full not partial electrical step to

consider 11 electrical steps not 9. Thus, as we are regarding the electrical component for light as the true representation for $\pi$, figure 13 is in order:

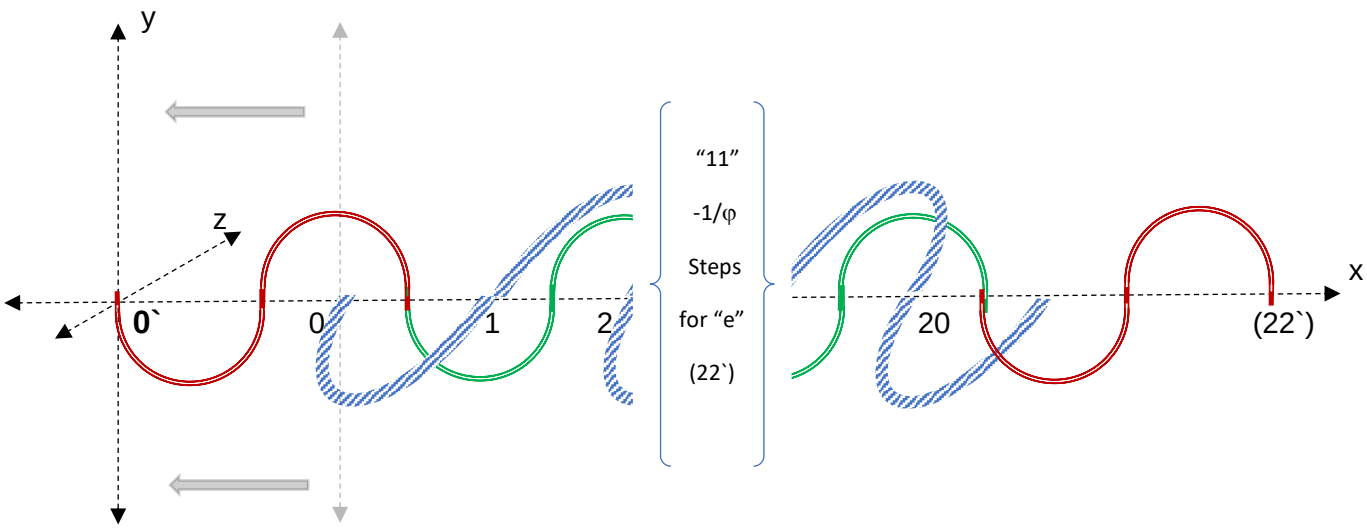



**Figure 13:** Note the addition of two extra wavelengths for the electrical component which by definition changes the 0-scalar spatial reference point of the wave by a measure of 3/2.

Given the progression is in "two" directions (as per fig 8.) along each axis, we need 11 full $\frac{-1}{\varphi}$ wavelengths on each side to complete what is required for the two values of the golden ratio ($\varphi$, $\frac{-1}{\varphi}$) to reach $\pi$.

Two results for the golden ratio for $\frac{-1}{\varphi}$ extending a $\pi$ length in each direction (eq. 3), the other as $t_B{}^2$ result extending 22-$\pi$ lengths (eq. 6). Two results on each axis extending diametrically opposed to each other for 11 electrical wavelength steps. Note that we are using the electrical step because this is considered as the only way for the wave function to satisfy its requirement to trace $\pi$. The fact two solutions for $\varphi$ and $\frac{-1}{\varphi}$ (eq. 4, 5) aren't true to $\pi$-time means they must correct as a process of flow, and thus the wave continues until it finds successful completion, as per ~11 $\frac{-1}{\varphi}$ steps along each axis away from the $\frac{-1}{\varphi}$ new 0-point. When this happens, when the 22 is completed, as per the initial paper ([1]; p10-12) the wave arcs and coagulates matter in the form of the electron, proton, and neutron (as will be explained). Then the atom is organised according to the derived Rydberg formula ([1]; p15: $R_\infty = \frac{\lambda_E}{2(2\pi a_0)^2}$), and from there quanta can be absorbed or emanate from the atom based on the process of electrons jumping between a shell, ultimately beyond the atom emanating infinitely given it has already satisfied its integration into space in reaching its required tracing of $\pi$ ([1]; p13-17).

An understated feature here is why we are using the x-axis as a flow of time; we have arbitrarily chosen the x-axis for the flow of time, as technically in a $t_N$ context we can only use "1" dimension for time (here $t_N = 1$). In a subsequent paper we shall develop this wave-function further to incorporate the idea of elementary particle spin, and in doing so, explain the exact nature of this $\pi$-adjusted wave-function to dynamically incorporate the $y$ and $z$ axes.

### *3.5 The fine structure constant*

Thus, for 22 wavelength steps (in using both directions from a $\frac{-1}{\varphi}$ 0-scalar reference point), the wavelength λ of light would be given by the following equation (where $a^0$ is the Bohr radius):

$$\lambda = \frac{a^0}{22} \tag{7}$$

If we factor in the value of $2\pi$ the equation becomes:

$$\frac{\lambda}{2\pi} = \frac{a^0}{2\pi \cdot 22} = \frac{a^0}{138} \tag{8}$$

Compare this to the equation for the fine structure constant of the atom [3]. This is similar to the true value of the fine structure constant which points to the fact via calculation that the number of wavelengths is not 22 yet 21.8. Why? The fine structure constant is the need for a monopolar time force to find the perfection of a circle, and can only do so in considering two monopolar electrical sources, ultimately as 22 wavelengths between each two monopolar sources, the electron and proton (as shall be derived), as per on the atom. So why the length contraction in the atom? It would be due to the overall interaction between the electron and the proton, that attractive force between the two when they become manifest as the atom, as we have yet to couple that force in yet, namely the force of attraction between the proton and the electron (although the basis for their existence was explained in the first paper ([1]; p9-11), a feature we shall explain.

Simply, the fine structure constant would be indicative of the electromagnetic strength between the elementary charged particles, and thus the value of ~1/138 would be slightly greater in considering this electromagnetic strength, hence the contemporary calculated value with 1/137, for the value of ~1/138 is what the theory suggests from first principles. Thus, in recalibrating our "22" it brings it to 21.8 (eq.9), a recalibration to be verified in subsequent papers.

$$\frac{\lambda}{2\pi} = \frac{a^0}{2\pi \cdot 21.8} = \frac{a^0}{137} \tag{9}$$

### *3.6 The speed of light*

The fact we have features of time and distance now in this uniform context suggests time moves at a fixed rate. Yet we must consider a true representation of light, not a quantized/packaged representation of light as per our need recalculate 9 full $\frac{-1}{\varphi}$ wavelengths to 11. The true value for light would be the actual "10" $\frac{-1}{\varphi}$ steps that eq. 6 directed to. And so the speed of light would represent the distance this wave travels "as light" divided by the time it takes to travel that distance. The distance we can surmise as 20 (not 22), well in fact 19.8 given the length is contracted on a real determination of light as electrostatic force between the proton and electron. Yet what is the "time" it takes? According to the first principles here, "time" is a measure of energy, and for the electron this would be characteristic of the *charge* of the electron, that property that is the information, the signature, of the electromagnetic dynamic between it and the proton. Once again, we're using the true value for light here (20), not

the atomic quantum adjusted value (22) (the quantum adjusted value which results in anomalies of the calculated positions of the elementary particles in using light as we shall further discuss in 3.7).

Thus, what we are considering is that ~20 times the wavelength of the electron "per" its charge (it's fundamental representation of energy and thus "time") is in fact its "speed", the speed of the wavelength, as the whole equation for the atom runs as a way time can find "$\pi$", and thus a progression in the form of time. What type of progression of time? Electromagnetism, and in this case the monopolar charge of a source electron (which shall be demonstrated). The following value results:

$$\frac{19.8 \cdot \lambda}{e_c} = \frac{19.8 \cdot 2.426 \cdot 10^{-12}}{1.60218 \cdot 10^{-19}} = 2.998 \cdot 10^{8}\, ms^{-1} \qquad (10)$$

The value is well within an accepted range for the speed of light/electromagnetism [21]. Yet this is an interesting equation, as the charge of an electron is 20 wavelengths (that it delivers) in the atom "per" the speed of light:

$$e_c = \frac{19.8 \cdot \lambda}{c} \qquad (11)$$

### *3.7 Confirming the Golden Ratio atomic scale*

We can now perhaps amend the electrostatic equations of the initial paper given the findings of all the equation and associated axiomatic basis for time. In the initial paper, we presented a set of equations that utilized the reduced Planck constant for the Coulomb constant ([1]; p9-10, eq. 13-16). The basic equation for electrostatic force was $Q_{AB<NEWTONS>} = \frac{Q_C Q_A Q_B}{t_{AB} t_{BA}}\ (C^3 t^{-2})$, yet this developed to $Q_{AB<NEWTONS>} = \frac{Q_C c^2 Q_A Q_B}{d_{AB} d_{BA}}\ (C^3 t^{-2})$ whereby $Q_C c^2$ = $k_e$, where $k_e$ is Coulomb's constant. We then arrived at an equation for $Q_C$ as $Q_C = \frac{\alpha \hbar}{c e^2}$. The solution for $Q_C$ is a lot simpler than using the Planck scale of determination though, if not more topographically correct for the atom.

By our definition, $Q_C$ is the is the fundamental "charge" context of electrostatic interactions. In light of these two axioms of time, the charge context would be proportional to the charge of each elementary particle, thus $2e_c$. Furthermore, in calculating the time axes, as we did in the initial paper for gravity with the spatial axes ([1]; pg. 9, eq. 12), the idea of the axes for time plays out not as simply as gravity. First, for each charged particle there would be a fundamental basis of "2" time possibilities, $\varphi\ and\ -\frac{1}{\varphi}$, and thus each elementary charge entity would be per a factor of "2". Secondly, each charge related to $Q_C$ in being features of the two options of time, $\varphi\ and\ -\frac{1}{\varphi}$, would be directly proportional to a value of $\sqrt{3}$ (see fig. 2). Thirdly, $Q_C$ would be "per" (indirectly proportional to) the wavelength of an electron as that minimal quantum length, thus $\frac{1}{\lambda}$. Thus, the value for $Q_C$:

$$Q_C = \frac{3 \cdot 2e_c}{4\lambda} \qquad (12)$$

As $k_e = Q_C \cdot c^2$ ([1] p9, eq. 13), then;

$$k_e = \frac{3 \cdot 2e_c}{4\lambda} \cdot c^2 = \frac{6 \cdot 1.6 \cdot 10^{-19} \cdot (3 \cdot 10^8)^2}{4 \cdot 2.426 \cdot 10^{-12}} = 8.9 \cdot 10^{9}\, Cms^{-2} \qquad (13)$$

Note the units, acceleration of charge through distance (which of course is force). We have arrived at the same value as the current accepted value for $k_e$ yet owing to the new axiom base used, the units convey a different axiom relation, as they should. Another key point to note is that we have confirmed the fine structure constant scale with the speed of light. The implication here is the "held" nature of this scale, and how there is the potential for internal feedback/folding, which in the first paper was discussed as the mechanism of how "matter" would be generated ([1]; p11-12). We shall explain the process of matter-formation in the next section. Nonetheless, it seems we can derive all the equations of the first paper [1] given our knowledge of this new golden ratio scale for time without using the Planck scale. This is not to say that the Planck scale is not useful, even though it is completely theoretical, yet here the golden ratio scale for time in using the "exact" scale of the atom is able to more effectively link all the field forces and particles ([1]; p8-12), while explaining the dimensions of the atom and associated forces in the correct calibrated context.

### *3.8 Subatomic electrodynamics and Gravity's emergence thereof*

Let us investigate the internal feedback/folding the following equation 14 points to by applying eq.11 to eq. 13:

$$k_e = \frac{3 \cdot 2 \cdot 20 \cdot c}{4} = 30c \tag{14}$$

This result is telling; it states that the electromagnetic coupling force context is a value of $30c$. Note, as this would be a "pre-event" prior electromagnetic interaction, as a building up process to the formation of the elementary particles, the factor used would be 20, as it's "after" the coupling constant is used that the electromagnetic interaction is reduced from the theorised "20" factor down to "19.8" (fig. 16). Nonetheless, the result states that given the speed of light is a feature of the radius of the atom per "charge" $c = \frac{19.8 \cdot \lambda}{e_c}$, then we have a situation of "30" times this radius value in effect. Given the radius is fixed though, we could only have a "running to and from" in effect for light, from the electron location to the proton, of light, of the time-wave (fig 14.):

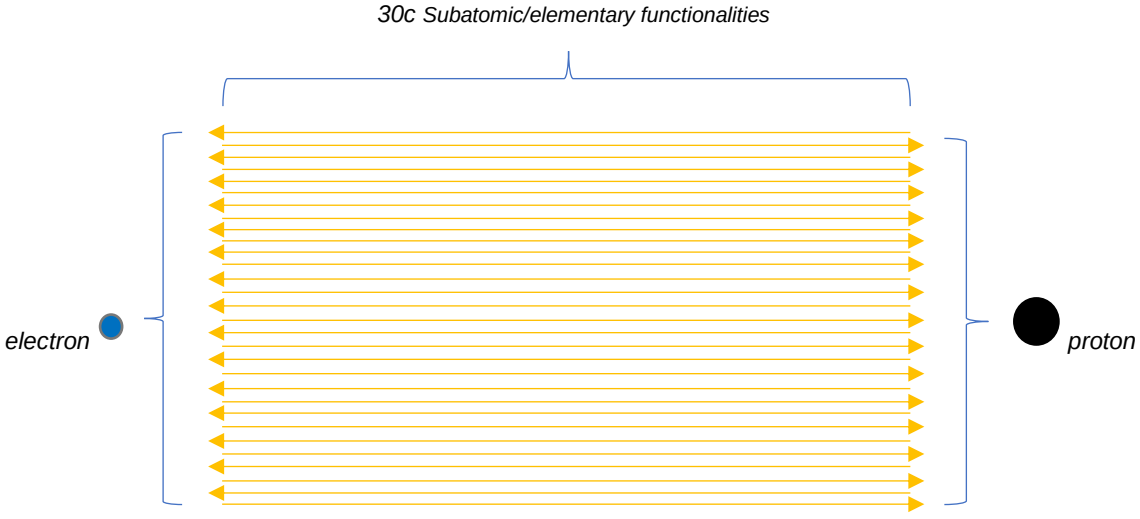
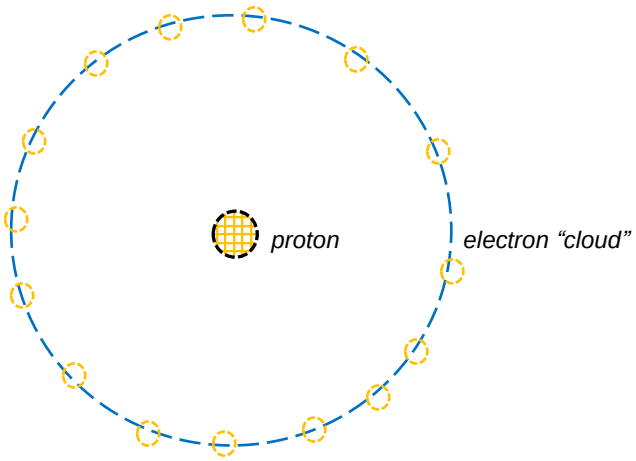



**Figure 14;** 15 "c" directions from the electron to the proton, and 15 "c" directions from the proton to the electron, each loop meriting a new unique status/orientation of the electron and proton.

How this "running and returning" of wavelength units would manifest between the electron and proton, between these elementary charged particles (their status as "particles" to be explained later in this section), would define with each "running and returning" a unique status, a unique orientation, or a unique sub-structure, any combination thereof, of these elementary charged particles. Given the nature of the electron, it would be reasonable to suggest that it would exist more than likely than not in various locations around the proton according to its need to circumscribe a circle (condition for $-\frac{1}{\varphi}$, eq. 3), like in a "cloud" of 15 various positions, whereas the proton (and neutron, as we shall soon explain) would although be relatively fixed in the atom, would have substructures meriting the 15 different unique identifiers they would need to uphold (whatever they may be while depending on the two as-yet announced features of the Uncertainty Principle and Quantum Entanglement effective a particles status, as per the explanation in section 3.9) (fig.15):

**Figure 15;** 15 "c" orientations for the electron to the proton, and 15 "c" internal sub-structure ingredients for the proton, once again each of the 30 "c" loops meriting a new unique status/orientation of the electron and proton.




It should be noted that each of these "c" loops would form the electrodynamic binding substructure of the electrodynamic force between charged elementary particles. This would be a feature "primarily" of the electrical component given its monopolar "$\pi$" status. Note that these 30c loops represent two key electrodynamic reflection points, opposite to each other in their effect, yet attractive to each other nonetheless in keeping the fine structure pegged at the value it must be. Thus, on a fundamental level we would have a virtually massless (as electrical energy) charge as the electron and its opposite as an oppositely charged *mass (logically)* as the proton. We know we have the magnetic dipole moment, thus we would have its opposite as mass without charge, the neutron. All these features are a fundamental result of the need to uphold polar/opposite reflection points knitting together 30c substructure features relevant to their own status.

Can we dive deeper though into the relationship between charge and mass?

What of the virtual "magnetic $(\varphi)$" component from the 0-scalar "electrical $(-\frac{1}{\varphi})$ standpoint/basis"? If we factored in the "4.58" value of the virtual magnetic $(-\frac{1}{\varphi}\ for\ t_b^2)$ component (eq. 5), the value of "$k_e$" becomes ~137. But this is no longer $k_e$, yet a new entity, for we are not considering the factor of "$\pi$" any more, but the magnetic feature. Thus, this new factor would apply not to the electron and proton as subatomic charged constructs (already satisfying $\pi$), but to the neutron (as the polar associate to magnetism, as explained) primarily. Why? The "$c$" factor is related "by-definition" to the electrical component, the "$\pi$" feature (eq. 3, eq. 6). So, this new "factor" of 137 raises an interesting situation, for it is the value of $\frac{1}{\alpha}$. Note this value is a "supplementary" feature of the $k_e = 30c$ subatomic

feature occurring, and thus would represent an "overarching" process upon this $30c$ feature/phenomena of the atomic electrodynamics, and thus most basically as a simple folding of light as $c^2$ and not $2c$ (as $2c$ would be a feature embedded in the $30c$ manifold, as we shall now explain why).

According to the initial paper [1], this would represent a "mass" effect that is 137 times stronger than the underlying electrodynamic subatomic process occurring. Consider eq. 18 and eq.19 of the initial paper [1], $\frac{M_{(p+e)}}{\alpha} \cong 128\ GeVc^{-2}$, $\frac{mass(atomic)}{H^0(Higgs\ particle\ mass)} \cong \alpha$. There, the proposal was that the Higgs mass (there, taken as $\cong 128\ GeVc^{-2}$) is 137 times stronger than the atomic mass. In other words, the Higgs mass could in fact be the 30-subatomic feature of the ***magnetic*** component of the atom that gives the atom its "mass" properties, the "atomic" mass itself being measured as a component primarily of the electrodynamic ***magnetic*** scale given the Higgs particle mass (measured as $\frac{energy}{c^2}$) is 137 greater than that of the mass of the proton, clearly pointing to the amount of energy in the substructure of the atom undertaking this manifestation and why. Experimental results though pointed the Higgs mass to be $125\ GeVc^{-2}$ and not $128\ GeVc^{-2}$. Nonetheless, we could confirm through these results given the use of this equation in preliminary research the following (eq. 15):

$$e_p = m_p c^2 \tag{15}$$

Once again, *why* is the "energy" of mass *beyond* the elementary 30c level, and more specifically, proportional to mass and $c^2$? Because all there would be "beyond" the 30c manifold is a "c" factor that can only be "squared" as a "future" event beyond the primary 30c "now" event (fig. 16). This therefore confirms the initial paper's provisional proposal of "mass" being a $t_A$ entity, a squaring of $t_B$, noting also that the provisional proposal in that paper was placing energy on "$t_B$" (see requirement of [1]; eq.3, p4), as per figure 16:

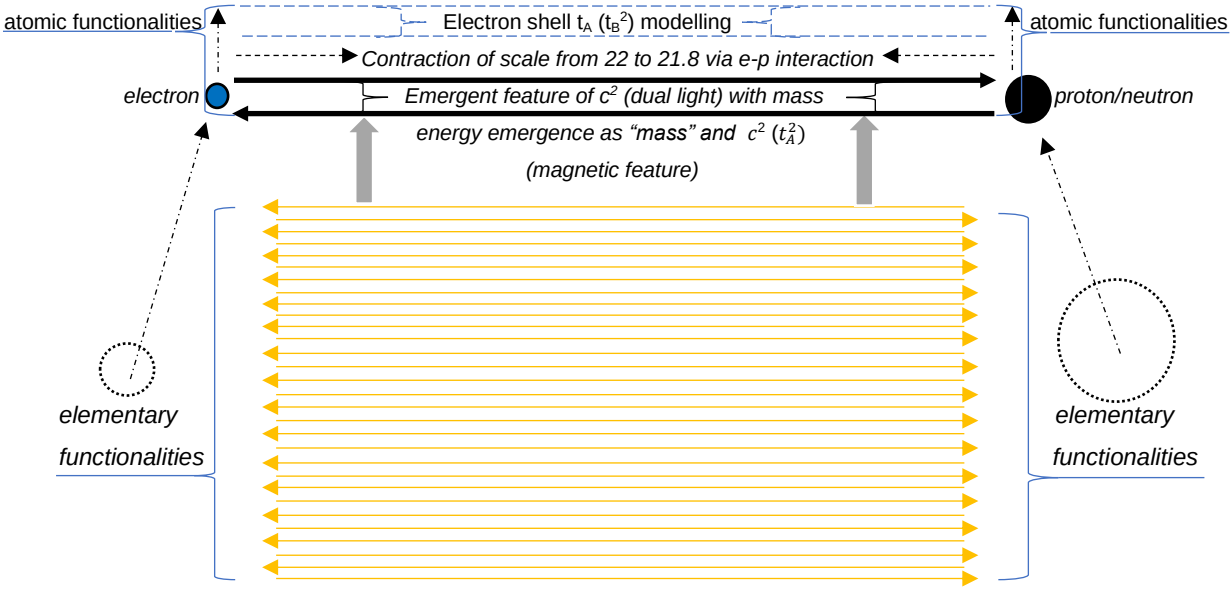



**Figure 16;** "beyond" the 30c manifold is a "c" factor that can only be "squared" as a "future" (ta2) event beyond the primary 30c "now" event. Note also the contraction of the atomic scale from 22 to 21.8 owing to the emergent force between the electron and the proton, and subsequent electron shell modelling.

It is also important to note the contraction of the atomic scale from 22 to 21.8 by the emergent force between the proton and the electron. Furthermore, electrons would behave in their cloud orientation in this new emergent platform according to what was proposed in the initial paper regarding the Rydberg equation ([1]; p12-15). Here, we are confirming the $t_A$ status of this emergent level which allowed us to derive the electron shells in the initial paper ([1]; p12-15). Note that we are also incorporating in the adjusted value of the atomic length from 19.8 to 21.8, and thus entertaining these "quantum additions" regarding the electron shell modelling as proposed in the initial paper ([1]; p12-15). In doing so, if we consider the principle of the subatomic functionalities (equation 14) as a "carry through effect" from the subatomic/elementary level with this new emergent level of energy shells, the following equation results:

$$k_{e`} = \frac{3 \cdot 2 \cdot 21.8 \cdot c}{4} = 32.7c \tag{16}$$

Basically, there would be on this electron shell emergent level only a maximum of "32" full orientations for each electron shell level if indeed the proton and neutron must remain fixed as mass entities undertaking a strong-force of association ([1]; p12). The Rydberg Formula presents that the following series of electrons in shells is allowable: 2, 8, 18, 32, 50, 72 [19]. Here though we are stating that it is not possible for an energy shell to go beyond 32 electrons. And this is indeed correct with the Periodic Table [21] where the elements are unable to reach the "50" occupancy level for an energy shell. It seems therefore we have capped the development of an atom (confirmed with what is found in nature) by the application of the golden ratio as an algorithm for time.

### *3.9 Particle uncertainty and quantum entanglement*

The issue for using the $t_B$ magnetic feature resulting in an electrical $t_A$ which then must recalibrate its position as a $t_B$ 0-scalar reference entity (or vice-versa) implies that the electrical component should start at its own unique 0-scalar starting point, when it is half a phase of half a wavelength out from this value (figs. 12-13). This implies that the position of the electrical component of the wavelength and thus of the electrical feature of the particle is inconsistent with its actual wavefront movement given the speed of light has been accurately derived by *not* using such a quantum-adjustment (as a recalibrated location in space). Basically, for a natural state of the speed of light the quantum adjustment process displaces the actual 0-scalar reference of the wave and associated particles, meaning that there is an inequality of position in space with the actual measured value for light which "should" according to eq. 6 be set at "20", 10 along each direction of the axis. And of course, if there is a mismatch between what should be measured accurately and what isn't, the further we aim to measure the position of an elementary particle such, the less accurate its position will be measured as.

Thus "light", given the findings in the initial paper regarding the Rydberg formula ([1]; p12-15), as time in space, can only register itself as a full quantum causing this elongation from 10 (eq. 4.) along each axis to 11 wavelengths; this time-dilation is then re-compensated for owing to the effect of true light (20 quanta) between the electron and the proton as the strength of association between the electron and the proton. Nonetheless, owing to the addition of an extra wavelength of light upon the true value for light, an anomaly created between the actual position of an elementary particle (21.8 gauge) and its perceived position (19.8 gauge), such a disparity of measurement would be an inherent feature of this wave system of time, of electromagnetic radiation and its association to the fundamental particles. This is not dissimilar to the Heisenberg Uncertainty principle [22], as shall be further discussed in subsequent papers.

It shouldn't be overlooked that space as 0-scalar space would exist as an independent entity, an independent entity to time, an independent entity as a universal homogenous 0-construct, in that it exists equally on its own everywhere; any potential 0-reference of space being identical to the next except by virtue of the effect of time. In this way, it can be thought of as "trivial". It becomes non-trivial though when associated to the concept of time. Essentially space is defined as the infinitesimal dense vacuum, and ultimately this represents a 3-dimensional manifold for time/energy/light to operate in. The way that light/energy interacts with itself in different references of 0-scalar space is how space becomes non-trivial. The important feature about space though is that it represents a dimensional entity, three dimensions, that light operates in, yet universal as though existing identically everywhere at once. When applied to different locations as a wavefront the idea of space is given non-triviality. Thus, using a feature of light as a process of measuring two locations in space, each of those locations in space in the process of their being measured would have to represent the idea of not just the inherent uncertainty of their location, as just explained, yet *time* effecting itself upon those two locations giving rise to the two possible outcomes of its Golden ratio feature, as $\varphi$ or $\frac{-1}{\varphi}$, once again a concept not dissimilar to the Heisenberg Uncertainty principle, as shall be further discussed in subsequent papers.

What exactly is the idea of quantum entanglement with particles? It would be related to the state of any particle in relation to another particle as per a feature aside from the electromagnetic signal that relates directly between them, and thus an apparent 'immediate" effect related to the spatial status/orientation of the particles in entanglement divined by the quality of the universally apparent 0-scalar spatial platform which itself doesn't represent as an a priori timed speed limit (only light as time does). On the atomic scale, as when considering an atom, the idea of quantum entanglement represents the two states that can be activated as a type of "vibration/spin" for each particle along the sinusoidal train in relation to particles (as proposed in the initial paper [1]), as it only can, for the two results are embedded already "in" the sinusoidal construct. The idea of the measurement itself of two bodies using time/light creates an arena of light-measurement and thus a quantum association that places at a minimum two bodies as either states of the golden ratio, owing to that golden ratio nature of light and thus arbitrary measurement between any two particles through space. Essentially, it is an effect of the process of measurement, and could be considered as an impossible causality of time given information cannot be transferred faster than the speed of light, yet effectively would be a feature of space keeping two events in space at the one time linked in a quantum entangled manner. Quantum entanglement thus would represent a feature of space which would appear to defy the idea of the speed of light by creating an immediate relativity for each strand (binary feature, $\varphi$ or $\frac{-1}{\varphi}$) of golden ratio time. Once again, why? Because of how space is being defined, 0-scalar, universal, no limits. "Time" as electromagnetic radiation is the limiting feature, and thus considering any two hypothetical points in 0-scalar space would consider time to have arrived at any two points equally creating the idea of $\varphi$ and $\frac{-1}{\varphi}$ entanglement. The amount of entanglement would depend therefore on the amount of considered observed reference (measurement) between two independent (yet paradoxically not owing to time) spatial references. Owing to the universal state of space and time, space being bathed in time as electromagnetic radiation, light, then everything would be in a type of quantum entanglement with everything around it, the degree depending on all the factors the that make the state of the system what it is.

### *3.10 Extra-atomic topology*

In the initial paper, the idea of "fractal topology" ([1]; p15-16) was presented regarding the way space and time would organise with all the relevant emergent forces between the considered theoretical golden ratio particles

in 0-scalar space (which of course would be infinite). First though, let us consider what happens beyond the subatomic scale, beyond the 30 unique underlying signatures of the elementary particles, while bearing in mind we would need to factor in both the particle uncertainty and quantum entanglement principles, making the subatomic realm a very difficult field of analysis. Fundamentally, the effect of light/time beyond the subatomic realm is defined by the energy-shell play, as discussed in the initial paper ([1]: p13-15). The idea of particle uncertainty and quantum entanglement would still apply to atoms and molecules, not just as elementary particle spin/orientation seen within the atom, yet choice of motion in each now event ($t_N$ = 1), which as a choice between two unit values of time as a location in space, two potential particles in a "now" event quantum entanglement, would result in a $\sqrt{2}$ value for that resulting emergent (from the subatomic time-axes) now-time (fig. 17), suggesting that the random position of a particles after factoring all previous atomic requirements is dependent on a $\sqrt{2}$ value for a resultant "now" time $t_N$ in regard to space. This is not dissimilar to the equation Einstein reached for Brownian motion [23] ($\frac{x^2}{2t} = D, thus\ x = D\sqrt{2t}$). Here (fig. 17) the location ($x$) of a particle in space would be proportional to $\sqrt{2}$ as a value of $t_N$:

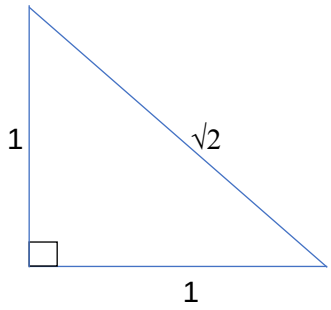



**Figure 17;** two axes of time $t_N$, 1 and 1, which then result in the value of $\sqrt{2}$ in a squared relationship as a resultant value of $t_N$.

Beyond this, as highlighted in the initial paper [1], the idea of time going from time-before $t_B$ to time-after as $t_B^2$ indicates a forever expanding spatial matrix, which is in fact a feature of light, an "effect", or to be more precise, an "illusion" set upon space by light ([1]; p16-17) [24]. Once again, this theorized perceived expansion of the Universe (owing to the golden ratio time algorithm) would as "light" represent the key feature of light on the atomic level as the "inverse" of the frequency of a Compton wavelength ($\frac{\lambda_e}{c}$ ~ 8.1 · $10^{-19}$ s), yet "squared" ($t_B^2$), and thus a value of roughly $10^{-36}$ s (exactly 6.7 · $10^{-37}$ s). The idea here is that with each oscillation of energy of the electron, there would be a squaring effect in play as a time-front into the future, which of course would suggest such a rate of expansion of space (as measured through the electromagnetic spectrum). Yet this is a theoretical value, as a $t_A$ entity. Thus the "red-shift" [25] effect would be a *key-part* of that $t_B^2$ process; as light (as defined as time) appears to be expanding, it would have the "same" effect on space by our definitions here, and thus make us consider "space" is expanding ultimately in the farthest reaches of observation and calculation at an accelerating rate.

The proposed fractal topology of space and time beyond atoms as discussed in the initial paper ([1]; p15-16) would inherently require the balancing of all atoms, those atoms through their valence (electron shell) association into molecules, and so on, with the feature of $t_B^2$ incurred, across an infinite 0-scalar manifold in presuming 0-scalar space could exist anywhere. In not calibrating $t_B^2$ through vast distances, the effect "would" be like a big-bang of an atomic level of time, as regarding the energy of the golden ratio time determination, that has happened in every point in space at the same time. Confirmation of this possibility of atomic fractal displacement in our analysis of perceived neutron stars is that neutron stars as observed to our calculations do indeed have a distinct "magnetic" component [26], and thus as though a feature fractally sprung from the atomic to the universal,

clearly suggesting a fractal connecting pattern at play. Yet that phenomena appears not fractal to every reference. Basically, the fractal topology of each reference in 0-scalar space would need to interact with each other reference, and thus only logically there could be no “one” beginning reference given the actual state of a standard atom. So, where would an ultimate reference come from, given that such is a clear drive of scientific thought for our need to find that event-archaic?

### *3.11 Consciousness*

Given the proposals of sections 3.7-10, there would appear to be an inherent mismatch between “observation” and “calculation” regarding any elementary particle, together with an inherent universal entanglement between all particles care of a feature of observation. This mismatch and entanglement could be considered as giving rise to a third concept especially considering our drive to find an ultimate event-archaic, an initial cause to all physical phenomena. So here it is proposed such to be the very idea of consciousness [27] itself, a talent that allows us to think beyond what can’t be, and as implicated here a type of dual nature of consciousness forever trying to resolve the mismatch between what is observed and what is calculated, while entertaining a common $\varphi$ or $\frac{-1}{\varphi}$ nature for each construct set of observed entities, as though in an immediate entangled sense, pure calculation being relative blindness, and pure observation being relative miscalculation, all upon a universal 0-scalar “immediate” platform of consideration while light as time plays back and forth in that seemingly supernatural immediacy. The proposition here is that consciousness could well be described as being that “thing” that appears to be a supernatural feature of reality, a feature in making observation and calculation as one. This will be the topic of a subsequent paper.

## 4 Conclusion

This paper proposes that the most basic feature of space and time, the most fundamental drive, the golden ratio for time in a 0-scalar universal space manifold, is a candidate for an ultimate structure of the elementary particles and associated field forces, as per the following discovered features to the time-equation:

- An explanation for the monopolar nature of electricity, and dual-polar nature of magnetism.
- The fine structure constant derived from a golden ratio utility of time as applied to space.
- The speed of light derived from an electron wavelength, electron charge, and the fine structure constant.
- An explanation to the space and time granularity of the subatomic level.
- An explanation for the uncertainty principle, namely the difference between what light measures and where an elementary particle would be placed.
- An explanation for quantum entanglement for elementary particles, intricately associated to the uncertainty principle.
- An explanation for Brownian motion.
- An explanation as to why we would consider the event of a big bang and at what time-scale.
- An introduction to the idea of consciousness from the need of space and time to find synthesis between observation and calculation anomalies alluding to the possibility of a fundamental ultimate “eternal-archaic-event” of consciousness.

The basic feature of this paper is how simple space and time can be understood when taking upon the right tools of measurement as an a priori. The idea of $t_A = t_B^2$, and $t_B + 1 = t_A$ is the key; from a value in the past as $t_B$ the future arrives as $t_B^2$ via a step of time as a "1" value ($t_N$). It is a mathematics with conditions, two conditions, as pronounced. As that mathematics shows, there can be two values for $t_B$, and thus two values of $t_A$. Such an equation, $t_B + 1 = t_A (t_B^2)$, a golden ratio equation, presents the case for further analysis and theoretic utility.

**Conflicts of Interest**

The author declares no conflicts of interest; this has been an entirely independent project.

**References**


1. Jarvis S. H. (2017), Gravity's Emergence from Electrodynamics, http://viXra.org/abs/1704.0169, www.gravielectric.com.
2. Livio, Mario (2002). The Golden Ratio: The Story of Phi, The World's Most Astonishing Number. New York: Broadway Books. ISBN 0-7679-0815-5.
3. Mohr, P. J.; Taylor, B. N.; Newell, D. B. (2015). "Fine structure constant", http://physics.nist.gov/cgi-bin/cuu/Value?alph, CODATA Internationally recommended 2014 values of the fundamental physical constants. National Institute of Standards and Technology,
4. International Bureau of Weights and Measures (2006), The International System of Units (SI) (PDF) (8th ed.), p. 112, ISBN 92-822-2213-6Berggren, Lennart; Borwein, Jonathan; Borwein, Peter (1997).
5. Pi: a Source Book. Springer-Verlag. ISBN 978-0-387-20571-7.
6. "physics". Online Etymology Dictionary, http://www.etymonline.com/, Retrieved 2017-06-21.
7. Garland, Jr., Theodore. "The Scientific Method as an Ongoing Process", http://physics.nist.gov/cgi-bin/cuu/Value?alph, U C Riverside. Archived from the original on 23 Jun 2017.
8. "space - physics and metaphysics". https://www.britannica.com/science/space-physics-and-metaphysics, Encyclopædia Britannica.
9. "Oxford Dictionaries:Time", https://en.oxforddictionaries.com/definition/time, Oxford University Press. 2011. Retrieved 23 JUne 2017. The indefinite continued progress of existence and events in the past, present, and future regarded as a whole"
10. Hetherington, Norriss S. (2014). Encyclopedia of Cosmology (Routledge Revivals): Historical, Philosophical, and Scientific Foundations of Modern Cosmology. Routledge. ISBN 978-1-317-67766-6.
11. Hawking, S. W.; Ellis, G. F. R. (1973). The Large-Scale Structure of Space-Time. Cambridge University Press. ISBN 0-521-20016-4.
12. Kragh, Helge (1999). Cosmology and Controversy: The Historical Development of Two Theories of the Universe. Princeton University Press. ISBN 0-691-02623-8.
13. David Deutsch (1997). "The Ends of the Universe". The Fabric of Reality: The Science of Parallel Universes—and Its Implications. London: Penguin Press. ISBN 0-7139-9061-9.
14. J. A. McGovern,"2.5 Entropy". Archived from the original on 2012-09-23. Retrieved 2017-06-22.
15. Anderson, P.W. (1972). "More is Different" (PDF). Science. 177 (4047): 393–396. Bibcode:1972Sci...177..393A.
16. Eliel, Ernest Ludwig; Wilen, Samuel H. & Mander, Lewis N. (1994). "Chirality in Molecules Devoid of Chiral Centers (Chapter 14)". Stereochemistry of Organic Compounds (1st ed.). New York, NY, USA: Wiley & Sons. ISBN 0471016705. doi:10.1002/(SICI)1520-636X(1997)9:5/6<428::AID-CHIR5>3.0.CO;2-1.

17. quantum entanglement Schrödinger E (1935). "Discussion of probability relations between separated systems". Mathematical Proceedings of the Cambridge Philosophical Society. **31** (4): 555–563. Bibcode:1935PCPS...31..555S. doi:10.1017/S0305004100013554.
18. http://physics.nist.gov/cgi-bin/cuu/Value?plkmc2gev
19. Bohr, N. (1985). "Rydberg's discovery of the spectral laws". In Kalckar, J. Collected works. 10. Amsterdam: North-Holland Publ. Cy. pp. 373–379.
20. Besant, W.H. (1907). "Chapter III. The Ellipse". Conic Sections. London: George Bell and Sons. p. 50.
21. Emsley, J. (2011). Nature's Building Blocks: An A-Z Guide to the Elements (New ed.). New York, NY: Oxford University Press. ISBN 978-0-19-960563-7
22. Heisenberg, W. (1927), "Über den anschaulichen Inhalt der quantentheoretischen Kinematik und Mechanik", Zeitschrift für Physik (in German), **43** (3–4): 172–198.
23. Einstein, Albert (1956) [Republication of the original 1926 translation]. "Investigations on the Theory of the Brownian Movement" (PDF). Dover Publications. Retrieved 2017-06-22.
24. Tyson, Neil deGrasse and Donald Goldsmith (2004), Origins: Fourteen Billion Years of Cosmic Evolution, W. W. Norton & Co., pp. 84–5.
25. Huggins, William (1868). "Further Observations on the Spectra of Some of the Stars and Nebulae, with an Attempt to Determine Therefrom Whether These Bodies are Moving towards or from the Earth, Also Observations on the Spectra of the Sun and of Comet II". Philosophical Transactions of the Royal Society of London. 158: 529–564. Bibcode:1868RSPT..158..529H. doi:10.1098/rstl.1868.0022
26. Glendenning, Norman K. (2012). Compact Stars: Nuclear Physics, Particle Physics and General Relativity (illustrated ed.). Springer Science & Business Media. p. 1. ISBN 978-1-4684-0491-3.
27. John Searle (2005). "Consciousness". In Honderich T. The Oxford companion to philosophy. Oxford University Press. ISBN 978-0-19-926479-7.
28. Jarvis S. H. (2017), The Emergence of Consciousness from Chaos, http://viXra.org/abs/1707.0044, www.gravielectric.com.
29. Jarvis S. H. (2017), Golden Ratio Photonic Crystal Dynamics, http://viXra.org/abs/1707.0352, www.gravielectric.com.