

# 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 ideas to be demonstrated here using the golden ratio time-equation include deriving the dipole of magnetism, the electric monopole field, and their relation to the Fine Structure Constant, the charge of the electron, the speed of light, and subatomic 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.

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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 the value it is [4], and why in space there is the propagation of a  $c$  based spherical [5] wavefront of light from a point source the speed at which time does not pass, all very fundamental concepts in physics that should not necessarily be assumed via measured observations alone.

In short, 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 in this paper we will be diving within the idea of measuring by using the golden ratio time-equation for space as a new measuring device. 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 is 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. Here, all physics’ predecessor concepts and associated equations will be supplemented with a more advanced understanding of time, which paradoxically results 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 lies is how we register light to our perception? Indeed, 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, and 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 are not 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 temporal properties that constitute 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, all as such to link mass-based phenomena with new equations and associated theories, all as such to arrive at an equation and associated theory of everything, all the way from the Planck scale [18] to the largest observed celestial events, 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*, could only become a quagmire of ideas and equations never reaching their intended goal of fitting together as one, ideas leading to false conclusions that fail to add up in the apparent far distant universe, ideas that make assumptions about new realities as the only fix. This presentation thus proposes a change to the current process of physics study and research with a new *a priori* for time and space. In this new proposal, all the fragments of contemporary physics theory are nonetheless explained in the correct context of a new axiomatic base for time and space as an 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 equation step of the time-equation as a wave function analogue for light, 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 feature the two results for the golden ratio equation for time ([1]; eq. 3,4), it was not proven that time would be a sinusoidal wave. It was not demonstrated why space has three dimensions and why light emanates from a point source in all directions in a 3-d space manifold. Two very fundamental constants,  $\pi$  and the fine structure constant, were also *assumed* and not derived, relying on measured research only. Here we shall provide the very key to unlocking the fundamental basis for time as that *temporal* sinusoidal algorithm in a 3-d spatial manifold.

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 temporal wave function construction.

To be considered therefore for this reading is 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 of paper 1 [1], the overall outline for time and space was formed as a golden ratio algorithm, proposing a link between the equations of gravity and electromagnetism, while detailing an associated process of atomic modelling as per the derivation of the Rydberg formula ([1]; p13-15) from the time-equation. It was thus considered that using the golden ratio (as a time-algorithm) was successful in forming a provisional link between gravity with electromagnetism, *in theory*.

Yet is such a process the *only* way to achieve a link between the forces of gravity and electromagnetism together with the Rydberg formula [19], namely in using a time-equation? Can another algorithm, more complex, be used? Can another algorithm or first principle mechanism suggest other possible "realities" for instance, 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?

To answer these questions, we will continue to investigate the use of the golden ratio for time given its utility thus far, while exploring the “how and why” of time relating with space.

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, to define time is to define a reference of *timing*.

The definition of time proposed here, in addressing such an issue of *timing*, requires two references held in the same context of laws proposed for the flow of time. How?

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, to somehow to bring into effect the idea of temporal “flow”, of *timing*.

In now developing upon the initial paper [1], let us label the two features of the golden ratio  $\varphi$  and  $\frac{-1}{\varphi}$  to  $t_B$ .

Here, we propose that the two variables for time,  $\varphi$  and  $\frac{-1}{\varphi}$ , would be at right angles to each other in terms of a temporal axes alignment, if indeed one value say  $\varphi$  is one axis and the other value namely  $\frac{-1}{\varphi}$  is another axis.

To note here is 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  $t_B^2$ .

To now 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.):

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

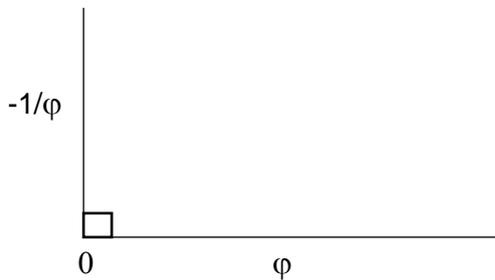


Figure 1: two axes of time,  $\frac{-1}{\varphi}$  and  $\varphi$ ,

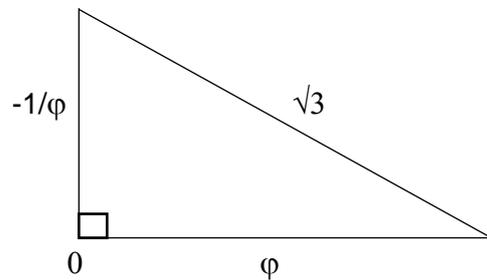


Figure 2: two axes of time,  $\frac{-1}{\varphi}$  and  $\varphi$ , which then result in the value of  $\sim \sqrt{3}$  (in a squared relationship).

To note is that as the time-equation considers that *time* is the essential time-before ( $t_B$ ) time step, then “space” in being an independent entity to time as  $t_B$  would be the “now” ( $t_N$ ) time step while also *including* the “after” ( $t_A$ ) time step. And so, we need to calculate the vectors for space in the time-after event ( $t_A$ ) and the time-now event ( $t_N$ ) to understand what is happening with theoretical 0-scalar space in regard to time-before ( $t_B$ ).

### 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 a time-after ( $t_A, t_B^2$ ) 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 grid, represent the 3 dimensions of 0-scalar space, 3 “now” ( $t_N = 1$ ) timelines in space (fig. 3), noting the absence of arrows for the axes.

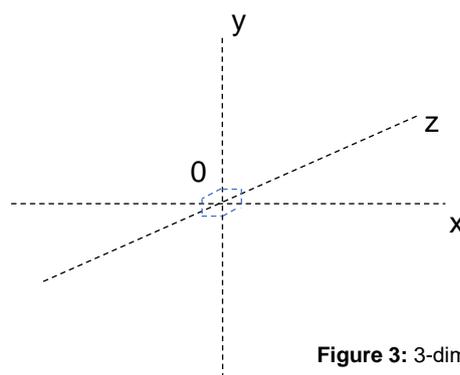


Figure 3: 3-dimensional space ( $3 \cdot 1 t_N$  space)

Such a 3-d space construct is what was assumed in the first paper regarding 0-scalar space ([1]; p1-3). Let us take a step back though. For instance, 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 time-now ( $t_N$ ) “1” outcome (as the three dimensions for space) (fig. 4.):

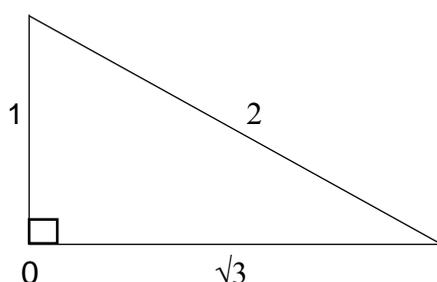
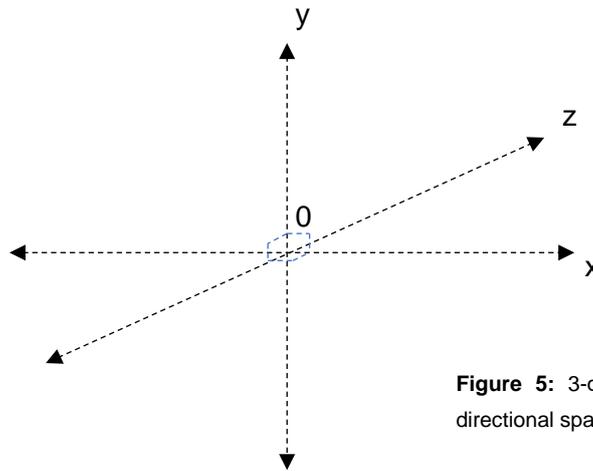


Figure 4: two axes of time, 1 and  $\sqrt{3}$ , which then result in the value of 2 (in a squared relationship).

Thus, we can say that time-before ( $t_B$ ) as  $\sqrt{3}$  when applied this way to time-now ( $t_N$ ) as 1, then “1” as time-now reaches a value of “2” (which would be integral to  $t_B$ ). Here it is proposed that “2” represents a double  $t_N$  (1), meaning there are proposed to be 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 applying such a factor to space.

Thus, it is proposed that for space we would have 3 dimensions incorporating 2 temporal outcomes for each of the 3 axes. Thus, we can say that these two results represent “2”  $t_B$  temporal applications in a 3-d spatial matrix.

We could therefore say that if we create a 0 reference for each 3-d spatial matrix, then the “2” value would represent the dual directions on each axis away from the 0 point (fig. 5.), noting the addition of the arrows on the axes as compared to figure 3:



**Figure 5:** 3-dimensional (3·1t<sub>N</sub> space) dual directional space.

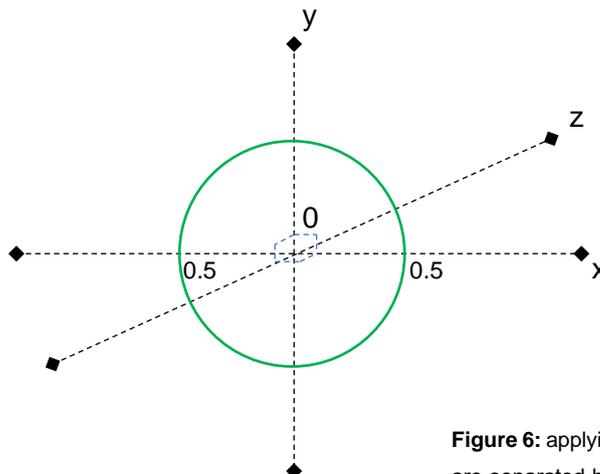
### 3.3 Developing the wave function of time in space

Now then let us look at this dual temporal axis modelling in 3-d space.

It would be simple to say that if we “multiply” each time result for t<sub>B</sub>, namely  $\varphi$  and  $\frac{-1}{\varphi}$ , we get the value of “-1”;  $\varphi \cdot \frac{-1}{\varphi} = -1$ .

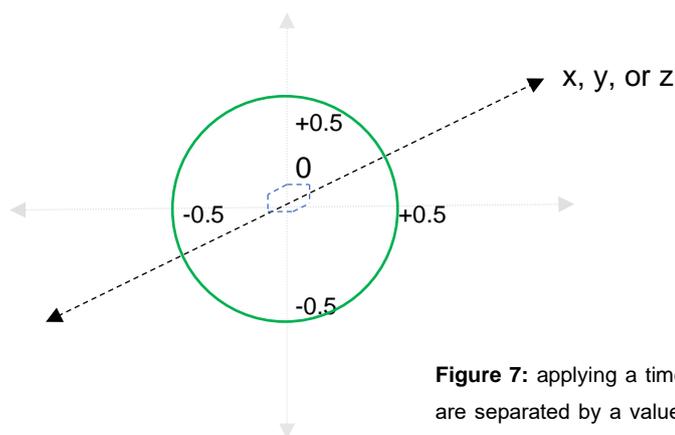
Yet to be noted primarily is that  $\varphi - \frac{1}{\varphi} = 1$  (if  $\varphi = 1.61803$  and  $\frac{1}{\varphi} = 0.61803$ ).

What this means is that if we are applying one time value to another, it is proposed at this level of theoretic modelling that those two values for time would be *separated* by a gross value of “1” as t<sub>N</sub>. When we apply this to a basic 3-d 0-scalar spatial grid though we arrive at what appears to be an anomaly while considering both the x-axis and y-axis as features of space for time (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.

In therefore assuming any orientation of axes, we would need a spherical time front if indeed time moves in two directions along each axis according to the same “flow” rate  $c$  (as shall be derived), in that for each axis would be traced a circle around each associated axis, namely as 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 spatial 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 equation 1 and figure 4, namely that  $\sqrt{3}$  is being applied to “1” to get 2 results for time, which brings inclusivity of “1” as a value into spatial consideration.

Thus, we can rightly consider that the distance between one temporal point to the next for a nominated axis would form the trace of the circumference of a circle with a diameter-equivalence of “1” giving the value of  $\pi$ , as per a spatial application of time.

To further note is that the way that time is being 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, but the result is also “negative” in regard to space (-1), 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, simply because that is how we are applying such to space, ultimately, namely 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 therefore becomes:

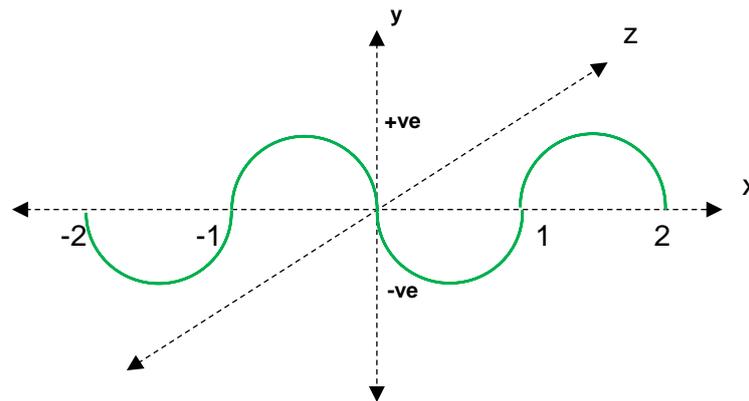
$$(t_B \cdot -2\sqrt{3}) + 1 = \pi \quad (2)$$

It is not as simple as this though.

“Time” being applied to “space”, according to the time-equation, has conditions, so figure 7 is not the exact topography that needs to unfold.

What is required in order to satisfy the time-equation conditions is for “time” to 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 along each axis direction, we can only consider figure 8 to hold true for the **x-axis** (here, for descriptive purposes of simplicity, in only considering the x-axis for space):



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

Now note the following five key points:

- The two possible wave function outcomes for the x-axis (nominated here as the spatial axis) in space represent the two directions the temporal wave function would move along each axis *in space*, one needing to be the opposite direction of the other in space, and thus inverse wave-sign value (y-axis -ve, and +ve) at the "0" point of the x-axis and y-axis in recognition of this basis.
- Therefore, along those two directions of space (along the x-axis) for this wave function would represent *two* temporal phase alignments, one positive (y-axis +ve), the other negative (y-axis -ve), suggesting a type of paradoxical condition of time-forward and time-reverse for the wave function moving along either direction of the x-axis from 0.
- Paradoxically therefore, this wave function, having both positive and negative temporal features, would appear to have *time stand-still*, not pass, as it travels along the x-axis in either direction from 0, despite it representing a speed of transmission along the x-axis from 0 as an overall time-equation in space.
- Along each directional x-axis from 0 we must also nonetheless satisfy each wave function step to having *traversed* along each directional axis (here the x-axis) the value of " $\pi$ " as a "unit" wave function length in space.
- The question to ask is how well this wave function is able to prescribe the value of  $\pi$  based on how it is mathematically defined from the temporal realm and associated time-equation in its application to space (here as the x-axis).

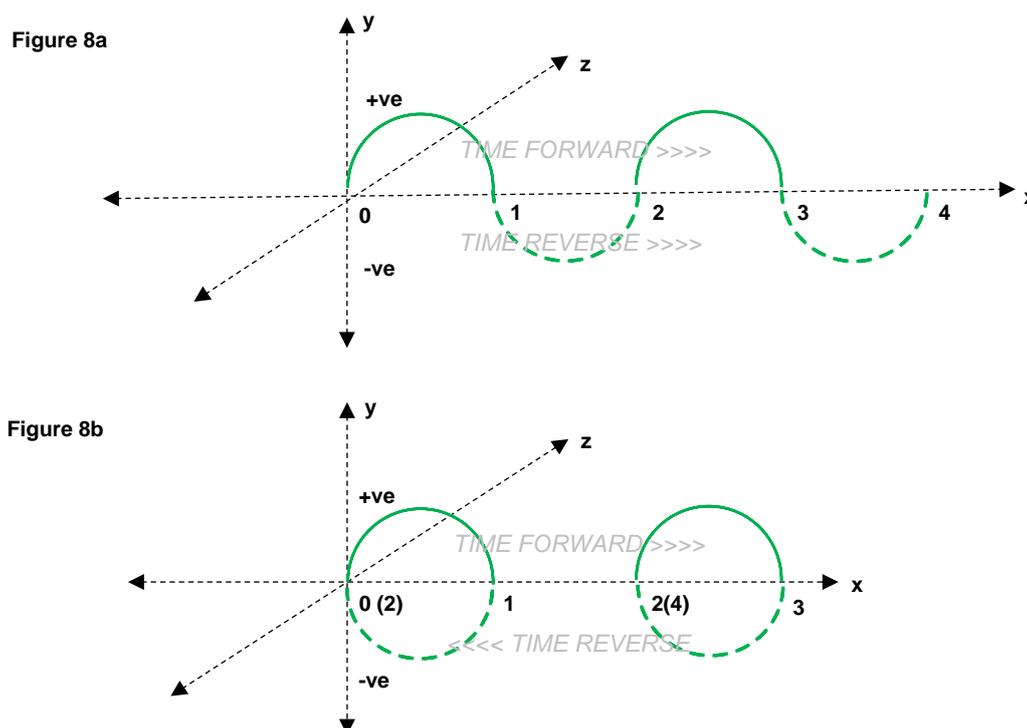
On simple observation, we can suggest that we have developed a *sinusoidal time-wave* along a spatial axis given that time must move a value of  $\pi$  in each directional axis from the 0-scalar spatial reference point "0".

Yet is such a standard sinusoidal wave as mathematics/physics knows it? No it is not. The important features to note here are that:

- this is **not** a *simple* linear sinusoidal wave in space,
- this is a **time-wave** in space with both positive and negative temporal features,
- the implication being that time-forward is positive (y-axis) and time-reverse is negative (y-axis), both along either direction of the x-axis from the central 0 reference.

Although the direction in space may *appear* to be positive or negative in terms of a reference from “0” on a mathematical grid, space here is space, it is not considered positive or negative, and yet what to note here with this temporal wave function is that the temporal function itself of the time-wave, the vertical y-axis, is *the temporal feature of the wave having both positive or negative values*, as **time-forward** and **time-reverse** respectively.

This feature will ultimately play a key role in explaining the *particle* nature of light and how at  $c$  time does not pass, to be presented in subsequent papers. Consider nonetheless an adaptation of figure 8, here as figures 8a and 8b:



**Figures 8a-8b:** note the primary temporal wave function as figure 8a, and the secondary time-circle “particle” effect of that wave function as figure 8b, both wave functions demonstrating the idea of time being an overall loop (not passing) as the progression of the temporal wave function, yet figure 8a being the primary focus for this paper and subsequent papers. Note also in figure 8b the time-reverse feature of values in brackets for the x-axis, as from figure 8a.

Note the time-circles in figure 8-b, how the negative region of the y-axis as time-reverse brings that part of the x-axis wave function *back a step* (in being time-reverse), twisted backwards, creating a time-circle as a type of time-now “virtual particle-ring”, giving light an almost particle-hopping nature as it would progress along either direction of the x-axis from 0, almost like the light particle-ring is tunnelling as it trains along each direction of the x-axis from 0.

This *particle* feature though is a secondary effect of light and as such is not considered part of the primary focus of examining the temporal wave function, yet will be pursued as a discussion point in subsequent papers.

In short, the focus primarily here is how well this temporal wave operates *primarily* from first principles, and subsequently here how it must deliver  $\pi$ , and this will be a consistent theme through this paper and subsequent papers, namely focussing on the primary temporal wave function and not its secondary apparent particle effects, which without understanding the fundamental processes at play would be a misleading investigation.

Indeed therefore, the issue with  $\pi$  is the question of, “*why assume that time as this wave would “move” through the axes of space continually as though beyond the length of  $\pi$ , extending outwards to infinity from 0, as opposed to just going back and forth along a “0.5” and “-0.5” x-axis grid presuming to trace  $\pi$ ?*”.

Note therefore the following:

- The primary consideration is how time has been installed into space using the time-equation.
- Yet installing time into space requires the time equation to be *modified, adapted*, given space is a different creature to time, as per equation 2.
- To note is that we cannot 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 a spherical wavefront in time, a *future placement* of the wave function, a  $t_A$  event) to ultimately most basically for one axis (here the x-axis) **equal the value of  $\pi$** , the length in space time has moved along an axis (as per equation 2).

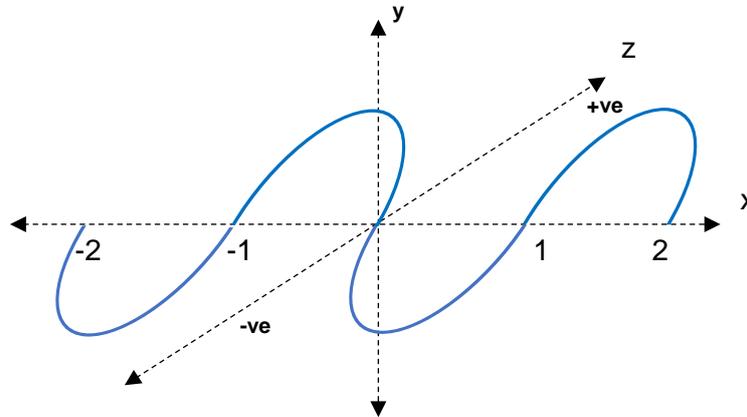
If we now factor in each value for the golden ratio we get the following two equations (bearing the assumption  $t_A$  must equate to  $\pi$ ) (eq. 3, 4.).

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

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

Although the calculation of equation 2 for  $\frac{-1}{\varphi}$  as  $t_B$  appears remarkably close to what the mathematics of time for space proposes, the results of these two equations appear anomalous for the *exact* value of  $\pi$ , noting only the value for  $\frac{-1}{\varphi}$  appears close to the value of  $\pi$  (0.021% error). Yet, are these results anomalous? Or can they be further utilised; do they point to something far more intricate and relevant? To answer such is to further investigate how the two golden ratio results for equation 2 can develop as a wave function.

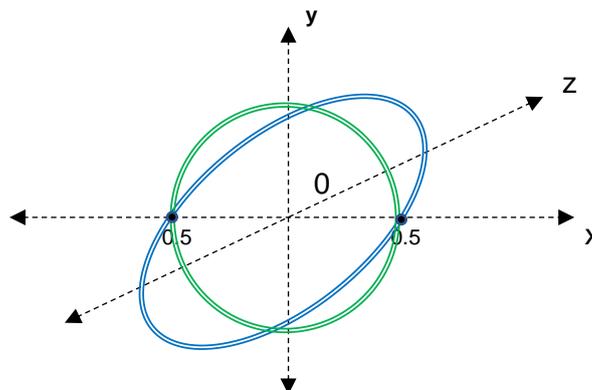
In addressing such, for the value of  $\frac{-1}{\varphi}$ , we would reach a value of approximately  $\pi$  in each direction of the x-axis from 0 as per fig. 8. Yet for the value for  $\varphi$  we reach the following graph (fig 9.) noting here the use of space as the x-axis once again, yet the temporal axis here **is the z-axis**:



**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.

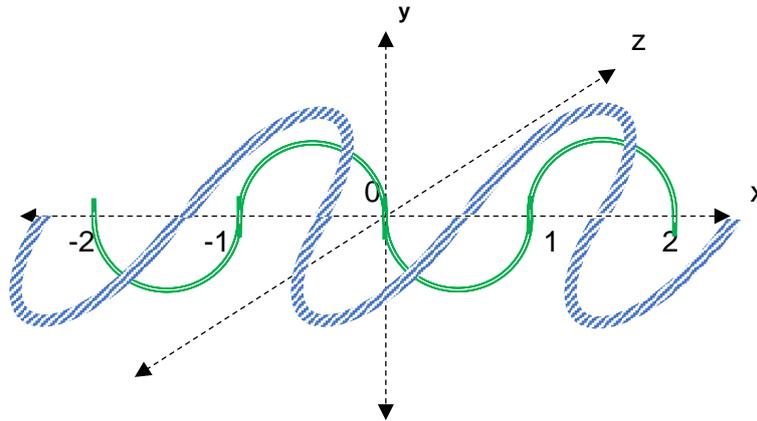
According to paper 1, the time-equation has two features related to the idea of EM ([1]; p6-8). Without much ado therefore, let us suggest that the result for  $\frac{-1}{\varphi}$  is the electric component (temporal axis being the y-axis) and the value for  $\varphi$  is the magnetic component (temporal axis being the z-axis). Why? Because we can only suggest that the value for  $\varphi$  when plugged into equation 2 is an ellipse [20], namely that it has a greater circumference than an ideally perfect circle, and thus has a dual pole centre of circumscription, as an ellipse does.

Consider therefore figure 10 in considering  $\varphi$  as the magnetic component of the wave function, and  $\frac{-1}{\varphi}$  as the electric component of the wave function (value for  $\pi$  tracing a circle) as analogous to figure 6:



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

Now putting this as a wave function as per figures 8-9, in factoring the electric component as out of phase with the magnetic component, as per the initial paper deriving such to be so for the time-equation ([1]; p6-7):



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

Note that as from the previous paper [1] and the mathematical proof presented there, we are considering that the electric component is *out of phase* with the magnetic component in this spatial grid ([1]: p6 table 1, p7 fig10-12). Yet here we are confirming that the *magnetic* component exists as a *binary-pole*, and the *electric* component exists as a *monopole*. Note also that this graph would apply not just to the dual direction timeline of the x axis, but would also need to be applied to any potential directional x-axis in space.

### 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  $t_B^2$ , given  $t_A = t_B^2$  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:

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

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

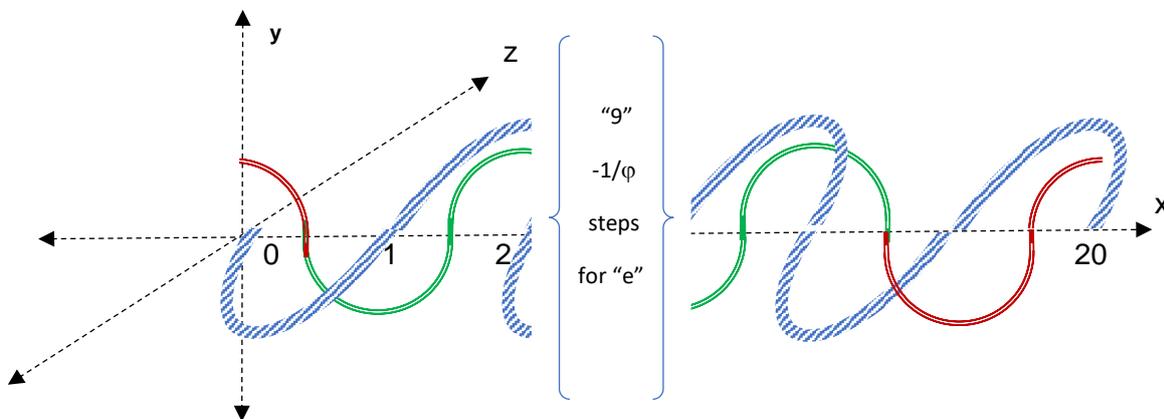
Note the squared value for  $\frac{-1}{\varphi}$  (electric component, equation 5) is roughly the negative of the value of time for  $\varphi$  (magnetic component, equation 4), suggesting an embedded “negative” connection between the electric and magnetic components of the wave function in this networked time-looping structure; basically, when the electric component ( $\frac{-1}{\varphi}$ ) is used as  $t_B^2$ , then the result should be roughly a value of 4.6 as what the magnetic component per equation 4 proposes except with equation 5 as a positive value. The thinking here is that such is an underlying basis feature of the interlaced temporal sinusoidal wave going from a positive curve to a negative curve divining the concept of *EM induction*, to be discussed further in a subsequent paper.

To be noted more importantly though is the squared value for  $\varphi$  (31.416253) for equation 6, namely a close value for  $10\pi$  in considering equation 3, the electric component step, closer than the initial equation 3 process for  $\pi$ 's formulation.

We can propose therefore that the value for  $\varphi$  in the context of equation 6 offers a closer value for  $\pi$  as the idea of a *recalibrated* "10"  $\pi$  electric component step process of equation 3, and thus what would appear to be the almost exact value for  $\pi$ , as the more correct scale to be put in play, as a type of compromise given the electric and magnetic components are intricately linked as the golden ratio anyway.

What happens to the electric component of the temporal wave function in this instance?

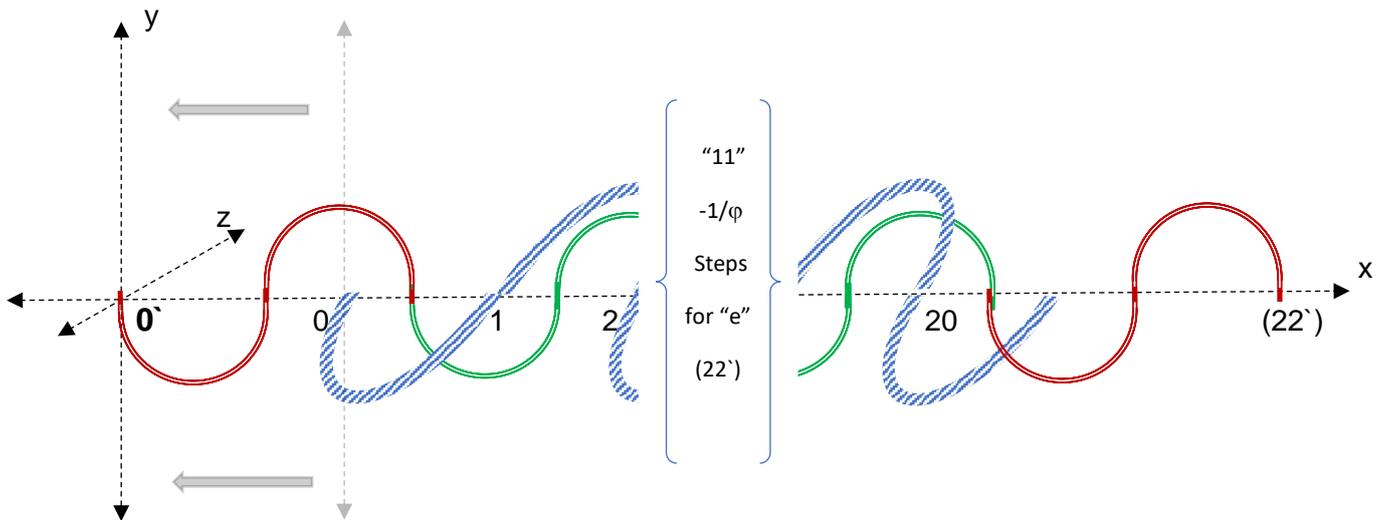
In therefore considering using  $10\pi$  as the magnetic  $t_A$  step as an "electric" ( $\frac{-1}{\varphi}$ ) component, such on a spatial grid would represent how that electric wave function component would align with the primary magnetic wave function component, as per figure 12:



**Figure 12:** Green line electric 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 electric component, and only 9 full electric wavelengths have been completed, leaving another two partial wavelengths.

Thus, at the start of the magnetic wave, we have a partial electric component, and so too at the end of the magnetic wave (see the red shaded line figure 12). 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 and not partial electric step, we need to consider 11 electric steps not 9.

Thus, as we are regarding the electric 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 electric 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 direction of the x-axis from 0, we need  $11 \frac{-1}{\varphi}$  wavelengths on each side of the x-axis 0 reference to complete what is required for the two values of the golden ratio ( $\varphi, \frac{-1}{\varphi}$ ) to reach  $\pi$  along the x-axis for space.

Thus there are two results for the golden ratio for  $\frac{-1}{\varphi}$  extending a  $\pi$  length in each direction (eq. 3) along the x-axis from 0, the other as  $t_B^2$  result extending  $22-\pi$  lengths (eq. 6), two results on the x-axis extending diametrically opposed to each other from 0 for 11 electric temporal wave function steps.

Note that we are using the electric 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) are not true to  $\pi$ -time means they must correct as a process of temporal *flow*, and thus the wave continues until it satisfies its  $\pi$  condition, as per  $\sim 11 \frac{-1}{\varphi}$  steps along each axis away from the  $\frac{-1}{\varphi}$  new 0-point. When this happens, when the 22-steps are completed, as per the initial paper ([1]; p10-12), the temporal wave function is then proposed to arc back on itself as a concept of wave function “*destructive interference*” resonance, a resonance that folds back on itself, to thence coagulate matter, as proposed, in the form of the electron, proton, and neutron (as will be explained), subsequent to which 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).

Once again, to be mindful is that an understated feature here is why we are using the x-axis as a flow of time in space; we have arbitrarily chosen the x-axis for the flow of time in space, 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 subatomic particle spin, and in doing so, explain the exact nature of this  $\pi$ -adjusted wave function to dynamically incorporate the  $y$  and  $z$  axes with space in a more integrated fashion.

### 3.5 The fine structure constant

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

$$\lambda = \frac{a^0}{22} \quad (7)$$

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

$$\frac{\lambda}{2\pi} = \frac{a^0}{2\pi \cdot 22} = a^0 \cdot \frac{1}{138} \quad (8)$$

Compare this to the equation for the fine structure constant of the atom ( $\frac{1}{137}$ ) [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? It is proposed that 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 electric sources, ultimately as 22 wavelengths between each two monopolar sources, the electron and proton (as shall be derived), as per the atom, yet with a slight length contraction of that 22 value, from 22 to 21.8.

Why the length contraction in the atom to bring the calculated value of  $\frac{1}{138}$  to  $\frac{1}{137}$ ?

It is proposed to 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, a force we have yet to factor in (although the basis for their existence was explained in the first paper ([1]; p9-11), a feature we shall explain in subsequent papers.

Simply, the fine structure constant ( $\frac{1}{137}$ ) would be indicative of the electromagnetic strength between the subatomic charged particles, and thus the value of  $\sim \frac{1}{138}$  would be slightly *greater* in considering this electromagnetic strength, hence the contemporary calculated value with  $\frac{1}{137}$ , for the value of  $\sim \frac{1}{138}$  is what the theory proposes *at first glance*.

Thus, in recalibrating our “22” to accommodate for the fine structure constant, it brings it to 21.8 (eq.9), a recalibration to be verified in subsequent papers.

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

### 3.6 The speed of light

The fact we have features of time and distance now in this atomic-locale context could suggest that 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  $\frac{-1}{\phi}$  wavelengths to 11.

The true value for light would be the actual “ $\frac{10}{\phi}$ ” 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), in fact 19.8 given the length is contracted on a real determination of light

as electrostatic force between the proton and electron according to the fine structure constant value. Yet what is the “time” it takes, as a measure of temporal wave function speed?

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, a property that is the information, the signature, of the electromagnetic dynamic between it and the proton.

Once again, we are using the true value for light here (a value of 20), not the atomic quantum adjusted value (a value of 22) (the quantum adjusted value which results in anomalies of the calculated positions of the subatomic particles in using light as we shall further discuss in section 3.7).

Thus, what we are considering is that ~20 times (19.8, as adjusted from 20, as 21.8 is adjusted from 22) the wavelength of the electron “per” its charge (per its 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 (which shall be demonstrated). The following value results:

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

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, 19.8 *adjusted*) in the atom “per” the speed of light:

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

Here therefore is delivered a derivation for the charge of an electron based on a calculated value for the speed of light  $c$  derived from the time-equation in applying the known value for the Bohr radius  $a^0$  of a proposed limited temporal wave function in space and associated fine structure constant value of  $\frac{1}{137}$ . Once again note that the wave function still prescribes that at the speed of  $c$  time does not pass, owing to the temporal nature of the wave function through space.

### 3.7 Confirming the Golden Ratio atomic scale

We can now perhaps amend the electrostatic equations of the initial paper given the findings of these new equations.

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  $Q_C = \frac{a\hbar}{ce^2}$ .

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 subatomic particle, thus a factor of  $2e_c$ .

In calculating-in 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, as follows:

- First, for each charged particle there would be a fundamental basis of “2” time possibilities,  $\varphi$  and  $-\frac{1}{\varphi}$ , and thus each subatomic charge entity would be *per* a factor of “2”, and thus a factor of  $\frac{1}{4}$ .
- Second, 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), and thus together a factor of 3.
- Third,  $Q_C$  would be “per” (indirectly proportional to) the wavelength of an electron as that minimal quantum length, thus a factor of  $\frac{1}{\lambda}$ .

Thus, the value for  $Q_C$ :

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

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

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

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 as the known value of  $c$ .

The implication here is the “held” nature of this scale, and thus how there is the potential for internal (atomic locale) temporal wave function resonance, which in the first paper was discussed as the mechanism of how “matter” would be generated ([1]; p11-12) at the points of greatest destructive interference resonance.

We shall further 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 of time for space for the atomic locale without using the Planck scale. This is not to say that the Planck scale is not useful, 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, suggesting that a scale for *time* in space is *more fundamental than the Planck scale itself*.

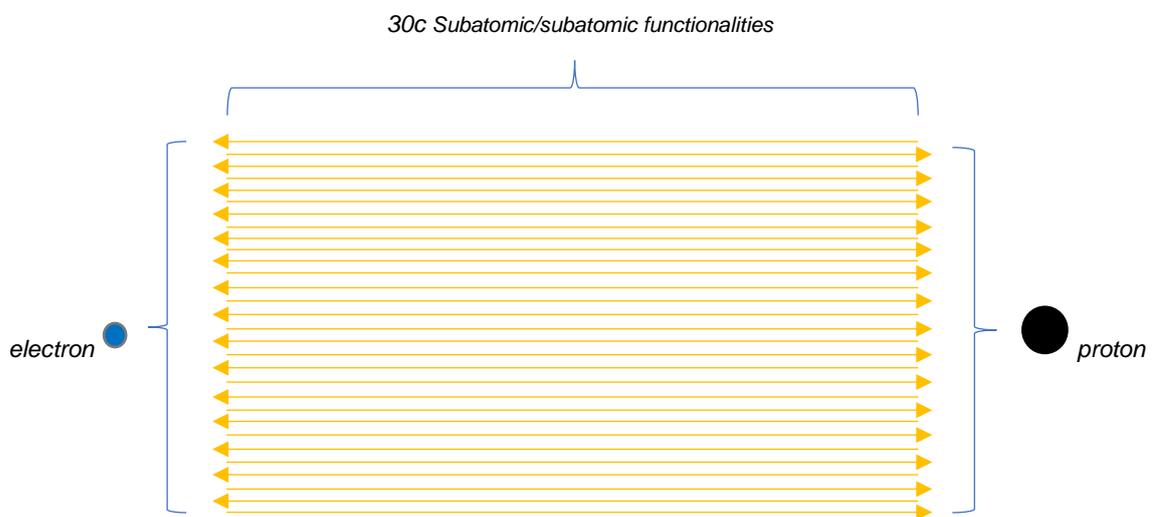
### 3.8 Subatomic electrodynamics and Gravity’s emergence thereof

Let us investigate the internal (atomic locale) feedback/folding (*destructive interference*) of the wave function that equation 14 points to by applying eq.11 to eq.13:

$$k_e = \frac{3 \cdot 2 \cdot 20 \cdot c}{4} = 30c \quad (14)$$

This result is telling; it states that the electromagnetic coupling force context is a value of  $30c$ . Proposed here is that this would be a wave function *building up process* leading to the formation of the subatomic particles, the wave function scaling factor being a value of 20 (20 wave function steps, as represented in equation 14), given that the EM coupling constant is being applied as a *process of the scaling factor reduced from “20” down to “19.8”* (fig. 16).

Nonetheless, equation 14 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 (equation 14). Given the radius of the atom is fixed, we could only have a “running to and from” *destructive interference* wave function effect, from the electron location to the proton, of light, of the time-wave (fig 14.):

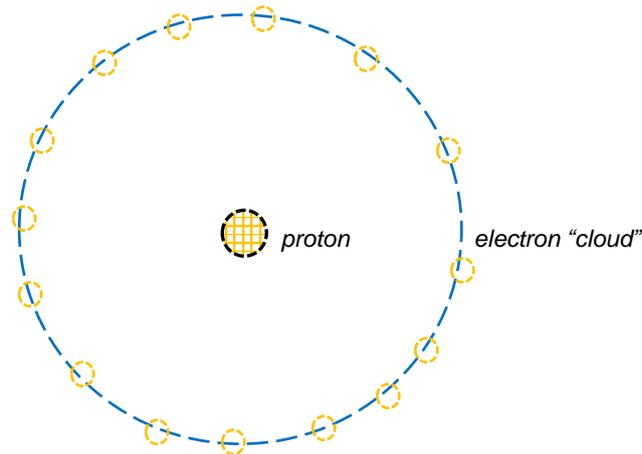


**Figure 14;** 15  $c$  directions from the electron to the proton, and 15  $c$  directions from the proton to the electron, each loop meriting a new unique status/orientation of the electron and proton.

It is proposed that how this “running and returning” *destructive interference* of wave function units would manifest between the electron and proton, between these charged particles (their status as “particles” to be explained later in this section), would define a unique status with each “running and returning” *destructive interference resonance*, a unique wave function orientation, or perhaps a unique sub-structure, any combination thereof, of these subatomic charged particles, to be discussed in a subsequent paper.

Nonetheless, given the known uncertain location nature of the electron, it would be reasonable to suggest that it, the electron, would more than likely exist in various locations around the proton according to its need to circumscribe a circle for the x-axis, and yet more precisely, a sphere for any direction of x-axis in space (condition for  $-\frac{1}{\phi}$ , eq. 3), perhaps like in a “cloud” of (according to above) 15 various basic positions, whereas the proton (and neutron, as we shall soon explain) would not only relatively fixed in the atom, yet would have its own substructure meriting the 15 different unique identifiers it would need to uphold for the atom (whatever they may be) (fig.15):

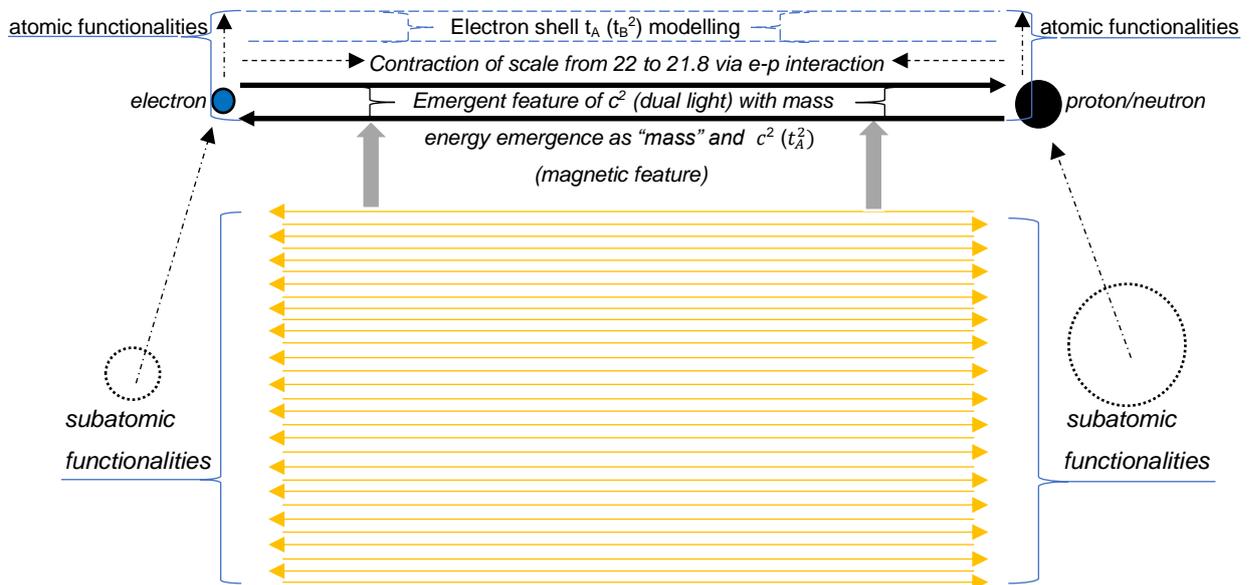
**Figure 15;** 15  $c$  orientations for the electron to the proton, and 15  $c$  internal sub-structure ingredients for the proton, once again each of the 30  $c$  loops meriting a new unique status/orientation of the electron and proton.



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It should be noted that each of these *destructive interference resonance* ( $c$  loops) would form the electrodynamic binding substructure of the electrodynamic force between charged subatomic particles (electron and proton).

Note also that these 15 *destructive interference resonance*  $c$  loops ( $30c$ ) would represent two key electrodynamic reflection points, opposite to each other in their effect, yet attractive to each other nonetheless in keeping the fine structure constant value pegged at the value it must be, to be further investigated in a subsequent paper. Consider figure 16 as a furthered description of figure 14 thus:



**Figure 16;** “beyond” the  $30c$  manifold is a  $c$  factor that can only be “squared” as a “future” ( $t_B^2$ ) 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 (and 20 to 19.8) by the emergent force between the proton and the electron, and how indeed electrons would behave in their cloud

orientation in this new emergent platform (as 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/subatomic level with this new emergent level of energy shells, the following equation results:

$$k_{e'} = \frac{3 \cdot 2 \cdot 21.8 \cdot c}{4} = 32.7c \quad (16)$$

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).

Note that 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 through these theoretic development steps.

### 3.9 Particle uncertainty and quantum entanglement

The calculated “out of phase” nature of the temporal wave function regarding its intrinsic electric and magnetic components (together with the *secondary hopping/tunnelling particle nature of light*) implies that the position of the electric component of the wave function would be inconsistent with its magnetic component. Further to this, the natural state of the speed of light (at which speed time is calculated to not pass) in association with the fine structure atomic locale suggests that there would be a natural mismatch between what should be measured accurately and what is actually measured.

Such proposed phenomena is not dissimilar to the phenomena described by Heisenberg’s Uncertainty principle [22], as shall be further discussed in subsequent papers.

In short, it should not 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 is proposed to exist equally on its own everywhere, a homogenous symmetrical thing, namely 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 being proposed as a 3-d void, and ultimately this would represent a 3-dimensional manifold for energy/light to operate in as per the concept of “time”. The way that light/energy would interact with itself in different references of 0-scalar space is how space would become non-trivial, namely via “time”. The important feature about space though is that it represents a dimensional entity, three dimensions, that light operates in, yet being nonetheless universal as though existing identically everywhere at once. When “time” though is applied to different locations as a wave function, namely as a *wavefront*, the idea of space is given *non-triviality*. Yet to note is that the time-equation proposes that at the speed of the wave function, of the wavefront,  $c$ , time does not pass, and is thus 0, a time-ring so to speak. Thus, using a feature of the wave function as light as a process of

measuring two locations in space, each of those locations in space in the process of their being measured would thus need 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  $\frac{-1}{\varphi}$ , together with the idea that the temporal footprint in being as “0” (time not passing at  $c$ ) would paradoxically underwrite the idea of that wave function wavefront existing anywhere in space where a measurement is taking place.

For instance, what exactly is the idea of quantum entanglement? Physics knows it to 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.

How is such possible if not divined by the quality of both the universally apparent 0-scalar spatial platform becoming non-trivial together with an associated quality of wave function transmission at which speed time does not pass?

On the atomic scale, here by this new temporal description, it is proposed that the idea of quantum entanglement represents the two states that can be activated as a type of “vibration/spin” for each particle along the temporal sinusoidal train that performs as a wave function in relation to particles (as proposed in the initial paper [1]), given the two results are embedded already “in” the sinusoidal construct. The idea of the measurement itself of two bodies using time/light here therefore, as for the temporal wave function, is proposed to create an arena of light-measurement and thus a quantum association that places, at a minimum, two bodies as either state 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 proposed here that quantum entanglement 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 temporal location in space in alliance with time not passing at  $c$ . Once again, why? Firstly because of how space is being defined, 0-scalar, universal, no limits, and secondly because of the intrinsic temporal nature of the temporal wave function, how paradoxically it operates at a speed where time is looped, as though time at  $c$  does not pass.

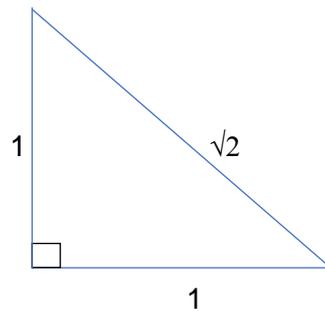
### 3.10 *Extra-atomic topology*

Fundamentally, the effect of light/time beyond the subatomic realm would be defined by the electron energy-shell dynamic, as discussed in the initial paper ([1]: p13-15). As is known to physics, the electron shell is how the wave function is both absorbed and emitted from the atom per electron jumps, leading to the notion of the wave function of light being both a wave and particle, “particle” in given the idea that these jumps are demonstrated to represent packages of energy.

Here, the idea of the wave function behaving extra-atomically can only be confined to how the wave function has been theorised to propagate, namely as a temporal wave function, with a time-looping effect, presenting the case for both a  $c$  transmission through space and how at  $c$  time would not pass (owing to the time-loops of the wave function). It should also be noted that these time-loops in the wave function would themselves represent *time-circles* giving a “particle-like effect”. What will be demonstrated in subsequent papers is how a full time-loop of the wave function, namely a process of “*destructive interference*” *resonance* of the temporal wave function, can actually produce non-zero mass particles. Yet here in the case of a standard temporal wave function, it is proposed that the time-circles are responsible for the wave function seeming to have “no-time” at the speed of its propagation, and as explained, responsible for the “particle uncertainty” and “quantum entanglement”

phenomena of particle identification with light. In other words, the idea of particle uncertainty and quantum entanglement would not only apply to subatomic particle spin/orientation as calculated to be in play within the atom, yet also *beyond* the atom.

Mathematically, the time-circle idea, in being pan-space, namely a consistent event for the temporal wave function in space, would translate as the idea of two potential atoms (or particles) being in a “now” quantum entanglement event, wherever, which would result in a  $\sqrt{2}$  value for that resulting emergent (from the subatomic time-axes) now-time event as per figure 17, suggesting that the otherwise random positioning of particles would be dependent on a  $\sqrt{2}$  value for a resultant “now” time  $t_N$  association in regard to space:



**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  $t_N$ .

Such is not dissimilar to the equation Einstein reached for *Brownian motion* [23], namely  $\frac{x^2}{2t} = D$ , 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  $t_N$  in considering two possible  $t_N$  events in space.

Beyond this basic phenomenal notion, another basic phenomenal notion of the time-equation, as highlighted in paper 1 [1], is the idea of time passing from time-before  $t_B$  to time-after as  $t_B^2$  via time-now *implying* a forever expanding spatial matrix in regard to the temporal wave function, as a squaring of time, a squaring of a temporal event as time passes from time-before to time-after, and thus a potential “illusion” set upon space by the temporal wave function ([1]; p16-17) [24]. Here, it is proposed that this *calculated* effect of the temporal wave function in regard to space would represent the key feature of light on the atomic scale as the “inverse” of the frequency (as thus a measure of time in seconds) of a Compton wavelength, namely  $\frac{\lambda_e}{c} \sim 8.1 \cdot 10^{-19}$  s, yet as a “squared” ( $t_B^2$ ) value, and thus a value of roughly  $10^{-36}$  s (exactly  $6.7 \cdot 10^{-37}$  s). This is a value known to physics relevant to a *primordial value for time* as an aberration of space indicating the big bang event (rapid expansion of space).

Conversely, the proposal here is that such ( $t_B^2$ ) is a temporal feature per se, **not** a spatial feature, namely that with each oscillation of energy of the electron, for instance, there would be a squaring effect in play as a time-front into the future, which of course could suggest a hitherto rate of expansion of space (as measured through the electromagnetic spectrum) considered to be responsible for such an effect upon the electron. However, such is proposed **not** to be the case (expansion of space), yet a result of the primary **temporal** event of the wave function in regard to particle behavior. In therefore *not* calibrating  $t_B^2$  through vast distances in space, in not being cognizant of this mathematical feature of the wave function as a temporal condition, the effect could be incorrectly explained by using the idea of a historical explosive spatial expansion event (big bang) still effecting the atomic level per a remnant of spatial expansion.

### 3.11 Consciousness

Given the proposals of sections 3.7-3.10, there would appear to be an inherent mismatch between “observation” and “calculation” regarding any subatomic particle when observed with light, together with an inherent

universal entanglement between all particles in regard to observation with light. A new proposal is that this *natural* mismatch and entanglement could have the effect of giving rise to a *third* concept, namely the very idea of consciousness [25] itself, a talent that allows us to calculate 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  $\frac{-1}{\varphi}$  result for each 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 of information transference travelling through space though as the speed of light, as  $c$ . Simply, the proposition here is that consciousness could well be described as being that "thing" that appears to be a quintessential 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 physical phenomena, the most fundamental drive, as the golden ratio time-equation in a 0-scalar universal space manifold, is a candidate for an ultimate structure of the subatomic particles and associated field forces, as per the following discovered features to the time-equation thus far:

- The development of a temporal wave function that prescribes dual features (electric and magnetic) in alliance with its unwritten time-equation.
- An explanation for the monopolar nature of the electric component of EM, and dual-polar nature of the magnetic component.
- How the temporal feature of the wave function prescribes paradoxically that time would not pass at the speed of directional movement of the wave function in space.
- That there would exist an atomic locale reference for the wave function, as a  $\pi$ -locale.
- Associated to this  $\pi$ -locale atomic reference would exist a fine structure constant derived from a golden ratio utility of time as applied to space.
- The speed of light, of the wave function, can be derived from the Both radius and fine structure constant.
- Light would be associated with a number of anomalies, primarily "tunnelling", "entanglement", and "uncertainty".

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 time-equation provider for the temporal wave function deriving the atomic locale. It is thus considered that such an equation and process of theoretic modelling 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

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