

Phi-Quantum Wave-Function Crystal Dynamics

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Abstract: In this development upon three previous papers [1][2][3], we shall explain how Phi-Quantum Wave-Function crystal constructs emerge from the elementary particle level, in being associated to electron shells, and how they then through a fractal progression develop to a macro-world scale per a golden ratio sequence of atomic association while establishing an equation for the Avogadro number and associated formulation of the background microwave radiation and red-shift effect. The emphasis of this paper is to highlight the continued utility of the golden ratio modelling for time, the great implication being the need to understand “spatial contraction” (not “time-dilation”) to satisfy ideas of relativity forwarded by Einstein a century ago. We shall highlight how this is possible by examining the *phi-quantum wave-function* scale as a new wave-function template for electromagnetism, as initially developed in Golden Ratio Axioms for Time and Space [2], now carried and further developed here to explain spatial contraction and associated elementary particle dynamics (including particle spin and anti-matter/particles dynamics). In considering this phi-quantum wave-function scale, we will then finally uncover the problematic process of the Cartesian coordinate system of mathematical execution for space and improbability of the Planck scale of determination.

Keywords: elementary particle; golden ratio; fractal; Fibonacci; Avogadro number; wave-function; electromagnetism; anti-matter; Cartesian; relativity; anti-particle; Chirality; Brownian motion; particle spin; black hole; Topology; manifolds; Geometric topology; strong nuclear force; weak nuclear force; neutrino; platonic solid; blue-shift; red-shift; chaos theory; cosmic background microwave radiation, logistic map equation; electron shell, Avogadro, Cartesian, Planck scale

1. Introduction

We're at the point in this series of papers [1][2][3] where we can give a detailed criticism of Einstein's proposal for relativity theory [4] citing the malleability and primary function of space and not time; we are not challenging the idea of relativity itself, how time namely can appear to stretch/slow, yet we are making the statement (in using the golden ratio for time) of time not being malleable beyond that algorithm of determination, and that it is in fact space that is malleable care of our new wave-function for space, the phi-quantum scale; the wave-function is addressed in the need for the initial condition of the axiom definition of phi time to find π in space. This poses problems of course to the use of a fixed Cartesian manner of spatial appreciation [5]. Harder still is the notion of

how it could be possible to insert an arbitrary equation within a new axiomatic determination for time and space without recognising any new underlying feature of temporal and spatial congress. So, the task has been to derive “all” known equations relevant to physical matter, and it is no different in this fourth paper.

In the first chapter we will examine the basic difference to the idea of relativity presented in this series of papers is to Einstein’s proposal of relativity and by what manner of change in algorithm is being exercised; we shall explain exactly how the dialogue presented here differs as per the employment of a new set of mathematical tools and algorithms, not as fixed spatial grids that transform to one another that describe wave-functions [6], yet a fixed time-algorithm that employs topographical 0-scalar space that is able to contract/bend according to relativistic demands on the phi-quantum wave-function scale. The dialogue and reasoning here nonetheless reaches “more” accurate results while being able to link all the general equations of force, motion, energy, and mass from the one axiomatic base, this in “not” considering time to be the 4th dimensional entity of space-time that gives space-time its malleability, yet a new axiomatic structure (golden ratio). For, although Einstein considered spatial malleability, he only did so in coupling space to time as space-time. The difference with the theory here is time is in no way “malleable”, only space.

The question is, “via this change, how are all the features, the granularity of the elementary particles (for instance, the spin of particles, the force behind Brownian motion, and other exotic elementary particles such as the neutrino and anti-matter) being addressed; have we addressed those issues in this series of papers thus far?”

Particle spin is a fundamental quality of the elementary particles and shall be addressed in this paper by addressing how a gravity field is effected per the folding /coupling proposal presented in the first paper [1]:

- How this spin relates with electromagnetism/gravity.
- How spin relates with the proposed electron shell crystal constructs.
- Why there are 30 or so elementary particles.

Then, we shall explain “Interatomic interactions” involving

- Chirality.
- Brownian motion.
- Atomic fractal development.
- Avogadro’s number.
- Cosmic background microwave radiation.

Not just particle spin, yet also the subatomic realm of neutrino’s, quarks, and so on, needs addressing. All these features shall be explained; most fundamentally, the actual propulsion mechanism of elementary particle spin and Brownian motion.

First though, we shall undertake an analysis of the two types of relativity being proposed, Einstein’s fixed spatial relativity, and the one proposed here as a fixed temporal and warped/compressed space relativity. Then we shall move to a more thorough explanation of gravity on the atomic level discussing its emergent features from the atom in relation to a proposed crystalline structure of the phi-quantum wave function, which then opens to the mechanics behind the emergence of gravity, not as a wave-function collapse, yet a wave-function “folding” resulting in “sub-quanta granularity”.

2.1 A Review of Relativity

Einstein employed the idea of “time” to measure references in space, time that could be fluid and recalibrated with a fixed spatial reference given the different motions between different spatial references. Space was the fixed entity in his appraisal of relativity.

Consider figure 1:

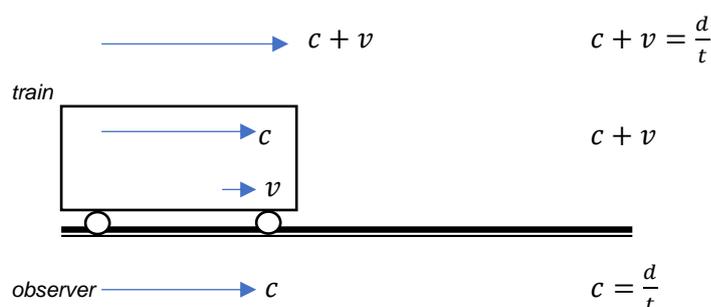


Figure 1: Einstein reasons the idea of light on a train and how time is elongated to preserve the constancy of the speed of light from any frame of reference, and here that of the observer. This is explained as “time-dilation”; the resultant “c” care of “time” must be slower on the train with the effect of light relative to the observer by making “t” longer.

Einstein’s work depended on a few key findings, the main one being the bending of the light of a star hidden behind the sun to be viewed by the Earth during an eclipse [7]. Yet does gravity bend light or is there a feature to a massive body that is essential to electromagnetism itself that results in an emergent effect of gravity *seeming* to bend light? Could there be a *self-repelling* effect on a more fundamental electromagnetic level such that light would seem to bend around massive bodies? The “self-repelling” concept of electromagnetism (and how that can work) shall be addressed in this theory. Einstein also proposed that time would slow as one’s own velocity sped up. Atomic clocks in spacecraft show this to be the case [8]. Yet the dilation (slowing) of time in the context of high speed space travel using atomic clocks that show time to be measured more slowly should be examined more closely per the processes going on there; per the theory presented here, ultimately “atomic” clocks measure differently at different speeds because of the change in *spatial* mechanics of recording time, “time” which remains constant (as a golden ratio). Although time appears to slow at very high speeds over time, yet what is happening is the contraction of space. Contraction of space per the theory presented here means a higher “binding” force between atoms and thus **less** radioactive decay (as is evident in the ultimate case of a black hole), less of an expression of the weak-force, and thus an apparent slowing of atomic clocks (and thus “apparent” time); think of a black hole [9] with light trying to escape the surface of that massive structure, it’s like travelling at the speed of light but not being able to breach it, time seems slowed, yet everything at the speed of light becomes so weighty, as with a black-hole; as the theory shall suggest here (regarding background microwave radiation), time as light doesn’t slow but rather folds back onto itself as mass in a process of contraction hence the enhancement of gravity. Furthermore, the fact that gravitational waves [10] can be emitted by black hole interactions suggests that time is not distorted, but rather space. Yet the most complicated feature of physics that has resulted from Einstein’s work was the need to use spatial grids in mathematical transformations [11] to measure ideas of spatial symmetry between particles in the context of misread relativistic effects which look for fluctuations in time and not fluctuations in space (spatial compression).

In this series of papers (in carrying the idea of using time as the “golden ratio”) we are doing something quite different. We are considering time to be fixed to the golden ratio (albeit in search of perfecting the trace of a circle), while space is the malleable/warp-capable feature; “space” is the feature that would need to undergo a type of “contraction” as a process of it being manifest, as on the level of the atom, and even more precisely the level of the elementary particles. To achieve this though we need to construct a mechanism for the contraction of space as much as Einstein developed a mechanism for the dilation of time. What is used here is the constancy of golden ratio temporal dimensions warping space. It means that all the mathematics employed after Einstein’s ideas of relativity have been replaced here with a new scaling system that represents the golden ratio for time and factors in spatial compression (in accommodating for relativistic effects between moving particles/bodies). Einstein used the idea of space-time as 4-dimensions, to tack on a variable time dimension on a fixed 3-d space, to gauge space for relativistic effects in space with moving bodies and the constancy of the speed of light. In this series of papers, we have so far explained time as the golden ratio in terms of an algorithm that defines the arrow for time, and how it imprints on space as a three-dimensional bi-directional entity; let’s now be more precise with this new scaling system given that it is the proposed wave-function algorithm for electromagnetism and, as shall be demonstrated in this paper, gravity.

2.2 The “Phi Quantum Wave-Function” scale

Here we are replacing all the mathematical matrices and spatial grid-transformations and associated wave-function equations used in contemporary physics. We are not abiding by the Cartesian fixed approach, although we are using a 3-d spatial grid that accounts for a quantum-scale where the wave-function “seeks” to travel a value of π for each quantum step. Let’s though be mindful of using the relevant terms as they exist with our spatial construction process:

- Topology [12] as a discipline of mathematics concerns the properties of space preserved under continuous deformations such as stretching, crumpling, and bending, not tearing or gluing.
- Topology’s origins can be traced to early twentieth century, yet some ideas can be traced back several centuries. For instance, Seven Bridges of Königsberg by Leonard Euler [13] could be regarded as one of the first demonstrations of topological thought; Euler had realized the importance of the *edges* of a polyhedron—which led to his polyhedron formula, $V - E + F = 2$ (where V , E and F respectively indicate the number of vertices, edges, and faces of the polyhedron).
- It wasn’t until the 19th century until the term *topology* was introduced by Johann Benedict Listing and it wasn’t until the first decades of the 20th century that the idea of a topological space was developed. Nonetheless, by the middle of the 20th century topology had become a major branch of mathematics.
- Topology has many subfields, but here in this paper we will use Geometric topology which primarily studies manifolds and their embedding’s (placements) in other manifolds. More specifically, we will investigate low-dimensional topology, (which studies manifolds of four or fewer dimensions).
 - o What we’re considering here are manifolds of 1-2-3 dimensions, topological space that resembles Euclidean space near each point.

- we are not considering topological quantum field theory (or topological field theory or TQFT), a quantum field theory that computes topological invariants, as this is relevant to fixed spatial matrices and time dilation.

It is considered that the following golden ratio time 3-d 0-scalar space figures and equations are sufficient to prepare the processes forwarded here by this theory: ([2]; p4-11, fig. 1-13, eq. 1-9). In general review of those pages and associated figures, one clear feature we have forwarded other than compressing space as opposed to dilating time is introduce a scaling system for the atom based on the golden ratio algorithm for time in aiming to trace π . Another feature to note is how the electrical component of the electromagnetic wave is out of phase with the magnetic component, and that this differs to the contemporary belief of the electrical component being in-step (in-phase) with the magnetic component. One could imagine how the equations for electricity and magnetism could be skewed if indeed the electrical component, as we have been demonstrating through these series of papers [1][2][3], is out of step with the magnetic component of electromagnetic radiation.

The phi-quantum wave-function scale is the fundamental process of alignment for the subatomic structure, and above all how the extra atomic structure emerges ([2]; p16, fig. 16). Once again, the diagrams contained therein highlight just one axis of determination, in this case the “x” axis; this was considered logical as per being defined as a t_N event ([1]; p4, eq. 4), $t_N = 1$. The other two axes will be demonstrated to represent the spin of the elementary particles, or rather how the electric and magnetic components rotate “around” the x-axis. Before we discuss the nature of particle spin though, the fundamental feature we need to acknowledge is the electromagnetic coupling context 32c for emergent gravity of the 22(21.8)-quantum length wave-function ([2]; p16, eq. 16) and how this becomes the platform for spatial contraction ([2]; p12, eq. 9) (a relativistic requirement here, and not time-dilation). The following is the wave structure that results, a standing wave:

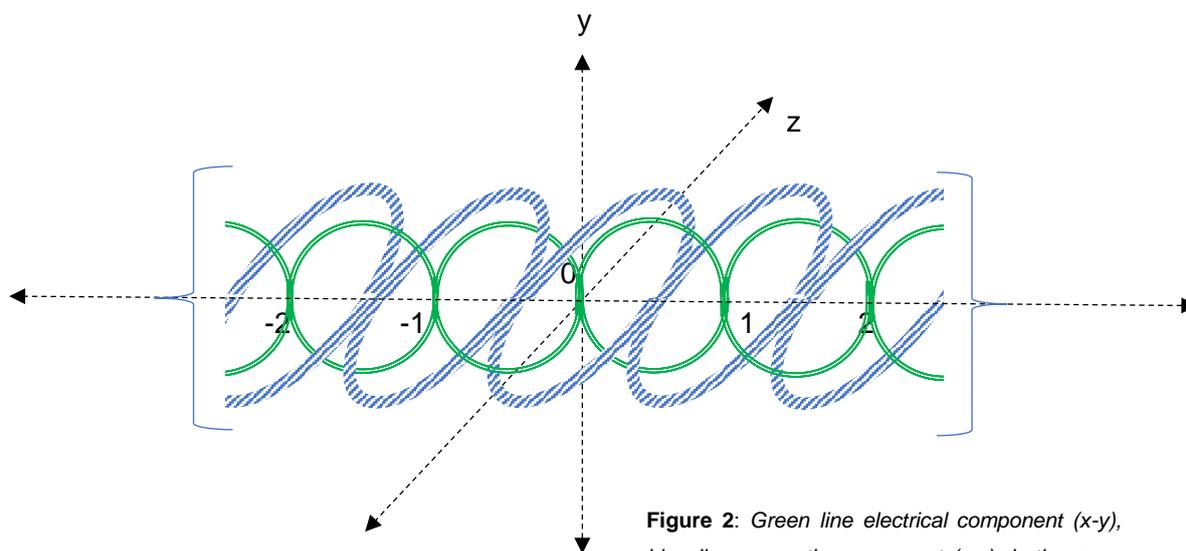


Figure 2: Green line electrical component (x-y), blue line magnetic component (x-z), both waves out of phase with each other and perpendicular to each other, folded-over/coupled. The values on the x-axis represent $\frac{1}{2}$ quantum length increments.

Here with this “coupling (folding-over), we have a new type of wave structure for both the electrical and magnetic wave components. For the electrical component, we have perfect circle traces at the ends of each 22-quantum length. The thinking here also is that given we have a perfect π trace, we are creating a precedent for the

a “reaching” of π in a complete 3-d 0-scalar space context (time “circle”), and we have this at two points on each circle on the x-axis, each point representing a key “particle” manifestation:

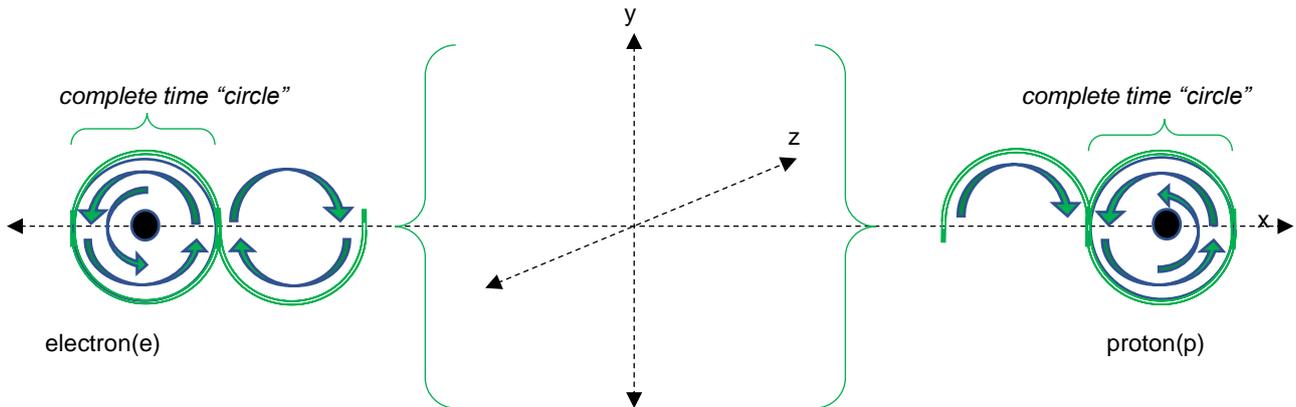


Figure 3: The thinking here with these points is that they are associated to a complete time-circle, a 3-d circular time-entity that would emerge as “mass”: this would happen for the proton and electron; only the electrical component of the wave is shown here (proton (p) and electron (e)).

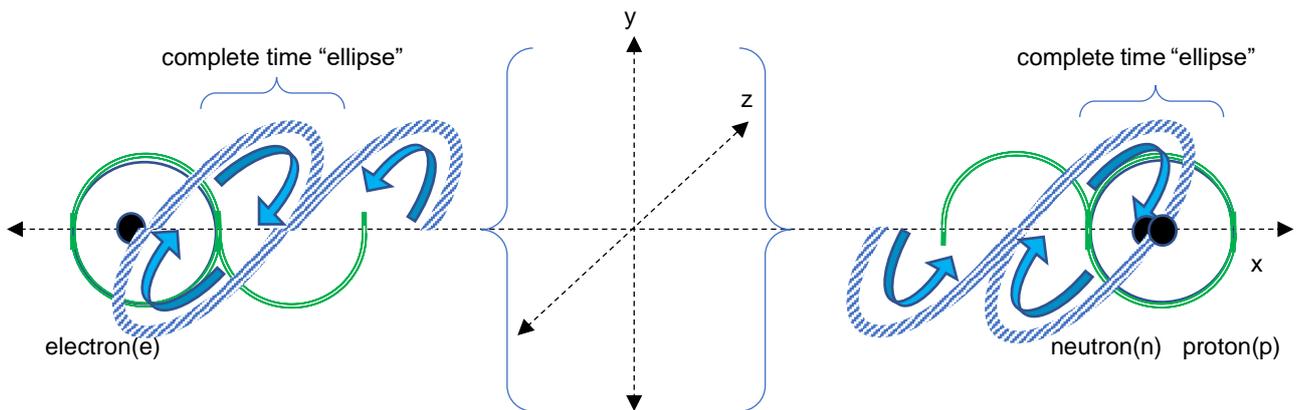


Figure 4: the thinking here with the neutron point as the “magnetic” component, is that the neutron is associated to a complete time “ellipse”, a 3-d ellipsoid time-entity that would emerge as “mass”. Note, the electrical component of the wave is also shown here in green, and that the manifestation of mass would still need to abide by the electrical quantum component of light/time (the fundamental axiom to be considered). The idea of an electron “partner” is not considered as shall be explained further on in the theory.

Regarding how the proton and neutron spatially relate together, and how this relates to their elementary “30” substructure (15 for the proton/neutron axis, 15 for the electron axis), there is still some preliminary theory to go through before we can discuss that elementary particle domain. For now, the equations pointing to the manifold topology of these points at either end of the 22(21.8)-quantum length phi-quantum wave-function scale now seems to unfold with greater clarity. On the proton/neutron scale (M_p) we must consider the emergent feature of mass and thus a squared value of “2 results per 3 dimensions” as a value of the emergent gravity context (universal) as M_C :

$$M_c = \left(\frac{2}{3}\right)^2 \cdot M_p \quad (1)$$

On the electron end of the scale (e_c) we would have an inverse negative value (golden ratio to the proton/neutron) yet not squared (as this is not an emergent gravity feature), as “3 dimensions per 2 results” yet the two results “factored as a quantum wavelength (lambda)” (given the electron is the effector of quantum determination) as a value of the electrodynamic (universal) context as Q_c :

$$Q_c = \frac{3}{2} \cdot \frac{1}{\lambda} \cdot e_c \quad (2)$$

These equations are relevant to the derived universal contexts for mass and charge respectively, which when each is multiplied by c^2 we arrive at G and k_e respectively. What of the dynamic between the particles on this new folded level with its $32c$ emergent gravity manifold? Here we must be arbitrary; the idea forwarded is the electron being “self-repulsive” on this emergent mass/gravity level, and the proton-neutron being “self-attractive”. Thus, the negative end would almost seem to assume the identity of “anti-matter”, the positive “matter” (figure 5):

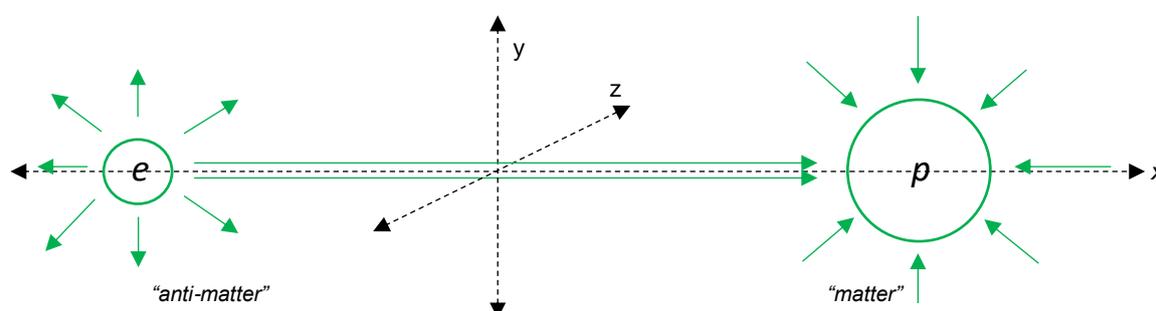


Figure 5: note the flow of mass away from the negative (dissociative) and towards the positive (associative). This is an arbitrary determination and could be either end of the x axis, the point of arbitration here is that the p-n area would be self-attractive, and the e-v region self-dissociative

This then grants each of the 15 “matter” subatomic entities on the proton/neutron axis an association with the 15 “antimatter” subatomic entities on the electron axis. It’s as though the 15 “antimatter” elementary particles would be the “antimatter” versions of the proton/neutron axis. What we are considering here is the effect of the proton/neutron being “self-associative” (and this would represent the strong nuclear force [14]), and the electron being “self-dissociative” (and this would represent the weak nuclear force [15]). Note that the strong nuclear force is indicative of the electromagnetic coupling strength of the atom, 137 times as strong as electromagnetism. Gravity though as an emergent feature would represent 3 key features; the mass-based (proton/neutron), the electric, and the magnetic, and thus not just the commonly understood mass-based feature.

2.3 Mass-based Gravity (EG1)

As just introduced, this is the folded electrical component of the standing wave along the x-axis (and thus apparently invisible as a folded-over electrical wave). This is the process of determining the force from one end of the phi-quantum wave-function scale (electron) to the other (proton); the electrical field would hold the flow of charge as the direction an electron would move, as per towards the proton from the electron. Coupled with this

emergence is the contraction of space (which would account for the relativistic effects between the “p” and the “e”, not to mention their inherent electrostatic attraction). The feature here nonetheless is the attraction of the electron to the proton; essentially, we are confirming that the contraction prescribed as in previous papers ([2]; p12, eq.9) represents an emergent feature that is coupled to the idea of the mass-based endpoint time-circles/ellipses.

2.4 Magnetic Particle Spin (EG2)

One key under looked feature to our phi-quantum wave-function is that thus far we have considered the wave-function to develop along the x-axis, the electric component rising and falling in amplitude along the y-axis, and the magnetic component rising and falling along the z-axis. In fact, both the electrical and magnetic components would rise and fall in amplitude in both the y-axis and z-axis, and they would achieve this by their respective rotation “around” the x-axis (figure 6):

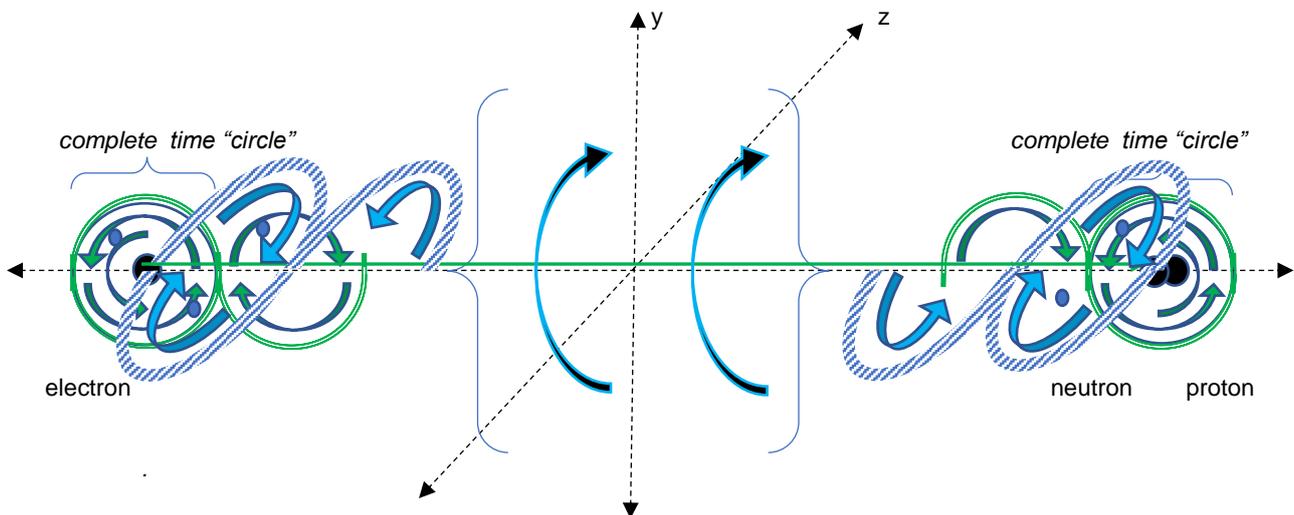


Figure 6: arbitrarily chosen direction of emergent gravity (EG2) around the x-axis. Note also that the effect of this spin on the x-axis electrical field component would result in a time “sphere” at each end of the x-axis

This rotation “around” the x-axis is a feature of the idea of creating a time-front mimicking the complex (i) time wave-function t_B that represents a concentric front around the direction of resultant time t_A ; this would represent the “spin” component of the elementary particles. More to this though, as there would exist an emergent gravity field from the negative to the positive plate, this concentric field would emerge in line with the resultant “magnetic” component of the phi-quantum wave-function, implying the nature of the magnetic field that would result “around” the electric field (figure 7). Note also that the effect of this spin on the x-axis (electrical field component) would result in a time “sphere” at each end of the x-axis.

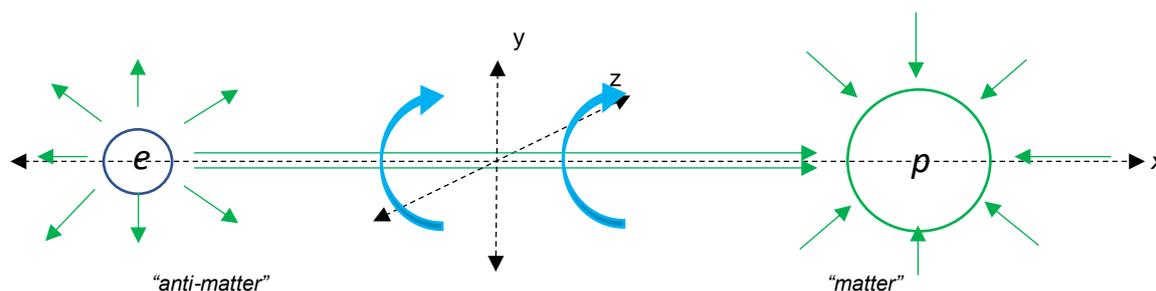


Figure 7: note the proposed (arbitrarily defined) direction of the magnetic component of force (blue) compared to the electrical (green). The actual direction of the magnetic component would be determined by the manner of emergence of the gravitational spin from the subatomic to the macro-scale. Shown is the accepted direction of magnetic field strength.

As the particles are inherently related to the phi-quantum wave-function, and this wave-function is spinning around the x-axis, then we have a particle spin likewise around this x-axis (figure 8):

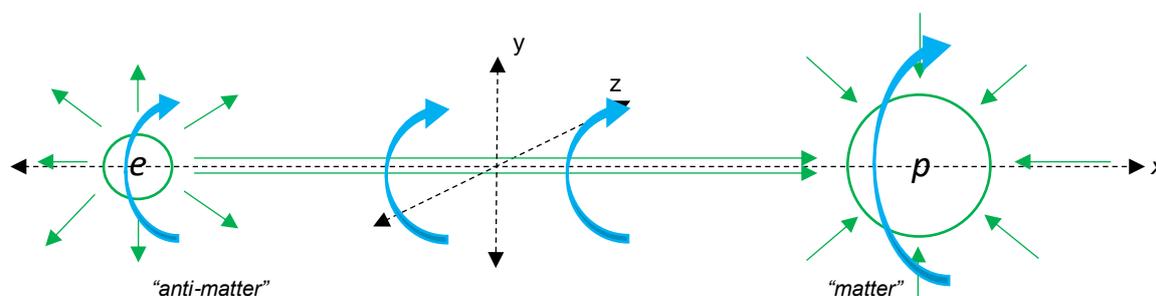


Figure 8: note the rotation of the particles as a magnetic component spin. Note the time-spheres represent the proton and neutron electrical components of the x-axis.

Although we commonly associate gravity as the attraction of a physical mass to physical mass, or more appropriately as the force between two masses, as the “self-associative” nature of emergent gravity, we must also note that gravity is emergent from the idea of magnetism. The proposal here is that this standing wave unit of magnetism ($\frac{1}{2}$ a quantum in relative electrical/quantum length), would cause a spin of the phi-quantum wave-function and thus particle-spin around the x-axis by the magnetic $\frac{1}{2}$ q-unit line of force that as a coupled entity would emerge as this gravitational spin; the spins in being magnetically “stepped” represent $\frac{1}{2}$ a quantum.

Per contemporary physics, spin was originally conceived as the rotation of a particles around an axis. Note that spin here regarding a quantum is a $\frac{1}{2}$ quantum value, as contemporary physics accepts. Likewise, given the condition of the speed of light on this scalar level, although the direction of spin can be changed (depending on type of polarity in play), an elementary particle cannot be made to spin faster or slower. And of course, as highlighted here, the spin of a charged particle would be associated with a magnetic dipole moment [16] with a g -factor [17] differing from 1, as per the process we are suggesting with the phi-quantum wave-function scale. The conventional definition of the spin quantum number [18], s , is $s = n/2$ (where n can be any non-negative integer); hence the allowed values of s are 0, $\frac{1}{2}$, 1, $\frac{3}{2}$, 2, etc. As we know, the value of s for an elementary particle depends only on the type of particle, and cannot be altered in any known way; the spin angular momentum, s , of any physical system would thus be quantized, as is the basis here for the $\frac{1}{2}$ determination of spin.

2.5 Electron Crystal Shield (EG3)

The final idea of the emergence of gravity takes root from the “self-dissociative” effect of the electron on the folded electromagnetic wave scale (see fig. 5). We suggested that the electron could take on 15 locations in an electron cloud format ([2]; p15, fig.15). This would still be true, yet now (as we are suggesting electron is “dissociative”) the electron would thus arrange in this cloud according to points that would transcribe most basically a platonic solid [19] (fig. 9), as the platonic solid represents geometrical shapes that would fit in a sphere where the points are a maximum distance from each other as a process of the points seeking maximum equal distance from each other, of course depending on the number of electron orientations we are considering.

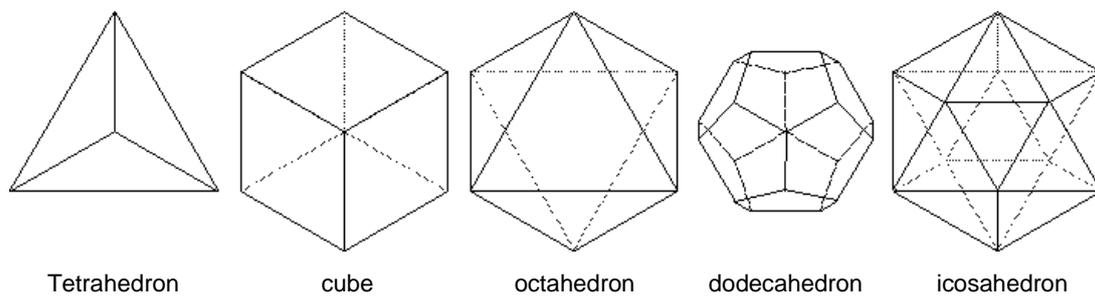


Figure 9: *The 5 platonic solids whose points/vertices represent the maximum distance the points can be locate from each other in the context of a point/crystal-sphere association of alignment.*

In this way, the gravity emerging here care of the electron being “self-dissociative” could be considered as “anti-matter” [20]. Yet this would be a “weak” emergent force owing to the dominant force itself of electromagnetism and the force of electric charge. What though is the force of this so-proposed “anti-matter” spreading the points despite its relative weakness? Is it gravitational or electric? It would be anti-electric, as per the electrical equations, and thus what the name of it prescribes, a “weak” force (and thus would be more fundamental as a concept, more suitably explained in the context of the elementary particles, as shall be shortly addressed). Nonetheless, this field effect in between the proposed anti-matter particles care of the standing wave electrons would represent a 2-d manifold. This surface area would represent the strongest region of disassociation between the electron anti-matter particles, logically, and thus a type of energy field effect representative of the anti-matter effect, a boundary if you will, to matter. The centre of these manifolds is where matter would likely accumulate and thus these points would form lines with gravitational associative properties:

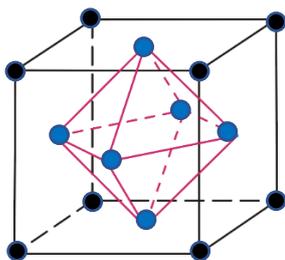


Figure 10: *black dots on the cube crystal as the “anti-matter” particle zones that would be inhabited by electrons in the electron shell, and the blue points as the “virtual-matter” particle zones. Note the interchange of shape of platonic solid, and this “virtual-matter” crystal would be merely a bridge of association by definition, as the actual “matter” points would exist centrally as the proton/neutron”.*

Note that figure 10 relates to the overall electron shell and thus encompasses the entire atomic electron shell structure; on the outer crystal, we would have the anti-matter effect, and in the centre of each surface of the manifold flat plane joining these points as the crystal surface would be points representing the mass obeying gravitational attractive properties which themselves therefore would emerge as true “crystal “solids” of mass. Something to consider is that the type of crystal employed by the electrons would be determined by the number of electrons in play in each shell and how those electrons would be involved with electrons from other atoms.

2.6 Phi-Quantum Wave-Function Crystal Dynamics

What therefore is the idea of mass? We presented that mass would represent a complete “ π -singularity” as a time/quantum-loop (fig. 3-4). Not only this, yet the emergence of mass would be associated to a contraction of distance in the phi-quantum wave-function. When all these features emerge together, they would do so as a singular emergent entity we would know as “mass”. Exactly how though in considering the deeper functionality of the elementary particle level? We know we need to have 15 elementary features associated to each the proton/neutron and electron axes, and that these elementary features would be relevant to the “time-circle” regions (fig. 3-4) for the proton/neutron and electron. Logically we should only consider a crystal structure once again. Which crystal structure though? Let’s go back to how we developed the spatial axes. We started at a 0-point for 0-scalar space, and developed three axes, each with two directions. Joining any equidistant point on each of the axes results in an octahedron (figure 11):

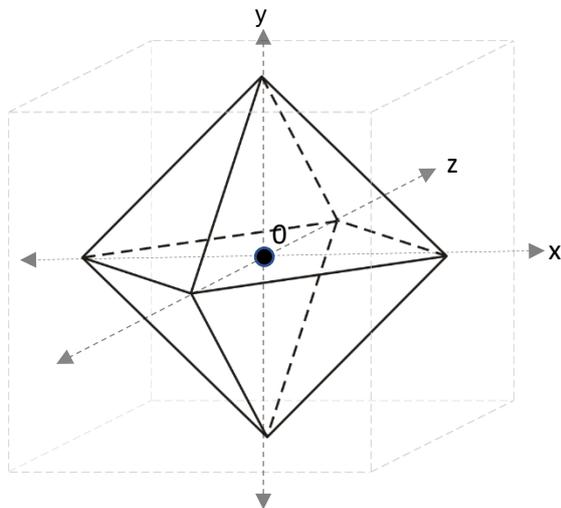


Figure 11: *creating an octahedron from 0-scalar space for a time-circle/sphere. Note here that this is “different” to figure 10 in that here we are taking the geometry of individual points and not the entire electron-shell surface structure.*

Let’s now consider Figure 6 again as a hypothetical proposal for one potential crystal structural organisation/dynamic, as it demonstrates an octahedron and a cube, which together in terms of vertices/points calculates the value of “14”, “15” if we include the “0-scalar” reference point where the axes converge. Here in figure 12 we shall enlarge the view of the folded electrical component of the phi-quantum wave-function. Note that incorporating the idea of spin around the x-axis (electrical wave rotating around that x-axis) would form a virtual electrical wave “sphere”.

(phi-quantum <<<<<<<<< proton (red)
wave-function)

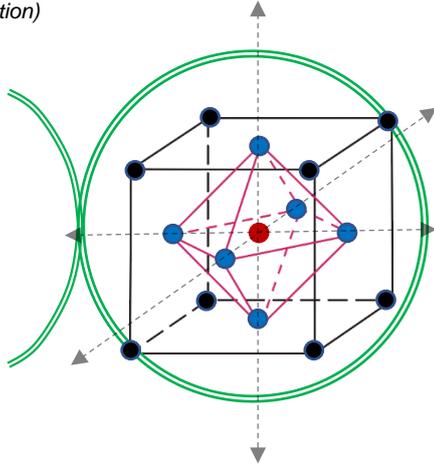


Figure 12: 15 particles/points, three zones: inner most 0-reference (red), middle octahedron (6-points, blue), outer cube (8-points, black). The proposal is the 0-reference is the Higgs particle, the middle-octahedron representative of the generations (particle-spin) as “quarks”, and the outer-cube the 8 types of “gluons” responsible for the “strong” nuclear force.

Essentially, we have 15 points including the start point (as point zero); this satisfies our requirement for the 15 subatomic entities for the proton/neutron axis. Yet what is “mass” regarding the time-circle? The first structure (given our hypothesis) with points that we encounter is the octahedron (6 points); these 6 points would be divided between the concept of the proton and the neutron. Beyond this would be the cube with 8 points (which would likely be related to the nature of the proton and the neutron binding together); these “8” counterpart points would represent the structure that binds the neutron to the proton, representative of most likely the “strong” nuclear force. This is interesting, for in suggesting the proton and neutron would each have 3 points associated to them (and they form an octahedron), then associated to this octahedron would be 8 other points.

Our aim here is to find “15” elementary features to the proton and neutron (we’ve found 14 so far); we suggested that there would be a fundamental point in the centre of the octahedron equidistant from the surrounding 6 points, a fundamental point representative of perhaps the most fundamental idea of “mass” (perhaps the Higgs particle). We could thus also suggest that the points on the octahedron represents ideas of “spin” and “orientation” (cleaving to the 3 axes (6-points) of determination) of the proton and neutron, and that the proton and neutron would each represent different combinations of 3 types of spin each (6 in all, symbolic of the 6 directions in all of the three axes, x-y-z). We suggested that the surrounding “8” points would be relevant to the overall “strong” force binding the proton and neutron together, which per contemporary research would represent “gluons” [21]. The important thing to consider here is the fundamental feature of the 0-scalar “0-reference” point being used, namely the concept for “mass”, and in this case the proposal of using the “Higgs” particle; this would then express itself as “mass” through the other 14 elementary particles in this domain, noting that within this domain as “1/2” a quantum we have a situation in all experimental fact not being able to measure the exact location of any of these particles using “light” without interfering with their states of both spin and position, and perhaps even energy.

The electron though would be different in that it would need to obey the “negative-inverse” (golden ratio) condition with respect to the proton/neutron, together with allowing for the functionality of “anti-matter” for the proton/neutron. The first thing to consider is that per how the electron is defined as the primary electrical component of time, it would need to exist almost as a primary independent entity, and thus occupy the most fundamental “0” spot (coloured red figure 13), which explains why it manifests as a “singularity”, as compared to the proton/neutron paring. Around the electron would logically be the anti-particles of the proton/neutron “spin” category (cleaving to the 3 axes (6-points) of determination). Beyond this we can only suggest the cube would represent the “anti-matter” elementary particle set of the “matter” elementary set, the “weak nuclear force” manifold compared to the “strong nuclear force” manifold of the proton/neutron.

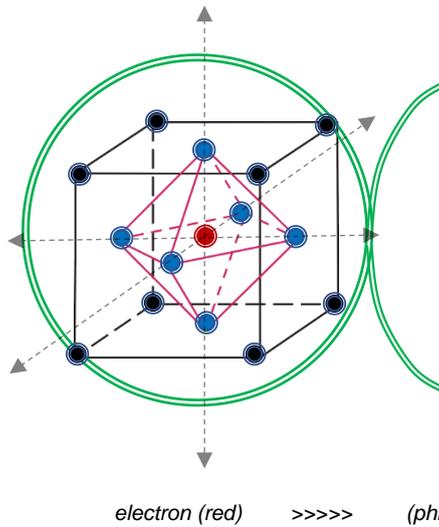


Figure 13: 15 particles/points, three zones: inner most 0-reference (red), middle octahedron (6-points, blue), outer cube (8-points, black). The proposal is the 0-reference is the electron, the middle-octahedron representative of either the generations (particle-spin) as “leptons” or the anti-quarks, and the outer-cube the 8 types of “anti-gluons” responsible for the “weak” nuclear force.

The complicated feature here though is that on the one hand we have the “anti-particles” of the proton/neutron domain, but on the other hand the electron in occupying the “0” domain would express itself as a distinct feature “through” those antiparticle domains; the electron thus in being the central particle feature would have associated to it “6” types of generations of itself (perhaps as the “neutrino” [22] set of particles), and beyond that another “8” features, indicative of the “weak nuclear force”, once again noting that within this domain as “1/2” a quantum we would have a situation in all experimental fact of not being able to measure the exact location of any of these particles using “light” without interfering with their states of both spin and position, and perhaps even energy. Nonetheless, we end up with the following (Figure 14):

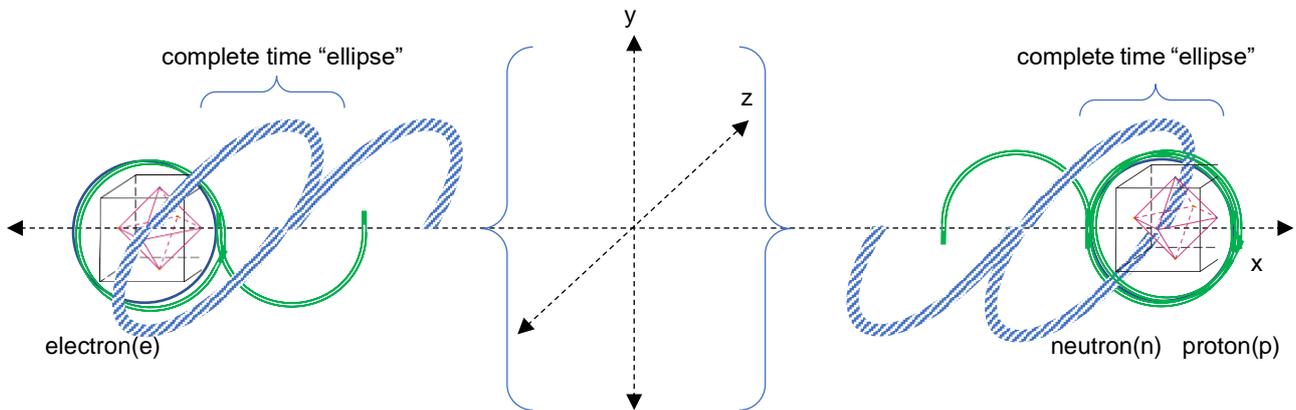


Figure 14: Note here the installment diagrammatically of the crystal topology for the electron and proton/neutron elementary particle families.

As is evident owing to the combinations of definition on the elementary particle level, particle physics is a vastly complicated and highly technical, cataloguing definitions of particle-status regarding the energy, decay, spin, location, dynamic, interactions, and so on, of each elementary particle in relation to another. This theory “proposes” more exactly though “why” the elementary particles cannot be measured exactly where they could stand, “why”

trying to measure elementary particles effects their status, and above all “why” they even exist in the first place. If the above proposal for the mechanics of the elementary particles nonetheless can suffice for now, associated to mass would be three types of emergent features of gravity as follows:

- (i) ultimately gravity would have a type of monopolar mass-type “associative” feature (proton/neutron),
- (ii) an electric-type “dissociative” feature (electron),
- (iii) and a magnetic-type “spin” feature (around the x-axis).

Currently we only give gravity credit for its mass-type features of “association”. The “dissociative” feature would have something to do with a type of shield effect by the effect of highly charged negative particles, and the magnetic spin effect a spin around the x-axis. Above all, the crystals that represent the electron-shield effect would, depending on the electron shell count, be homeomorphic [23] as a continuous function between these topographical platonic solid crystals. Breaking this complete time “ π -singularity” would require a breaking up of the atom, a deconstruction of the electromagnetic coupling factor, a feature of atomic congress not to be underestimated [24] (particle collisions).

2.6.1 Golden Ratio Fractal Space

Consider figure 15:

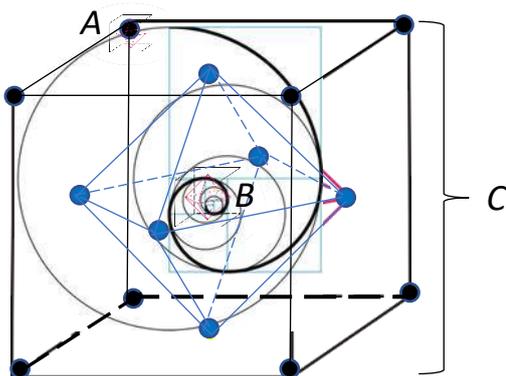


Figure 15: The idea conveyed here is to show the fractal development of the crystal-topology for the elementary particles as a signature of space utilising the three basic processes of “gravity”. Specifically, (A) as the electron crystal-construct region, (B) as the proton-neutron crystal construct region, and (C) as the electron shell crystal construct region.

The idea here is that space as a 0-scalar signature being everywhere of any magnitude, signatored with these platonic crystal constructs of the electron region (A), proton neutron region (B), and electron shell region (C), care of the behaviour of time, would link with itself in a golden ratio fractal manner according to time, and thus as we would know a type of Fibonacci sequence [27], figure 16. This would in fact represent the gravity “field” manifold, as a spatial manifestation and progression of the core effect of the elementary particles responsible for the gravity-effect through space as granted by time, most fundamentally as the folded π -circles which fractally spiral to any dimension linking their mass counterparts throughout space and time, in space aiming to achieve its 0-scalar “uniform” status, and thus a “gravitational force field” effect.

Note that the crystal topology here would be regarding the electrons and their relative position in the electron shells; the crystal-point topology would thus determine how atoms would link together to form compounds, as a “certain” crystal-based (platonic solid, and other combinations thereof) shape, given the “mass” feature of the atom would be held in the electron anti-matter shield. Ultimately with the geometrically fixed nature of compounds by these proposed crystals, there would need to be chirality [25], two different shapes, for each compound, to satisfy the golden ratio effect of time, namely one value/shape (φ) and its negative inverse value/shape ($-\frac{1}{\varphi}$). Note

2.6.3 Phi-Quantum Wave-Function Error Gradient

One overlooked feature is the condition of time to define/trace π . The error on the phi-quantum wave-function level is of the order of the actual value of π (3.1415926) subtracted from the atomic value of π (3.1416253) as per equation (3):

$$3.1416253 - 3.1415926 = 3.27 \cdot 10^{-5} \text{ (length)} \quad (3)$$

That is the value per unit increment of π on the phi-quantum wave-function level. If we then factor this in with the 19.8 length between the proton/neutron and electron on the elementary particle scale level (not the “extra-atomic (21.8) quantised level, as we are considering the idea of “mass” compression here), we get the following:

$$3.27 \cdot 10^{-5} \times 19.8 = 6.475 \cdot 10^{-4} \text{ (length}^2\text{)} \quad (4)$$

This value is the overall atomic-scaled error. If we consider that “mass” (proton and neutron) is the feature of the atom that accounts for this error, and according to the paper here “mass” represents a complete “ π ” circle, then we must now factor in a value of “ π ” as follows:

$$6.475 \cdot 10^{-4} \times \pi = 2.034 \cdot 10^{-3} \text{ (length}^3\text{)} \quad (5)$$

Thus, for the proton and neutron we have a volume factor (length³) of $2.034 \cdot 10^{-3}$. What does this mean? As this is a value for the proton and neutron, halving this value gives us a factor of mass-compression of the order of $1.017 \cdot 10^{-3}$. This is the π error gradient. If we now made this error gradient regarding mass per each actual calculated value for mass, say the mass of a neutron, we get the following:

$$\frac{\pi \text{ error gradient}}{\text{mass of neutron}} = \frac{1.017 \cdot 10^{-3}}{1.675 \cdot 10^{-27}} = 6.072 \cdot 10^{23} \quad (6)$$

This value represents that for every gram (g) regarding the neutron, for 1g of a neutron, there exists an error gradient value of $6.072 \cdot 10^{23}$. We could say the following:

$$\frac{6.072 \cdot 10^{23} \cdot \text{mass of neutron}}{\pi \text{ error gradient}} = 1 \text{ unit of mass} \quad (7)$$

In other words, $6.072 \cdot 10^{23}$ neutrons with a factored phi-quantum wave-function error gradient would result in the value of 1g. This number is remarkably close to Avogadro’s number N_A [29] which holds a value of $6.022 \cdot 10^{23}$. The difference between these values is less than ~1% (0.8%) suggesting extra-atomically there could be a compression effect we haven’t factored in, resulting in a slightly lower value than what we’ve calculated, such as a macro-scale resting level of compression. Thus, the following equation involving an overall system compression factor k_s , and Avogadro’s number N_A as follows:

$$\frac{6.022 \cdot 10^{23} \cdot \text{mass of neutron} \cdot k_s}{\pi \text{ error gradient}} = 1 \text{ unit of mass} \quad (8)$$

Note that phi-quantum wave-function (π) error gradient is a measure of length³ (and thus volume). Thus, our value states that there is a standard for the organisation of mass such that a uniform increase in volume (length³) would exist for the number of associated atoms for any given value of background pressure (heat, pressure, etc.). For simplicity, in not considering k_s for the time being (subject of a subsequent paper), we can suggest the following:

$$\pi \text{ error gradient} = \frac{1}{N_A} \quad (9)$$

How though is this a function of “time”? As a function of time, the π error gradient would represent the value of t_A as t_B^2 “per” each increment of quanta, and in this case here an increment of 21.8 (extra-atomic “time-quantised” reference).

Thus, we could suggest the following:

$$\frac{t_A}{21.8} = \frac{1}{N_A} \quad (10)$$

Thus, as a representation of “time” as t_B , the following applies:

$$t_B = \sqrt{\frac{21.8}{N_A}} \quad (11)$$

This is a value of $\sqrt{\frac{21.8}{6.072 \cdot 10^{23}}}$ which equates to $5.99 \cdot 10^{-12} s$. As a value of s^{-1} we have a value of $1.67 \cdot 10^{11} s^{-1}$, or as we know $167 GHz$.

How is this value significant? Basically, regarding the error gradient there is an equal value of time that would account for a type of electromagnetic manifestation of time of the value of $167 GHz$. Is there any evidence of this in nature? This value is well within our findings for the cosmic background microwave radiation which peaks in intensity at $160 GHz$. If we used the exact experimentally derived value for the error gradient as $6.022 \cdot 10^{23}$ we get the value of $166 GHz$. Is the cosmic background microwave radiation in fact an ever-present feature of atomic existence and not a relic of an initial explosion (big bang)? We need to consider the idea that the error gradient represents a natural “stretch” value of $3.27 \cdot 10^{-5} m$. for each quantum of light and we would perceive this as a red-shift “assuming” our consciousness is wired to perceive and calculate our value for π as 3.1415926 regarding solar/stellar phenomena (and of course all space and time relevant to a perfect circle trace). This now begs the question, “if there is a natural red-shift of light in play, and if also there is a natural background microwave radiation in play, and both phenomena are bound to a steady stated golden-ratio theory for time, can a big bang theory be supported “entirely”?”. If such is the case, that the universe is in fact not expanding given our own relative steady state reference in the context of a calculated steady state red-shift and cosmic background radiation via this new explanation for time and space, our contemporary calculations and associated theories regarding stellar phenomena are grossly inaccurate.

3 Conclusion

Initially we highlighted the modus-operandi of this paper in the context of three preceding papers meriting a new explanation for the phenomena of relativity using the golden ratio as an algorithm for time; here through this process we are taking the view of contracting space and not dilating time. This change of relativity-theory though has an impact on how the idea of a wave-function is developed for light and all its associated intricacies of relativistic and quantum strangeness. Furthermore, we are not considering space fixed to a Cartesian grid, yet malleable, as we are considering the idea of time as fixed to the golden ratio as per a specific equation for time. It was then our task to derive “all” the equations for energy and mass, all the forces, constants, and so on, everything; everything from this new axiomatic definition for time. We have explained all the features of space and time that have been relevant to the development of contemporary physics, and aligned those observed phenomena with the theory forwarded here.

The theory here has shown the thorough work done by physicists the world and through time over, how very accurate the calculations are “despite” using a different if not more complicated yet less accurate method of relativity. The method of calculation currently used for relativity (fixed space owing to the “Cartesian” adoption of mathematics, forcing the malleability of time) though makes things very difficult if not inaccurate when it comes to

measuring and analysing and theorising the nature of reality if the underlying principal of time and space seeks a perfection that the Cartesian coordinate system of determination assumes in its execution of scientific congress. Here in this theory we are not using the Cartesian method strictly to the letter, as owing to the spatial compression effects the Cartesian coordinate system needs some play, especially in the context of time as light "aiming" to reach the value of π as a quantum step. So, when we as contemporary physicists review this paper, we would ask where the wave-function equations are, where the Cartesian coordinate placement is and those values. Simply, such can't be used here, such is not needed on this phi-quantum wave-function scale; the Cartesian coordinate system "freezes" the idea of space in our minds, it fixes it, pegs it to exact values. Yet in the context of a time and space system that is "seeking" exactness with π , but is unable to find it, which is why it develops so vastly from the level of the atom, to infinity it would seem, the use of a fixed determination of space as per the Cartesian grid "will" result in many problems of formulation.

One of the only great concepts on contemporary physics that appears to be clearly left out in these papers is the idea of the Planck scale, But we have provided beyond any shadow of a doubt that the Planck scale is not required, is nothing more than a mathematical construction linking two equations too simply and thereby giving itself justification of a presumed physical reality, which it cannot presume to do in failing to demonstrate the fundamental links that this theory has achieved here against the idea of the granularity of time and space below that of the axioms of time and space, as provided here.

So how indeed did all this start, why the Golden Ratio for time? The question has been asked, "why the golden ratio for time"? The genesis of the use of the golden ratio, and perhaps the golden ratio itself, is a lot more involved, yet can be summarized with the following simple three premises:

(i)	Time "now" ideally equates to "1".
(ii)	Time "future" is the "square" of time past.
(iii)	Time "before" subtracted from time "after" equates to time "now".

The initial paper [1] 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, φ (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 warrant 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. Now through these four papers it appears there is merit in considering the golden ratio as a code for time, given the number of equations it can link relevant to mass, energy, field forces, atomic phenomena, and so on; it hasn't failed on paper, hence now the need for formal research.

This new fundamental platform of logistical congress for time though despite its branching insights touching all the accounts of contemporary physics should not be dismissed merely as a "new axiom" that fails to include a certain well-accepted tenet of scientific constitution and congress; the proposal of theory here cannot back away from its calculations that idea of using the "Planck scale" of determination is essentially nothing more than a way to link grossly fundamental equations, a bridge too far yet so small. Energy "has" a relationship to time as frequency, yet using a *direct* relationship via a constant forgoes much other granularity of possibility of process. In fact, these papers propose in theory that energy as a direct relationship to frequency is absurd, it's the inverse if anything, given here time and energy and directly related in using the golden ratio, and not inversely proportional. The next paper [30], paper 5, The Gravielectric Field Generator, shall present research that confirms all the above,

following which a final paper will be forwarded that presents a new overall insight to all the new concepts regarding the use of the golden ratio algorithm for time.

Conflicts of Interest

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

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