


# Zero Quantum Gravity: the ellipsoid timespace field

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**Abstract:** In moving forward with the scaling and surveying keys of paper 60 of Temporal Mechanics, an ellipsoid structure joining the proposed time-equation with the proposed space-equation as the ellipsoid timespace field mechanism is revealed. There, in direct reference to the Collatz conjecture, a solution to the three-body problem is proposed for both the sub-quantum and quantum particle levels, revealing the foundational time and space code of empty space directly comparable to current ideas and values for zero-point energy and the zero-point field.

**Keywords:** temporal mechanics; zero-dimensional; zero dimension; zero-point gravity; zero quantum gravity; Xemdir field; Collatz conjecture; three-body problem; zero-point energy; zero-point field

## 1. Introduction

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Here the work of Temporal Mechanics<sup>1,2</sup> and its associated zero-dimensional number theory (TM-0D) examine its derived quantum wave function<sup>3</sup> and associated golden ratio codes<sup>4</sup> to derive the ellipsoid nature of zero-point space with zero-point energy (ZPE) as the zero-point field (ZPE).

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<sup>1</sup> The current work of 60 papers detailing a new mathematical approach to the dimensions of time and space as zero-dimensional logic, see <https://www.xemdir.com/>.

<sup>2</sup> [1][2][3][4][5][6][7][8][9][10][11][12][13][14][15][16][17][18][19][20][21][22][23][24][25][26][27][28][29][30][31][32][33][34][35][36][37][38][39][40][41][42][43][44][45][46][47][48][49][50][51][52][53][54][55][56][57][58][59][60].

<sup>3</sup> As established in paper 2 [2].

<sup>4</sup> As established in paper 1 [1]: p3-5.

To achieve such, the TM-0D derived time and space equations are further examined to derive an ellipsoid structure code for time and space as *timespace*, thence proposing solutions to the three-body problem for particles on both the sub-quantum and quantum scales in making direct utility of the Collatz conjecture. To achieve such, this paper is sectioned in the following manner:

1. Introduction
2. ABC TM-0D prior art
3. ABC TM-0D theoretic reference
4. ABC TM-0D ellipsoid timespace field (*ETS*⊙)
5. ABC TM-0D three-body problem
6. ABC TM-0D ZPE and ZPF
7. Conclusion

## 2. ABC TM-0D prior art

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Core to paper 60 was explaining the proposed ABC science code<sup>5</sup>. There, it was proposed that science is a system of checks and measures as a structure of knowledge that tests, explains, and thence predicts our world categorized into three processes:

- (i) The study of *our sentience* as psychology, knowing those sentient limitations through empirical analysis, what basically is/is-not, true/false et-al, as a *social science* (A).
- (ii) The study of *how we study*, as mathematics and logic, as a *formal science* (B).
- (iii) Describing the physical world through empirical analysis with the aim of predicting its features via the science of physical matter, as a *natural science* (C).

More specifically:

- (iv) Sentience (A) is considered as our needing to observe physical reality in the first place, and thus a study of how we most basically observe physical reality, primarily with the basic 5 physical senses.
- (v) Coding sentience with a formal logic (B) is considered as how to use that sentient basis (A) with a type of formal code of surveying and scaling *what we are sentient of*, most anciently as the royal cubit measurement scale and associated use of geometric trigonometry, today as a process of infinitesimal calculus and 4d spacetime theory<sup>6</sup>.

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<sup>5</sup> [60]: p4-13.

<sup>6</sup> ([60]: p10-14); see also papers 45 [45] and 57 [57].

- (vi) Coding that (A)↔(B) process as the physical sciences via being able to explain features of reality not directly apparent to our basic senses in demonstration of technologies granted from the initial successes (A)↔(B), as (C), such as for instance building structures that successfully predict the seasons and associated positions of celestial objects and thence by proxy measuring objects with features of time and space.

Today, the apex of surveying and scaling physical reality is executed by the discipline of physics (C). There, physics is the natural science of matter, matter's fundamental constituents, matter's motion and behavior through space and time, and matter's related entities of energy and force. In fact, physics uses matter in many ways as its proxy sentience, matter as:

- (vii) The basis of observation (A).
- (viii) The basis of *how* then physical reality is surveyed and scaled (B).
- (ix) Thence the basis for itself (C), and thence the quest for determining hidden mass-particles not visible to the basic senses using number theories (B) and associated applied technologies (C).

Upon such a basis, physics is perhaps the most broad-ranged and holistic scientific discipline, especially given how its advancements require the development of new technologies (C) to confirm its conjectures. In contemporary physics though, some peculiarities have emerged regarding the ABC, process. There are three standout features to contemporary physics:

- (x) In physics (C) basing its work on the five physical senses as (A), physics seeks to understand what consciousness in fact is as is evident by the quest of seeking to harvest/grow the idea of sentience in using technologies sprung from physics, a signal in itself that physics is using a faulty if not incomplete sentience basis in needing to go in search of the meaning of sentience as a result of physics' conjectures and works.
- (xi) Dimensional number theory (B) alone scaled to physical phenomena (C) is therefore incomplete without a conjecture of what absolute *time and space* sentience (A) could be.
- (xii) Physics still fails to fully acknowledge that we exist exclusively in time's moment as a factual temporal and spatial account of sentience (A), a failure that appears to grant physics theories fantastical notions of physically travelling into time-past or time-future.

The problem thence identified there for physics via its limited use of (A) as (A~), namely in failing to account for time-now as a bona-fide sentience reference, is the infinitesimal mathematics process of (B) as say (B~) that dallies around ever so closely to time-now yet not being absolutely precise with time-now. These incursions of not being absolutely precise for zero-dimensional time and thence zero-dimensional space are thence proposed to form the basis for the infinitesimal

construction of curved spacetime to describe gravity, albeit incremental incursions that the TM-0D theory has shown to represent gross astrophysical scaling anomalies<sup>7</sup>.

In short, in physics not being able to absolutely identify the idea of time-now and associated zero-points in space with an appropriate number theory, physics needs to use an *infinitesimal calculus* approach for secular locales as absolute frames of reference which then leads to, as described in paper 60, the two main branches of physics theory, namely *quantum field theory* (QFT) as flat spacetime and *general relativity* (GR) as curved spacetime<sup>8</sup>, each being incompatible with the other. There, one process accepts the uncertainty of absolute precision with its infinitesimal calculus approach (QFT) and the other (GR) attempts to buff away that uncertainty in presuming the infinitesimal calculation approach can be synonymous with a curvature of flat spacetime.

As a solution, the TM-0D theory proposes a *temporospatial sentience code* (A) that defines time-now together with time-before and time-after in the context of a *temporal* fractal algorithm (golden ratio) derived from how we naturally perceive time, specifically there being a proposed certain-past, the existence in time-now, and an unknown-future. In other words, the *temporospatial sentience code* (A) is shown to have an in-built number theory (B) when numbers are proposed to be applied to our temporal perception a certain way. This then leads to the development of a number theory (B) which when scaled with physical phenomena (Bohr radius  $a^0$ ) reveals a physical theory comparable to all the qualified equations of physical reality aside from the curved spacetime specific equations for gravity<sup>9</sup>. The question now is, “*what else can be achieved by the TM-0D theory*”?

### 3. ABC TM-0D theoretic reference

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The proposed ABC TM-0D theoretic reference is quite simply time-now as  $t_N = 1$  and a spatial point as 0, noting the  $0-\infty$  scaling paradox for a point in space<sup>10</sup>. In other words, the proposed ABC TM-0D theoretical reference accounts for each and every *potential frame of reference* in resolving the  $0-\infty$  paradox for points in space. How this paradox was resolved was by asking how to extend time-now (zero-dimensional time) to time-before and time-after, thereby creating dimensionality for time and thence also for space given a point in space is designed to be tagged to a moment in time as a zero-dimensional *timespace* continuum. This was described throughout papers 43 and 44, initially proposed in paper 1.

To think of this another way, first the ABC TM-0D system derives an entire theoretic matrix of the arrow of time with  $3d$  space with the condition of reality existing in time-now, in zero-dimensional time. Yet, the next step after deriving that entire un-scaled  $3d$  *timespace* system (time here being the priority not space) was to then scale that system to a known scaling tool of physical reality. That scaling tool was chosen as the Bohr radius  $a^0$ . What therefore was thought to be the Bohr radius *in the ABC TM-0D theory* was then tagged with the Bohr radius value  $a^0$ . By such, the

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<sup>7</sup> [45]: p27-31.

<sup>8</sup> [60]: p14-20.

<sup>9</sup> [60]: p23-75.

<sup>10</sup> [43]: p1-5.

speed of light  $c$  was derived with all its known features<sup>11</sup>, and thence as per the ABC TM-0D theory's derivations all other known constants. The only exception there was Einstein's formula for gravity which was superseded with a more inclusive account for/to the ideas of QFT and the Standard Model.

By all of such, the values for the sun were derived and confirmed<sup>12</sup>, and thence as shall be shown here again<sup>13</sup> the overall scale of the solar system itself. Thus, the ABC TM-0D requires all the known data of physics theory to confirm its ab-initio approach. When one asks, "*what has the ABC TM-0D system proven*", the ABC TM-0D system has proven all that physics has proven *in the laboratory*, noting that the phenomena of gravity itself is the only feature of physics not reproducible in the laboratory, and for good reason, namely that the current model for gravity (Einstein's GR) can be shown to be flawed by its infinitesimal calculus construction<sup>14</sup>. Although the intention of GR was to match phenomena known to be associated with gravity in considering the stars as solar systems, the underlying equations can be demonstrated to be artificial if not contrived in comparison to the greater system of equations of nature.

In short, the ABC TM-0D system proposes that raw human perception is not sufficient to grasp a theory of time and space let alone relativity granted the potential scope of making gross assumptions about reality from the human reference in regard to the nature of the stars. Conversely, the *temporospatial sentience code* based number theory is required to create the basic platform, the mainframe, of time and space for that mainframe to then be tested with known observed findings minus all gross perceptive assumptions. There, it is not the observer reference yet a theoretic reference that explains the fundamental relations between points in space and moments in time, an idea entirely overlooked by contemporary physics. There, physics has taken its raw perceptive "frame of reference" thought experiment approach. With the ABC TM-0D system though measurement does not take place until the entire time and space landscape has been derived de-novo. That de-novo landscape is then scaled to known physical findings to confirm or deny the de-novo findings, noting how the ABC TM-0D system derived the idea of light ( $EM$ ) as a constant for any relative frame of reference<sup>15</sup>.

The direct and indirect criticisms<sup>16</sup> aimed at the ABC TM-0D theory thus far suggest that critics of the theory are unable to conceptualize the idea of a purely mathematical approach to a "virtually" constructed and entirely holistic scheme that is then scaled to physical reality to confirm or deny the validity of that "virtually" constructed scheme. Some criticisms top of the list there are violations of causality, of mathematical completeness, and of measurement certainty. Yet, these features are incorporated into the very initial and basic proposal of time's arrow using the idea of time-after being an unknown, while thence in using that feature for time's arrow deriving a  $\pi$ -error factor as a feature that constantly needs to find true- $\pi$  as a process of time's arrow<sup>17</sup>. Thus, firstly

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<sup>11</sup> [60]: p57-65.

<sup>12</sup> [60]: p67, fig45.

<sup>13</sup> See section 6.

<sup>14</sup> [45]: p27-30.

<sup>15</sup> [60]: p61-62.

<sup>16</sup> Forums et al.

<sup>17</sup> [60]: p41-57.

mathematical completeness is indeed not achieved<sup>18</sup> given this continual requirement of finding the perfect value of  $\pi$ , secondly there is a measurement error in play, and thirdly the future is always still unknown. These solutions were outlined in papers 46 and 47<sup>19</sup>. In short, the ABC TM-0D does not violate how we perceive reality, for the ABC TM-0D theory is based on how we perceive the temporal aspects of our physical reality.

Despite all of such criticisms, one criticism against the ABC TM-0D theory tries to speak the loudest, and that is that the ABC TM-0D theory is trying to use classical physics theories and modern data using a fractal algorithm to stitch those classical theories together by deliberately omitting Einstein’s curved spacetime model, GR, while then proposing a new model for gravity. The flaw there with those criticisms is that the ABC TM-0D model relies only on the basis of a proposed axiom of temporal perception (A), while proposing the concurrent requirement of the priority of existence in time-now. The ABC TM-0D model uses nothing else as a basis for its equations (B). All the equations of the ABC TM-0D theory are derived (B). The only annexing feature of contemporary physics used by the ABC TM-0D theory is the Bohr radius  $a^0$  (C), which thence as a scale provides physical relevance to all the other equations in the ABC TM-0D theory ecosystem of derived number theory equations leading to the generation of its proposed physical theory (C). Indeed, if one were to miss the first few semesters of study of the ABC TM-0D theory, one could be forgiven for thinking the ABC TM-0D theory is a ruse for a fractal algorithm, yet the fractal algorithm as the time-equation was derived from more basic first principals that govern what that golden ratio can achieve and why, not as a code for describing space, yet *timespace*.

#### 4. ABC TM-0D ellipsoid timespace field (ETS⊙)

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##### 4.1 The mathematics (B) of static space (C): (B)↔(C)

Considering the confirmed findings of paper 60’s zero-dimensional number theory (B) when scaled with physical phenomena (C) in using the *temporospatial sentience code* (A)<sup>20</sup>, proposed here therefore is the improbability of finding a dimensional infinitesimal calculus link between QFT and GR. Such is not to say that a dimensional number theory link between higher and lower dimensions is not able to link QFT and GR as a quantum gravity theory, yet here the proposal is to make use of the calculated, derived, and thence known incompatibility of the current number theory structure between QFT and GR. By such, zero quantum gravity (0QG) is a term given to the idea of not focusing on the quest for dimensional quantum gravity yet that a pure number theory link between QFT and GR can be found via a zero-dimensional number theory approach.

As presented, TM-0D derives 3d space to be held together without massively expanding or contracting from and back to a big bang. This “holding together” of space is described mathematically

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<sup>18</sup> Thence satisfying Godel’s proposal [46].

<sup>19</sup> [46][47].

<sup>20</sup> [60]: p4-7.

by the space-equation  $e^{\frac{i\pi}{t_B}} + 1_{t_N} = 0_{t_A}$ , as the zero-point gravity<sup>21</sup> equation. There, in that zero-dimensional description, gravity at its core is derived to be non-inertial and zero-point, such by the nature of its equation, namely in equating to 0. Such though does not make space without a certain shape regarding the fundamental features of *EM* and mass and of course *more importantly* what may exist sub-quantum.

The TM-0D theory approach presents an exclusive view of an *absolute* infinitesimal (zero-dimensional) approach to the dimensions, which would thus represent a valid ingredient to dimensionality to be explored and verified with data, something which it has both aimed to and demonstrated itself to achieve. Once again to note are figures 21-23 of paper 60<sup>22</sup> describing the 0- $\infty$  paradox and how that was considered in the context of the  $\Lambda$ CDM model<sup>23</sup>. There, it is important to note that the static space condition of the zero-dimensional number theory does derive the condition of a zero-point gravity describing static space and how such then forms the basis for what is derived to be a *solar system* as per figures 45-48 of paper 60<sup>24</sup>. These theoretic proposals have no change to the known data of the proposed QFT and GR static space phenomena in the context of the perceived  $\Lambda$ CDM model, specifically the expanding universe description of dark energy ( $\Lambda$ ) and cold dark matter (CDM). In fact, the proposals of the zero-dimensional number theory have utilized all QFT and GR data while then proposing a basis for *apparent* expanding space, thence providing a proxy description for dark energy ( $\Lambda$ ) and cold dark matter (CDM).

#### 4.2 Equation squeezing (B) as a phenomenon (C): (B)=(C)

The big question for physics regarding zero-dimensional logic and associated derived equations is not only the zero-dimensional origin of the equations, yet how these equations relate to each other the way they do *in constructing dimensionality*<sup>25</sup>. For instance, why are the equations *squeezed together*, why must the equations yield to each other's dimensional construction requirements, as it is not something contemporary physics considers applicable to its understanding of physical phenomena when using equations or is it?

For physics, equations are relevant to physical phenomena *brandings* and left at that. Indeed though, what is an equation if not a *squeezing process* of numbers with dimensional analysis, specifically to be as dimensionally numerically precise as possible with the use of numbers and the dimensions? Is not such what the Clay Mathematics Institute Millennium Prize quests<sup>26</sup> are in search of, namely how the dimensions squeeze together with numbers?

As presented in figures 14-18 of paper 60<sup>27</sup>, equations themselves are incomplete if not for being relevant to a type of dimensional analysis they pertain to. Here likewise, the equation

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<sup>21</sup> ([42]: p29, p51-56); ([52]: p39-45).

<sup>22</sup> [60]: p35-36, fig21-23.

<sup>23</sup> As based on the physical data modelling and structuration of QFT and GR.

<sup>24</sup> [60]: p67-71, fig45-48.

<sup>25</sup> Not as a random joining of numbers.

<sup>26</sup> [61].

<sup>27</sup> [60]: p26-27, fig14-18.

*squeezing/refinement* process is a way of determining how the known and tested and thence firm physical constants are related to all other constants by their dimensional construction, ultimately held in a physical constant regime for physical reality by the constitution of their equation dimensional construction parameters.

With the ABC TM-0D theory, the squeezing between the equations is the essence of the royal cubit hedging process identifying the  $\pi$ -error, and how from that hedging process other derivative equation *squeezes* come into play. There in paper 60, as demonstrated with the derivations of the speed of light  $c$  and fine structure constant  $\alpha$  values the subsidiary phenomena equations must have a series of "constants" as *calibrations* to account for the disparity between the time-equation and space-equation which together as a first equation derivation step reckoned the metric royal cubit to then derive the progenitor speed of light  $c_x$  and thence fine structure constants  $\alpha_x$ . This then required the calculated  $\pi$ -anomaly to be factored into the time-equation to make it properly compatible with the space-equation, thence resulting in the correct values for  $c$  and  $\alpha$  (correct to 7 and 9 decimal places respectively)<sup>28</sup>.

Here therefore is not a simple presumption of sentience (A) in using a number-theory model (B) for light to measure mass (C), as per the standard ABC process of physics from ancient times to today, yet a proposal for a zero-dimensional logic (B) and associated *temporospatial sentience code* (A) to be then tested by having its derived dimensional equations (B) be *scaled* with physical reality (C) *as their test* of fidelity with physical reality.

It therefore is proposed that physical reality (C) is structured by how the time-equation adapts to the space-equation (B), how the golden ratio feature  $(\varphi, \frac{-1}{\varphi})$  of the time-equation seeks the perfect circle  $\pi$  feature of the space-equation, and thence how  $\pi$  is reached for time and  $(\varphi, \frac{-1}{\varphi})$  reached for space as the maintenance of physical reality (C) through its great attributes of physical phenomena and associated ecosystem of equations. Can such a proposal be further refined? Is there for instance a precise bridge between the time-equation and space-equation? Is the solution to such really a question of how the golden ratio itself ***relates directly*** with the value of  $\pi$ , and how such then would represent a type of anomaly that then fixes all the equations and constants to their known measured values?

Throughout the papers, specifically from paper 1, the idea of space has been granted a  $0-\infty$  contextual assumption<sup>29</sup> and thence scaling paradox dilemma<sup>30</sup> which then was requested to abide by the conditions of the proposed time-equation. This led to the idea of ultimately a  $3d$  spherical feature for space in having the time-equation form the basis of the quantum wave function and that associated golden ratio temporal code forming the *temporal flux structuration* of a  $3d$  spatial void<sup>31</sup>. Yet, this  $3d$  spatial void is filled with quantum wave function fluctuations. Here, the quantum wave function fluctuations are known by how they shape themselves in empty space.

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<sup>28</sup> [60]: p60-63, eq21-29.

<sup>29</sup> [1]: p2-3.

<sup>30</sup> [43]: p1-5.

<sup>31</sup> [2]: p3-7.



By such, the space-equation was proposed as an equation which was given the features of time-before, time-now, and time-after as per  $e^{\frac{i\pi}{t_B}} + 1_{t_N} = 0_{t_A}$ . What needs to be asked therefore about this space-equation is how it forms a bridge with the time-equation, how this has already been explained by the TM-0D theory, and yet despite such what could still be missing there and how any other geometric dimensional relationships between time and space can be described, to thence perhaps demonstrate anomalies in the time-equation quantum wave function and thence what could only be fluctuations in the space-equation and thence space. The thinking is that this approach will be able to describe how the time-equation and space-equation are most basically squeezed together (B) and what that phenomenon is (C) for both the quantum wave function (from the time-equation) and thence also presumably gravity (from the space-equation).

### 4.3 The mathematics (B) of fluctuating space (C): the ellipsoid egg of space

With all derivations thus far granted, the first thing to consider is that 3d space in its most basic sense is a void, yet this void is filled with quantum wave function fluctuations. Here, the quantum wave function fluctuations are known by how they shape themselves in empty space. Yet the question being asked is if there is anything going on with space as a type of number-based metric in regard to the quantum wave function fluctuations and how the time-equation and space-equation are squeezed together by any other route than the  $\pi$ -anomaly process.

As presented in paper 3 and thence paper 51, the proposed chaos equation<sup>32</sup> is a resonance of the quantum wave function as what can only be described as a type of interference resonance. This resonance as a time-before event presented the case for time-before equating to both features of the golden ratio, and thus the equation  $\varphi \cdot \frac{-1}{\varphi} = -1$ , having time-before thence equate to -1, and thence the time-equation equate to 0 as per the space-equation  $e^{\frac{i\pi}{t_B}} + 1_{t_N} = 0_{t_A}$ . This formed the basis for the space-equation proposal in paper 15<sup>33</sup>. This was further examined in paper 42 where it was proposed that nullifying the quantum wave function would represent a feature of space itself as “-1” as *entropic gravity*, as a *negative energy* in regard to the time-equation that produces a null result and thence seeks to make itself static, stable, and thence devoid of time<sup>34</sup>. This was the premise for static space in being a part of the background entropic drive of the time-equation.

As a new proposal, of note is the idea of the surface area (S) of a golden ratio ellipse  $(\varphi, \frac{-1}{\varphi})$ , say  $S_{(\varphi, \frac{-1}{\varphi})}$ , where the long axis of the ellipse is  $\varphi$  and short axis  $\frac{-1}{\varphi}$ , **as a ratio**, as per equation 1 and figure 1.

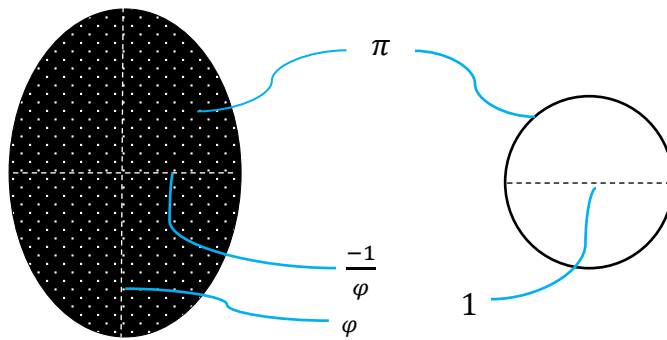
$$S_{(\varphi, \frac{-1}{\varphi})} = \pi \cdot \varphi \cdot \frac{-1}{\varphi} = -\pi \tag{1}$$

<sup>32</sup> ([3]: p2-5, eq2-3); ([51]: p14-17, eq1-4).

<sup>33</sup> [15]: p8-10.

<sup>34</sup> [42]: p29-56.

Figure 1

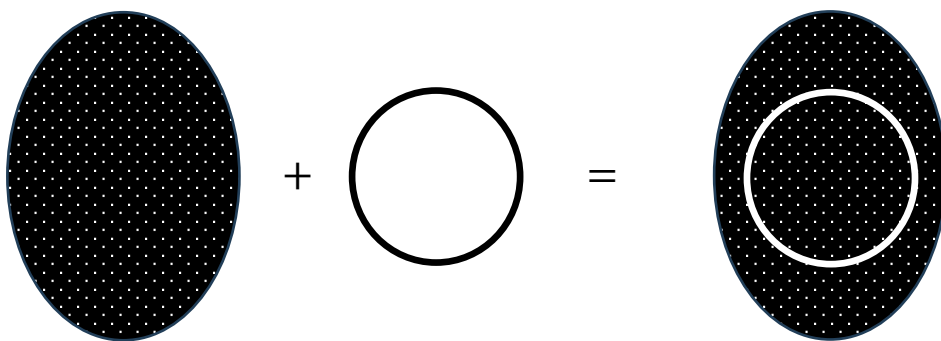


Although the short axis here is a negative value as  $\frac{-1}{\phi}$  yet portrayed as  $\frac{1}{\phi}$ , the idea of this negative value will become apparent.

Given such, is it possible to suggest that directly linking the golden ratio  $(\phi, \frac{-1}{\phi})$  to  $\pi$  in this way can form an exact bridge between the time-equation and the space-equation? Why not? This here is the idea not of a *primary equation squeeze*, yet a *primary dimensional squeeze*, a *primary dimensional shaping squeeze* to suite a perfect equation requirement with a fundamental equation "-1" link proposed to be the idea of a negative process for time ***as negative energy***, here linking the golden ratio time-equation  $t_B + 1 = t_A$  (where  $t_B^2 = t_A$ ) with the perfect  $\pi$  space-equation  $e^{i\pi} + 1_{t_N} = 0_{t_A}$  using the golden ratio ellipse.

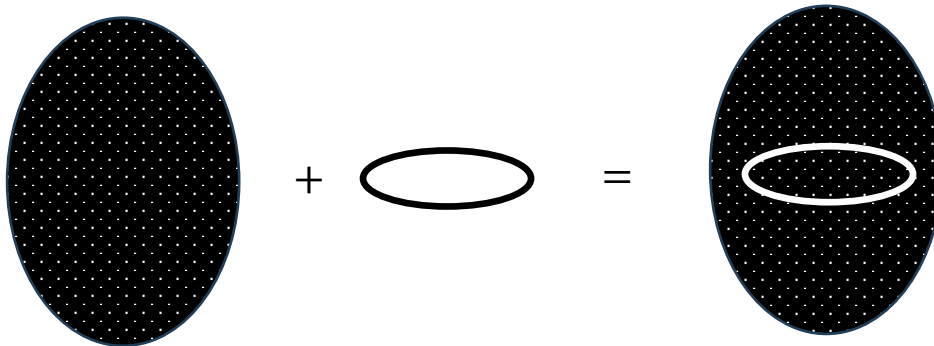
Here therefore the suggestion is that the surface area of the golden ratio ellipse, a 2d entity, equates to the value of  $\pi$ , a 1d idea as the trace of a circle with diameter 1. Consider figure 2 illustrating this.

Figure 2



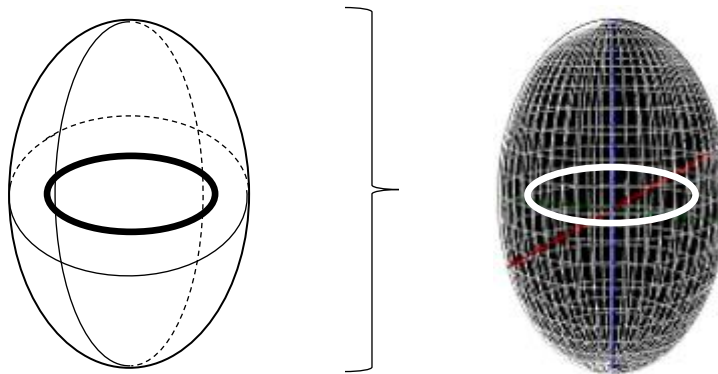
Now let the plane of the ellipse be at right angles to the plane of the circle, as this is a requirement of the derived quantum wave function that has both circular and ellipse features<sup>35</sup>. Consider figure 3.

Figure 3



Now consider that this is a feature of the time-equation relating with the space-equation as  $3d$  space, namely that the ellipse can be in any placement around the  $\pi$  circle. Consider figure 4.

Figure 4

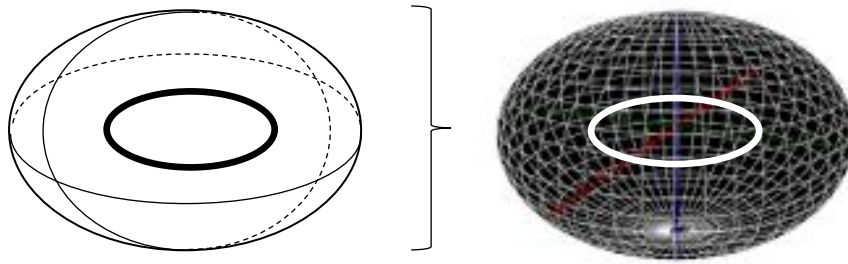


Of course, the other orientation for the ellipse in being perpendicular to the  $\pi$ -circle can be used. Consider figure 5.

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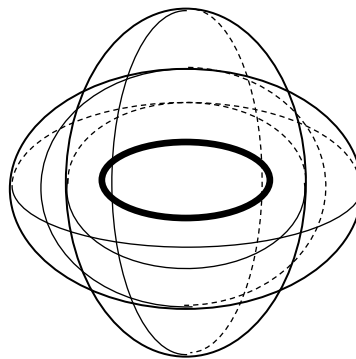
<sup>35</sup> [2]: p11.

Figure 5



It thence seems there is the possibility of two possible orientations for 3d ellipsoid space in regard to time, say as the space-ellipsoid and time-circle as 3d timespace, say as  $\odot$ . Here, "time" is considered as the perfect  $\pi$ -circle feature (time-circle) as the time-equation aim, and space the perfect golden ratio feature  $(\varphi, \frac{-1}{\varphi})$  (space-ellipsoid), as the space-equation aim, resulting in two fundamental orientation possibilities. Consider figure 6.

Figure 6

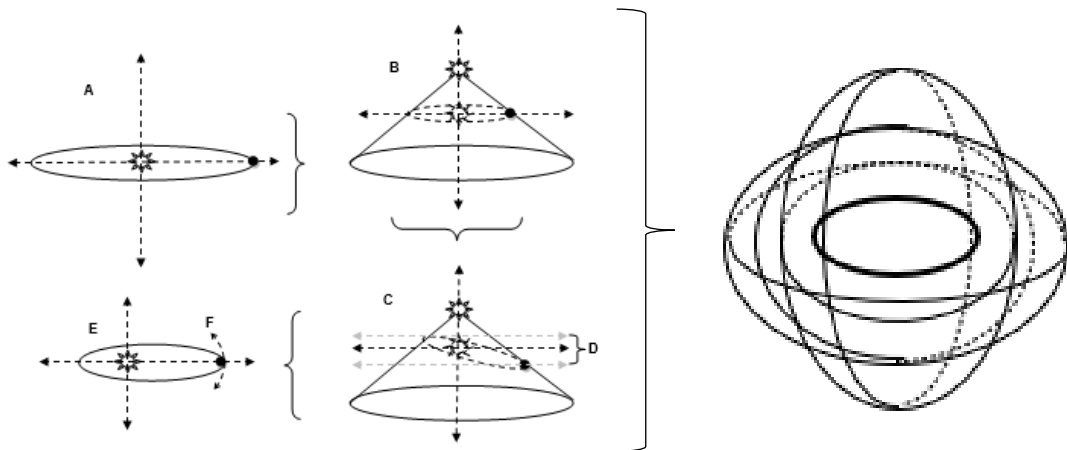


Proposed here is that such forms the basis for how space relates with both  $EM$  and mass, and thence how space forms the basis for a *gravitational wave effect*. The gravitational wave effect of space was presented in paper 51<sup>36</sup>. Although in paper 51 the description of the gravitational wave effect proposed such is intrinsic to how mass as a mass-field effect  $(\theta_\varphi)$  (and thus the motion of mass) behaves in space by the combined effect of the  $EM$   $(\theta)$  and  $EM_X^{DIR}$   $(\theta_\Phi)$  fields, here this is refined in presenting the baseline dual ellipsoid field for space as the surface area value of  $-1$ . See figure 7.

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<sup>36</sup> [51]: p11-13.

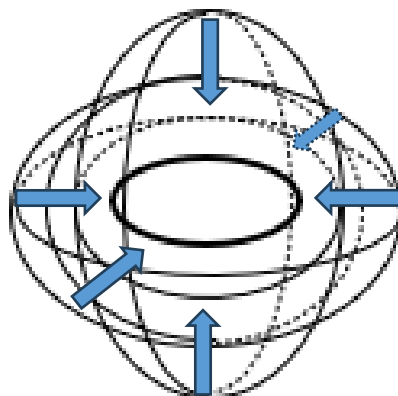
Figure 7



Proposed here is that the space-ellipsoid has two fundamental orientations in regard to the time-circle forming the basis for a  $c$ -scaling of gravity as the development of a gravitational wave structure through space. As presented in paper 57, and here in section 15, there is a derived gravitational wave field effect for this solar system in the context of space the metric of this being  $\sim 1ly, 1ly$  presumably being the small axis of the proposed solar system ellipsoid of space.

Now to consider is what a quantum wave function time-circle could be in regard to ellipsoid-space. This is the idea of the resonances of the quantum wave function as presented in paper 52<sup>37</sup>. Of particular note there is the proposed Xemdir field of space, how the collapse of the quantum wave function to 0 through absolute ( $X$ ) EM destructive interference resonance (EMDIR) would result in a flattened time-circle as a  $\pi$ -circle field effect, a Xemdir field, as proposed in papers 52<sup>38</sup>. Consider figures 8-9.

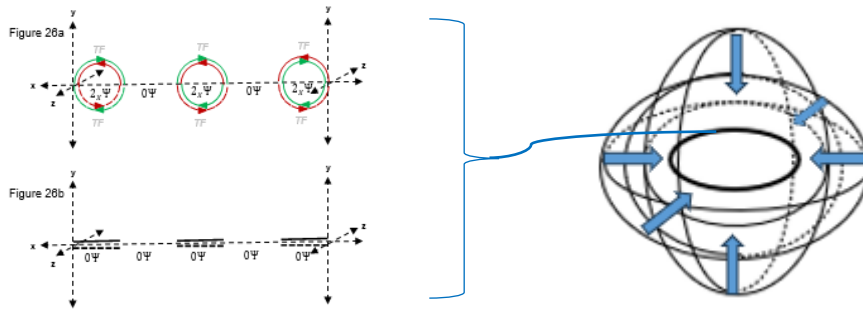
Figure 8



<sup>37</sup> [52]: p35-52.

<sup>38</sup> [52]: p49-52.

Figure 9



Here therefore, as this Xemdir field proposes, there is a zero-quantum construction that is associated to space given the time-circle as  $\pi$  and the space-ellipsoid as  $-\pi$  together equate to 0, space being that  $-\pi$  ellipse surface area construct associated with time-equation's  $\pi$  time-circle in this process, as the ellipsoid *timespace*  $\odot$  field, say as:

(xiii) the *ETS* $\odot$  field.

Note that such is how the  $e^{i\pi} + 1_{t_N} = 0_{t_A}$  space-equation demands how  $\pi$  works, namely finding its zero-point (ultimate) definition.

Generally, with all types of resonances for the quantum wave function resulting in *EM*, mass, and space, the ultimate process itself as a force between space and the quantum wave function is for the space-ellipsoid to enclose itself around the time-circle quantum wave function, and thus for the time-circle quantum wave function and its associated properties (*EM* and mass) to be attracted "into" the confines of the space-ellipsoid. Simply, here is the idea of the *ETS* $\odot$  field forcing *EM* and mass centrally into itself. This is proposed to form the basis for the appearance of gravity for mass and light, and how space would work in regard to mass, how it would appear to, noting the appearance here of how space would repel light and mass, as it must, thence appear to show how light and mass are self-attractive by space's dual ellipsoid nature.

Of note is how the binding strength of the quantum wave function to space was calculated<sup>39</sup> in using only the  $\pi$ -error. Here such an idea is still upheld with the proposed *ETS* $\odot$  field. The next idea now is how with this Xemdir field effect, of reducing the quantum wave function to 0 in making fundamental to space, pure space, would this sub-quantum realm operate?

<sup>39</sup> [60]: p57, eq17-18.

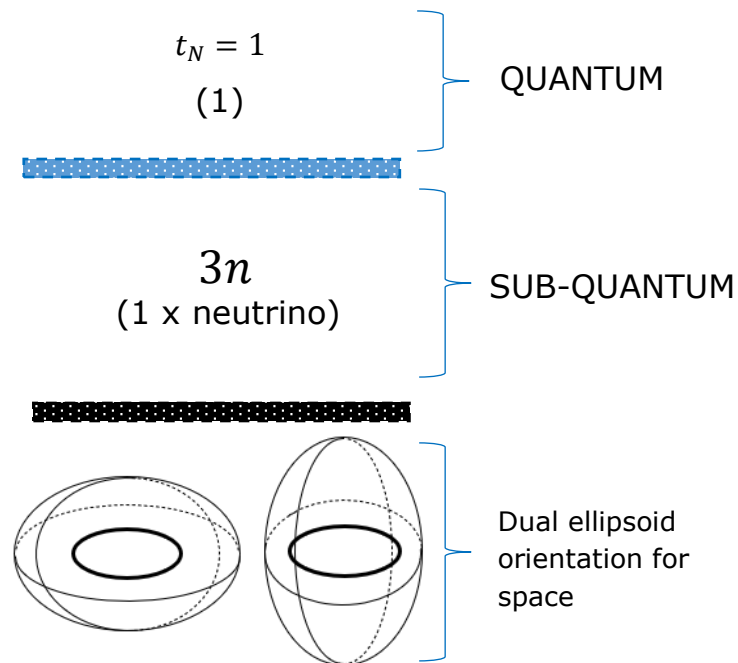
## 5. ABC TM-0D three-body problem

The sub-quantum realm was first proposed in paper 25<sup>40</sup> as a solution to the *Yang Mills existence and mass-gap problem*, and then further supported with evidence in deriving the value for the theoretical neutrino mass in paper 35<sup>41</sup>, and thence cross-referencing this to a solution for the *Riemann hypothesis* in paper 44<sup>42</sup>, thence followed up in paper 56<sup>43</sup> with further number-theory solutions.

The fundamental feature of the neutrino in those findings is that a single neutrino exists as a combination of "3" constructs and associated mass values. To also note is that on this sub-quantum level, this 3-construct feature of the neutrino is separate to the actual quantum wave function and thence separate to the time-equation itself. In other words, here is a 3-construct feature of the neutrino in a sub-quantum realm that has escaped the usual processes of the time-equation, and thence presumably cast itself to not be a part of the usual time-now condition of  $t_N = 1$ , yet would still nonetheless need to be held in the context of  $t_N = 1$ . Also though, as the new findings suggest, this sub-quantum realm represents two basic spatial orientations for the *ETS*© field. Can therefore this sub-quantum process be mathematically described?

On the one hand, there is a general  $t_N = 1$  context. On the other hand, there is a  $3n$  (3 being the triplicate feature of the neutrino and  $n$  being a neutrino number itself) feature. Underlying all of such is a "2" orientation feature for ellipsoid space. Consider figure 10.

**Figure 10**



<sup>40</sup> [25]: p40-56.

<sup>41</sup> [35]: p27-28, eq1-2.

<sup>42</sup> [44]: p20-22.

<sup>43</sup> [56]: p22-23.

Proposed here is that such can be converted into a set of two equations that work together to put the sub-quantum level properly in the required context of  $t_N = 1$ :

- (xiii) The first equation is proposed to be  $3n + 1$  in acknowledgment of the  $3n$  neutrino condition where  $n$  would represent any number of apparent neutrinos, and the "1" would represent the required  $t_N = 1$  context. Such would be the first equation process.
- (xiv) The second equation process would be to divide the first equation process by 2 if that first equation process can be divided by 2 resulting in a whole number value as much as  $n$  and  $3n + 1$  each must be a whole number value. This whole number condition was derived in papers 44 and 56.

The condition therefore for these two equation processes is:

- (xv) ***If*** the  $3n + 1$  value cannot be divided by 2 ***then*** the proposal is to take that  $3n + 1$  value as the new "n" value and keep doing this process until this process can be divided by 2.

The conjecture here is:

- (xvi) This process (xiii)-(xv) using any number value must ultimately result in the value of "1" if indeed reality must exist in time's moment of  $t_N = 1$  (as the 60 papers of TN-0D have proposed and demonstrated).

The interesting feature to all of such is that this conjecture has been presented before in the form of the Collatz conjecture<sup>44</sup> whereby the conjecture asks whether or not the continual amalgamation of two arithmetic operations are able to transform every positive integer into 1. Given the idea of straight-lines are implicit to the general theoretic basis of the quantum wave function time-equation and thence space-equation<sup>45</sup>, here the Collatz conjecture can be considered as a way of resolving sub-quantum's own three-body<sup>46</sup> (neutrino) problem, how this works with TM-0D's time-equation and space-equation, and how then reality still exists in time's moment of  $t_N = 1$  for both the sub-quantum and quantum scales for particles and the gravitational effect of space there on particles.

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<sup>44</sup> The Collatz conjecture has been shown true for all positive integers up to  $2.95 \times 10^{20}$ , but no general proof has been found [62].

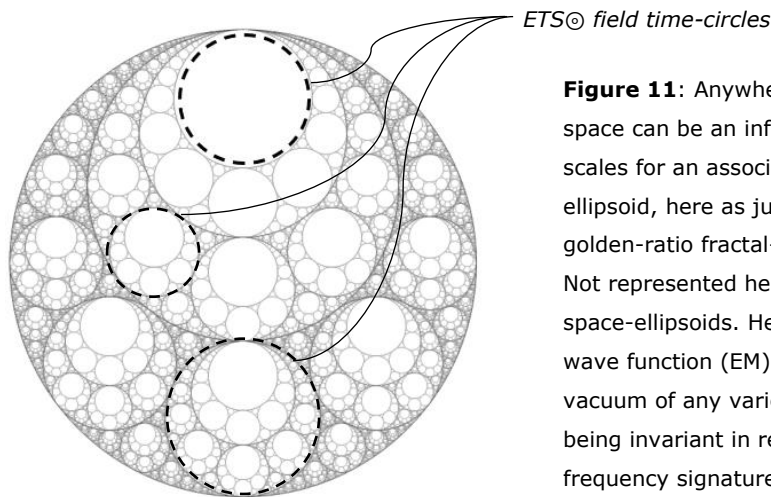
<sup>45</sup> ([2]: p3-16); ([49]: p10-16); ([52]: p7-15).

<sup>46</sup> [63].



## 6. ABC TM-0D ZPE and ZPF

To note with the derived Collatz conjecture is the application of any value for “ $n$ ”. Simply, here the space-ellipsoid and time-circle structure for ellipsoid *timespace*, say as  $\odot$ , can be of any “ $n$ ” magnitude in regard to time and space as *timespace*, any whole number value from to  $\infty$ , a feature that satisfies the TM-0D’s 0- $\infty$  paradox ( $\odot_0^\infty$ ). Thus, the  $ETS\odot$  field satisfies the 0- $\infty$  ( $\odot_0^\infty$ ) paradox, as it should, for it is directly derived from the 0- $\infty$  paradox basis of paper 43 [43] remaining strict with the number theory through to this paper. Consider figure 11.



**Figure 11:** Anywhere and everywhere in space can be an infinite variety of time-circle scales for an associated scaled space-ellipsoid, here as just one example of a golden-ratio fractal-type association of circle. Not represented here are the associated space-ellipsoids. Here is how a quantum wave function (EM) can extend in a spatial vacuum of any variety of frequencies while being invariant in respect to its genesis frequency signature.

Prior the 0- $\infty$  paradox proposal in paper 43<sup>47</sup>, this idea of a *timespace* field was first presented in paper 23<sup>48</sup>, thence paper 24<sup>49</sup>, thence paper 25<sup>50</sup>, and thence paper 33<sup>51</sup>. Consider though figure 12 describing how the time-circles in being a golden ratio and thus a fractal code would interlink as an  $ETS\odot$  fractal<sup>52</sup> field, from an infinitely small scale to an infinitely large scale as presented in paper 34 as an infinite time-point lattice<sup>53</sup>.

<sup>47</sup> [43]: p3-5.

<sup>48</sup> [23]: p15-29.

<sup>49</sup> [24]: p22-25, p29-30.

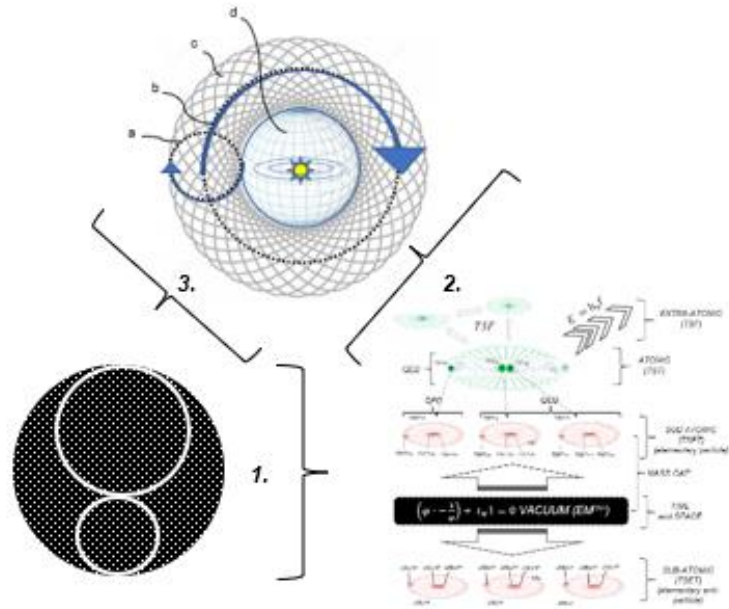
<sup>50</sup> [25]: p40-44

<sup>51</sup> [33]: p17-21.

<sup>52</sup> The *fractal* element here being for time and NOT exclusively space, as per the fractal element of the time-equation.

<sup>53</sup> [34]: p11, fig 2.

**Figure 12:** an amalgamation of the golden ratio *TSF* as (1.), accompanied to the microscopic scale as (2.) and then applied to the macroscopic scale as (3.).



To note with figure 12:

- (xvii) How particles in (2.) of fig12<sup>54</sup>, particularly the elementary particles, are proposed to come into existence via the particle quantum wave function resonances as described in papers 22-25 in the context of the then proposed timespace field (*TSF*) feature.
- (xviii) Further to such (xvii) was described the general shaping of physical reality in papers 32-35, describing the nature of the stars.
- (xix) Papers 35-42 thence dived into the exact derivations of the quantum and subquantum particles.
- (xx) Papers 43-50 thence derived the particle number theories for all such, laying the groundwork for solutions to the CMI Millennium prize problems.
- (xxi) Papers 51-59 thence sought to describe the nature of particle formation and how that can be demonstrated in a laboratory, together with an introductory list for the solutions to the CMI Millenium prize problems in paper 55.

It would be important now to mention how figure 12 was initially constructed in paper 34<sup>55</sup>, particularly the overall background scale of the *timespace field (TSF)*<sup>56</sup> system as highlighted in (3.) of figure 12 as an extract of fig2 of paper 33<sup>57</sup>. There of course the overall proposed scale of the *timespace* field forms the basis of how *EM* expresses itself in space.

<sup>54</sup> As a reference from paper 25 ([25]: p48, fig15).

<sup>55</sup> [34]: p17, fig3.

<sup>56</sup> To note here the prior *TSF* is now synonymous with the *ETS*© field.

<sup>57</sup> [33]: p11, fig2.

The origin of the maximum scale of the *TSF* was derived in paper 13<sup>58</sup> with the idea that the maximum distance *EM* can travel depended on its energy value and how a quantum from a theoretical point source atomic locale would propagate in a spherical manner, and thus as a surface area front for each increment in time. There, paper 13 noted that the idea of the Planck constant *h* is relevant to the atom, as derived initially in paper 3<sup>59</sup> and then that value later refined in paper 42<sup>60</sup> in further examination of the atomic processes in play relevant to the Planck constant value. Proposed in paper 13<sup>61</sup> was that the beyond the atom is a different process for the quantum energy *E* (for the atomic  $E = hf$  basis of *EM*) and its relationship to the frequency of light *f*, the frequency of *EM* considered to be a constant as a propagation through a spatial vacuum<sup>62</sup> given the quantum itself of *EM* is a fixed idea of time-space and thence frequency in regard to its intrinsic nature.

In light of the derived *ETS*⊙ field, consider the “*f*” of a quantum upon a baseline zero-quantum field as derived in paper 42<sup>63</sup> and identified here as the *ETS*⊙ field time-circle. An *EM*/quantum particle/wave would then align with its zero-quantum analogous time-circles in the *TSF* as *EM* propagates in space, ensuring that the frequency *f* of any nominated quantum wave function resonates in the *TSF* (*ETS*⊙ field) *invariantly* by the continuity of the spatial field backdrop, the space-ellipsoid, noting that the *ETS*⊙ field is tagged by design to the idea of a temporal moment everywhere at once ( $t_N = 1$ ), a proposed condition of existence, despite a quantum wave function being limited at *c* as derived in paper 60.

A quantum wave function (*EM*) thence is proposed to propagate in space according to its genesis/generation signature, its frequency (*f*) being invariant through the vacuum of space, yet in traversing through the *TSF* (*ETS*⊙ field) it is no longer bound by the atom that is constrained by *h* yet approaches an ultimate value of  $h_x = 1$  (see eq2).

Why must *h* approach the value of 1 *extra-atomically*? This is the nature of the *ETS*⊙ field itself, namely that the fundamental constitution of quantum energy (*E*) of *EM* is in fact the *EM* frequency (*f*), specifically how a quantum time-ring ultimately becomes proportional to the zero-point energy (ZPE) *ETS*⊙ field carrier system as it travels through space, and thence ultimately the energy of a quantum wavefunction *E* equating to its temporal frequency *f*.

To then calculate how far a quantum wave function can travel in using this scaling system is merely a matter of asking how a quantum in propagating in a spherical wave front ( $4\pi r^2$ ) would reach a maximum spherical wave front and thus maximum radius value from its theoretical point source. To calculate this, as per paper 13<sup>64</sup>, let us therefore use the new Planck equation for *EM* propagation beyond the atom as follows:

$$E = h_x f \tag{2}$$

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<sup>58</sup> [13] p6-11.

<sup>59</sup> [3] p2-3.

<sup>60</sup> [39] p52-59.

<sup>61</sup> [13] p11.

<sup>62</sup> Derived in section 4.

<sup>63</sup> ([42]: p40, fig14a-14b); ([52]: p43, fig26a-26b).

<sup>64</sup> [13]: p11, eq5-8.

Here with eq2  $E$  is still the energy of a quantum, yet  $h$  is no longer fixed yet variable as  $h_x$  from the standard value of  $h = 6.626 \cdot 10^{-34} \text{ Cm}^{-2}\text{s}^2$  to a proposed value of "1". The question now therefore is, "how far does light have to travel to have "h" become a value of "1"? We need simply apply the concept of the propagation of light according to a spherical wavefront, and thus  $4\pi r^2$ , with the aim of finding a factor of that spherical wavefront that matches the Planck constant,  $h$ , as an inverse relationship, to incur  $h_x = 1$ , as per the following equation:

$$4\pi r^2 = \frac{1}{h} \tag{3}$$

And thus given  $h = 6.626 \cdot 10^{-34} \text{ Cm}^{-2}\text{s}^2$  :

$$r = 1.1 \cdot 10^{16} \text{ m} \tag{4}$$

Given an astronomical unit is  $1.495\,978\,707 \times 10^{11} \text{ m}$ , then:

$$r = 73,500 \text{ au} \tag{5}$$

This equates to  $\sim 1.60$  light years, which brings this end-zone phenomena for the propagation of  $EM$  right into the "Oort cloud" [20] scale, a theoretical cloud of predominantly icy planetesimals proposed to surround the Sun at distances ranging from 2,000 to 200,000  $au$  as 0.03 to 3.2  $ly$ .

Simply, if each quantum block operates by  $E = hf$ , the question is how many quantum blocks of  $E = hf$  in the spherical wavefront are required to reach  $\frac{1}{h}$  quantum blocks. Thence, it follows that  $\frac{1}{h} = 4\pi r^2$  (eq3). So here, although it would appear as the quantum wave function spreads out as it propagates in a spherical wave-front it is multiplying its  $E = hf$  unit basis, the focus here is on how the  $TSF$  ( $ETS\odot$  field) allows this propagation of  $EM$  to occur. The suggestion is **not** that  $EM$  gains more energy as it travels through space, yet that  $EM$  exists in that virtual context by virtue of  $ETS\odot$  field context mandate. There, three features of the  $ETS\odot$  field are noteworthy:

- (xxii) The space-ellipsoid represents an "immediate" feature given it is a time-now condition.
- (xxiii) Every time-circle link between all the time-circles in an  $ETS\odot$  field are in fact in entanglement according to a dual space-ellipsoid orientation.
- (xxiv)  $EM$  can therefore also be in entanglement anywhere in the  $ETS\odot$  field according to one or another orientation,  $EM$  being the unfolded version of the  $ETS\odot$  field's component time-circle.

Other noteworthy features of the TM-0D derivations include:

- (xxv) The energy value of the CMBR can be calculated<sup>65</sup> in using the Oort cloud distance.
- (xxvi) The universal time-now condition described mathematically gives rise to, derives, the idea of *quantum entanglement*<sup>66</sup>.
- (xxvii) The mandated triplicate nature of particle existence in the form of the derived three-body problem and associated proposed solution:
  - a. The *ETS*⊙ field as both a sub-quantum and quantum temporal and spatial matrix basis as a transformation facilitator code scaled from 0 to ∞ as a natural number theory process utilizing the mathematical identity of the Collatz conjecture in thence resolving the sub-quantum and thence quantum particle three-body problem.
  - b. Fundamental therefore to this process is the idea of a three-body utility as a fundamental particle facility whereby the three-body problem is not assigned to mass alone, yet the sub-quantum feature of space proposed to be responsible for gravity, thence proposing the three-body problem's *complete* solution.

Conversely, using *infinitesimal calculus* proposes time is an emergence from mass objects under the influence of gravity (GR), yet also on a quantum level (QFT) could be an illusion created by quantum entanglement<sup>67</sup>. Those processes for describing time though are never exact in relying on flat spacetime's uncertainty (QFT) or an averaged/smooth appraisal of flat spacetime as curved spacetime (GR).

It is also interesting to note how the complex phenomena of the stars were derived in paper 33<sup>68</sup>. There, a proposed *spirograph* system was proposed. Such was proposed in the context of this new theory for gravity as based on the space-equation, here as the *ETS*⊙ field effect repelling its subsidiary features of *EM* and mass. Physics today is beginning to consider a similar approach to how stars form in mini black holes *in the sun* with a spirograph feature<sup>69</sup>, yet in that case using the idea of gravity within the sun, whereas the TM-0D approach takes a different view of gravity still though on the micro-level.

The other interesting result here is founding a new space and time *paradigm* as the *ETS*⊙ field paradigm as this space-ellipsoid structure (of any scale) and associated time-circle structure (likewise, of any associated scale to the space-ellipsoid structure). Such is not to be overlooked. For instance, the great implication of this *ETS*⊙ field structure (of any scale) is that space is a vacuum if indeed the idea of motion and thence time for the *ETS*⊙ field's time-circle (time-equation) component, and thence *EM* and mass (as per the theory), is annexed by the time-circle component.

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<sup>65</sup> [14]: p8-25.

<sup>66</sup> The "*quantum entanglement*" condition for a group of particles is the condition that exists such that the quantum state of each particle of the said group cannot be described independently of the state of the others, or simply that they are in entanglement.

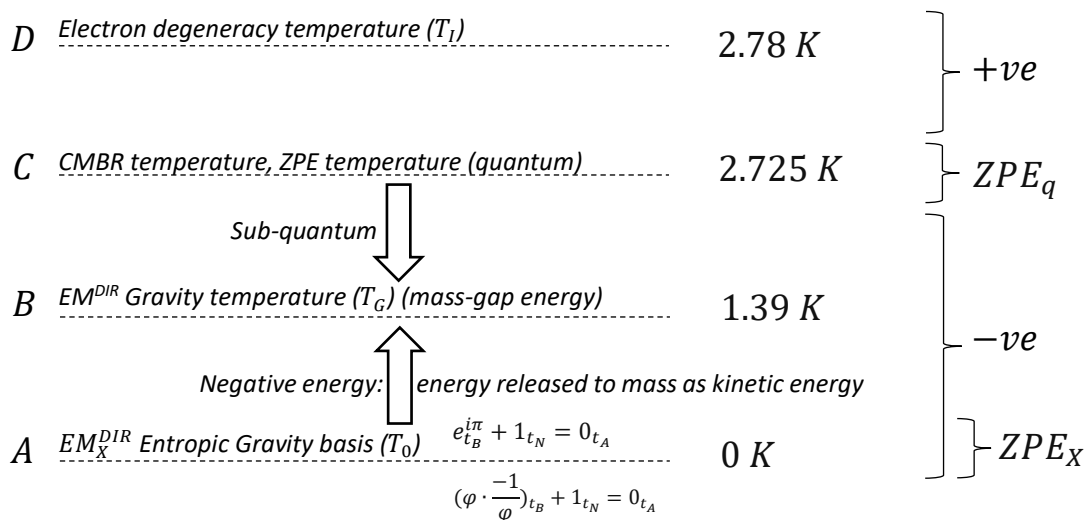
<sup>67</sup> [64].

<sup>68</sup> [33]: p11.

<sup>69</sup> [65].

In other words, the space-ellipsoid component of the  $ETS\odot$  field itself as a standalone component is devoid of  $EM$ , mass, and thence energy, yet harbors  $EM$ , mass, and thence energy. Thus, the space-ellipsoid component can be considered as a type of wall that pushes against, resists, being influenced by the time-circle component of the  $ETS\odot$  field, for it the ellipsoid-space structure *is not* the time-circle structure, yet both the time-circle and space-ellipsoid structures need one another to make the  $ETS\odot$  field.

The  $ETS\odot$  field therefore is proposed to extend between the subquantum (neutrino), quantum (atomic) and large scale (Oort cloud), from a close to zero level to an apparently infinitely large level (see fig11 as a simple 2d rendering). That code of interconnectivity is facilitated by what could only be the fractal nature of the time-equation. By the nature of this time-circle feature of  $ETS\odot$  field, the deduction is that this time-circle feature is the *signature* of zero-point energy (ZPE)<sup>70</sup>, namely the lowest and most basic energy level of the vacuum of space, the space-ellipsoid, and that  $ETS\odot$  field is in fact the zero-point field (ZPF)<sup>71</sup>. To be reminded there is how the zero-point field has an energy value derived to be consistent with the CMBR and how thence by proxy the energy of the vacuum itself of space instrumental as gravity represents thence a negative energy field effect, as per figure 1 of paper 42<sup>72</sup>, here as fig13.



**Figure 13:**  $EM_x^{DIR}/ZPE_x$  entropic gravity basis as  $T_0$  (A),  $EM^{DIR}$  gravity temperature  $T_G$  (B), CMBR/ $ZPE_q$  temperature (C), electron degeneracy temperature  $T_i$  (D).

<sup>70</sup> The proposed lowest possible energy that a quantum mechanical system may have.

<sup>71</sup> A quantized field at its lowest possible energy.

<sup>72</sup> [42]: p18, fig1.

The result of all of such is a physical reality forming the composition of the derived features of figures 45-49 of paper 60<sup>73</sup>. To note here in section 5 fig6-9 the *rounded geometric edge* structure of dual ellipsoid *timespace* which would then bring the shaping of reality into such a resultant spatial form. Such an idea of rounded geometry has recently been proposed by new research into “*soft cells*”<sup>74</sup> forming the basis for a geometric analysis of physical reality’s structuration, here though derived de-novo.

## 7. Conclusion

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By further discussing the proposed timespace field (*TSF*) of paper 23, the developments here have derived the natures of zero-point energy (ZPE) and the zero-point field (ZPF). Also derived here is the maximum proposed scale of timespace in-line with the known scale of this solar system. To further quantify and contextualize these findings, the three-body problem was identified and resolved through the use of the Collatz conjecture forming solutions for both the quantum and sub-quantum particle levels.

### Conflicts of Interest

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

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