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The Constants and Dark Energy Computed and Explained with Entire Function of Dynamical Systems

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Abstract

Metaphysically and physically: *This paper presents a general theoretical framework with correspondingly metaphysical models' definition and one general physical model variating in specific cases in a uniform mathematical structure in dynamical systems view. With this framework, the Constant Family that is composed of the Fine-Structure Constant (FSC), the Coulomb Constant, the Newton Gravitational Constant, the Muon Anomalous Magnetic Moment and the Electroweak Electromagnetic Moment together with Electroweak Constant Coefficient has been computed theoretically in General Solution scheme. Specific values or value scope for different schemes have been determined by the experimental Constants' values with probability evaluations to indicate capability for predictions for further more precise measurements. The theoretical framework is appeared to be able to unify the electromagnetic field, the electric field and the gravitational field at dynamical energy flowing and transforming system level in coordinated relativistic structural view. By rights of such unifying capability, the theoretical framework is able to explain "Dark Energy" and clarify concepts such as "energy superposition state" and misconceptions such as "Asymptotic Freedom".*

Mathematically: *This works originally was to continue the ongoing mathematics works on FSC carried out by Sir. Michael. Atiyah. The mathematical structure developed from this works plays the role of General Solution to Yang-mills and Mass Gap mathematical proposition proof. Sir. Michael. Atiyah's insights and employing renormalization approach and Todd polynomials techniques has provided demonstration from the uniqueness proof for any defined analogue for (infinite) iteration of exponential set. This paper is on those analogues, jointly shaping existence and uniqueness proof for multiple mathematical aspects. The future work can be further conducted on existence proof in relation to Yang-mills proposition.*

Keywords: Fine-structure Constant, Newton Gravitational Constant, Muon Anomalous Magnetic Moment, Electroweak Electromagnetic Moment, Quantization, Dynamical System, Electromagnetism, Dark Energy, Unity of Duality [1].

Introduction

Much efforts have been put onto the Constants measurements and computations. Among Constants that Fine-Structure Constant (FSC), α, Newton Gravitational Constant, G, Muon Anomalous Magnetic Moment, a_μ, Electroweak Electromagnetic Moment, α_weak, together with Electroweak Constant Coefficient, g^1, FSC, α, has been a representative to be thought highly to understand electron and electromagnetism as well as disclosing New Physics. Cognitive aspects, Richard Feynman dignified its significance as "one of the greatest damn mysteries of Physics" [2]. Arnold. Sommerfeld introduced it to describe the model of atom and explained the fine-structure of spectrum, thus it is named as the FSC in 1916 [3]. Niels. Bohr ever predicted that it would be a part of the quantum theory to ascertain the theoretical mechanism for the FSC. Paul. Dirac and Werner Heisenberg also indicated that it would be impossible to build up a logically underlying theory for Physics unless ascertaining the FSC theoretically. Max. Born thought a beautiful and elegant theory should be able to infer out the FSC from pure mathematical structure [4]. Wolfgang Pauli believed that there is probability to resolve some puzzling problems through the settlement on the FSC. In his Nobel Prize acceptance speech, he appealed to targeting at ascertaining the FSC for the Quantum Field Theory (QFT). Experimental aspects, the experiments have been conducted to determine the

empirical value all the time and the measurement precision has been continuously improved. Several groups of teamwork to measure and determine the empirical value carried out in recent years. Science® reported in April 2018 that a team from Lawrence Berkeley National Laboratory (LBNL) used matter-wave interferometry with a cloud of cesium atoms to make measurement of α, determining the value of α to an accuracy of better than 1 part per billion [5]. A group research article published by Science® presented the most distant direct measurement of α to date. Four measurements from the X-SHOOTER spectrograph on the Very Large Telescope constrain changes in a relative to the terrestrial value. The weighted mean electromagnetic force in this location in the universe deviates from the terrestrial value by $\Delta\alpha/\alpha=(\alpha z -\alpha 0)/\alpha 0=(-2.18+/- 7.27) * 10-5$, consistent with no temporal change [6]. An article published by Nature® used matter-wave interferometry to measure to recoil velocity of a rubidium atom that absorbs a photon, and determine the FSC α-1 =137.035999206(11) with a relative accuracy of 81 parts per trillion [7]. Mathematical aspects, Arthur Eddington introduced concept of "algebraic degrees of freedom" to suspect theoretical α should be integral 137 with equation that 137=20+23+27 [8]. Sir. Michael. F. Atiyah employed renormalization approach to justify the empirical value and to legitimize the role of α-1 for dynamical quaternion H to be that of π for 1 dimensional dynamical inertia without computational work from the theoretical. [9]

However, some critical issues remain open till moment. The empirical evidence on the hydrogen spectroscopy and an "anomaly" of the magnetic moment of an electron is subtly larger than that expected for a charged, point-like particle by a factor of roughly $1+\alpha/(2\pi)$ [10]. The most recent measurement on FSC at the Kastler Brossel Laboratory created positive standard deviation of 1.6 with rubidium atoms comparing with that of negative deviation of 2.5 on the previous record achieved by the team from the LBNL, using cesium atoms [11]. More importantly, a systematic mathematical structure which shall be able to contribute to Theoretical Physics is not in place yet. Furthermore, if considering in a broader perspective, the Physics built on the Standard Model of particle fails to explain dark matter, dark energy and imbalance between matter and antimatter in the Universe [7].

Another pioneering experimental work carried out at the Fermi National Accelerator Laboratory with global teamwork is the 3 years measurements on Muon Anomalous Magnetic Moment, a_μ. A paper reported most recent progress and result that comparing with 3.3 standard deviation from the a_μ(FNAL) and 4.2 standard deviation from the new experimental average of a_μ(-Exp) [12]. Science® dignifies its importance to nominate the work to enlist into "Breakthrough of the Year: 2021". Physicists expect either searches for tiny discrepancies from the standard model's predictions could yield more clues to the hoped-for new physics. Or, seek for blasting some new particle into plain view by Europe's Large Hadron Collider [13].

If all the Constants of great significance in question can be explained with an upgraded theoretical framework in a uniform mathematical structure, it will be very indicative the probability for new physics. This paper presents the significant finding through a top-down presentation structure. The main body begins from metaphysical model description to overall physical model description with mathematical structure and necessary explanations on definitions, then to each Constant computation as case studies for showcasing the capability of the theoretical framework as well as probability evaluation for variable values and for the legitimacy of the theoretical framework. The paper also showcases the process of quantization on dynamical system view for each case study. Finally, the paper setup a discussion on variations of Constants' empirical value and an open discussion on the Cosmological Model to explain Dark Energy with the ratiocinations of the unifying capacity of the theoretical framework.

The Metaphysical Model for the Theoretical Framework

Since Planck explained black-body radiation with energy in quantum and Einstein explained photoelectric effect with energy in quantum, the current metaphysical model for quantum mechanism is based on that quantum of static image. It is in line with the experimental outcomes. Our measurements can only record the parameters of timing points and align image frames into a process. This is our current quantization state-of-art. Nevertheless, if ones think about how the process of that quantum of static image is and can be, ones will probably realize that there could be accelerations(decelerations) inside the object in the microscope and there could be some mechanism reflecting as accelerations(decelerations) on the velocities of the object out of observers' event horizon domains or out of the implicit understandings. From an experimental approach, it becomes increasingly difficult out of imagination due to the complexities of required concurrent measurement precisions as well as Lorenz covariance on time for either tiny scales or Universe scales to disclose the inherent dynamics. More importantly in terms of approach is the awareness that humans cannot go into the tiny scales and cannot go out the Universe scales. Such that, it is the big time for physicists from analytical school to upgrade the current overall Standard Model on particles to take both internal possible dynamics and external possible connections into the consideration on model building to shape a cycle-based of time dynamical process description for in between each image as well as for the whole process. Constants are one of the best objects that are the most, if not the only, reliable evidences from the empirical to testify or validate the upgraded hypothesizing models from multiple case studies. Any hypothesizing models should be provable from mathematics in terms of the overall framework at the logical and the structural. Consequently, it is a higher standard of requirements than mathematics as general role of tools for quantum mechanics in last century. Mathematics represents an integrative structure of framework for both the logical and the physical with a bijective mapping relationship. So, annotations role is changing to be one of the core contents for "New Physics" on top of metaphysical models.

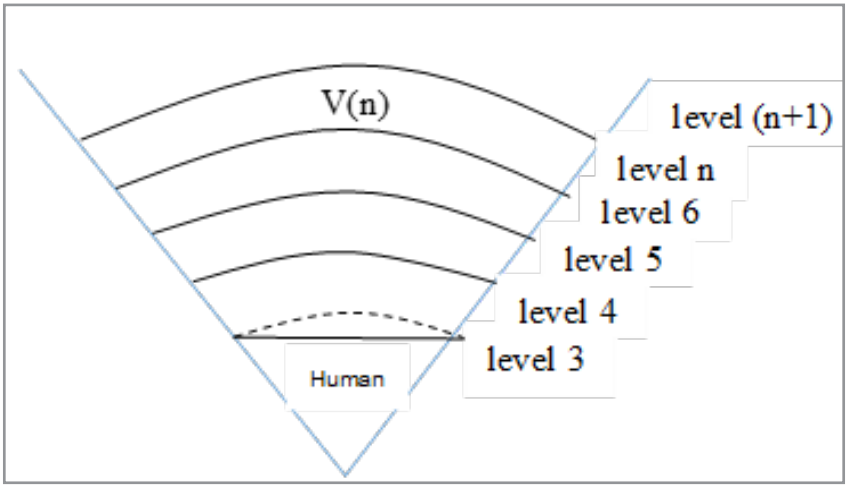
This paper is foot stoned on gauge invariance theory. Herein, the paper emphasizes its meaning in the physical, provable in mathematics or the axioms system, in relation to spacetime. According to the standard argued above, this is the core topics for physics in structural way as an integrative whole. Minkowski spacetime and Hilbert spaces are in duality of relativity relationship. In terms of reference frame, Minkowski spacetime is like a gauge and Hilbert Spaces are substances. So, it is involved into understanding interpretations in between different reference frames so as to different velocity systems. On the contrary, Minkowski spacetime is the perception of humans from internal a

quaternions Hilbert Space reference frame. Hilbert Spaces are from external perspective on spacetime. Here come the core topics that whether a quaternions Hilbert Space of linear or inertia of characteristic is the Minkowski spacetime? One of this paper's core topics is to explain that from internal perspective, it is significant to treat quaternions Hilbert Space as if it never exists physically. It is only a tool for analysis and model building, so that Minkowski spacetime is treated as substance from internal perspective, which means there must be some mechanisms happened or happening at higher dimensions of Hilbert Spaces at the initial stage or in the process to make something perceived by humans and the new model need to describe that. It is not an Absolute Spacetime from Newton or Ether understandings on spacetime but in topology of physical "layer" = logical "level" indexed by sub-ordinals of velocities of spacetime as well as indexed by ordinals of dimensions. So, from external perspective, Minkowski flat spacetime is a special case of Hilbert Spaces, while from internal perspective, all whatever Hilbert Spaces are existing or just logically existing in the Minkowski Flat spacetime. It constitutes the metaphysical relationship description on Duality in Relativity structure.

The metaphysical model for this paper's theoretical framework is on von Neumann Universe model [14]. Correspondingly, von Neumann Set Theory is the fundamental footstone and hall pillar for the metaphysical model in structural view [15]. A mathematical concept that ordinals have been introduced to the metaphysical model in structures. The cumulative hierarchy based on their ordinals is a family of sets vn indexed by ordinals [16].

$$Set\_V_{Ordinal(n)} \subseteq Set\_V_{Ordinal(n+1)}$$

$$Sets\_\forall_{Ordinal(n)} \subseteq Sets\_\forall_{Ordinal(n+1)}$$

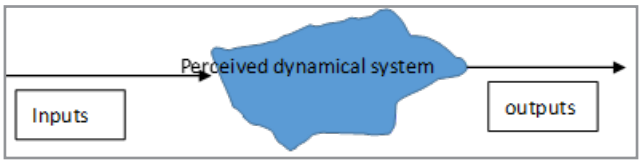


von Neumann Universe (n-dimensional Hilbert Space)

The "level" is indexed by Ordinal that is a concept of category of dimensions. In this paper, it particularly refers to spatial dimensions. When measuring constants, our human operator as well as observer currently always stay inside a 3D space with timeline that is Minkowski spacetime from internal perspective. From external perspective, that is demonstrated to be a quaternions Hilbert Space as the substantial. Such a nature provides applying gauge invariance principle for interpretations for the dynamical objects happening at n-dimension (n>3) spaces to our 3D space which feels in the empirical as a Minkowski spacetime

The studying objects are the different dynamical systems of dissipation in above structural view and with Power functional differential equation methods. There are two distinctive characteristics of this model with corresponding methods.

1. Only when there is happening dynamics inside a holistic system, it is perceivable by human observers. Such that the whole mechanisms of the system can be still unknown for this study. However, it makes us to realize that the dynamics human observers have perceived could be connected with the unperceivable parts of the whole system. It helps to understand the quantum entanglement phenomenon.
2. Given that the Dissipative Structure of the perceived dynamical system indicated in the diagram as below:



The study is on top of the Standard Model in a contextual environment. Furthermore, the Standard Model can be simplified from such a dynamical system of dissipation model. More importantly, the overall metaphysical model makes us aware there will be always inputs to make the dynamics happen at the initial stage and perceivable for the process during a period of time cycle when they are sometimes not obviously visible and/or measurable or/and neglected in many empirical oriented studies.

In relation to the constants involved in this paper, all studying dynamical systems shall be energy transferring and flowing systems. For FSC, the dynamical system of dissipation is an exciting electron with photon input and photon output. For Coulomb

C., the dynamical system of dissipation is the two static charged particles of interaction and 3 dimensional fields in 3D spaces. The system input is easily neglected. That is the intrinsic electric force resulted in electric field. For Newton Gravitational Constant G, the dynamical system of dissipation is a mass particle or matters with procession motions of a constant acceleration and dynamics of spacetime. The input is unimportant in terms of constant G theoretical calculation while the output need to be studied carefully. What is important for the input is that there need inputs at logical z to keep the acceleration constant at z. For electroweak constant, there is involved into complex dynamical systems. That shall be further elaborated in Section 7. Such that, for the theoretical framework and uniform mathematical structure requirement, it is naturally conduct a category concept of "Energy Field". It is from the analytical approach to abstract internal the dynamical energy transferring and flowing system to be different energy fields. Furthermore, this paper from analytical school introduces a logical concept of category that "energy quantum". If it exists empirically, it can be found on different tiny scales of spatial dimensions with respect to dimension 7 for how an electron is born from excitation or shaped though decay, dimension 8 for how the electromagnetism is to charge smaller electro volume to be one electric unit during an electron born or shaping process, and dimension 9 for how mass is shaping for an electron during its born or shaping process. Despite we have not achieved evidences from the experimental, logically it is already assured that there must be some existences of energy. Such that it shall play the role of analytical tool for calculations and analysis. The "energy quantum" logically represent a minimum energy unit in relation to a particular dynamical energy system.

This paper only studies the scenarios when "energy quantum" interplays with "energy field" at Higgs Mechanism for the microscopic. That means the "energy quantum" abstracted from any energy carrier particles from the Standard Model shall make dynamical synchronizations at speeds with those "energy quantum" forming into the "energy field". For the macroscopic, there requires the "energy quantum" to have same atomic or molecular structure with those "energy quantum" forming into the "energy field" to make dynamical synchronizations at speeds.

For constants theoretical determination requirement, this paper only considers just 1 defined periodic time cycle. The time length per each defined periodic time cycle is also in dynamics of the system iterations.

Although empirically we have observed everything in the microscopic is spinning and everything in the macroscopic is rotating, we can hardly demonstrate the field of Universe as one system is spinning and our environment in terms of gravity field is spinning from the empirical. Nevertheless, this paper shall provide proof from the logical aspect that as long as we assume there is inertia system of quaternions Hilbert Space in obit momentum, the cognition of Newton for gravity is not realistic. When and only when we assume gravity is a field effect with a field speed at logical y, then an inertia system of quaternions H is able for realities. Consequently, the role of the theoretical framework is transforming into the sufficient and necessary condition to the metaphysics of Universe spin. The author has been advised that the general role of Universe spin is for a uniform mathematical structure consideration because for the Constant(G) and the constant a_μ, this metaphysics matters while it is irrelevant with whether Universe spin for FSC and Coulomb C. But this paper sticks to the integrative reflections for the argued higher standard from analytical school.

Overall Physical Model and Mathematical Structure

The Entire Function for Dynamical System of Dissipation

We have the Entire Function for n-dimensional Hilbert Space as below:

$$F_{entire}(f(u),dt) = 2\pi \int_0^{dt} f((x,y,z)^{(P1(gauge\ (n)+1)^{P\,2(gauge\ (n)+2)^{P3(gauge\ (n)+3)\cdots\cdots P(n)}}),dt)$$

Exposition: For example, x^4 need to be denoted as x^{1234}. It does not mean x^{24}, but means the topology relationshiop that $\{x^4\} \supset \{x^3\} \supset \{x^2\} \supset \{x^1\}$.

$$Sets\_\forall\left\{f\left(x^{1^{2^{3^4}}}\right)\right\} = \{f(x^4)\} \cup \{f(x^3)\} \cup \{f(x^2)\} \cup \{f(x^1)\}$$

The Power Function Series for Dynamical System of Dissipation

P(n)(n≥1)=-[($f_{state\ vector}$ number(n)=(external on (n)+internal on (n))

When the perceived dynamical system begins to interact with an input of vectors at the initial stage of a time cycle, the State Vectors (SV) shall be generated for each power function with respect to each spatial ordinal. Both the external to the system and internal the system need to examine.

When the input of acting vector is 1, either x, or y, or z, the external to the system is an action force of vector. The direction is definitized and the number of SV to be 1. For the internal, the number of SVs shall be $2^{(n-1)}$. 2 stands for each spatial dimension has two degree of freedoms. n stands for the topological spatial layers. Such that:

$f_{state\ vector}$ (n)=-(1+$2^{(n-1)}$)

The clarification on minus operation on number of SV is that higher dimensions happen at tiny scales. von. Neumann Universe as an approach is a holistic approach of dynamical system. The bigger ordinals, the smaller ratio relative to the whole.

For the iterative system, a very important thing is to know whether the sequence of xyz is commutable or not in the physical. If it is noncommutable between x, y, z, it means vector y can drive vector x motion change, but x cannot drive y motion change in each particular practice; or vector z can drive y and x change, and the meantime, y change can further drive x change, but x cannot drive either y or z change in each particular operation. When xyz is noncommutable, the 1, acting state vector from external perspective to the whole system, is not affected, thus not attending the system iterations.

For example, when n=5, gauge(n)=3, x, y non-commutable,
$\prod^{n}_{gauge}$ P(1+$2^{(n-1)}$) =(1+2^4)*2^3+1;

When n=6, gauge(n)=3, x, y, z non-commutable,
$\prod^{n}_{gauge}$ P(1+$2^{(n-1)}$) =(1+2^5)* (1+2^4)*2^3+1;

Mathematical Definition for the Category of "Energy Quantum

Definition: The category of "Energy Quantum" is the logical substances ranging from a completely commutable quaternion $H_q(x,y,z,t) = H_q(x,\frac{\omega}{spin*\pi}x,x,x)$ to a completely noncommutable quaternions that H_q (x,y,z,t). So as to its algebraic combinations.

Characteristic Description: It is provable for the characteristics of such a quaternions H that H_q (x,x,x,x) when ω/(spin*π)=1. That means it is isomorphic in not only space, but also space-time, constant motion state at the speeds of x (supposed to be light speed), its appearance is a cubic ball from external perspective, meanwhile, it logically can be aligned to be a light cone whose center of concentric circles is also moving at the speed of x from internal perspective. Energy substances are not on the surface of the ball, but on the membrane of the body area of a light cone [17]. The surface of the ball is just the holographic image. Which image is the "reality" is the duality of relativity. What is really important is the structure of physical model.

H_q (x,x,x,t) when ω/(spin*π)=1 stands for isomorphic in the space. In such a case, it is provable that the appearance is in a light cone and all the linear substances are and are only on the membrane of the light cone from both internal and external perspective [17].

Since fields interact with particles, it became clear by the late 1920s that an internally coherent account of nature must incorporate quantum concept for fields as well as for particles [18]. In the above way, the iterative structure between coupling particle and field to which the particle belongs is setup. Energy quantum is the particle understandings for different energy field state vectors description at the global level and at any demanded tiny scales. The logical iteration is that Energy field is consist from energy quantum. Inside the energy quantum of which in a particle view, it is a smaller scale of energy field.

PDE Approach for Iterative Dynamical System of Dissipation

The advantage of von. Neumann Universe in hierarchical structure view with ordinals, as well as sub-ordinals which can be defined when needed, is that whatever continuous functional descriptions on motion state vectors, Hamiltonian (Ĥ), system momentum, and other features relating to spaces and time can study the functional relationship between any two different ordinal levels through differential equation for continuous functional descriptions [17]. That functional relationship description shall be the iterative system analogue. When it is a constant in relation to the 3D space, it is easier measured and is identified as a type of particular physical Constant of purely mathematical meanings for the empirical.

Such that, assume the measurements are happened at a spatial level defined as gauge dimension, denoted as Gauge(n), n=1, or n=2, or n=3, till moment, for the empirical.
Then we will have below general PDE:

$$\frac{\partial(\mathrm{n-gauge})f(u)}{d^{(n-gauge)}u} + \frac{\partial\int_0^{dt} f(dx,dy,dz)}{dt} = f_{anaglue}\ (u,dt)^{-1}$$

The clarification on the exponential parameter (-1) is as below:

$$Because: F_{entire}\ (u,dt) = 2\pi\int_0^{dt} f(u)^{f_{anaglue}\ (u,dt)*dt}$$

Such that, the bigger ordinals, the smaller ratio relative to the whole.

For constants study, gauge(n)=3, f(analogue)=C; n=4, or n=5, or n=6;
t=Lorenz(t);
What is important is that when measuring Ĥ as well as system momentum, such as obit momentum and angular momentum for high speeds system of mass particles, there will be "mass gap" phenomenon. So, the whole metaphysical model and mathematical structure is promising to bridge connections with Yang-Mills proposition which is proved from the physical not yet proved from the mathematical.

$$\frac{1}{C_{n-3}} = \prod_{gauge}^{n} |P(1+2^{(n-1)})| + \int_0^{\mathrm{Lorenz}\ (\Delta t)} f_{eneryfield}\ effects(n) * C_{(n-3)}\ (\mathbf{1});$$

$$\int_0^{\mathrm{Lorenz}\ (\Delta t)} f_{eneryfield}\ effects(n) = \int_0^{\mathrm{Lorenz}\ (\Delta t)} \sum [f_{spacetime}\ number(n) * (Relativeity\ Factor) * (1-TTR)] + MOQ * (1+converge\ factor)$$

TTR stands for Transition Time Ratio of speeds. It takes a tiny ratio of time in each iteration cycle to synchronize speeds. Whereas the empirical evidences show that the speedup of an exciting process in the microscopic is not consecutive but discrete. That is the Speed Transition. von. Neumann hierarchy sets can accommodate 1 sub-ordinal in between each main ordinal of spatial dimension for both continuous and discrete description. Between each sub-ordinal, a smaller scale can be defined accordingly for the topological Fractal Structure if any. Logically, it is very indicative to find the ground where the speed transition looks both discrete and continuous. More importantly, in supersymmetry resulted from spatial commutable quaternions (x, x, x, t), which means from whichever scale perspective, the "jump" and "hold" shall respectively occupy 1⁄2 time ratio of each transition. This paper shall also prove that during the period of speed transition, it does not generate extra field effects.

$$f_{Superposition\ \ State}\ number(n) = \sum_1^n 2^{(n-1)}$$

$f_{spacetime}$ *number*(n) describes spacetime number for calculating field effects on time perspective. At the timing point, the SV does not generate field effects, but a period of time, the field does. So, it is more actuate to say field effects of spaces accumulation on time. 2 stands for each spacetime dimension has two degree of freedoms. 2^0 stands for the "energy quantum" itself whose degree of freedom is at a definitized status, thus 1. It calculates each Δt how much field effects impact all topological spatial layers on all degrees of freedom. For example, when y acceleration changes drive x change, or z acceleration change drives x and y change at the same time, and meanwhile y change further drives x change, how much in total accumulated by itself, x, xy, xyz, x^2yz, x^2y^2z, $x^2y^2z^2$... if any.

The clarification on (n-1) is given that the speed or acceleration speeds remain constant for that layer, so there is no motion change happening from the perspective of that layer. But from perspectives of its subset layers, there is motion change such that the field effects to those layers need to be calculated. This period of time is very important for precise computations and the process need to be evaluated case by case, however it is not necessary for computation when calculating the impacts of speed transition at a certain layer to that layer because the model has already considered that impacts. It can be logically demonstrated with Proof by Contradiction with one physical assumption and one cognitive postulate. The assumption1 is that the field effects has spatial ordinal sequence but without time sequence from that layer to subset layers ordinal by ordinal. It is naturally postulated by current logical model when we operate the integral calculations. It means the energy flows to all spaces at the same time depending on the energy volume and specific channels that can reach which space. It implies that physically fields are highly possible multi-dimensional as a whole. It is humans' understandings that have divided them into multiple faces. The postulate is the definition on constancy. Now assume the speed transition shall produce field effects to all the logical spatial layers. There is no question that the speed transition shall produce field effects. The question is whether and how that effects need to be calculated. When other layers get field impacts from the speed transition layer, there must be extra field effects on the speed transition layer in addition to the impacts of synchronizing the speed transition layer. Then the speed transition layer shall absorb those effects first to make its speed acceleration beyond constancy, as long as we postulate there is concept of constant acceleration, it will be a contradiction. The assumption1 on the sequence of spatial ordinal and time is another important issue, which will be cross-validated throughout the whole paper. So, on precondition of a true assumption, all the field effects of speed transition are only to synchronize the speed of that layer without further impacts to all the layers.

Given that field effects accumulation of time on spatial layers up to (n-1), it is corresponding to the energy transferring and speed transition is discrete. The difference is huge for the computations since that smaller period of time for the speed transition does not produce field effects inside the energy field. Transition Time Ratio (TTR) need to be deducted its proportion from all. Correspondingly, the fractal numbers and fractal layers for the transition period need to find out and then the TTR relative to the whole Δt or/and TTR relative to any certain period of time within the Δt need to evaluate case by case. The testing method from mathematical model and structure need to define. The transition time issue is vitally important for high precision computations like eyes of a dragon. Later on, will further clarify every detail on case occasion for the audience to evaluate the framework to be a higher standard for the quantization.

MOQ stands for the Minimum-Of-Quantity for output energy volume at a critical time before outputs. Converge factor= (1+Relativity Factor)

The Relativity Factor is a relativity relationship description on field speeds of energy flow with respect to x, y, z. on each other's representations. So according to the energy quantum definition, for a H_q (x,x,x,x) or H_q (x,x,x,t) case, which is also representing the field speeds, there are below descriptions.

$$R_{z\to x}=\frac{dx}{dz}=\frac{2r}{2r}=1;$$

$$R_{z\to y}=\frac{dy}{dz}=\frac{2\pi r}{2r}=\pi;$$

$$R_{y\to x}=\frac{dx}{dy}=\frac{2r}{2\pi r}*spin\ number;$$

For another example, accelerations in z changes drive y and x change at same time; and y further drive x. Eventually, z and y speeds are unchanged, only x speed changed.
So, for x,

$$\sum[f_{space\,time}\ number(n)*(Relativeity\ Factor)*(1-TTR)]$$

$$=R_{z\Rightarrow x}\left(\frac{dx}{dz}\right)*\sum_1^n 2^{(n-1)}*R_{z\to y}\left(\frac{dy}{dz}\right)*\sum_1^n 2^{(n-1)}*(1-TTR)^2+R_{z\to y}\left(\frac{dy}{dz}\right)$$

$$*\sum_1^n 2^{(n-1)}*(1-TTR)*R_{y\to x}\left(\frac{dx}{dy}\right)*\sum_1^n 2^{(n-2)}$$

For those systems formed with the Elementary particles, the computations do not consider physically there could be annihilation of momentum within the "energy field" during the energy transformation process because comparing with Δt, the decay period is too large to compute for most scenarios.

When measuring the force, it will be treated in this framework as a category of one-dimension field of potential energy. However, one of main topics of this paper is to explore whether the understandings to potential energy has misled humans on the nature about open quantum systems of fields.

Dynamical System Final Value at the Δt

There are several kernel questions at the physical model aspects which need to consider and evaluate case by case. They are as below:

1. When and why the evolving system of iteration output? Before or after the Δt of per output makes limit (0-) and limit (0+) differences. The causal link decides the sequences.
2. Whether and why the energy transformation in between different dimension (layer) is single way or round way. In mathematical langue, whether it is commutable or noncommutable groups.
3. If acceleration change on y, eventually drove x change, whether and why y speed change. If acceleration change on z, eventually drove x change, whether and why y and z speed change respectively.

At methodology level, the continuous reflections in between the physical model and provable mathematical structure as well as the most reliable evidences from the empirical value measured from experimentations with Regularization & Renormalization principles together are other iterations in the logical system [19, 20]. This paper will showcase the process of integrative reasoning. It is seldom present in most works. But it is one of the most important works for the structural reflective thinking as an analytical approach.

The Structure and Procedure for the Theoretical Determination of the FSC and $\alpha^{(-1)}$

The experiments on measuring the hydrogen atom light spectrum is a good example to illustrate iterative structural view on

dynamical system of dissipation. A common way to describe the process is to look at the particle view that the electron absorbs energy from certain frequency photon to excite itself and emit that frequency photon. It is from external perspective. This Theoretical Framework looks it as a dissipative system from external perspective and internal the particle of electron, it is a smaller scale of energy field interplaying with energy quantum [21, 22].

For hydrogen atom light spectrum experimentation, the physical attributes including frequency and spin between input photon and output photon remain same except for energy volume carried by photon. From Einstein's Photoelectric effect, the electron absorbs the energy quantum of photon [23]. Accordingly, the physical model sees the dynamical system of electron's exciting and emitting process as a biquaternions that {Extrinsic(x_1,y_1,z_1,t),intrinsic(x_2,y_2,z_2,t)} of dissipation. The photon is also a biquaternions that{Extrinsic(C,y_p,0,t),intrinsic(C,C,C,C). When a certain photon's extrinsic y_p speed is able to react with or equal to y_2, y_2 is generated accelerations of torque force from spin mechanism eventually drives extrinsic x_1 speedup though the electromagnetism to transform the energy generated in magnetic field to electric field. Moreover, the moment when a photon goes into (is absorbed by) the electron, it will produce an overall impact to generate an SV from external to the system of electron. Internal the electron, the physical model sees it as a dynamical "energy field". The field cannot create dynamics by itself at initial stage. It must be through an input of logical "energy quantum" whose volume is in dynamics.

There are two periodic of time in terms of motion change happening inside the electron. One is from y speed change driving x speed change to accomplish a round of electromagnetic energy transformation. This paper defines it as "Transformation Round". Another is also y speed change driving x speed change at the field accomplishing at the timing point of emitting energy of photon. This paper defines it as Δt for the empirical requirements for the physical model. The evidences indicate that the empirical FSC represents the electromagnetic moment remaining constant during the iteration process, thus it becomes the analogue of comparison between system's output moment and one observable energy flow cycle. Those cycles are in topological layer structure ordinals by Δt for an iterative electromagnetic transformation system.

Thus, the physical models and mathematical structure has acquired capability with an upgraded dynamical system approach to compute the system iteration analogue as FSC theoretical value. As long as the theoretical framework is legitimate, and physical models are reasonable as well as considerate, the computing value of FSC should completely cover the experimental determination value to its precision validity that is determined through the physical experiments on that system. Furthermore, it will probably be able to predict the further precision on condition of completely cover the empirical.

Start from the first system final value question that when and why the "energy field" emit photon as system output. Logically, during the system iterations, there are two possibilities for the electron to emit the photon. At the initial of a round of iteration or at the end of a round of iteration? Physically, these two scenarios make huge differences. If at the initial of a round of iteration, there indicates two aspects:

1. Between the y (spin angular momentum) and the x in system orbit angular momentum acceleration process of an exciting electron, a number of inputs "energy quantum" will be absorbed to accelerate system orbit angular momentum directly so that the electromagnetic mechanism only plays parts of role to excite the electron's orbit angular momentum motion. Such that we should have two different constants for the electromagnetic moment and that for the atom's light spectrum.
2. The complete iteration cycle shall include the whole effects on the motion change of the dynamical energy system which always constitute an "energy field" and at least one "energy quantum" excited by a certain photon. The time sequence is clear for this energy dissipative system formed by electron-photon coupling relationship: The electron of "energy field" internally accomplish a round of electromagnetic transformation and then emit a volume of energy carried by photon. But what is the reason why electron shall emit photon during at initial of next round of exciting cycle? Emitting the photon after a round of energy transformation, can be explained as that, the emitting ends that process as an iterative round on reaching a certain threshold value. At the end of a transformation process, the sum of the field impacts from the accelerating factor shall reach a threshold to be a new additional power source to drive the y (in angular momentum) speed change, some certain constraint mechanism regulates emitting a volume of energy in photon to remain its accelerating factor constant. From above analysis, the causal relationship is setup.
3. If externally electron's y speed change drives x speed change, internally either "energy quantum" or "energy field" y speed change drives x speed change, then whether the x speed change can drive y speed change within the iteration cycle? If it can, the system output that electron in particle view or its internal "energy field" should have attended the cycling iterations at least last round. If it is single way, the system output that electron in particle view or its internal "energy field" cannot affect the system iterations.

According to equation (1) will have as below:
If it is single way, $d//V/\Psi(u, v)= (2^{(4)}+1)*2^{(3)}+1=137$;
If it is round way, $d//V/\Psi(u, v)= (2^{(4)}+1)*(2^{(3)}+1)=153$;
The empirical value of $FSC^{(-1)}$ is at 137.035999206....;

Such that the reflection by comparison with empirical evidence has excluded several logical possibilities. The empirical value indicates that the physical model should be that: system is in single way iterations. The flow direction is that y in spinning speed change drives x in orbit angular momentum speed change while x in orbit angular momentum change does not affect y in spin change. And since the time sequence as well as causal link is in place, the limit0+ is determined for the regularization computations; And the energy flow process should be that, energy system inputs only drives energy quantum's y in angular momentum change and y drives x change. In this interactive reflection way, we have determined the specific physical model about the FSC.

The empirical evidence on the hydrogen spectroscopy and an "anomaly" of the magnetic moment of an electron is subtly larger than that expected for a charged, point-like particle by a factor of roughly 1+α/(2π) [10](Holger Müller 2020), has well

reflected and can be well explained accordingly with the upgraded dynamical system approach in topological layer views. It implicates that the empirical acceleration value is demonstrated constant to be α/(2π). The y in spin speed change drives the x in system orbit angular momentum speed change. This acceleration factor can be also calculated with this paper's theoretical framework. The clarification is as below:

First of all, use a simplified cube ball as physical model for the macroscopic just for illustration purpose. Does the force to drive the ball to gain velocity in x pathway or orbit motion is the same as that to drive the ball to gain speed of rotation or angular momentum? Definitely not. The force to drive the ball to rotate depends on the intrinsic torque characteristics of that ball. The intrinsic spin property describes and controls that. Now there is same volume of energy transferring from y in angular momentum to x in pathway or orbit momentum. From external perspective, we observe that there is a relative relationship that the force for x to go a certain distance, while that force can make the ball rotating 2 circles. If we know that certain distance at x equal to 2r, the radius of the ball at y is r, which is determined by the event horizon domain of the spatial scope of the energy flow volume, the distance of x, y respectively represents as $\int_0^{tx} dv_x * dt$ and $\int_0^{tx} dv_x * dt$ respectively. Now the question is what is the acceleration speed of ΔV relativity representations between y and x for each other? For x represented with y, that is

$$\frac{dx}{dy} = Constant = \frac{1}{\omega} = \frac{1}{\pi} * |spin\ number| = \frac{2r}{2\pi r * 2} = \frac{1}{2\pi}.$$

Now we look at the microscopic from internal perspective, this framework sees internal the electron is an energy field with function description on speeds Ψ (x, y, z), viewing the electromagnetism is an orthogonal electromagnetic field. The magnetic field is in closed loops. Now there inputs a "string" going through the magnetic field in a plane at the same x, y speed of light speed. The volume of the input energy shapes its scope of the event horizon domain to be a circle at the radius of r. Now this scope of magnetic field goes through the electric field at pathway speed x and rotating speed of y, running 2r distance at pathway direction and rotating 2 circles. What is the dx/dy?

We know the electron is Spin=1/2. It can be understood as if a point at the surface of electron shall go through a topological or complicated space two cycles to come back to the original position. The electron can be logically aligned to be a cubic ball due to its topological space is homeomorphous to the ball in terms of path integral. The field scope of horizon domains are those path integrals. The inter relativities for acceleration speeds on energy fields' speeds in xyz respectively can be computed by those path integrals. The precondition is that each Δt accomplish one and only one cycle of energy transformation. Calculating the natural path integral mutual representation relationship between the spin and the orbit angular momentum, it can infer the energy transformation incremental acceleration speed relativities.

The natural $\oint$spin = 2πr. the spin number=1/2.
The natural $\oint$orbit angular momentum =2r.
Such that, dx/dy= $\oint$(orbit) / $\oint$(Spin)* |spin|;
*Ψ(u)=Acceleration Relativity factor=

$$R_{y\to x}(dx/dy) * \alpha = \alpha * 2r / 2\pi r * (1/2) = \frac{\alpha}{2\pi};$$

The smallest but most important factor as far as computing precisions goes to the speed transition time of y. The physical model needs to explore to compute the transition time ratio (TTR) that speed transition time / Δt.

The previously mentioned the threshold value that controls the reverse of energy flow from x in orbit angular momentum to y in spin. For "energy quantum" and "energy field" coupling relationship for internal an electron excitation process with photon, it is 25=32. It explains the sum of incremental accelerations on the momentum to all the layers ∑ (2(0 to (5-1))) =31 per round of energy transformation within the Δt. As long as adding one unit of acceleration, it shall reach the threshold value. The electron has to emit a volume of energy in photon to control the mechanism constant and stable in fine structure. So, 32 can be used for time evaluation and comparison. The event for acceleration accumulation happens at the x and the event speed transition is happening at the y. The timeline starts from the speed transition at y, ends at the energy emitted.

The empirical evidences indicate that the electromagnetic moment mechanism and the atom with electron's spin is in fine structure with one subshell of fractal structure in topology for transition numbers. Any topologies on the subshell is not necessary for computation due to two reasons. One is that there is no empirical evidence observed on the subshell's subshell for the speed transition. It only exists in the logical. Another is that the logical subshell's subshells, if any, do not affect the computation precisions to decimal 9 regarding FSC.

Herein, let's come back to the overall physical model for the speed transition. From system perspective, it is the speed synchronization process in all the spatial layers at the same time. The hypothesized physical model actually implicates two attributes. One is that the speed synchronization at the subshell level should be continuous in "jump-hold-jump-hold……" curve as limitation for the continuity in the empirical. Another is that the supersymmetry inherited from superstring theory, functioning in between the "energy quantum" and "energy field" shall determine the TTR independent from the spaces and time length. The TTR can be an intrinsic attribute of the speed synchronization. The nominated mechanism is Higgs mechanism.

Consequently, based on four spatial layers and each layer has a subshell of fractal structure assumption, together with hypothesized overall physical model on speed transition, and using the experimental FSC value as the benchmarking for the mathematical structure, thee is below computation result:

Considering the volume per Δt=32 unit; volume per y→x transformation round=31 unit.
Speed transition volume=1/256, TTR relative to Δt= (1/256)/32=1/8192, TTR relative to transformation round= (1/256)/31 =1/7936; the most consistent with the comparison between computing value and the empirical value. The model definitize the speed transition time in relation to x is a computable Constant with symmetry model and {both discrete, and continuous} jump style as physical assumption on Higgs field that

$$TTR = \frac{Constant\ for\ each\ acceleration\ layer}{\{either(2^5-1), or\ 2^5\}} * relativity(n) = \frac{2^{-4}*2^{-4}}{2^5-1} * 1$$

$$= \frac{1}{7936}\ for\ FSC\ case$$

The quantity (volume) for minimum time interval, hereafter as MOQ;

When transition volume is 1/32 * 1/8=1/256, the candidates for MOQ are 1/210, 1/215, 1/220…

System Critical Value:

$$\alpha^{-1} = \prod\prod_{gauge}^{n} P\left(1+2^{(n-1)}\right) + \lim_{0^+} \int_0^{dt} F_{intrinsic\ spacetime}\left(f(n), \alpha, TTR, R_{y\to x}\right)$$

1/α= ((2(5-1) + 1) * 2(4-1)+1)+[(2(0)+2(1)+2(2)+2(3)+2(4))-1/2(8)+MOQ] * (α/(2π));

Comparing with the empirical value, finding that, When MOQ=1/215, **The solution of Critical α=1/137.03599920037553....;** consistent with the empirical value α=1/137.035999206… the best.

On achieving the system's critical value, it means, in the theoretical, this moment the system has affirmatively not emitted yet, next moment of time interval, the system shall affirmatively emit. The computation for next moment will be involved into an infinite iterative set in the logic, however it shall converge to a value which is linking with the MOQ value. There are two ways to determine the Converge Factor. One way is to employ the empirical value to calculate the theoretical value with the mathematical structure as below: The empirical value=

$$137+[31-(\lim\textstyle\sum_i^{+\infty} 1/2^i) + \left(\frac{1}{2}\right)^j * (converge\ factor)] * (\frac{\alpha}{2\pi});$$

(i, j belongs to the naturals and i<j); the solution is that i=9, j=15. Converge factor= $(1+\frac{1}{2\pi})$.

Another way is to analyze in the physical, since Ay→x(dx/dy)= 1/2π, it is the best candidate for the converge factor with strong implication that the set converges at the (dx/dy)*MOQ.

The theoretical determination value that α^{-1} = ((2^(5-1) + 1) * 2^(4-1)+1 + [(2^(0)+2^(1)+2^(2)+2^(3)+2^(4))-1/2^(8)+MOQ*(1+1/2π)] * α/2π = 137+(31-1/256+1/2^15 * (1+1/2π))*α/2π

=137.035999206,01504586237995165621704336783 8…

Probability Evaluation for the Candidate for Theoretical Value

There are altogether 3 variables involved into the general solution plus specific solution scheme. As for TTR and converge factor do not rely on employing the experimental value as benchmarking value to solve the equation. MOQ is the only variable solved by the experimental value.

TTR is concluded by the hypothesis of the overall physical model. So, it requires for cross-validation throughout all the case studies. If it is slid, the overall physical model shall be untenable. If it is presented to be several options, then the overall physical model can be updateable. If it is demonstrated through energy system of any Higgs Field at either microscopic or macroscopic experimentations, it will provide strong support to the overall physical model.

When excluding the MOQ which is solved by the experimental value, the Standard Deviation between the computational value that 1/α=137.035999,164941429360991768 2079…and experimental value that 137.035999206(11) is about negative 29.11(part per billion), 0.02911(ppm).

Comparing the vale=137.035999,164941429360991768 2079/137.035999206(11) =999,999,999.699578*10^ (-9).

This paper substantially consolidates the mathematical paper from Sir. Michael Atiyah [9]. He employed renormalization theory from pure mathematics perspective. His insights include the assumption that the electromagnetic energy transformation mechanism is an isomorphic and symmetry dynamics and in very fine and "elegant" structure. This paper actually explained that with overall and specific physical models and "Upgraded Dynamical System Approach" together as theoretical framework, as well as applying the reflective process in between the empirical and the logical in mathematical principles that regularization &renormalization theory to determine variables for the uniform mathematical structure. A rectification is that if there is no TTR for speed transition and MOQ for emitting, it can really shape the logical loop with Atiyah's paper. That is, for the pure mathematical aspects, his conclusion that a theoretical 1/α (should be 137.036003700…, in his article is the empirical value) is the role of π for isomorphic dynamical quaternions H will be true. With the rectification, the insight that the whole mechanism should be isomorphic for the electromagnetic energy transformation of electron, provide supports to the specific physical model for FSC.

Coulomb Constant (k)

Comparing with other constants as case studies, the significance of Coulomb Constant might be not so important. However, this case study is very significant for the theoretical framework for below three reasons.

1. For structural requirements, Coulomb Constant and force is the case for the electric field and acceleration is at logical x;
2. For quantization showcase requirements, the dynamical system is at the macroscopic;
3. For multiple fields as to explanation on how energy flowing to topological spaces at the same time, the dynamical system is observable, measurable and more open for the experimental. The physical model explained for supporting computation process shall be indicative for pure energy fields view at spaces beyond any carriers.

This framework considers how comes the Coulomb constant when an electron or charged particles affected by the Coulomb force in the electric fields. Considering that the acceleration factor is coming from the external from a particle, there is no internal energy transformation happened inside that charged particle. But herein shall employ the upgraded dynamical system approach and the overall mathematical structure to quantize the dynamic electric field to describe the whole process and outputs state at any specific timing.

This paper considers a model that the electric field is formed with only two charged particles. The approach does not look at quantity of electric charge Q, q and the distance r, but to look at pathway speed and mass M1, M2. as well as momentum V1 and V2, So M1V1 and M2V2. Here uses the gauge system that

assuming one particle is always constant so that its vectored speeds and momentum shall be vectored covariant to another particle. In this way, we are able to setup a logically constant energy system, that in between the two particles, the energy is transforming from Electric potential energy to Kinetic energy to the particles and electromagnetic energy by emitting electromagnetic waves. The potential "energy loss" is not considered in this analysis.

Such that: M1 *V_1=M_2 * V_2=M*V; V_1 *V_2=V^2; M_1*M_2=M^2;
M, V becomes the mass and the velocity for the system from internal perspective.

The assumption: it needs to be able to find a Δt, the particles acquire the acceleration speed incremental immediately and remain the speed acceleration factor constantly variable within that Δt. In this physical model, the acceleration factor is a variable. So according to equation (1), our system function is as below:

$$k^{-1} = \prod_{gauge}^{n} P\left(1 + 2^{(n-1)}\right) + \lim \int_{0}^{dt} F_{intrinsic\ \ spacetime}\ (f(n), k, TTR)$$

The system energy flow through energy fields from electric potential energy, to particles' kinetic energy to electric field to electromagnetic field to project electromagnetic waves. Since dv is not a constant, this system does not have a constant during the timeline. However, for some specific timing point, for instance, V=0, there is.

The system iteration is in round way. Charged particles one and another interacts each other with Coulomb force. Force makes each other's acceleration speed change. Each Δt, the iteration has a cycle way. The outputs took part in the field iteration in the Δt before outputting. The time sequence is clear that Coulomb force first and then having the acceleration speed change. The causal link is that Δt starts from force as cause ends after the acceleration or motion change as consequence. It is equal to a whole round of energy transformation such that the limitation uses limit0-. In round way scenario, system should subtract the incremental momentum because that part attending the iterations already embodies in the layer analogue ordinals with Δt. The gauge for the force is 1, so 2(1-1) =1. Limit0- scenario is applied for TTR calculation as well. Only when the system's acceleration or speed change, an iteration round is accomplished with output of motion change. So, the TTR should be related to the threshold value for the outputs.

$$\boldsymbol{k^{-1} = \left(2^{(4-1)} + 1\right) + \lim_{0^-} \int_{0}^{dt} F_{intrinsic\ spacetime}(f(n), k^2, TTR) = 9 - f(TTR, MOQ, k^2)}$$

when v=0, limit0- scenario.

Here comes the difference in physical model between FSC case of sole electromagnetic field and Coulomb force case of multiple fields. There are three dimensions of fields in this case. One dimensional field is the electric potential energy field. Two-dimensional field is the dynamical electric field. Three-dimensional field is the electromagnetic field. Look at the timeline, they are evolving in each own space at the same time. Look at the timing point, there are causal link relationships among them for the dynamics. The timing sequence of events is that the energy flows through the spatial distance of two particles as well as the space inside the particle, and then give an acceleration and velocity to the particles in a line. Only when there happens the motion change, it will occur the dynamics of electric field in a plane. Only when dynamics happen in the electric field, the electromagnetic wave shall be produced from electromagnetic field to the 3-dimensional space of gauge frame. On one dimensional potential energy field of electric force, one particle's motion change shall occur the field effects in two opposite directions. Look at the field's energy flow alone, there are 1+2=3 energy superposition at the space for energy flowing at the constant volume speed. Each of them shall occur 1+22=5 energy superposition at the 2-dimensional electric field with energy flowing at the constant volume speed. Each of them at the electric field shall occur 1+23=9 energy superposition at the space of the 3-dimensional electromagnetic field with energy flowing. When a round of energy transformation is accomplished, the Δt is accomplished. The energy superposition number altogether is 3*5*9=135 per Δt. Due to the energy volume speed is constant, the time ratio for each field is ratio of superposition numbers in topology. They are 1/45, 1/9 and 1.

Such that, the TTR relative to potential energy field=TTR relative to Δt * 45;
Taking the 1/8192 as the theoretical limit value for TTR per system Δt,

k =$(2^{(4-1)}$+1) - (TTR factor) * $2^{(1-1)}$*1/k^2;
TTR factor=1/(1-limit(0-) (TTR)*[(1+2^1)*(1+2^2)*(1+2^3)/(1+2^1)])=8192/(8192-45);

Using the mathematical structure to calculate the computing limit value as below:
1/k=9-(8192/(8192-45)) *(k^2)
The computing value of Coulomb Constant is the solution value of 1/k;
C1(computing)=8.9875517,17880226266030295...;
It is consistent with the empirical value to decimal 7 as that of Coulomb Constant / 10^9.
The differences between computing value and empirical value from decimal 8 is due to the MOQ.
C_1(theoretical) 1/k =9-(8192/(8192-45) *(1-MOQ)* (k^2);
Using the empirical value that 8.987 551 7923 as the precise value for theoretical determination. MOQ=π*2^{-19}; Converge factor= (1-1/2^8);
C_1(theoretical determination) =8.9875517923,867500063302 34140768251149859…;

The computing value has cross validated TTR value for the overall physical model. The specific physical model for relativistic TTR calculation process clarification has cross validated the Assumption1 that energy flow has the spatial sequence, events causal link, flow volume constraints, but without time sequence within an event horizon domain. The field effects is energy derivation in the space at the same timing point. It explains energy superposition state and quantum entanglement phenomenon. It also explains the photoelectric effect that the energy of photon is determined by the frequency of the light, which is resulting from the y speed of internal the photon. The particle characteristics of photon is due to the characteristics of the energy field of a timing point that the field effects is relying on the space structure, the energy volume, the "channel" and events.

According to this framework, "energy field" category has at least two speeds. One is the pathway speed of the "energy quantum" belongs to that field category. It decides the field effects' event horizon domain. Within the domain per timing point, we can judge the effects happens without time or at the same time. Another one is the volume speed which decides spatial presence of the energy flow. The energy flow and transformation process take a period of time. This is consistent with the empirical evidences without any exception.

The Structure and Procedure for the Theoretical Determination on Newton Gravitational Constant (G)

First of all, the physical model for the gravity is QFT of gravity with spin and Minkowski spacetime from internal perspective [24]. A distinctive difference between the gravitational field and electromagnetic field and electric field is that the system outputs of gravitational field include two aspects that internal and external. The external outputs are the gravitational wave due to the system velocity change in xyz carried by the mass particles and matters. In another words, the space itself is the output perception of the gravitational fields. And spacetime is resulting from the gravitational fields, perceived by humans, explained with the General Relativity. But it is on perception from external perspective, it is not on internal mechanism from energy transformations view. From internal the energy fields perspective, the outputs are the motion changes at x,y,z respectively at the same time.

The energy flow process is that energy transferring in the gravitational field first. z motion change shall occur y and x speeds change at the same time. And then the event that y speed change shall occur x speed further change through 2-dimensional electromagnetic field. And then the event of x speed change shall occur the orbit radius distance change so that the 1-dimensional potential energy field change. The gravitational wave is emitted to close a round of system iteration.

Take the Nuclear Magnetic Resonance (NMR) system and Thomas procession system as the physical model as the representative model for system of gravitational field. Calculating the rotation shaft's motion 180 degree as a time cycle because looking at the z motion alone, it is a bidirectional periodical oscillation motion rather than a unidirectional oscillation. The energy flow direction should be in one-way iterations to keep z acceleration speed constant. The magnetic quantum effects need to take into consideration. So, spin= +/- spin; Modeling the typical mass particle to be a standard ball which is only for mathematical analysis, the z in oscillation motion path integral per Δt is 2r, the y in spin angular momentum path integral per Δt is 2πr, the x in system orbit angular momentum path integral per Δt is 2r. Transforming energy state into speeds accelerations, and then the acceleration speed ration per Δt is:

dy/dz=2πr/2r=π;

dx/dz =2r/2r=1;

dx/dy=2r/2πr=1/π* (magnetic quantum number);

Magnetic quantum number = +/- spin number and 0 when spin=integer;

=+/- spin number when spin=1/2;

*Ψ(u)=Acceleration factor=$A_{z\to x}$(dx/dz) * f(n)* $A_{z\to y}$(dy/dz/)* f(n)+ $A_{z\to y}$(dy/dz)* f(n)* $A_{y\to x}$(dx/dy)* f(n-1);

*Ψ(u)=Acceleration factor= $(2^{(0)}+2^{(1)}+2^{(2)}+2^{(3)}+2^{(4)}+2^{(5)})$*1* $(2^{(0)}+2^{(1)}+2^{(2)}+2^{(3)}+2^{(4)}+2^{(5)})$* π +$(2^{(0)}+2^{(1)}+2^{(2)}+2^{(3)}+2^{(4)}+2^{(5)})$* π*$(2^{(0)}+2^{(1)}+2^{(2)}+2^{(3)}+2^{(4)})$(α/π) * ((+/-)spin));

*Ψ(u)=Acceleration factor= $(2^{(6)}-1)^{(2)}$ *π+ $(2^{(6)}-1)$* π* $(2^{(5)}-1)$*α/π*(+/-)spin);

The limit (0+) on differential equation:

$$\frac{1}{C(G)} = \prod_{gauge}^{n} P\left(1+2^{(n-1)}\right) + \lim_{0^+}\int_0^{dt} F_{intrinsic\ spacetime}\left(f(n), C(G), TTR, \frac{dy_i}{dz_i}*\frac{dx_i}{dz_i}, \pm\frac{dx_i}{dy_i}, \alpha\right);$$

Let n=6, we will obtain the Gravitational Constant (G)={C(light speed)*C(G)*10^{-15}}.

1/C3 = $((2^{(6-1)}+1)*(2^{(6-2)}+1)*2^{(6-3)}+1)+(2^{(6)}-1)\,2*\pi+(2^{(6)}-1)*\pi*(2^{(5)}-1)*\alpha/\pi*spin))*C3$;

Using α experimental value =1/137.035999206 for computations.

The speed transition time and MOQ needs to rectify the above formulas. According to the previously determined physical model for the speed transition, TTR limit value can be inferred to employ TTR relative to "Transformation Round" which is 1/(31*256)=1/7936 according to FSC's computation and also because other than the internal energy transformation round, there is an system output of gravity wave. The causal link is that when accomplishing a round of energy transformation from z and measured from x. the speed change at the x shall make the scope of the space change and output the gravity wave. When we measure the measurable x speed as the Δt, the system output is at limit0+ scenario.

The most inexplicable thing for gravitational field is that z motion is not restricted within any mass particles or object matters but in the space. It can be logically aligned to be always moving in an axis for concentric circles of an internally rotating system of gravitational field. Those making orbit motion objects, whose rotation shaft can indicate the energy flowing motion at the z of the gravitational system. Such a complicated dynamical view can only get through joint assembling evidences from same timing point from two perspectives for elements and system. Otherwise, the gravitational field would be understood as mass objects' movements change in xyz creates that field of system. The cognition of this paper is that it is the energy flow, that is happening motion changes at xyz at the same time, that creates the gravitational field of a system. The mass particles and object matters are the carriers of the energy and their own motion's extrinsic characteristics are resulted from the system's energy flow.

Regarding TTR, when measuring 1 dimensional potential energy of the gravitational system from the gauge system, TTR relative to the one-dimensional field is different to that of multiple dimensional field. Although gravitational field dynamical system is happening at a 6-dimensional space, in our gauge system, it is a 3-dimensional field.

According to the energy flow process chart, using 7936 as the limit0+ time length value;

The $TTR(1)_{z\to x}$ relative to the potential energy field = 2^0 *$(1+2^1)$*$(1+2^2)$*$(1+2^3)$/ [20 *$(1+2^1)$ * $(TTR(system)_{z\to x}$ relative

to the whole process)] =45*1/7936;

Such that, $1/C_3 = ((2^{(6-1)} + 1)* (2^{(6-2)} + 1) * 2^{(6-3)}+1)+ [((2^{(6)}-1) * (1- TTR_{(1)}))^2 \pi* + (2^{(6)}-1)*(1- TTR_{(1)}) * \pi * (2^{(5)}-1) *\alpha/\pi*(+/-spin))]* C3$;

When magnetic quantum number=0;
Solution value 1/C3=4491.744585010739778918220662 0…;
When magnetic quantum number=+/-spin=+/-1/2;
+1/2 Solution value $1/C_3$= 4491.746161487127853491101100…;
-1/2 Solution value $1/C_3$=4491.743008533245781313109651510…;
When magnetic quantum number=+/-spin=+/-1;
-1 Solution value $1/C_3$=4491.741432054645858;
+1 Solution value $1/C_3$=4491.747737962410007359;
When magnetic quantum number=+/-spin=+/-2;
-2 Solution value $1/C_3$=4491.7382790941282270…;
+2 Solution value $1/C_3$=4491.7508909096565622909…;

$C*C_3$= range from
(6.674289498260374087625...to 6.674298868204305856745… to 6.674308238200)*104 (m/s);
(C is the light speed in the vacuum= 299,792,458 for computations)
Empirical value of Newton Gravitational Constant $G=(6.67430+/-0.0015)*10^{(-11)} = C*C_3*10^{-15}$(m/s) exactly converge to $6.67430*10^{-11}$;

If using G=6.67430*10-11 as the determination value for the empirical, the MOQ need to be deduced from the computing value of C3 because for the potential energy field of gravity force, the causal relationship is x speed raise then scope of the spacetime increase such that the orbit radius increase. The MOQ relative to the gravitational field is limit0+, relative to the potential energy field of gravity force is limit0-.

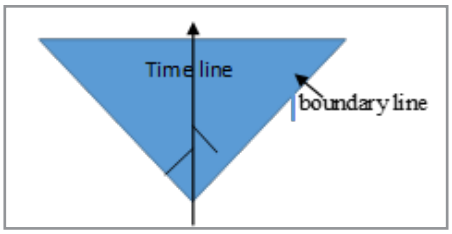
MOQ*Converge factor ranges from 1/26 *(1-(2/π)2) to 1/26 *(1-45/100);

Electroweak Electromagnetic Moment $\alpha(weak)^{-1}$ and Electroweak Constant Coefficient

The physical model hypothesizes that the three different flavors of Neutrinos are the "energy quantum" participated in the weak interaction of each energy field system. The annotation for three species of neutrino and anti-neutrino that they are the energy quantum for minimum space unit at the Planck Scale. It shall be able to explain the energy superposition state in relation to 1 dimensional, 2 dimensional and 3-dimensional energy field perceived in the gauge frame under this theoretical framework. From macroscopic view, the neutrinos are the images for dynamics of energy fluctuation in the space. This annotation is equivalent to the conclusion that "dark mater decaying into a Fermi sea of neutrinos" as long as we define space fluctuation is "dark" [25]. Their movements are promising to be the evidence of the spin of energy one day. Their decay reaction with other particles is different from exciting reaction of photon and particles. The decay reaction is the field effects accumulation on timeline, perceived as probability when observing in particle view at any timing points. All of above hypothesized or to be demonstrated annotations are the preliminary preparation works for the weak interaction understandings under this framework. The arguments are concentrating on the relationships between the microscopic and the macroscopic to reevaluate particles in a quantum and field combining structural view. The evidences are not sufficient and convincing enough for this paper alone. But more importantly, it will be positivism and constructivism when the Science reevaluate the position of the theoretical and the analytical.

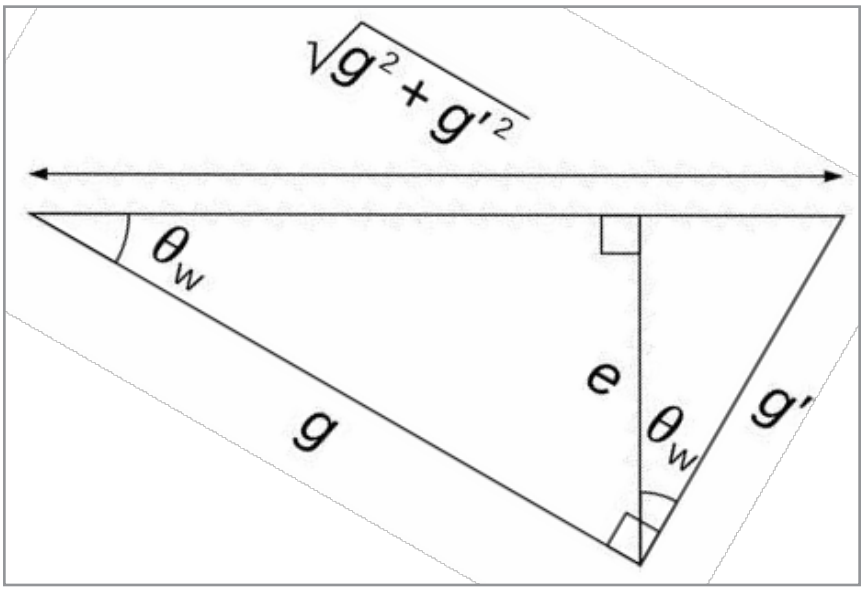
Now take the ß decay as the representative model for the weak interaction. The metaphysical model is based on QFT of gravity and scaling gauge invariance [24]. The decay process of an energy field is a decelerating process in this theoretical framework. Herein the Einstein's Equivalence Principle is applied for the deceleration process. That is to understand it as an additional acceleration process on the opposite at the differential level. The hypothesis or assumption to be demonstrated with this framework is that the weak interaction is a complex field effects resulting by gravitational field and electromagnetic field. The annotation is that the Higgs field is a kind of intrinsic energy synchronization mechanism, extrinsically perceived when energy field's spin speed change and Higgs boson is the image for the synchronization moment of a locally non-coordinate gravitational system with the existing global or local gravitational system.

The physical model with the Weinberg Angle



The above is representing a gravitational system in Minkowski spacetime frame with constant spin speed, such that the attributes of the light cone is that the space boundary line remains 45 degree with the time line, ordinals with Δt. It is in symmetry geometry.

Now one of a down quark is affected by the deceleration of spin which is occurred by weak interaction between the Neutrinos and the down quark which is affecting the spin motion at y. When accumulating the electric charge to be one unit of electric charge (from -1/3 to +2/3), the neutron shall decay into a proton, an electron and an anti-Neutrino. In the meantime, it results the gravitational system's horizon scope change. The W- and Z0 are emitted from the dynamical system, and then the W- is annihilated in the global gravitational fields with only an electron and an anti-Neutrino visible.



He stands for logical x in this theoretical framework. in x direction, there is no kinetic energy outputs in this case. There are two aspects of outputs in logical x. the electric charge energy outputs e and the mass of the charged energy. On the differential geometry of the diagram, the distance of x can represent the electric potential energy at the emitting timing point. However, the electric charge is not on the space but on the boundary line of the dynamical gravitational system. The energy flows at the energy fields that are formed with energy quantum not space. The $\sqrt{g^2+(g^1)^2}$ stands for logical y in this theoretical framework. g and g^1 stand for the boundary lines of the gravitational system at the emitting timing point. The asymmetry is resulting from a covariant opposite acceleration at the logical y breaking the original symmetry of the system.

In this framework, the weak interaction process is complex 3-dimensional field effects in a spinning dynamical system at the nucleus scale. The fields include 1 dimensional electric field, 2-dimensional electromagnetic field and 3-dimensional gravitational field as well as a Higgs field to synchronize the energy quantum to acquire mass, so on the emitting timing point of a decay process, the area of π*g and the area of π* $\sqrt{g^2+(g^1)^2}$ represent the mass of W- and Z0 respectively. The annotation or the assumption is that the spin number of all nucleus for ß decay is 1 despite the spin number of free proton and free neutron is 1/2.

There is below mathematical relationship:
Mass(Z^0)=91.1876+/- 0.0021 GeV/C^2; [26]
Mass(W^-)=80.379 +/- 0.012 GeV/C^2; [26]

$$(\frac{Mass(Z^0)}{\pi})^2-\left(\frac{Mass(W^-)}{\pi}\right)^2=g^{12}$$

g^1=13.707278040872429459536997625247571880 3…… GeV/πC2;
Notice that: when spin=1,
$1/\alpha(weak)=((2^{(5-1)}+1)*2^{(4-1)}+1+[(2^{(0)}+2^{(1)}+2^{(2)}+2^{(3)}+2^{(4)})*(1-TTR)+MOQ*(1+1/\pi)]$ * (α(weak)/(π);

The TTR can be ignored in this computation and there is no MOQ for each Δt. The clarification shall be presented afterwards.
1/α(weak)=137+31*(α(weak)/(π)=137.071988497284352201703295000……;
$g^1\approx 10^5*1/\alpha(weak)$ KeV/πC^2;
Electroweak Constant Coefficient ≈ 10^5;

Mass(electron)=510.99895000(15) KeV/C^2 [27];

The physical model under this theoretical framework is that the decay process and phenomenon happen three kinds of energy transformation in relation to the electric field. The First one is the hyper charging dual process in opposite direction on the boundary line of the gravitational dynamical system. The hypercharge process on boundary lines represented with g and $g^1$is indicated in blue line on diagram of Weinberg Angle. The second process is the energy transferring process from logical y→x. The perception from the gauge frame is the mass of those field effects without kinetic energy. It is defined as the "weak force". The third process is the symmetry breaking mechanism of Higgs field to synchronize those field effects occurred by the motion change resulting from the energy quantum's reaction in decay process.

The field effects occurred by the energy quantum on SU (3) per $\cdot\Delta t=\sum_0^{(9-1)}2^n=511$ unit;

The difference in terms of number between the field effects and the mass of electron is resulting from the TTR. The lifetime of a free neutron is approximately 900 seconds, such that the TTR per electromagnetism cycle is very much tiny small. If Δt is measurable, then 1/α(weak) can be rectified accordingly, otherwise it can be ignored.

Notice that, at the emitting timing point, to make the Weinberg angle realistic, there will be below relationship:
The Coupling constant for the Higgs Field=106 magnitude of Coupling constant for the defined Weak interaction.

And we already know that the Strong interaction coupling con-

stant=106 weak interaction coupling constant. So, the Higgs field force for the synchronization is at the same magnitude level of the strong force.

As a concluding remark, there are 3 pieces of annotations or assumptions for the above analysis.

1. The Higgs mechanism is the strong interaction. The Higgs boson is the energy synchronizing moment for the Higgs field to shape the mass inside an energy spinning system.
2. The energy quantum for the electroweak energy field alone is Neutrino of electric flavor. The Neutrino react on logical y of nucleus to decelerate the spin speeds. The Z0 and W- is the phenomenon of gravitational field and strong interaction and the emitting mechanism of the nucleus. The Asymptotic Freedom is an attribute for gravity not for the electroweak interaction.
3. The spin number of nucleus for ß decay is 1.

With such an annotation style, the structure of a nucleus can be described as that: The nucleus is a "black hole" with limited energy volume level. Its spin has been affected by external gravitational systems such that it is determined(coordinated). When free neutron and proton fall into their gravity scope, their center of mass will be synchronized to connect to the nucleus with energy emission. The electric charge is distributed on the membrane of the boundary of system in cell structure. The repulsive force is sealed in the membrane of each proton's gravitational scope and repulsive force if any shall keep the membrane to be not in touch with each other to ensure non-synchronization between each other. The electric potential energy is towards the external of the nucleus so that they are able to coexist without previously supposed strong interaction. That hypothesis is wrong, need to be replaced with new one in dynamical and structural view in relation to the field. The strong interaction force is the massive power for the synchronization of the energy. As long as leaving the membrane, the force disappears immediately. The "ball" structure is physically not realistic. The spatial structure of each nucleus looks more like Calabi-Yau space in cell structure.

Muon Anomalous Magnetic Moment, a_μ

The physical model from this theoretical framework hypothesize that a_μ is resulting from the decay process between local gravitational energy system and global gravitational energy system. The gauge system inherits the acceleration factor from the global gravitational system. As similar to ß decay physical model, the gravitational energy system can be treated as reverse acceleration process with Einstein's Equivalence Principle until transition to be fully synchronized at logical z. Then the energy system is collapsed into an electron and two types of neutrinos.
Now the best computational value=116591810(43)* 10^{-11}; [28]
The best experimental average value=116592061(41)*10^{-11}; [12]

The computation method is based on "static image" metaphysical model without acceleration factor. To transform the "static image" metaphysical model to "dynamics-cycled process" metaphysical model, there is below mathematical equation to solve the rectifying factor.

a_μ (Exp)=a_μ (com)*(Electroweak Coefficient)*(1+rectifying factor*a_μ (Exp))

If using electroweak constant coefficient computational value=10^5;
The solution is that:
Rectifying factor =1.846299…;

Discussion on Variations of Constants for Experimental Value

The Potential Time-variation

Dirac indicated on his Large Numbers Hypothesis that the FSC is increasing by 3*10-14 per year [29]. But the empirical evidence from NASA Jet Propulsion Laboratory (JPL) vetoed the hypothesis by measuring the frequency of Cesium atoms clock, Mercury ion clock and Hydrogen atoms maser. The first experimenters to test whether the FSC might vary examined the spectral lines of distant astronomical objects and the products of radioactive decay in the Oklo natural nuclear fission reactor. Their findings were consistent with no variation in the FSC between these two vastly separated locators and times [30, 31]. But according to this paper's framework, there exist two scenarios for the probabilities on the potential time-variation. First, if the object system is not in topological relationship with the gauging system, then the system's acceleration in terms of intrinsic acceleration speed of the energy flow, needs to take account. For FSC, that is the system's internal spin accelerations. The fact that the FSC shall vary in the environment of very strong gravitational field is the evidence to illustrate the point. Second, if our Universe or our parent systems in topology structure is accelerating the intrinsic spin speed in terms of energy flow, then FSC shall increase. But that very small momentum per Δt is very small. And for the energy flow, the change is not likely to happen at any sub-category of the topological categories, but at the global category. Another timing point is that when the system's energy oscillation in z is logically reversing its direction to decelerate the system's spin speed in terms of energy flow, that moment the whole system can have a varied FSC physical value. This reversal is also happening internally, not like the external speed direction reversal, like polarity reversal as example.

Another evidence is that in Quantum Field Theory (QFT), the magnetic moment is a dynamical variable instead of a constant. So, from broader sense of meaning for FSC, it definitely varies in different system environments. The significance of observing time-variation of FSC can help us to get evidence for the cosmological model.

The Potential Spatial-variation

In 2020, the team led by John K. Webb published the continuously improving empirical reports on spatial variation of FSC. According to this paper's framework, the phenomenon can be explained with the gravitational field model. This model sees the gravitational field is a spacetime system from internal perspective sub-ordinals by velocity when in the topological structure. The geometry manifold of spacetime is the perception from the external perspective. So, from internal perspective, the spacetime in layer structure with different "fluid" velocities. When the light comes from different directions travelling through different layers, the vectored speed Special Relativity effects are different but shall with systematic covariation structure. The perception from human is that the light speed feels like varies.

The Measuring System-Variation

The most recent measurement on FSC at the Kastler Brossel Laboratory (KBL) created positive standard deviation of 1.6 with rubidium atoms comparing with that of negative deviation of 2.5 on the previous record achieved by the team from the University of California, Berkeley, using cesium atoms [7]. The measuring method KBL is relying on the recoil kinetic energy to calculate the mass of the particle and calculate the electron's mass and then using the mass of an electron and the binding energy of a hydrogen atom to determine α [10].

This phenomenon is also explained with Special Relativity under this paper's framework. Because with the velocity accelerating during the exciting process, each Δt the energy volume is increasing, Δt is prolonging from the observer's perspective at the gauging system. Assuming measuring the mass m1, m2, at two different systems with different initial velocities at the same time. The value for m1/m2 shall appear a very slight discrepancy from linear presence due to the Lorenz covariance is beyond linear relationship when the initial speed is different. With the x, y velocities continuously rising, the discrepancy shall be incrementally more distinctive in the comparisons between two systems.

The mathematical structure presented by this paper has taken the Lorentz Factor into evaluations [32, 33].

Open Discussions

On Cosmological Model

The previous sections have proposed a theoretical framework with multiple fundamental constants as the most reliable evidences from the experimental. The approach from analytical school is extraordinary to introduce probability evaluation as well as internal &external perspectives assembling and interpretations as a new exploration and approach for "Big Models" advancements.

The proposed theoretical framework explains the gravity phenomenon from energy transforming or transferring dynamical system view, in topological spatial layer structure. It is well-known how Einstein has explained the relationship between gravity field and space-time. This paper is not to propose an alternative explanation from internal perspective alone, but to combine Einstein's explanation as external perspective with energy system as internal perspective, in this way try to promote the metaphysics to be a principal part of physics science.

Space-time is the field effects of an energy transforming system. A gravity field is not the same mechanism with an electric field. The gravitational potential energy is just a simplified output perception for the gravity field. The fundamental mechanism is totally different from the pathway acceleration forces so that it explains why it is demonstrated that the gravity is not a real force. Consider that if our Universe is constant without rotation, we should be able to see as "Brownian Movement" phenomena in terms of spins of particles and atoms and angular momentum in microscopic and macroscopic respectively. However, on the contrary, the empirical evidences are that in macroscopic, the galaxies have comparatively uniform rotation directions in their own different categories; in microscopic, the quantities for matters and anti-matters are seriously unbalanced. If we logically align the spacetime with Lorentz Covariant to be at one fluid sphere surface, then that also implies a common physical source from the logical layer in terms of human's cognitive structure. Consequently, when a spacetime system is demonstrated to be rotating in a uniform style from external perspective, humans can accordingly build logical model to cognize that spacetime system is spinning. Only when we cognize our Universe is spinning from internal perspective then we are able to demonstrate there is energy flow at y direction internal our Universe. And then on top of the y direction motion in terms of energy flow, z direction motion in terms of energy flow can be studied with a topological structure. With this proposed theoretical framework, it is also supposed to be able explaining the Universe Inflation in such short a period at the "starting/reversal point", because acceleration synchronization time at axis z is that short.

Then human can observe and operate in the empirical to demonstrate that.

Firstly, if we see the Universe like a huge ocean of energy, the global gravity is provided by one or multiple black holes, the spacetime itself is the output of such global gravitational field, then it can well explain some type of the dark energy at the Universe scope. The characterized motions of celestial bodies are not affected by dark energy, but due to the manifold structure of the spacetime of whereby has been shaped in that way due to the fluctuations of spacetime. The fluctuations are jointly shaped by countless iterations of multiple local gravitational fields of spacetime systems and the global spacetime system.

Secondly, the evidence is that the large-scale red-shift phenomenon with the most remote stars from the Earth, which is due to Doppler effects that has been observed by Hubble Space Telescope. It demonstrates our Universe is accelerating expansion. If we employ the "Big Bang" cosmological model to explain our Universe, there will be two scenarios for such a model. If our Universe is a closed spacetime system, it can explain the fact of accelerating expansion with either ending with another big bang or the spacetime has its own intrinsic tensile force to hold back the expansion when reaching a critical value. But the fact is that no any evidence indicates the spacetime has its own intrinsic tensile strength. The framework and computation process of this paper has created and cross-validated the assumption that the energy flows through internal the particle and the fields of a system at the same time with spatial sequence in topological dimensions with the restriction of horizon domains of the field. If "Big Bang Model" happens at an open spacetime system, it cannot explain the accelerating expansion. A more likely explanation is that the "Big Bang" logical model is from the external perspective. But external perspective in relation to the cosmology makes none sense. The internal perspective is that as far as spacetime, there is no boundary between internal a particle spacetime and external a particle spacetime. No evidence has been observed if matters explode, the spacetime has been expanded. The explosion of stars producing the gravity wave is not due to its spacetime has been expanded but due to its spacetime disappear suddenly and creating a "black hole" alike new manifold geometry in the "ocean" of the energy. It should be a field dynamic. If always putting the observer at the external perspective, then how to observe the Universe from the external? The second scenario is that the Universe in terms of spacetime is an open system, so

there must be continuous energy input to keep its accelerating expansion. So, the big bang is proved false by contradiction in the physical. In the logical(metaphysical), when we employ the "Big Bang" as a logical model for the internal perspective, it indicates the expansion is with energy input with a starting point of event. So, adding the spin cognition, it is easy to conclude there is energy input from logical z direction for the internal energy flow mechanism of the Universe to make it happen. Then the cosmological model comes to a Cyclic System model which does not contradict to the "Big Bang" model at the logical(metaphysical) layer.

Thirdly, the law of Conservation of energy constitutes the fundamental cognition to our Universe. However, it does not necessarily mean our Universe should be a conservative system in terms of total energy. If there are continuous energy inputs to our Universe, the Universe can be either periodically accelerate the velocities with expansion in spacetime and then decelerate velocities with contracting the scope of its spacetime, while keeping a periodic change. Such that our Universe is highly to be a Dissipative System like inside a black hole to radiate energy to connecting Universes to exchange energies and remain total energy conservative. The structure will be more complicated than supposed.

Fourthly, at the empirical, when a cognitive structure is setup, the evidences shall be automatically connected to different layers of the cognitive structure and new evidences and novel experiments shall be further explored and developed in guideline with that structure. For example, the CP violation shall be the direct evidence for the spin cognition from internal perspective with physical explanation that the synchronization forces from the spin of global and all parents spinning energy systems. The imbalance between matters and anti-matters that is hypothesized to be resulted from the motion direction of z, such that the experiments can be designed for different gravitational systems' "default setting". The evidence that the cosmic microwave background (CMB) cannot be used for demonstrating a uniform spacetime for the internal perspective. When the spacetime is in topological layer structure, CMB can not affect the polarization but perceptions of observations. However, CMB will be the best evidence to demonstrate endless fluctuations of spacetime that is formed with our Universe.

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Declarations

Ethical Approval: Not Applicable

Competing Interests / Conflict of Interest

The author confirms that I have no financial and personal relationships with other people or organizations that can inappropriately influence my work, there is no professional or other personal interest of any nature or kind in any product, service and/or company that could be construed as influencing the position presented in, or the review of, the manuscript entitled. There is no conflict of interest occurred with the manuscript entitled.

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Availability of Data and Materials

The author declares that all data supporting the findings of this study are available within the article.

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