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Quantum Physical Observables with Conjectural Modeling: Paradigm shifting Formalisms II: A Review

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Abstract

In continuation with the previous *Review Force General Conjectural Modeling Transforms Formalism PHYSICS*[33] (Physics & Astronomy International Journal under publication), the current review article will try to develop quantum gravity gage transforms Algorithm Graphical Equation of micro-blackhole force to gauge fields-wave functions algorithm transforms equations. Theoretical derivations of experimental observable measurable parameters having scalar quantum gauge field as function in terms of Laplacian, Fourier, and the Legendre transform gaging the spin, rotation, revolution, and rotational angular velocity have been shown. These transforms appearonly as a function of time, and that makes the formulation independent of assumptions of invariability of fundamental universally known constants. We consider examples of universal eonic parametric observables as well. The question of whether the time is a linear operator has been answered by employing Correspondence Principle's linear operator four-vector time matrix spatial range algorithm equivalence and is estimated to be about ¼ mile. Theoretically derived algorithm physics designs enable prototype testing by utilizing experimental instrumentations measuring observables. A flowchart has been configured simplifying theoretical to experimental mathematical physical sciences to profile signal/noise intensity and the density matrix. Additionally, estimation of Hod PDP mechanistic probability, grand unifying physics operations, schematics of potential scalar gauge field alongside incorporating typical wavefunction general quantum computing signal/noise matrix graphing, simple lab-top prototype sound and light profiling intensity, and spectral density point-to-point matrix oscilloscopic observational measurement techniques have been schematically sketched out to enhance facilitation of future implementations of state-of-the-art physics techniques practically.

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Algorithm Graphical Equations; Experimental Design Sensors; Light and Sound Fields Formalism Immohz Model Hod-Pdp Mechanism; Microprocessors Prototype Testing Equipment; Quantum Gravity Astrophysical Gage Transforms; Signal Profile And Density Matrix Flowchart Input Time Matrix Output Scalar Fields; Signal /Noise Matrix Forking to Gauge Fields and the Wave functions; Theoretical Observables and Parameters.

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Introduction

We will start by asking certain simple questions regarding well theorized mathematically rigorously established physics literature that reports extensive experimental output results as well.[1-35] Extensive literature surveys elaborating formalism of point gradient vortex gage fields quantum four vector transforms mechanical, electro magnetic, matrix gravity PHYSICS is available in the "References" section towards the end of this article.[1-99] We note physics so far is part of normal science, a consensus science agreed upon and acceptable by mainstream scientific society according to the philosophy of sciences, partially proves the Standard Model at the quantum level and the general relativity at the astrophysical level with sophisticated techniques of observational measurements.[7,8,62] However, there are certain fundamental reasons for proceeding with a novel approach in the theoretical to experimental paradigm. One of them involves learning inconsistencies with incompatible mathematical singularities encountered by general theories that are falsified or falsifying quantum physics applied to microphysics creating paradoxical unverifiable predictions,[7,8,62] with many extra dimensions that won't be verifiable in the real universe. Along side these, questions about how symmetry breaking as well as matter antisymmetric existence manifest reality is posing conundrum challenges to current physics that is skeptical of very own scientific factual validity, credibility, and difficulty in passing philosophical falsifiability tests of physics.[65] We will therefore enumerate the essence of an assumption-free formalism eliminating fudge factors or constants that aren't verifiable to be global invariability. We use the ultimate proofing of "let chips may fall into place of their own" by considerations that are equivalently statable as a general theme of universal nature: "Time automatically solves problem [coding] if conditions are satisfied exactly". We think that the present approach has several advantages over what is available in normal physics, for example, specific computation of limits of the "Correspondence Principle" to feasible observable measurable signal/noise quantum density matrix. Yet another example will be the "Equivalence Principle" to a newly developing paradigm of the weak gravity and strong gravity linking with acceleration and conjugate acceleration of object motion, these aspects become apparent with the analytical results generated from present physics that us thoroughly quantitatively derived here. With our subsequent upcoming papers, we will be modeling these aspects theoretically with experimental proof-verifying techniques.

The main aims of the present work are to configure black box like transforms obviating necessity of any universal constant. These transforms while capturing essence of quantitative mathematics of the physics are amenable to observational measurements. Obtaining algorithms graphically defining key relationship of observable measurable matrix gauge fields, specifically sound and lightin terms of profile intensity and quantum density matrix of signal/noise provide methods to experimental design of parametric variables. We note here that time may not be a linear variable and hence relationship to pressure, volume, and temperature parameters of matter-energy in environments will have to be derived out of a fundamental formalism with thoroughmathematical quantifications. Algebra of the functors and the functions that are linked by a functional are brought out to pull physical observables from theory that are measurable with advancing normal experimental physics with innovative state-of-the-art physics testing set ups.

Novelty of this present approach proposes new paradigm-shifting techniques of numerical computing of four-vector time matrix fields that are easily verifiable with mesoscopic physics tests to find the limits of linearity of time operator. Grand novelty approach derives entire fibrational transforms only to be a function of time relating to scalar gauge fields. They are simply based on Helmholtz decomposition fields at the ultimate levels and derived all the way by gauge algebra to scalar fields, dependent only on fibrational transforms (time). Only two main measurable parameters are needed (1) signal/noise profile intensity matrix, and (2) quantum density signal/noise matrix. All these have not been ever considered before the current article.

Areas Covered

- Operator Algebra Gage Transforms PHYSICS: Theoretical to Experimental Observables towards proof of the concept prototype testing design modeling.
- Instrumentation Physics with demonstrative experimenting to proceed from observables

towards observational measurements leading to verifications of hypotheses.

- State-of-the-art modules upgrading experimental protocol to observe and measure chiral a symmetric fields of light and sound matter via density matrix and signal sensors.
- Wave function-Potential Algorithm Graphic Topology derivation from pure theory by enhancing machine learning quantum computing artificial intelligence methodology configuring algorithm exactly updating with computer simulation programming processes.

Analysis with quantified mathematical modeling in the following Section 1 will highlight Theoretical Results, Algorithms, Discussions, and Designing Experimental Instrumentation Measuring Observables overall applying gauge physics capable of converting force in terms of the pure transforms of the rotation-time matrix. Based on the derived formalisms, we have achieved so far, we will arrive at scalar potential written in terms of rotational vectors that will depend on time only. However, time is shown to be a four-vector field matrix. Interesting things that we will highlight in the subsequent Section 2 are feasible instrumentation-design profiling intensity-device prototyping. In this section, we will be highlighting eventual designs of sensors that can be applied to experimental situations with real observables' measurements of profile and density matrices' parameters of point-to-point signal/noise matrix, by configuring flowchart simplifying theoretical to experimental mathematical physical sciences. Subsequent Subsections within Section 2 will quantify systems encompassing Instrumentation design profile intensity device prototype with examples of Measurable observable parameters, Flowchart simplifying theoretical to experimental mathematical physical sciences, Estimation of Hod-PDP mechanistic probability, Grand unifying physics operations may be listed as having characterized properties, Discussion of prototype set-ups, figures, and parametric measuring instrumentation systems as well as schematics of overall measurement procedures spanning theoretical to experimental methodology with algorithms giving parametric measurement grid flowchart. Prototype intensity profile signal/noise matrix measurement instrumentation systems sensitive to sound and light oscilloscope gauge fields will be highlighted. Observationally measurable variables of astrophysical signal/noise matrix oflight, as well as sound as mesoscopic gauge fields, are shown to be experimentally feasible (equipable) physics designs practically. Specifically, these are algorithmically derived physically designable devices. Sensors that have detections by wired or wireless systems linking to oscilloscopes conjugatable to light spectro scopes and sound meter measurement systems have been emphasized as part of instrumentation processes. Especially, these are quite important to ensure point-to-point precision with integrated circuitry diamond chips micro processors that will have adequate accuracy to measure minutest signal/noise variations with higher low signal amplification OPAMP incorporations. These physical systems feasibly fabricable practically have been brought out briefly setting the stage for further investigative project research.

Expert Opinion

[Problem] What, why, how defining?

- String theory has perfect mathematical formalism; however, it is without observables, abstruse, with testability and predictability problems, and there are a lot of extra dimensions.
- Experimental physics has perfect natural or physical observations; however, it addresses mainly only like physical reality expressions without linking to natural paradigm philosophies.

We have presently developed a gage algebra physics matrix quantitatively expressing the quantum dissipative physical reality that can pull out observables that are mesoscopic testable measurable parameters. To this effect, currently, Taylor and Iyer are writing a paper on Table of Realities (TOR) considering discontinuum physics concepts unlike classical, relativistic, quantum object environment physical separability; in our paper, the key aspect of emphasis will be Discontinuum Physics Table of Realities with object inseparability.[31] For example, object A and object B are intrinsically part of a disembodied energy field (DEF field) and thereby are part of each other. In this scenario, gravity and the real forces are distortions of the DEF field. This may also be analogous to super luminous plenum distortions leading to Hod-PDP assembly feedback circuit mechanism gage physical mathematical formalisms that Iyer-Markoulakis-Malaver-O'Neill-Hodge-Zhang- Taylor (IMMOHZT) modeling has already advanced theoretically.[5] In the present paper, we have mathematical summarization of a gage quantum gravity force in terms of gauge fields as a function of gage time. Gage time however is a four-vector gage time matrix field operator protocol. We show that this has a holy grail of generality mathematically expressing the force fields "ket" matrix and product with wave function "bra" matrix. These results of point-to-point signal/noise matrices can be verified by astrophysical observational measurements. We will consider the measurement problem that Professor Smolin of Perimeter Institute, Canada has explicitly expressed to be a sticking point in advancing grand theoretical physics.[10]

Another aspect that we can note about will be the usage of calculus. With gage algebra matrix in physical mathematics, only the first order derivative like Jacobian matrix that is extendable in maximum to the derivative of the second order addressing mathematically acceleration physics will be meaningful. These approaches will be ideally suitable to do mathematics with a discontinuum physics. As an example, a rule of distance or spatial problem leaves only gauge fields as a function of time to parametrize Hod-PDP rotations of four-vector gage time matrix fields operator general protocol in terms of the perfect transforms' operational algebra manipulative mathematics. We expect many quarks to be there to get complete resolutions by applying these techniques. Not with standing all these road blocks, ongoing efforts that we have undertaken will eventually be expected to solve the gargantuan paradoxical puzzling problem that has stumped physicists over several centuries.

Is Time a Linear Operator?

Ongoing formalisms would predict that time might not be linear (operator). In our recent paper[33] Equation (Fvtmf.1) is giving four-vector time matrix fields:

$$\begin{pmatrix} \hat{t}_{pr,\mu\nu} & \hat{t}_g^{\mu\nu} \\ \hat{t}_{l,\mu\nu} & \hat{t}_r^{\mu\nu} \end{pmatrix}$$

with $\hat{t}_{pr,\mu\nu}$: proper time, $\hat{t}_r^{\mu\nu}$: real-time, $\hat{t}_g^{\mu\nu}$: global time, and $\hat{t}_{l,\mu\nu}$: locally time. Gaging this time matrix to velocity matrixis possible by using a linear gaging metrics term of $(r/(gt^2))$ dot product multiplying with the time matrix above; here, $r \equiv gt^2$, $(r/(gt^2))$ will be a unitary term. By keeping the 1/g term outside the matrix and r/t^2 term dot multiplying with each element of the time matrix, we arrive at the four-vector velocity matrix fields $\left(\frac{1}{g}\right)\begin{pmatrix} v_\mathbf{i} & v_\mathbf{vacuum} \\ v_\mathbf{j} & v_\mathbf{M} \end{pmatrix}$, with v_i: initial or proper velocity, v_j: local or general velocity, v_{vacuum}: non-inertial or global (vacuum) velocity, v_M: real matter or particle inertial velocity. Here, note that r will be the space vector, g is the gravitational constant that can be taken to be 10 metric units and t is the gage time appropriately applied to the time matrix as well to perform the following calculations.

Order of Magnitude (O) Computing

If v_i is proper-time electromagnetic velocity = O (10^8) metric units, v_j is local-time velocity of sound = O (10^4) metric units, v_{vacuum} is global-time light velocity =O (10^8) metric units, and the v_M is real-time particle velocity = maximum value O (10^8) metric units. The value (determinant) of this matrix is like that of classical observables with the equation of the object motion $v^2 - u^2 = 2\ g.r$ = O (10^4) metric units. With g, gravitational constant of earth = O (10) metric units, we estimate spatial metrics, r = O (500) m or O (1/2) km. Thus, order of magnitude (O) computing would predict so that time maybe linear spatially only within O (1/2) km = O(1/4) mile, noting time is a four-vector time matrix {proper, real, global, local}. For example, the O (1/4) mile observable may have to be scalar fields of the sound and light, vibrationally sensibly visible meso scopic, for example, having event timeline within a big game, like baseball, football, or other arena gaming sports, typically. Everything within those systems will work like clockwork even for seconds - functionally!! However, outside that system, for example, more than a mile away, we won't know what is going on there unless a functional communicator operator like a television informs us. Hence this game system (r <O (1/4) mile) and outside (r > O(1) mile) are functors to each other!! They form typical discontinuum entities!!

Now, coming with a question of the chaos, such as what Sabine Hossen felder has been talking expertly about the chaotic behavior of the Hyperion moon of Saturn,[20] our analysis will show that if this moon can be mathematically considered to be an assembly of functors, they will not be havinga linear communication time operator like earth. Although the earth has many separate function systems, constituting a collection of functors, their assembly that is earth is also a function working like clock work; this provision of the functors having the property of typical functions has been explained as part of this key advanced mathematics,[24] This is perfectly also fit to explain the workings of the earth that maybe as well mathematically functor to the moon, as also to other astrophysical objects. We can also note further that the Schroedinger equation of the quantum wave function will apply strictly only within this above explained linear time region, a.k.a. mathematically computed linear operator region at where the functionality holds. This functional then will work according to gauge algebra that has already been derived earlier and applicably utilized for physics with many of our papers of peer-reviewed formalisms' publications given in the "References" Section.[5, 30,43] PHYSICS conjectural computations reveal that the Correspondence Principle[17] will extend beyond the quantum regions to the classical limit, however, it confines well within astrophysical regions. Order of magnitude physics computations evaluated above to mesoscopic regions where in the Correspondence Principle will have extensions will have a classical limit to typically O (1/2) km. or O (1/4) mile zone.Sound and light are the operator gauge fields. We can typically estimate spatially light to have a reach of O (1/2) km. or O (1/4) mile zone, whereas sound to have a reach of O (1/20) km. or 50 m = 15 feet. These are provable with mesoscopic observables suggestive testing, for example, shining light reaching a range of about 500m. versus echo sound range reaching about 50m, which are values typically obtained by the usage of a flashlight and measuring the distance between the source and a wall echoing sound, these simple experiments we plan to do alongside other observable measurements we are planning to undertake as soon as possible. These are where the "Correspondence Principle" is applicable in general. While the "Equivalence Principle" might operate within quantum systems {while noting that Discontinuum Physics and Scalar Theory of Everything will stipulate only energy and matter equivalence having $E = Mc^2$, however, inertial mass and the gravitational mass may not have the "Correspondence Principle"applicable}, the "Correspondence Principle" might operatewell on mesoscopic objects, extending arguments within physics literature as well[17] Linking to astrophysical space out from mesoscopic level, that operator may be a functional[55] such as time probably in one direction and communication or temperature in other direction, for example, it may act like a topological nonlinear operator!! One may point to the question of the functor action, for example, to explain the Hyperion moon of Saturn chaos analytically quantitatively explained earlier.

This review article will only discuss feasibly successful theoretical and experimental verifiable observables. Physical observables with conjectural modeling will lead to the instrumental design of prototype setups measurements' systems parameters that are naturally adaptable in laboratory with amenable microprocessor circuitry integrable to real-time monitoring computerized system equipment.

Theoretical Results, Algorithms, Discussions, and Designing Experimental Instrumentation Measuring Observables

Quantum gravity gage transforms Algorithm Graphical Equation of micro-blackhole force[33] can be applied exactly to facilitate the theoretical derivation of experimental observable measurable parameters having spatial-temporal scalar quantum gauge field as function in terms of Laplacian, Fourier, and the Legendre transforms gaging the spin, rotation, revolution, and rotational angular velocity expressible as a function of time.

Considering further[33]
Algorithmic equation micro-blackhole gage gravity force (Fqg) transforms to Equation (GAPDM.1) giving the Equation (1) below

$$Fqg = -i\hbar^3(G_{qg}(t_f-t_i)3)^{-1}\ (r_{qg}{}^4)\ (g[r_{qg}])^{-1}\ \{L'p(t)/Lp(t)\}^2\ (g[g[r_{qg}]])\ (g[f^{*\prime}(\ln|Lp(t)|)]) \quad ...(1)$$

ħ: Planck constant; G_{qg}: universal gravitational constant (G) gaged to quantum discontinuum; t_f-t_i: time evolution process with subscript i: initial and f: final instants of time evolving; r_{qg}: space discontinuum energy fields (DEF) spatial length related to discontinuum length (DL) as a function of time (t); thereby, we have $g[r_{qg}]$ = gage of r_{qg}, which is the gage discontinuum quantum velocity corresponding to DEF. ($r_{qg}{}^4$) will represent topology, like toroidal or rotated Mobius strip manifold spatial geometry. ($g[g[r_{qg}]]$) will represent gage of the gage of r_{qg}, which is a gage of discontinuum quantum velocity and hence represents gage acceleration like in gravity; Lp: Laplacian transform; L'p(t): differential Laplacian transform expressed as a function of time, t; g[f*'(ln |Lp(t)|)]: corresponds to gage of Legendre transform of Laplacian transform expressed as a function of time, t. Process mechanism with time evolution is here defining micro-blackhole vortex action, mathematically with Laplacian gage solution[33] to $H = \{i\hbar/(t_f-t_i)\}[\ln |Lp(t)|]$, having the value of Hamiltonian $Hn = H = \{i\hbar/(t_f-t_i)\}[\ln |Lp(t)|]$, and therefore, the differential Hamiltonian $Hn' = \partial H/\partial t = (\partial/\partial t)(\{i\hbar/(tf-ti)\}[\ln |Lp(t)|]) = \{i\hbar/(tf-ti)\}\{L'p(t)/Lp(t)\}$, as explained elsewhere,[33] with the term $\hbar 3(G_{qg}(t_f-t_i)^{3)-1}$ eliminated by unitarization to achieve dimensionless quantities. Hence, gage gravity {Helmholtz, Lagrangian, Hamiltonian, Legendre, Laplacian} transforms expressing the acting force of quantum gravity would be seen as modifying Newtonian Universal Gravitational Galilean PHYSICS!! The question with the mass gap, varying fields, dark matter, singularity, and several other inconsistencies with the quantum relativity measurements may be resolvedby considering wholly generalizable transforms provided by algorithm Equation (1), quantifiably evaluating F_{qg}.

Applied physics here moves to the next step of connecting with Iyer Markoulakis (IM) Model Formalism gaging to Iyer Christopher Malaver Hodge Zhang Taylor (ICMHZT) Model Gage discontinuity physics with dissipative mechanics. This approach thereby pulls out observables that are measurable experimentally with natural observations!! as for example, Equation (4) in the ICMHZT physics[5] that gives $||[G_g]P_g[\varepsilon_{GR}]^{-1}(<[\Psi_E(t_g)]|[\Psi^M(t_g)]>)[\varepsilon_{GR}]|| = ||[\rho_P(t_g)]^*[\varepsilon_{GR}]|| = \Lambda_{gv}$. Within this equation,$[G_g]P_g$ is the gage wave function inner product of the electric (E) and magnetic (M) tensor fields symbolically given by $(<\Psi_\mu(t_g)|\Psi^\mu(t_g)>) = (<[\Psi_E(t_g)]|[\Psi^M(t_g)]>)$.$[\varepsilon_{GR}]$ stands for the quantum gage fields typically consisting of gradient and the vortex actions as scalar unitarized potential systems gage units. $[\rho_P(tg)]$ is the gage Plenum* quantum density matrix, and tg is the gage time. Then, Λ_{gv} is the gage vacuum energy density cosmological constant which will be metrically equivalent to$\hbar^3(G_{qg}(t_f-t_i)^3)^{-1}$ term in the above Equation (1) for F_{qg}. It is to be noted too $[\varepsilon_{GR}]$ becomes $[\varepsilon_{GR}]$gvto correspond physically mathematically by aligning with the term of Λ_{gv}. All these relationship matrix values are properly applied evaluating to the force transforms algorithm Equation (1).

Mathematical transforms have thorough complete operational capability including inverse Fourier transform from the time domain to the rotational (frequency, ν) domain, noting the time, $t \equiv F^{-1}(\omega)$, and hence,$t_g \equiv F_g^{-1}(\omega)$, the inverse Fourier transform of angular velocity or speed, $\omega = 2\pi\nu$[12,14]. For Hod-PDP mechanism,[5] there are three contributions to $[(\omega)]_{effective}$ =>::<= $\{\theta_{spin}, \eta_{rotation}, \kappa_{revolution}\}$, which are the angle of spin, angle of rotation, and angle of revolution of Hod-PDP quantum assembly explained per ICMHZT magneto-electric Schematic within the Figure 10 explaining Hod-PDP assembly of the rotational fields.[5] To perform a complete gage transform of the quantum gravity gage force, F_{qg} in Equation (1) will also involve gaging of space, r_{qg}, and topology r_{qg}^4 terms by noting that the quantum gage velocity, $v_{qg} = \omega_{qg}.r_{qg}$. In general, $[(\omega)]_{effective}$ will be a rotation matrix with elements of quaternions, a.k.a. versors as well as spatial rotations.[11,34] These parameters synchronize functions of time in physics transforms originally derived earlier by this author. Mathematical transforms operational manipulations performed completely with simplifying computing will be given in the following form resulting algorithm graphical metrics, $[Y] = g_g[X]$, where output matrix [Y] is a metrically adjusted function of input metrical matrix [X] such that g_g is a gage fibrational string parameter, as shown below in Equation (2). Typically, we apply $g_g = 1$ to get a resultant Algorithm Graphical Equation with scalar quantum gauge field $||[\varepsilon_{GR}]||$ in terms of general transforms with Laplacian, Fourier, and the Legendre gaging the spin, rotation, revolution, and ω_{qg} as a function of time. Hence, these are theoretical to experimental observable measurable parameters purely in terms of algebra transforms. As brought out earlier, universal constants, which may not be constants over a long time of observations have been essentially eliminated by this thorough mathematical transformation process of the operator algebra. Our expertise in physics discussions[21] brought out salient features of the variability of well-known universal constants over larger periods progressing, perhaps due to mechanisms that are a causality ofcurrently not well understood leaking aspects.

With this operator approach, Equation graphic algorithms have been thoroughly derived by this author, mathematically solving within linear operator region of space quantum gravity that gives algorithm graphical metrics, $[Y] = g_g[X]$, giving the following results

$[X] = \{(L'p(F^{-1}(g[\{\cos\theta_{spin}(t), \sin\theta_{spin}(t)\}, \eta_{rotation}(t), \kappa_{revolution}(t)])))^2$
$(Lp(F^{-1}(g[\{\cos\theta_{spin}(t), \sin\theta_{spin}(t)\}, \eta_{rotation}(t), \kappa_{revolution}(t)])))^{-2}$
$(g[f^{*'}(\ln |Lp(F^{-1}(g[\{\cos\theta_{spin}(t), \sin\theta_{spin}(t)\}, \eta_{rotation}(t), \kappa_{revolution}(t)]))|])\}^{-1}.\omega qg(t)$
$[Y] = ||[\varepsilon_{GR}]||$ ...(2)

Equation (2) will be known also to be Algorithm Graphical (EIQ) in future correspondences.

We notice that in Equation (2), there are transforms of rotations which are only functions of time!!

We define mathematical transforms and parametric variables as follows.

Lp Laplacian; $g[f^{*'}(f'(p2))] \equiv$ gage of Legendre transforms of Lagrangian energy term p^2/m wherep:momentum, and m: mass has been taken care of with transform manipulations.

$Lp(F^{-1}(g[\{\cos\theta_{spin}(t), \sin\theta_{spin}(t)\}, \eta_{rotation}(t), \kappa_{revolution}(t)]))$: Legendre transforms of inverse Fourier gage angular {spin, rotation, revolution} which are functions of time.

$L'p(F-1(g[\{\cos\theta_{spin}(t), \sin\theta_{spin}(t)\}, \eta_{rotation}(t), \kappa_{revolution}(t)]))$: Jacobian, 1st derivative of Legendre transforms of inverse Fourier gage angular {spin, rotation, revolution} that are functions of time.

$\omega qg(t)$: quantum gravity angular velocity as a function of time.
$||[\varepsilon_{GR}]||$: scalar space quantum gauge field matrix protocol, measurable normalized parameter

Equation (2), a.k.a Algorithm Graphical (EIQ) has distinct key physics without pesky constants, hence this will represent a uniquely grand qualifying algorithm equation to be trend-setting first-of-the-kind perfectly grand unifying algorithmic graphical gage physics. We notice that this algorithmic equation has all general well-known transforms. However, there may not be any closed-form mathematical solution, like in the Schrodinger equation, String theories, and other theoretical models of Theory of Everything equations. We will have to reconcile these aspects, realizing that perhaps perfect physics will have to mathematically be analytically like that to express the complexity of nature in its original manner without having assumptions or fudge factors. Nevertheless, with our clever intuitive techniques, we will be able to pull observables out of this a black box like closed algorithms by special theoretical experimental methods shown below to obtain precisely observationally measurable parameters that are quantifiable, demonstrably corresponding to humanly naturally sensible gage metrics physics!! Apart from all these details, systems problem-solving configurations of observables general formalism approach that this author has already quantifiably developed.[30,43] applies here quite as well adequately!!

Example Universe Eonic Parametric Observable[33]
Algorithm $(\Psi,\Phi)^{fmm\ pmm}$ is justified to consider $\Phi = \Phi(\Psi)$ by normally noting energy, Evalue is given in electron-volts or eV conventionally in physics measurements. $E = E(\Psi)$ hence may be written in terms of Φ, the scalar potential. This will allow us to write (Ψ,Φ) per coordinate ordered pair algebra graphic conventions. Then, outer parameters $\{_{fmm}, _{pmm}\}$ will be working like the functors[24,55] which are linked also via like a functional {time, network, gage, operator} algebra overall. Functors may have morphological topologies similar/dissimilar[24] {like square/circle, torus/coffee-mug, and torus Mobius rotations equivalence rectangular strip}. For example, if the $_{fmm}$ and $_{pmm}$ have morphological topologies that are similar, they can morph to one another, and hence $_{pmm} = _{pmm(fmm)}$ as functions or algorithmically related equations. A group of such functors has self-similar functionality and the whole assemblage of such functors relates to linear operator algebra. Schrodinger equation H|Ψ>=E|Ψ> with the “Correspondence Principle”, which was explained above in the Expert Opinion Section will apply to such systems!!

Hod-PDP[5] may be related via a function, with Hod-like rectangular strip and PDP Mobius rotations of that rectangular strip. North monopole and the south_monopole will be algebraically equivalent to true functors!! However, they tend to be dissimilar because of their asym metric charge distributions.[5] On another hand, they are linkable by Super luminous Plenum which essentially may act like functional networking by similar gage operator. Compared tothe wavefunction-scalar potential algorithm given above, we can mathematical physically then write this quantum mechanical process with Hod-PDP in the context of Superluminous Plenum as

$$(\Psi_{Hod}, \Phi_{PDP})^{north\_monopole}_{south\_monopole} \backslash\!/ superluminous\_plenum \quad ...(3)$$

We can then gauge Algorithm (IQ), i. e. Equation (3) like Algorithm (I)[33] to get

$$(.\ \Gamma_{\omega,gr}\ .) =>: :<= \begin{pmatrix} 0 \\ \emptyset \\ 1 \\ \phi \end{pmatrix} (\psi c \ \ \psi \supset \ \ \psi_S \psi_N) \quad ...(4)$$

with $\begin{pmatrix} 0 \\ \emptyset \\ 1 \\ \phi \end{pmatrix}$ *representing switching gaged fields,* ε_{PDP}*,and*

(ψc ψɔ ψS ψN) representing $<\Psi_{Hod}|$having clockwise and anticlockwise rotational wavefunction and south-north monopoles' wavefunctions. These are point-to-point parameters multiplicatively relating to signal/noise matrix (. $\Gamma_{(\omega,gr)}$.) that will represent point-to-point profile density matrix intensity measurable by Algorithm (IQG), i. e. Equation ...(4)

Keynote

Algorithm (IQG), i. e. Equation (4) will let us write in general[33]

$(.\Gamma_{qdtc,PDPcca.}).) =>: :<= (\varepsilon_{qdtc})(.\psi_{PDPcca.})$, to get a general algorithm $\Gamma_{decomposition}$ enactingscalar field and the wavefunction acting such that for a quartz diamond time crystal (qdtc) ≡ f_{mm}; PDPcca = $p_{mm.}$ Here, Hod-PDP is a circuit clocking assembly, demonstrated elsewhere.[5]

Hence, overall observable parameters that are observationally measurable physicscan be summarized[5,30,33] as follows

- "G": functional string metrics field factor, the particle-like electron-positron metrics.
- "M": string metrics mass factor, the Higgs-Boson-like mass metrics.
- "Γ": Hod-PDP quantum astrophysical measurable signal/noise factors.
- "ρ": density matrix factor, giving fields-masses, that are measurable.
-

"G" & "M" are matricesaffected by "ρ"; "Γ" is a matrix affected by wavefunction gaugefields.

Instrumentation Design Profile Intensity Device Prototype

Examples: Measurable observable parameters

- "G" ≡ time, t which itself is a four-vector time matrix fields mapping motion of particles.
- "M" ≡ gage mass, like thepoint physics version of Higgs Boson metrics.
- "Γ" ≡ point-to-point astrophysical observational signal/noise matrix, measured by sensor switching devicesprofiling by applying instrumentation systems package. Schematically shown below are for measuring Hod-PDP quantum astrophysical signal/noise factor.
- "ρ" ≡ point-to-point astrophysical observational particle density matrix, measured by intensity device sensors having microprocessor measurement instrumentation systems generatingtransforms achieving necessary outputs.Prototype setups are sketched below, transforming density matrix factor, to give fields-masses.

Flowchart Simplifying Theoretical to Experimental Mathematical Physical Sciences

Theory=>: :<=observables=>: :<=parameters=>: :<=observational device measurement instru-mentations.

We measure observables parameters of Algorithm (I)[33], i. e. Equation (4):(0 Ø 1 ϕ) representing switching gaged fields, ε_{PDP} with point-to-point profile switching state sensor to calibrate instrumentation measurements process gauging fields. Separately we then measure(.$\Gamma_{\omega,gr.}$) with intensity measurement point-to-point sensor. Knowing these values, Equation (4) gets solved by having quantum computingclockwise and anticlockwise rotational wavefunction and south-north monopoles' wavefunctions of $<\Psi_{Hod}|$, i. e.wavefunction matrix(ψc ψɔ ψ + ψ -) via trial-and-error basis. Then, we will have to find $|\Psi_{Hod}>$ by separately evaluating the pure state quantum density matrix, and the ρ_{Hod} by the following methodology.

Pure quantum state operator (ρ) density matrix can be written per Algorithm II[33], defining ρ = |Ψ><Ψ|. |Ψ> can be obtained from a solution of Algorithm Graphical (EIQ), i. e. solution of Equation (2) in the linear operator range with quantum computing simulations via operational programming methodologies. Essentially, these are like solutions within linear regions of space where the "Correspondence Principle" is applicable with general solutions of the Schrodinger equation. Since these mathematical transforms have complex aspects, they may require the manipulative programming of algebra with numerical modeling. Alternatively, experimentally measuring Γ and ρ with instrumentation systems shown below in prototype designs, having calibrated ε_{PDP} = (0 Ø 1 ϕ) will yield |Ψ>and |Ψ>values by iterative processes computer programs. Such practical resultsare possibly obtained by theoretical computer programming in conjunction with experimental techniques. Once these quantum results have been achieved, that will then lead to evaluating|Ψ>. Then, real <Ψ| values can be evaluated by solving Algorithm (IQG), i. e. solving Equation (4) with theoretical and experimental procedures that have been already described above to get values of wavefunction matrix (ψc ψɔ ψ + ψ-) via trial-and-error basis.This extensively elaborate methodologywill then supply all values to compute ρ = |Ψ><Ψ|, that is ρ_{Hod} for ε_{PDP} = (0 Ø 1 ϕ) Hence, true analytical physical solutions that have observational interpretable verifications addressing falsifiability aspects will provide proper developmental progress of the grand unified PHYSICS paradigm, specifically applicable to quantum gravity with innovative state-of-the-art physics testing set ups

Estimation of Hod-Pdp Mechanistic Probability in Superluminous Hod-Pdp[5] Context

If Hod-PDP has (π) rotations of the n number of hods and the m number of PDP circuit assemblies, we may estimate Hod-PDP mechanistic probability, $P_{m'Hod\text{-}PDP}$ that is expressed as an order of magnitude of their quantum density matrices, such that $P_{m',Hod\text{-}PDP} = O(\rho_{PDP}/_{\rho hod}) = O((1/\pi)^{n-m})$. An equation may be written for the pure state PDP density matrix to give ρ_{PDP}= $|\Psi\rangle\langle\Psi|_{PDP}$ and an equation for the pure state $_{Hods}$ density matrix to give$\rho_{Hods} = |\Psi\rangle\langle\Psi|_{Hods.}$ Conditionally, if the number of PDPs (m) is equal to the number of hods (n), i. e.,m = n, the interestingly estimated mechanical probability of Hod-PDP = O (1) may represent real matter energy!! We can also write $\rho_{Hod} = |\Psi_N\rangle\langle\Psi_S|$ with $(\Psi, \Phi)^{N\backslash}_{S/}$ Hod-Plenum context!!

Keynote

It is possible to conjecture positional invariance or gage invariant physical-mathematical sciences theory having quantum Eigen of rotations, by considering that if we are looking at one point in space {for example, through a window}, that point may seem to be static or having always visibilityas if a point fixed under conditions of rotation around a symmetrical axis. One of the reasons for apparent illusion is the lack of discernability of separations of points as moving or static (fixed) arises due to speeds much greater than a critical value at which resolutions are possible. Of course, this will be dependent on physical sensor sensitivity. The resolution and magnification aspects of the detector play a key role in such measurements. Since the energy, E is quantized at the subatomic level, rotational velocity, or speed (ω) is quantized having that E = ħω. This maybe graphically demonstrated as discontinuum or discrete marks with quantum energy. ω = *E/ħ*, thereby appearing equivalently to have discontinuum or discrete marks with ω values, demonstrating quantized rotational aspects. Hence, quantization with rotation and time has subtle connections. Practically, time has a synergistic relationship with rotations, and the quantum reversible events constituting time have interactive synergistic!! These aspects will be addressed more in later papers since these are beyond the scope of the current paper.

Grand Unifying Physics Operations Maybe Listed as Having Characterized Properties

- unitary: comparing processes
- modulus: scalar measurables
- gage: invariant operational transform physicality
- normalization: organizing standards and mutual consistency minimizing redundancy
- closure: content level uncertainty control adequateness

Quoting an earlier paper on instrumentation development[33] measuring these observables: "A special hardware device may be intricately developed to capture spectral point-to-point astrophysical intensity signal/noise and spectra density matrices, with having microprocessor embedded devices like diamond chips. Standardization will have to evaluate (0 Ø 1 ϕ) with proper physics referencing with calibration procedures described above". "0" would refer to zero fields; "Ø" would refer to neither off nor on fields; "1" would refer to on fields; "ϕ" thereby would refer to both off and on fields, such as with quantum entangled fields.[1,38,33] Physically interpreting the "neither off nor on fields", it is an intermittent nonzero field, switching, however not a fully on-field, for example, flickering observable signal aspects, on another "both off and an on fields" would be like a quaternionic, turbulent, excessive, or entangled conditional form, for example,a situation that may be encountered like in explosions.

We will get details of prototype measurement instrumentations with adequately feasible designs having an experimental flowchart. Subsection 2.6 will consider these below.

Discussion

Prototype Set-Ups, Figures, and Parametric Measuring Instrumentation Systems

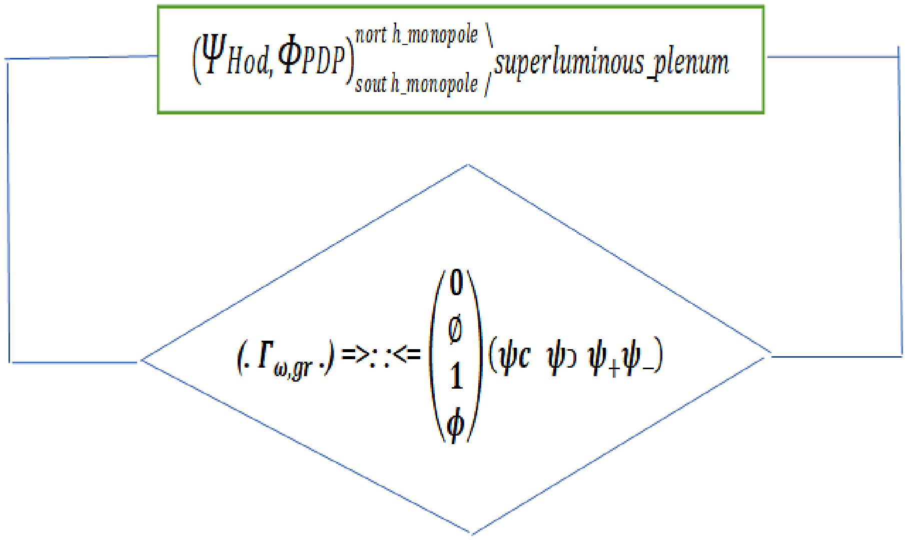

Fig. 1: Overall measurement procedure theoretical to experimental with Algorithm I[33] or Algorithm (IQ) ≡ Equation(3) giving parametric measurement grid flowchart schematically.

The flowchart in Figure 1 gives graphics of how theory translates to determining parameters of observables by applying matrix algorithms developed here above. Starting from the original Iyer Markoulakis point gradient vortex formalism, the IMMOHZT model quantitatively characterized the Hod-PDP mechanism hypothesized to operate within a superluminous plenum. Physics with the north and south monopoles that form like "dark matter energy" within the churning Superluminous_ Plenum, by Hod-PDP mechanism transforms to dipolar magnetic electric fields to create "real matter-energy". Peer-reviewed papers listed at the end of this article detail complete physical mathematics formalisms theory from which observables have been analytically pulled out by the above-explained methodology. These thorough process derivations make allthese measurement flowcharts feasibly viable. Algorithmic flowcharts with proper physics will help in launching theoretical computer programming simulations as well as prototype testing experimental investigations. The flowchart given in Figure 1 tells us about wavefunction-potential within Superluminous_Plenum having north, and south monopoles[44] or normally dipoles like Hod-PDP will give signal/noise matrix output that is quantum parametrically forked to switching gauge fields and then separatelyas wavefunctions characteristics of the spin, rotation, and the revolution matrix of particles that are hypothesized to generate out of this Superluminous-Plenum quagmire[5]!!

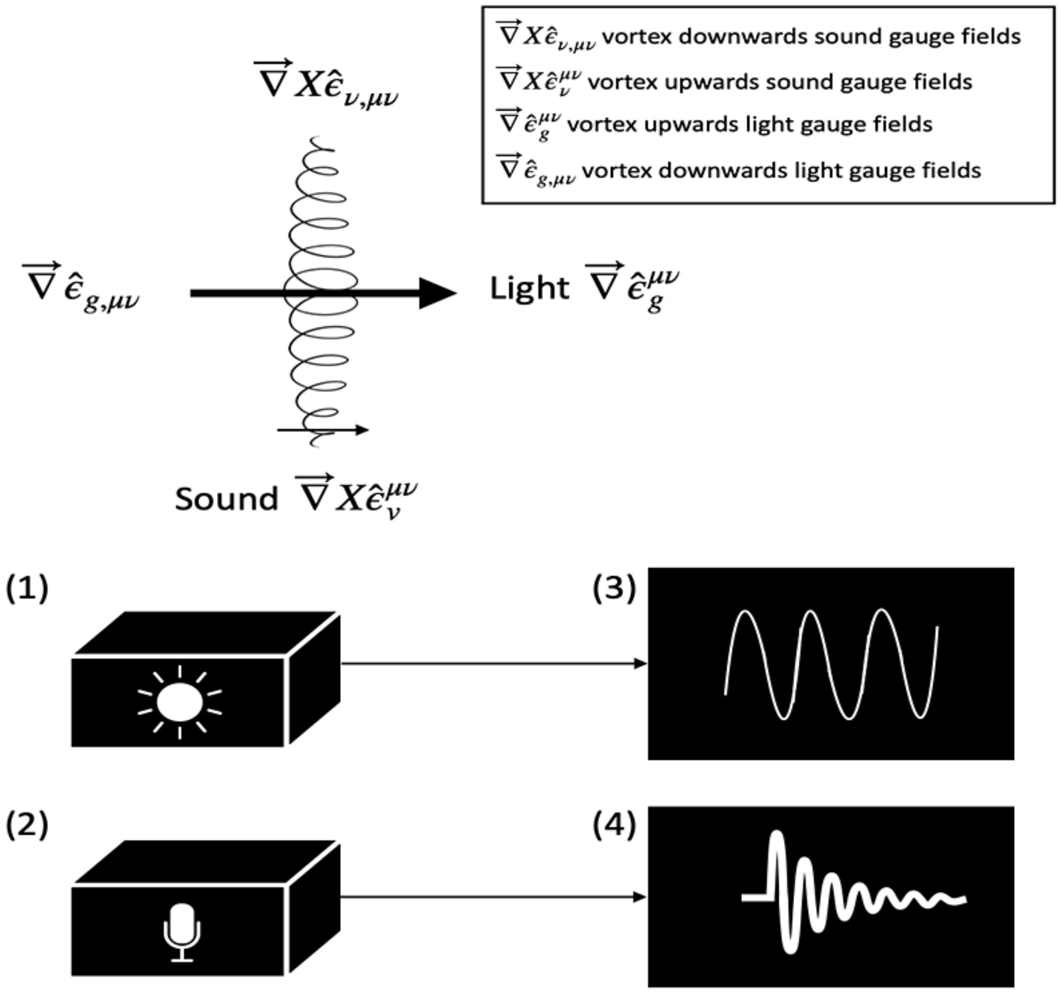

Fig. 2: Schematics of an intensity profile signal/noise matrix measurement instrumentation system with point-to-point precision accurate integrated circuit diamond chips microprocessors.

(1) Point-to-point astrophysical light intensity signal/noise and spectra density matrices measurement sensor microprocessor like diamond chips embedded operational device. (2) Sound acoustic-electric transducer profile switches signal pattern density matrices measurement sensor microprocessor like piezoelectric operational device embedment. (3) Photometer sensor point-to-point profiling switches [mode] {0, off, on} oscilloscope density matrices signal/noise pattern measurement calibration enhanced systems. (4) Sound-meter spectroscopic signal/noise pattern measurement oscilloscope attachment density matrices signal/noise pattern measurement calibration enhanced systems.

Figure 2: Schematics of an intensity profile signal/noise matrix measurement instrumentation system with point-to-point precision accurate integrated circuit diamond chips microprocessors. Observable measurable astrophysical signal/noise matrix of sound and light detected by sensors decoded by component elements linked to oscilloscope spectroscope and sound meter to gauge fields and the quantum wavefunctions per Algorithm (IQG), i. e., Equation (4).

Figure 2 provides a viable means of capturing observable measurable astrophysical signal/noise matrix of sound and light. These parametric scalar gauge fields are then sent appropriately to sensors linked to oscilloscope spectroscope sound meter instrumented measurement systems. Sensors are essentially fabricated devices having point-to-point precision accurate integrated circuit diamond chips microprocessors. They are thus equipped to detect point-to-point astrophysical light intensity signal/ noise and spectra density matrices of light signals. Photometer sensor point-to-point profiling switches [mode] {0, off, on} measure signal/noise pattern density matrices with calibration enhanced systems. Sound signals are separately captured, sent to detectors, and analyzed by using acoustic-electric transducer profile switches to measure signal pattern density matrices.

Presently we are working on the design and development of transducing sensors to have piezoelectric operational device embedment. We have our goal to have computer systems linking with integrated sound and light input sensors to sound-meter spectroscopic signal/noise patterns sent to proper measurement oscilloscopic calibration enhanced systems output devices. Extracting signals out from noisy signals by logical amplification and noise cancellation enabling techniques to enhance signal/noise with modulation and Fourier transform techniques, and feedback circuit mechanism to computationally adjust the input/output device performance with real-time monitoring error signals will advance observational measurements with real-time parametric data collections. Eventually, data processing will help us to identify particle presence and their quantum density matrix profile by employing innovative state-of-the-art physics testing set ups.

Conclusion

Presently this sequel paper follows theoretical completeness efforts emphasized clearly via the article *Review Force General Conjectural Modeling Transforms Formalism PHYSICS.*[33] Theoretical observables and parameters obtained from IMMOHZT formalism derive algorithms resolving many questionable parameters with variable universal constants within the quantum, relativity as well as perhaps the Newtonian aspects out of these algorithm graphic equations. Mathematical evolution has been shown in all these formalisms quantifying physical science to have continuity with current normal physics, whichis in use widely currently. Quantum gravity gage transforms of micro-blackhole force to gauge fields-wavefunctions algorithm transforms equations have been quantified fully. There are two eye-opening aspects noticeable through derivative proof processes. One of the aspects addresses mass factors as well as universal classical, quantum, and astrophysical constants, which in time are not really constants get removed from these equations by the process using transforms, so formulation does not require invariability of the fundamentally universal known constants. The second eye-opening aspect has been brought out by an example of a universal eonic parametric observable algorithm in terms of signal/noise matrix forking to gauge fields and the wavefunction quantum aspectsthat are expressed by algorithms relating these quantum parameters to astrophysics. These are amenable toprogram theoretical simulation to verify the validity of these algorithms giving observable parameters of the Hod-PDP mechanism proposed to create quantum particles to form superluminous plenum condensate.

The question of whether the time is a linear operator has been answered by having an estimation of the Correspondence Principle's linear operator time spatial range of about a quarter a mile. An analytically derived algorithm shows scalar gauge fields, and not potential,to be functions of the spin, rotation, and revolution which essentially are functions of time from the prime basis. Both Lagrangian and Hamiltonian transforms get removed and only Laplace, Legendre, and the Fourier transforms remain with gage spin, rotation, and revolution that are angular speed components as [X] or input variables matrix. Output [Y] variables matrix is simply expressible as scalar gauge field matrix.

Yet another prime key result is the experimental design to facilitate verifiable testing of a proof of the concept of ameasurable signal/noise matrix and quantum density matrixto find quantum parameters of wavefunction matrices and the scalar gauge fields that have been theoretically derived as observable parameters. The flowchart schematics help in conceptually designing signal profile and density matrices' sensors codesigned to microprocessors, and measurement instrumentation; these systemshave been schematically sketched out. Prototype testing equipment will require fabrication progress with specialized point-to-point light and sound sensor devices that get linked to oscilloscopic measurement computer-enhanced profile, intensity, anddensity matrix measurements. They will have the capability and sensitivity to detect the presence of real particle-wave and matter energy systems. Simple lab top prototype sound and light profiling intensity, and spectral density point-to-point matrix oscilloscopic observational measurement techniques have been design-facilitatedfor future implementations practically. Since the energy, E is quantized at the subatomic level, rotational velocity, or speed (ω) is quantized per discrete marks with quantum energy. $\omega = E/\hbar$.

Our future efforts will concentrate also on computer simulation programming with these algorithms of the Hod-PDP mechanism proposed to create quantum particles out of a superluminous plenum condensate. Thereby, we hope to have collaborative investigations designing experimental physics with international organizations to verify the proof of the concept. We will translate to quantum astrophysics with quantified metrics to conjugate the results of experimentally provable theoretical algorithms that will also eventually lead to quantifying of advanced discontinuum physics aspects. Pulling observables from theoretically derived algorithm graphic flowcharts will help to test the validity of models by theoretical and experimental methodologies. While experimental methodologies will even involve Large Hadron Collider particle-wave experiments or outer space quantum astrophysical testing modules that may take a decade or so to process complete data observations, measurements, analysis as well as physics-proper interpretations, theoretical proofing verification methodologies such as computer simulation programming might generate results within a couple of years, or even faster with the advent of the quantum computers that are widely operable. Our project publications will launch paradigm-shifting metrics in grand unified physics with innovative state-of-the-art physics testing set ups.

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