

Mathematical Theory and Physical Mechanics for Planetary Ionospheric Physics

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Abstract

In a dynamic system, e.g., *Geometrodynamic* geophysical isomorphisms from plasmasphereⁱ to ionosphereⁱⁱ, e.g., Upper-atmospheric lightning (UAL, *sferics*), Middle-atmospheric lightning and Lower-atmospheric lightning (MAL, LAL, *sferics*) and Terrestrial and Subterranean Perturbation Regimes (TSTPR, *terics*) real *Physical* space is represented as (M,g) $R^5 \rightarrow (M,g) R^4$ brane.

F-theory propagates QED continuous polyphasic flux to (Mg) R^4 brane is postulated utilizing Universal constants (K), c.f. Newton's Laws of Motion; c; Phi; Boltzmann's Constant $S = k \log_e W$; Gaussian distributions; Maxwell's Equations; Planck time and Planck Space constants; a; Psi.

Constants are propagated from hypothesized compaction and perturbation of topological gauged-energy string landscape (Mg) R^4 d-brane applied to electromagnetic and gravitational *Geophysical* sweep-out phenomena, e.g. Birkeland currents, ring currents, *sferics*, *terics* and given tensorized fields of ionized plasma eventsⁱⁱⁱ and energy phenomena of the near Astrophysical medium.

These can be computed from Calabi-Yau manifolds as CP^4 in density matrices of Hilbert space, Hyper-Kahler or 4-Kahler manifolds across weighted projective space. e.g., in Gaussian Unitary Ensembles (GUE) where as a joint probability for eigenvalues and-vectors $\frac{1}{Z_{\beta n}} \prod_{k=1}^n e^{-\frac{\beta}{2} \lambda_k^2} \prod_{i < j} |\lambda_j - \lambda_i|^\beta$ (1) from dispersion $k^2 = w^2 p_0$ from Boltzmann's constant H [1] and Trubnikov's 0, 1, 2, 3 tensors [2,3].

Keywords: Newton's laws; Terlezky's quadrigues; Ionospheric physics; Geophysical actions

Introduction

Constants of dimensional energetics and thermodynamics can be demonstrated as Quantized CEMGD^{iv} topology of the hypothesized (M,g) R^4 brane. This is proposed to exist at planckscale energetic relationship per qubit formation and QVS/VEV of electronic valence of local stress conditions of (M,g) R^4 brane. Their subsequent discrete Universal for S (Boltzmann, Shannon thermo-entropy) integer value sequences is computed as hyperslices,-surfaces, strings and bundled submanifolds of given phase space timelines.

In *Geometricodynamic theory*¹, Laws of Chaotic Attraction and Nonlinear dynamics, c.f. the theorems of Einstein²; Wheeler³; Isham, Butterfield⁴; et.al. ⁵ are proposed to utilize (M,g) R^4 brane Planck scale. These demonstrate order as formations of entropic phase space events in topological moduli space of instantons and causal structures in conventional (M,g) R^4 brane physics.

Aristov has advanced TQFT where $\langle A \rangle = \frac{T_r[\exp(-\beta H)A]}{T_r[\exp(-\beta H)]}$, for geometrical orders of Time^{5a} where $R = \{r_1, \dots, r_N\}$, $dR = \{dr_1, \dots, dr_N\}$, $dr_i = r_i^{(2)} - r_i^{(1)}$, $i=1, \dots, N$ and therefore as Time-entropy $dr^2 = \frac{a^2}{N} \sum_{i=1}^N (dr_i - \frac{1}{N} \sum_{j=1}^N dr_j)^2$ (1).

Similarly, Universe Mapping has been utilized for WMAP⁶, as a standard list of subatomic particles have been discovered at CERN which indicate accurate local predictions of Higgs field and MSSM for Universal redshift and inflationary characteristics ⁷.

The conventional Ionospheric Electro gravi dynamic (EGD) Energetics Cycle⁸ of Dmitriev and Dyatlov's research, is generally inclusive to the fundamental logic of surface-Space calculus, e.g. for a Magnetosonic wave where in general formula $\frac{\omega^2}{k^2} = c^2 \frac{v_s^2 + v_A^2}{c^2 + v_A^2}$, and

axioms of formalized, classical Laws of Thermodynamics⁹ from $|0\rangle$ as a heterogeneous expression of Thermodynamics and Planck constant and to UCQAIEMGDS¹⁰. The general inequality formula for CEMGD thermodynamics for a single or many-body system can be demonstrated in the universal formula for Bekenstein's Bound¹¹, where $S \leq \frac{2\pi kRE}{\hbar c}$.

EGD Energetics Cycle is therefore proposed to be in concordance with the Zeroth Law of Thermodynamics¹² as an equivalence relationship where phase space transformation of Energy. This relationship is formulated by the Author (Jonah Lissner) where total energy=fluctuation of temperature and entropy of "closed system" where in general form $dU = \sum_i T_i dS_i c$ or schematically (M,g) $R^5 \rightarrow |0\rangle$ where Expectation values of $\langle \phi \rangle$ for any virtual particles can be measured $\Delta E \Delta t \geq \hbar$.

Terlezky's Quadrigues in EGD Physics⁸ as developments of Maxwell's extensive Quadratic Matrices can consist of mass, spin or torsion, charge and magnetic moment in a model of interactions between Physical Vacuum, Baryonic Density and Anti baryonic density Universes utilizing Manifold topological paradigm and Manifold Timescales as a capacitor-transmitter.

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Dyatlov's polarization model of the inhomogeneous vacuum regarding magnetic moments and angular momentum¹³ or color charge can be referred in Einstein-de Haas effect¹⁴ where $r \ll M$ and in Barnett's Effect¹⁵ where $r \gg M$ and where $M = \chi\omega / \gamma$. Plasma phenomena such as antimatter have been studied in thunderstorm activity by Briggs, et al. ¹⁶.

In actions of purely magnetic or theoretical monopolar measures as B in the EGD schema in R^4 being scalable are approached in formula notation EM and GS inclusive of EGD systemic of energy transformation of gravispin⁸:

"the electro-magnetic energy converts into heat (EM \leftrightarrow H); the electro-magnetic energy-in the mechanical energy (EM \leftrightarrow M); the electro-magnetic energy in the gravispin energy (EM \leftrightarrow GS); heat - in the gravispin energy (H \leftrightarrow GS); the gravispin energy-in the mechanical energy (GS \leftrightarrow M); the mechanical energy - in heat (M \leftrightarrow H)".

Dmitriev and Dyatlov value mass, electrical charge, spin and magnetic moment in chiral, positive and anti-material wavefunction values⁸. Regarding energetic measurements of LSS and Astrophysical anomalies in EGD QVS/VEV-Dirac Sea-Brane Boundary-Dark Energy flow confluence of the VD-PV-QVS/VEV-ZPF is generally measured by P_E or density of electrons; P_G or density of magnetic moments; P_M or density of gravitons; and P_S or density of Spinors, as polarizations of *Vacuum Domains*¹⁷.

Kerr solitons have been studied in quantum Maxwell effects¹⁸. Rapoport, et al. have proposed phase analysis parameters for ground-to-ionosphere infrasonic waves for earthquake and other terrestrial anomaly prediction engineering^{18a}. Tomography of radio transmission and IR emission from geological strata (quartz) are proposed to indicate general signals for subterranean perturbation precursors and regimes from ELF>SLF>ULF>VLF or ~3 Hz to 30 kHz or cycles per second. ^{18b}^{18c} VLF signals have been indicated as precursors for earthquakes and Vp/Vs for timeline sunset emission measurement^{18d}^{18e}.

Praxis

It is therefore introduced by the Jonah Lissner in an advancement of Planck constant theory regarding integral tensor calculations of P_T or density of chrononics as Time-entropy of given discrete causal structure (Hilbert space), as wave functions from $|0\rangle$ are longitudinal and Spinors.

In BDMST Beta decay cycles of plasmatic shell baryonic density and EM dynamism in Hadronic mechanics¹⁹ are generally transverse in orientation. It follows such that solitonic fluctuations of Manifold state energy (M,g) $R^5 \rightarrow |0\rangle \rightarrow$ (M,g) R^4 brane require by topological origin point an anisotropic, torsional and 4+1 helical relationship. The causality boundary of scalar, longitudinal origination or central Time orientation for T emanation can be established in given isomorphic (M,g) R^4 brane Space-Time fiber-bundles.

These bounded complex domains can be defined as the dimensional phase-state and the basis for the integrity of the given dimensional state phase space, e.g. Time dilation in GTR/STR and Field effects for massive bodies as noted in gravitational time dilation mechanics²⁰

$$\text{where } t_0 = t_f \sqrt{1 - \frac{3}{2} \frac{r_0}{r}}$$

(M,g) R^4 brane fiber-bundle activator and Hyperforce node reflection or a dynamic helix in QVS/VEV-Dirac Sea-Brane Boundary-Dark Energy flow confluence of 6 cyclical series (*abioplasmatic*)

energy relationships in BDMST-UCQAIEMGDS are represented in conventional EGD Physics⁸ from dipolar PV||APV \gg VD \gg PVM||PVA. Therefore in sestuplar bracket series as spinor relations and wave propagation EGD: (EM \rightarrow H EM \rightarrow M EM \rightarrow GS H \rightarrow GS GS \rightarrow M M \rightarrow H). ⁸ Smirnov has proposed mathematical modeling of ball lightning anomaly as knot fractal strings^{20a}.

In general form in relativistic space-time in (M,g) R^4 brane, the identity $E=ML^2/T^2$ holds per Einstein's Strong Equivalence Principle and Energy-momentum relation $E^2=m^2c^4+p^2c^2$ thus in Einstein's field effect, the $R_{\mu\nu} - \frac{1}{2}g_{\mu\nu}R + g_{\mu\nu}\Lambda = \frac{8\pi G}{c^4}T_{\mu\nu}$ transformation can be conjectured where $|0\rangle \rightarrow$ (M,g) R^4 brane $T \equiv E^2$: EGD.

Furthermore for all (M,g) R^4 brane dimension space UCQAIEMGDS Hilbert space topologies N given as subset projection of (M,g) R^4 brane at given QVS/VEV confluence space-time-coordinate per Hasse-Minkowski²¹, where furthermore $M = \mu / \nu = M_s(\alpha, \beta, \gamma)$ and subsequent axes. Bloch²² and Neel Walls²³ have been detected using Magnetic anisotropy²⁴; Longo and Iye's research on Universal angular momentum and axial tilt torsion has been demonstrated²⁵.

Generally inertial frequency of all transverse fermionic and bosonic wave functions including longitudinal Lorentz-scalar time wave function chrononic with $|0\rangle$ origin via supers election from moduli space of instantons and solitonic fluctuation in retro causation. Therefore it is proposed to study these effects per Maxwell's General Equations of Vacuum, also Maxwell's original equations²⁶ and those equations abridged in vector form²⁷ computable in surface integrals²⁸.

Photons or pure photonic wave function for mass equivalence of two inertial and gravitational masses²⁹ where $F_{AB} = -GM_A M_B \frac{R_{AB}}{|R_{AB}|^2}$, e.g. Sun, Earth and Moon, in general $m_1 = m_2 \frac{|a_2|}{|a_1|}$.

Conditional entropy for two objects can be formulated where $H(X \setminus Y) = \sum_{i,j} p(x_i, y_j) \log \frac{p(y_j)}{p(x_i, y_j)}$.

Electronic units in the following table of Maxwell's Equations in integral or scalar form, are set theoretically for CEMGD to travel as wave functions in longitudinal, transverse and Rayleigh vectors in state of lowest energy approximating zero where given $E^*(x^*,t)$ and $B \rightarrow (x^*,t)$:

$$\oint E \cdot ds = -\frac{d\Phi_{mag}}{dt} \text{ Faraday's Law}$$

$$\oint B \cdot ds = \mu_0 \epsilon_0 \frac{d\Phi_{elec}}{dt} + \mu_0 \sum i \text{ Ampere-Maxwell Law}$$

$$\oint E \cdot dA = \frac{\sum q}{\epsilon_0} \text{ Gauss' Law}$$

$$\oint B \cdot dA = 0 \text{ Gauss' Law for magnetism}$$

(Maxwell's Equations of Vacuum, Integral Form table, University New South Wales³⁰)

$$\nabla \times E = -\frac{dB}{dt} \tag{1}$$

$$\nabla \cdot E = \frac{\rho}{\epsilon_0} \tag{2}$$

$$\nabla \times B = \mu_0 \epsilon_0 \frac{dE}{dt} + \mu_0 J \tag{3}$$

$$\nabla \cdot B = 0 \tag{4}$$

(Maxwell's Equations of Vacuum, Differential Form table, University New South Wales³⁰)

$$\nabla \times E = -\frac{dB}{dt} \quad (1)$$

$$\nabla \cdot E = 0 \quad (2)$$

$$\nabla \times B = \mu_0 \epsilon_0 \frac{dE}{dt} \quad (3)$$

$$\nabla \cdot B = 0 \quad (4)$$

(Maxwell's Equations of Vacuum, Velocity of Photon Form table, University New South Wales³⁰)

Therefore postulated to be interacting a revision of the 4 defined Fundamental interactions³¹ of the Standard model for the symmetry groups $U(1) \times SU(2)$ in Electroweak unification³² in quaternic interaction of matrices of Special unitary groups³³, in Lie algebra with $SU(n)$ (instants, QCD) for all Physical Constants K in $(M,g) R^4$ brane in ascending orders of magnitude of solitonic perturbations, as origin points for causation of planetary plasma anomalies.

Theory Extrapolations and Predictions for Planetary Ionospheric Physics

In BDMST-UCQAIEMGDS topology this is represented as toroidal-spherical or fractal vortex modular decomposition of Scalar Probability-Potential of QVS/VEV, Brane-Bulk Boundary and Knot Compliment with Solitonic Flux Action in Vortical Space, and Gravitational-Pull Of Electronic And Magnetic Fields Of Dense Object in Hausdorff space per BEC³⁴ actions of gas molecules cooled to 0 K or -273.15 C, where in notation form $T_c = \left(\frac{\eta}{\zeta(3/2)}\right)^{2/3} \frac{2\pi\hbar^2}{mk_B} \approx 3.31 \frac{\hbar^2 n^{2/3}}{mk_B}$.

It is therefore proposed radiation of frequency and ionizations of wave function dynamism from moduli space of instantons of proposed QVS/VEV, Brane-Bulk boundary and Knot compliment with solitonic flux action in Vortical spaces across real $(M,g) R^4$ brane substrate tessellations, e.g., metrics of given system power losses in plasmatic field landscapes such as ionosphere. These occur from Initial state of Cosmic inflation point, hypothetical terms exflation point of $(M,g) R^5$ hyper point or substrate, in Lorentz Manifold as BDMST postulated reflection space or string vacua-interchange, as an energy hierarchy described in Physical constants:

Strong nuclear force³⁵

10^7 Strongest of Standard, $(M,g) R^4$ brane Forces which does not diminish past 10,000 Newtons or one metric ton, with a distance greater than a Hadron (proton + neutron; boson-baryon_fermion) resulting from gluonic and virtual mesonic attraction at Planckscale. Lapidus and Von Frankenhuisen have advanced arithmetical physics or Quantum geometrics and number theory at this scale for Cantorial fractal strings and spectral Zeta function topology mechanics³⁶.

Weak nuclear force³⁷ (Leptonic) force

10^1 Weaker than *Strong Nuclear Force*, resulting from exchange of virtual particles e.g. Neutrinos, and QVS/VEV fluctuations³⁸ of W and Z bosons at Planck scale and has anomalous effects in Quantum tunneling, quantum entanglement and BEC.

Electro-magnetic dual or tensegral forces³⁹

10^6 Weaker than Weak Nuclear Force, resulting from general Spectrum frequency phase action and interactivity, polyphase

dynamism. Anomalies include superconductivity, light-speed fluctuation for engineering.

Gravitational force⁴⁰ 10^{139}

Weaker than Electro-Magnetic Forces, as resulting from electro-magnetic wave function dynamics of attraction and dissipation in phase systems of scalar Time-entropy, which vary in coupling force from the minima at CMBR, QVS/VEV, to maxima at Black Holes and Gravastars. Anomalies include superconductivity, periodical element cavitation and micro clustering phenomena; M-theory; Dark energy and gravitational mechanics.

In summary, Strong and Weak Nuclear forces are postulated as complimentary and attractive Manifold forces, as are Electronic valence exchange from atomic orbitals and Magnetic attraction fields between said forces in terms of Entropy per accretion velocity and torsion of standing waves. This advances the proposal against the Standard Model⁴¹⁴² for Gravitational force as quantumizable in relation to density of estimated nuclear accretions.

Rate and entropy of Beta decay as is proposed in MGDS-CEMGD which are demonstrated in dynamic or MHD Plasma domains, e.g., Lightning, sprites, elves, mantles, terrestrial plasma spheres, coronal seismology and superconducting ionospheric phenomena associated with strong high-frequency magnetic reconnection^{42a} and radiative effects in ionospheric domains⁸¹⁷ and terrestrial and subterranean domains^{42b}.

Theory Mathematical Excursion Summary

These additional Physical force propositions are introduced by the Author (Jonah Lissner) to present Standard Model, per postulations of BDMST-UCQAIEMGDS theory for Ionospheric physics action:

Positive and negative spin-charge

Electronic valence-vibratory exchange from atomic nucleus inward-outward wavefunction of torsion of beta decay cycles, et al. as subject to

Longitudinal, scalar

Magnetic field torsion-resonance of Spinors of atomic matrices in Chrononic wavefunction L-bundle of causation from Scalar Probability-Potential Of QVS/VEV, Brane-Bulk Boundary And Knot Compliment With Solitonic Flux Action In Vortical Space And Gravitational-Pull Of Electronic And Magnetic Fields Of Dense Object of virtual particle and quasi particle perturbation from $(M,g) R^5 \gg (M,g) R^4$.

Internal-outward

Electronic valence shell exchange from quarks; subatomic nucleus inward-outward wavefunction from nucleus in magnetic matrix at $(M,g) R^4$.

Neutrino exchange from electron positive and negative interchange of valence shell in torsion of beta decay cycles and magnetic matrix of Time and Gravity functions of chrononic and graviton wave functions, at $(M,g) R^4$.

Given Plasmasphere and Magnetosphere perturbations as nonlinear dynamics, and Ionospheric planetary geophysical formations and phenomena are measured by Planck constant polytopic properties and energetics in 4-space, Riemannian constants for spherical celestial bodies, demonstrating hypothesized standing or dynamic, intra orbital Planck constant frequencies in the interstellar medium.

These can be demonstrated in Scale-invariance of Titius-Bode laws⁴³ utilizing major formula variable proofs for scale invariance; Radial velocity to proof of celestial, LSS energetic properties and anomalies; EM frequencies actions and radiation in Plasma dynamics; Rotational velocities of LSS; Orbital velocities of LSS; Angular momentum and QCD color charge of plasma radiation.

UCQAIEMGDS morphology and action of orbital correlations in algorithmic function; Gravichronic and interial UCQAIEMGDS morphology and action of orbital correlations in algorithmic function; Gravichronic and interial energy phase space events, e.g. velocity of gravity wave effects and gravitational potentials of Sun >> << Earth⁴⁴

where $\frac{f_b}{f_a} = \sqrt{1 + \frac{\Delta\Phi}{c^2}}$ [4]. Representation theory for diffeomorphism of groups in Astrophysics⁴⁵ where for $C^\infty(M)$ and $I_x(M)$ then Diff $(M)/\text{Diff}_x(M)$ can be applied to Geo magnetospheric and Ionospheric metrics⁴⁶ and in Gravitational waves from LIGO⁴⁷ over Time and Velocity of given phase-space of field. In Quantum mechanics, wave functions can be proposed to regenerate in increasing complexity from standing wave vector scale with origin in Plancks scale. The subatomic and morphology aggregates into molecular polyhedral schema via a^{48} or angular measure of Azimuthal Quantum Number⁴⁹ where $L^2\Psi = \hbar^2 l(l+1)\Psi$.

Ratios of Phi operators in electron field gradients and magnetic quadruples, and related domain frequency strength estimations of quantum decoherence of baryonic wave function collapse in aggregations of micro clustering in phase magnitude for given elements. This can be demonstrated in periodic phase of Platinum group inclusive of elemental array series, e.g. Os>Ir>Pt>Au>Hg where $F = \frac{Id}{k}$ per Kirby [5]. Bakhmetyeva, et al. have demonstrated innovative methods for radio-wave resonance scattering to detect chemical anomalies in the Ionosphere⁵⁰.

It is demonstrated for supposition these phase mechanics pertaining to ion-containment, superconducting, asymmetric gravitation, chrononic-state phase space event qualities and open-system quantum information⁵¹ hypercube or 3D cell computation engineering, e.g. Electronic Quantum Holography (EQH) ⁵² for advances in metrics of Quantum Monte Carlo⁵³ methods for study of cosmological origin and states of Ionospheric noble gases He, Ne, Ar, et al. in ionic containment and perturbation regimes. Bunzli, et al. has advanced Light-emitting cell

(LEC) technology utilizing diffraction techniques of elemental Cl and N gas across Ir lattices [6].

Ionospheric wave function transforms can be demonstrated further schematically as $|0\rangle \rightarrow (M,g) R^4$ brane domain states of electromagneto gravidynamic actions and baryonic density in any given Space-Time

node from Zero point state wherein per Planck $\epsilon = \frac{h\nu}{e^{kT} - 1}$ from Quantum Harmonic Oscillation (QHO)⁵⁴ at $\hat{H} = \frac{\hat{p}^2}{2m} + \frac{1}{2}m\omega^2 \hat{x}^2$.

UCQAIEMGDS¹⁰ can be defined as a physical method of domain transformation across scalar, longitudinal Time, torsional, spintronic gravito-electric and topological quantum fields in multiple vectors. Universal physical constants, as well as undiscovered physical laws of Inflationary physics in $(M,g) R^4$ brane and $(M,g) R^5$ as physical laws and constants that may exist beyond $(M,g) R^5$ possible concordance of Dark energy and inflation and Brane theory.

The study of the UCQAIEMGDS qualities of quantum thermodynamics is of relevance to prove the existence of generalized laws for engineerable local-scalar time domain states with quantum-informational characteristics:

Quantum potential generally has phase space event for solution here in which DBBHSHP quantum decoherence of wave function collapse is postulated as the result of $(M,g) R^5 \rightarrow |0\rangle \rightarrow (M,g) R^4$ brane fiber-bundle scalar Time bipolarity such that $S \subset M$ via orthogonal, virtual polarization phase space EM moment quantum phase space

$$\text{events } Q = \frac{\hbar^2 \nabla^2 R}{2m R}.$$

QVS/VEV origin wavefunction or flux behaves as energetic Time timeline tensor set (-CEMGD) of solitonic plasma fluid dynamics in $(M,g) R^5 \rightarrow |0\rangle \rightarrow (M,g) R^4$ brane per Neutronic beta decay model. Cosmological anomalies of this action can be demonstrated in Black holes, sprites, [7] jets, black or dark aurorae dynamics on or near-Earth [8,9]. Similarly extra planetary plasmatic meteorology, e.g. Great Storm System of Jupiter or spheromak, and jets and shear layers⁵⁵ can be formulated where in surface forces

$$\frac{d}{dt} \iiint \rho u dv = - \iint_s (\rho u \cdot ds) \mu - \iint_s p ds + \iint \rho f_{body} dv + F_{Surf} \quad \text{and in}$$

conservation of energy where $\rho \frac{Dh}{Dt} = \frac{Dp}{Dt} + \nabla \cdot (k\nabla T) + \Phi$

Darkbaryonic density walls, e.g. Darkenergy⁵⁶ clusters are proposed as causative, anti-baryonic density refractions from $|0\rangle$ M-Space coordinates and Killing vectors⁵⁷ $g(\nabla_Y, X, Z) + g(Y, \nabla_Z X) = 0$ or $\nabla_\mu X_\nu + \nabla_\nu X_\mu = 0$ and in Bogoliubov transformation⁵⁸

$$\begin{bmatrix} \hat{a} \\ \hat{b} \end{bmatrix} = \begin{bmatrix} u \hat{a} + v \hat{a}^* \\ v \hat{a} + u \hat{a}^* \end{bmatrix} = \dots = (|u|^2 - |v|^2) \begin{bmatrix} \hat{a} \\ \hat{a}^\dagger \end{bmatrix}.$$

These demonstrate anti-gravitational properties and baryonic density phase space events of positive-exchange electronic wave-functions having temporal origination in Lobachevskiiian QVS/VEV transformation as $(M,g) R^5 \rightarrow |0\rangle \rightarrow (M,g) R^4$ brane. In the Magnetosphere of the Sun and Earth, Parker has advanced hyperbolic geometry models for the Heliospheric current sheet^{58a} to advance MHD for plasma electro-magnetics and gravitics⁵⁹^{59a}.

It is proposed by the Author (Jonah Lissner) to study the problem of Time-scalar domain recursion in Manifold theory thermodynamically when examining the following dilemma to determine:

If $(M,g) R^5 =$ energetic, atemporal vacuum-state domain Space beyond QVS/VEV confluence baryonic density/anti-baryonic density generation, CEMGD and Quantum Probability/Phase Space Events have been diverged from $(M,g) R^5$ as broken symmetry of particle wavefunctions. These perturbations can point to a Manifold dimension of instanton wavefunction-dynamics in Ionospheric CEMGD. These plasma mechanics computed for algorithms [10] and a Many-body

$$\text{Schrodinger where } \left\{ -\frac{\hbar^2}{2m} \sum_i \nabla_i^2 + \sum_{i \neq j} \frac{e^2}{|r_i - r_j|} \right\} \Psi(r_1, r_2, \dots, r_N) E \Psi(r_1, r_2, \dots, r_N).$$

These geophysical actions may be realized from active galactic nuclei ^{59b} or normal galaxy accretion regimes [11] radiating radio and EM wavelength networks and regions across stellar regions [12] (IBEX 2009) [13]. Perturbed solar system ionization regimes form solar flares, propagation of UV, radio wave, and lightning-storm dynamics

actions through massive geological and atmospheric solid and pervious bodies⁶⁰ and can be measured in L-shells^{60a} where in general formula $r = L \cos^2 \lambda$.

Ergodic brane perturbations from (M,g) R^4 universe-phase space event-matrices, or string landscapes of Riemannian curvature at Confluent Hyper force Effect (Jonah Lissner, CHE_1) or Conformal Hyperfield Effect (Jonah Lissner, CHE_2, Z) approximately equivalent to Kretschmann scalar where in general formula $K = R_{abcd} R^{abcd}$. Coleman and de Lucca invoke AdS/CFT to study gravitational effects above Planckscale [14]. Brane-bulk boundary spaces, topological solitons and subsequent modular QVS/VEV confluence quantum-topological probability generation can be demonstrated in correlative effects from stellar and galactic phase currents regimes [15] on a relativistic scale. (M,g) $R^5 \rightarrow |0\rangle$ or as in Riemann-Cartan-simple Ricci scalar⁶¹ where $S = g^{ab} (\Gamma_{abc}^c - \Gamma_{ac,b}^c + \Gamma_{ab}^d \Gamma_{cd}^c - \Gamma_{ac}^d \Gamma_{bd}^c) = 2g^{ab} (\Gamma_{a[b,c]}^c + \Gamma_{ab}^d \Gamma_{c]d}^c)$.

(M,g) R^4 brane curvature $|0\rangle$ demonstrated hyperbolically where $x_0^2 - x_1^2 - \dots - x_n^2 = r^2, x_0 > 0$, and in the mapping $C_m: [0,1] \rightarrow M$. In the geospheric landscape Coleman proposed Q-ball field effects⁶² as a result of nontopological bosonic action for QVS/VEV where

$\phi_0(r) = \theta(R-r)\phi_0$ and $E = \sqrt{\frac{2U(\phi_0)}{\phi_0^2}} Q$ Selvam and Fadnavis have proposed prime-adicity in nonlinear and dissipative atmospheric systems where $X_{n+1} = X_n + \left(\frac{dX}{dt}\right)_n dt$, and in general formula

for Zeta function analysis, $\mathbf{z}/\ln \mathbf{z} \quad W^2 = \frac{2r}{\pi R} w_\wedge^2$ and $A = \frac{WR}{w_\wedge r}$ [16,17]. The density matrix can be determined therefore where

$\rho_{mn} = \sum_i p_i \langle u_m | \psi_i \rangle \langle \psi_i | u_n \rangle = \langle u_m | \hat{\rho} | u_n \rangle$. Ionospheric QVS/VEV anomalies and atmospheric plasma densities can be computed as string landscapes [18] given $P(x) = P_{prior}(x) \times P_{selection}(x)$ in AIT and p-Adic mechanics for UCM where in CP^N measure many Quantum finite automata $H_Q = H_{accept} \oplus H_{reject} \oplus H_{non-halting}$ for $H_{accept} = span\{|q\rangle : |q\rangle \in Q_{acc}\}$

and $P_{acc}: H_Q \rightarrow H_{accept}$ to states $|\psi'\rangle = U_\alpha |\psi\rangle$ where for $\mathbf{M}, \mathbf{p}, \mathbf{x}$ set $\{\mathbf{a}, \mathbf{b}\}^*$ [19]. Therefore a proposed probability model for Kolmogorov structure function $h_i(\alpha) = \min_p \{-\log P(x) : P(x) > 0, K(P) \leq \alpha\}$ where $p_{ij}^{(n)} = \Pr(X_n = j | X_0 = i)$.

In Ionospheric and Geophysical theory this is proposed for any initial generation of broken symmetry dynamism in Planck constant may have state-vector-virtual or null empirical metrics in (M,g) R^4 brane. This can be composed of present computational models of electronic exchanges with protons or neutron-nucleation, neutrinos>>>neutrons of Hydrogen.

Therefore are subsequent fermionic, bosonic, baryonic combinations of macro-baryonic density and EM microwave radiation for Hadronic dynamics and solitonic perturbations, e.g., computable heuristics of -CEMGD from planetary Ionospheric physics (c.f. AMPERE), such as Atmospheric behavior and Earthquake prediction^{42b}.

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