Elliptic Soliton Varieties and Fields

Group Laws

(C) Paris S. Miles-Brenden

November 12, 2022

Abstract

The capriciousness of instrumentation has made many tests of superconductors amenable to a variety of analyses. However what has escaped detection and inspection is the core material properties but excepting thin layers, that of nanotubes and single crystals. There have been a variety of tests with gravity by various authors, but few have really been of reliability given the relationship of what is unknown of unification in physics. Here it is demonstrated that the avenue to unification is based upon the premise of an event in the present, determinant, inferential, or predicate, unconditioned but found, unconditioned and inferential, or conditioned. That of the synthesis superconductivity provides motivates the room to explore the ideas of unification for the reason that multiple bodies are involved, it is observed on Earth, and that of the two body interaction is the gateway to codependent arising. Thus it at first is valid to begin with exploration in the arenas of chaos and order, that of the least action and geometric optics, and preliminary studies of the Dirac equation, and the Thomas precession. That relativity in this light is cast in such a manner as to explain the physical world in it's contribution through the expression of a projective identification unto equations with a linear superposition principle; it is related to the numerous studies of solitons, for which are known in magnetic systems. Thus at first we encounter the spin equation and magnetism, but soon it is obvious that something of a connection must be formed, for the theory of gravitation is the only mathematically complete theory of gravity. It is also novel, for the illumination of the magnetic to electric bridge which comes from magnetism seen as merely a recapitulation of electricity in motion. Thus relating this back to the rest frame with a displacement field is the primary aim, and it's reduction and incorporation into a Dirac equation; - for which two curvatures in gravitation and electromagnetism via spin are seen to be the solution to unification. It is necessary to prescribe a method for that of *analytical treatments* that we reduce the problem of four dimensional calculus to one and one dimension. Later we will find **explicit** declaration of the manner in which this 'newly cast' relativity is unique and necessary for the completion of the law's of physics. For now, it is understood that the algebraic properties of the space and field be met with convolution theorem's on Fourier Analysis.

Introduction

Solitons are features of a certain variety, owing to their robustness to distortion, of which convey information through the process of propogation and distribution. That in this paper we hope to bring to light the 'micro' and 'macro' features which accompany chaos, it is important to begin with the fact that a process that begins on the 'outside extremities' of chaos is the identifying process to which elucidates that of 'micro' and 'macro'. Smoke, for instance, often spreads and billow(s) into a plume, but it's residual chaos is of a scant and few type in the contrast of the 'plume' nature. That it often circulates for in a Stoke(s) theorem of roll(s) or sheave(s) and while billowing, there is a low frequency spread, and a high frequency (in space) process. By this observation, separation into the finite analysis of two ventures becomes a process by which phenomena such as Earth, Air, Fire, and Water are known to propogate and distribute, and manifest, as well as the regular motion of synchronicity, one of two natures we will examine. Thus, we focus on Synchronicity and Parsimony, that of for what is license, that of measures for which we associate with globally and locally transitively inheritable dynamical variable sets. Thus, with this in mind, what is within our control is separated from what is outside our control.

That of the equation:

$$\omega\chi = \Omega\xi \tag{1}$$

Is the synthesis of completing of what is known and unknown, for in a verified numeric result, of that of orbital for in missing co-dependent measure. Thus, the idea is that we can section from which is one co-dependently produced result, what is another within an attractor. That each frequency should therefore have a co-adjoint classical and non-classical variance, it is of the spectra we seek an answer to that chaos will produce conjugation within sight of the nature of co-dependency. Thus, that this equation encodes for the depth of weight to which either theorem tailors to that of the other. That, the assortment of differential notions therefrom produces the accumen to which what is under analytical truth holds a 'correspondence principle'.

When this equation is brought together with that of the following synthetic:

$$P(u,v) = \frac{\alpha\wp(u) + \beta\wp(v) + \eta}{\epsilon\wp(u) + \upsilon\wp(v) + \rho} \tag{2}$$

We derive that the formation of a series, can combine when it is known:

$$\kappa(\frac{\partial T}{\partial t})^2 + \rho\frac{\partial^2 T}{\partial t^2} = \sigma h_t \tag{3}$$

Of two terms to a pure harmonic in consequent at-integration, to which relates to the theorem of a Gauss equiharmonic mean of two-numbers, a quite restrictive nature by which the energy momentum equivalence between quantum mechanics and general relativity is known.

Treatesie on Fourier Analysis

Thus, the following properties are determined:

$$\int_{-\pi}^{\pi} d\xi e^{-in\xi} * e^{+im\xi'} = 2\pi\delta(\xi - \xi') * \partial_\xi \delta_{n,m}(\xi) \tag{4}$$

$$\sum_n \sum_m e^{+in\xi} * e^{-im\xi'} = \delta(\xi - \xi') * \partial_\xi \delta_{n,m}(\xi) \tag{5}$$

$$F_{n,m}(\xi') = \sum_n \sum_m e^{+in\xi} * e^{-im\xi'} f_n(\xi) f_m(\xi) \tag{6}$$

$$f_n(\xi') f_m(\xi') = \frac{1}{2\pi}\int_{-\pi}^{\pi} d\xi e^{-in\xi} * e^{+im\xi'} F_{n,m}(\xi) \tag{7}$$

Where:

$$F_{n,m}(\xi') = \partial_\xi (f_n(\xi) * f_m(\xi))\Big|_{\xi=\xi'} \tag{8}$$

Replacing:

$$f_n(\xi) \to \delta_n(\xi) \qquad or \qquad f_m(\xi) \to \delta_m(\xi) \tag{9}$$

We have:

$$F_{n,m}(\xi, \xi') = (\partial_\xi \delta_n(\xi)) * f_m(\xi)\Big|_{\xi=\xi'} + \delta_n(\xi) * \partial_\xi f_m(\xi)\Big|_{\xi=\xi'} \tag{10}$$

So:

$$\frac{1}{2\pi}\int_{-\pi}^{\pi} d\xi e^{-in\xi} * e^{+im\xi'} F_{n,m}(\xi) = \frac{1}{2\pi}\int_{-\pi}^{\pi} d\xi (\partial_{\xi'} f_n(\xi') * f_m(\xi') + f_n(\xi') * \partial_{\xi'} f_m(\xi')) \tag{11}$$

Therefore:

$$\frac{1}{2\pi}\int_{-\pi}^{\pi} d\xi e^{-in\xi} * e^{+im\xi'} F_{n,m}(\xi) = f_n(\xi') f_m(\xi') \tag{12}$$

From which (1) and (2) hold naturally by extension.

Introduction

That of the equation:

$$\sigma_i \partial_t \chi(\vec{x},t) = \sigma_j \Pi \chi(\vec{x},t) + \sigma_k \Sigma \xi(\vec{x},t) \tag{13}$$

Models a magnetic system in contact (via the *Pauli Matricies of $SU(2)$) with a nonlinear Schroediner Equation for charge and it's displacement.

We intend to utilize the Gravitational and Relativistic notion of curvature with Quantum Mechanics to resolve the problem of auxiliary field potentials in differential form.

Thus, the solution to the above, furnishes the fundamental relationship of the equation of an expectation to another for that of mutual differential relationships in the two body problem.

That of:

$$\Pi \equiv \rho \cdot \partial_{xx} + \tau \left|\chi(\vec{x},t)\right|^2 \tag{14}$$

That of:

$$\Sigma \equiv \kappa \left|\chi(\vec{x},t)\right|^2 \tag{15}$$

That of the symmetry is:

$$\partial_t \chi \times SU(2) \leftrightarrow \Pi \chi \times SU(2) \times \Sigma \xi \tag{16}$$

Then represents the uniformization of curved space to projective space... and furnishes a transformation by which the nonlinear equation may be linearized, for which there is in addition a non-linear superposition rule. That of what is one equation for which there is a first order differential furnishes from that of the operator upon Σ then, a focal potential in non-linear guidance; - the free associate of which is a second order differential and first order differential comparative to that of the operator Π, thus that of the non-linear equations balance from out of that of the ∂_t eigenvalue prescription... - a nonlinear equation with linear support.

Testing a solution of form:

$$R(u,v) = g_1 du^2 + g_2 du dv + g_3 dv^2 \tag{17}$$

Where u and v are polynomials in $\wp$:

$$u(p) = \frac{a \cdot \wp_1(\vec{x},t) + b}{c \cdot \wp_1(\vec{x},t) + d} \tag{18}$$

$$v(q) = \frac{e \cdot \wp_2(\vec{x},t) + f}{g \cdot \wp_2(\vec{x},t) + h} \tag{19}$$

With the arguments of:

$$\wp_1(\vec{x},t) = \wp(\hat{\omega} + \phi_\omega, g_{11}, g_{12}) \tag{20}$$

$$\wp_2(\vec{x},t) = \wp(\hat{\upsilon} + \phi_\upsilon, g_{21}, g_{22}) \tag{21}$$

And, that of:

$$\hat{\omega} = \omega t + \vec{k}_\omega \cdot \vec{x} \tag{22}$$

$$\hat{\upsilon} = \upsilon t + \vec{k}_\upsilon \cdot \vec{x} \tag{23}$$

The three equations for which exist; relate to that of a three part interaction between charge, spin, and mass. Thus that of the χ equals the linear summation of a series of sn, cn, and dn. That of ∂_t will produce an equation of two orders, 1 and 2. That of the Σ of, 3, 2, and 1. That of Π of 3, 2, and 1.

Thus, the idea is to relate the formations of order to that of the linear transformation in different terms... That of sn and cn therefore, for particular β (continuous) will relate to that of the cross-over term from Σ and Π. The σ affords this degree of freedom.

Sacrifices

When that of Σ and Π act, there appears to be no continuum solution. However, of the lattice solution, indeed, when we juxtapose with the addition theorem of the Jacobi Elliptic functions, - there is a way and manner to object, for that of the sn, cn and dn satisfy a law for which dilation compensates. Thus it is required to go-back and include the relativity of the terms... without which there would be no solution.

Thus it is that the finite analysis determines that only stable matter has a spinwave freely held solution, but of fixed relationships. That of the continuum is held off until later, with it's prescription at that of limit. That of the solution satisfies a similar differential equation. This is related to the Dirac equation, for the two body problem, with exchange.

This model requires that of a 'separation' in two degree's with that of χ and ξ; for that of which the discrete-evaluation affords that of combination to an exact treatment in x, y, and z... for which arguments pass to that of a linear analysis.

That of the Σ *only affords* that of squaring of a monic. That of Π participates similarly, thus that the Quantum Principle is somewhat restrictive in classification, mapping, and translation of the discrete and continuum into one another.

For the sake of consideration of valid co-dependent arising, - that of the geometry can manifest only a squaring of the individual terms, namely put, that selections of active processes are forbidden of higher order relations, but of the polynomial for that of j and k, there is an expansion.

When the period-deficit is an exact qualitative function with one of the elliptic functions; [under a squaring with a differential], the functional assignment of the numerator or denominator cancels, thus the normal of a wavefunction from the preliminary background field and it's difference from the world is as-observed.

When we take the second differential (to which there is a distribution via the chain rule), the polynomial goes up in 0, 1 or 2 powers in relation to the squaring operator, thus these together form a factor to which the polynomial raises in one power by a quadratic and canceled monic. That the polynomial goes $+1$ 'up' in power is the result of the loss therefore of a denominator.

That of the left hand side therefore is answered for in the ∂_t. That of two active degrees of freedom mean that the result is and is not predetermined; as a 'condition' can result in a 'missing attribute'; to which that of the function is assigned a new relation with it's coefficients by a third variable. Thus all arises, and all ceases with co-dependent arising.

Therefore, ξ may be any power up to the limit of what χ is. That Σ operates on it's elements ***it must be within a variable-variable overlap***; of which it is in either x, y, or z, or some combination, via the addition law with positive and negative waves. Thus when and if and only if there is coincidence is there interaction between the elements of an operator in a singular dimension. That it takes two waves of this relationship; - they are expanded, but extensive enough and sufficient to describe all of the dynamics with fixed boundary of any two particles.

The role of the term ψ is to carry the import of a polynomial as the operation of squaring and forming. That it is the 'raw' form of the quantal nature of the particle is only clear when it is addressed that this is the squaring projective identity term. Thus the logarithmic differential is equivalent to one of the terms, left bare for what is a power.

Imposition

The relationship of general relativity espoused through the equivalence principle, and what it entitles of an epistomological inheritance of classification into quantum mechanics is as follows, when it is considered that there must be some codependent relationship for causation to follow. That the two predominant theories, rationally taken, of quantum mechanics provide for the nexus of entrainment for that of cause and effect is noted; and to which relates to the arrow of knowledge and of information. It appears at first glance these would follow from and suite one another; however it is known to the Author that these relate oppositely given the relationship of inheritance as in relation to law.

Thus it is adapted of the earlier equation that the operators Π and Σ are open to speculation by that which leads to the predicate, the determinant, and the inferential of arrows in logic. To explain logic is therefore a semiadjacent relation as to law. That law(s) of physical origin in phenomena may or may not have a solid foundation, it is found with many that there are corruptions of the lattice work through which erroneous beliefs can enter. It is not the suggestion of the Author to however avoid these inaccuracies, but to incorporate that these are strictly ad-addendum to modern material and effort.

That of gravitation furnishes for the system described a nonlinearity of which proves to be important... for we know from a primitive thought experiment that the term that enter's represents the covariance of red or blue shifted quantal state; and to which the acceleration is noticably larger or smaller in commutation. This term enters as:

$$\kappa = \gamma^{\mu}(\hbar\Gamma_{\mu} + eA_{\mu}) \tag{24}$$

Thus, the updated quantities read:

$$\Pi_1 \equiv \alpha\rho \cdot \Box + \alpha\kappa\,|\chi(\vec{x},t)|^2 \tag{25}$$

$$\Sigma_1 \equiv \beta\kappa\,|\chi(\vec{x},t)|^2 \tag{26}$$

$$\Pi_2 \equiv \alpha\rho \cdot \Box + \alpha\kappa\,|\xi(\vec{x},t)|^2 \tag{27}$$

$$\Sigma_2 \equiv \beta\kappa\,|\xi(\vec{x},t)|^2 \tag{28}$$

Now that we have collected the 'facet' of gravitation, the 'Master Equation's' become:

$$\sigma_i\partial_t\chi(\vec{x},t) = \sigma_j\Pi_1\chi(\vec{x},t) + \sigma_k\Sigma_1\xi(\vec{x},t) \tag{29}$$

$$\sigma_i\partial_t\xi(\vec{x},t) = \sigma_j\Pi_2\xi(\vec{x},t) + \sigma_k\Sigma_2\chi(\vec{x},t) \tag{30}$$

If we were only to include the Berry's phase to the Dirac equation it would result in an equation involving no $\Box$ operator, - thus that of the Dirac equation is unamenable to this description, -

but for that of the single particle when it is entitled that the *spin* adopt a portion of relativistic Berry's phase. Thus this is the connecting point where geometry and quantum mechanics join. It is required to meet Schroedinger's equation that the $\Box$ is included with a squaring operator.

Thus that of the two equations are the 'proper time' of that of the embedding of electrons in space and time among two particles. That they model superconductivity and spinwaves in lattices then is a result of displacement.

Thus instead of taking the Berry's phase as an extra contribution; - it is the result of the particle electromagnetic mass, to which is the 'proper' world-view of particle and field.

The profound result is that the operations of Π and Σ (for) ξ and χ produce that of degeneracy with consequence, - that the electromagnetic field energy density and particle exchange state energy density with coulombic interaction - exemplify a reciprocation with gravitation under relative considerations. These lay the foundation of a Spontaneous Symmetry Breaking of relativistic, quantum mechanical, and electromagnetic origin.

The actual symmetry is:

$$SO(3,1) \times SU(2) \times U(1) \tag{31}$$

Closure on The Group

The defining relationship is that:

$$\sigma_i f_\theta^2 + \sigma_j f_{\theta\theta} = \sigma_k g_\theta \tag{32}$$

Has the first and second derivative with respect to t:

$$\frac{dh}{dt} = \frac{a\frac{df}{dt}}{(cf(t)+d)} + \frac{(af(t)+b)c\frac{df}{dt}}{(cf(t)+d)^2} \tag{33}$$

$$\frac{d^2h}{dt^2} = \frac{a\frac{d^2f}{dt^2}}{(cf(t)+d)} + \frac{2c^2(af(t)+b)(\frac{df}{dt})^2}{(cf(t)+d)^3} - \frac{2ac(\frac{df}{dt})^2}{(cf(t)+d)^2} - \frac{c(af(t)+b)\frac{d^2f}{dt^2}}{(cf(t)+d)^2} \tag{34}$$

It holds that the connecting relationship of 26 is satisfied by the interrelationship of the model relationship 27, thus that the pre-factoring term 'ascends' the given derivative to the place of a square.

These results reduce to:

$$\frac{dh}{dt} = \frac{a\frac{d\wp}{dt}}{(c\wp+d)} + \frac{c(a\wp+b)\frac{d\wp}{dt}}{(c\wp+d)^2} \tag{35}$$

$$\frac{d^2h}{dt^2} = \frac{a\frac{d^2\wp}{dt^2}}{(c\wp+d)} + \frac{2c^2(a\wp+b)(\frac{d\wp}{dt})^2}{(c\wp+d)^3} - \frac{2ac(\frac{d\wp}{dt})^2}{(c\wp+d)^2} + \frac{c(a\wp+b)\frac{d^2\wp}{dt^2}}{(c\wp+d)^2} \tag{36}$$

Which further reduce to:

$$\frac{dh}{dt} = \frac{a\frac{d\wp}{dt}}{(c\wp+d)} + \frac{c(a\wp+b)\frac{d\wp}{dt}}{(c\wp+d)^2} \tag{37}$$

Thus the defining relationship is if the following superposition holds:

$$\sigma_i(\alpha f_t + \beta g_t)^2 + \sigma_j(f_{tt} + g_{tt}) = \sigma_k h_t \tag{38}$$

We have:

$$\partial_t(u(p) - v(p)) = \frac{\rho_1 \wp^{'}(u)}{\wp(u) + \tau_1} + \frac{\rho_2 \wp^{'}(v)}{\wp(v) + \tau_2} \tag{39}$$

And:

$$\partial_{tt}(u(p) - v(p)) = \lambda_1 \wp(u) - \lambda_2 \wp(v) \tag{40}$$

And:

$$\sigma_{i,j,k} = \partial_t \log(\rho_{i,j,k} \cdot \wp(u+v) + \lambda_{i,j,k}) \tag{41}$$

(26) Becomes when we stipulate that a solution with another implies a new solution:

$$\sigma_i(\frac{\wp^{'}(u) - \wp^{'}(v)}{\wp(u) - \wp(v)})^2 - \sigma_j(\wp(u) + \wp(v)) = S(\lambda) = \sigma_k h_t \tag{42}$$

Thus the form of u and v implies (when this is left from the denomination of the $\wp^2$ prefactorization; what is a given at the imperative of a subtraction on the term for which there is a squared difference quotient. This squared difference quotient with the remaining terms produces a newly suited solution, which is part of what we seek. It is then known that:

$$S(\lambda) = \wp(u+v) \tag{43}$$

With:

$$h_t = \frac{\wp^{'}(u)\wp^{'}(v)}{\wp(u)\wp(v)} \tag{44}$$

I have therefore discovered 'something else' - than I thought I would. That h_t is a differential function of which is the differential of a term $\wp(u+v)$, there is room for speculation. Thus a third variable is included of what I had believed were-two. That the third element is the solution to ξ and of two solutions in χ, it is a braiding of nomeclatures. Thus, that of completing the square alludes to a new-solution,... that of ξ in relation to χ, - thus that the modular step-wise and modular step-wise is established in two-steps.

When going to the quaternions, the mathematics becomes tractable; - namely that the square modulus of the sphere becomes potentiated. Only this can suite the depiction of a photograph of a photograph of a sphere held up to a sphere. That there is referential known in reality, it is the departure to which the κ and β become cubics of the $\wp$, - to which the group law is satisfied.

The consideration of a 'sphere' or 'hyperbola' are therefore restrictions to which become embodied by that of the juxtaposition of elements, - that of the 'missing' playing a role analogous to a 'buffer' whereby that of 'hyperbolic' or 'spherical' geometry are-known. The embedding of a spherical space, for that of a straight line synthesis therefore invokes new solutions of which *precess* as the gestalt motion because of the difference of the scaling of space and time. Thus we require:

$$\kappa \sim (\wp(w) + \epsilon) \tag{45}$$

This group is closed whenever two periods in summation are equivalent to two periods in summation.

Asymptote

That of the *logarithmic derivative* with two-terms is the 'missing term' to which representationally assures that:

$$\sigma\chi = \zeta^{\mu}\mathcal{O}_{\mu} \tag{46}$$

Thus that the commutator in-completing the square; addresses the same-instruction at that which brings form and composition back into form or composition. Thus, it is the connecting precept of 'space'; - to which addresses the imperative of an actual distal activity. Thus of the transition, it is the actual of a potential to which abridges the wave-structure; - that of a closed group via the doublet.

$$\chi = [A, B] \tag{47}$$

$$\mathcal{O}_\mu = \partial_\mu \log \gamma^\nu \tag{48}$$

Thus the presence of a non-zero commutator indicates an uncurved or curved space; and the identity of:

$$\zeta^\mu = 0 \tag{49}$$

$$\zeta^\mu \neq 0 \tag{50}$$

Represents the **equivalence principle**.

Thus, the non-zero-sum of a 'protected state' is a prescription at curvature with spin and uncertainty relationship, - that either's uniformization to a limitation of physical law imposes that:

$$\Delta PE = \Delta KE \leq 0 \tag{51}$$

Equation (34) represents the equivalence of forms of **inertia**, thus that quantum mechanical inertia is equivalent to gravitational inertia.

New Approaches

Concerning the differential equation:

$$\sigma_i \partial_t \xi = \sigma_j \Pi \xi + \sigma_k \Sigma \chi \tag{52}$$

We serve to recapitulate a series like:

$$(...G \circ G \circ G \circ ...)\omega = \partial_t \omega \tag{53}$$

To epitomize the *collective* behaviors of the system.

Thus,

$$\sigma_? = \{P, z\} \tag{54}$$

Where:

$$\Pi, \Sigma = \mu T^{-1} (\frac{\partial P}{\partial t})^2 T + S^{-1} \kappa \frac{\partial^2 P}{\partial t^2} S \tag{55}$$

Thus,

$$\log(\mu T^{-1} T) \sim \log(A) \tag{56}$$

Where:

$$A \sim \partial_t \omega \tag{57}$$

Thus, that:

$$A \sim (\alpha P + \beta)(\eta P + \rho) \tag{58}$$

And, the differential form of σ matches for that of Π and Σ that of the term(s) for A in a perturbative series in space time and quantum.

Determination by Reduction

The commutator of the prior section:

$$\chi = \wp(w) \tag{59}$$

With:

$$\sigma_k h_t = \wp(w) \tag{60}$$

And:

$$\zeta^\mu = \wp(w) \tag{61}$$

Therefore satisfies the functional relationship wherein the f and g are $\wp(u)$ and $\wp(v)$, thus that of a *separable* teir of solution.

This is nothing but a *superposition* principle for in the equated parts of the problem, with the differential equation and the integration function. Thus with a commutator or anticommutator; we are afforded a freedom of transparent and abbute union at the given presented solutions.

Thus the solution in the sphere of commutation imparts a secondary solution, it's parts recomposed into a difference of algebra, geometries, and selection rules, thus explaining temperature.

Substitution

Thus we hypothesize a quantity of form:

$$V_{l,k}(\xi) = f_l(\xi)f_k(\xi) = (\alpha_l\xi + \tau_l)(\beta_k\xi + \iota_k) \tag{62}$$

To find that of the following statement as-an-ansatz:

$$V = Z_{l,k}(\xi^{'})I_{0,T}e^{+\frac{V_T}{\tau_T}} + Z_{l,k}(\xi^{'})I_{0,D}(1 - e^{-\frac{V_D}{\tau_D}}) + r \tag{63}$$

Thus:

$$F_{l,k}(\xi^{'}) = \beta_k(\alpha_l\xi^{'} + \tau_l) + \alpha_l(\beta_k\xi^{'} + \iota_k) \tag{64}$$

So:

$$V = Z_{l,k}(\xi^{'})F_{l,k}(\xi^{'}) = Z_{l,k}(\xi^{'})(2\alpha_l\beta_k\xi^{'} + (\beta_k\tau_l + \alpha_l\iota_k)) \tag{65}$$

But:

$$\frac{V_T}{V_D} = \lambda\frac{\tau_T}{\tau_D} \tag{66}$$

So that their curvatures are within a ratio of λ... then with an imaginary impedance we have:

$$\lambda\tau\log(\frac{V - r}{2I_0Z_{l,k}(\xi')}) = V \tag{67}$$

Under the assumption that $V - r$ is matched in linear term with that of the first part of ZF we have:

$$Z_{l,k}(\xi^{'})(2\alpha_l\beta_k\xi^{'}) = r \tag{68}$$

$$Z_{l,k}(\xi^{'})(\beta_k\tau_l + \alpha_l\iota_k) = V - r \tag{69}$$

So that:

$$\lambda\tau\log(\frac{\beta_k\tau_l + \alpha_l\iota_k}{2I_0}) = V \tag{70}$$

Application of the ansatz reveals:

$$\frac{\beta_k\tau_l + \alpha_l\iota_k}{2I_0} = \frac{\beta_k\tau_l + \alpha_l\iota_k}{2I_0} + (1 + \frac{2I_0}{\beta_k\tau_l + \alpha_l\iota_k}) \tag{71}$$

Or:

$$1+\frac{2I_0}{\beta_k\tau_l+\alpha_l\iota_k}=0 \tag{72}$$

So:

$$\beta_k\tau_l+\alpha_l\iota_k=-2I_0 \tag{73}$$

With the result via earlier substitution that:

$$V=\eta\psi(\vec{k}\cdot\vec{x}-\omega\cdot t) \tag{74}$$

With:

$$\eta=-i\lambda\tau \tag{75}$$

Such that gain is unity and we have saturation in the quadratic ZF; and such that the wave is orchestrated equivalently between (and of) transistor and diode. Thus $V=IR$ is resolved via the original ansatz; with R a linear function of the harmonic pole; that of I a function of the pole, and V a quadratic. When these details are worked out it is found the transformation produces a first differential in time for IR and in space with the two of transistor and diode; and then in space with the capacitor and inductor r; and in the squared rendition for capacitor and inductor and a separable V of quadratic nature... Thus there are two displacement's in the system.

Substitution into earlier equations with the provided ansatz at the operational amplifier reveals:

$$R\frac{\partial}{\partial t}V_{l,k}(\xi^{'})=V_{l,k}(\xi^{'})+r \tag{76}$$

With:

$$r=RLI_1(\vec{x},t)-RMI_2(\vec{x},t)+RC\frac{\partial}{\partial t}V_{1,2}+V_{l,k}(\xi^{'})F_{l,k}(\xi^{'}) \tag{77}$$

But the inductive element for of current differential to voltage difference may be written as:

$$\frac{\partial}{\partial t}I_{1,2}\leftrightarrow v\frac{\partial}{\partial x}\psi_{1,2}(\vec{x},t) \tag{78}$$

Therefore, if:

$$v^2R^2LM+RC=\rho \tag{79}$$

We get:

$$-i\tau R\frac{\partial}{\partial t}\psi_{1,2}(\vec{x},t)=R\kappa^2\frac{\partial^2}{\partial x^2}\psi_{2,1}(\vec{x},t)+RC\frac{\partial}{\partial t}\psi_{1,2}(\vec{x},t)+V_{l,k}(\xi^{'})F_{l,k}(\xi^{'}) \tag{80}$$

With τ, and ι in unit's of voltage **[v]** and α and β, unitless... ξ in units of voltage **[v]**. We now utilize F for that of the differential of the impedance comparative to the voltage; it is parallel; thus the impedance is indeed $\frac{F}{R}$ when treated as a voltage divider.

$$i\frac{\partial}{\partial t}\psi_1(\vec{x},t)=\eta\frac{\partial^2}{\partial x^2}\psi_2(\vec{x},t)-\rho\left|\psi_1(\vec{x},t)\right|^2\psi_2(\vec{x},t) \tag{81}$$

$$i\frac{\partial}{\partial t}\psi_2(\vec{x},t)=\eta\frac{\partial^2}{\partial x^2}\psi_1(\vec{x},t)-\rho\left|\psi_2(\vec{x},t)\right|^2\psi_1(\vec{x},t) \tag{82}$$

And with the *resulting* constraints:

$$\eta=\frac{\omega^2LM}{R(\tau+\omega C)}\qquad\rho=\frac{(\alpha_l\beta_k)^2}{2I_0} \tag{83}$$

Thus the matrix-field equation is:

$$i\partial_t \Psi(\vec{x},t) = \sigma_x(\eta D_{xx} + \rho\,|\Psi(\vec{x},t)|^2)\Psi(\vec{x},t) \tag{84}$$

In conclusion, as the term with η and of ρ convey ***sources*** in which there is a juxtaposition of particle 1 for 2 and 2 for 1; it is true that the Dirac equation fold's in-reverse, in relation to relativistic factors of γ_0 in any antiferromagnetic material which is doped. This result, exposes the η_0, here encoded in ρ, to which is the guiding attraction as a consequence of hole and spin **duality**. As a result of reversal in the non-linear Shroedinger equation of $1 \leftrightarrow 2$; that of the inertial response to A_μ in D_μ is reversed ***in response to*** $\eta_0^{-1} \to \infty$ as $|r_1 - r_2| \to 0$.

Necessary Prerequisites and Question

Beginning with the equations:

$$d\rho_k = d\xi_k + \alpha_k^{ij}\xi_i\xi_j \tag{85}$$

And:

$$d\eta_k = \beta_k^{ij}\xi_i\xi_j \tag{86}$$

We seek a solution that separates an operator like:

$$\kappa\frac{\partial\theta}{\partial t}\frac{\partial\theta}{\partial x} + \tau\frac{\partial}{\partial y}\frac{\partial\theta}{\partial t} = h_{txy} \tag{87}$$

In that of a 'group' dealing with:

$$\begin{pmatrix} \wp(u)_{(2,0)} \\ \wp(v)_{(2,1)} \end{pmatrix} = \begin{pmatrix} \cos(\theta) & -\sin(\phi) \\ \sin(\phi) & \cos(\theta) \end{pmatrix} \begin{pmatrix} \wp(u)_{(1,0)} \\ \wp(v)_{(1,1)} \end{pmatrix} + l\Lambda \tag{88}$$

We intend to solve the general differential equation [above], but for that of a group of:

$$\{\wp_{i,j}\ldots\} \tag{89}$$

What is noted is that a Weierstrass-P function is associated to a Polynomial-curve, - then that when two polynomials are added, their coefficient(s) may shift, thus, forming a group of which relates the inwardly produced P functions with one-another.

Ansatz

We will add various materials to [complete] the paper as-versed, - then that it is a new project, for in that of the typical and atypical nature of the differential equations dealt with. A semi-instructive methodology of writing will be entertained,... For now, it suffices to indicate the method of solution.

The equation with that of GR and the EP with QM is dealt with for the sake of analysis as the following, noting:

$$\{z,\wp(z)\}(\wp')^2 \sim^{\cdot} \wp(z) \tag{90}$$

And:

$$\{z,\wp(z)\}(\wp'') \sim^{\cdot} \eta \tag{91}$$

Thus the group defined by the rule:

$$(\alpha\wp(z)+\beta)(\kappa\wp(z)+\tau)(\{z,\wp(z)\}(\wp^{'})^2+\{z,\wp(z)\}(\wp^{''}))\sim^{\cdot}(\wp^{'})^2 \tag{92}$$

Thus that:

$$\Omega\sim^{\cdot}(\{z,\wp(z)\}(\wp^{'})^2,\{z,\wp(z)\}(\wp^{''}),(\alpha\wp(z)+\beta),(\kappa\wp(z)+\tau),(\eta\wp(z)+\rho)) \tag{93}$$

Is a closed group.

Invariance

Thus, we can freely relate to adding a logarithmic differential of $\wp$.... this curvature is the manifold diffeomorphism invariance.

Introduction to Spinwaves

The conventional approach to spinwaves is the continuum approximation; for which some simple solutions for bi-partite lattices are known; with the inclusion of discrete systems; for which the continuum approximation is destined for failure in the strong coupling limit. Departures from spin trajectories make the approximation one for which we cannot satisfy the conclusion that the coupling is stronger than the given spacing parameter. When a non-linear analysis is instead supported by that of tension and torsion as parameters; the solutions manifest as elliptical in nature; to which there can be found exact discrete solutions. These exact discrete solutions interpolate between the discrete periodic lattices and that of the continuum; and promote the introduction of non-linear quasi-solitons; to which there is periodic behavior. The understanding of a discrete non-linear analysis of superposition and interaction is found to be of necessity in the finding of a solution to therefore many systems of interest; including the bi-partite lattice and that of the Ising model to describe crystals.

Discrete Ising Model

We begin with the discrete ising model; to which solutions have not aforementioned been found; and it is to that which we find at odds the characteristic length scale; we will not go into a proof that the strong coupling limit defies the discrete to continuum translation; but instead impose boundary conditions on the model; to which there appears manifest a singular nature to the solutions; of which the algrebraic functions translate into transcendental functions of elliptic variety in the one-dimensional system with isotropy:

$$\frac{\partial\vec{S}_j(x,t)}{\partial t}=J\vec{S}_j(x,t)\times(\vec{S}_{j-1}(x,t)+\vec{S}_{j+1}(x,t)) \qquad \forall j \tag{94}$$

One can go to the continuum; but we devote our time to finding discrete elliptical solutions; for the sake that the strong coupling limit fails with the exchange constant when departures from linearity manifest.
Testing the ansatz:

$$\vec{S}_j(x,t)=\eta(x,t)(\alpha_j sn(\hat{\omega}(x,t),m),\beta_j cn(\hat{\omega}(x,t),m),\gamma_j dn(\hat{\omega}(x,t),m)) \tag{95}$$

With:

$$m=\frac{v^2}{c^2} \qquad \hat{\omega}(x,t)=E[m]\frac{2}{\pi}(x-vt)-\phi_j \tag{96}$$

Time dilation imposes a nonlinear factor to which regularizes tension and torsion; and admits a phase which can comparably (and discretely) change from lattice site to lattice site.

1 Imposition of Relativity

We know from the differential equation governing the elliptic functions:

$$(\frac{dy}{dt})^2 = (1-y^2)(1-k^2y^2) \tag{97}$$

That the differential of the time dilation squared is the integral of a comparative Lorentz factor for the two sublattices of spin in the bi-partite lattice; to which $(\frac{dy}{dt})^2 = \eta(x,t)$. Which is to that of the differential equation the source of the left hand side; and which is the local contraction of Lorentz factors; to which the differential equation (1) becomes:

$$\frac{\partial \vec{S}_j(x,t)}{\partial t} = (\partial_t \log \eta)\vec{S}_j(x,t) + (\hat{\alpha}_j cn(\hat{\omega})dn(\hat{\omega}), \hat{\beta}_j sn(\hat{\omega})dn(\hat{\omega}), \hat{\gamma}_j sn(\hat{\omega})cn(\hat{\omega})) \tag{98}$$

Where:

$$\hat{\alpha}_j = -E[m]\frac{2}{\pi}v\alpha_j \tag{99}$$

$$\hat{\beta}_j = E[m]\frac{2}{\pi}v\beta_j \tag{100}$$

$$\hat{\gamma}_j = -E[m]\frac{2}{\pi}mv\gamma_j \tag{101}$$

Where use of the Jacobi summation formulas is used:

$$cn(x+y) = \frac{cn(x)cn(y) - sn(x)sn(y)dn(x)dn(y)}{1-k^2sn^2(x)sn^2(y)} \to 2\frac{cn(x)cn(\phi_\Delta)}{1-k^2sn^2(x)sn^2(\phi_\Delta)} \tag{102}$$

$$sn(x+y) = \frac{sn(x)cn(y)dn(y) + sn(y)cn(x)dn(x)}{1-k^2sn^2(x)sn^2(y)} \to 2\frac{sn(x)cn(\phi_\Delta)dn(\phi_\Delta)}{1-k^2sn^2(x)sn^2(\phi_\Delta)} \tag{103}$$

$$dn(x+y) = \frac{dn(x)dn(y) - k^2sn(x)sn(y)cn(x)cn(y)}{1-k^2sn^2(x)sn^2(y)} \to 2\frac{dn(x)dn(\phi_\Delta)}{1-k^2sn^2(x)sn^2(\phi_\Delta)} \tag{104}$$

Where all odd term's cancel. Describing a phase by $\phi_\Delta = \phi_j - \phi_{j-1}$:

$$\hat{\alpha}_j = -(\partial_t \log \eta)\frac{sn(\hat{\omega})}{cn(\hat{\omega})dn(\hat{\omega})} + 2J\beta_j\gamma_j\frac{\delta_1}{\rho(x,t)} \tag{105}$$

$$\hat{\beta}_j = -(\partial_t \log \eta)\frac{cn(\hat{\omega})}{sn(\hat{\omega})dn(\hat{\omega})} + 2J\alpha_j\gamma_j\frac{\delta_2}{\rho(x,t)} \tag{106}$$

$$\hat{\gamma}_j = -(\partial_t \log \eta)\frac{dn(\hat{\omega})}{sn(\hat{\omega})cn(\hat{\omega})} + 2J\alpha_j\beta_j\frac{\delta_3}{\rho(x,t)} \tag{107}$$

Where:

$$\delta_1 = 2cn(\phi_\Delta, m) \tag{108}$$

$$\delta_2 = 2cn(\phi_\Delta, m)dn(\phi_\Delta, m) \tag{109}$$

$$\delta_3 = 2dn(\phi_\Delta, m) \tag{110}$$

And where $\eta = v$ has been cancelled by that of the denominator in the addition formulas; and:

$$\rho(x,t) = 1 - msn^2(x)sn^2(\phi_\Delta) \tag{111}$$

And:

$$\eta(x,t) = \iota nd(\hat{\omega}) \tag{112}$$

Leading to:

$$-(\partial_t \log \eta)\frac{sn(\hat{\omega})}{cn(\hat{\omega})dn(\hat{\omega})} = -vE[m]\frac{2}{\pi}\iota m dn(\hat{\omega})sn(\hat{\omega})cn(\hat{\omega})\frac{sn(\hat{\omega})}{cn(\hat{\omega})dn(\hat{\omega})} = -vE[m]\frac{2}{\pi}\iota m sn(\hat{\omega})^2 \tag{113}$$

$$-(\partial_t \log \eta)\frac{cn(\hat{\omega})}{sn(\hat{\omega})dn(\hat{\omega})} = -vE[m]\frac{2}{\pi}\iota m dn(\hat{\omega})sn(\hat{\omega})cn(\hat{\omega})\frac{cn(\hat{\omega})}{sn(\hat{\omega})dn(\hat{\omega})} = -vE[m]\frac{2}{\pi}\iota m cn(\hat{\omega})^2 \tag{114}$$

$$-(\partial_t \log \eta)\frac{dn(\hat{\omega})}{sn(\hat{\omega})cn(\hat{\omega})} = -vE[m]\frac{2}{\pi}\iota m dn(\hat{\omega})sn(\hat{\omega})cn(\hat{\omega})\frac{dn(\hat{\omega})}{sn(\hat{\omega})cn(\hat{\omega})} = -vE[m]\frac{2}{\pi}\iota m dn(\hat{\omega})^2 \tag{115}$$

And:

$$-E[m]\frac{2}{\pi}v\alpha_j(1 - msn^2(\hat{\omega})sn^2(\phi_\Delta)) = -vE[m]\frac{2}{\pi}\iota m(1 - msn^2(\hat{\omega})sn^2(\phi_\Delta))sn(\hat{\omega})^2 + 2J\beta_j\gamma_j\delta_1 \tag{116}$$

$$E[m]\frac{2}{\pi}v\beta_j(1 - msn^2(\hat{\omega})sn^2(\phi_\Delta)) = -vE[m]\frac{2}{\pi}\iota m(1 - msn^2(\hat{\omega})sn^2(\phi_\Delta))cn(\hat{\omega})^2 + 2J\alpha_j\gamma_j\delta_2 \tag{117}$$

$$-E[m]\frac{2}{\pi}mv\gamma_j(1 - msn^2(\hat{\omega})sn^2(\phi_\Delta)) = -vE[m]\frac{2}{\pi}\iota m(1 - msn^2(\hat{\omega})sn^2(\phi_\Delta))dn(\hat{\omega})^2 + 2J\alpha_j\beta_j\delta_3 \tag{118}$$

Which resolves to:

$$\alpha_j f^2\lambda_s = -2\iota f^4\lambda_s + \mu\beta_j\gamma_j\lambda_c \tag{119}$$

$$\beta_j f^2\lambda_s = -2\frac{1}{m}\iota + 2\iota f^2(1+\lambda_s) + 2\iota f^4\lambda_s + \mu\alpha_j\gamma_j\lambda_{cd} \tag{120}$$

$$\gamma_j f^2\lambda_s = -2\iota f^4\lambda_s - \mu\alpha_j\beta_j)\lambda_d \tag{121}$$

$$\mu = \frac{J\pi}{vm^2E[m]} \tag{122}$$

Under reduction; and solving the system:

$$g\frac{\alpha_j}{2\iota} = g^2 - \frac{\mu\beta_j\gamma_j\lambda_c}{2\iota\lambda_s} \tag{123}$$

$$g\frac{\beta_j}{2\iota} = g^2 + g\frac{(1+\lambda_s)}{\lambda_s} + \frac{\mu\alpha_j\gamma_j\lambda_{cd}}{2\iota\lambda_s} - \frac{1}{m\lambda_s} \tag{124}$$

$$-g\frac{\gamma_j}{2\iota} = g^2 + \frac{\mu\alpha_j\beta_j\lambda_d}{2\iota\lambda_s} \tag{125}$$

Supercondictivity Origins

The magnetic only solution (above) indicates that a renormalization occurs at the magnetic only fixed point in the flow of the theory. Second to this; is the potentiation of inclusion of local to local terms of an electromagnetic variety. The solution given by that of the (above) indicates that when we uniformize and unitarily procure from the electromagnetic solution to a dual in the vector field based contingently around magnetic and electric solutions; that this precipitates electromagnetic symmetry breaking; by that which is a separable contribution to the spin wave geodesic equation. There are only two elements of the theory:

1.) Renormalization to electric only and magnetic only solutions; precipitates a violation in the superposition of the Dirac Electron Equation to Pauli Exclusion Principle locality bridge with logarithmic wavelength compensation of geodesic phase of spin-waves to electron mass and time decouopling from (2).

2.) Renormalization of the local to global to local theory of the uncertainty relation that derives of certainty in relation to a physical and acausal disconnective of free determinism precipitates superposition to spontaneous symmetry breaking of the quantum states in light and mass below a threshold set wavelength of light (Compton) wavelength of spinwave to charge hole.

In continuance; the result is spin charge separation from mass and inertia with symmetry breaking of electromagnetism from gravity precipitating a decoupling of matter from light and wavelengths of De'Bye from Comptom to which ensure universality of an inductive conditional in that of spin and charge (or hole) delocalization-localization phenomenon in a unitary lowered energy potential of genus one beyond the wavelength of repulsion; asympototic to a coupling below the threshold of inward or outward electron pair pair global to local pressure. It is that the renormalization in the ultra-small scale goes to infinity on that of the electric distance when it holds that the Debye wavelength is below the Compton; to which the electric field re-normalizes to zero strength of repulsion; and magnetic symmetry insists a universally finite (unit 1) attraction.

This is a result of relativity participating in the local limit of co-inertial utility in the argument of motion-free inductive transformation to a mirrored re-action of infinite renormalization of c in the limit of approach (null coincidence informs/ces that of asymptotic freedom); for in that of $\frac{v}{c}$ the logarithmic regularization goes to $+\infty$ to which the electric field and effective distance go to eternity. Thus the two objects of electron hole and electron opposite hole form a polariton and are freed to attract at a charge of $2e^{+}$. The charge is reversed for in that of the mirror effective distance of a 'hypothetical' electron at infinity; and one super-imposed at some (hypothetical) finite large distance to which are polarized outward-inward. The laws of physics reverse.

This is simply the result of meeting the uncertainty relationship as in that of the outward-inward space of two normalizations producing an infinitely extended re-action when slower than the speed of light; the matter cannot keep up with the charge state; and so matter is in suspense and blocked by light; to which the relativity theory finds support to be a re-action deduced from the limit of c; the superconductor; at rest; participates in a phase in **reduction** by algebraically a blocking of light from reaching the first occassioned next nearest neighbor; but not! that of the next-nearest-neighbor. As a consequence uncertainty folds.

The re-action is that relativity is reversed; to the projection meeting it's annhilation in that of a withheld electromagnetic interaction of reversed variety at short distance. This is the same as action and re-action; which are of course parallels. As a consequence light find's it's reduction in a similar statement to relativity. Durations in the infinitely small scale d are reduced in measure under a reaction to which they concourse to being larger contributions (at small renormalization scale) to that of the integral $\int$; of which is made **smaller**.

This does in no way refute Einstein; but proclaims he was correct; as in that of duration becoming larger; under a small scale shrinking to zero; the curvature to which is the differential dominates; and the local term refutes the large over similar scales. After all; that of two closely placed iso-symmetric pell's do not balance but to zero scale; the uniformity of the debate is that a reduction upon c is self-consistent with the renormalization. This alternatively can be seen as the limit (re-inforced by conductance going to infinity with pairs produced by symmetry breaking) of $c \to 0$ comparative to a phase delay. Attraction is the natural result of a phase delay in that of the Green's Function; the first illustration in comparison with BCS theory. This is that the charges may avoid one another in time by being in a different position in space. The inverse (reversed) limitation is that of either side of a mirror; to which they are eliminably precluded for in light of an immediate nearest neighbor; that of the second nearest neighbor via superexchange is at a co-local distance closer in phase space. Hence it is predicted that ionizing a material produces hypervalence.* When locally isotropic groups segregate below a wavelength to which spatial segregation is superior to what is time as an anferior limit of the laws of physics a spontaneous symmetry breaking is produced to which produces the requisite preliminaries for superconductivity.

Neutrals

That of the H_n and H_m provide a basis by which the SU(2) cover of the Cauchy-Riemann equations produces from two-exponential (Sine,Cosine) - what is a group addendum to the $\wp$ curves,... an argument to which the ***additional*** argument δ, produces an eigenspace that violates diffeomorphism invariance. That the $\wp$ is in a bijective with the [Sine,Cosine] ***renders isotropic*** the counsel at-space. That of miniature relationships therefore encode the grand-gestalt, while that of the governance of the overarching result provides for an **envelope**. That of the $\wp$ is therefore interlinked with the [Sine, Cosine] of it's group-monad to which the group attains a quasiperiodicity. Thus, the $\wp$ is in a $\leftrightarrow$ with (Sine,Cosine), *encoded of monomials in the H_n and H_m*. Thus we see that the $\delta(\vec{x})$ is ***split*** by what is a diffeomorphism invariance breaking.