

# **<sup>1</sup>Exploration of the Fundamentals of Oncogenesis: A Unified Field Approach to Aetiology**

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Oncology, a complex multifactor etiology has eluded all-inclusive prevention and remission by a lack of comprehensive understanding of a singular causation at the most fundamental physical level. Current physiological models address the myriad *branches* but not the global biophysical *root* of aetiology. Current thinking claims that underlying quantum field dynamics are the ‘basement of reality’. Einstein emphatically stated comparably to his General Relativity, that ‘it was merely a convenient stopping place on the road to a more unified theory’. We propose that oncogenesis (for the several hundred tabulated cancers) occurs from one single causative factor at the root of the three considered branches of causation. Physical science (which includes chemistry, biochemistry or biophysics) has evolved from 3D Newtonian classical mechanics to the current vogue (albeit experimentally verified) of 4D quantum mechanics. Empirical access to the 3<sup>rd</sup> regime of unified field mechanics (UFM) with inherent additional degrees of freedom is imminent. In regards to that perspective, it is proposed, that a ‘telergic stressor’ mediated by noetic action of the unified field produces conformal change in protein molecules that can cascade into a system of oncogenic specificity. Although the action of this fundamental stressor appears extracurricular to the current investiture on the ‘branches of causation’: Environmental (radiation, chemical), genetic/epigenetic, or psychosomatic; this paradigm shift is in process as threshold violations of QED (Quantum Electrodynamics) are occurring in more than one arena. The epigenome is involved in regulating gene expression, development, tissue differentiation, and suppression of transposable elements. Unlike the underlying genome which is largely static within an individual, the epigenome can be dynamically altered by external conditions. Numerous mutations occur on the pathway to the onset of a cancer; we quantify a single Unified Field noetic effect that applies to the aetiology of all cancer.

*Keywords:* Casimir effect, Catastrophe theory, Noetic effect, Oncogenesis, Unified field mechanics, Van der Waals

*Le microbe n'est rien, le terrain est tout – Pasteur.*

## **1. Introduction**

More than 200 types of cancer are catalogued. Currently, cancer is said to be caused by external factors, such as tobacco, infectious organisms, and an unhealthy diet; and internal factors, such as inherited genetic mutations, hormones, and immune conditions.

In this work, we obtusely propose that all cancer arises from one fundamental cause. This is not obvious by current thinking steeped myriad multiple gene mutations as the primary causation. While true, this represents the branches (each cancer type) and does not

represent the fundamental root of the problem. The definitional role of endogenous and exogenous agents of DNA damage is that DNA damage is considered to be the primary cause of cancer. True, there is a ‘force’ transforming normal cells into cancer cells, but we intend to examine the stressors that cause DNA damage and demonstrate that there is a single stressor involved; not at the level of biochemistry where conformal molecular changes lead to DNA mutation, but deeper than what is currently called the ‘basement of reality’ - Quantum Mechanics. The global stressor has been hidden behind the uncertainty principle. But now that 3<sup>rd</sup>

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regime physics of Unified Field Mechanics, will be available; a new energy of the unified field will be shown as the fundament of oncogenesis.

### 1.1 Conformational Isomers

There are a number of classes of isomers that can undergo conformal change, with the possibility of causing damage to DNA molecules

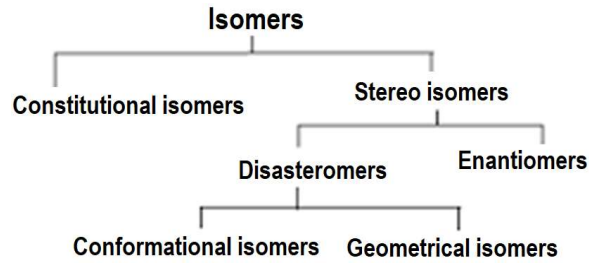


Figure 1. The various types of isomers

Different structures of a molecule resulting from rotation about sigma bonds are known as conformal isomers or conformons.

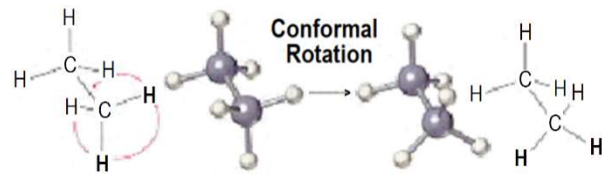


Figure 2. Conformal isomers produced by bond rotation

More than one mutation is necessary for carcinogenesis. In fact, a series of several mutations to certain classes of genes is usually required before a normal cell will transform into a cancer cell.<sup>[1]</sup> On average, for example, 15 "driver mutations" and 60 "passenger" mutations are found in colon cancers.<sup>[2]</sup> Mutations in those certain types of genes that play vital roles in cell division, apoptosis (cell death), and mutations and epimutations in DNA repair genes will cause a cell to lose control of its cell proliferation.

There are more than 200 different types of cancer. Cancer starts when gene changes make one cell or a few cells begin to grow and multiply too much. Gene mutations that occur after birth. Most gene mutations occur after you're born and aren't inherited. A number of forces can cause gene mutations, such as smoking, radiation, viruses, cancer-causing chemicals (carcinogens), obesity, hormones, chronic inflammation and a lack of exercise.

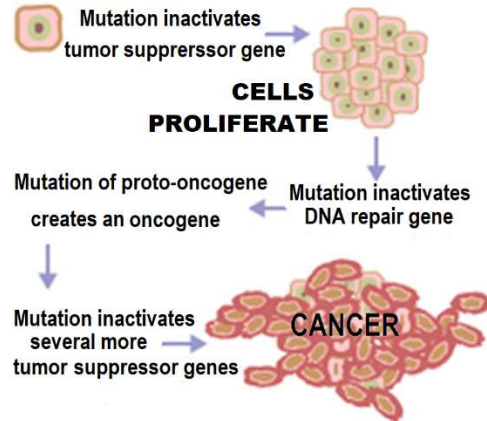


Figure 3. Cancers are caused by a series of mutations. Each mutation alters the behavior of the cell

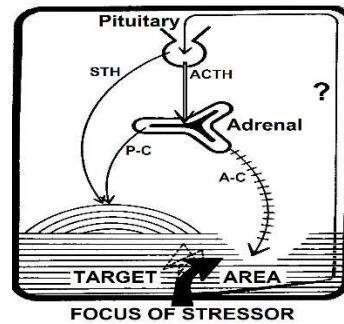
### 2. Selye – Pioneer of Physiological Stress

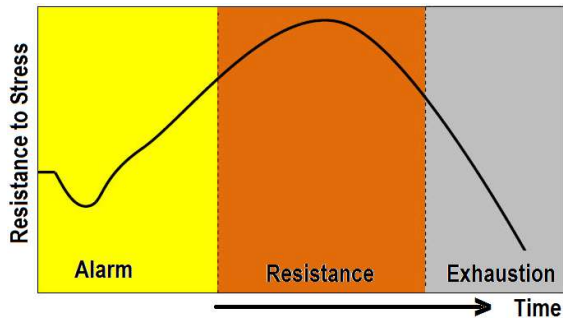
In the science of biology, a mechanism is a system of causally interacting parts and processes that produce one or more effects. Scientists explain phenomena by describing mechanisms that could produce the phenomena.

Hans Selye is considered first to demonstrate the existence of the physiological stress response of an organism to stressors.

Selye conceptualized the physiology of stress as having two components: a set of responses which he called the "general adaptation syndrome" [x2], and the development of a pathological state from ongoing, unrelieved stress: *Each individual, well-defined disease ... has its own specific cause.*

Through some unknown pathway (labeled by a question mark), the "first mediator" travels from the directly injured target area to the anterior pituitary. It notifies the latter that a condition of stress exists and thus induces it to discharge adrenocorticotrophic hormone (ACTH).





**Figure 4.** a) Selye's generalization of physiological stress. STH is somatotrophic hormone, ACTH, adrenocorticotrophic hormone, P-C, proinflammatory corticoids and A-C, anti-inflammatory corticoids. Fig. adapted from [x]. b) Selye's General Adaptation Syndrome. Fig. redrawn from [x].

Glucocorticoids (steroid hormones), bind to the glucocorticoid receptor present in most vertebrate animal cells to regulate glucose metabolism for certain aspects of immune function, such as reduction of inflammation. Thus, they are to treat overactive immune system diseases, interfere with abnormal mechanisms in cancer cells and amelioration of side effects of anticancer drugs. Cortisol (hydrocortisone) is an extremely important glucocorticoid essential for life mediating a numerous cardiovascular, immunologic metabolic, and homeostatic functions.

Glucocorticoids affect cellular function by binding to glucocorticoid receptors (GR). The GR complex, when activated up-regulates the expression of anti-inflammatory proteins in the nucleus (transactivation) which represses the expression of proinflammatory proteins in the cytoplasmic matrix (intracellular fluid) by preventing the translocation of other transcription factors from the intracellular fluid into the nucleus (transrepression).

General Adaptation Syndrome (GAS), developed by Hans Selye, is a profile of how organisms respond to stress; GAS is characterized by three phases: a nonspecific mobilization phase, which promotes sympathetic nervous system activity; a resistance phase, during which the organism makes efforts to cope with the threat; and an exhaustion phase, which occurs if the organism fails to overcome the threat and depletes its physiological resources.<sup>[84]</sup>

Selye discovered and documented that stress differs from other physical responses in that stress is stressful whether one receives good or bad news, whether the impulse is positive or negative. He called negative stress "distress" and positive stress "eustress". The system whereby the body copes with stress, the hypothalamic-pituitary-adrenal axis (HPA axis) system, was also first

described by Selye. He also pointed to an "alarm state", a "resistance state", and an "exhaustion state", largely referring to glandular states. Later he developed the idea of two "reservoirs" of stress resistance, or alternatively stress energy.

### 3. Mechanism Initiating Protein Conformation in Prion Propagation

We use prion conformation to illustrate a possible test case for examining the basis of noetic medicine in topological phase transitions in 3<sup>rd</sup> regime brane interactions. This introduction is only a primitive slice introducing the anticipated new field of integrative Noetic Science revolutionizing medicine and psychology and implementing myriad *conscious* technologies like sensory bypass prosthesis or  $\aleph$ -wave (eternity-wave) accelerated healing for example. Experimental work is underway to isolate and utilize the noetic field for these tasks.

*When the great innovation appears, it will most certainly be in a muddled, incomplete form. To the discoverer himself it will be only half-understood; to everyone else it will be a mystery. For any speculation which does not at first glance look crazy, there is no hope. [101]*

Transmissible prion based spongiform encephalopathies propagate by conformational change of the prion's protein, PrP structure. An experimental design, relying on the utility of a new fundamental teleological action principle inherent in the topological geometry of a covariant polarized Dirac vacuum putatively driving self-organization in all autopoietic complex living systems, is developed to elucidate the fundamental nature of this conformational change. Further, PrP propagation is considered a mechanical action that can be described by 'interactive computational modes' of 'topological switching' driven by incursive oscillations occurring in the bioenergetics of the prions physical chemistry when improperly coupled to the long-range coherence of the noetic action. The experimental apparatus, a multi-level interferometer, is designed to focus this noetic field in a manner that simulates the mechanism driving PrP conformation to pathological form.

An extensive body of literature exists for phenomena related to the zero-point field; but relative to noetic theory this work is considered descriptive metaphorically of only the 'fog over the ocean' rather than the structural-phenomenology of the ocean itself. Instead the deep structure of a real covariant Dirac

polarized vacuum is utilized [1-3]. The Casimir and Zeeman effects are considered evidence for a Dirac vacuum. New assumptions are made concerning the Dirac polarized vacuum relating to the topology of spacetime and the structure of matter cast in a twelve-dimensional (12D) form of Relativistic Quantum Field Theory (RQFT) in the context of a new cosmological paradigm called the Holographic Conscious Multiiverse (HCM) [4-6]. In this anthropic cosmology, the observed Euclidian-Minkowski,  $E_3 - \hat{M}_4$  spacetime present is a virtual standing wave of highly ordered Wheeler-Feynman-Cramer retarded-advanced future-past parameters respectively [7,8]. See Figs. 4 & 11 for a graphic illustration of this paradigm. An essential ingredient of HCM cosmology is that a new action principle synonymous with the unified field arises naturally and is postulated to drive self-organization and evolution through all levels of scale [9-11].

In this context, an experimental design [12] is introduced to isolate and utilize the new noetic action to test empirically its putative ability to effect conformation in prion protein. The Prion, PrP [13-15], the infectious protein responsible for degenerative spongiform encephalopathies like Mad Cow, Scrapie and Creutzfeldt-Jacob Diseases is designated as 'system zero', the most primitive known system with anthropic properties, albeit purely mechanistic [9,10,16]. Noetic Theory postulates that prion protein, PrP is 'animated' by the self-organizing properties of the long-range coherence [17,18] of the *élan vital* or unitary noetic field [9,10,19-32]. In addition to manipulating conformational change, from the experimental results we attempt to calculate the energy Hamiltonian required to initiate the misfolds.

#### 4. Structural-Phenomenological Micromagnetics of Proteins and Prion Conformation

Biological molecules contain coupled coherence domains with long-range resonant interactions extending throughout the entire living system [17,18] from and into the surrounding spacetime [9]. This resonant coupling produced by the teleology of the noetic field driving its hierarchical self-organization has local, nonlocal and supralocal (complex HD) parameters [9]. The Schrödinger equation, extended by the addition of the de Broglie-Bohm quantum potential-pilot wave mechanism has been used to describe an electron moving on a neural manifold [33,34]; but this is not a sufficient extension to describe noetic aspects of living systems which requires further extension to include action of the noetic unitary field in additional dimensions. The following is a brief review of quantum

properties of water illustrating one regime in the noetic hierarchy [35,36].

Properties of water, the fluid medium supporting life, result from the structure of individual  $H_2O$  molecules and intermolecular forces between the molecules dominated by Hydrogen bonds. The capacity of  $H_2O$  molecules to form diverse 3-D networks (hexagon, square, & pentagon) of  $H$  bonds, while maintaining 4-fold bonding at each molecule is structurally significant. Liquid  $H_2O$  is a structurally random network of strained and broken  $H$ -bonds. This network is labile; bonds break in one place and reform nearby. Isolated  $H_2O$  molecules act as though each  $H$ -bond bore a 1/3 proton charge, and as if the  $O$  bore  $-2/3$ .

Dipoles of neighboring  $H_2O$  molecules partially align and act in concert under polarizing influences of an  $EM$ -field. This alignment and molecular polarizability stems from a large static dielectric constant, relating to  $H_2O$ 's ease in dissolving ionic crystals like alkali halides. Also the  $H_2O$  molecules small size allows close approach to ions. At room temperature  $\sim 1$  in 55 million  $H_2O$  molecules dissociate into  $H^+$  and  $OH^-$  ions readily incorporated into the liquid's random  $H$ -bond network. The high mobility of  $H^+$  and  $OH^-$  ions causes a net transfer of ionic charge along chains of  $H$ -bonds. Crucial conformations in the hydrophilic and hydrophobic chemical groups of complex biochemical molecules are caused by  $H_2O$  solvation. In liquid phase atoms are disordered and free to move.

The key to understanding protein folding diseases lies in the arrangements of their amino acid structure. Virtually all proteins consist of two periodic structures called  $\alpha$  and  $\beta$  sheets whose conformation is derived from the hydrogen bond [37]. Protein folding usually occurs spontaneously as a structural property of the protein itself. If unfolded a protein typically refolds properly without assistance; but some are aided during the folding process by enzymatic proteins called molecular chaperones [38,39] because intermediary structures often have the tendency to aggregate deterring the end result. Chaperones prevent aggregation by keeping chaperoned molecules sequestered inside cavities within their structure. Occasionally a protein will misfold; and recently it has been realized that misfolds are a more common property of proteins than previously suspected [40]. Most proteins fold into one shape only; this is not true of the prion protein, PrP which is also said to act as its own chaperone.

Prion protein whose misfold aggregations damage nerve cells in PrP encephalopathies is constantly

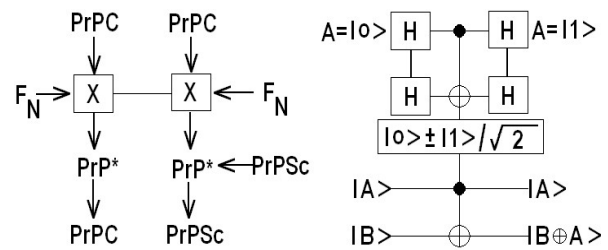
produced by the body. Normally it folds properly, remains soluble, and is disposed of without problems. But if misfolded encephalopathic prion protein, PrP<sup>Sc</sup> ‘bumps’ into the normal-folding intermediate, PrP\* it shifts the folding process and the protein, despite a normal amino acid sequence, ends up as more pathological prion protein. This process continues as long as the body keeps producing the normal protein. Thus the encephalopathic prion self-replicates itself without precursor material or nucleic acid of its own by a pathological chaperone mechanism disrupting the normal conformation pathway. Recent research demonstrates that Alzheimer's Disease, Cystic Fibrosis, an inherited form of Emphysema and many cancers although apparently unrelated all result from protein misfolds [41].

About 250 amino acids comprise the normal cellular form of the prion protein PrP<sup>C</sup> found in all mammals which in humans is produced on gene 20 with evidence that the gene is evolutionarily pre-mammalian [41]. Whereas PrP<sup>C</sup> is soluble, the infectious form PrP<sup>Sc</sup> is hydrophobic producing aggregates causing neuropathology; however both PrP<sup>C</sup> and PrP<sup>Sc</sup> have the same chemical makeup, differing only in conformation. The normal cellular isoform PrP<sup>C</sup> has three  $\alpha$  - helices and two small  $\beta$  strands. PrP<sup>C</sup> is  $\alpha$  rich; whereas the PrP<sup>Sc</sup> isoform is  $\beta$  rich. That PrP<sup>C</sup> is the required precursor for PrP<sup>Sc</sup> propagation has been demonstrated by Prnp<sup>0/0</sup> genome studies where disruption of both alleles on mouse chromosome 2 blocks PrP expression such that no prion encephalopathy occurs [41].

PrP<sup>C</sup> is produced in the endoplasmic reticulum before it is brought to the cell surface where it can be drawn into a caveola, subcellular cavernous sites. In these cavities if the intermediate conformation, PrP\* occurs in the presence of PrP<sup>Sc</sup> normal cellular PrP<sup>C</sup> is converted into more of the infectious form, PrP<sup>Sc</sup>. It is in this context that the prion acts as its own chaperone or that another protein dubbed protein-X catalyzes the misfold; but so far the search for protein-X has failed [41].

The tenets of Noetic Field Theory (NFT) [20-32] suggest that the X-factor is not a protein but a spacetime-coupled cavity-QED effect of a coherence force inherent in the continuous-state parameters of the unified noetic field. Therefore the etiology of PrP encephalopathies could be generalized by developing this model. The Noetic Field [20-32] produces periodic symmetry variations with long-range coherence [9,10,17,18] that

can lead to a critical Noetic Effect<sup>2</sup> [20,21,27] of consciousness. This can be described by a form of double-cusp catastrophe dynamics (Fig. 3). Operationally the plane of equilibrium experiences sustained hyperincursion by the noetic field. The coupled modes of this process rely on a special form of the harmonic oscillator called the incursive oscillator [42-48]. There is a force of coherence [49]. For example, for an Earth observer's temporal perception, railroad tracks recede into a point at the horizon. For an atemporal eternal HD observer, the tracks remain parallel. This is the origin of the coherence force which forms a kind of logic gate driving equilibrium of the Casimir boundaries to parallel or degenerate modes thus giving rise to the possibility of effecting conformational states.

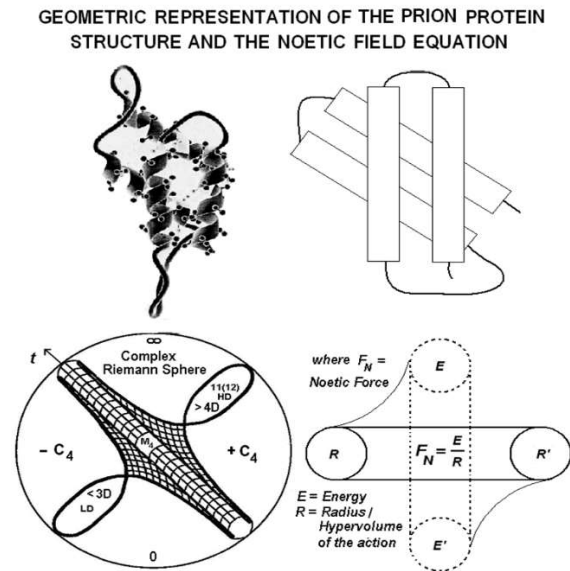


**Figure 5.** a) Flow chart for Prion propagation, where factor-X is postulated to be the action of Noetic Field,  $F_N$ . b) Circuit representation for a possible quantum logic gate configuration for PrP<sup>C</sup> Propagation. Two Hadamard gates, H generate a superposed intermediate conformation of PrP<sup>C</sup> called PrP\* in state  $|0\rangle \pm |1\rangle / \sqrt{2}$ , illustrating the possibility that the Prion's pathological process acts a quantum Hadamard Controlled-Not Gate;  $|A\rangle$  is the control qbit and  $|B\rangle$  is the target qbit.

Normal prion protein biochemistry is operationally defined by usual time dependent metabolic quantum fields; but noetic theory postulates that the encephalopathic conformation, probably in conjunction with the PrP\* intermediary, in some manner couples to the atemporal realm where a ‘force of coherence’ creates a telergic ‘chaperone effect’ acting on the coherence gap created by the presence of the ‘stronger’ PrP<sup>Sc</sup> molecule driving conformation in the encephalopathic direction. In this approach, pondering Fig. 2 suggests that molecular serendipity has gifted the fundamental

<sup>2</sup> Noetic Effect – The various resultant effects of the unitary noetic field as its flux enters spacetime and the mind and body of complex living-systems.

structural-phenomenology of this prion state as a “Rosetta Stone” of anthropic cosmology [50,51]. Soon after this insight we came across a somewhat parallel thought: “...The prion protein thus contained, whether by happenstance or homology, a natural mechanism for dimerizing about the symmetric tetrapyrrole” [52]. What is meant by this, for noetic theory, is that the PrP\* caveola have Cavity-QED resonant properties [53] in synchrony with the noetic field such that the inherent PrP<sup>Sc</sup> dominance is able to drive PrP<sup>C</sup>, when present, to the PrP<sup>Sc</sup> form.



**Figure 6.** a,b) Best guess putative model of the prion’s protein structure gleaned from over ~300,000 possible choices. a) Ribbon model showing  $\alpha, \beta$  sheets. b) A simplified geometry of a). In c,d) Topological and geometric idealizations of the noetic field equation describing an action of the noetic field, called the ‘noetic effect’, on a biological or spacetime manifold.

This noetic postulate is compatible with Prusiner’s view that prion propagation appears to occur by a form of what Prusiner’s group calls ‘Dominant-Negative Inhibition’ [54-56]. They postulate that PrP<sup>Sc</sup> interferes with PrP<sup>C</sup> function in conjunction with an auxiliary molecule called protein-X because PrP<sup>Sc</sup> exhibits more avid binding properties [41]. However as stated our interpretation for a protein-X differs; we postulate instead that QED cavity dynamics within the canella where PrP\* binding occurs can be described as a form of logic-gate for interactive computing [57,58]. This is a boundary condition problem; here probably of the Born-von Karman type where the boundary conditions restrict the wave function to periodicity on a Bravais lattice of

hexagonal symmetry, stated simply as  $\psi(r + N_i a_i) = \psi_r$ , where  $i$  runs over the dimensions of the Bravais lattice,  $a_i$  are the lattice vectors and  $N_i$  are integers [59]. In this model, the presence of the periodic spherical rotation effects of the cyclical coherence-decoherence modes allow the action of the noetic field [9,10,60]. This Noetic Processing is governed by the fundamental equation of Consciousness  $F_N = E / R$ . Cyclotron resonance states may maintain homeostasis of the noetic field or induce an electromotive force, the Noetic Effect, on proteins leading to conformational change.

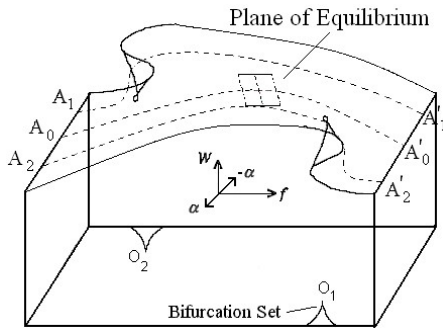
The structural-phenomenology of atoms and molecules is full of domain walls amenable to description by combinations of Gauss’ and Stokes’ theorems ordered in terms of Bessel Functions where boundary conditions create resonant cavities built up by alternating static and dynamic Casimir conditions [21,61-63]. As frequency increases central peaks occur with opposite or zero polarity at the domain edges. These properties are relevant to Ising Model [64] spin flips of the domains of the Riemann-Block Spheres effecting homeostatic planes of equilibrium (Fig. 3). The noetic effect can maintain equilibrium or produce catastrophes causing conformational change in protein structures [65].

### 5. Catastrophe Theory and the Noetic Formalism

Recently the fundamental basis of complex self-organized living systems has been redefined in terms of a new noetic action principle beyond the limitations of ‘Biological Mechanism’ [9,10]. This model can be utilized to call for a new field of Noetic Medicine [66] based on the structural-phenomenology of the noetic field and whether resultant action of the noetic effect is positive or negative. Living systems exhibit complex self-organization. The noetic field is the factor driving self-organization [9,10]; therefore hyperincursion and anticipatory properties are inherent in the fundamental hierarchical basis of the self-organization which can be formally described in terms of Double-Cusp Catastrophe Theory.

The structural-phenomenology of Double-Cusp Catastrophe (DCC) Theory in  $\geq 9D$  appears homeomorphic to the Riemannian manifold of both 10(11) dimensional M-Theory and the topological geometry of the continuous-state spin exchange dimensional reduction compactification process inherent in the action of the corresponding scale invariant least unit of noetic superspace as cast in HCM

cosmology [4-6]. In this general framework the double-cusp *equilibrium surface* is analyzed in terms of a hierarchy of Ising-like *jumps in state* [64] providing a framework for expanding the basis of allopathic medicine and psychology [66] for which the prior is utilized as a fundamental test case. One can say that the noetic least-unit tiling [67,68] the fabric of the Planck backcloth is a complex HD catastrophe manifold with Dirac spherical rotation symmetry mediated by the unitary action of the noetic field.



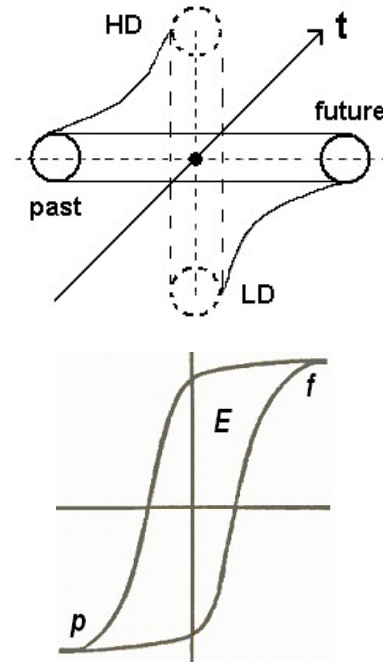
**Figure 7.** a) The DCC is illustrated showing cusps at each end of the plane of equilibrium. The DCC is said to occur in  $\geq 9$  dimensions and thought to be the catastrophe form most compatible with the symmetry of NFT. The spacetime component of the plane of equilibrium is a topological manifold tiled of noetic *least units*. The equilibrium manifold undergoes a ‘conscious’ quantum computation best described by interactive computation. b) Graphically illustrates the fundamental scale invariant noetic equation  $F_N = E / R$  of conscious action, the basis of the noetic effect on the plane of equilibrium. c) The hysteresis loop of the Hamiltonian mapped out by the future-past parameters of noetic spacetime. The area E represents the energy of the noetic force  $F_N$ .

Any internal or external stress or change in life energy,  $E$  is a nonlinear dynamical process producing stability or instability in the boundary conditions of  $R$ ; a causal instability in  $E \rightarrow$  stress  $\rightarrow$  displacement  $\rightarrow$  catastrophe  $\rightarrow$  Ising jump...whereas stable flux is homeostatic. The hysteresis loop of the noetic field (Fig. 3b) is scale invariant; the same processes occur in HCM cosmology and domains of living systems. The area represents the energy of the string tension or élan vital. This energy,  $E_N$  is measured in *Einsteins*, the fundamental physical quantity defined as a ‘mole’ - Avogadro’s number ( $6.02 \times 10^{23}$ ) of bosons, defined here as noeons of the unitary field [9,10].

Equation (5) describes the equilibrium surface of the DCC [69,70] as modeled in (Fig. 3); where  $B \pm Q$  is the state variable and  $\mu_d$  and  $\nu_d$  are the control parameters.

$$(B + Q)^3 + (B + Q)\mu_d + \nu_d = 0 \quad (1)$$

The position of the two cusps is found at  $\mu_d = 0$  and  $\nu_d = 0$ . At any moment temporal permutations of the noetic catastrophe cycle evolve in time from future to past and higher to lower dimensions in the same manner as the spacetime present of the least-unit of HCM cosmology for the spatial domains:  $R^{12} \supseteq \dots R^4 \supseteq R^3 \supseteq R^2 \supseteq R^1 \supseteq R^0$ ; followed by an Ising rotation where the cycle repeats.



**Figure 8.** Noetic Action on the Equilibrium Plane of a Double-Cusp Catastrophe

## 6. Extending Definition of Matter

Discovery of the electron in 1897 by Thompson demonstrated that atoms are not indivisible. The advent of quantum mechanics showed that matter has wave properties. Now the discovery of additional dimensions (XD) extends our understanding of the structure of matter to include Calabi-Yau mirror symmetric topological brane phenomena behind the veil of the

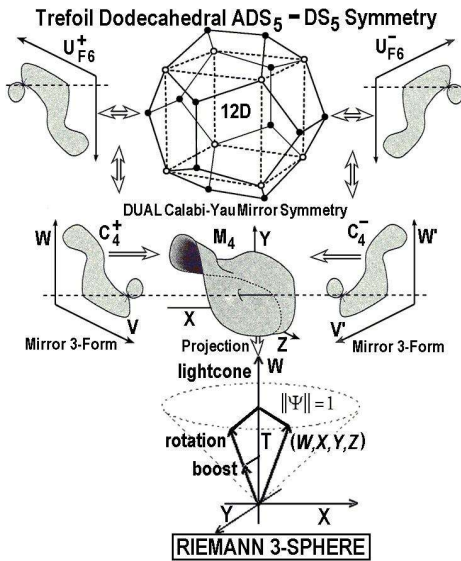
uncertainty principle in a 3<sup>rd</sup> regime of Unified Field Mechanics (UFM).

**6.1 Point-Particle Infinite Mass-Energy**

The term point particle is not rigorously defined causing inconsistencies in usage, but is generally used to denote a spherical 0D object with no spatial extension and as described by the inverse square law has all its matter concentrated at the 0D point. From classical electromagnetism (em) we know that the energy of a charge configuration increases as the distance between them decreases. For two general charges  $q_1$  and  $q_2$  separated by a distance  $r$ , the electrostatic energy is:

$$E = \frac{1}{4\pi\epsilon_0} \frac{q_1 q_2}{r} \tag{2}$$

Ignoring the 1<sup>st</sup> term, a constant, it is in the 2<sup>nd</sup> term where we see that the energy of the charges  $q_1$  and  $q_2$ , increases to infinity the closer we bring them together. Assuming that electrons are *point particles* carrying a charge density as a charged spherical shell; if we shrink its size to 0D, it is supposed to mean the electron has *infinite* electrostatic energy.



**Figure 9.** The complete 12D UFM superimplicate order space, not enfolded. The Euclidean cube embedded in the 12D dodecahedron is causally free of the Euclidean shadow in 3-space and thus beyond the semi-quantum limit of the manifold of uncertainty.

From the equation for a spherical shell of charge,  $e$

with radius,  $r$  we obtain a result similar to that for the two charges in (4.1):

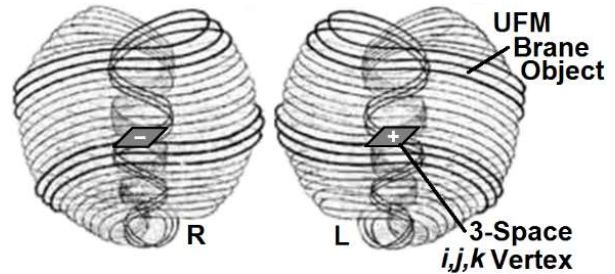
$$E = \frac{1}{8\pi\epsilon_0} \frac{e^2}{r} \tag{3}$$

where similarly if the spherical shell is brought to a point, the electron’s self-energy goes to infinity. Since QED predicts that virtual electron-positron pairs can emerge from the vacuum for up to the Planck time, one can violate the conservation of energy with quantum mechanics at the Planck scale,  $\delta t \delta E \leq \hbar$  allowing renormalization techniques to provide an *ad hoc* solution to this conundrum by letting quantum effects cancel out classically infinite contributions to electron mass at a scale similar to the scale of electron mass [1].

The ‘Heisenberg Microscope’ at CERN’s LHC is said to ‘see’ to  $10^{-16}$ . Quantum mechanics appears as the ‘basement of reality’ only because the Uncertainty Principle acts as a gating mechanism limiting observation. With the imminent advent of 3<sup>rd</sup> regime UFM we can take the next step in understanding the structural-phenomenology of matter beyond the traditional 3-space arena of current observation [2,3].

**6.2 Space-Antispace as a UFM Intermediary**

The Standard Model, a quantum field theory, is incomplete, while it seems theoretically self-consistent, with some phenomena unexplained (dark energy, non-zero neutrino mass); as well-known, it is not yet a complete theory. At the fundamental level Physics reduces to the structure and interaction of fermions. In 3-space Fermions appear to be 0D singularities rather than extended objects, a sufficient rendition until now.



**Figure 10.** Leadbeater & Besant ‘ultimate physical atom’ [44] which we tweaked with a traditional 3D fermionic singularity in the center to symbolize a global picture of matter. The two R-L forms are identical to each other, differing as an object and its mirror image. Mirror symmetric components are essential to the UFM particle dual regime model.



Among these are Bohm's description of an *implicate and superimplicate order*, with observed particles *not fundamental, but 'forms' produced by a continuous convergence and divergence of waves*; and Vigier's concept of matter where a *particle is a complex structure associated with a pilot wave guiding its motion by exerting a potential force, which we begin to formally describe in terms of an inherent action (guiding force of coherence) of the unified field* [2,3].

To allow the cycle of 'extension' to operate properly (completely), such that the 'mirror image of the mirror image in 12-space is causally free of the CQED quantum shadow in 3-space a 2<sup>nd</sup> duality is required. This is conceptualized in Fig. 9.

### 7. Future Development

According to the American Cancer Society: Gene mutations that occur after birth. Most gene mutations occur after you're born and aren't inherited. A number of forces can cause gene mutations, such as smoking, radiation, viruses, cancer-causing chemicals (carcinogens), obesity, hormones, chronic inflammation and a lack of exercise.

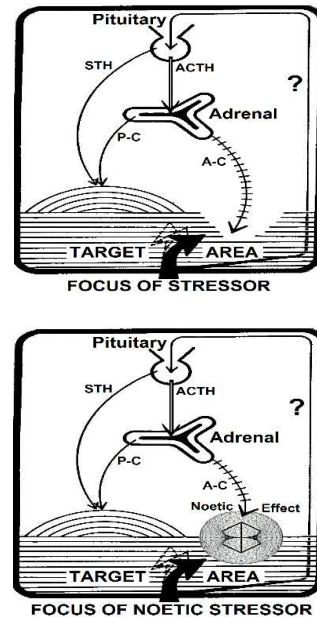
It is well known that ~40% of cancers can be prevented by lifestyle changes causes of cancer include genetic factors (but most cancers are not clearly linked to the genes we inherit from our parents, however 'faulty' genes can increase risk; lifestyle factors such as tobacco alcohol use, diet, and physical activity; certain types of infections; and environmental exposures to different types of chemicals and radiation. Known causes of cancer, including genetic factors; lifestyle factors such as tobacco use, diet, and physical activity; certain types of infections; and environmental exposures to different types of chemicals and radiation, and a 'telergic stressor' mental energy, teleological 'telergic stressor', psychosomatic both self-induced or externally induced

Allopathic medicine denotes three classes of carcinogenic agents:

- 1) Chemical
- 2) Radiant energy
- 3) Microbial/viral agents

These three provide only the branches of oncogenesis, not the fundamental unitary root of all cancer.

### 8. Noetic Force

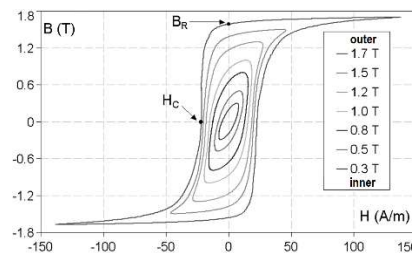


**Figure 11.** Noetic Effect addition to Selye's physiological stressor model called the General Adaptation Syndrome (GAS). Figs. adapted from [x].

### 9. Hysteresis, Noetic Hysteresis

When the inherent noetic field is couples to a physiological substrate such as a DNA oligomer, the atomic dipoles align themselves with it. Even when the field is removed, part of the alignment will be retained: the material has become energized. Once energized, the tissue will stay energized indefinitely.

To demagnetize it requires heat or a magnetic field in the opposite direction. This is the effect that provides the element of memory in a hard disk drive. Inertial memory



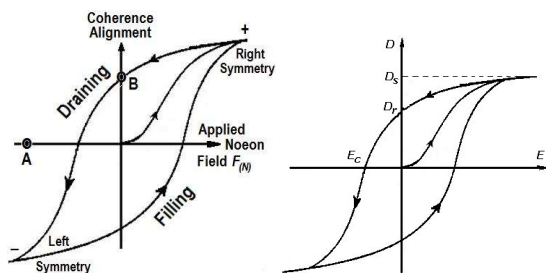
**Figure 12.** A family of AC hysteresis loops for grain-oriented electrical steel (Br denotes remanence and Hc is the coercivity). Tesla (T) magnetic flux density

The relationship between field strength H and magnetization M is not linear in such materials. If a

magnet is demagnetized ( $H=M=0$ ) and the relationship between  $H$  and  $M$  is plotted for increasing levels of field strength,  $M$  follows the initial magnetization curve. This curve increases rapidly at first and then approaches an asymptote called noetic saturation. When the unified field is reduced monotonically,  $M$  follows a different curve. At zero field strength, the topological charge is offset from the origin by an amount called the remanence. If the  $H$ - $M$  relationship is plotted for all strengths of applied magnetic field the result is a hysteresis loop called the main loop. The width of the middle section is twice the coercivity of the material.[18]

A closer look at a magnetization curve generally reveals a series of small, random jumps in magnetization called Barkhausen jumps. This effect is due to crystallographic defects such as dislocations. [19]

The geometry of the 'spacetime exciplex' (excited complex), a configuration of spacetime LCUs that act like a holophote laser pumping mechanism of  $U_F$  noeon energy and also how coherence of the  $U_F$  interacts with 3D compactified states. Locally the exciplex acts like an oscillating 'cootie catcher' [104]. b) Geometric representation of the Noetic Unified Field Equation,  $F_{(N)} = \aleph / \rho$  for an array of cosmological LCUs. Solid lines represent extension, dotted lines field. Where  $F_{(N)}$  is the anthropic or coherent force of the  $U_F$  driving self-organization, total energy,  $\aleph$  equals the c) hysteresis loop energy of the hypervolume,  $\rho$  is the scale-invariant rotational radius of the action and the domain wall (curves) string tension,  $T_0$ .



**Figure 13.. a)** Homeostatic hysteresis of noetic unified field. **b)** model of magnetization  $m$  against magnetic field  $h$ . Starting at the origin, the upward curve is the initial magnetization curve. The downward curve after saturation, along with the lower return curve, form the main loop. The intercepts  $h_c$  and  $m_{rs}$  are the coercivity and saturation remanence.

How does this correlate the concept of a photon as a traveling **wave** along a 2D surface projecting at right angles to the **direction** of propagation with a photon with a particulate radius limiting the slit diameter it is

able to pass through to  $\sim 10^{-9}$  cm? These are unsettled issues in both the basis of quantum field theory itself and measurement theory. What we are getting at is that the uncertainty principle is hiding an inherent backcloth of cyclic bumps and holes in the Dirac polarized backcloth [4].

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