

# Electromagnetic Therapy Mechanism:

A Quantum Information Biology Approach

By Elsheikh Elsheikh, April 2016 [www.LifePrinciple.com](http://www.LifePrinciple.com)

*Insert- based on Priore / Bearden and Dan Winter (Theraphi) discovery that  $\square$ DNA quantum fractal field is subject to charge implosion and acceleration.*

*Elsheikh demonstrates that the electromagnetic phase conjugate wave frequencies*

*produced by a healthy mother cell can heal its cancerous daughter cell.*

## Abstract:

Electromagnetic (EM) therapy has been in trouble during the last half century. Although enormous experimental evidence is gathered to support the claim that EM therapy cures certain diseases, e.g., cancer, leukemia, etc., yet there is no convincing mechanism to agree upon. That is because a fundamental natural law, the driving force which underpins the mechanism, was unrecognized. It is the maximum action principle according to which a bio-system generates a path of maximum action and maximum bio-information (developmental functional complexity). In consequence, due to its golden ratio based fractal geometry, DNA becomes a vortex for charge implosion and acceleration that generates a cascade or replica of phase conjugate EM waves. The phase conjugate EM waves carry the bio-information characteristic of the DNA's nucleotides sequential arrangement. We call it bio-information template. The DNA and its nucleotides sequential ordering is a sub-attractor that belongs to the basin of the bio-information attractor which is the cellular regenerative control system. This situation creates genome-cell reciprocal causality, i.e., the cell is subject to both upward and downward causation. The main idea is that if B is a lower bio-information attractor that belongs to the basin of an upper bio-information attractor A, then A vitalizes B through its bio-information template such that  $B = A$ . Hence when targeting a bio-information disease by its corresponding healthy bio-information template, the healthy bio-information template, being an upper attractor, rearranges the distorted or missed nucleotides along a path of maximum action and maximum bio-information. The bio-information template mechanism accounts for both Antoine Priore's machine enigma and Luc Montagnier's non-particle view of life.

## Keywords:

Bio-information; Bio-information attractor; Bio-information diseases; Bio-information template; EM therapy; maximum action principle.

## **Introduction:**

EM therapy is a wide subject; it includes almost all frequencies of EM spectrum that are used both for disease diagnosis and therapy. High EM frequencies of gamma, X and some of the ultraviolet waves are ionizing and can be used for blocking cancer growth. Low EM frequencies of radio, micro, infra, and some ultraviolet are used for healing as well as blocking cancer growth. To limit our considerations, focus would be restricted to the healing low frequencies. For example pulsed electromagnetic field (PEMF) therapy has been FDA-approved to fuse bones and reduce swelling and joint pain[1]. PEMF has been used to treat pain and edema in soft tissue for over sixty years [2]. It has been firmly established that tissues such as blood, muscle, ligaments, bone and cartilage respond to biophysical input including electrical and electromagnetic fields.[3] Research shows that certain field strengths and frequencies of PEMF appear to modify certain diseases. For example a 27.12MHz field tuned to tissues specific field strengths has been shown to block tumor growth in cancer patients [4]

These developments have a long and troublesome history. The beginning of the 20th century saw the first medical applications of electromagnetic fields (EMF), notably in the diagnosis and therapy of various diseases such as cancer. The assumption was that external application of electromagnetic energy could correct disease-causing altered electromagnetic frequencies or energy fields within the body[5].

Abrams invented various machines with the goal to cure diseases, notably cancer [6,7]. He claimed that diseases could be cured by transmitting back to the disease the same electronic “vibratory rate” it was transmitting. Between 1923 and 1924, Scientific American magazine set up a committee to investigate Abrams’s results and concluded “the claims advanced on behalf of the electronic reactions of Abrams, and electronic practice in general, are not substantiated”[8].

Royal Raymond Rife, based on his Rife Ray Machine, claimed he could diagnose and eliminate diseases like cancer by tuning into electrical impulses given off by diseased tissue. Rife’s high voltage gas tube device was designed, with the aid of his unique microscope, by experimentally witnessing the effects on microbes and bacteria, finding what he believed were the particular frequencies that resonated with their destruction. The American Medical Association condemned Rife’s experiments. Until recently, virtually all medical devices aimed at treating cancer using low levels of electric and/or magnetic fields were considered quackery because of lack of scientific proof [9].

Antoine Priore introduced into a tube containing a plasma of mercury and neon gas, a pulsed 9.4 GHz wave modulated upon a 17 MHz carrier frequency. Complete remission of terminal tumors and infectious diseases in hundreds of laboratory animals of the treated diseases was obtained. “In the mid-70’s Priore’s work was suppressed, because of hostility of the oncology community, change of the French Government, loss of further funding, and complete inability of the physicists and biological scientists to even hypothesize a mechanism for the curative results.”[10]

Robert Becker: developed a very effective PEMF generator to stimulate bone fracture healing that was approved by the FDA with an 80% success rate.[11]

Searching for a mechanism in order to account for EM therapy, Bearden T assumed that there is a specific, constant electromagnetic "delta" that differentiates the parasitic cancerous "organism" from the normal -human cellular organism.[12] This "delta" can be considered a sort of constant, complex-structured charge existing in the body's atomic nuclei. If a phase conjugate replica of a cancer's cell's specific "delta" frequencies is fed into the body having that cancer, the deviation of the cancer cell's master cellular control system will be "time reversed." The cancerous cell will be immediately destroyed, or reverted back to a normal cell of the animal.[13]

Bearden clarifies two important components concerning EM therapy mechanism that are phase conjugation and longitudinal waves.[12] Phase conjugation is important because coherence is necessary for energy waves to be effective. Longitudinal waves have the property of operating along the time domain in conformity with bio-systems' fundamental dynamics which takes place along the time domain.[14] However, since the healing frequencies replica based on experimental evidence are not property of a cancerous cell (e.g., Abrams, Rife), it becomes urgent to look for an alternative. Bearden proposes that the cellular regenerative control system, as a source of scalar waves, resides in the atomic nuclei of cells. In this perspective scalar waves, due to its negentropy and time reversal, structure and organize DNA. It is evident for the DNA to self-organize and function it has to have energy (e.g., scalar), but this does not necessarily mean that the negentropy is the cause of self-organization or self-regeneration. For example as an organism grows it takes in negentropy, however after maturity it goes on taking in negentropy but without further growth and development. In other words what characterizes the dynamical essence of a bio-system is its systemic self-organization, i.e., its bio-information attractor, rather than negentropy or electric charge. Same applies to a cellular system that its bio-information attractor determines its cellular regenerative control system.

To clarify this view and reveal the healing bio-information template, Elsheikh [14, 15] proposes a theory of quantum information biology (QIB) according to which DNA or genome is a quantum information fractal field (QIFF) which generates two copies of itself: one cellular the other electromagnetic EM. The cellular copy, being developmental functional complexity, is represented by a bio-information attractor through successive generations. The bio-information attractor is a generalized Schrodinger type of system that represents the cellular regenerative control system. QIFF is the union of the maximum action principle and DNA golden ratio based dodecahedron fractal geometry, it is a nested hierarchy of bio-information attractors. The maximum action principle necessitates that a bio-system generates a path of maximum action and maximum bio-information. Thus DNA becomes a vortex for charge implosion and acceleration that generates a cascade or replica of phase conjugate EM waves, which represent the EM copy. The EM copy carries the bio-information characteristic of the DNA's nucleotides sequential arrangement, we call it bio-information template.

The main idea is that due to the nested hierarchical bio-information structure of QIFF its two copies are causally interdependent. In consequence if B is a lower bio-information attractor that belongs to the basin of an upper bio-information attractor A, then A vitalizes B through its bio-information template such that  $B = A$ . When targeting a bio-information disease by its corresponding healthy bio-information template, the healthy bio-information template becomes an upper attractor that rearranges the distorted or missed nucleotides along a path of maximum action and maximum bio-information. The bio-information template mechanism accounts for both Antoine Priore's machine enigma and Luc Montagnier's non-particle view of life.

## **Methods**

### **Quantum Information Fractal Field Hypothesis (QIFFH):**

Elsheikh [14-15,16] proposes the hypothesis of QIB. QIB is the study of biosystems as spontaneous selforganizing dynamical systems. QIB bridges the gap between physics and biology and proposes a unified theory of life according to which both phylogeny and ontogeny can be studied on the basis of QIFF equations. To accomplish this goal Elsheikh proposes broadening the concepts and principles of information, quantum field and least action principle.

### **Bioinformation**

He distinguishes between genome physical information which is a measure of genome static physical complexity in bytes [14-15,16] and genome's bio-information a measure of genome's bio-complexity which is developmental and functional, and has the dimensions of energy and information. In this new perspective the genome's bio-information ( $v(t)$ ) is about the phenotype, since the genome's bio-information is meaningless without producing a phenotype. The bio-information increases before adulthood, has a maximum when the organism is fully grown, decreases afterward, and becomes zero when the organism dies. For example, considering a unicellular organism that divides for successive generations, the bio-information becomes a periodic function of time. Thus it represents the bio-information oscillations generated by the genome through successive generations.

### **DNA Fractal Nature:**

Dan Winter - a pioneer on golden ratio in physics- asserts that golden ratio fractality is a condition of recursive constructive interference. In his view DNA golden ratio based dodecahedron fractal geometry is the only geometry that allows wave patterns to add and multiply recursively constructively, thus produces optimum charge distribution and coherence. He coined the term quantum fractal field to designate the state of perfected charge distribution and coherence characteristic of the DNA.[17]

### **Least Action Principle:**

In physics, the principle of least action, or more accurately the principle of stationary action is a variation principle when applied to the action of a mechanical system, can be used to obtain the equation of motion for that system. According to the least action principle a particle moves along the path for which the action is minimum; this means the spontaneous motion of the particle is to minimize action. Now is it possible to extend the action principle to incorporate the case of maximum action? [18]. In general, a maximum or most action principle must allow a system to follow spontaneously a path of maximum action. Thus spontaneous self-organization becomes possible, e.g., embryogenesis and morphogenesis, because under such circumstances the maximum action principle maximizes the rate of change of action, whereas under the least action principle the rate of change of action is less or equals zero.

### **Quantum Field:**

A field whether classical or quantum is defined as a function over space and time. This definition is not sufficient to contain the dynamical essence of bio-systems. Because a bio-system dynamics or functionality depend on its bio-information or bio-complexity rather than on the space coordinates it occupies. So he defines the genome quantum information fractal field (QIFF) as a function over bio-information and time,  $L(v,t)$ . QIFF is the union of DNA golden ratio based fractal geometry and the maximum action principle. Such field generates, in addition to weak EM waves, self-sustained bio-information oscillations for successive generations. This means the DNA or genome is the material substrate of a quantum information fractal field.

Definition 1:

A genome or genome pool is a quantum information fractal field, QIFF.

### **Postulates:**

- (i)- The QIFF (genome) generates, in addition to weak EM waves, self-sustained bio-information oscillations through successive generations
- (ii)- The bio-information oscillations contain the dynamical essence of the living system.
- (iii)- The bio-information sustains the living state.

Based on these postulates Elsheikh [14-15,16] defined genome's bioinformation (developmental functional complexity) in terms of vitality function:

$$v(t) = bE(t) \ell^a \quad (1)$$

where  $b$  is genome's physical information measured in bytes,  $E(t)$  organism's total energy metabolized,  $\ell = A - t$  is the organism life expectancy,  $A$  lifespan or cell cycle time,  $a$  is an exponent which depends on species.

Vitality satisfies the following property:

It increases before adulthood, reaches a maximum at adulthood, decreases afterwards and becomes zero when the organism dies, i.e.,  $v(A) = 0$ .

The vitality model may be usefully employed to discuss vitality for successive generations. We shall essentially be concerned with unicellular organisms, particularly those which reproduce by binary fission. For such systems, we suggest the following equation:

$$v_g = v(t + mA) = v(t) \quad (2)$$

where  $m = 1, 2, 3, \dots$ , is the number of cell divisions or generations. Equation (2) defines vitality as a periodic function of time, i.e. it represents vitality oscillations, or equally acceptable, the bio-information oscillations generated by the genome as self-replicating quantum information fractal field. Consequently, the genome's bio-information measured in calories x bits, oscillates in the time-vitality (t-v) space, also called bio-information space, during successive generations. This model is equally applicable to multi-cellular organisms which reveal an overlap of generations, i.e., overlap of bio-information oscillations.

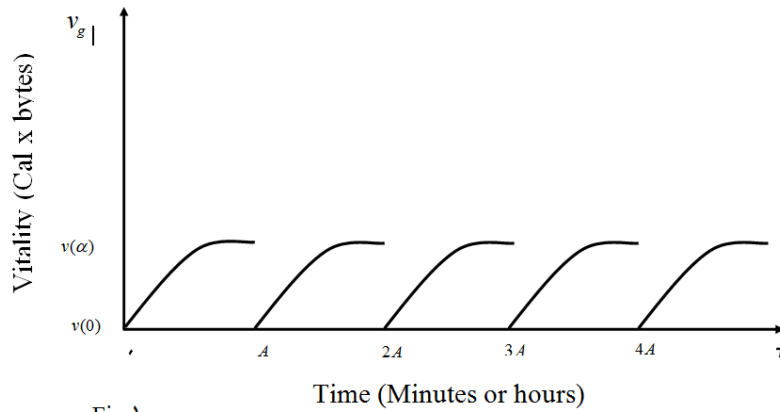


Fig.1

Fig.1: Hypothetical representation of bio-information oscillations of a unicellular organism for successive generations. A the lifespan is the period of oscillations.[14]

### The Bioinformation Attractor

Based on the first and second postulates of QIFFH, the life state of an organism, L, called the bio-information attractor (or the life-organizing principle) [19,20] being an attribute of QIFF, must satisfy the following conditions:

- i-  $L = L(v, t)$
- ii-  $L$  is a generalized Schrödinger's type of system.
- iii-  $L$  is a periodic functional attractor.

We shall therefore assume the simple following form:

$$L = L_0 e^{i\Phi/G} \quad (3)$$

where  $L_0$  is the amplitude,  $G$  is a constant to be found and has the dimension of Planck's constant. To satisfy the above mentioned conditions, we limit our considerations to the concrete example in which  $\Phi$  is given by:

$$\Phi(t) = \int_0^t E(1 - \frac{x}{A})^a dx \quad (4)$$

$$\Phi(t) = \frac{V(t)}{bA^a} = \frac{1}{bA^a} \int_0^t v(x) dx \quad (5)$$

From (3), (4) and (5) we get:

$$\therefore \ddot{L} - \frac{\dot{v}}{v} \dot{L} + \frac{v^2}{k^2} L = 0 \quad (6)$$

Where  $k = b A^a G$

Elsheikh shows that equation (6) represents a non-linear, non-conservative and irreversible system, which describes self-sustained oscillations [14-15, 16]. Furthermore, it has been proved that equation (6), being a generalized Lienard's system, admits limit cycle. Stable limit cycle solutions usually characterize structural stability or dynamic equilibrium, a property of high significance to bio-systems [21-22,23]. A limit cycle is also called an attractor, i.e. a set of states of a dynamic physical system toward which that system tends to evolve, regardless of the initial conditions of the system. We call the bioinformation attractor that describes multicellular organism dynamics a major attractor, while that which describes cellular dynamics a minor attractor. A cell type is an example of a minor attractor which belongs to the basin of a major attractor.

Although the genome is the source for generating the bio-information attractor, the bio-information attractor by describing the dynamics of cellular and multi-cellular bio-systems contains the genome as subsystem or sub-attractor that belongs to the basin of the bio-information attractor. This situation creates genome-phenome reciprocal causality; such that a bio-system is subject both to upward and downward causation. Shapiro, J., emphasized "Cells possess the biochemical activities that allow them to restructure DNA in the same ways that we do in lab-oratory genetic engineering." [24]

## Field Equations:

In addition to the periodic bio-information attractor:

$$\ddot{\mathbf{L}} - \frac{\dot{\mathbf{v}}}{\mathbf{v}} \dot{\mathbf{L}} + \frac{\mathbf{v}^2}{\mathbf{k}^2} \mathbf{L} = 0$$

We can derive the following laws [14,15]:

### First Law of Self-Organization

To account for the spontaneous growth, development and functional activity of living systems, the living system must maintain a path of maximum action. Under such circumstances the genome capacity to generate developmental functional complexity (vitality) must be correlated to the rate of change of action to match the path. Thus we try to demonstrate that the phase of the genome's bio-information oscillations, which has action units, is the path of maximum action we are looking for:

$$\therefore \dot{\Phi}(t) = K \nu(t) \quad (7)$$

Where  $K = b^{-1} A^{-a}$

Equation (7) represents the maximum action principle, it also establishes the equivalence of energy and bio-information, which means, under certain conditions, energy waves could carry bio-information, i.e., some sort of bio-information spectroscopy.

### Second Law of Self-Organization

$$V(A) = \frac{n\pi bG}{f^a} \quad (8)$$

Where  $V(A)$  is total vitality, given by:

$$V(A) = \int_0^A \nu(t) dt \quad (9)$$

Note the lifespan,  $A$ , is at the same time the period of oscillations. Equation (8) is the second law of self-organization; it is a quantum information fractal law of evolution and development. It is a power law, a Pareto [25] type of law, which indicates that total vitality varies directly with Fibonacci numbers and genome physical information and inversely with the frequency of bio-information oscillations [15]. It is interesting that Bak and Paczuski [26] have also proposed a power law to account for punctuated equilibrium [27]. However, based on (8) the motif of bifurcations occurs in accordance with



Fibonacci numbers,  $n$ . In consequence, (8) generates tree-like structures ontogenetically as well as phylogenetically. Such result can be empirically underpinned by development ontology tree [28] and the tree of life [29].

### Law of Conservation of Total Bio-Information

$$T = U(t) + Z(N(t)) = \text{constant} \quad (10)$$

$U(t)$  is the population mean total vitality at time  $t$  during successive generations, and  $Z(N(t))$  is total natality density function at time  $t$  during successive generations. Elsheikh (14,15) shows that equation (10) can be employed to derive logistic equations for the growth and development of organisms and populations:

$$\therefore \frac{dp}{dt} = p \left( c - \int_0^t \frac{\dot{U} dx}{Z'_N} \right) \quad (11)$$

Moreover to substantiate the notion of QIFF Elsheikh[14] demonstrated that cell type, tissue, organ, organ-system, and organism represent a nested hierarchy of bioinformation attractors, i.e., nested hierarchy of quantum information stationary functional states.

### Bio-information Attractors' Interaction (BAI)

Let  $B$  be a sub attractor of an upper bio-information attractor  $A$ . If  $A$  and  $B$  interact, then  $A$  vitalizes  $B$ ; in consequence  $B = A$ .

To clarify this hypothesis let us consider the following examples:

In set theory:

$$\text{If } B \subset A \Rightarrow A \cup B = A \quad (12)$$

Here  $B$  as subset of  $A$  remains intact within  $A$ . Moreover:

$$A \cap B = B \quad (13)$$

These two examples are inappropriate to our considerations because bio-information attractors' interaction is a creation operation, the  $A$  transforms the  $B$  into itself. The logic of the operation goes like this: A creation  $B$  equals  $A$  so that  $B = A$ :

Let  $B \subset A$

$$\therefore A \text{ Cr } B = A \Rightarrow B = A \quad (14)$$

Of course this cannot happen unless A and B are self-organizing, order generating systems, subject to the maximum action principle.

### **Results: EM Therapy Mechanism**

To reveal E.M therapy mechanism we employ QIB principles, according to which the DNA or genome is a QIFF capable of generating weak EM waves as well as bio-information oscillations. The emitted EM waves under certain conditions represent DNA bio-information template which has direct correspondence with the bio-information attractor, i.e., the cellular regenerative control system. The bio-information template represents an upper or lower bio-information attractor according to whether the system is healthy or dysfunctional.

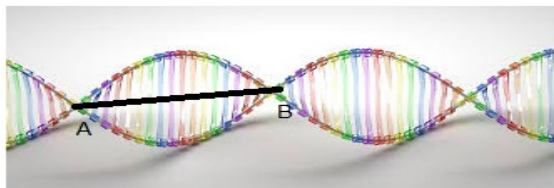
### **DNA Helical Structure**

From a physical point of view for life to emerge two conditions must be satisfied:

- i- Existence of maximum action principle that allows a system to traverse a path of maximum action and maximum bio-information, that accounts for biotic development and evolution, (first law of self-organization).
- ii- Existence of the geometry that complies with the maximum action principle.

Fortunately DNA geometry, its helical and golden ratio based fractal structure, embodies the maximum action principle, hence DNA becomes a sub QIFF. This can be shown as follows:

DNA helical structure satisfies the maximum action principle:

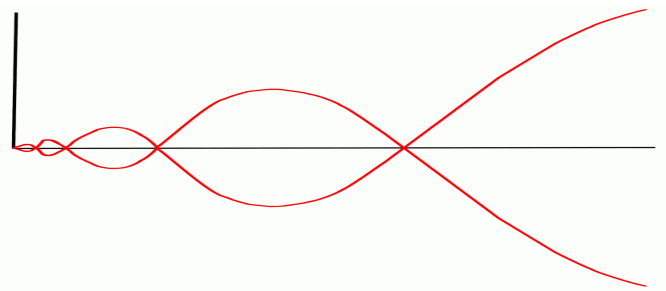


The secret of life resides on DNA geometry both helical and golden ratio based dodeca fractal geometry[17]. DNA has four nucleotides adenine, cytosine, guanine and thymine, for simplicity suppose each nucleotide measures one unit of bioinformation. If these nucleotides are arranged side by side along the straight line AB, so that AB becomes  $2r$  bio-information units then, since the straight line is the minimum distance between AB, the nucleotides are arranged along a path of minimum action in conformity with the principle of least action. The amazing fact the DNA, being helical, does not follow this path, rather it arranges its nucleotides along the path of maximum action and maximum bio-information which is curve AB. In case curve AB half circumference it possesses  $3.14 r$  bio-information units, we call any path greater than  $2r$  path of maximum action.

### **DNA Dodecahedron Fractal Geometry**

The fundamental problem DNA has to resolve is how to gather or suck electric charge waves without destructive interference. So how does the DNA solve the problem? Whilst destructive interference is the norm in wave interference, the only exception in nature is when the waves interfere with golden ratio wavelengths [17]. So, when waves of electrical charge are arranged in self-similar or fractal geometry optimized by golden ratio they recursively and constructively interfere (heterodyne). The recursive constructive interference turns compression in to acceleration, because golden ratio allows the wave velocities as well as the wave lengths to recursive add and multiply.” We have been teaching for years that the only perfectly fractal 3 dimensional electric field is the Golden Mean stellated dodecahedron. The beautiful thing is that in this structure the best possible combination of wave interference occurs for a constructive output. This is because- as you well know- only the Golden Mean ratio - allows constructive interference of both wave addition, and wave multiplication”[17]

Therefore, DNA by selecting golden ratio based fractal dodecahedron geometry, it selects fractal field phase conjugation of maximum coherence and optimum distribution of charge, and in consequence it selects the path of maximum action.



## Path of Maximum Action

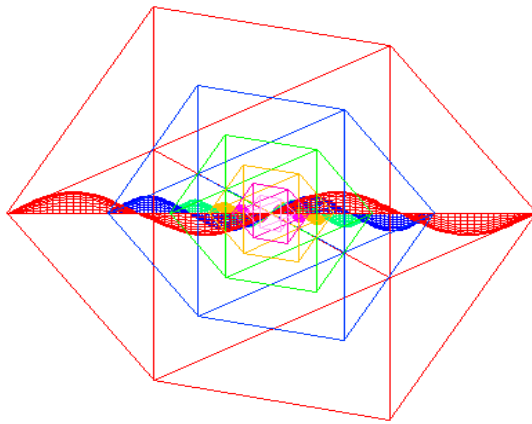
When pure sine waves with wavelengths of  $1/\Phi$ ,  $1$ ,  $\Phi$ ,  $\Phi^2$ ,  $\Phi^3$  etc. are added together, they will form a perfect Phi spiral. It is clear these waves lengths add and multiply in accordance with phi series property of both adding and multiplying:

Note  $\Phi=1.618$ , then:

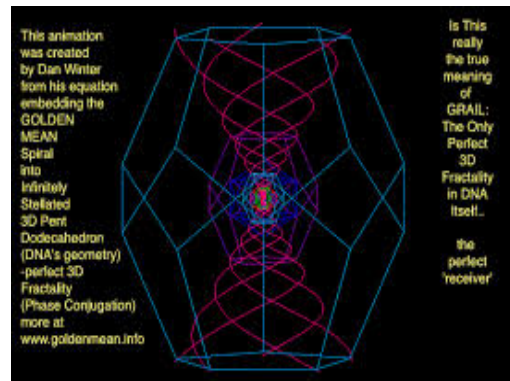
$$\varphi^{n-1} + \varphi^n = \varphi^{n+1}, \text{ also } \varphi \cdot \varphi^n = \varphi^{n+1} \text{ consider:}$$

0.618, 1, 1.618, 2.618,....

satisfies both adding and multiplying.



Top



Phase conjugation: maximum coherence. Phase conjugation: nested hierarchy of phi spirals.

Courtesy of Dan Winter [17]

DNA phi based dodeca fractal geometry generates recursive constructive charge-wave interference (waves conjugation). Now since Dan Winter's quantum fractal field represents DNA as a vortex of hierarchically nesting phi spirals, i.e., nested hierarchy of paths of maximum action, such field is actually a sub field of QIFF as nested bio-information attractors. This claim is supported by the fact that, as shown above, nucleotides are arranged along a path of maximum action and maximum bio-information.

## DNA Bio-information Template

As stated above accelerated charges (due to charge implosion) along a path of maximum action emit phase conjugate cascade of LEM waves which encode the signature of phi spirals, and the associated quantum information stationary functional states. Usually the frequency pattern of these vibrations is measured by frequency synthesizers. Also it can be found out theoretically by solving Schrodinger equation for a particle tracing a loop. [30]. The bio-information template, when targeting a lower attractor, creates a path of maximum action and maximum bio-information for nucleotides rearrangement, it is a path of reconstruction or restructuring without Bearden's proposed time reversal.[12] In fact here comes the difference between Bearden's envisaged phase conjugation according to which scalar waves carry negentropy. And Winter's envisaged phase conjugation according to which charge implosion and acceleration along paths of maximum action (phi spirals) generate EM waves that carry bio-information. Note the ability of EM waves to represent bio-information or bio-information attractors is established by the first law of self-organization (equation (7)).

### **Bio-information diseases**

Bio-information disease is reduction in the system's bio-information (vitality) due to distortion in the system's regenerative control system reflected on its cascade of phi spirals, i.e., bio-information template. This is why for such diseases drugs and immune system are helpless. Cancer, organ dysfunction and aging are examples of bio-information diseases. A bio-information disease can be targeted by a healthy bio-information template or attractor that creates a path of maximum action and rearranges the distorted nucleotides.

### **Cancer Treatment**

Based on the bio-information attractor's interaction hypothesis cancer treatment necessitates identifying the sub bio-information attractor and the upper attractor, i.e., the attractor that can vitalize or create. In case of a cancer cell we compare its bio-information attractor with that of its healthy mother differentiated cell or tissue. The BAI of either of them is specified by its associated total vitality ( $V(A)$ ), i.e., in accordance with the second law of self-organization:

$$V(A) = \frac{n\pi bG}{f^a}$$

Designating the cancerous cell BA by  $V_c$  and the differentiated cell by  $V_D$ , we get:

$$V_D \propto \frac{1}{f_D^a}, V_C \propto \frac{1}{f_C^a},$$

$$\text{Since } f_D = \frac{1}{A_D}, f_C = \frac{1}{A_C}$$

$$A_D > A_C \Rightarrow V_D > V_C \quad (15)$$

$$\therefore V_D Cr V_C = V_D \Rightarrow V_C = V_D$$

Note:  $A_D$  and  $A_C$  are the differentiated and cancerous cell's cycle time respectively. It follows  $A_D$  is greater than  $A_C$ , because  $A_C$  represents greater proliferation rate.

$\therefore$  The differentiated cell bio-information attractor vitalizes the cancerous cell sub attractor. In other words the differentiated cell's bio-information template cures or heals the cancerous cell.

$$\therefore V_D Cr V_C = V_D \Rightarrow V_C = V_D \quad (16)$$

Based on this result, which can be empirically falsified, the cancerous cell can be cured by bombarding it by its healthy mother phase conjugate replica of EM.

### **Montagnier's Revolutionary Discovery**

Luc Antoine Montagnier is a French virologist and joint recipient with Françoise Barré-Sinoussi and Harald zur Hausen of the 2008 Nobel Prize in Physiology or Medicine for his discovery of the human immunodeficiency virus (HIV). Furthermore, Montagnier [31-32] has brought forth remarkable evidence for a non-particle view of life. He claims that DNA can send electromagnetic imprints of itself into distant cells and fluids which can then be used by enzymes to create copies of the original DNA. The basic set-up of his experiments was that two adjacent but physically separate test tubes were placed within a copper coil and subjected to a very weak extremely low frequency electromagnetic field of 7 hertz. The apparatus was isolated from Earth's natural magnetic field to stop it interfering with the experiment. One tube thoroughly filtered from a fragment of DNA around 100 bases long; the second tube contained pure water. After 16 to 18 hours, both samples were independently subjected to the polymerase chain reaction (PCR). The gene fragment was apparently recovered from both tubes, even though one had contained just water. Thus it would be possible, according to Montaigner's results, to duplicate viral and bacterial DNA in the absence of the physical template of the DNA itself. Coding information would be transmitted by electromagnetic waves generating from water molecules.<sup>31</sup>

Many scientists greeted Montagnier's claims with scorn and harsh criticism. One of the criticisms of the work was that there is no known mechanism by which bacteria can generate radio waves. Thus to account for Montagnier revolutionary discovery, based on QIB, the EM signals actually represent the bio-information template that reassemble and organize water molecules in sequence of golden ratio optimized fractal dodecas. Do water molecules have the property of being organized to form fractal dodecas? The answer is yes, not only that but also it is established that the dodeca is relatively stable and common motif in water clusters, [33, 34]. Now the induced bio-information template transforms water molecules into self similar bio-information template, then given the essential ingredients the template can reassemble the whole DNA sequence.

### **Discussion:**

Probably some physicists may worry about the fate of the least action principle. I urge them to be comfortable because the maximum action principle does not violate the least action principle. The situation is similar to the relationship between relativity or quantum mechanics and classical mechanics, relativity does not violate classical mechanics rather it covers a domain which is beyond the domain of validity of classical mechanics. And since the new domain of relativity is more general, it contains the laws of classical mechanics as special case. It is same with the maximum action principle which operates beyond the domain of the least action principle, and contains the least action principle as special case. Consider the first law of self-organization (equation (7)) when  $t = A$ , i.e., an organism is dead, the rate of change of action becomes zero which means the dead system becomes in stationary state, moreover the second time derivative is also zero which indicates that the system's total energy is conserved. More important we, as scientists, must stick to empirical evidence as it is clear a biosystem, ontogenetically as well as phylogenetically, traces a path of maximum action.

It is important to note that although the DNA bio-information template which represents a cascade of phase conjugate EM waves that carry the bio-information embedded in the sequential ordering and arrangement of nucleotides along a path of maximum action, a basic premise of the current hypothesis is that genome's bio information is about the phenotype. Hence the bio-information attractor, which represents the cellular regenerative control system, operates on the cellular and multicellular (organism) domain; as a result a dual role is imposed upon the genome. On the one hand it is the source of the bio-information attractor (phenotype), on the other it is a sub-attractor that belongs to the basin of the bio-information attractor. This situation creates, with varying degrees, some sort of reciprocal causality, and mutual genome-phenome restructuring.

In fact one wonders what hidden assumption averts scientists from hypothesizing the ability of differentiated (mother) cell's frequency harmonics to carry the remedy for its cancerous daughter. Probably the hidden assumption is that: if the differentiated cell (mother) truly carries the remedy, then why the daughter goes wild while hugged in the mother's arms? It seems as if the mother's regenerative control system is not caring.

Few heuristic calculations show that the cellular regenerative system does care which substantiate the claim that the mother does carry the remedy. Suppose the world human population size is 6 billion (actual size 7.06 billion in 2012) [35], suppose the annual cancer death toll is 15 million (greater than estimated size 14 million in 2012) [36]. Based on these assumptions an individual percentage to contract cancer is:

$$(15 \times 10^6 / 6 \times 10^9) \times 100 = 0.25\%$$

This means the cellular regenerative control system is 99.75% efficient in preventing the disease, this raises the probability that the mother cell vibrations carry the secret remedy.

The proposed EM therapy mechanism resolves both Priore's machine enigma and Montagnier's non-particle view of life. It seems by experience (and trial and error) Priore was able to pick up the appropriate differentiated cell's bio-information template. Moreover the same mechanism can be applied if cancer is due to maturation arrest, because a cancerous cell's bio-information attractor is always a lower attractor.

## Conclusion

Studying bio-systems as spontaneous self-organizing dynamical systems has been problematic on the basis of ordinary physics, because two fundamental attributes of bio-systems have been missed. These are existence of a maximum action principle according to which a bio-system must generate a path of maximum action and maximum bio-information during biotic development and evolution. And second, existence of a geometry that embodies or actualizes the maximum action principle. DNA helical and golden ratio based dodecahedron fractal geometry embodies the maximum action principle. Hence the DNA becomes a quantum information fractal field, i.e., a nested hierarchy of paths of maximum action and maximum bio-information; we call nested bio-information attractors QIFF. If nature did not have the maximum action principle, there would be no life, no biotic evolution and development, and no intelligence. Without the maximum action principle physics will remain forever blind to comprehend life phenomenon.

A QIFF generates in addition to weak EM vibrations self-sustained bio-information oscillations. While the bio-information oscillations contain the dynamical essence of bio-systems, the emitted EM waves carry a signature that designates a DNA bio-information template. Different bio-information attractors which represent different quantum information stationary functional states are represented by different bio-information templates. Healing takes place when an upper bio-information attractor vitalizes a lower bio-information attractor. Without Winter's important discovery of DNA charge implosion and phase conjugation we need to endow scalar waves, as Bearden proposed, with miraculous properties such as time reversal.

This theory seems to be consistent, however, it needs experimental support, i.e., to verify the healing power of a differentiated cell's bio-information attractor, or template, when targeting a cancerous cell. Having no sponsor, equipment, or finance, and given the importance of the theory subject matter, I appreciate any contribution from any university, equipped scientist, or group of scientists to further develop and verify the theory.

## References

- [1] Nelson F, Zvirbulis R, Pilla A. The use of a specific pulsed electromagnetic field (PEMF) in treating early knee osteoarthritis Trans 56th Annual Orthopaedic Research Society Meeting 2010. New Orleans, LA:1034
- [2] McKay J, Prato F, Thomas A. A literature review: The effects of magnetic field exposure on blood flow and blood vessels in the microvasculature. *Bioelectromagnetics*. 2007;28:81.



- [3] Hannemann P, Mommers EH, Schots JP, Brink PR, Poeze M. The effects of low-intensity pulsed ultrasound and pulsed electromagnetic fields bone growth stimulation in acute fractures: a systematic review and meta-analysis of randomized controlled trials. *Arch Orthop Trauma Surg.* 2014;134:1093.
- [4] Zimmerman J, Jimenez H, Pennison MJ, Brezovich I, Morgan, D, Mudry A, Costa FP, Barbault A, Pasche B. Targeted treatment of cancer with radiofrequency electromagnetic fields amplitude-modulated at tumor-specific frequencies. *Chin J Cancer.* 2013;32:573
- [5] Electromagnetic Therapy. American Cancer Society, 2007. Accessable at: <http://www.cancer.org/treatment/treatmentsandsideeffects/complementaryandalternativemedicine/manualhealingandphysicaltouch/electromagnetic-therapy>.
- [6] McCoy Q. Tales of medical fraud. From the museum of questionable medical devices. Santa Monica: Santa Monica Press, 2000: 71-94.
- [7] Raines K. Dr. Albert Abrams and the E.R.A. Accessable at: <http://www.seanet.com/~raines/abrams.html>.
- [8] Cramp A. The electronic reaction of abrams. *Hygeia*, 1924,2:658-659.
- [9] Anonymous. Questionable methods of cancer management: electronic devices. *CA Cancer J Clin*, 1994,44:115-127.
- [10] Bearden T. "Vacuum Engines and Priore's Methodology: The True Science of Energy-Medicine" *Explore More*, Number 10, 1995, p. 16
- [11] Becker R. *The Body Electric: Electromagnetism and the Foundation of Life*. New York 1985. William Morrow & Co., Inc
- [12] The Tom Bearden Website: <http://www.cheniere.org/books/aids/priore.htm>
- [13] Winter D. <http://www.fractalfield.com/mathematicsoffusion/>
- [14] Elsheikh M. In Search of Quantum Information Biology. *ADVANCES IN SYSTEMS BIOLOGY VOL.4 NO.1 2015*. <http://www.researchpub.org/journal/asb/asb.html>
- [15] Elsheikh M. *Discovery of the Life-Organizing Principle- In Search of the Fundamental Laws of Life*. iUniverse LLC, Bloomington, IN.USA. 2014.
- [16] Elsheikh M. Towards a new physical theory of biotic evolution and development. *Ecological Modelling* (2010)221 pp. 1108-1118
- [17] Winter D. <http://www.goldenmean.info/fractalfield/>

- [18] Grandpierre A. Biological extension of the action principle. *NeuroQuantology*. (2007) Issue 4, pp 346-367.
- [19] Davies P. *Essays and Commentaries. Complexity*. Wiley Periodicals, Inc., 2004; Vol. 10, No. 2
- [20] Lloyd S.. Computational capacity of the universe. *Phys Rev Lett*, (2002) 88, 237901–237908.
- [21] Minorsky N. *Nonlinear Oscillations*. Robert E. Krieger Publishing Company. Malabar, Florida 32950. U.S.A. pp 71-73. 1962.
- [22] Nicolis G. Prigogine. *Self Organization in Non Equilibrium Systems: From Dissipative Structures to Order Through Fluctuations*. Wiley-Interscience Publication/ John Wiley & Sons, New York/London. 1977.
- [23] Goodwin B.C. What are the causes of morphogenesis? *BioEssays* (1985) 3:32-36
- [24] Shapiro J. A. 2013. How life changes itself: The Read–Write (RW) genome *Physics of Life Reviews* 10 (2013) 287–323
- [25] Pareto V. (1897). *Cours d'economie politique*, republished as *Manual of political economy*, Augustus M. Kelley Publishers, ISBN 0678008817 (1969).
- [26] Bak P. & Paczuski M. (1995). Complexity, contingency, and criticality. *Proc. Natl. Acad. Sci. USA*. Vol. 92, pp. 6689-6696.
- [27] Eldredge N. and Gould, J.S.. 1972 Punctuated Equilibria: An Alternative to Phyletic Gradualism. In T.J.M. Schopf, et., *Models in Paleobiology*, 85-115. San Francisco: Freeman, Cooper..
- [28] Edgar R. The Embryonic Development, Stem Cells, and Regenerative Medicine Research Portal. *PLOS ONE* | [www.plosone.org](http://www.plosone.org) 1 July 2013 | Volume 8 | Issue 7 | e66629
- [29] Rosindell J. (2012). A Fractal Explorer for the Tree of Life. Volume 10 | Issue 10 | e1001406. *PLOS Biology* | [www.plosbiology.org](http://www.plosbiology.org)
- [30] Widom A and Swaim J. *Electromagnetic Signals from Bacterial DNA Physics* Department, Northeastern University, Boston MA USA. *Arxiv.org*. 15 April
- [31] Montagnier L, Aïssa J, Ferris S, Montagnier J-L and Lavallee C 2009 *Interdiscip. Sci. Comput. Life Sci.* 1 81–90
- [32] Montagnier L, Aïssa J, Del Giudice ED, Lavallee C, Tdeschi A and Vitiello G. 2010. DNA waves and water. [arxiv.org/abs/1012.5166](http://arxiv.org/abs/1012.5166).
- [33] Loboda O, and Goncharuk V. (2010). Theoretical study on icosahedral water clusters, *Chem. Phys. Lett.* **484** (2010) 144-147.
- [34] Mae-Wan Ho, 2014. Illuminating Water and Life. *Entropy* **2014**, 16, 4874-4891; doi:10.3390/e16094874
- [35] World population 2012: <http://www.prb.org/Publications/Datasheets/2012/world-population-data-sheet/fact-sheet-world-population.aspx>
- [36] Global Cancer Facts & Figures <http://www.cancer.org/research/cancerfactsstatistics/global>

