

The Principle of Minimum Stimulus in the Autopoietic Processes of Bioenergetic Self-Regulation, Bonding and Embodiment

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"The Reichian dream of the orgasm as the pulsatory engine of life and the cosmos finds a conceptual foundation in the revolution brought about by quantum physics.

The psyche, the mysterious level where chemical reactions produce energy, interacts directly with the soma, from which it receives directions.

The nature of the ancients has been characterized by the horror vacui, the fear of the void, the emptiness. The nature of quantum physics is characterized by quietis horror, the fear of an absence of movement."

Emilio Del Giudice, a theoretical physicist, Prigogine Award 2009¹

ABSTRACT

This paper presents the paradigm of quantum field theory applied to living systems, and orgone energy as developed by Wilhelm Reich and also by Eva Reich in her formulation of Gentle Bio-Energetics. Reich developed the hypothesis of an unconscious anchored in the body, which is the root and the driving force of the libido, and created an energetic approach to a pulsating somatic psyche. He discovered a precise process of entanglement between physical and mental wellbeing.

Keywords: : quantum physical dynamics, neg-entropy, minimum stimulus principle, quantum coherent state, orgone energy, connective tissue matrix, autopoietic processes, self-organization dynamics.

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Post-Reichian development increasingly refers to a systemic-evolutionary paradigm of negative entropy. For example, Ferri (Ferri & Cimini, 1999, pp. 154-157) recognizes and decodes in relationship, the energy of "a living form" that responds to the autopoietic and evolutionary laws of living systems. Davis (2014, p. 13) refers to the autopoietic, self-organizing property of the endo-self, which energetically exists in the core of the living. Nevertheless, in current Reichian thinking, as well as in other body psychotherapy

¹ <https://www.wessex.ac.uk/prigogine-award>

approaches that derive from Reich, orgone physics seems to have been relegated to the background. Because the energetic orgonomic paradigm is incompatible with understandings derived from classical physics, biology, and neurology, it is no longer the subject of discussion within current therapeutic practice.

To confirm the validity of Reich's system, we refer to quantum field theory (QFT) as applied to living systems and find convincing corroboration in orgone theory. The QFT offers principles to explore the conditions and the quality of interactions that allow the "living form" to express its neg-entropic developmental capacity.

Recent articles focus on the physical processes of the emergence of the psyche in the body, and the physical dynamics that govern energy processes. First, Del Giudice (2004a, p. 58, pp. 69-86) proposed that psycho-emotional and physical units of living organisms emerge as a result of the quantum physical dynamics of resonance of the phase. Secondly, *The Principle of Minimal Stimulus in the Dynamics of the Living Organism* (Tosi & Del Giudice, 2013a, pp. 26-29) focuses on the biophysical response of living systems to external stimuli, and how this response regulates the dynamics of self-organization. In both articles, there are rigorous insights and conclusions consistent with both Reich's energy concepts and current QFT understanding.

Quantum physics has shown how microscopic components behave and perform consistently in macroscopic objects and phenomena. In this framework, reality is observed as fields of energetic relationships in which phenomena are not separate localizable entities, but interact with all localizable objects in space and time. This ensures that there is a global holistic behavior of all parties and that there are correlations between the movements of the separate bodies. Thus, the whole is greater than the sum of its parts.

The starting point of this conceptual revolution in classical physics and molecular biology was the transition from the classical theory of Galileo and Newton to the quantum framework. In classical theory, matter is conceived as an inert object, where uniform movement varies only through the application of external force. In addition, matter is conceived as divided into bodies that are mutually isolated from each other. In both of these models, it is possible to accurately determine all the variable dynamics of an object, such as energy, the quantity of movement, and of course its position in space-time.

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In this theory, however, there is no place for the appearance of a self-organizing dynamic, which has so far prevented productive dialogue between physicists and those who study life. Molecular biology and neuroscience are based on classical physics, and are unable to explain the dynamics of perception, the creation of life, and the self-movement of living matter. In the quantum framework, however, this is possible: each

physical object, be it a material body or force field, is inherently fluctuating and able to energize a set of spontaneous oscillations. This enables it to join in phase with other objects, and with a set of existing fields in nature, called gauge fields.

An example of such a field is the potential of the electromagnetic field. Because the oscillations join together, all existing bodies in the universe acquire the ability to mutually correlate in fields of relationships—even at great distances, losing the properties of separation, which is one of the cornerstones of classical physics. This joining together, the pairing of resonances, contains information.

The Quantum Paradigm In The Dynamics of Psychic Processes

Recently, the biological basis of psychic processes and their actions—embodiment—have been explored by neuroscience. Research by Rizzolatti et al. (Rizzolatti, Sinigallia, 2006), and Gallese (2007, p. 362, pp. 659-697.) on mirror neurons has attempted to provide a possible answer to the neurobiological basis of bonding. Rizzolatti argues that *“The availability for mirroring, determined at the neurobiological level, is the fundamental basis for the relationship between the baby and the mother.”* Echoing this, Joachim Bauer has written a book on the subject: *Why Do I Feel What You Feel?* (Bauer 2006, pp. 7-56).

Modern neurobiology has addressed this problem from many perspectives. But apart from the above approach, which correlates specific brain functions with specific neurons, there is a theory based on the work of Lashley (1948, pp. 302-306) and Freeman on the nerve cells' capacity for collective resonance (Freeman 1975/2004; Freeman & Vitiello, 2008a, pp. 93-117). Vitiello (1997, p. 16, pp. 171-199), quoting Freeman, writes:

“The question therefore arises as to what the agent may be and how it manages to bind and lead to a global order within a few thousandths of a second the billions of neurons that make up each human hemisphere (...). The transmissions on which the cooperation is established cover distances that are a thousand times greater than the diameter of the axonic and dendritic extension of the vast majority of neurons (...) and the time necessary to send impulses between the cortical modules is too long to allow a general synchronization of pulse trains.”

They hypothesize the existence of mass action of a large number of neurons in the storage and extraction of brain memories (Vitiello, 2009, pp. 157-158). Lashley writes²:

“Nerve impulses are transmitted from one cell to another through defined intercellular connections. However, the whole behavior seems to be determined by masses of excitation within the general fields of activity, without regard to particular nerve cells. What kind of nervous organization might be able to respond to an excitation pattern without specialized paths of conduction? The problem is almost universal in the activity of the nervous system”.

Pribram (2004, pp. 224-225) and Vitiello (Freeman & Vitiello, 2008b, 41 30, 304042) proposed an analogy between these neural activity fields distributed in the nervous system

² <https://escholarship.org/uc/item/5c43n596>

and wave patterns in holograms. Rather than the activation of individual masses of neurons, it is precisely this collective resonance ability of nerve cells that produces a collective aspect of neurocerebral and cellular activity (Vitiello, 1997, p. 16, pp. 171-199). This makes possible the dynamics of perception, mirroring, and resonance with external subjects.

Minimal Stimulus

Del Giudice and Tosi (Tosi & Del Giudice, 2013a, pp. 26-29) look specifically at the bonding and embodiment processes. Their study of the scientific model of minimum stimulus is congruous with the same properties both in QFT and in ergonomy. It has also allowed us to focus on the differentiated energetic quality of the biophysical response of the living organism to the physical properties of the stimulus received from the environment.

Around the middle of the nineteenth century, classical physiology was able to establish a universal relationship between stimulus and response for all living species. This is the law of Weber and Fechner (Del Giudice, Stefanini, Tedeschi, Vitiello, 2011, p. 329, quoting Chisholm 1911), which establishes the proportionality of the response not to the stimulus, but to the logarithm of the stimulus (Tosi & Del Giudice, 2013a, pp. 26-29).

From those assumptions emerges the formulation of the principle of minimum stimulus: the lower the stimulus, the greater the potential of the organism to reform and reorganize, which is precisely the goal of therapy. Naturally, the type of reorganization depends on the nature of the stimulus (Tosi & Del Giudice, 2013a, pp. 26-29). Eva Reich was able to recognize that the orgone dynamics discovered by her father were operative only in an environment governed by minimal stimuli, based on the classical principle of Weber and Fechner. The profound consequences of this change of perspective deepen in light of the principles of quantum physics.

These principles made it possible to prove that interaction with minimal stimuli in the body promotes a co-resonance process, which sustains the ability of living matter to form states of biophysical coherence, and develop the emergence of self-organizing processes. Studies highlight the properties of the bioenergetic function of co-resonance in biophysical processes that promote self-organization, embodiment, and the capacity for bonding capacity (Tosi & Del Giudice, 2013a, pp. 26-29). These processes autopoietically emerge in the biophysical energetic resonance of the energy field of the mother-child dyad as the original form of communication in the process of bio-emotional contact. And they re-emerge in psychoanalytic therapy as primary identification and reverie, as well as through the concepts of resonance, somatic transference, and vegetative identification.

A Look At History: The Jung-Pauli Dialogue: The Psyche As The Bond Of Matter

Emilio del Giudice and Margherita Tosi report on the dialogue that took place between C. G. Jung and W. Pauli on the psyche as the glue of matter (Tosi & Del Giudice, 2013a, p. 60, pp. 26-29). They wrote that Freud thought that physicists could not understand how an emotional sphere could emerge from the molecular structure of a body. He warned his followers to ignore physics. Not everyone followed his advice. The theoretical physicist Wolfgang Pauli, one of the founders of quantum physics, entered into an exchange with the world of psychodynamics through a dialogue with Jung (Jung, C. G., 2001), which planted seeds for future developments.

The first is that the psyche, which cannot be embodied in a particular material body, could instead be the set of resonant relations between the different parts of the body established through the quantum vacuum. In this way, the psyche ensures unified behavior of the organism and becomes the mode of being of organic matter.

These resonant relations, as later shown by Prigogine (Prigogine & Glansdorff, 1971), do not require a flow of energy, but rather a concentration of internal energy already present in the subject, which implies a negentropic state. It turns out that the movement of the organism is not just movement that requires a constant supply of outside energy; it is, rather, a movement from within, based on the reorganization of internal energy and triggered by informational stimuli. The rational basis of the principle of minimum stimulus begins to emerge.

A second and more profound suggestion has to do with the timeless nature of the quantum vacuum, which is able to connect, in a quantum field, events localized in different spaces and times. Jung sensed that this finding of quantum physics would permit a completely different phenomenology from that based on localized events in space and time linked together by the principle of causality. In a quantum dynamic, on the other hand, a collective process is established, which involves events localized in different spaces and times, which consequently become synchronous events. This can actually be observed in different ways in the psychic dynamics of people living here and now, with the presence of psychic experiences that occurred at different times.

The emergence of psychic processes in the body was resolved by physicists. In Freud's time, the field of psychodynamic science would not have needed to learn from physics. When physics shifted the focus of its investigation beyond a deterministic paradigm, it could explain the emergence of the emotional sphere from the molecular structure of a body.

Physicists, however, in order to overcome the limitations of the classical deterministic paradigm in understanding reality, found themselves getting closer to the revolution that began with Freud and continued by Reich. This allowed them to overcome what prevented them from seeing how matter allows psyche to emerge, and also how it can self-organize (Del Giudice & Stefanini, 2013, pp. 9-17). Yet, even now, energetic body/mind-based psychotherapy, still rooted in the classical physics paradigm for its theoretical underpinning, has been unable to account for and explain processes inherent in the energetic dynamics of living matter in the therapy setting.

Reich's Energetic Functioning and the Expressive Language of the Living

The physical foundation of the dynamics of the id (instinctual-pulsatory unconscious), was taken up by Reich, whose thinking went through three phases. The first was his character-analytic phase from 1920 to early 1930, following Freud's footsteps. He focused on the dynamics and functional aspects of character structure; how psychic structure gives rise to corresponding somatic structures, whose solidifying is the "armor" that makes the character rigid. The correlation between physical and psychic structures became the center of Reich's research. He suggested an alternative way to intervene in psychic structures through physical interventions in the body.

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In his second phase, vegetotherapy, from 1930 to 1938, Reich (1949, p. 437) discovered that the living organism is characterized by a primary “pulsation” in the breathing rhythm of the whole organism (Tosi & Del Giudice, 2013a, pp. 26-29). This pulsation brings unity and harmony to the organism. The psychic disorder that corresponds to neurosis derives from an alteration of the pulse in which the inhalation phase (corresponding to the energy charging process) plays a dominant role compared to the exhalation phase, which corresponds to the discharge of energy, associated with the possibility of feeling pleasure). According to Freud’s theory, neurosis is seen as a consequence of the suppression of pleasure, but Reich goes far beyond this by initiating a thorough biophysical investigation of how and why this process occurs.

This marked the beginning of Reich’s third phase of research, which lasted from the late 1930s until his death in 1957. In this phase, Reich studied the organic basis of living pulsation, and traced that process to a particular form of energy, which he called orgone. Reich doesn’t clarify whether the orgone is one of various forms of energy, such as gravitational or electromagnetic energy (Tosi & Del Giudice, 2013a, pp. 26-29), or if it is, as we shall see later in the proposal made with QFT by Del Giudice, organ energy’s way of being—an electromagnetic interaction between the different parts of an organism when they manage to synchronize their oscillations, their individual pulsations.

Reich saw a special correlation with water, but he could not develop this idea further, given the limitations of physics at the time, although he did study harmful orgone dynamics in organisms. He managed to show how cancer is a representation on the physical level of energy produced by the suppression of pleasure and the blockage of pulsations (Reich, 1960).

In 1949, in collaboration with his daughter Eva, his research on the energetic functioning of living systems led them to the understanding of co-resonant processes in energy fields. In its deepest recesses, nature expresses this “resonance in phase:” co-resonance with configurations and behaviors carrying a biological sense that never ceases to amaze and touch us. Examples are presented below, which support the idea of a circularity and interdependence of relationships based on co-resonance and self-organization of the bioenergetic fields involved.

In organomy, we see the energetic process of contact between biosystems; in biology the maternal fetal microchimerism (Boddy, Fortunato, Sayres, Aktipis, 2015, pp. 1106-1118); in ethology, the breast crawl (UNICEF I, 2007); in psychology, Winnicott (1949, p. 221) speaks of internal states of continuity of being; in neuroscience, the mirroring processes; in psycho-neuro-cybernetics the collective processes of nerve cells’ co-resonance, observed by Lashley and Freeman; and the holographic patterns of mind and perception by Vitiello and Pribram (as cited in Casavecchia & Wendelstadt,

2015, pp. 79-81); in physics, the fractal structure in nature—the expression of fractal processes at all levels of the organization of matter and morphogenetic fields. From this emerges a vision of living matter as a set of properties and potentials capable of assuming coherence, resonance patterns, and self-organization. In addition, there is a vision of living beings capable of the conscious production of self at a certain degree of evolutionary organization. The living organism has the capacity to express a core psyche with affective consciousness as the product of the resonant relationships of the parts of the organism with the environment that surrounds it. The psyche itself, in accordance with the principles of non-locality and non-causality, resonates in the body in synchrony with energetic affective memories, including those of the biogenealogical networks. In each adult, in fact, is contained the seed of the child.

The Living Organism In Light Of Quantum Physics

To summarize, we recognize two types of movement: the first, from classical physics, is movement generated by an external cause, which manifests as a force and requires a flow of external energy and/or impulses. The second, from QFT, is movement coming from inside the subject: self-movement or spontaneous movement. All living matter shows self-movement and perception. Chiappini, Tosi and Madl wrote:

“Living matter produces biological codes that convey meanings. These codes are modulations of different frequencies and express fractal structures and processes. Human development from conception onwards manifests itself as a fractal structure” (Chiappini, Madl, Tosi 2016:1)³.

Even inert matter is subject to this. Think of fractal structures expressed in the journey of water in rivers, in the atomic arrangements of crystals, in clouds, in galaxies. The basic dynamic of biolinguistics and its representations (Piattelli, Palmarini & Vitiello, 2015, pp. 96-115), reveals itself in the properties of its own syntax (Chiappini, Madl, Tosi, 2016, p. 4), coherent with the very same mathematical representation used in the demonstration of the coherent dynamics of living water (Del Giudice, Spinetti, Tedeschi, 2010a. 2, pp. 566-586). This leads us to believe that we are dealing with one reality in various and different degrees of developmental organization and evolution. As Reich realized, this unifies the living with the universal. Everything that exists appears to be an expression of modulations of different frequencies. The role played by spontaneous fluctuations is essential for all physical objects; they cannot avoid fluctuation and the dynamic interaction that occurs. This oscillatory behavior of the physical object is defined as the “ground state”, the state of minimum energy of the object, which in quantum physics is called a “vacuum.” The vacuum is, in fact, the totality of spontaneous fluctuations of the object.⁴

In the dynamics of living systems, the vacuum, this field of fluctuations of living matter, acts in, through, and around the body. It is both a network of information and a perception

³ <https://www.evareichmilano.it/wp-content/uploads/2019/01/On-this-side-of-the-principle-of-minimal-stimulus-Chiappini-Madl-Tosi.pdf>

⁴ <https://www.sinistrainrete.info/teoria/3108-edel-giudice-gvitiello-quando-il-vuoto-e-pieno.html>

system that receives and transmits messages from the environment. These spontaneous fluctuations keep the system "open" so it can communicate with the environment through these fluctuations. The fluctuations in the rhythm of oscillation of objects, known as "phase", spread out in the environment in the form of special fields of potentiality.

The most obvious example is the electromagnetic field, which governs the interactions between atoms and molecules. The phase, considered apart from the energy, can travel faster than light, and carries information. This produces a violation of causality in the way Einstein meant. As a result, *"interactions based on transmission of energy obey the principle of causality (no effect occurs before the arrival of the cause), while those interactions based on the transmission of the phase, that can travel at infinite speed or even go back in time, do not follow the principle of causality and can connect different subjects in different spaces and different times"* (Tosi & Del Giudice, 2013a, pp. 26-29).

Here we can find a rational basis for understanding the origin of synchronic phenomena suggested by Jung (Jung, 2010, p. 115). There are then two possibilities (Tosi & Del Giudice, 2013a, pp. 26-29); the first is that when the fluctuations of bodies and vacuum remain unsynchronized, they lead to a large indeterminacy of the entire oscillation rhythm, which cannot define value and averages. In this case, the bodies retain their individuality, so it is still possible to accurately determine their atomic structure. Spontaneous oscillation does not play an essential role here, and the whole, as in classical physics, is consigned to the dynamics of strength and energy. Self-regulating movement disappears; all that remains is movement from outside bodies that are considered inert. This is the world described by molecular biology, which is the basis of institutionalized medicine, and the scientific model used in psychotherapy.

Fortunately, there is another possibility. Under appropriate conditions, the fluctuations of matter and vacuum can be synchronized, thus beginning a collective dance that embodies the orgasmic organismic pulsation sensed and observed by Reich. In physics, this state of matter is called "coherent." In coherence, the number of components remains undetermined, while the oscillation rhythm acquires a more precise definition (Tosi & Del Giudice, 2013a, pp. 26-29). To engage in this collective dance, the oscillatory rhythms of the participants and their frequencies should be the same, but absolute equality does not exist in nature. The probability that two frequencies are exactly equal, or even only slightly different, is equal to zero. Then how can these objects resonate? Del Giudice says:

"It could never happen in a state of isolation, because they need a comfortable environment, full of fluctuations at a very low frequency, with a widespread noise that would let the two physical objects resonate, or as Reich would say, enter in a deep orgonotic contact or orgasm, stealing from the environment the small fluctuations that fill the gap, and equalize the oscillation frequencies of the partners" (Tosi & Del Giudice, 2013a, pp. 26-29)."

This is the condition that allows a coherent (or correlated) state of matter to form (Del Giudice, 2004a, pp. 77- 81).

A coherent system is able to decrease its own entropy and increase the capacity to perform external work. The Reichian energetic biophysical model of tension-charge-discharge-release is coherent with this particular quantum phenomenon,

which explains the dissipative, negentropic function, the orgasmic discharge process that allows the organism, through the emergence of states of biophysical coherence, to recover expendable energy (Chiappini, Madl, Tosi, 2016, p. 9). In addition, in a physical system, gaining coherence is equivalent to self-regulated movement (Del Giudice, Spinetti, Tedeschi, 2010b 2: 566-586). The role of coherence in the dynamics of life has been highlighted over the years by Mae-Wan Ho (Ho M-W, 2008, pp. 39-50) in her research on the coherent dynamics of liquid water, proving that the onset of coherence in a physical system opens up the possibility of autonomous movement (Ho M-W, 2011, pp. 26-29).

Orgone Energy As A Coherent State Of Matter

We can now put forth our hypothesis that Reich's orgone energy is the form taken by the energetic functioning of the organism in a state of coherence (Del Giudice, 2010, pp. 47-50). The disappearance of the orgone (Reich, 1978, pp. 29-31) is the consequence of the loss of coherence (Tosi & Del Giudice, 2013a, pp. 26-29) of the organism (Vitiello G., 1997, pp. 171-198), with the consequent loss of self-organization, agency, self-movement, and a tendency toward the state of inert matter (Chiappini, Madl, Tosi, 2016, p. 6).

The quantum object is therefore characterized not only by energy and impulse, as is the classical object, but also by the rhythm of oscillation known as phase, a concept expressed by Reich as orgonic pulsation. It can be influenced not only by external forces, but also by the resonance between the phase of its oscillation and the phase of oscillation of other objects and external fields. This resonance does not involve exchange of energy or impulse, but produces the mutual feeling of the bodies involved moving in phase with no expenditure of energy, just as in the organismic pulsation of the orgasm, and in the bioenergetic-emotional body contact of lovers or of mother and baby (Tosi, Del Giudice, 2013b, p. 32). In 1951, Reich called this process cosmic superimposition (Reich, 1951). Wendelstadt and Casavecchia (Wendelstadt & Casavecchia 2015, p. 76) have defined it as *innate configurations of co-resonance, original forms of communication*.

According to QFT, the same biological and energetic dynamics appear as an outcome of coupled co-resonance between networks of functions. The first network (Del Giudice, 2004b, p. 47), (biochemical), which provides the supply of ions circulating in the connective tissue in the cellular and interstitial protoplasm, puts the processes into phase and carries information.

The second network, informed at every moment with no expenditure of energy by the first network, which is in a state of phase coherence, produces currents of awareness throughout the body via the nervous system in its perceptual expression (Del Giudice, 2004b, p. 48). The first network, responsible for biochemical activity as an energetic product, gives rise to the bodily sensations that translate into emotions.

The unconscious informational content of the first network could correspond, as proposed by Solms and Panksepp (2012, pp. 147-175), to the Id theorized by Freud, which Reich identified with the deep vegetative bodily currents. Del Giudice, Popp et al. say this informational content could coincide with the current

of ions traveling in the connective tissue network, also conceivable as the Chinese meridian network. (Brizhik, Del Giudice, Maric-Oehler, Popp, Schlebusch, 2009, pp. 28-40).

The first network contains the foundation of emotional movement and the "affective" mode of consciousness at the level of the id, the biological basis of affectivity. The second network is the basis for the perception of emotions at the subconscious and conscious level. Psycho-emotional and physical unity emerges from the quantum resonance processes in phase through the establishment of states of coherence in the organism, which take place in the energetic communication between the two networks in their energetic interaction with the environment (Del Giudice, 2004a, pp. 81-83).

The question of what promotes this dynamic has initiated investigation into the function of the quality of stimulus on living matter. The rationale of the principle of minimum stimulus was articulated by Prigogine (Tosi & Del Giudice, 2013a, pp. 26-29), who had established that resonant relationships do not require a flow of energy, but rather a concentration of internal energy already present in the subject, which implies a decrease of its entropy resulting in development, structuralization, and order.

As shown earlier, the movement of the organism is not only a movement that requires a constant amount of energy from the outside, it is also a movement from within, based on the reorganization of internal energy and triggered by informational stimuli. Stimuli capable of forming information must be able to make contact with the bio-system without introducing energy exceeding the sustainability of the system, but providing a co-resonance, able to harmonize in phase and promote states of greater holistic integration of its individual functions. This biophysical dynamic is also observed within the living phase⁵ (Del Giudice, Spinetti, Tedeschi, 2010a) of liquid water (Ho M-W, 2011, p. 510; pp. 26-29). Resonance phenomena that create coherence states have been observed in nature, and are called solitons. Vatinno (2015) notes that it was John Scott Russell who first observed a solitary wave flowing along a canal for miles without losing energy; then Alfred Richard Osborne discovered solitons by studying ocean waves. The existence of a self-reinforcing wave function resulting from the concomitance of non-linear and dispersive effects, mutually erasing in a propagation medium, was seen in nature; a wave capable of propagation and conservation of the amplitude and frequency function without loss of information and energy, without dissipation. The solitonic wave is indeed capable of changing appearance while undergoing attenuation or amplification, depending on the propagation medium. But it can always resume the aspect of the initial signal, if propagated in a similar medium. The physical mathematical model of solitons finds application in plasma physics, in the biology and neurology of neuronal signal transmission, and in optical guidance systems. Studying the dynamics of self-organization in vivo, Del Giudice, Popp and others hypothesized the possibility of electromagnetic field self-focusing in

⁵ <https://www.mdpi.com/2073-4441/2/3/566>

collagen crystal structures (Brizhik, Del Giudice, Maric-Oehler, Popp, Schlebusch, 2009, p. 37), and they proposed that “*a rational therapy therefore appears to be the stimulation of solitons able to clean the paths and recover the coherence of the system.*” The quantum model showed that it is the interaction with the phase that allows the fluctuations, in a coherent state, consent the emerging of solitons (Brizhik, Del Giudice, Maric-Oehler, Popp, Schlebusch, 2009, p. 2), which, developing chains of impulses at long distance with no thermal dissipation, involve the network of the nervous system and connective tissue in more harmonic dances (Del Giudice, 1997, pp. 479-481). This is the content of the Böhm-Aharonov effect (Bohm, 1959, pp. 485-491), formulated on a theoretical basis in the 50s and confirmed experimentally in the 80's. Interaction with the phase does not carry energy and momentum, it does not exercise forces, it only tunes together the phases of the parts provided they have a specific phase. This is another important step towards the understanding of the principle of minimum stimulus.

In the energetic functioning model proposed by Davis (2014), he describes the property of the endo self, a state reached as a result of the energetic instroke process. The contents of this model present coherent elements with both Eva Reich's Gentle Bio-Energetics and QFT applied to living systems. The theoretical approach of the QFT specifically provides an energetic-physical understanding of the gathering force of the Instroke, understood as an inward movement, a process where the internal condensation energy of the subject is facilitated by a specific co-resonant quality of informational stimuli able to promote self-regulatory reorganization. This reorganization of the internal energy is what happens in the endo self state, which is the result of the instroke gathering force. Moreover, other studies by Del Giudice and his colleagues (Brizhik, Del Giudice, Maric-Oehler, Popp, Schlebusch, 2009, p. 37) highlight the energetic process involved in the connective tissue matrix and the outcome in physiological and psychological states, and in its relation of correlations with the minimal stimulus process.

Furthermore, Preparata (1990) has also shown that a large number of small oscillations are much more useful in facilitating the achievement of the condition of resonance between the components than a single oscillation of equal amplitude. This also consistently emerges in Eva Reich's principle of minimum stimulus.

When the domains of coherence take a greater share of energy from the outside, an alteration of the gradient of the phase occurs to the point of cancelling it. This recognizably stops the flow of ions and is the basis of the dis-embodiment phenomenon, i.e. of the separation and splitting of the psychic, emotional and physical components due to the system's absence of coherence. Reich speaks of this as an “energetic block.”

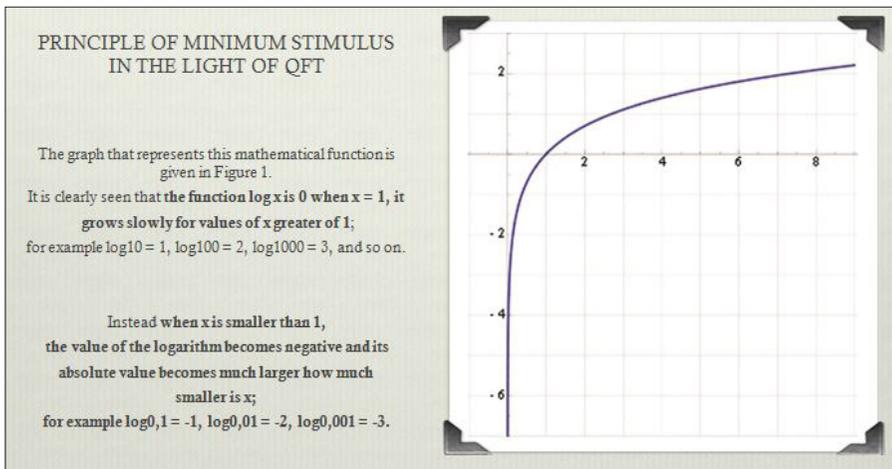
The flow of emotions in this framework can be identified as the organized system of traffic over the distance of the ion's currents guided by the phase, in their expression of the wavelength of the oscillation. Living beings do this because their components interact with a medium, the quantum vacuum, which is not empty, but is the set of all the oscillations. This creates an energetic matrix structure capable of interacting with objects through the phase and the resonance. The living organism is oriented towards a continuous attempt to establish coherence

between the vibrating elements. This helps us understand why phase-centered living organisms have an expansive desire (libido energy) and why they tend to connect with the largest possible number of beings in nature.

For this reason, when in the bio-system the conditions for co-resonance of their constituents are created, the bioenergetic function of self-regulation emerges from an interaction of co-resonance in phase between the individual and the quality of the stimuli provided by the environment.

As previously discussed, the QFT emphasizes the *quality* of the relationship between the intensity of the stimulus and the body's response. It has been shown that minimal stimuli contacting the organism below the stress and alarm threshold, have the capacity to promote an interaction and an intra-action with the phase, which does not carry energy and quantity of movement. It simply tunes the phases together—provided they have a particular phase.

If the response of a living organism is proportional to the logarithm of the stimulus, as the physiological law of Weber and Fechner showed us, the lesser the stimulus, the greater will be the response.



Observing this function clinically and mathematically, it is clear that, when the stimulus is small (small resonating oscillations), it is capable of activating processes of self-regulation and organizes the field, allowing the emergence of self-perception, because the body perceives the movement as coming from inside, “**creating an inward condition of *inbound***”, of psychosomatic embodiment. (Del Giudice, Tosi, 2013a, p. 28)

The essential element is not therefore the amount of energy involved in pulsation but its quality; this latter is able or not able to trigger an information process of phase coherence. Based on that, the correlations between the quantum model of QFT and the organomic energetic model become more evident. In particular, QFT shows us that when there is no synchronization between the quantum vacuum and the fluctuations of bodies, no self-regulated movement results. There are only the dynamics of force and energy coming from the outside. When the fluctuations of bodies and the vacuum

(which is the state of minimal energy of the system) are synchronized, a "coherent state" is established. *The coherent state of matter is only produced if there is a system open to the fluctuations of the environment; in order for this to occur, they must be very small.* In the living system this opens the possibility of autonomous movement, evolutionarily self-organized. The organotic pulsation of the organism is expanded.

Good health therefore does not coincide with having a lot of energy, but rather with the ability to donate outside all energy exceeding the level of maintenance of vital pulsation. This concept finds a mature expression in the work of Eva Reich's "Glow & Flow principle" (Reich, Zornanszky, 2006).

It has been well argued by Chiappini, Tosi and Madl (2016, p. 9) that the armoring process, sympathicotonia, is decoded as the result of the failure of a normal logarithmic response of the system to external stimuli.

"It is this missing response that ultimately slows down the plasmatic movement, the damage and asphyxia of the tissues. Blocking of vegetative movements is followed by muscular contraction and shock reaction, which produce, in a substantially healthy organism, apoptosis and the recovery of expendable energy. On the other hand, in an armored organism it leads to neurosis, to T-cells disintegration (W. Reich, 1948) and to the production of cancer cells" (Chiappini, Madl, Tosi, 2016 p. 9).

Of special importance is the quality of the dynamics that informs us about the energetic setup of the environment, because the whole picture explained above depends primarily on the phase, and much less on exchanges of energy. An analogy is how the performance of an orchestra depends on the rhythm given to the orchestra by the conductor, much more than on the energy communicated by the musical instruments. The same in a living organism. Dynamics are governed mainly by the value of the phase, and much less by the energy exchanged.

In this process of co-resonance emerging from the capacity of the bio system, the surrounding environment must be able to provide information capable of resonating, by supplying the minimum amount of energy needed to promote the widest possible organization in phase of the oscillation (state of coherence) and thus create coherence domains.

This quality of experience is cultivated by a nurturing environment that promotes an energetic resonance in and between the cells of the bodies of mother and newborn, mutually perceived in the process of bio-emotional contact and resonating within their energy field. This allows the production of specific and functional biochemical substances, such as the ossitocinocinergic network (Moberg, K. U., & Moberg, K., 2003), which is active in the processes of bonding and empathy. Original forms of communication, delicate instinctual forms of co-resonance, are contained in the treasure chest of life's processes.

The biophysical and emotional pulsation that informs the psychobiological sense of the continuum of existence (Winnicott, 2013), emerging from the configuration of resonance in the field of the mother-child dyad, holographically constitutes the delicate energetic and organismic core of basic trust and the intersubjective skill of empathy, the biological basis of affectivity (Solms & Panksepp, 2012, pp. 147-175).

The ability to love as an adult takes shape from this primary matrix. It is from here that we articulate the primal emotional grammar and the ability to form emotional

and social bonds. Eva Reich wrote: *"The baby comes into the world with a strong energy system, capable of informing the environment of his needs."* The baby is the bearer of the meaning of its own agency, as a psychic manifestation of the organizational properties of all living entities perceived in itself (R. Ryan, 1991).

If the environment allows it, the mother and the baby in utero are strongly "attracted" to each other and have an energetic, biochemical and emotional communication. The new being must "nest" in the energetic field of the mother to develop its vital functions. His life depends on that nesting. If he is in bioenergetic contact with her, if he "pulsates and flows", then he is a very healthy baby. He is centered in his pleasure in "functioning". In his body he lives and feels interoceptively, in the experience of the flow of internal states, the emerging experience of a perceptual affective nuclear consciousness that resonates in the quality of BEING THE EXPERIENCE OF HIMSELF (Davis, 2014, p. 13; pp. 32-41). Grounding and bioenergetic bonding have this common vibration.

Being the experience of himself is the entanglement process. It is psyche in matter. This entanglement is not simply being intertwined and interconnected with the self or with the other, as if it were a meeting of separate entities, without an independent self-contained existence.

From the first moment of existence, every generative life process is a relational and embodied process. According to Barad (2007) existence is not in fact an individual affair. Individuals do not exist prior to their interactions; rather, they emerge through and as part of their implied intra-relative involvement. This informs the setting of each process, biological or therapeutic. It becomes necessary therefore to make the transition from what happens as *"inter (between or in the middle) action"* to what becomes in the *"intra (from inside) action,"* in order to understand the communication and the relationship that takes shape at the confines of the domains of each intra-active and co-resonant individuality.

For this reason, we must pay attention to the whole, to issues of therapeutic methodology and of "interface", both in relation to the external/internal environment of the therapy setting and to the internal state of the therapist, in order to create the possibility of an informed setting of minimum stimulus.

Summary

This paper presents a model of how Reich's orgone energy and quantum field theory (QFT) share common ground in their understanding of the phenomena of life. With an emphasis on the dynamics of resonance of living matter, it has been shown how the further developments of Eva Reich's Gentle Bio-Energetics have developed this model further.

Del Guidice's QFT model, based on the classical principle of Weber and Fechner, offers an element of theoretical physical research proving that interaction with minimal stimuli in the body promotes a co-resonance process, which sustains the ability of living matter to form states of biophysical coherence and to develop the emergence of self-organizing processes, embodiment, and bonding. Using these arguments, it was suggested that the movement of the organism is not only a movement that requires a constant amount of energy from the outside, it is also a movement from within, based on the reorganization of internal energy that does

not involve exchange of energy or impulse, but produces the mutual feeling of the bodies involved moving in phase with no expenditure of energy.

The quantum model showed that it is the interaction with the phase that allows the fluctuations in a coherent state to develop chains of impulses at long distance with no thermal dissipation, involving the nervous system's network and the connective tissue's matrix in more harmonic dances. Highlighting the energetic process involved in the connective tissue matrix in its correlation relationship with the function promoted by the minimal stimulus process, the congruity and coherence with the energetic functioning model described by Davis has been proposed and discussed.

Creating the possibility of an informed setting at minimum stimulus both in relation to the external/internal environment of the therapy setting and to the internal state of the therapist has been propounded as relevant to promote autopoietic processes of self-regulation, bonding and embodiment.

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