

# An Essay on 'Fracto-Resonant' Nature of Life

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## ABSTRACT

*Fractals* are built from patterns generated from immense complexity within the *resonant* frequencies that connect and tune the universe. Play of such frequencies would result in the exchange of energy and coupling of informational systems at various levels and scales. The present essay serves as a small ride into life's association with such phenomenon. At a fundamental level communication happens via process called '*resonance*' (in energy terms), and this in turn manifests at a physical (or material) level as self-replicating and self-resonating patterns called '*fractals*.' This could be the reason why at a physical level every structure (associated with both animate and inanimate entities) carries this *fractal* imprint nature, making it the cosmic signature (as embedded in the spatial grain). The *fractal* patterns popping out in the natural world surrounding us could be thought of as frozen energy or *resonant* life patterns. Thus, we hypothesize life could have emerged or appeared as a '*fracto-resonant*' phenomenon, resulting from the play of interference between material and non-material aspects. In this regard, we propose frequencies or vibrations to be more fundamental to life and call for scientific studies that aim at understanding the effect of various frequencies and vibrations on life forms and consciousness.

**Key Words:** fractals, resonance, consciousness, life, sound healing, vibration, phenomenon

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*'If you want to find the secrets of the universe,  
think in terms of energy, frequency, and vibration.'*

- Nicola Tesla

## Introduction

The most fundamental and default language of the universe is vibration. At a fundamental level, every part and particle of the universe communicates and exchange information at certain frequencies or vibrational states (Gurwitsch, 1959; Fröhlich, 1968; Fröhlich, and Kremer 1983; Del Giudice and Preparata, 1998; Rubik, 2015). This is how in general the universe would communicate with itself as well as with its life forms. Communication via trans-dimensionality occurs through a process

called '*Resonance*.' During *resonance* they exchange information and energy; it is the coupling of the cosmic informational systems across dimensions. Just as we get the information specific to or passing through certain frequencies by tuning our radio to that frequency, tuning ourselves to the varying frequencies of the universe may unfold or open up vast cosmic information, which is infinite. Even though a radio is equipped with necessary mechanisms to tune to the spectrum of frequencies, it needs an external

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agent to tune it to certain specific frequencies at a time. Similarly, each biological system could have been evolved to access or capture the complete cosmic information, but for the purposes of selective survival, it limited its perception by different capabilities of the sensory faculties. We now need to become more receptive to those ever existing frequencies. But, unfortunately due to the limited capabilities of adopted sensory faculties among others (or the sensory agents with limited sensing ranges; Visual and Audio spectrum, etc), a *resonant* being (or any biological being) can only breathe in limited cosmic versions (Reddy and Pereira, 2016b, c). Only when we open up ourselves to this vast information, the true potential becomes possible and the way to higher dimensional planes or evolution unveils.

The greatest challenge to the present day science is to solve the eternal puzzle of mind (subject) and matter (object); does life evolved from matter? (If so, how does matter evolve in the first place?) Or matter evolved from life field or consciousness (subjective aspect)? If life appeared rather accidentally as a consequence in the process of evolution of matter, then this may mean that only certain aspects and states associated with matter or material could possibly trigger conditions for the emergence of life. This proposes life to be epiphenomenal in nature resulting from the play of interference between material and non-material aspects. Therefore, the origin of life could be a result of the art of cosmic origami (organization and reorganization of matter) to support the evolution of cosmic variables such as the matter, cosmic energy, and quantum processes that prevail in the cosmos (Reddy and Pereira, 2016a, d). In the other case, as few hypothesize (Sheldrake, 1995; Lipton, 2008; Lanza and Berman, 2010), if matter evolved from non-material life field, then this supposes consciousness or life to be phenomenal and hence should also exist with a most fundamental unit of the cosmos. Consider a magnet of finite size and its field associated with it. When you break it into pieces (to the smallest possible sizes), even though integrated field that exists before vanishes, each piece has its own field to its size now. Nature and qualitative aspects associated with this field still remain same and hence, one can say that such a field has a *fractal* nature in the non-material sense. So life field could in this manner be associated with the smallest possible units. But the question, if matter organized according to the field/energy patterns already existing or the

organized matter resulted in the outcome of such a field concept still remains a mystery? Gaia theory or hypothesis (Schneider and Boston, 1991) supports the co-evolution of both life and surrounding world simultaneously. It proposes that biological organisms interact with their material or inorganic surroundings to form a synergistic, complex and self-regulating system that helps to maintain and perpetuate the conditions for life.

### The Fractal-Resonance

Many ancient traditions and cultures across the globe (from ancient Greeks, Native American traditions in the west to Hindus, Buddhists in the east, among others) hypothesize that the life or consciousness appeared from the '*primordial sound*.' Reference to such a sound or vibration can be seen in almost every tradition and culture; 'Anahad Shabd (ever going melody)'- Hindus, 'Saute Surmad (melody that fills the cosmos)'- Sufis, 'The word'- Bible, 'Tao (unimpeded harmony)'- Lao Tzu, 'Music of spheres'- Pythagoras, 'Logos (Divine melody or sound)'- Heraclitus (Greek Philosopher). In addition, many ancient cultures such as Aztecs, Aborigines, Malaysians, Persians, and Eskimos have theories that the universe originated from the vibration or sound. In fact, the very words 'Universe' and 'Cosmos' are constructed based on this hypothesis; Universe ('Uni'- one or single, 'Verse'- song or melody), and Cosmos (Ordered and Harmonious universe). Following this, they looked on sound or vibration as a best healer and devised various techniques that involve using variety of sounds as healing and medical tools, the efficacy and impact of which modern science is slowly realizing (Rakovic *et al.*, 2004; Pelling *et al.*, 2004; Paliwal, 2005; Dossey, 2008; Bharucha *et al.*, 2008; Lestard *et al.*, 2013; Gaona *et al.*, 2014; Pereira, 2015b).

Even though they seem to lack the basic explanation concerning the nature and properties of such a sound or vibration to fit our scientific mind, this may appeal if we look at sound in terms of vibrational energy. Since the whole of the world that we perceive is having a basis in the quantum world, we may have to agree that everything in the universe is in constant vibration (Ellis, 2005). We could have certain frequencies or vibrational states that are so intense and awakening that the energy looking for minimal states or stable forms unfold the *resonance*



phenomena creating fundamental channels for the flow of cosmic information. Here, comes the concept of trans-dimensional energy. With the play of frequencies or energies across such channels, they replicate and multiply as *fractals* at physical (or material) level with the interaction and exchange of cosmic information happening at the fundamental level as '*resonance*' in energy (or non-material) terms. Thus, life could have emerged or appeared as a '*fracto-resonant*' phenomenon, resulting from the play of interference between material and non-material aspects. The *fractal* patterns popping out in the natural world surrounding us could be thought of as inherent energy signatures or *resonant* energy patterns (Thompson and Thompson, 1992; Sterne, 2008). Hence, the reason why at physical (or material) level every structure (associated with both animate and inanimate entities) carries this *fractal* imprint nature. The *fractal* nature is embedded as the spatial grain making it the cosmic signature. A living or biological system may have many *resonant* frequencies due to their degrees of freedom, where each can vibrate as a harmonic oscillator supporting the progression of vibrations as waves that move as a ripple within the whole system (Pereira, 2015a).

For simplicity, consider a sine wave (which serves as a basis for constructing any arbitrary sound that often occur in Nature; like sounds from the waves in the oceans, waterfalls etc.), and plot it in three-dimensional space. When we map it at all locations in the space-time fabric, it takes the form of a wavy or oscillating sheet that appears like a thick physical (or material) sheet; the form that an invisible sound or vibration would take on a three-dimensional plane. This brings us to the concept of nature of the reality we usually perceive. The reality or world we experience is in general epiphenomenal in nature and, accordingly, we perceive to our capabilities of sensory faculties we are fabricated with, and the level of reality we are looking at (Reddy and Pereira, 2016b, c). Most of the space we perceive or experience as the material world is composed of oscillating sub-atomic particles at the fundamental level. So, those which we perceive as space filling objects are nothing but 99.99% empty space. In true sense, we perceive reality as we are designed and given access to but not as it is.

So in a similar way, are we in material make up the interplay of such dynamic frequencies in *resonance* at the energy level, embracing *fractal* nature at the physical level? Or do we emerge as a

map of fundamental frequencies in the space-time fabric with *fractal* nature? This supports the holographic nature of the universe. For example, how do I look like in the dimension or the plane that has different fundamental frequencies or how does a simple cube look like in a four-dimensional plane? Where we take dimensions in the order of fundamental energy levels, not in terms of usual spatial coordinates as in modern mathematics. This would be like experiencing or looking at the macro-level world from micro or atomic scales.

The fundamental constituents or building blocks of the material life; Air, Water, Earth, Sky, and Fire, are also *fractal* in nature in the sense that qualitative aspects still remain unaltered with quantitative measures. For saying, qualitative aspects remain same with one fundamental unit of water to few hundreds of thousand measures. Since this whole universe is the interplay between these five elements they pass on this *fractal* imprint to all that evolves. Hence, '*fractal-resonance*' is the fundamental phenomenon by which information and energy exchange happens at all levels in the cosmos (say it at the quantum or macroscopic level). This could be the reason why we have *resonant* mechanisms with different functional purposes coming up at various scales and levels in multiple disciplines of science such as, neurobiological resonances, vibrational resonances in biological systems, stochastic resonances, resonance of quantum wave functions, planetary harmonics, Schumann resonances, electron spin resonances, electromagnetic resonances, acoustic resonances and mechanical resonances etc. '*Fractal-resonance*' could serve as a fundamental principle to construct a unified model of the cosmos. Based on this idea, Hameiri, and colleagues (2008) came up with a universal scaling law that allows for better understanding of organized matter in the universe. They report, organized systems of matter at various levels (obeying the Schwarzschild condition of a black hole), which involves structures from the cosmological to sub-atomic level to show a definite scaling ratio. This shows the interconnectedness of the universe at various levels and scales and propounds the '*fracto-resonant*' nature of life.

The life force breathes in the survival imprints to each cell during this *resonance* phenomenon, and each cell, in turn, is in *resonance* or communion with its neighboring cells, and that is how billions of cells live in congruence or harmony. DNA might just be a material receiver of



this cosmic information (Brown, 2014). The human being is a '*fracto-resonant*' being (multi-cellular), is the extended version of the living cell (Lipton, 2008; Shanta, 2015), making *fractal* nature evident. The human is like a medium, a conscious radio that can be tuned to infinite frequencies of the cosmos, through which the cosmic information flows across different dimensional planes. We are '*fracto-resonant*' beings, unknowingly (deep inside the core), resonating with the fundamental frequencies of the cosmos.

Just as the exchange between clouds give rise to flashes of light or electric activity, '*fractal-resonances*' in the fabric of the brain could result in flashes of thoughts (a subject-less or objective aspect of consciousness). These subject-less thoughts that emerged out of *resonance* phenomenon could embrace reflexive property (the nature of being self-aware, or self-reflecting nature), that ultimately results in the emergence of a subject (or the subjective aspect of consciousness). Hence, all that life is a string of conscious moments, where in which each moment (flashes of thoughts) has the property of reflexivity i.e. it's aware of being conscious (self-reflexive property; Ananthaswamy, 2015). In general, there is no need of a person or subject behind each such moment of consciousness; this is the intrinsic property of life experience embedded within the matrix of the cosmos. All that we are is a string of conscious experiences, each one of which is self-aware without the need for a subject or person witnessing in the background. Somehow the cosmos manages to take all these discrete or moments of experiences (each with the sense of self-referentiality), and in some way constructs, this larger entity called subject to which these conscious moments are happening. This gives the sense of self or the subjective experience of one's own fractal-consciousness.

The analogous term for *resonance* in metaphysics and philosophy is '*communion*.' Many ancient traditions define enlightenment, which they claim to be the ultimate pinnacle of the human experience as a communion with the cosmos or being in *resonance* with the life force. Also, there could be a reason why Nature or life chose at the physical level, communion as a way to the cosmic creation of beings. A mother passes on the cosmic imprints to a child in the womb where they exist in communion (lives as one being), till the cosmos breathes out all the information needed for its survival. For our existence, we think

we breathe every moment, but what needs to be understood is that it is the existence itself that is breathing in and out the cosmic information through us.

## Discussion

In the modern school of thought, when we bring in the concept of the spontaneous emergence of life (say it from any viewpoint), we always look at it from the standpoint of matter; the material perspective (reductionist approach), hence it is not a widely accepted theory of life. Someday, if we come across certain vibrational states that resonate with fundamental frequencies of the cosmos that could create a channel for the flow of cosmic information, then science may accept more such theories of life that would involve sound field as the basis, and thus, support the popping of life; a '*fracto-resonant*' phenomenon.

Even though we have various theories and hypothesis trying to explain the possibilities of occurrences of consciousness and its functional aspects (Sheldrake, 1995; Lipton, 2008; Lanza and Berman, 2010; Shanta, 2015; Reddy and Pereira, 2016d; Reddy, 2016e), considering its fractal nature alone (physical/ material aspect) as the sole parameter may not provide a complete mathematical model for consciousness (Gardiner, 2013). This is because fractal information follows unidirectional property, i.e. in fractals information flows only in one direction and backward extrapolation may not necessarily lead to the center or the governing rule. For this purpose, to construct the model of consciousness, future investigations may also need to look for a parameter (or scaling factor) that governs the qualitative nature of consciousness alongside its quantitative aspects (Reddy, 2016e).

Numerous studies quote a non-trivial relation between different sound components/frequencies and various biological, neurophysiological mechanisms (Adair, 2002; Pelling *et al.*, 2004; O'Brien Jr., 2007; Bharucha *et al.*, 2008; Bernardi *et al.*, 2009; Lestard *et al.*, 2013). In this regard, the psycho-acoustical investigations that aimed at understanding the direct influence of different frequency components on the brain activity (involving cognitive functions) and consciousness have also been carried out (Tufail *et al.*, 2011; Raman *et al.*, 2013; Fukushima *et al.*, 2014; Han-Moi *et al.*, 2014). Such findings help in crafting various desired/influential sound frequencies (that could





range over spectrum of frequencies below (infrasonic) and above (ultrasonic) the audible (sonic) range; 20Hz to 20,000Hz) for alternative healing purposes (Rakovic *et al.*, 2004; Bharucha *et al.*, 2006; Dossey, 2008; Huang, 2010; Gaona *et al.*, 2014; Pereira, 2015b). This shows that consciousness is sensitive to certain frequencies or vibrations and understanding in depth as to

how it is connected to such a frequency/sound at a fundamental level could give us an idea of its nature and other functional aspects. In this regard, it would be interesting to conduct more scientific studies that aim at understanding the effect of various frequencies and vibrations on consciousness (Cymo-consciousness).

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