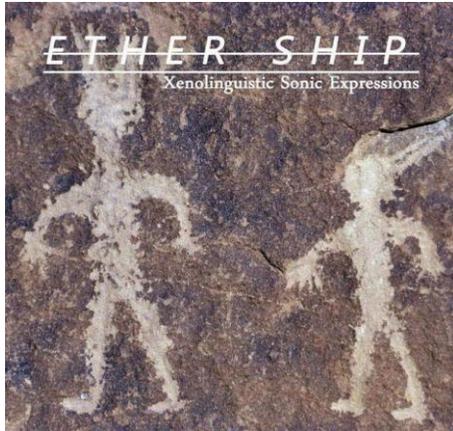


# **Quantum Sound Synthesis:**

**Electronic music applied to xenolinguistics as “x-language”**

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## **Introduction:**

Quantum sound synthesis is a way of composing electronic music while entertaining a quantum conceptualization of reality. When an orchestration of sounds is created they produce a quantum musical expression allowing us to communicate with other forms of intelligence in the universe.

Quantum consciousness is a way of thinking, which dissolves the mind-brain dualism construct and instead integrates all of reality into one interrelated state of existence. Quantum reality suggests that the world we see is constructed by an ongoing exchange of information between the universe and the human bio-organism. This information exchange occurs between the micro level of atoms in our neuronal structure, to the

macro level of plasma fields interspersed throughout dark matter in the universe. Quantum consciousness applied to our everyday activities is the reason that so many new advances in quantum technologies are occurring in research programs across the planet. How we come to understanding these new developments in quantum technology is becoming ever more complex necessitating the need to learn how we can retrieve and process energy related information existing in our world and its relation to the energy states and information existing in the universe at large. The idea of how information is embedded in the internal structure of the universe, as an abstract quality (Stonier, 1990 p. 27), and then is integrated with matter, will reveal itself as patterns or even structures. These structures can in fact take on new geometrical forms created by frequencies that carry information across the universe. These are some of the introductory thoughts on how this paper will attempt to show that communication can take place with other entities in the universe composed of these embedded patterns of information. By recognizing patterns and organizational structures in the universe that share qualities of cosmic information can be thought of as the birth place of consciousness.

Our very own genetic structure has been assembled by elements already existing throughout space (Friedlander, 2014). As part of our own ontological evolution the same elements existing in space also exist in our genetic structure, and our DNA is now reacting to our ability to visualize and comprehend quantum states of existence so as to prepare us for a higher order of actualization. Collectively our brains are in the process of developing a resonant relationship with the quantum field, and we are utilizing quantum states of awareness to create new ideas, especially with current developments in audio synthesis technologies. Audio synthesis applications now available on Apple computer's IOS platform and Google's Android platform allow us to create more complex sounds more easily and more personally enabling us to resonate directly with the neuronal structure comprising our conscious fields, which in turn are in resonance with the universal quantum field. By understanding more of the harmonic structure of the universe

and the role that frequencies play in constructing geometric shapes with matter we are enabling our minds to create sonic landscapes using audio synthesis techniques, which in turn mirror our understanding of the building blocks of life which exist in the quantum field. With the aid of sonification techniques applied to inaudible data existing in our bio-organisms micro-world, as well as data gathered from the internal acoustic structures of stars (asteroseismology) and other interstellar bodies, we are able to experience totally new sound patterns and the organization of information which accompanies those patterns. The sentience we experience on earth may not be the only sentience that has been created out of the fabric of matter existing in the universe. Consequently, we are currently on the threshold of achieving a state of mind

where we will consciously begin to communicate with other life forms existing on earth as well as elsewhere in the universe. This new capability comes about as a result of our understanding of how quantum fields work between living bodies on earth as well as energy states throughout the universe. The hypothesis is that by creating sonic expressions that stem from nurturing cognitive structures reflecting quantum states of consciousness, we increase the possibility of communicating with other intelligences in the universe.

Sonic expressions made from a state of quantum consciousness is a way to stimulate our cognitive states in order to reach a higher level of comprehension whereby we can better understand how to interact and communicate with extraterrestrial intelligences. This paper explores sonic techniques that can be used as part of electronic music orchestrations; it incorporates quantum thinking as part of the energy states existing throughout the universe. These sonic techniques will in turn enable us to better understand more of our ability to experience a message received from an extraterrestrial or some other form of communication coming from a sentient being in the universe. The form that this received message would take coming from other beings could very well be experienced as some type of anomalous cognitive activity that would instantaneously occur in our minds, much like the remote viewing (RV) impressions experienced by the renowned psychic Ingo Swan (Swann, 1996). These anomalous cognitive experiences could be comprised of ideas, visions of the future or even the awareness of new sound patterns that previously had not been experienced. But with our new found abilities to conceptualize quantum realities, while at the same time manipulating and creating frequency alterations with our new audio synthesis technologies, we now have the opportunity to make phase relationships with these anomalous cognitive states, which can enhance and further aid in our understanding of quantum realities. These cognitive quantum realizations are in fact the same quantum levels of reality that our bio-organisms micro levels are connected to. We could in fact be consciously trying to develop a way to create direct feedback loops with the quantum fields in the

universe and, therefore, become active participants in communicating with intelligent beings not of our earth and instead become part of a much larger sentience that already exists in the universe.

## **Part I**

### **Quantum States:**

The relationship of the quantum world to the everyday world, the one in which we live our lives and have a sense of identity with, may not be thought of as connected in any real sense to the quantum world. Although that may seem like the case, the viewpoint that the quantum world is separate from the world we experience everyday needs to be looked at more closely. What is apparently out of sight and out of mind is just the opposite. Along with thinking that the quantum world is not related to our everyday world is the even more outlandish view that the universe, as we know it, is something we co-create by using our minds. In fact, what we think of as a universe could in actuality be a much larger conscious construct, which would include the universe as being one with our own conscious states of awareness. On top of this paradigmatic way of thinking there is also the additional thought that extraterrestrials are not some other intelligence located in some distant part of the universe, but exist in real time, at every moment, and live in the exact same place in the universe that we do. In other words, as (Tessman, 2012) explains we are already entangled with extraterrestrial intelligences. The extraterrestrial, therefore, can be thought of as not some other being living on some other planet, but in fact living amongst us, and perhaps is us. If this be the case, then finding a way to communicate with our newly recognized acquaintances, which are simultaneously living in multiple places in the universe at the same time, is what the focus of this paper is about. The intent of this paper is to bring a better understanding of reality that bridges quantum fields with cognitive states of awareness, ultimately leading to the consideration that consciousness is in fact an element of matter that resonates on a complex frequency structure enabling a hierarchical evolutionary

use of thought forms. So, in summary what has been stated thus far is that the universe and our minds are of the same construct; that extraterrestrials are living among us; and that we are, in fact, extraterrestrials looking for a way to communicate and recognize ourselves as galactic beings.

### **Ontology of Quantum Consciousness:**

As simplistic as these introductory comments are, the effort and thoughtfulness that is forthcoming from human insight and imagination to understand quantum reality requires a re-visioning of our cosmological, epistemological, ontological and philosophical interpretation of who we are as a species in the universe. A philosopher who has tackled these ideas the most about quantum physics is Slavoj Zizek. Zizek is also very outspoken on how we are to understand and integrate the ontology of quantum physics into our world view and admits that the true problem is not how the human organism adapts to its environment but rather how in fact there is something as a distinct entity that can adapt itself in the first place (Bloch, 2012). What is suggested is that nothing less than a tsunamic overhaul of our institutional ways of thinking. Subsequently, while other practitioners are dealing with their tsunamic upgrades in their own professional fields, this author focuses on the use of electronic sounds to better understand the possibilities of navigating sonically in these new quantum realities. This author believes that sonic orchestrations, which combine sounds coming from the micro and macro worlds, can be instrumental in creating a new state of mind; or even a virtual sonic cognitive landscape. This new mental landscape, augmented by sound, is fashioned by using mental models, (schema), which incorporate self-organizing principles and meta patterns of information that exist in the plasma fields of the universe. The concepts help open uncharted areas of cognition and cultivate more understanding of anomalous states of cognitive activity. These proposed sonic orchestrations could also act as techniques to better realize how extraterrestrial communication could be experienced in real time. Establishing a quantum compositional playing field is the first step to be taken into consideration before any attempt is

Made to understand communicating on a vastly different level using energy fields existing within the universe than what is normally required when one is making sounds.

A question to ask is whether the cognitive framework of a quantum composer's mind, at the moment of deciding what sounds are to be played, would give to the listener an ability to experience a similar state of awareness the composer experienced when the sounds were being created? It is at this point that a working model of quantum consciousness is necessary before sounds are attempted to be made to communicate with other forms of intelligence within the quantum mind field as well as for the listeners on our current plane of reality. Creating electronic sounds within a quantum mental framework will require some insight on how to approach and develop a quantum state of consciousness. How sounds are created within this quantum mental field in order to bring about any anomalous cognitive activity that may indicate communication was being made with other intelligent life forms in the universe necessitates how a quantum state of mind is imagined in the first place. In order to present this dialogue on quantum consciousness and some considerations that would lead to such a state of mind, it will be helpful to review how this problem of describing how a quantum state of consciousness has been explained by other quantum physicists as well as the issues involved in trying to give voice to quantum reality.

**Examples of a few quantum terms applied to cognitive realizations** **Emergence:** The impossibility to describe a system by its components. In this cognitive state any anomalous cognitive activity could arise leading to visions and ideas previously never experienced.

**Non-Locality:** The appearance of identical behavior of two particles separated by any distance. In this cognitive state an action in one local area could be experienced by some form of energy in another area at any distance from the main point of conception.

**Superposition:** Two systems operating simultaneously in opposite directions. In this

cognitive state another complete cognitive structure could be operating and interacting with the original system. However, it is impossible to locate the energy state in any specific locality.

**Coherence:** A complete autonomous wave field directed by emergent ontological qualities. In this scenario by phasing frequencies accompanied by a particular thought form we are able to create a laser type consciousness into the universe.

**Conceptuality:** Self configured systems independent on cognition from a classical framework. A self-organizing system that arranges itself in such a way that it allows itself to have a teleological component factored into its energy state.

**Entanglement:** This is a state where particles can be connected with each other and can act together no matter how far apart they are. With this state of mind it means that any particle which is entangled in the bio-organism could receive information at a distance and could also be influenced by some action we create in our local environment or somewhere else in the universe.

### **Quantum consciousness and materiality:**

The two worlds of thought being debated in modern discourse in the philosophy of physics, metaphysics, cosmology, ontology, biology and many other related fields reflects the differences between classical mechanics and quantum mechanics and its significance to everyday life. Classical mechanics presents a causal world view; the quantum mechanics presents an indeterminate world view. Classical mechanics sees materiality as a world that can be measured and the quantum mechanical world sees matter as immaterial and constantly changing. The issue is one of materiality and immateriality. The classical world view is more easily understood than the quantum world for the simple reason that actions in the classical world use logic that is inconsistent with the logic used in the quantum world.

But, since the quantum world behaves in ways that are inconsistent with the classical world the concept of where to place consciousness in the scheme of things is where the problem lies. How does an immaterial construct such as consciousness come from a material construct such as the brain? Is consciousness a part of the human physiological system or does it exist outside the body as an intrinsic component of the universe (Hameroff and Chopra, 2012)? If consciousness does exist independent of the human body then where does it come from? This is the conundrum perplexing lay and scientific minds alike. In the parlance of physicists, consciousness is either an epi-phenomenon, a mental phenomenon caused by physical phenomena, or it is an autonomous phenomenon and independent from the human body existing as a fundamental element in the universe much like gravity or electromagnetism. The classicist says consciousness emanates from the brain and the quantum proponents say that consciousness does not solely depend on the brain but is also part of the universe. But these differences are just the beginning of how complex the debate has developed as a result of these two points of view. The quantum view states that the entire universe is a quantum construct with consciousness being an energy configuration, and that being conscious is none other than to realize that all the force field relationships constituting the universe, that we know of, collaborate and allow us to have a consciousness experience. To put it simply, the universe is one state of consciousness and how it comes forth from the vacuum of space is where we have to look to the great sages of our time to seek more answers. But once we do reach the edge of our reasoning in comprehending a universe that is thought of as one mind with an emerging ontological component infused as well in our own consciousness the question arises as to what that emergent quality in the universe is striving for. Does the emerging mind have a becoming quality to its nature or does the

universe exist as its own ontological evolutionary entity independent of any relation to human consciousness? If these ideas sound beyond the capabilities of human reasoning, it very well may be the case, but there are minds that are trying to understand the implications of mind and universe behaving as a unified quantum field. It is this unified quantum conscious mind that references are made to in order to add some clarity as to how it is possible to communicate with extraterrestrials using various frequencies gathered from stellar acoustics, nature, archaeoacoustics, ancient instruments, languages, electronic synthesizers and much more.

### **Relationship of frequency to life and the quantum universe:**

With consciousness and life as we know it connected to the energy source of the sun the internal responses of the bio-organism in relation to the sun on a micro level inside our neurons is where the transfer of quantum states are transposed and directed in the coding of our genome (Reiser, 1966 p.433) refers to as the sun-planet organism hook-up. The frequency modulations taking place on the nano and Planck level of our bio-organism are capable of registering every fluctuation within the space-time continuum. This continuum is none other than the universe we are part of (Meijer, 2014). Meijer, a pharmacologist from the University of Groningen, suggests that all space-time configurations of the brain are able to access quantum fields through the molecular activity in the brain which he refers to as iso-energetic states (Meijer, 2014). Any ontological evolutionary framework taking place in the universe with its concomitant emerging morphogenic fields will be the same fields that are part of our own thoughts and in turn will follow a path determined by the brain's internal structure. Thoughts are electrical impulses, and the unique aspect of our human brain is that we can theorize and conceptualize on these dendritic pathways, much like a car on a highway, using what we call

cognition, self-volition and even memory recall. How long it has taken for this self-referential feedback system between humans and the universe to evolve is in the order of millions of years and perhaps many more. But, how long it has taken to construct a biological system such as ours may not be as important as the realization that we have reached a point in our bio-evolution where we can now communicate concepts which encompass definitions and descriptions of our place in the universe. Astrophysicists and astronomers have now located our solar system within a large super cluster of galaxies and have called it “Laniakea” (immeasurable heaven). Our ability to conceive of where we are located in space has enlarged our conception of where we exist in the galaxy, to the point that our new awareness has elevated our place in the universe from one of existing on a planet orbiting the sun to one of being a part of a super cluster of galaxies. The sheer expansiveness, which this awareness conjures up in the mind, is a significant upgrade to what we are used to identifying with in realizing our location in the Milky Way galaxy. Now we know that our galaxy is located on the fringe of a large super cluster of galaxies measuring over 529 million light years across. The conceiving of our earthly home has been transformed from once being seen as a small village to becoming a galactic metropolis in less than a second when measured against how long life, as we know it, has existed on this earth.

The ideas now being offered by the quantum community is that the organization of elements and structures in the universe can cross the boundary of our own biological organism and, in turn, are presenting some very interesting suppositions when it comes to conceptualizing other life forms capable of communicating ideas or even responding to some shared energy relationships existing in the universe. This interaction of energy with life on earth and the galaxy can be seen in the way the dung beetle orients itself to the light from the Milky Way

when pushing dung balls toward its nest (Dacke et al., 2013), or how migrating birds follow the fluctuation of the earth's magnetic fields when different seasons begin. Even plants are capable of converting sunlight into a usable form of energy known as photosynthesis.

Humans have also been guided by these energy fields in the universe. The most pronounced example being the biological entrainment of brain wave frequencies in phase with the frequencies of the earth known as the Schumann frequencies (Fosar and Bludorf, 2012).

But even with all of these realizations, the most interesting consideration is wondering if we are alone in this universe or if in fact there are others we can communicate with. If amino acids can be found on comets (McKee, 2009), or if they can be found in space (Eyre, 2014) then we can surmise that we are not alone because we would share the same building blocks with other life forms existing in the universe. The crux of this question, are we alone, is in how we define a life form and whether it could communicate or even whether it would be sentient or aware of its existence, and whether it could guide its life forming assemblage of elements into a reactive, responsive and attractive state of being.

The ontological quest of "beingness" in the universe makes the question as to whether we are alone in the universe or not take on a new significance. "Beingness" in the universe would mean that there is some implicit knowingness or organizing principle within the way energy relates to itself through movement, heat, electrical impulses and organizes itself into measured forms and geometrical shapes as mentioned earlier. The Telos of the universe would suggest there is some purpose or design which is transferred to the organizing principles of the universe, which we learned with the discovery of platonic solids and how the geometries of those solids are inextricably woven into the structure of matter (Pitkanen, 2014). We have learned how the universe organizes information and how geometric organization can even be used as a design principle (Fratzeskou, 2015). Insights

on how to distinguish between different tones has enabled the creation of vast repertoires of music. Based on the ability to hear tones, and make notations of those tones for repeatable sequences, humankind has developed songs, symphonies, chants, mantras and hundreds of other ways of making sounds to express our relationship to the cosmos.

In the 70's film, *Close Encounters of the Third Kind*, Steven Spielberg, used of tones to communication with extraterrestrials. It was a seminal film showing how it might be possible to communicate with other intelligent life forms using a sequence of notes. The mechanism that enabled communication to take place with extraterrestrials, as shown in Spielberg's film, stemmed from an understanding on how to use tones and harmonics. Frequencies in the universe are mirrored and deeply embedded in the microtubule structure within the neurons of our bio-organism (Anirban, 2014) and the way we relate to those frequencies for extraterrestrial communication, from a musical standpoint (Walker, 2013), is the issue being considered in this paper. Our thought forms are also based on the same energy configurations or geometries of matter that exists with other matter in the universe, and it is the same matter that would be used by any extraterrestrial life form. There is no real separation from how we think and how the flow of energy fields moves throughout the universe. This observation has been made clear with the discovery of how quantum fields flow through us at all levels in the bio-organism leaving us to consider the postulate that our own minds are composed of the same substrates that comprise the emergent qualities of the ontological evolution in the universe (Hameroff, 2014). With this realization of our minds being a part of the structure of the universe, our way of conceiving of ourselves in the universe becomes very proactive because we can place ourselves at the helm, as it were, of our own emergence into what we conceptualize as an intimate space-time relationship. That is a very large

relationship indeed, and to surmise that the entire universe is localized within our brain, referred to as a personal “psychocosm” by (Von Eckartsberg, 1976), or as a “personal universe” as expressed by (Meijer and Korf. 2013), is when we can feel comfortable in postulating that the ownership of our brain is a brain that can exist anywhere and everywhere in the universe and that our brain is a quantum brain, a superposition brain, an entangled brain and even an awakening brain so that we can accept the fact that we personally possess a much larger brain i.e. a “universal quantum brain”. Meijer further explains how a personal universe can even be built up and maintained in an individual life, and according to quantum mechanical concepts, a concomitant personal state is produced within this universal quantum brain containing a knowledge domain that is a dynamic field constantly accumulating new data and personal experiences during its life time.

### **Frequencies of nature:**

So the question is: can we communicate with extraterrestrials with our newly conceived universal quantum brain? By asking this question we can also ask how we avail ourselves of the opportunity to extend ourselves into space using our universal quantum brain. It comes down to how we use the organizing principles in the universe. The ones this author will focus on in this paper are the tonal and frequency relationships operating at the same time our cognitive framework was being formed in the distant past. Buckminster Fuller, in his book *Cosmography*, extolled the virtues of anticipatory design science (*Cosmography*, 1992). How we conceive of proto-coconsciousness being organized during this early time of amino acid assemblage, along with the accompanying frequencies that existed throughout space, is a way to anticipate how these frequencies would become part of life’s building blocks eventually leading to living matter and our bio-organism. The origins of the om (aum) sound, is the way the universe naturally vibrates (Greene, 1999), and the AUM sound

can be thought of as being the first sound. In Hindu mythology it is known as a *Vach* or speech. In the *Rig-Veda*, *Vach* appears to be the personification of speech by whom knowledge was communicated to man (Dowson, 2003 p.329). We can also think of aum as comprised of the proto states of consciousness and classified as “additive consciousness” and “subtractive consciousness”. These two ways of classifying consciousness can also find its corollary in the field of electronic music composition which uses the terms additive and subtractive synthesis. The definitions that are used to describe these states of consciousness using synthesizer terminology are subtractive synthesis attenuates partials of an audio signal to change timbre. Additive synthesis creates new timbres by adding sine waves together. With these two forms of sound synthesis there is also wave table synthesis that uses arbitrary periodic waveforms to produce tones. Eventually all these types of frequency relationships became part of the human brain and today both the frequency of the earth and the brain have the same frequency signature known as Schumann frequencies, as mentioned earlier. Within the harmonic frequency relationship between the human brain and earth’s magnetic field the composition of thought, language and human utterances of all sorts come from the way our brain developed in using these frequencies to develop consciousness over the millennia throughout time and space. We are literally universal biological octave generators (UBOGS) in sync with a modern day invention that also has the ability to make sounds to duplicate the way our own personal biological octave generator works; the electronic synthesizer. The electronic synthesizer makes sounds in the same way our own bio-organism converts frequencies from the quantum world, the world of our ontological evolutionary becoming, and actively responds to those frequencies existing in the larger emerging quantum field that is constantly self-organizing itself.

It is with these synthesized sounds that we communicate in our own space-time continuum,

and within that continuum there exist the same fields enabling the way other organisms will organize themselves, and subsequently are also at work in the creation of other sentient beings. According to Michael Persinger, a bio-molecular and neurological scientist from Laurentian University in Ontario Canada, when there are a sufficient number of human brains on the planet the total frequency across the electromagnetic spectrum would increase inducing a genetic change and a new stage in the evolution of cognition (Persinger, 2013). It is the same process when a single cell organism divides becoming a multicellular organism but only this time on a much larger scale of grouping.

This time the doubling is the frequency output of the shared 7-9 billion brains, which also have reached a doubling capacity allowing a phasing of intergalactic intentional frequency generation to take place. It is then that the planet is capable of interacting with other life forms allowing communication with extraterrestrials to be possible. This evolution is the same process as a single cell connecting with another cell to become multicellular. Once this happens a new organizing principle becomes engaged and the process continues until an exobiological organizing principle is born on a much larger scale. As we look for proof of life forms in our own exploration of the universe, the finding of that life form, no matter how big or small, completes our quest to finally communicate with an extraterrestrial because it is at this point of discovery that we phase with other frequencies and ride on that carrier wave of contact created by the same elements which created our own bio-organism. Our own electronic synthesis engineering is enabling us to explore the universe as well as the sounds that make up the universe and it is when those frequencies enable us to identify another life form, have we begun the process of a quantum conscious relationship based on the development of our own quantum minds using quantum sound synthesis. For once contact is made, is when all minds on the earth will share in the collective realization that we

are now aware of another form of existence in the universe, which could very well be our own. It will take all the electronic sound synthesis creations to activate and stimulate the organizing principles which have been the building blocks of our own bio-organism and the realization that those building blocks exist within our bio-organism.

Once this experience of joining with another sentient organism is realized, other beings in the universe, who are also endowed with communicative structures, will sense our evolution and we then enlarge our basic understanding of who we have become in the universe and begin to resonate on a much larger level of collectivity. Once this level of communication has been reached knowingness will be shared that we have gone beyond our earthly hunter gather relationship and will have attained the emergent level of our destined existence.

When contact takes place, and the time is very close, we will have made an important evolutionary leap. It will happen because the threat to the species on earth is imminent, so it is only natural a calling is underway on a deeper genetic level to find the other who has made the transition to observe the universe successfully. Our explorations in sound, and recognizing those patterns of organization in the universe using sound, gives us the tools we need to enter a much larger field of frequencies where all frequencies reside and which are part of the building blocks of awareness. We are part of a much larger ontological evolutionary emergence and maintaining that awareness is the most essential awareness to preserve. This is an awareness we can all share in, once phase lock into that galactic multicellular organism is reached, when we are all fused as one mind and begin the next level of our evolution.

### **Sonic orchestrations to communicate with extraterrestrials:**

When sounds are heard a frequency distribution of those sounds follows pathways in the brain, which will be registered with familiar memories and associations contextualizing the

sounds and convert them into meaningful messages. They alert the body when there is something to be aware of, that could be life threatening or inform the bio-organism with a message from some other source giving the bio-organism guidance. The meaning contextualization created by the sounds will prompt the brain to distribute blood and other nutrients for the more efficient firing of synapses as well as supporting other cognitive referents in the brain that supports quantum sound synthesis.

Once the brain has exhausted all referents in its attempt to identify a sound it will then revert to a higher level of functioning within the neo-cortex and try to determine what conceptual states are being implemented by that sound in a meta-cognitive framework. It is here the frequencies will interface with those parts of the brain that were not identifiable when used for the basic referencing of survival. To help distribute frequencies in the brain there are several quantum contextualizing elements on the nano scale such as microtubules which the brain has created and can utilize to allow higher cognitive frameworks to be filtered and mixed with electronic sound synthesis.

The objective is to stimulate the brain with neural sets of information made from combining sounds of phonemic structures of language, meaning structures constructed by languages, and sound frequencies created from electronic synthesizers and other electronic music devices and audio sonification techniques.

## **Part II**

### **Quantum aesthetics and consciousness**

The founder and creator of the concept “Quantum Aesthetics” is Gregorio Morales from Spain. It was in 1994 the international group called, The Salón de los Independientes, identified quantum theory as the spearhead of a new revolutionary aesthetics (Caro and Murphy, 2002 p.25).



Author with his electronic computer tablet sound synthesis studio, 2014

It was the quantum aesthetics group, headed by Morales that began to explore the relationship of science and psychology. The ultimate objective was to explore the creative interpretation expressed in the manifestos artistic and literary views of the most revolutionary discoveries of subatomic physics and related psychology. One of the areas the group investigated was that matter and consciousness are two common components of the universe which influence one another (Morales, 1999). This interdependence of matter and consciousness is further elaborated on by (Grandpierre, et al., 2013) to include supra-cellular consciousness. Supra-cellular consciousness, as expressed by Grandpierre, consists of organismal and universal consciousness with the universe considered a biologically

autonomous being. Meijer's concept of the "Extended Brain" (Figure 1.) will play an important part explaining how creating sounds using quantum theorization lends itself to a much vaster framework addressing how consciousness can be conceptualized (Meijer, 2014).

The extended brain concept suggests that space time configurations, accessed by the molecular activity in the brain, may account for how synaptic activity and quantum fields are connected to the fundamental levels of the universe.

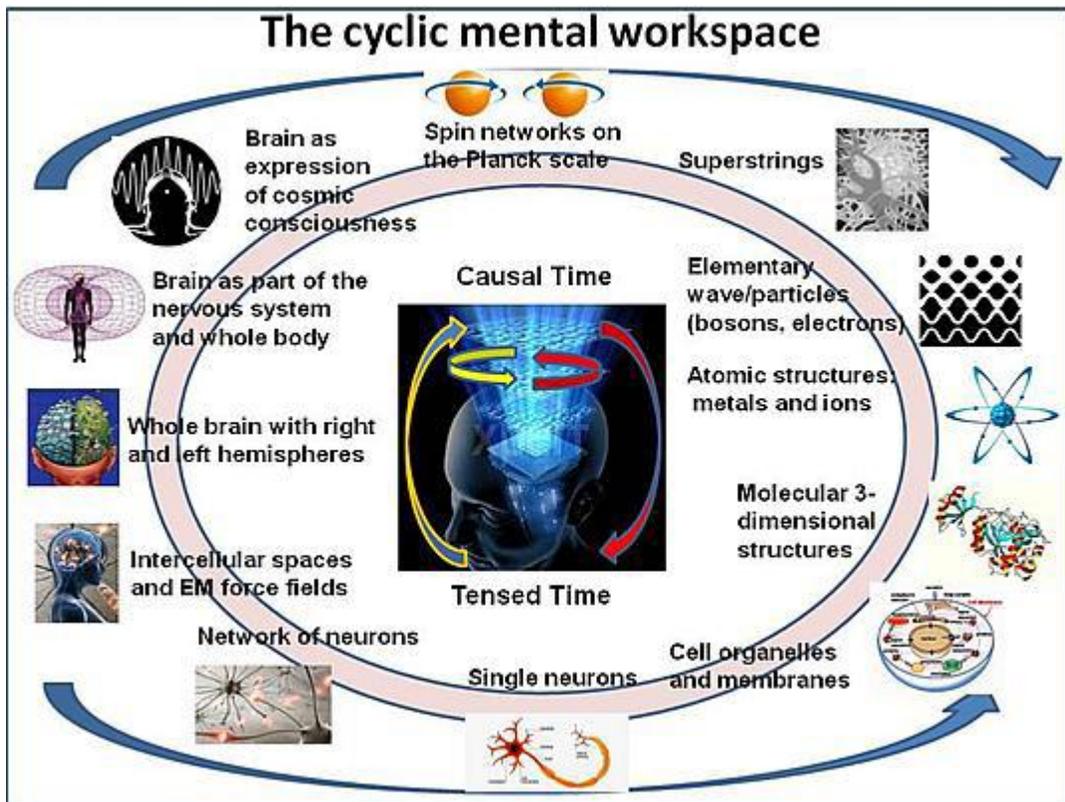


Fig. 1. Extended Brain Model incorporating the quantum field and the brain – Meijer 2014

The field of inquiry whereby matter and consciousness are inextricably conjoined in an evolutionary osmotic self-organizing and evolving part of the universe is mentioned by many researchers, in addition to the work done by Grandpierre and Meijer. There is hardly

sufficient room in this paper to cover all of the consciousness theories, but a few do stand out as exemplary explanations for the role consciousness does play in the universe. The idea of showing a relationship between matter and consciousness has been addressed by the philosopher David Chalmers, best known for his book; “The Conscious Mind”. The ambiguity surrounding the definition of consciousness is the substance of Chalmers’ work. In particular Chalmers believes consciousness should be looked at as a fundamental force in the universe, along with electromagnetism and gravitational forces. Chalmers believes that information is embedded in all structures of the universe and has both a physical aspect and a phenomenal aspect. He further states that these two aspects existing in the universe, physical and phenomenal, are the reason there is an emergent experience forthcoming from the physical which Chalmers refers to as “panpsychism”.

In other words, changes in consciousness are directly related to the changes in information embedded in the physical make-up of the universe (Chalmers, 1995). If we now take the quantum aesthetic views of Morales, and consider consciousness being a fundamental force of the universe as proposed by Chalmer, we then can cite another theoretician, Roy Ascott, who combines these two facets of consciousness and matter into a new creative concept referred to as “Technoetics” (Ascott, 2013). Technoetics is an art movement whereby the discoveries of nature, through nanotechnology and quantum mechanics, are combined in what Ascott calls a “Telematics” environment (Ascott, 2003), which combines all the computer networks on the planet as well as the satellites orbiting the planet. Ascott coined the term, Technoetic, from the word technology and the Greek noetikos (mind, consciousness) to mean consciousness accessed, augmented, distributed or transformed by technology. Technoetics may even have an ontological effect on the sense of self and of the world.

## **Sound frequencies and consciousness**

At this point it is necessary we explore how sound, and more specifically how frequencies can be related to consciousness in the universe as well as the ability to communicate through sound with other intelligences not of this planet. Contributing to this idea of consciousness in the universe is the brain research conducted by, Anirban Bandyopadhyay, who deals with the quantum vibrations of “Microtubules” (Figure 2), located inside brain neurons (Bandyopadhyay, 2014).

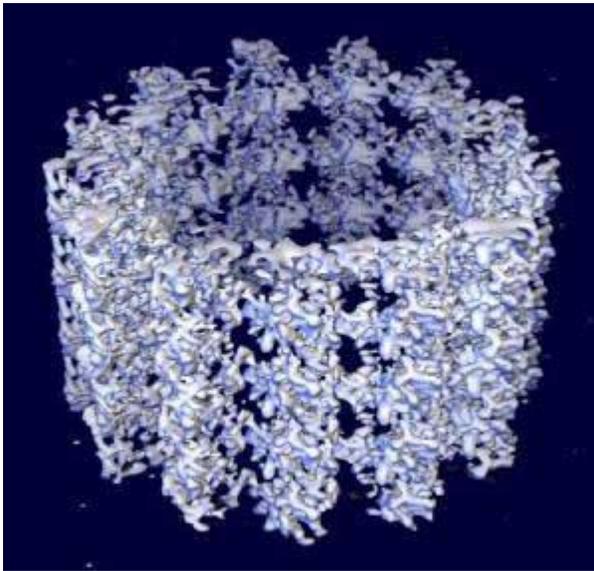


Fig. 2. 3D Microtubule Reconstruction – (Downing, 2009)

Anirban believes that the vibrations within the microtubules are the very same sounds or language that exists within our universe. These vibrations express the form of organizational geometries that stem from the frequencies permeating time and space and are ultimately responsible for the creation of life. The nested rhythms inside the microtubules align themselves with these geometries that reflect the geometries (Figure 3) which have been found to exist within galaxy clusters in the universe (van de Weygaert, 2007).

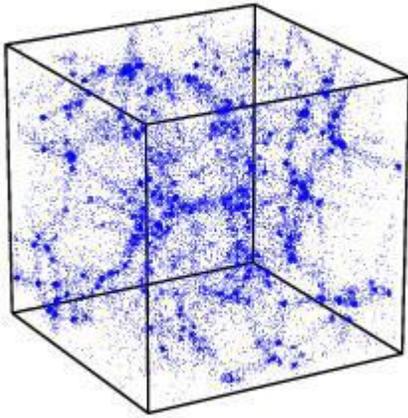


Fig. 3. Voronoi foam model showing geometric shapes of galaxy distributions in the universe (van de Weygaert, 2007)

By recording the nested rhythms within the microtubules that are in the MHz, GHz and THz range, Anirban's team, with the assistance of Tom McVeety, an electrical engineer from New Mexico, took these inaudible frequencies and sonified them thus enabling a sonic map of the brain to be created displaying all of the brain frequencies (McVeety, 2015). The brain's nested frequencies can be heard when converted into the audible range and represent the brain's geometries with audible frequencies created by the sonified patterns, which reflect the grammar and language of the brain. There is much more complexity to consider with Anirban's "Artificial Brain Building Project", but the idea that nested rhythms exist in the form of musical structures that reach across the universe is the introductory level of awareness necessary when considering developing the universal harmonic structure of the universe (Merrick, 2010).

These universal harmonic structures can be used as a basis for developing a universal language that could even be understood by other intelligences in the universe. It is recognized that music making has been the common denominator for all cultures of the world. The work done by Iain Morley on the archaeology of music testifies to the

extensiveness of how cultures have used many different objects to create sound (Morley, 2003). What motivation existed within the conscious mind of our early ancestors to express that need for musical activity is a mystery. But one thing is for certain, civilizations of today are still making sounds with new electronic instruments that only further beg the question of why humans are so motivated to make creative audible expressions.

### **Using Quantum Consciousness to develop a new musical language**

The ability for an electronic music composer to create new quantum cognitive models while simultaneously creating electronic music is the subject of this section. In particular the area to be considered is creating quantum sound synthesis which acts as a new language referred to as xenolinguistics and personalized by this author as the x-language. The idea of creating electronic music using quantum cognitive models as a new inspirational choice falls into the area of quantum aesthetics that Gregorio Morales mentions in his quantum manifesto. The idea of developing new cognitive approaches to electronic music specifically has been developed by Anil Camci. Camci acknowledges that electronic music diverges from instrumental music and that there are distinct differences in the meaning structures responsible for forming a very different expressive musical language not only for the composer, but also for the listener (Camci, 2012). The quantum cognitive model is the focus this author will take to develop, not only an intentional choice of a quantum model, but also a language that can be expressed within that model. A quantum electronic language is being offered as a way to consciously participate in using language and electronic sound to establish an internal dialogue with extraterrestrials using the effects of these electronic sounds on the mind.

Another view point I am suggesting is to create the xenolinguistic effect or “x-language”.

The components of this new quantum musical “x-language” will include:

1. Brain frequencies; 2. Cognitive quantum modeling; 3. Sounds from stars (asteroseismology) combined with other interstellar frequencies; and, 4. Phonemic structures of language created by humans as well any sonic expression developed by other life forms on earth. These four components are combined simultaneously creating not only a unique aural experience for the listener, but also conjures up a unique form of a cognitive quantum compositional technique that uses electronic synthesizers to help integrate these components.

What is the xenolinguistics or “x-language” effect, and how can it be developed? The foundation for this “x-language” effect is none other than frequencies. However, frequency is essentially everywhere throughout the universe, and is also the basic element in forming subatomic structures and cell development, and all the way to the formation (Figure 4) of galaxies (Ranzam, 2007).

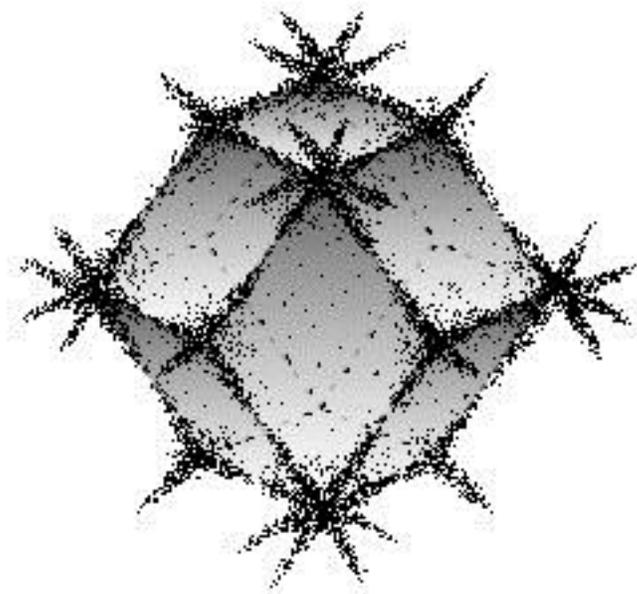


Fig. 4. Dodecahedral unit-universe representation with galaxy clusters. (Ranzam, 2007)

### **Brain frequencies**

Cognitive constructs are also part of the quantum framework and these constructs give us the

ability to define our existence. The ability to discuss quantum aesthetics stems from a much more advanced interpretation of the quantum field with matter and consciousness being co-joined to form a new cosmology of how we interact with our universe, the cognitive structures in our brains are able to assemble newer possibilities on how those constructs can be interpreted musically and how creative expression in general produces newer visible and audible representations to define new subjective experiences. The Brain Building Project, led by Anirban Bandyopadhyay, is analyzing the geometries of the nested rhythms of protein frequencies in the brain leading to a new fractal interpretation of consciousness in the universe (Bandyopadhyay, 2014). This fractal interpretation of the universe is similar to the Virata Purusha concept found in Vedic philosophy proposes that the smallest point in the universe to the largest part. Bandyopadhyay sees the geometries of the Planck world acting simultaneously with the nested rhythms of frequencies within the brain. Anirban took his cue from Indian Raga music, where there are 22 tonal patterns used in 10,552 verses of the RigVeda. Anirban sees how these frequency patterns reveal how memory is recalled to create an entire image of any story and by varying a few oscillations it is possible to encode very large language architectures. Anirban's discovery is that bio-material has specific sets of frequencies that act as the fundamental language of the biological system and that of the universe. The first step in developing the "x-language" is to incorporate the brain frequencies into the compositional matrix to provide aural clues to patterns that are mirroring the universal frequency domain. This domain is both the brain and the space outside the brain forming a universal matrix of sound creation. These rhythm structures that are made audible provide sonic patterns that act as triggers when making adjustments to how the frequency is being heard.

## **Cognitive quantum modeling**

In Part I, a list of quantum terms applied to cognition was offered. Gregorio Morales also lists many of the quantum realizations in his quantum aesthetics manifesto and how they can be incorporated into the aesthetic domain. A critique of the manifesto shows how quantum aesthetics can be integrated into all aspects of culture (Murphy, et al., 2013). In the chapter, “Overcoming the Limit Syndrome”, from the book, *The World of Quantum Culture*, Morales talks about how there is no distinction between matter and energy and that both mind and matter are manifestations of a common basis (Caro and Murphy, 2002 p.7). The model, or the mental construct of a subjective visualization of that quantum model, enables a very specific pathway for the nested rhythms to move on that are embedded in the nano-scale structure of the brain indicated by Anirban. These mentally envisioned models of quantum constructs not only cause the brain frequencies to sweep across the entire brain but also sweep across the entire universe. As the mental construct is sweeping across the universe it is also interacting with all the other frequencies in the universe enabling multiple frequencies to be developed and recorded by embedded information systems which are used to construct other energy models in the universe. The result is a harmonic language from the interface of shapes of thought in the quantum field. Any construct that emanates from this quantum field will also be sensitive to these frequency changes and this is how the “x-language” is transmitted. The feedback from the initial thought is accompanied by frequencies which include thoughts comprised of the interface of those frequencies with other frequency constructs in the universe. A response to those changing frequencies, while at the same time listening to the sounds made in real time while composing, is a way to interface with this feedback from within the quantum field. Frequency shapes generated from embedded

information created by other self-organizing systems eventually can have the capacity to communicate their information. The real time quantum sound synthesis is, therefore, a real time “x-language” exchange which requires the ability to decipher the information by experiencing how newer cognitive constructs are experienced.

### **Stellar acoustics and interstellar frequencies.**

Like the inaudible frequencies which exist inside the microtubules of the brain, there are wave pulses within stars called acoustic fluctuations. These fluctuations have also been sonified using a recording technique called asteroseismology to record tiny Doppler shifts in a star’s light spectrum. Stars exist throughout the universe, as well as sounds from other interstellar bodies filling interstellar space. A dense matrix of wave pulses not only from stars but from plasma discharges throughout the universe. Similar to our brain these energy pulses follow the same geometric lines as in how galaxies arrange themselves. By using the stellar acoustics as another sound element in the compositional matrix, along with sonified brain frequencies, an integration of two sonified sound sources is accomplished; one from the micro world of the human brain and the other from the macro world of stars in the universe. This is an example of using sound samples from both domains while at the same time imagining the cognitive model of complexity, self-organization and a holographic universe as proposed by Morales. Stellar acoustics was recently used by the composer Willem Boogman *Sternenrest* from the Institute of Sonology in the Hague who dedicated a concert to Karlheinz Stockhausen, the late German electronic music composer, based on the star HD 128829 (*Sternenrest*, 2008).

The “x-language” of any higher order of information organization is going to be influenced by these frequencies in the very same way the frequencies are used in the building blocks of matter and eventually lead to the complex geometries that carry frequencies throughout

space and time that contain information ultimately leading to consciousness.

We have reached a level of comprehension in our evolution by being able to see our technological prowess growing exponentially whereby we can also synthesize our ideas using our new technological tools to reach toward horizons that have a very tangible reality quotient to them. It is here where quantum aesthetics adds to the imagination as the tools are being used to augment visions and future possibilities.

The “x-language” is a language that adds to our creative understanding of how we use our new sound tools as well as offering an opportunity to learn from new ways of understanding on how we process information.

### **Phonemic and phonetic structures of language**

It is hard to imagine our existence without the ability to communicate with the use of speech and the language that accompanies speech. Speech in all languages share phonemic structures of small size units of sound to give meaning to the heard sound. These speech sounds of language fall into the category of phonetics. Most life forms on earth communicate using some form of sound. However, the human is the only species that has invented artifacts (musical instruments) to make a sound separate from the use of the voice. Before there was any language with either phonetic or phonemic structures there was still sound made by humans either by using guttural expressions or through the use of some artifact. The first language to address human sounds and link them with nature and the cosmos was Sanskrit (Veltman, 2014). Sanskrit was also the first alphabet that made a relationship with the letters and the sounds that came from the mouth. Veltman has mapped the development of most languages around the world and shows how sounds were used as complex symbol systems to represent gods in the universe. The Kalachakra (Figure 5) is an example of how sounds, letters and early cosmologies were combined symbolically.

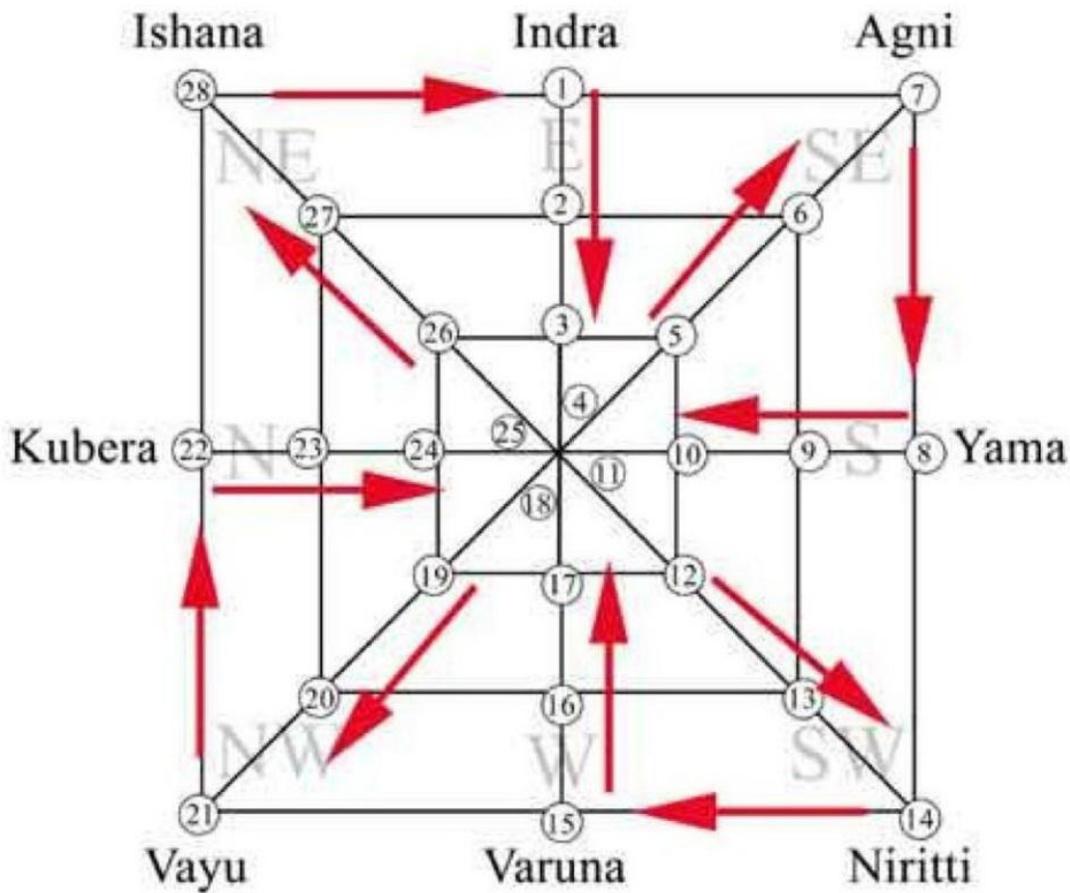


Fig.5. Kalachakra (Veltman, 2014 p.134)

There are ten letters underlying the Kalachakra, which uses 7 consonant letters and with the combination of these letters produce seed sounds of the five elements of yam, ram, vam, lam and ham (Veltman, 2014 p.134). Morley, from Darwin College in the UK, completed an exhaustive study on the archaeology of human musical behaviors citing many ancient sound making abilities of our distant ancestors. Future civilizations will most likely look upon our electronic synthesizers and technological inventiveness of today in much the same way we look upon past cultures that used bullroarers, conch shells or even blades of grass pressed against the lips and made to vibrate with a strong passage of air (Morley, 2013). As a

species, we can ask why we are making sounds. The sounds we make and the sounds existing in the universe and throughout all of nature (animate as well as inanimate) are also part of our own physiological makeup.

Indeed we are resonate cavities in resonance with the universe. We have come to better understand this realization, which is helping us to expand our consciousness to include the entire space-time matrix as one conscious whole. But so far we have not resonated with any other higher life forms other than those from our own species that we know of.

However, the patterns we have discovered that constitute sound both from frequencies in nature and in music making, are very much a part of the structure of our cultures and of the universe. The most ancient of languages come from India. Indian languages are said to have a more direct correlation between their sounds and letters (Bhaskararao, 2011). Before language was written only sound was transmitted for thousands of years. This led to the largest corpus of literature to explain the structure of the universe i.e. the Vedas. It was in this ancient Sanskrit literature, called the Vishnu Purana that spawned the concept of the Virata Purusha (the primal life force); a concept that encompasses the entire universe. It was here that the resonance or synchronous vibrations in harmony with the eternal vibrations that encompasses the entire universe is considered consciousness (Bandyopadhyay, 2014).

Every letter and every combination of a vowel voiced in ancient India was a pathway to universal consciousness. “X-language” incorporates these phonemic structures from ancient languages to be used as sound accents in the development of an overall compositional matrix when combined with other frequencies; both manmade and those made by other living things.

What is sought after using this “x-language” compositional framework is a new quantum sound synthesis whereby the resonate elements that exist in the universe and in our bio-organism use these phonetics and phonemics from the world languages to form a new sonic matrix emulating the consciousness of the universe. This is the beginning of a new xenolinguistic framework to be used for exploring the possibility of communicating with other intelligences in the universe. By taking principles of the way languages have developed on earth (Wells-Jensen, 2011) we can better analyze the possibilities that may be used when developing the way an “x-language” may sound. The “x-language” then becomes a way to integrate the frequencies we are now realizing exist on the micro scale of our bio-organism, Our ancient ancestors were most likely in tune naturally, our minds can entertain the possibility that we have reached a stage in our evolution where we can begin to expand our understanding using quantum creativity to build a world that resonates as advocated by Caro and Murphy in “The World of Quantum Culture”.

### **Conclusion**

These four components of the new musical language are referred to as the “x-language”. It is a way to develop a new musical expression incorporating new discoveries about the universe as well as the structure of our own bodies and the planet we live on. The matrix of the universe and consciousness is a vibrating and fluctuating fractal of energy that is showing us it has the ability to self-organize into ever more complex structures.

The “x-language” is one way to offer a participatory alternative to creativity so as to mirror our larger relationship to the cosmos and by so doing discover that we are in fact not alone in this ongoing quest to understand the universe, but we live instead to share our experiences with more conscious beings besides ourselves.

Bangkok, Thailand March 2015

## References:

- Ascott, R. (2013). Technoetic Pathways toward the Spiritual in Art: A transdisciplinary perspective on connectedness, coherence, and consciousness. <https://www.facebook.com/notes/roy-ascott/technoetic-pathways-toward-the-spiritual-in-art/10151612039371073>. Accessed March 8, 2015
- Ascott, R. (2003). Telematic Embrace: Visionary theories of art, technology and consciousness. Berkeley: University of California press. <https://zaklynsky.files.wordpress.com/2013/10/telematic-embrace-visionary-theories-of-art-technology-and-consciousness-by-roy-ascott.pdf>. Accessed March 8, 2015
- Bandyopadhyay, A. (2014). All Brain Building Projects would fail if they are not asking the right question. <http://ajochhand.blogspot.com/2014/08/all-brain-building-projects-would-fail.html>. Accessed March 5, 2015.
- Bandyopadhyay, A. (2015). All Brain Building Project Protein Frequency Music. <https://www.dropbox.com/s/hgsgnnn77g30yyl/4%20March%20Tom%20version%204%20with%20wahwah%20effect%20%26%20normalizetwice%26%20Reverb%20%26%20bass%20and%20treble.wav?dl=0>. Accessed March 9, 2015
- Bhaskararao, P. (2011). Salient Phonetic features of Indian Languages in speech technology. *Sadhana*, Vol. 36, Part 5, October 2011, pp. 587-599. <http://www.ias.ac.in/sadhana/Pdf2011Oct/587.pdf>. Accessed March 9, 2015.
- Bloch, E. (2012). The Ontology of Quantum Physics and Transcendental Materialism chapter 14. <https://ernstbloch.wordpress.com/2012/03/19/the-ontology-of-quantum-physics-and-transcendental-materialism-chapter-14/>. Accessed March 9, 2015.
- Camci, A. (2012), A Cognitive Approach to Electronic Music: Theoretical and experiment-based perspectives. Proceedings of the International Computer Music Conference 2012, Ljubljana, Slovenia, September 9-14, 2012. <http://quod.lib.umich.edu/cgi/p/pod/dod-idx/cognitive-approach-to-electronic-music-theoretical.pdf?c=icmc;idno=bbp2372.2012.001>. Accessed March 9.
- Caro, M.J. and Murphy, J.W. (2002). The World of Quantum Culture. Praeger Publishers, Westport, CT.
- Chalmers, D.J. (1995). Facing Up to the Problem of Consciousness. *Journal of Consciousness Studies* Vol. 2, Issue 3, 1995, pp. 200-219. <http://www.imprint.co.uk/chalmers.html>. Accessed March 5, 2015.

Dacke, M. et al., (2013). Dung Beetles use the Milky Way for Orientation. <http://www.sciencedirect.com/science/article/pii/S0960982212015072>. Accessed March 9, 2015.

Downing, K. (2009). 3D Microtubule Reconstruction. <http://vis.lbl.gov/Vignettes/KDowning-Microtubules/index.html>. Accessed March 9, 2015.

Dowson, J. (2003). *A Classical Dictionary of Hindu Mythology: Religion, Geography, History and Literature*. London: Trubner & Company, 2003.

Eyre, M. (2014). Complex organic molecule found in interstellar space. <http://www.bbc.com/news/science-environment-29368984>. Accessed March 9, 2015.

Fosar, G. and Bludorf, F. (2012). Transition to the age of frequencies. <http://www.fosar-bludorf.com/1/menu-oben/publications/artikelordner/artikeldetailseite/transition-to-the-age-of-frequencies/>. . Accessed March 9, 2015.

Friedlander, B. (2014). New Molecule found in space connotes life origins. Cornell Chronicles. <http://www.news.cornell.edu/stories/2014/09/new-molecule-found-space-connotes-life-origins>. Accessed March 9, 2015.

Fuller, B. (1992). *Cosmography: A Posthumous Scenario for the Future of Humanity*. First Glance Books

Grandpierre, A. et al., (2013). A Multidisciplinary Approach to Mind and Consciousness. *NeuroQuantology*, December 2013, Vol. 11, Issue 4, pp. 607-717.

Greene, R. (1999). *The Elegant Universe*. New York: Vantage Books, 1999, pp.15-16.

Hameroff, S. and Chopra, D. (2012). The “Quantum Soul”: A scientific hypothesis, in A. Moreira-Almeida and F.S. Santos (eds.), *Exploring Frontiers of the Mind-Brain Relationship*, Mindfulness in Behavioral Health, Springer Science+Business Media, LLC 2012, Chapter 5, pp. 79-93.

McKee, M. (2009). Found: first amino acid on a comet. <http://www.newscientist.com/article/dn17628-found-first-amino-acid-on-a-comet.html#.VPbZ8oZXerV>. Accessed March 9, 2015.

McVeety, T. (2015). Sonified protein frequencies of the brain.  
<https://www.dropbox.com/s/hgsgnn77g30yy1/4%20March%20Tom%20version%204%20with%20wahwah%20effect%20%26%20normalizetwice%26%20Reverb%20%26%20bass%20and%20treble.wav?dl=0>. Accessed March 9, 2015

Meijer, D.K.F. (2014). The Extended Brain: Cyclic information flow in the quantum physical realm. *NeuroQuantology*, June 2014, vol. 12, Issue 2, pp.180-200.

Meijer, D.K.F. and Korf, J. (2013). Quantum modeling of the mental state: the concept of a cyclic mental workspace. *Syntrophy 2013*, Vol. 1, pp.1-41,  
<http://www.lifeenergyscience.it/english/2013-eng-1-1.pdf>. Accessed March 7, 2015.

Merrick, R. (2010). Harmonically Guided Evolution.  
[http://interferencetheory.com/files/Harmonic\\_Evolution.pdf](http://interferencetheory.com/files/Harmonic_Evolution.pdf). Accessed March 9, 2015.

Morley, I. (2003). The Evolutionary origins and Archaeology of Music.  
[https://www.academia.edu/486908/The\\_Evolutionary\\_Origins\\_and\\_Archaeology\\_of\\_Music](https://www.academia.edu/486908/The_Evolutionary_Origins_and_Archaeology_of_Music). Accessed March 9, 2015.

Morales, G. (1999). Quantum Aesthetics Manifiesto. <http://www.kronos.org/bitacora/04-abril-99/1466Domingo11-4-99EdicionTarde.txt>. Accessed March 9, 2015.

Murphy, J., Caro, M.J., and Barry, J.C. (2013). Estetica Cuantica: A New Approach to Culture. <http://www.gradnet.de/papers/pomo01.paper/Choi01.htm>. Accessed March 14, 2015.

Persinger, M.A. (2013). Billions of Human Brains Immersed Within a Shared Geomagnetic Field: Quantitative solutions and implications for future adaptations.  
<http://benthamopen.com/contents/pdf/TOBIOJ/TOBIOJ-6-8.pdf>. Accessed March 9, 2015.

Pitkanen, M. (2014). Pythagoras, music, sacred geometry, and genetic code.  
[http://www.tgdtheory.fi/public\\_html/articles/pythagoras.pdf](http://www.tgdtheory.fi/public_html/articles/pythagoras.pdf). Accessed March 9, 2015.

Ranzam, C. (2007). Cosmic-Scale Structural Features Explained.  
<http://www.cellularuniverse.org/M2CosmicFeatures.pdf>. Accessed March 9, 2015.

Sternenrest, W.B. (2008). Score for Electric Guitar, Percussion, Ensemble, Computer and sound projection (2007-2008).  
[http://www.willeomboogman.nl/files/Voorwerk\\_Sternenrest.pdf](http://www.willeomboogman.nl/files/Voorwerk_Sternenrest.pdf). Accessed March 8, 2015.

Swann, I. (1996). Remote Viewing - The Real Story: An autobiographical memoir.  
<http://www.biomindsuperpowers.com/Pages/2.html>. Accessed March 9, 2015.

Tessmann, D. (2012). Is alien entanglement actually quantum entanglement? Retrieved from  
<http://ufodigest.com/article/alien-entanglement-actually-quantum-entanglement>

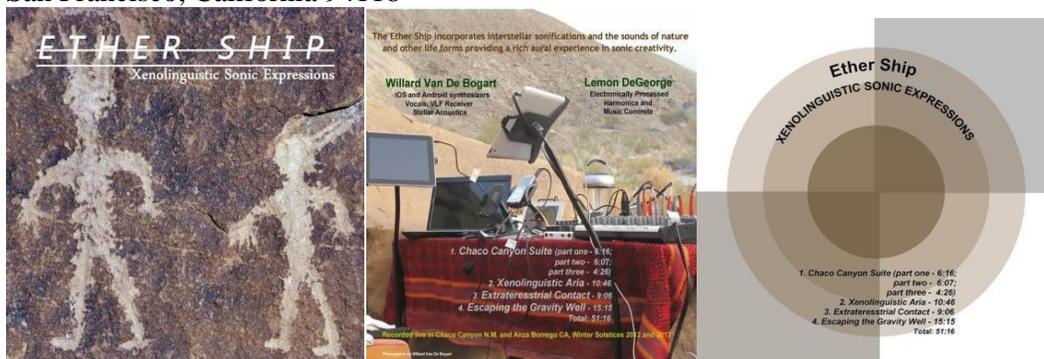
Van De Bogart, W. (2014). Soundcloud audio tracks: <https://soundcloud.com/willard-van-de-bogart>. Accessed March 8, 2015

Veltman, K. (2013). Alphabets of Life.  
[http://www.sumscorp.com/\(vmmi\)\\_virtual\\_maastricht\\_mcluhan\\_institute/news\\_394.html](http://www.sumscorp.com/(vmmi)_virtual_maastricht_mcluhan_institute/news_394.html). Accessed March 14, 2015.

Wells-Jensen, S. (2011). Extraterrestrial Linguistics.  
<http://communicating.seti.org/?q=speakers/sheri-wells-jensen>. Accessed March 14, 2015.

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