

Information Holograph

The Structure, the Source and its Operation

Dr. A. K. Mukhopadhyay, M.D.

All India Institute of Medial Sciences, New Delhi- 110029, INDIA
mukhoak53@yahoo.com

ABSTRACT

Does the Whole communicate with trillions and trillions of miniature wholes? If so, it is how and why? These questions have given birth to this conceptual paper where First person's experiential realm has been expressed in Third Person's perspectives. The construction is expected to be compelling to those who are familiar with the limits of present science, affirmatively looking forward to extending science beyond Planck's scale and beyond the boundary of the defined system and are seriously interested in investigation of the Source-field in whatever name one might call it. The central theme of the paper is Information Holograph by means of which the nonlocal and local players remain connected in the cosmos. The paper proposes a structural geometry of information in both inactive and active states and suggests that information could be vehicled by information-carrying, 'be-able' quantum particle/wave across ZPE fields. The paper draws a distinction between Quantum Hologram and Information Hologram and also between quantum entanglement and information entanglement. The emphasis is on an extraordinary constellation of neutrino, photon, phonon and conformon with self/consciousness at the center. Neutrinos have been discussed in the context of healing. The ultimate Source for science has been suggested, for the present state of human intelligence, to be the Source of the multiverse, the *Essence* of The Multiversity (EM), of which ZPE is an outside-in picture {ZPE \propto EM} across the boundary of the universe.

Key Words: Information Holograph, Z.P.E., Source of Multiverse, Constellation of Neutrino, Photon, Phonon and Conformon around consciousness/self.

INTRODUCTION

Philosophy is said to be the Mother of all Sciences. Then why there is no progress of science beyond Relativity and Quantum Physics? Are we going through also a downturn of philosophical ideas? Or, has there been dearth of philosophers who can formulate research questions and research hypotheses for further development of science? However, the idea that everything has been created from the void as propounded in the basic tenet of Buddhist's philosophy and the scientific idea of Z.P.E. fields as the Source field have found concurrence at present. It has escaped notice of many of us that in the Pyramid Texts from Egypt (about 2000 BC), it is stated that real sensory world is an appearance, an emanation from a hidden realm beyond nothingness/void/death. There are ancient Indian Philosophy in Vedas and Upanishads where the human thoughts have gone beyond this void. In the opening invocation prefaced to *Isha Upanishad* of *Rig Veda*, an ancient literature which had been systematically documented by evolved mankind more than 3000 years before the arrival of Christ on this earth, one can find this *shloka*.

*“Om Purnamadah Purnamidam
 Puurnmaat-Purnam-Udachyate
 Purnashya Purnam-Aadaaya
 Purnam-Eva-Avashissyate”*

In brief, it means that the whole remains always whole. One can take away any number of bits from the whole, it remains always whole and the bit is also whole!

Note that the bit is not part or unit of the whole. The bit is also whole! This offers the underlying philosophy of a hologram.

The question is what constitutes this revered whole? We are familiar with frequently used phrase like 'holistic' vision, 'holistic' health, 'holistic' living and 'holistic' science etc. In 1980s British physicist David Bohm first brought the concept of holography in physics [1]. Ken Wilber from United States edited the book on holographic paradigm where one can see neuroscientist Karl Pribram's pronouncement, "The brain is a hologram interpreting a holographic universe". With Bohm's, "It is not static. It is all holoflux" [2]. Recently the scientists working on memory have started accepting the view that memory storage inside the brain might have been done in a holographic manner. Scientists working on near-death experience have reported from their subjects/patients that many of them during the occasion of encountering death, at the end of the long dark tunnel had undergone a holographic review of the event history of life. Dennis Gabor was awarded a Nobel Prize in Physics in the year 1971 for his work on physical holography of lenseless photography where any minute piece from the photograph can be enlarged to whole. Recently with femto second lasers it is possible to make a holograph of the whole head with a single flash! Another illustrious example is Michael Talbot's work in this direction [3]. Mexican neuroscientist Grinberg-Zylberbaum is of the opinion that consciousness transfer between entrained brains occur through a *pre-space structure* in a nonlocal holographic way [4]. Walter Schempp [5] from the University of Siegen, Germany and Peter J. Marcer [6], Chairman Cybernetics Machine Specialist Group, UK., have developed the model of Quantum Hologram, "a quantum entangled nonlocal information structure emitted by all matters", an information mechanism in

nature which they have extended from Planck's black body radiation. The mathematical formalism they have used is the same as used in laser holography. Edgar Mitchell [7] from USA, (Apollo XIV Astronaut and the sixth man who walked on the moon) and his Quantrek's scientific team [8] have recognized the topic as the top-priority research frontier.

In spite of all the developments, so far I have not articulated in any of my work my view on holography in science! The readers may wonder, why? It is simply because I was not confident enough to grasp and articulate on what is valued as the 'whole'! However, paradoxically my maiden chapter in my first book [9], which ushered my journey in exploration of consciousness is titled, "*States of Consciousness, the Holistic hypothesis. Supracortical consciousness, an existing reality.*" My concept of the whole, to begin with, encompasses consciousness within a no-boundary cortical and supracortical domain. In my second work, a consortium of Conformon, Photon, Phonon and Neutrino with consciousness was developed [10]. In the next work *Conquering the Brain*, this consortium again came up in the context of describing the Grace Phenomenon and the relevant figure can be found on the first leaf of page under the hard cover [11]. In the work, *The Millennium Bridge*, this constellation surfaced as the 'logo' on the hard-bound cover of the book [12]. It now seems that without much realization at those many points of time, I had been working on the Information Holograph. I must admit that I was absolutely clueless that Information Holograph had already started dwelling in me long back since 1986-1987 which at present is compelling me to articulate it further in this paper.

Why do we need a holograph?

Why do we need a holograph at all? The reason simply is that it exists in nature! What exists in nature is stimulating to the scientists in particular and scientific minds in general! The communication in external cosmos with coherence and maintaining conformity with the whole and the similar communication within a system (internal cosmos) is likely to be holographic. The specific communication across the boundary of a living system, i.e., between external and internal cosmos, which makes self's experience essentially spiritual is also holographic.

"It appears to provide the mechanism in nature that gives rise to the ancient mystical belief in the Akashic record. It seems to be carrier of intuitive information which sensitive person calls their intuition" (Edgar Mitchell, personal communication, 2012). There is seemingly continuous information exchange between different living units e.g. plants, insects, microbes, animals and human (cf: Backster effect). This informational connection cannot be explained by the

conventional electromagnetic connection ranging from visible light, radio wave, infra red or microwave, x-rays or other radioactive rays or any other waves in this spectrum. As pointed out by Gary Schwartz (Personal communication, 2012), "the hologram is key to the connection between consciousness and the Cosmos, including the core mechanism of the continuity of consciousness and its ability to affect the physical world". Therefore, if we know correctly the holographic mechanism of information distribution, it will have enormous applications for engineering on this earth to eradicate man-made disharmony in both external and internal cosmos. The future of communication engineering is in this holographic communication!

What could be the Whole?

In holography the largest comprehensible structure or object known as the 'whole' zooms in the smallest comprehensible structure or object. The smallest comprehensible structure or object, on the other hand, zooms out as the largest comprehensible structure or object, the 'whole'. Grossly, the whole universe is represented in the comparatively trivially small brain. The same whole could be found inside a cell, and thereby when one learns the cell completely, say holographically, it becomes easier for him to comprehend the structural and functional organization of a system like brain, the universe or the multiverse as a system whole.

Let us analyze what this 'whole' is? Is the representative of the 'whole' in an ideal situation of holography self-conscious? I mean, whether is it bestowed with consciousness in general and is it conscious about itself in particular? Does it have a mind? Is it alive? I mean does it carry 'life' or life-principle? How the information of the whole is encrypted in this graph?

Certainly the ideal and the ultimate whole will have consciousness. However, if it is only consciousness then we are crippled with the idea of panpsychism. There nothing remains to discuss. There is consciousness...and Consciousness ... nothing else.... *As above, so below!* There is no beginning, no end and that is what all of us are!

However, to do science and also for this all pervading consciousness to operate meaningfully with its creations, there arises a duality. With all duality there is a mind in between! In consciousness monism or in material monism there is no room for mind. Mind works as the organ of communication between two conscious systems. In addition, for every system there is a customized particulate consciousness called 'self' which is categorically identical to consciousness but is conditioned informationally to act as the whole sole in-

charge of the individualized system having a defined boundary. Self is said to be conditioned with information! The question is where from information comes? To delve into this, one has to get into the *nature* of consciousness.

This nature of consciousness may be called Nature of all natures or Mother Nature, which operates as the closest and so-called Feminine consort of Consciousness as its kinetic pole, mobile facet or executive front. Should the whole be considered alive, its representative in holograph would certainly be alive! Self, mind, life-principle, information are all products of this Consciousness–Mother Nature. While the ‘self’ could be described as the heir ‘son’ of Consciousness–Mother Nature, ‘life-principle’ or *prana* is daughter-darling of theirs. Information is suggested to originate from the *uncertainty* in relationship between the masculine (e.g., consciousness, self) and the feminine components (e.g., Mother Nature, life-principle) of the whole (cf., *similia similibus* and original defining concept of information by Shannon, “information is that which reduces uncertainty”).

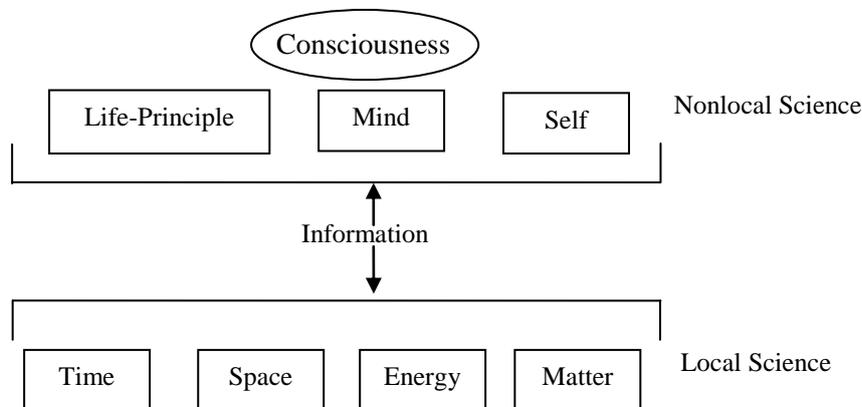
Therefore, the dynamic ‘whole’ begins with Consciousness-Mother Nature and it consists of five nonlocal components; Consciousness on the background, and Mind, Self, Life-principle and Information on the fore-ground. At the local level, there are Time, Space, Energy and Matter. If we do not comprehend this whole as mentioned above and exclude any of the nine components (Fig.1) it will be a futile effort for the process of building up ultimate holographic vision or holographic science.

In our analysis, we have not imported any new terminology for describing the whole. The term ‘life’ is used in life-science. There is master degree, Ph.D. degree in life-sciences. On mind, there are specific disciplines like psychology and psychiatry. There is a science of self-organization, although the focus there remains so far confined on organization rather than on self. The whole immune system works on the basis of distinction of ‘self’ from non-self. We assume their presence in our subconscious and do science. Information is the buzz word, the *lingua franca* in twenty-first century’s science.

Finally, getting bereaved of consciousness nothing in the living system works. You hit on my head to make me unconscious and in one stroke my mind, information inventory, ‘self’ and ‘life’ become orphan and directionless. That is why regaining of consciousness of a patient is very important for a doctor in immediate post operative period.

Of the several difficult nonlocal components, information is immediately amenable to and manageable in science. Twenty first century is destined to develop a science of information connecting four non-local entities (consciousness, mind, self, life-principle) with local science (Fig. 1) of other four observable and measurable entities (space, time, energy and matter).

There are still several questions to answer! Does this whole include nature’s toilet to expunge all which are by-products of existence but are not essential for its various operations? Does this holograph have any political ambition, social responsibility and economic agenda or entrepreneurship to implement?



The Whole
Nine Entities of Local and Nonlocal Science

Fig.1

Finally, what is the Source of this holograph? Is it Z.P.E. fields, universe, multiverse, or the Source of multiverse, the *Essence* which generates multiple universe(s)? We will discuss this issue in the course of this paper.

The Part, the Whole and the Hologram

Even in classical physics and chemistry one can observe that the combination of parts leads to emergence of new properties which characterizes the whole. This property cannot be found in any of the part in isolation. However, when the parts are in combination, the property of the whole emerges. This phenomenon has become more explicit in quantum physics which has made many of its practitioners to phrase, “the whole is larger/better/newer than the sum total of its parts”. This phenomenon of emergence, although remains a consistent fact, cannot be fully explained by bottom-up approach.

In top-down approach, when one says that the *Akhanda* Worldview deals with the divisions of the Indivisible, it is assumed that multiplicity is born out of Singularity, and not that the Singular whole could be derived from the mathematical/geometrical/logical construction from the observable multiple! This assumption is a Truth for many (e.g., Goetheian Science) and is a figment of imagination and therefore false for many others (e.g., material-minded scientists).

In construction of a hologram, one has to choose the right parts which constitute the whole irrespective of whether one has been trading below upwards or above downwards. For example, we have chosen nine constituents of the whole in this paper, excluding any of which could not lead us to a graph/gram of the whole. That is to say that individually or in groups the constituent does not make the whole.

The method of choosing the right parts could be by intuition or by trial and error, i.e., by experimentation. If the chosen ones are really correct, both methods would concur for the same conclusion.

Holograph, Holography, Hologram and Holoarchy

Holograph is the generic word. It includes method/process and the record. Holography denotes only the method. Hologram is the specific holographic record of a system. Holoarchy is a hierarchy in hologram. Is there a hierarchy in hologram? Probably yes (see Table 1). At every level/nest/domain of nature there could be a hologram. However, according to the principle of hierarchy (Ken Wilber), the ‘higher’ level includes the all of the lower, but not vice versa. It is this ‘not vice versa’, which makes this hierarchy.

In this sense of hierarchy QH includes classical nature and Information Hologram includes nature’s nests I, II

and III (see Table 1). Self includes all levels of nature-consciousness. It is difficult to make a holograph of Consciousness-Mother Nature or that of Consciousness. However, natural model of such already exists in nature; life-form is a natural holograph of Consciousness-Mother Nature and the Self is a holograph of Consciousness.

Table 1

Nest/Level/Domain of Nature	Hologram	Scientist/Nature Responsible for its making
I. Nature which follows the rules of Classical Physics	Lenseless photography	Dennis Gabor
II. Nature which follows the rules of Quantum Physics	Quantum Hologram (QH)	Walter Schempp
III. Sub-quantum nature	Information Hologram (IH)	Formulated in this Paper
IV. Sub-sub quantum nature/ Mother Nature	Life-form	Consciousness-Mother Nature
V. Consciousness	‘Self’	Consciousness

Therefore, only holograph which is yet to be discovered for its existence, structure and operation is the Information Holograph. By definition of hierarchy, Information Holograph will be inclusive of Quantum Holograph and Classical Holograph as well! Information Holograph chooses the appropriate quantum wave/particle which could ‘carry’ the information on (i) ever-openness for achieving perfection of the whole (ii) the conformity with the whole (iii) dynamicity of the whole and (iv) the rhythm of the whole. In this way, information holograph becomes inclusive of quantum holograph.

Paradoxically, IH surpasses the law of hierarchy too! How? Information is in connection with four nonlocal and four local entities constituting the whole (Fig. 1) and therefore properties of all nine entities would be observed in all its smaller versions. That makes its understanding more significant for holistic growth of science.

Probable Applications of Information Holograph

The issue is discussed below under following heads.

1. Information Holograph in the context of External Cosmos.
2. Information Holograph in the context of Internal Cosmos.
3. Information Holograph across the boundary of the system.
Information Holograph in Spiritual Perspectives

4. Information Holograph in the context of the Brain.
 - Brain-vacuum interaction
 - Neutrino-Brain interaction

**Information Holograph in External Cosmos:
Akashic record and Moving matter**

Information is nonlocal and omnipresent. Is it then possible that all information in this universe and multiverse(s) are available in the universal void/ 'akash'/'essence' as universal/multiversal data bank, nature's supercomputer memory for all of us who knows how to have access of it by engineering the vacuum? Is there any universal/meta-universal/inter-universal record of such information? How information remains organized within this Source? Is it organized in different groups as information-manifolds in nature? How can one classify the groups? What are their geometry, compactness and density and how does it differ from their organization in DNA, in CD, DVD or inside the brain? What could be the likely topology in that spaceless timeless void? Simply to state, what are the difference between *akash*-based storage of information, carbon-based storage of information and silicon-based storage of information?

Further, how information moves from one manifold to another manifold inside this Source? Is there any necessity of movement of information when we consider information as omnipresent? We know that the motion smaller than 1.06×10^{-34} J/s is not observable! More relevant question is how information is made accessible to matter? What could be the moving matter carrying information? How information gets stuck to 'be-able' quantum particle? Or, at the classical level how it gets vehicled by what we call informational molecule like enzymes or DNA? Do they ever leave such material vehicles and if so, how? *Does this transition happen at the level of Z.P.E.?* If so, is it amenable to science! Finally, are we mere pawns at the hands of information which use us for its own worldly manifestation by creating its own energy and space time (pattern)? It seems we are! No option! We are entangled! Therefore, the outcry from realized beings is heard again and again, how in human life one can go beyond this universal information network? Can a friendship with Z.P.E. take us to our desired goal?

**Information Holograph in Internal Cosmos:
Importance in Health and Disease**

Holographic information processing in human body can explain connection between heart and the brain, brain and the gastro intestinal tract, gastro intestinal tract and the psyche of the being and with other different systems. This keeps us hale and hearty. At the psychic level, the disease of multiple self(s) and disease like schizophrenia, and at the organ level multi-organ failure might be the result of failure of

holographic communication amongst different systems within the system of human body. Holographic information processing is all for keeping the system in harmony with the whole and therefore for prevention of tilting of the system from physiological to pathological state. If the system has already shifted so, the process brings it back to physiological state. Holographic information processing is therefore meant for healing. Amongst various healing methods, most probable candidate would be Homeopathy which utilizes this information hologram of the body in its mechanism of action synchronizing the psyche, the brain, the heart, the lungs, the gastro intestinal tract, liver, pancreas, kidneys and all endocrines.

Information Holograph across the boundary of the system: Information Holograph in the Spiritual Perspectives

Whenever there is holographic communication between external cosmos and internal cosmos across the boundary of the system whether it is a cell, the brain or the universe, there is spontaneous generation of an experience, which an evolved brain describes as spiritual.

Self and the whole:

As suggested earlier, could 'self' be considered a holograph of the conscious whole? Self and consciousness are categorically identical. Self is the holograph of consciousness, customized for the system of which it is 'self'. If we accept this, we come to the property of immortality of original self. The self appears to have changed because of a change in the imprints of information on it. Within the boundary, the situation results in multiple self. Outside, we get different beings. The assumption also makes a compelling case for the search areas like reincarnation of self, rebirth of self etc.

Does a 'Mantra' represent the whole of its deity?

All spiritualists believe so. All accomplished spiritualists experience so! The Sadguru initiates disciples on this basis.

The Akhanda State of the Being:

The *Akhanda* state of the being, where an individual is indivisible from the whole, as described in my earlier works, *Conquering the Brain* and *The Millennium Bridge*, could be called a personified holograph of the *Essence of the Multiversity*.

**Information Holograph in the context of the Brain:
ZPE, Neutrinos in Health & Disease**

Does the universal/trans-universal source of information have access to certain state of brain which is popularly known as phenomenon of intuition experienced by certain individual? How in certain state of proactive stillness, the brain gets access to universal/transuniversal source to pick up the correct

information which is congenial for an optimal solution to a complex problematic situation? In *The Millennium Bridge*, this kind of state of the brain relating to intuition, illumination and revelation has been described (pp.161-162).

In my earlier works I have made it amply clear that the purpose of evolution of the brain as an organ is to bring consciousness within and consciousness without in communion and harmony with the whole so that the brain of the organism/being becomes a transmissive organ for manifestation of Mother Nature. Consciousness is neither derived from the brain (10^{11} neurons in human brain) nor is it directed by the brain. This is consciousness which uses the brain for its manifestation. The brain in this sense is used by not consciousness alone but by the psyche with its five nonlocal components (consciousness, mind, self, life-principle and information).

The view does not undermine or lower the dignity/importance of the brain in any way. The brain supports and nurtures consciousness to grow and develop. That explains the property of *neuro-philia* of consciousness! Neurons too have developed love for consciousness which might be called *consciousness-philia* of neurons. This property has developed over millions of years by maintenance of 'serenity' of their genes (? due to gradual reduction of rate of mitosis) and 'polarity' of neuronal membrane towards consciousness (*The Dynamic web of Supracortical Consciousness*, p.123) *Neuro-philia* of consciousness and *consciousness-philia* of neurons complement each other.

In organisms without brain, in organisms with rudimentary brain, or in patients/subjects with severely damaged or underdeveloped brain, the psyche with its nonlocal elements continues to be active in experiencing but cannot express it properly or cannot respond as desired in absence of adequate brain function. Experiencing is a property of self and as long as the self is intact and healthy there is no jeopardy in the process of experiencing. However, there are several riders. When the sensory pathways of nervous system are impaired, the sensory experience is compromised. A healthy self within the constraints of a compromised brain is not at ease. A sound self can experience the functioning of a holographic universe but for its interpretation and expression it requires a healthy evolved brain.

The brain, undoubtedly, is a robust informational system. Its local self is sensitive to phenomena and local mind is sensitive to information. However, the brain remains almost totally preoccupied with information from sensory receptors or visceroreceptors in the viscera or proprioceptors in the joints and bones.

To interact with the information hologram in the external cosmos, the brain is to be primed particularly in the context of its self and mind. Till such time this happens the scientists may get engaged in another kind of research as laid down below. This is vacuum-brain interaction and neutrino-brain interaction.

Quantum holograph can be traced to Z.P.E. The case is not so for Information Holograph. However, Z.P.E. itself might have influence on the human brain. All other fields dissolve in Z.P.E. Imagine what all could happen when the brain with his resident local self and local mind with its enormous information density and its openness to both informational and phenomenal inputs is exposed to Z.P.E.! Here comes the proposition that the particle physics, vacuum physics, astrophysics are inextricably connected with neuroscience (*Conquering the Brain*, pp. 213-214). Some such ideas are also available in *The Millennium Bridge* on this brain-vacuum interaction (pp. 204-205). Similar may be the case with neutrinos. Those who are familiar with particle physics know that in the process of creating vacuum the scientists could get rid of almost all particles except neutrinos. There is a strong suspicion from different groups (for example, the most prominent one is Suzanne Mendelsohn, personal communication, 2012) that neutrinos and vacuum have definite influence in health and disease. There is no evidence at present on this frontier but there are hunches! Neutrino's healing power (especially of tau-neutrinos) is yet untapped and the issue has been waiting for our engineering effort for exploration. Neutrinos carry no electric charge and no charge of color! It has very little gravitational charge! However, the view has been changing regarding these three properties of neutrinos. It is possible that neutrinos acquire mass when they come within the non-zero vacuum field of Higgs-Boson! Neutrinos at certain phase have mass. May be there is acquisition of color too! All the more it is known that neutrinos can catch hold of electroweak interaction and thus might get involved in brain electrics. Neutrino-based communication of information has also been independently tried by physicists in USA [13]. On the hierarchy of matter-consciousness, neutrinos appear to be closest to, and the top-most favorite of consciousness. The whole universe is 'empty' for neutrinos except probably where the information is concentrated. The human brain has the highest density of information per unit volume. DNAs, with its concentrated information load make another case. Genes carry information. Genes make information manifest. However, genes could neither generate information nor can use information. It is information which uses genes as means to achieve its biological end. Interaction with neutrinos makes genes informationally open. True, about 10^{16} neutrinos fly past human body every second. But some might appear

stuck in a specific conformity of information hub within psyche, which has lost harmony with the whole and behaving as if alienated to the whole. In fact, neutrinos which carry information on openness to achieve perfection of the whole set up work-station there to bring the alienated portion again in resonance with the whole through local Z.P.E.

Like neutrino-brain interaction, the brain-vacuum interaction is another special frontier for neuroscience. At this stage, it is possible only to formulate a number of research questions on brain-vacuum interaction and a number of research hypotheses on neutrino-brain interactions.

Brain-Vacuum Interaction: Twenty Research Questions

- Can brain as an organ remain alive in physical 'vacuum'?
- If yes, will the other organs, which support brain's survival, remain alive too?
- Or, is it such a state of brain where the support from heart and lungs with nutrients and oxygen is not necessary or reduced to negligible minimum?
- If not, then are we talking of some imaginary vacuum?
- There is thus an imperative for resolution of the difference between imaginary vacuum and real physical vacuum! Is it a hypothetical situation or real-life situation with an evolutionary imperative?
- What is the evolutionary imperative of brain-vacuum interaction, if any?
- Can we relate different depths of vacuum with interstellar space, intergalactic space, and inter-universal space? Does the brain interact with such different depths of nature?
- What should be the experimental design to create such vacuum while the brain is put inside Faraday's cage! Or, inside any other better cage?
- How does one record brain electrics etc. in graduated vacuum space?
- What are the parameters by which brain-vacuum interaction could be monitored?
- Do neurons in the cerebral cortex or specialized cells elsewhere inside the brain (e.g., Pineal gland) have access to such voids while the organ brain remains in classical plane?
- Does this interaction ever happen naturally regularly, for example during lucid dreaming or during deep NREM sleep?
- Does such interaction happen more easily or regularly in newborn baby where the sensory

perception has yet to establish its electromagnetic network in the brain?

- Does it happen in a state which can be described as –'one is awake while in deep sleep!' 'One is alive while the brain exhibits electro cerebral silence'?
- Do the dormant stem cells residing in periventricular region of the brain get an impetus to proliferate by this brain-vacuum interaction?
- Does such interaction retardate aging process of the brain? Does it retardate physiological neuronal loss with aging?
- Do the brains which are habitual in such interaction have less frequent neurodegenerative diseases like Alzheimer's disease?
- Can we use such interaction therapeutically in clinical psychiatric cases where one prescribes electroconvulsive therapy? Can a structured therapeutic brain-vacuum interaction replace electroconvulsive therapy?
- How much depth of the brain is involved in such interaction? Is it just supracortico-cortical depth? Or, the depth goes straight down to the striatum and the rostral end of the Brain-stem! How long does it take to affect/transform the deeper subcortical structure like thalamus and striatum?
- In such depth interaction, does it have anything to do with causation or prevention of Parkinson's disease?

Behind all these research questions, the assumption we have been contemplating that the brain does not operate in isolation and there is a direct link between particle physics, vacuum physics, astrophysics and neuroscience.

Neutrino-Brain interaction: Ten Research Hypotheses

Neutrino shower is nothing supernatural but real and Natural. Without any barrier flying past the brain and our whole body are billions and billions of them! They are muon-neutrinos, electron-neutrinos (both from intergalactic space) and the tau-neutrinos (from inter-universal space).

Assuming that for the sake of achieving perfection with the whole, the neutrinos (especially those inter-universal ones) set up work-station on specific information configuration which is not in harmony with the whole and has been acting as alien to the Whole, following research hypotheses on Neutrino-Brain interaction are formulated.

Hypothesis-I

Neutrino shower changes its trajectory in commensuration with different states of brain like Attention, Concentration, Meditation and Absorbed state on any object or subject.

Hypothesis-II

All neutrinos just do not fly past the brain! Some gets 'stuck' in some specific area depending on its specific information content. Perfectionist neutrinos set up work-station at information hub alien to the whole. They work to bring back the alien part in resonance with the whole.

Hypothesis-III

Directed neutrino shower might have powerful cleansing effect on the brain. Some information, so ingrained in the brain, may act as a trouble-spot for the subject.

Directed neutrino-shower

- (i) May dislodge this information
- (ii) May activate this information to generate its own space and time and leads the being in a compulsive behavior with an end to its effect.

By this, *we are contemplating a brain-washing machine!*

Hypothesis-IV

Pineal gland, the part of the brain richest in serotonin and melatonin concentration and having piezo-luminescence crystals inside it, is supposed to be very sensitive to neutrino-beam.

Hypothesis-V

Because of high information density, DNA molecules are susceptible to neutrino bombardment. Neutrino-DNA interaction makes genes informationally open! Like the brain, five nonlocal elements of 'psyche' also work with DNA. It is worthwhile to explore the difference in this property between DNAs within neuron and DNAs in other cell?

Directed neutrino beam has the ability to alter the DNA-sequence of a gene which can be tested in in-vitro system.

Hypothesis-VI

Without changing the sequence of DNA, directed neutrino shower can alter inheritance or translation of genes by altering epigenetic mechanism. Nervous system may be compared with other systems on this effect.

Hypothesis-VII

All truly open systems should have the ability to handle neutrinos. There cannot be a system which

could be labeled as truly open but is incapable of handling neutrinos. With this openness, life-form carries its secret of almost an unlimited potential to change and grow.

Hypothesis-VIII

Consciously perceived neutrino-shower on regular basis reduces the incidence of neuro-degenerative disorders e.g., Alzheimer's disease.

Hypothesis-IX

Neutrinos concentrate differently on different solid/hollow organs of the body like liver, kidney, heart, lungs, or intestine, ureter, uterus etc. This concentrate varies with different functional state of the organ in health and disease.

By this, *we are contemplating a definite diagnostic role of Neutrino-scanner in medicinal practice.* Can this scanner replace user-non-friendly NMR scanner?

Hypothesis-X

Specific human intention for a defined duration can alter the neutrino-density of various organs of human body including brain, heart and gastro intestinal tract etc.

As said earlier, the assumption behind the hypotheses is that neutrinos (especially those inter-universal ones) set up work-station on specific information configuration which is not in harmony with the whole and has become alienated to the whole. However, hypothesis generation should follow designing of experiment and testing these hypotheses to establish those as 'null' or right.

This will usher the beginning of a new era for science. One requires neutrino-beamer, neutrino-detector, neutrino-scanner and appropriate monitor for measuring brain parameters. To get ethical clearance for such research projects may be a temporary block till we demonstrate that neutrinos are harmless!

Life-form as natural holograph of Consciousness-Mother Nature

Life-form may be called a natural holograph of Consciousness-Mother Nature. Life-form is bestowed with not only computational capability but also with engineering ability. If computational capability generates from the operation of mind, engineering ability generates from the operation of self. Consciousness in life-form bestows it the ability to look into what is going on in mind and in self. Since life-form is conscious, it is also self-aware, capable of self-programming. It has the capability of analyzing various options for a solution against a problem. Life-form has decision making ability after choosing the best option in accordance with the conformity of the

whole. This, what we call intelligence is generated out of dynamic interchange of information between 'self' and 'mind'. Intelligence is not a separate specified apparatus but a dynamic aspect of self with property to analyze options, choose the best one from available options, and to take a decision. In addition, self has the ability to will, a property which indicates its openness to consciousness. More open it is to consciousness more is its freedom!

Issues with Information Holograph or Holographic information

The question is what is that which encapsulates all information excluding none? Perhaps it is extremely difficult if not impossible for us, at this phase of evolution of human being, to create this information holograph. At best, we may try to find out whether it exists in nature or not! And, if it exists what is its Source? What is its structure? And, what is its operating mechanism?

Traditionally, a small system's all event-histories, all experience-histories may be encapsulated as a specific distinct information-holograph for the system. Therefore, *information holograms of different systems will be different*. However *there might be a universal or master key* in which we are interested in this paper.

For understanding of Information Holograph it is suggested that the scientists require having a transition from their use of mind as a tool to use of maneuvering ability of self. Though mind is the organ for processing information, information holograph cannot be handled by mind alone. Why? These are phenomenal information and phenomenology is handled by self and not by mind. One requires a primed self for handling information holograph. What do I mean by primed self? Primed self is where the private facets of self have achieved maturity following passage through elementary phenomenology of Life, Death, Ego, Love and Sex. This has been described in my earlier writings to happen with development of Biological Integration Center.

Information Holograph, through self, establishes connection with all self-organizing systems. In other words, all organizations which are supposed to have 'self' are interconnected knowingly or unknowingly through information holograph. Information holography through quantum holography connects with the matter.

Is there any sign of holographic information processing in human creation? Probably yes! Usually one sees a marked and often graded difference in quality of the creation during earlier age and during experienced age of the creator (e.g. Tagore's poetry of younger age and experienced age). Maturity of the creator makes this

difference. However, when one finds no such difference, one may conclude that this gentleman/lady has been creative under the influence of the master-key of information-holograph. In other words, the human brain might have a special state of activity to receive, perceive and to work under direction of this information holograph. It is a similar situation when it is stated that the brain has to remain in the *State of Grace* to acknowledge the presence of *the Grace*. And this state of the brain may be described as *absolute obedience* to the Source, when in information processing and responsivity of the brain, there is absent hemispherical bias, little hierarchical asynchrony within and there is perfect cosmo-cortical (outside-inside) harmony.

Is there any natural model which could be called a complete information holograph? Probably yes! The universe is the model natural (cf; Michael Talbot's *Holographic universe*). In its information holograph, all of its event-history is stored. This also supports the statements in the preceding paragraph that every universe, as a distinct system has its own information hologram.

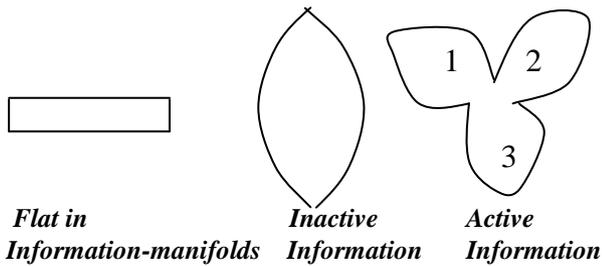
Information and Energy

It is often said that "Information expresses through 'energy' pattern" (e.g. Edgar Mitchell). Pattern means 'form', which is constituted by space and time. With information, associated are energy and form. One cannot dissociate space and time from energy in the context of information. This associated energy acts as vehicle of information. This is observable energy and is different from intrinsic energy of information. In transformation of intrinsic energy of information into observable energy, intervention of life-form/life principle is suggested. The ideas on this issue have been expressed in two of my earlier papers [14, 15]. Further, all observable energy pattern is not capable of representing information. There are some energy patterns which can represent information. Others do not (cf., Bell's 'be-able' and 'not-be-able' quantum particles).

Information geometry is important in information holograph.

What could be the shape/geometry/structure of this tiny information, which is even smaller than what is measurable in Planck's scale? Is it *flat*, a point or spherical when remains organized in the deepest recess of nature? Information has been traditionally thought to be *bipolar* and therefore *spindle-shaped* with one objective or measurable pole and another subjective pole. This is, however, best suited to describe inactive information. Active information is like an opened-up spindle in form of a trifoliate leaf; (1) one leaf (intent aspect) connected with self, (2) another (content aspect) with mind and (3) the third one (measurable

aspect) with matter (Fig. 2). Considering this *trifoliate structure* of information one can easily distinguish information entanglement from quantum entanglement.



Structural Geometry of Information
Fig. 2

Dormant information holograph and Active information holograph

Since information can remain in ‘inactive’ and ‘active’ forms, any information holograph can be viewed in non-functional and functional forms. The question remains what activates inactive information or inactive hologram? Is it done by contact with deeper recess of Mother Nature?

It occurs to me that active trifoliate information on moving ‘be-able’ quantum particle/wave might have been visualized by the sensitive people as ‘angels’ etc.

Is there any science in this vision of angel? Perhaps yes! Information splits in their mind into ‘form’ of an angel and they receive the information-based energy in their neurons.

Let me quote Max Planck when he articulates on extension of science!

“Science..... means unresting endeavor and continually progressing development toward an aim which the poetic intuition may apprehend, but which the intellect can never fully grasp.” - Max Planck

In this context of the science of angel, let me cite an unpublished poetry of mine written in 2005.

I was looking at my Mind!
Between Me and Infinity,
Often distinct, often an ever-fading line!
It is my Mind!

Passively, on itself it winds.
In action, it grows mighty wings.
Between Finite and Infinite
An amazing swing!
It is my Mind.

One day Information approaches her,
With passion, aggression and intense desire!

In his captivating charm, she submits to conceive.
Through nonlocal communication she perceives
A command to deliver ‘Form’,
Which is Information’s inside!

The play of Love, Sex and Aggression,
Happens outside scientist’s box of vision
What one observes are only quantum fields!
Measurable entity, within scientist’s skill.

Born are Energy, Time and Space.
Visible children from Infinity’s mess!
There are Fields and all the more
Energy and matter, a gala furor!

Scientists get busy playing with them.
Conceals Infinity, how It so became!

Differences between information-entanglement and quantum entanglement

There are differences between information-entanglement and quantum entanglement. Following table shows the differences between the two (Table 2).

Table 2

Information Entanglement	Quantum Entanglement
Connects matter, mind and self	Connects all in the nest of nature which obeys laws of Quantum Mechanics
More elaborate and really multi-dimensional	Elaborate in material plane
More proximate to Consciousness	Farther from Consciousness, mind or self.
As it connects mind, matter and self, so it can connect different objects, different subjects and objects with the subjects	As it connects only matter at quantum level, so it connects only objects. It cannot connect objects with subjects or different subjects

Quantum entanglement and Information entanglement can happen independently or jointly. Information entanglement can initiate quantum entanglement at the material level to make it sensible. *There is also doubt whether quantum particles/waves which cannot carry information ever entangle!* Quantum entanglement alone has nothing to do with self. Therefore quantum entanglement has nothing to do with self of self-organizing systems. This explains why quantum entanglement cannot be a mechanism for the whole. On the other hand information entanglement includes matter, mind and self.

Information holograph at the Translational level

Encryption, transcription and translation constitute the dynamics of the holography. Information holography is not made sensible till it is brought down to the sensible translational level.

What information maintains the conformity with the whole? What information maintains the rhythm of the whole? What information maintains the dynamicity of the whole? What information is responsible for the ever-openness to achieve the perfection of the whole?

Respectively this is done by four phenomenal hands of Mother Nature; Conformon, Phonon, Photon and Neutrino (see below). This brings holograph at the translational level. The question is how did I get into these four?

How did I get into these Four?

An approach from Above

Around 1986 I was struggling with myself how to articulate this impenetrable consciousness. Over a year, I could become successful to bring out something fascinating in this regard. I take this opportunity to quote verbatim from my published work, chapter One of *The Dynamic web of Supracortical Consciousness* (1987).

“Consciousness cannot be defined. It can be qualified. It is immortal, eternal and infinite, conceived in biology as ‘Ananda’, the ecstasy of Divine perfectness. The Thing which does not satisfy these criteria is not consciousness. Infinite but not immortal, immortal but not infinite, eternal but not infinite and like all such - are not consciousness. The consciousness, by definition, is immortal, eternal, infinite, biologically perceived as Ananda - the ecstasy of Divine perfectness.”

“The transcendental and nontranscendental Qualities:

A number of questions crop up. What is immortal, what one means by eternal and what is infinite? What is that which produces ‘Ananda’, a feeling of supreme ecstasy in limbic nuclei?”

“The cardinal sign of ‘life’ is creation. The cardinal sign of immortality is ceaseless creation - the CAUSE of everything. The eternal is that which is beyond TIME. All times are swallowed in it. That is infinite, to which everything else is finite, limited by SPACE. Thus the physical qualifications of consciousness transcend SPACE, TIME and CAUSE. When this immortal, eternal and infinite consciousness plays with that of phase specific consciousness in the pleasure triangle of

limbic brain, there is Ananda. Ananda transcends PLEASURE and with physical attributes of consciousness, it is immortal, eternal and infinite.”

“Out of four qualifications of consciousness, three are physical and one is biological (human). All qualities have their nontranscendental and transcendental counterparts; immortality for causation, eternity for time, infinity for space, Ananda for pleasure.”

“Concept of cosmic disillusionment and death:

The concept of cosmic disillusionment and death are products of mind which is unable to bridge the gaps between non-transcendentals and transcendentals. In between four pairs of transcendental and nontranscendental descripts, there exist four additional phases. In between cause and immortality, there is SILENCE, in between time and eternity there is STILLNESS, in between space and infinity there is EMPTINESS. NOTHINGNESS stands and bridges the gap between pleasure and Ananda. Before destruction of Mind (Mononash, monolay), the silence, stillness and emptiness, disillusion the cosmologist. The biologist’s mind conceptualizes death at the end of pleasure. To a conscious individual there is neither death nor disillusionment. There are only SILENCE, STILLNESS, EMPTINESS and NOTHINGNESS.”

“Consciousness in a dozen of words:

The physicists have described twenty four ‘fundamental’ building blocks for matter; three quark doublets, three antiquark doublets, three lepton doublets and three antilepton doublets. The concept of consciousness could be built up with twelve words” (Fig.3).

“On the Threshold of Breakthrough:

Philosophically, consciousness has always been associated with energy. In the field of high energy physics, let us now analyze the whole phenomenon of cosmic disillusionment. What all inventions and discoveries, what all theories and principles have disillusioned the high energy physicists, working beyond space, time and cause. The pion, meson and exciton, the soliton, magnon and polaron, the photon, phonon and tachyon, the graviton, gluon or W(+/-) and Z⁰ particles, the interstellar space or telltale cool (3° Kelvin) breeze, and finally the conformon are to be looked into.... “

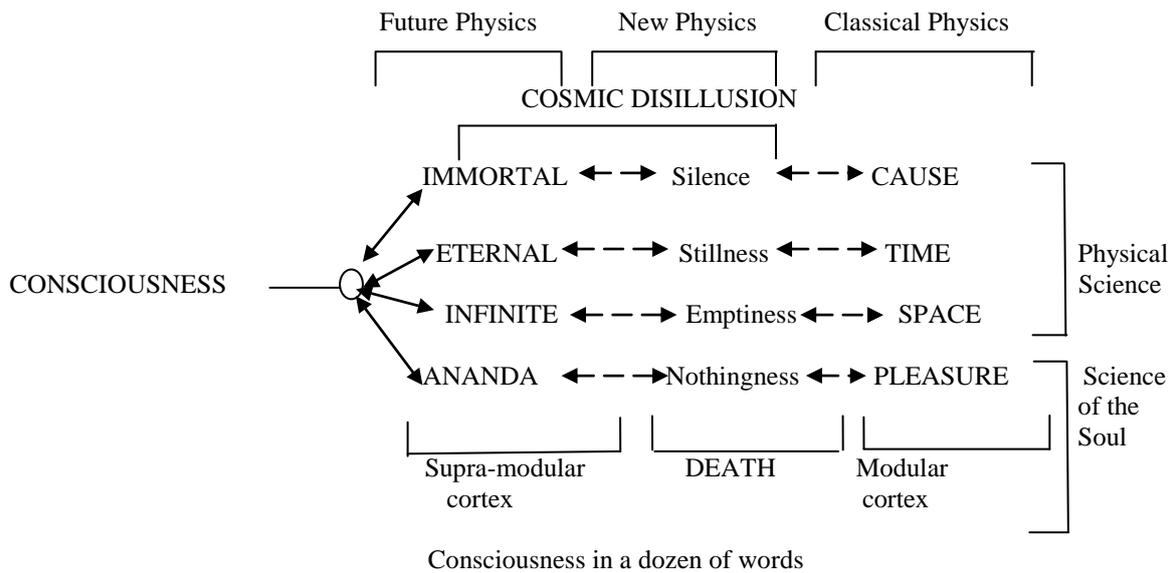


Fig. 3

“Out of all these, who all and what all have made and can make a breakthrough in the realm of silence, stillness, emptiness and nothingness? Are they able to confer immortality to cause, eternity to time, infinity to space and Ananda to pleasure? Could they become successful to bridge the apparently unbridgeable ‘gap’ between modular and supramodular cortex of the human being?”

“The Breakthrough

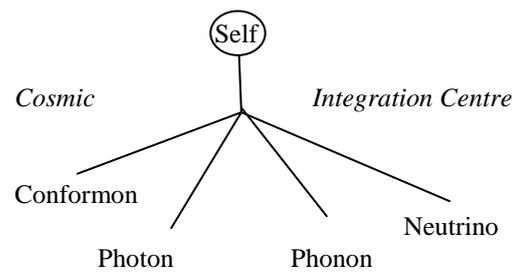
From the vast ocean of data in high energy physics, we have to choose four and only four which can replace the four intermediate phases, and are responsible for a major breakthrough in silence, stillness, emptiness and nothingness. The criteria set are as follows. They

1. Are wave package of energy.
2. Are beyond the polar opposites, (particle and antiparticle).
3. Are abundant in this universe, both cosmic and earthly, long-lived and available to everything and to all ‘ad libitum’.
4. Show interpenetration of space, time and cause in their behavior.”

“Applying the above mentioned criteria, one can choose conformon, phonon, photon and neutrinos for the physical attributes of consciousness.”

It is admitted that at that point of time, the four phenomenal hands of Mother Nature were picked up on the basis of pure intuition and some constructive logic. However, with growth of confidence it can be said that it constitutes the information holograph with

properties of all nine entities constituting the whole keeping consciousness/self at the center. The properties of nonlocal entities are there because of presence of self and properties of local entities are there because of quantum particle/waves. The point of junction may be called cosmic integration center (Fig.4).



Components of Information Holograph
Fig. 4

Modeling an Information Holograph

Scientific modeling of Information Holograph would initially require identification of the possible Source. This need to be followed by how information on the conformity with the whole, ever-openness to achieve perfection of the whole, rhythm of the whole and dynamicity of the whole are carried away at the materialistic translational level.

In search of the Source

1. Most of the Source field investigators starting from Backster to Jacobo Grinberg-Zylberbaum, Rupert Sheldrake [16], David Wilcock [17] and many others do not buy the argument that this network operates through any part of the electromagnetic spectrum. However, mainstream thinking tracing the origin of

quantum fields might zero it down to Z.P.E. fields, which is the beginning of quantum fields. However, in construction of the whole I am afraid that as long as we remain confined to the term 'quantum' we are not in a position to comprehend the 'whole'. The concept of quantum although brings us back to material level there is nature beyond Planck's scale and it is a challenge posed to all scientists to accommodate this nature for Source field investigation.

2. Therefore, Z.P.E. can be considered 'the ultimate source' for merely quantum nest/level of nature. It is the ground state of all matters and energy. It is the source of quantum fluctuations. Quantum fields may be considered as 'messenger' of this Z.P.E. Z.P.E. could be found throughout the universe. However, one can find it in its purest state in all intergalactic space.

3. It is also suggested that the Source of this universe is not matter and/or energy. Universe is created from information. We are to delve into the Source of Information.

4. It is proposed that a better starting point will be the inter-universal space, where the *Essence* for origin of multiple universe(s) could be found out. This *Essence* is the 'X' of the mathematician, 'That' of the philosophers, 'As Such' of the mystics.

5. The difference between this *Essence* in the inter-universal space and the Z.P.E. in the intergalactic space could be articulated as follows. All intergalactic space lead peripherally to this *Essence* but what distinguishes the two is a 'boundary' in-between, which is not imaginary but a real one where 'inside'

becomes 'out' and 'outside' becomes 'in'. Therefore, Z.P.E. is an outside-in effect of what is there in inter-universal space (Fig.5).

Outside-in and inside-out phenomenon is a better description than just 'inversion' or for example, description of information as 'negative' (entropy) by Norbert Weiner.

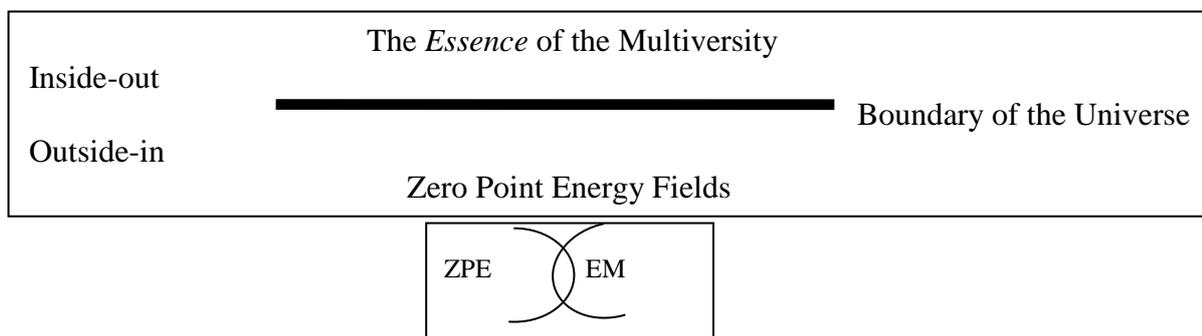
"I had been to God!
With His nod,
I went inside
Came back to my site,
With inside-out and outside in
I became what originally I had been."

- *The Millennium Bridge*, p.9

We are reminded of German poet and scientist Goethe's view on creation which calls for an inside-out phenomenon.

Quantum physics ends and begins in Zero Point Energy fields. That quantum mechanics is incomplete description of nature was made famous by Einstein himself. However, Wolfgang Pauli [18] was forthright to state this more appropriately in proper perspective.

"The famous 'incompleteness' of quantum mechanics (Einstein) is needed there somehow-somewhere, but of course it cannot be removed by returning to classical field physics (that is only a 'neurotic misunderstanding' of Einstein). Rather it has to do with holistic relationship between 'inside' and 'outside' which current science does not comprehend." [18].



Relationship of *The Essence* of the Multiversity and ZPE

Fig. 5

Table 3

The Source	
1.	Unconditional Consciousness
2.	Consciousness-Mother Nature
3.	The <i>Essence</i> of the Multiversity, The Source of multiverse
4.	Boundary of the Universe
5.	Z.P.E.

God of Physics, the Absolute Source for Science

Possible Source Fields have been shown in Table 3. God of Physics in the present intellectual development is not ZPE, not Universe, not Multiverse. God of Physics would be in all probability, the Source of multiverse, the *Essence* from which a system of several universe(s) is generated. *What we see as ZPE is an outside-in effect of what is there as Essence in inter-*

universal space. E.M. is also responsible for phenomenology from the Source. In the Brane theory of multiverse this might be what has been described as 'Superspace'/'BULK'.

Nature beyond ZPE

If one starts with void as the Absolute source, one begins and ends with a 'void', neither singularity nor plurality but with what the Buddhists describe as '*sunya*' and in the process, one learns the essence of Buddhism. In such endeavor, the mind is not dissolved. In fact, the mind is almost at its finest or purest best almost distinguishing the boundary between inside consciousness and outside consciousness.

In the void of the physicist, specifically in the great void of intergalactic space what in terminology of physics is Z.P.E., matter-energy, like mind, also undergoes dissolution for a new arrival in a new form! This stimulates us to think, imagine and speculate that there is nature beyond Z.P.E.

Nature beyond Z.P.E. is beyond mind, beyond the boundary. This nature is across the boundary of the universe. This is described as supramental (Sri Aurobindo), supracortical (Mukhopadhyay), supra boundary and so-called supra natural. This part of nature has been described as woolly, woolly, foamy, softy! It is intangible. *Unlike Z.P.E. the Source of multiverse (EM) is extremely stable*. In describing consciousness, Mother of Sri Aurobindo Ashram has a famous utterance, "so soft, yet so strong!"

Across the boundary of the universe, only the 'mind', one member out of five nonlocal entities dissolves. Information, self, life-principle and of course consciousness can cross through this boundary of the universe. Or, to put it in other way, all four exist across the boundary of the universe from either side. The readers may be reminded of the fact that information can pass through black hole which the light (? photon) cannot [19]!

Therefore, for clear understanding of the truly nonlocal entities like Consciousness, Self, Life-principle and even Information one cannot afford to remain confined to Z.P.E. as absolute 'source' of everything and all. To understand even the mind or how it does dissolve at the boundary of the universe one requires studying the boundary effect.

Inside-out and outside-in phenomenon happens at the boundary of the universe and it is accompanied with a spiritual experience by 'self'. The question is what/who executes it? For this, we have to study the mechanics of Mother Nature, the Nature of all natures which is also the nature of Consciousness.

Some of the readers may be familiar with my construction of Pentaune (Five in One) Model of Nature-Consciousness in *The Millennium Bridge* where the classical nest is nest I and quantum nest is nest II of nature. Over the boundary, may be slightly overlapping with both intergalactic space and inter-universal space is the nest III (sub-quantum nest) of nature where information has an independent and non-corrupting existence.

Within the domain of the *Essence* of the Multiversity, one can distinguish two nests of nature; nest of Mother Nature (nest IV) and the nest of pure unconditional consciousness (nest V). Information originates from nest IV of nature. Within nest IV, information remains as information manifolds. Information is neither bipolar nor trifoliate here. It is just flat, like a pull-over (Fig.2) arranged in form of information manifolds! This nest is also the 'home' of unbound and independent 'life-principle'! In fact, information generation in nest IV cannot happen without life-principle operating there (this is reflected at the grass root level when we see that information can be generated only by living organism. Non-living entity cannot generate information).

Within the boundary of the system with Z.P.E. as the source, everything seems 'natural'. What we colloquially label as supernatural are the phenomena across the boundary of the universe. Realistically, it is Mother-natural and this phrase is expected to replace the word supernatural in near future.

How to get into the Nature beyond Z.P.E.?

Our working instruments are Mind and Intelligence. The problem encountered in going beyond Z.P.E. is that none of these two can fathom the bottom of Z.P.E. and cross the boundary of the system, whether it is the boundary of cerebral cortex or the boundary of the universe. Mind dissolves at this boundary and so is the intelligence!

On the other hand, confronting the boundary problem is essential for extension of science. From bottom-up, the effort opens up to quantum-phenomenology interface (*The Millennium Bridge*, pp. 59-81). From top-down, it reflects phenomenology of the Source. The phenomenology of the Source and the phenomenology of the bounded system resonate at the boundary. Phenomenology cannot be handled by mind. It is handled by self. There is no alternate option for science but to admit the issue for its own extension! When the mind and intelligence are clueless, there is no option for the scientist but to accept and use the maneuvering ability of self. The minimum phenomenology what is required has been called elementary phenomenology of Life, Death, Ego, Sex and Love (*The Millennium Bridge*, pp. 82-106).

Therefore outsmarting of this great void, physically what is called Z.P.E., could be accomplished by only self which can easily get through this void.

And, self-consciousness remains the tool in this pursuit. There is no other option!

Philosophical dilemma faced by self during journey through this Void:

“If the cause is silent,
And the time is still!
Nothingness in my life,
And, emptiness under the heel.

Like a massless quantum –
I remain,
In the immortal, eternal
And infinite domain!

Probabilities replace
All certainties,
Antiparticle and particle
Become my kith and kin.

When I can't do any more,
Let then Goal choose its means.
There I Surrender.....”

The self is baffled with the question, how to cross the void, this overwhelming zero? The answer comes from those who have done it. According to their advice this could be accomplished by the process of this surrender. Remember, mind is sensitive to information, self is sensitive to phenomenon and consciousness is sensitive to surrender. This surrender has three adjectives to qualify the process. This should be unconditional, volunteered actively and it must be complete i.e., total surrender of all known, unknown, knowable, and unknowable properties of self to the Source.

Mind, the Limit; Mind, the Boundary

We all work with the Mind and the scientists know it better than anyone else. However, mind has its limits for any beyond-boundary extension of science. In the present circumstances, the mind of several eminent scientists cannot go (i) beyond velocity of light and (ii) beyond black hole. Nothing exists for their mind beyond the events of (iii) birth and (iv) death. Their mind also cannot see anything beyond (v) Z.P.E. and (vi) hypothetical ‘superforce’. Points (i) and (ii) make the limits of Space. Points (iii) and (iv) limit Time. Points (v) and (vi) depict the two ends of the stretch of energy spectrum. Six points represent the six surfaces of the closed cube of present science. To put it another way, the present science works under umbrella of

constants set by Einstein (velocity of light, which excludes simultaneity of events), by Max Planck (Planck’s scale of Space and Time, and Energy, which excludes continuity of events) and the constancy of Entropy barrier (which excludes continuity of events). This is the limit of present science, limited by working capacity of most of our mind. Mind is responsible for the limit. Mind has made this boundary. For extension of science beyond the boundary we are to relinquish our present mind, dissolve it in ‘zero’ and cultivate a new Mind. We are to learn how to handle this zero.

**Handling ‘Zero’
Cultivation of New Mind**

There is infinite distance between zero and the whole. However, there is a similarity between them, which has become the source of all confusion between the two as well. Like the whole, zero has absolute seducing power. Zero will put all its effort to make you, anything or anyone zero, whosoever or what comes in contact with it. Therefore, have faith in ‘self’ that there is something beyond zero.

The ways of handling zero/void in simple mathematical term are as follows.

1. Summate with zero: You remain the same. $0 + A = A$. There is no change, no alteration.
2. Negate from zero: You acquire negative properties, identified by others as negative personality. $0 - A = -A$
3. Multiply with zero: You become zero. $A \times 0 = 0$. Anything multiplied by zero is equal to zero.
4. Put zero on the right side, two together become ten-fold.
5. However, the only way to outsmart zero is to cross the void completely. Then one has to draw a line between oneself and the zero. Next, one has to stand on the zero. Anything which stands on the zero amounts to Infinity (∞).
 $1/0 = \infty$; $2/0 = \infty$; $A/0 = \infty$; $\text{Self}/0 = \infty$.

This happens irrespective of the *initial condition* of what stands on zero. In other words, connection with Infinity happens only when one stands on the zero. No glimpse of Infinity is possible without transcending zero!

The whole exercise is like a great Olympic feat to be executed by a completely surrendered self! It cannot happen without active intervention of the Source. The Source gets it done by a completely surrendered self by pulling across the ‘zero’ (may be through a super-magnetic attraction), helping to stand on zero (may be through vortex effect) and then pulling inside-out and filling from outside the ‘in’).

Let me express the First Person's experience when it happens!

"In the abyss of deep blue, the sempiternal light is lit. The destined human cerebral cortex faces Infinity's finite front. Hidden asymmetries in the external cosmos are complemented by reciprocal asymmetries in neurobiology. In cyclic symmetry and metric plane, the quivering limbs of the cosmic facet embrace the virgin vibration of the dreamy chords of the living biological corpse. The undying love of cosmic integration center impregnates the passionate heart beat of biological integration center." - *Conquering the Brain*, p. 247.

"A vast quiescence swallows up all sounds into a voicelessness of utter bliss" – Sri Aurobindo

This is not a permanent dissolution of mind! One comes back within the boundary with a new formation of Mind! Connection of mind with infinity changes its perception of the void! It appears that.....

"Not all silence is absence of cause,
Not all stillness is absence of time,
Not all emptiness is subatomic void,
Not all nothingness is absence of rhyme.

There is silence which broods cause!
There is stillness, which generates time with pause!
There is void from which this universe is born!
Ananda signs when nothingness is torn."

- *Conquering the Brain*, p. 200
- *The Millennium Bridge*, p.118

This great Olympic feat of handling zero is required to be practiced regularly for *cultivation of a Mind* essential for extension of science beyond Z.P.E. and beyond boundary. Personally, one gets beyond the realm of any kind of existential depression.

Further towards Information Holograph

The information holograph as proposed will have the whole of information. It must be able to work in any living system and also be functional at quantum level of material nature.

What one has to look carefully is what all from the quantum domain can pass across the boundary of the universe transcending the Z.P.E. field! One may begin with self which can cross Z.P.E. and can exist on either side. Since 'self' has access to all five nests of nature, when we do not take other players into consideration one often confuses the 'map' for the 'territory'. One must be cautious to avoid this.

Can all pervasive neutrino do this feat! Perhaps yes!
The Tau-neutrinos are so!

Can conformon, that maintain the conformity with the whole, do it?

Can photon do it? Or, is photon available on both sides of the boundary?

Is phonon available on both sides of the boundary of the universe?

It is also possible that across Z.P.E., Neutrino, Conformon, Photon and Phonon are not identifiable as such. However, we may be able to identify them as Neutrino-equivalent of Consciousness (Neut.-E-C), Conformon-Equivalent of Consciousness (Conf.-E-C), Photon-equivalent of Consciousness (Phot.-E-C) and Phonon-equivalent of Consciousness (Phon.-E-C) respectively (Fig.6). It is also plausible that 'vehicle' of quantum wave/particle is acquisitioned when information on conformity with the whole, dynamicity of the whole, rhythm of the whole and ever-openness to achieve perfection of the whole descends into the system through Z.P.E. (Fig.6).

Here it is worthwhile to cite a beautiful piece of poetry of mine (available in *The Dynamic web of Supracortical Consciousness, Conquering the Brain* and in *The Millennium Bridge* in different context), which describes the properties of Conformon, Phonon, Photon and Neutrino. This poetry has a background. Those who are familiar with Hindu mythological Goddesses they might know that they are several millions in number. However, Sri Aurobindo in his incomparable description of the Mother [20] has highlighted only four of them who all are directly connected with Consciousness. They are *Maheswari*, *Maha Lakshmi*, *Maha Kali* and *Maha Saraswati*. Connecting Sri Aurobindo's construction of the Mother with particle physics in early 1986 this poem was written where Conformon represents the feminine consort of consciousness, Goddess *Maheswari*. Phonon represents the feminine consort of consciousness, Goddess *Maha Lakshmi*. Photon represents the feminine consort of consciousness, Goddess *Maha Kali* and Neutrino represents the feminine consort of consciousness, Goddess *Maha Saraswati*.

"The first time I saw her,
She looked sovereign, vast, and white.
Comprehending wisdom, unbound and quiet.
All-surpassing majesty, greatness, a thrill
Wide and unattached, benign tranquil.
Impartial, patient, wonderfully calm,
All did she know, hidden was none.
I felt the gateway of supreme grandeur.
Miraculous knowledge, delightful splendor."

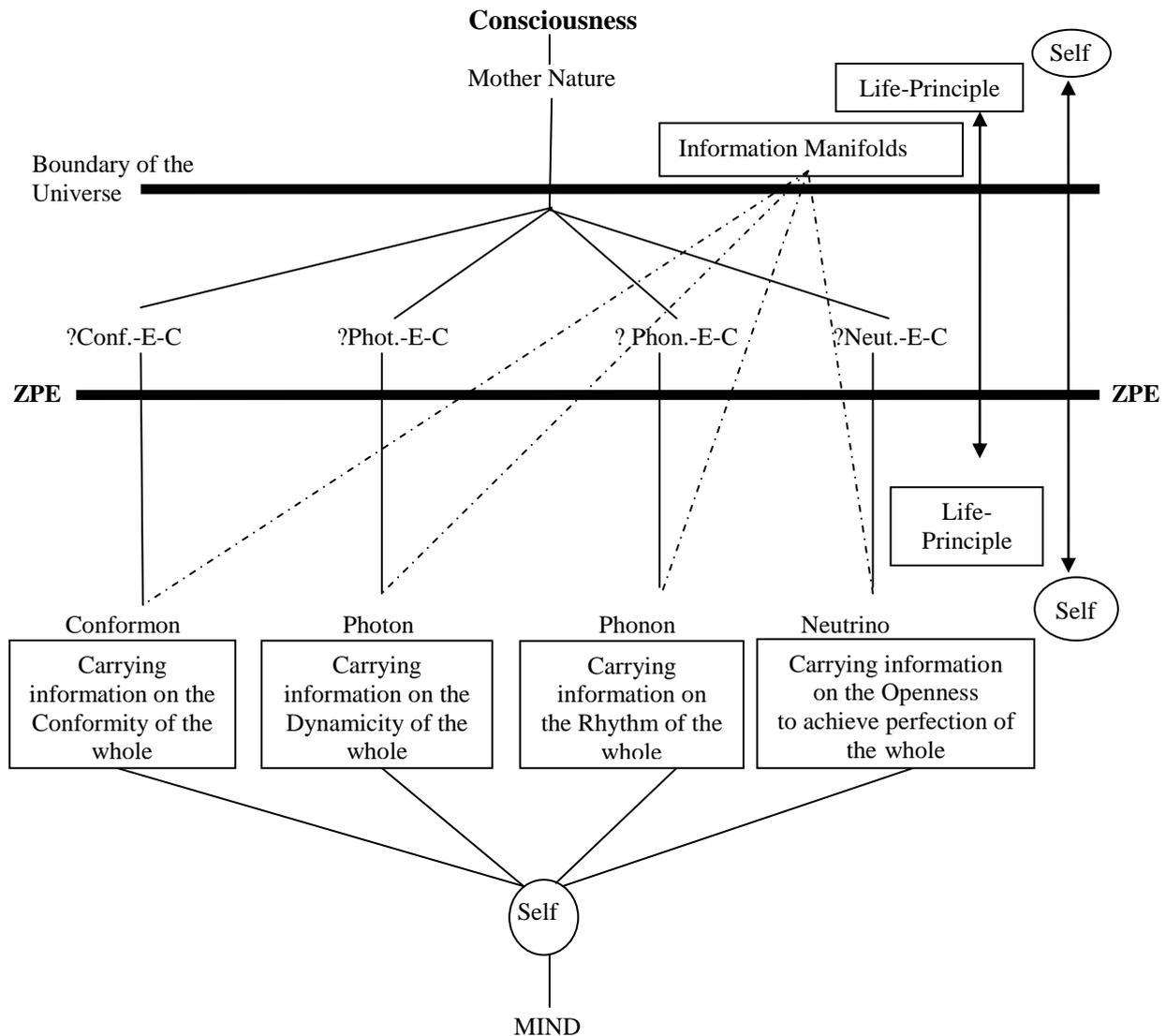
“I wanted to be close:
She laid in my heart, her magnetic touch
A mysterious beauty, slowly she marched,
Her divine sweetness, the intoxicating spell
A harmony of rhythm in my psychic bell.
I saw her, above all hidden fantasies
Unraveling the secret of mystic ecstasy.
She offered me, her sweet embrace
A marvel, a wonder, the captivating grace.
With loveliness of her rhythm, my soul was sized.
For ever, for her, it is an eternal liege.”

“I was not all prepared;
In presence of selfishness, hatred, mistrust,
She decided to depart with a divine disgust
I got the blow and pain over my heart
Then tried utmost, to retain all parts.”

“She was very angry;
She was very angry with the Devil in me
Harbored in the brain, which none can see!

A tameless spirit, terrible was her face
Destroyed she all, with vehement disgrace.
Repetitive stroke and her frontal blow
A divine violence, swift, not slow!
Her assault was straight, a splendid power
Passionate with will, her heavy love-shower.
The victorious force, an all-conquering might
She wanted to raise me, to the highest of all heights.”

“Finally she won;
When she owned me, the war was over -
For finishing touch, ready were her measures.
Solid and complete, I can see her map,
Untired and scrupulous, she bridges all gaps.
All trivial, little and small, become great with her touch,
Ever-alert mentor, perfection she searches.
She prefers to have an eternal toil
For a perfect perfectness, in all turmoil.
I can feel her unfathomable bliss
With her, in her, my eternal peace.”



The Source and the Structure of Information Holograph

Fig. 6

The first paragraph depicts the property of Confromon, the second one that of Phonon, third and fourth ones that of Photon and the last paragraph depicts the property of Neutrino.

To add scientific rigor in our formulation let me quote from *The Millennium Bridge* (pp.166-169), where I constructed their inter-relationship in the context of consciousness. I was describing Life-Force. It holds good equally for the information holograph.

“Can this neutrino (along with Weak Force and Gravity) bridge the psychophysical or physico-psyche relationship? Is it through neutrino, that a living system remains truly thermodynamically and informationally open? How the behavior of neutrino differs in the context of a living subject and that of a nonliving object? Is it the activity of neutrino, which can reconcile second law of thermodynamics and gravity?”

Are these omnipotent, all pervasive neutrinos responsible for bridging the gap between consciousness inside and outside a living cell? Is the neutrino shower permeating through skull and meninges, responsible for creating and ever-newness in photon/phonon transduction and signaling process in the neurons of upper layers of cerebral cortex, retained within the conformity of a given framework? Is it not the role of neutrino for which the meaning and context of an information get changed?”

“During transformation of particles a neutron abandons Weak Force and becomes proton. Neutrino joins hand with Weak Force and becomes an electron.

This possible transformation of Neutrino to electron offers us the clue that neutrino can affect the life-‘electric’. Neutrinos are ‘neutral’, ‘innocuous’, ‘non-existent yet persistent’. Weak Force and Gravity affect them. They are detected because of their coupling with weak force. From this clue, one can think that neutrino does have a role in symmetry-breaking (and also in symmetry-making in association with Confromon) process. That is also to say that neutrinos play an active role in changing the context and meaning of an information structure.”

“It is worth to mention here that the Neutrinos which are having ‘left handed chirality’ can couple with weak force. Right handed neutrinos are not known to couple with any of the known four forces of nature. It is likely that neutrinos can dissolve the boundary of any holistic system, particularly when it is a living one. These all-pervading neutrinos pass through the cell membrane and affect the dissipative structure or genes inside the cell. Neutrinos are also likely to be involved in mediation between consciousness inside and consciousness outside the brain. The structured association of ‘vibratory’ Phonon and ‘transductive’ Photon is in every way prone to this neutrino bombardment. However, the outcome remains

confined within the conformity determined by conformon. Neutrino, photon, phonon and conformon are phenomenal hands of Mother Nature.”

“Phonon was conceptualized (in the context of superconductivity) by Nobel Physicist Leon Cooper, when he was struck by a fact that there exists an attraction between two electrons overcoming their mutual coulombic repulsion. Photon offers resistance to electron conduction and here Cooper got the insight for existence of superconductivity.

Superconductivity in life-temperature is not a remote possibility, may be verified in this twenty-first century. Another Nobel Laureate, Prof. I. Prigogine and his colleagues (e.g. Sunchul Ji) have elaborated the role of Phonon as a part and parcel of dissipative structure in the ‘living state’. For completion of the model Prof. Prigogine revitalizes the concept of ‘confromon’ too. “*Confromon is Life*”, says Prigogine. ‘Confromon’, is a ‘*gnergy*’, an energy which retains evolutionary information (i.e. values of a given context and purpose).

It is supposed to be responsible for the conformity of a living structure. It retains the ‘password’ (in conformity with consciousness) for whether there should be an actual breaking of symmetry or not, whether it should be followed by formation of a new symmetry or not. Activities of neutrino in the presence and in absence of Confromon are speculated to be different.”

“In this proposed scheme to describe the information holograph (originally ‘Life-Force’), one observes a harmony in working of Einstein’s Photon, Cooper’s Phonon, Prigogine’s Confromon and Pauli’s Neutrino. In the new Paradigm these four are the phenomenal hands of Mother Nature working as an extension of Consciousness.”

“The scientists often have looked for a ‘background’, a ‘screen’, a ‘medium’, on which the events keep on happening. Luminous ether was considered a suitable candidate when Maxwell propounded its existence for electromagnetic events. Einstein’s special theory of Relativity dissolved such possibility and brought forth the idea of existence of true vacuum. Within ten years, with advent of general theory of Relativity, the background is re-incarnated with a new name, *spacetime metric*’.

Quantum mechanics does not talk about any such background but leads us to an objective existence of an ‘active’ vacuum. In the worldview as expressed in this text, one faces the plane of elementary phenomenology penetrating through quantum vacuum and zero-point-energy. In the plane which is deeper and inner than the ‘*screen*’ of spacetime metric, one comes across metric of purposes. The metric of spacetimepurpose appears logically incomplete till one identifies the fibers of

Ananda in its very existence. The *Ananda-purpose-time-space* metric forms the most fundamental fabric of any creation including our universe or the planet, or the organs of this very fleshy body. When this fundamental metric, as conceptualized above, is expressed in the language of quantum and particle physics, one is struck with Neutrino, Conformon Phonon and Photon, the phenomenal hands of Mother.”

“To materialize something, consciousness requires Phonon. ‘Life-electric’ is impossible without Photon. Consciousness in company of Photon and Photon appears to have a narrow scope, a limited perspective and a nondurable sustainability. In addition, a system should also deliberate on the possibility of expansion, extension, modification, and openness and is desired to have an option for creativity. It is Neutrino, which is assigned with the responsibility of breaking symmetry and opening up of new avenues. They create a constant perturbation in photon-phonon structural association and threaten sustainability. On the other hand for stability and sustainability, consciousness depends on its design-conformist, Conformon. Conformon can and does restrict Neutrinos but only to a certain extent. For Conformon it is almost impossible to restrict Neutrinos completely.”

“So goes on the dynamics of the information holograph (originally ‘Life-Force’).”

“Information hologram (originally ‘Life-Force’) is here, now, everywhere as a representative of the dynamicity of the Whole. In this hologram consciousness comes down as eternal ‘now’ through Phonon. Consciousness comes out as ‘here’ through Photon. Here it is! Now it is! But what is that we are having ‘here’ and ‘now’? Conformon offers the hints. Consciousness comes down and tries to reveal the whole conformity through conformon. The ‘whole’ is ‘here’ and ‘now’. This ‘is’ not static. It is all flux. The flux of the ‘whole’ is ‘here’ and ‘now’, leading to the intrinsic dynamicity of information holograph which is contributed by another phenomenal hand of consciousness, Neutrino.”

“Information hologram (originally ‘Life-Force’) has a ‘moral backbone’ which could be traced to Conformon sustaining conformity with the whole. Ever-openness of Life-force to explore a new situation is credited to Neutrino breaking monotony and adding ‘humour’ to ever-changing situation.

Once Neutrino and Conformon have struck their deal, Photon unveils its executive role. Photon working hand to hand with Phonon crystallizes the relevant structure and drives the process towards more complexity.”

“When the information hologram (originally ‘Life-Force’) inside the brain is in communion with the information hologram in supracortical domain, there is

Ananda. In the contributions of Nature towards genesis of Ananda one can find out the elements of ‘vibratory’ Phonon, ‘electric’ Photon, all-pervasive ever-open Neutrino and the composition-conformist Conformon.”

Individually Photon is an informational and ‘be-able’ quantum particle/wave connecting the sense of finite with the Infinite. Individually, Phonon is an informational and ‘be-able’ quantum particle/wave connecting the sense of time with eternity. Individually, Conformon is an informational and ‘be-able’ quantum particle/wave connecting the immediate cause with immortality. Individually, Neutrino is an informational and ‘be-able’ quantum particle/wave connecting the sense of pleasure with the ecstasy of perfection (*Ananda*) being connected with the Absolute Source.

However, Photon alone and singly cannot carry out the operational information of the whole. Phonon singly and alone cannot carry out the operational information of the whole. Conformon alone and singly cannot carry out the operational information of the whole. And, the same is true for Neutrino. The whole cannot operate wholly with any of their singular presence. The whole requires all four of them in their respective role.

Going through the whole contextualization it seems that the Information Holograph could be alternatively termed ‘information which is alive’. It represents the whole, possesses what all are required for the best connectivity of the whole and does not exclude ‘life’ either!

The system has a reflection in the operation of any best management system. There are four immediate assistants who represent four different but complementary facets working in absolute confidence of the CEO. Similarly to carry out the operation of information of the whole one requires an extraordinary constellation of Conformon, Neutrino, Photon and Phonon around self.

Each of *Maheswari*, *Maha Lakshmi*, *Maha Kali* and *Maha Saraswati* individually are great, both causal and immortal, both evanescent and eternal, both finite and infinite and both fabricated and perfect. However, any one of them singly does not and cannot represent the whole. One requires all four Feminine limbs of consciousness as executive front for its holistic operation.

Distinction between Information Holograph and Quantum Holograph

Finally we have reached a position to draw a distinction between Information Holograph and Quantum Holograph which is tabulated below (Table 4). There are overlaps between QH and IH in function and often the distinction is not that easy.

Table 4

Properties	Information Holograph (IH)	Quantum Holograph (QH)
1. Information Content	Represents the Whole regarding its information content on (i) conformity (ii) dynamicity (iii) rhythm and (iv) openness of the whole. These are phenomenal information and are better handled by 'self'. IH, completely bereaved of quantum particle/wave, is non-translational.	In QH, information on the whole is miserably incomplete. Whatever information is there in QH could be dealt by Mind. Quantum particle/wave, completely bereaved of information, is not likely to form QH.
2. Connectivity	IH is capable of connecting self, mind and matter. Connects all self-organizing systems. Can connect living and nonliving system. Capable of uniting local and non-local science	QH is confined to material plane. With its incomplete information content may at best connect with mind.
3. Source	The Source field is the <i>Essence</i> of The Multiversity.	The Source field is Z.P.E.

CONCLUDING REMARKS

What has been done is a mainstream science. There is no 'para-' or 'meta-' science (e.g. parapsychology, metaphysics) in this paper. What seems unconventional in this presentation is that it goes extreme upstream for the Source field. The infallible source-field has been identified as Consciousness (for nondualistic mystics), Consciousness-Mother Nature (for dualistic mystics), which for development of science could be the Source of multiverse or the *Essence* of the Multiversity. Even, for science, there is a hierarchy of the Source field; for within-boundary science, ZPE; for quantum-phenomenology interface, the boundary of the universe; for nature beyond Planck's scale, the *Essence* of the Multiversity. Mind dissolves at the boundary and re-forms again at the boundary. Elementary phenomenology might be responsible for this. A robust self can handle the situation of inside-out and outside-in phenomenon.

Holding the *Essence* of the Multiversity as the infallible and the absolute invariant, the whole of science has been contextualized in this direction; from bottom-up there are classical physical nest, quantum physical nest, elemental sub-quantum zone across the boundary of the system, the nest of Mother Nature and the nest of unconditional Consciousness. Top-down, for the Free Will (Unconditional consciousness) to be on the Newtonian wheel (classical physics) it has to go down the dimensional cascade (for example, *through* eleven dimensional domain of Kaluza & Klein to sensible three dimensional domain).

The generation of information holograph has been structured across the boundary of the universe from the *Essence* of the Multiversity and is proposed to be the communication system amongst all self-organizing systems. Alternatively, it might be called an orchestra of several information, which is 'alive'. How far it is applicable between living and non living system is yet to be clarified. The most important new formulation in this paper for information-scientist is the geometry of information, both inactive (spindle-

shaped) and active (trifoliate leaf). The most remarkable contextualization for the source-field investigators is ZPE as an outside-in image of the Source of multiverse {ZPE \propto EM}.

This is a Concept Paper written in simple common universal language. There is no physics, no mathematics, no complex dimension, even no effort to gather supportive evidence. Therefore, the propositions are left open to the researchers of nature/consciousness to falsify or to develop these further. They are encouraged to examine whether it can explain phenomena and predict events? Also, whether it is possible to have a mathematical model of this Information Holograph? Mathematics depicts relationship of certain defined entities in form of an equation. Every equation has an invariant without which no relationship can be stated. Is it possible to build up any mathematical model on this proposition of extraordinary constellation of Neutrino, Photon, Phonon and Conformon keeping consciousness at the center? Finally, what is the utility of this proposition/model in daily life? Does it have any role in healing of environmental health and the health of humanity?

ACKNOWLEDGEMENT

I profoundly thank Edgar Mitchell, Suzanne Mendelssohn, Gary Schwartz, Michael Tanner, and Millard Wohl for stimulating me to articulate on this important subject of Holography. Theirs was not mere stimulation but almost forcing a compulsion on me with love, regards and a lot of expectations. My special thanks go to Suzanne for showing me from my own work a possible holographic model. She is a neutrino-lover and has reposed a great faith on these innocuous particles in healing of the humanity and the planet. I thank Millard Wohl, nuclear physicist, for his interactive mails and relevant inputs on neutrino. I have formulated a few research hypotheses on this topic. I am indebted to Dr. R. P. Upadhyay, Scientist, IIT, Delhi, for some important suggestions. I also thank my wife, Chitrani, elder daughter Dr.

Tapasyapreeti and younger daughter Amritapreeti for patient contribution by listening to various portions of the draft. My thanks are for all MD students and post-MD residents of the Dept. and my PhD students with whom I had hours-long discussion on this paper. Finally, I thank Mrs. Pooja Taneja, my office secretary, who assisted in shaping the manuscript and helping in drawing the figures.

REFERENCES

- [1] Bohm D. (1983). Wholeness and the Implicate Order. ARK Paper backs. London, Boston, Melbourne and Henley.
- [2] Wilber K. (1982). The Holographic Paradigm and other Paradoxes. New Science Library. Shambala/Boston & London.
- [3] Talbot M. (1991). Holographic Universe. HarperCollins, New York.
- [4] Grinberg-Zylberbaum J., M. Delaflor, L. Attie, Goswami A (1994). The Einstein-Podolsky-Rosen Paradox in the Brain: The Transferred Potential. Physics Essays, 7(4), 422-428.
- [5] Schempp W. (1998). Quantum Holography and Magnetic Resonance Tomography: An Ensemble quantum computing approach. Taiwanese Journal of Mathematics. (2), 3, 257-286.
- [6] Marcer P. J., W. Schempp (2008). Quantum holography—the paradigm of quantum entanglement. AIP Conf. Proc. 465, 461-467; doi:<http://dx.doi.org/10.1063/1.58254>
- [7] Mitchell E. (2012). <http://www.edmitchellapollo14.com/articles.html>. Oct 20, 2012
- [8] Mitchell E. (2012). http://www.quantrek.org/quantum_hologram/quantum_hologram.html. Oct 20, 2012
- [9] Mukhopadhyay A. K. (1985). Frontiers of Research for Human Biologists Next Hundred years, Publishers and Printers (Conscious Publications), New Delhi.
- [10] Mukhopadhyay A. K. (1987). The Dynamic Web of Supracortical Consciousness. Publishers and Printers (Conscious Publications), New Delhi.
- [11] Mukhopadhyay A. K. (1995). Conquering the Brain. Towards the Essence of the Multiversity and the Akhanda Paradigm. Conscious Publications, New Delhi.
- [12] Mukhopadhyay A. K. (2000). The Millennium Bridge. Towards the Mechanics of Consciousness and the Akhanda Paradigm. Conscious Publications, New Delhi.
- [13] Wogan T. (2012). <http://physicsworld.com/cws/article/news/2012/mar/19/neutrinobasedcommunicationisafirst>, Dec 14, 2012
- [14] Mukhopadhyay A. K., (2012). God Particle to Consciousness: Life-science, Neuroscience and Nonlocal Science Hold the Key. In, the Science and Spiritual Quest.

Integrating Capabilities with values. Ed. S.C. Mishra, Sudipto Ghosh, Varun Agarwal. Proceedings of the 7th AISSQ Conference, Bangalore. Pub. Bhaktivedanta Institute, Kolkata, India, 108-123 (2012).

<http://akmukhopadhyayconsciousness.com/pdf/LINK12.pdf>

[15] Mukhopadhyay A. K. (2008). A Radical View of Information. On its Nature and Science. Frontier Perspectives, 16(2), 19-29.

<http://akmukhopadhyayconsciousness.com/pdf/LINK6.pdf>

[16] Shelldrake R. (2012). <http://www.shelldrake.org/Articles&Papers.html>. Nov 10, 2012

[17] Wilcock D. (2011). The Source Field Investigations. Dutton, New York.

[18] Pauli W. (1954). Letter by Wolfgang Pauli to Fierz (dated 10.8.1954). Translated by Harald Atmanspacher and Hans Primas. Journal of Consciousness Studies (2006), 13 (3),33.

[19] Hawking S., R. Penrose. (1997). The Nature of space and time, Oxford University Press, New Delhi.

[20] Sri Aurobindo. (1972). The Mother, Volume 25 of Sri Aurobindo, Birth Centenary Edition, Pondicherry: Sri Aurobindo Ashram.