

God Particle to Consciousness Life-science, Neuroscience and Nonlocal Science Hold the Key

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ABSTRACT

The scientists are nearer to God Particle. How far the 'God' of science, meant Consciousness, is from God Particle? The speculative response to this relevant question has given birth to this paper. From Higgs-Boson, the Mother Matter, to consciousness we have several milestones to understand e.g. dark matter, dark energy, their source and a big picture of information. Does all this have anything to do with the occasion of origin of life-form? Does it have any repercussion on cell biology, neuroscience and human behavior? A preliminary sketch has been developed in the course of this paper and a time frame has been stated as required for rationalization of consciousness by the mind of *Homo sapiens*.

1. God Particle

At the CERN Laboratory on Fourth of July, 2012, the scientists came nearer to the origin of **matter** with four point nine-sigma certainty. "We have observed a new boson with a mass of 125.3 ± 0.6 GeV at 4.9 sigma significance." The wave length of the field of Higgs-Boson is non-zero vacuum. The assumption is that any wave/energy when comes under its field, practically in *contact* with it, acquires mass and therefore gains stability. It would be true even for neutrino which otherwise is without mass. How they acquire mass or why they acquire mass cannot be explained at this stage. However, Higgs-Boson seems to be the starting point of acquisition of mass. Following this, what is left to be known for the

scientists is how it is connected to Dark Matter and Dark Energy which occupies 95-99% of the universe.

This is now a fact that with God particle the scientists are close to the origin of mass and completion of their standard model of physics, and is also close to probable unification of four forces of nature. The more appropriate scientific name for Higgs-Boson particle would have been the 'Mother Matter' or 'Mother Particle'. To popularize a difficult area of physics to the God-believer general public, Leon Max Lederman, American Nobel Laureate who coined the term, along with most of the other scientists continued with its name as God Particle in great reverence to God with a hope that if we understand Higgs-Boson and its mechanism we would know the *mind* of God. True, the scientists are nowhere near God, or origin of universe; nevertheless the experiment and the result could not be dumped as trivial. As pointed out by another Nobel Laureate Steven Weinberg in The New York Times, that even the effort itself in CERN Laboratory has generated new technology like real-time computation of enormous magnitude, a giant superconducting system with helium-based cooling mechanism to keep the high energy protons in a 27Km long circular track and a unique way of data sharing which has given birth to World Wide Web. Leon Lederman has titled his book, *The God Particle: if the Universe is the*

"The God Particle: if the Universe is the Answer, What is the Question?" - Leon Lederman

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Answer, What is the Question? The question we are raising and addressing in this paper is how far Consciousness, the 'God' of science, is away from God Particle?

2. The Assumptions for Making a Start and Our Limit

By all this in CERN Laboratory how far we are from a science for consciousness? Probably we have to wait for two more centuries for mass realization of consciousness. Why? We are nearer to Mother Matter and not Mother Nature in her purest form. Far subtler than matter or energy is information. Information works on the 'mind' of living being or mind-like structure and process in the nature. 'Life-principle' and 'Self' are subtler than information. Consciousness at its

unconditional altar is supposed to be the subtlest. Consciousness, to express in possibly a highest intellectually comprehensible way, is closer to the *Essence* of the Multiversity, the *Essence* in which several universe(s), the multiverse, have their source of origin. This *Essence* is what was originally thought to be the 'primordial soup', which now can be described with terms and concepts appropriate for present intellectual level. Note the order as stated; information, mind, life-principle, self and consciousness. The trajectory described roughly represents the developmental line of science.

In this presentation, our starting point and end point is not infinity. Infinity is difficult to handle with intellect. Both our beginning and end remain the *Essence* of the Multiversity. The *Essence* of the Multiversity is within finite realm. It may be an outlier (also mystically in-lier) within the scale (10^{100}) spanning between smallest known subatomic particle in one hand

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and the largest comprehensible object, the universe on the other hand. Both 10 and 100 are finite numbers. I have used the language of Thomas Campbell, the author of *My Big TOE* to stress that we have been doing science within the finite realm. Intellectually, at this stage of development of our brain it is difficult to comprehend nature beyond this. The cognitive constrain of the brain sets our limit.

Contrary to the prevalent scientific trend and opinions, the author takes the view that the universe is not created from any matter or energy. The universe is created out of information signaled from the *Essence* of the Multiversity. Energy and mass formation occurs following the initiation of the process.

3. The Source of Dark Energy and Dark Matter

In 2008 the present author published a paper titled, A Radical view of Information. On its Nature and Science in *Frontier Perspectives* published from The Center for Frontier Science, Temple University, USA. Ironically, this was the last issue of the journal; both the Center and the Journal closed down following Economic downturn in the West. In that paper the author brought the concept of information

splitting phenomenon. Information-split (also referred to my Paper in Science and Spiritual Quest, 2008) results in `form' (space and time) and energy.

The word 'information' has both Latin and Greek origin. In Latin it is a noun. In Greek, it is a verb (Fig.1).

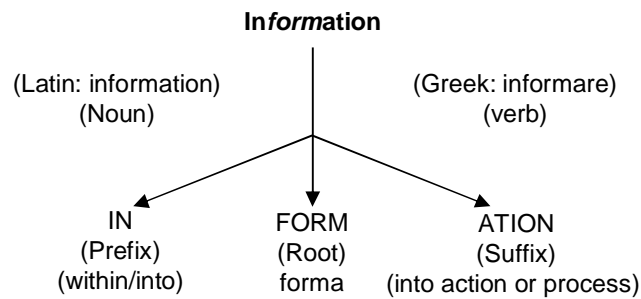


Fig.1. Origin of the word "information".

Information has an independent existence beyond Planck's scale of Nature. Once mind-like structure and process in nature conceives information, space and time are delivered accordingly (Fig. 2).

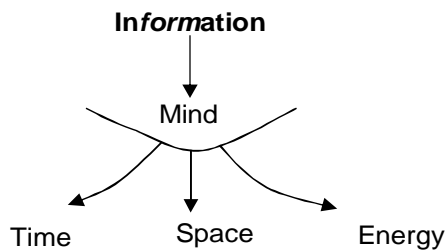


Fig. 2. A mind conceiving information delivers time, space and energy.

Also poetically, 'Space and Time are products of Mind'. 'They move with the wind in mind's drain.' 'They are ghost and cannot boast, when the mind ends' (Conquering the Brain). In altered state of mind, we perceive altered space sense and a distorted temporality.

The question is how does information actually split in nature?

Information is the source of both Time and Space. Any Space and any Time are discussed in the context of specific information. Time is a relative concept! It is relative to what? Time is relative to information.

The question is how does information actually split in nature? Does it happen by quantum fields? Is it executed by “*Emperor’s new Mind*”? That is another story! The result is what Leon Lederman stresses as *Intangics*: intangible made tangible. The energy generated from information-split phenomenon is initially ‘dark’ energy (Fig. 3), which is transformed into ‘dark’ matter in nature which operates beyond Planck’s scale. This type of conversion of energy into matter probably does not regularly happen within the Planck’s scale of nature and is yet to be demonstrated. Figure 3 shows the source of information-based and matter-based energy.

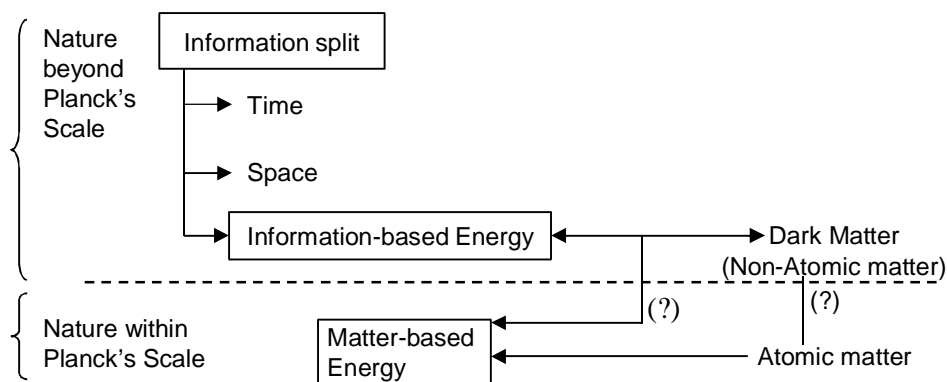


Fig. 3: Two kinds of energy: Information-based and matter-based.

The question remains how dark matter (non-atomic matter) is converted into atomic matter? How dark energy is converted into ‘white’ energy? What are we genuinely missing in the big picture? What is this link? What stands in between nature within Planck’s scale and nature beyond Planck’s scale?

To find out a connection between Higgs-Boson particle and dark matter particle, a large number of theoretical physicists are ready with hundreds of papers. However, any such theory is expected to succeed only when they take nature of information and information-split phenomenon into consideration. There is another phenomenon, as described below, to be taken into account for establishing any successful linkage between Higgs-Boson and dark matter, and that is 'life' (look into the substance of the joke; hubby, you are Higgs-Boson of my *life!*).

4. Mother Nature under Strain

Dark matter is supposed to hold back the components of the universe while the dark energy pulls the components apart and thus contributes in expansion of the universe. A balanced proportion of the two, dark energy (constituting about 70% of the universe) and dark matter (constituting about 25% of the universe) maintains the dynamically changing size of the universe. However, this maintenance, even for a status quo, is an extremely strenuous job for nature. Primarily with an objective to ease out this relentless tiring exercise and also with another objective to help manifest nature which is beyond Planck's scale as a nature which is measurable within Planck's scale, some other mechanism demands innovation. Amino acids or protein molecules did not serve the purpose. Naked RNAs could not do it. Naked DNAs were found to be of no value either. Viruses too failed to rise to the occasion. Nature, which was visibly almost harassed during such pursuance of her effort, started looking for a sensible and practical solution which is sustainable.

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5. Probable Solution

At this point, Nature came out with a decision to design `life-form`. To materialize this decision was also not a child's play! Where from the required proteins and lipids would come to form the boundary? Would it be synthesized from viral DNA? Virus can synthesize only when within a host! Or, could the available protein in the environment contribute in formation of the partition? Perhaps both the processes were utilized to achieve the objective! What was the original composition of the

initial partition? How did it change from a simple molecular partition to a complex cell membrane? How Higgs-Boson bring stability in this nascent molecular formation? This area demands a closer look by the astrophysicists, cosmobiologists and life-scientists. The momentous phenomenon of *enclosure* of DNAs as 'life-form', however, did reverse within it the flow of information in contrast to what had been happening before enclosure. Before enclosure, information had been flowing from environment to protein to RNAs to DNAs. Within the life-form, information started flowing from DNAs to RNAs to protein. To manage information, which was hitherto address-non-localizable, context-non-addressable, appeared then a relatively effortless job. Life-form brought a manageable operation for varieties of information which was randomly the source of dark matter and dark energy in this universe. Like the generation of information-based energy from information-split phenomenon, this phenomenon of enclosure of DNAs is equally important in connecting Higgs-Boson with dark particle. Life-forms once appeared in the scenario started converting dark energy into visible matter and visible energy. We, here, are reminded of Luis Pasteur's guess that 'life' generates matter and the conventional scientist's view of vice-versa may not be true.

The momentous phenomenon of enclosure of DNAs as 'life-form', however, did reverse the flow of information within it, in contrast to what was happening before enclosure.

"I have been looking for spontaneous generation for twenty years without discovering it. No, I do not judge it impossible. But what allows you to make it the origin of life? You place matter before life and you decide that matter has existed for all eternity. How do you know that the incessant progress of science will not compel scientists...to consider that life has existed during eternity, and not matter? You pass from matter to life because your intelligence of today....cannot conceive things otherwise. How do you know that in ten thousand years one will not consider it more likely that matter has emerged from life?" - Pasteur, L. (1857). Mémoire sur la fermentation appelée lactique (Memoire on lactic fermentation). *Compt. Rend.* 45, pp. 913–916.

The matter which is visible to us comes from life-form. Here, matter means visible matter. Life-form generates visible matter.

6. Life-form

By the statements articulated above, we get into the purpose of arrival of life-form in this universe. What are those? (i) Management of information; information which was hitherto bombarding on quantum fields or on 'Emperor's new mind' to generate enormous amount of dark energy would then have got a respectable site to interact, the cell membrane, perhaps the material representative of the mind of a cell. Location-non-addressable, content-non-addressable and context-non-addressable information became location-addressable, content-addressable and context-addressable information. (ii) Economy of Dark Energy and Dark Matter; Life-form regulates the dark energy and dark matter economy in the universe. (iii) Active participation of life-form in conversion of information-based energy into 'white' energy and visible matter (Fig.4). (iv) Life-form thus started playing a role in transformation of nature which is outside Planck's scale into nature observable within Planck's scale. (v) Life-form resolves conflict between two sides of nature.

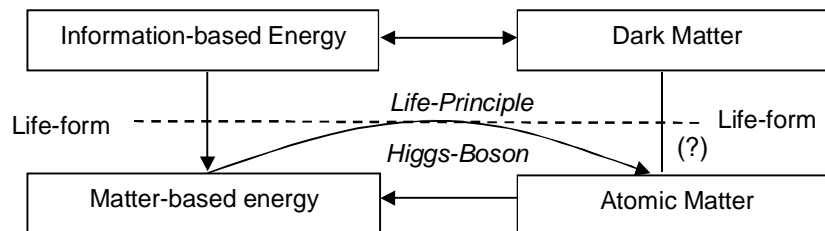


Fig. 4 Life form playing role in conversion of information-based energy into visible energy and matter

Life-form stands at the boundary of nature beyond Planck's scale and nature within Planck's scale. Life-form is connected to both sides of nature; its unobservable and non-measurable side is presently known as mystical/spiritual and the other side is visibly 'material'. The former constitutes 95-99% and the latter the rest of total comprehensible nature. We, the human being, possibly the highest life-form, are also posited at the border of this indivisible working divides of the comprehensible whole. We can do local science within Planck's scale and pursue nonlocal science beyond Planck's scale of

nature. By nonlocal science it is meant science of five nonlocal entities like, information, mind, life-principle, self and consciousness; the science includes their individual mechanism of operation and interactive mechanics amongst themselves.

We the *Homo sapiens* can build up equation between the two; what we perceive as spiritual abstraction and what we label as scientific rationale. We, like any other primitive life-form, have been transforming nature beyond Planck's scale into nature within the

Planck's scale as measurable, observable and reproducible. Planck himself was an embodiment of this. He set up his scale within which the events are measurable, observable and reproducible. He was aware of the realm in which phenomena, although realizable, are not measurable, and does not have the reproducibility for a third person.

Five Purposes of designing Life-forms

1. *Information Management*
2. *Dark Matter and Dark Energy Economy*
3. *Conversion of dark energy into 'white' energy*
4. *Manifestation of nature outside Planck's scale into nature which is observable, measurable and reproducible.*
5. *Resolution of conflicts between two sides of nature*

Life-Form stands at the boundary of nature beyond Planck's scale and nature within Planck's scale.

7. Dark Matter and Dark Energy in Cell Biology

Does dark matter and dark energy have any role in cell biology? When the source of dark matter and dark energy is information and life-form is involved in management of information and the economy of dark energy and dark matter, it remains always an almost certainty! Dark energy generated within the cell may exploit the property of 'fluidity' of genes, may explain why the genes jump and thus change the grammar in the language of genes. The mechanism of unwinding of DNA might be related to this dark energy. What we observe as 'spontaneity' of living system may be the result of 'back-door' manipulation by dark energy created from the information-split phenomenon! Dark matter, on the other hand, may be related for maintaining the conformity of DNA and enzymes, also of folded protein etc. in association with conformon. Dark matter and Dark energy perhaps alter the dissipated structure kept far from equilibrium where Photon and Phonon are involved. How the dark energy influences and changes the activity of Conformon, Photon, Phonon and Neutrino in cell biology would open up a new frontier for us! To quote from *The Millennium Bridge*, "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 'humor' 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 toward more complexity." "In the contribution of Nature.....one can find out the elements of 'vibratory' Phonon, 'electric' Photon, all-pervasive ever-open Neutrino and the composition-conformist Conformon." Has Higgs-Boson any role here to play?

Life-Force has a moral backbone which could be traced to Conformon sustaining conformity with the whole.

8. Probable Relevance and Significance in Neuroscience

Human brain is a miniature universe. 10^{11} stars make a galaxy. 10^{11} galaxies make our universe. In the human brain there are 10^{11} neurons and ten times of it are glial cells. More than 90% of brain's functions are as obscure as the universe. The dark energy and dark matter have relevance and significance in neuroscience and human behavior. Human brain is bombarded with information not only through sensory routes but also through extra-sensory and non-sensory routes. It is invisibly supracortical bombardment.

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Supracortical bombardment of information requires a bit elaboration. The cerebral cortex has most dense neuronal network. There are several dendrites which carry information from the periphery to the body of the cortical neurons in the deeper layer of cortex. In the cerebral cortex, a number of dendrites run upwards/outwards and along with dendrites of top layer neurons form a meshwork of dendrites. This dendritic mat perhaps forms a 'catchment area' for information (cf. television antenna) from supracortical domain. In this endeavor of picking up of information from the supracortical domain the dendritic spines which are not engaged in synapse formation might have some special role. In contrast to axons which carry signal away from the body of the neurons, the dendrites do not carry action potential. Electrophysiology of dendrites is governed by electrical dipole. With all probability, the free movement of these dipoles gets influenced or altered by bombardment of information on the cerebral cortex. When the 'self' becomes aware of such supracortico-cortical interaction, the pronouncement comes as *supracortical consciousness*. The present author has coined this term and concept of supracortical consciousness in 1985 and since then authored four books and several papers on this theme. A glimpse of this development may be found in author's website. Mari Jibu, Kunio Yasue, and Giuseppe Vitiello have developed the idea of quantum brain dynamics (QBD) in a similar direction. However, there are three distinctions in their view point. Instead of electrical dipole on the dendrites they consider the dipole of water molecules which constitutes approximately 70% of the brain. They seek explanation of every phenomenon within Planck's scale of nature. Also, they haven't accepted anything as

supracortical. The present author is also of the view that even 'Life-force' in nature acts on the cerebral cortex to keep the neuronal pacemaker wheels on rotation in the vital brainstem centers like vasomotor centre, cardiac centre and respiratory centre. What all do we need, therefore, in the *tangible* domain to make supracortical consciousness a

What all do we need, therefore, in the tangible domain to make supracortical consciousness a science? Perhaps only five! They are Information, Quantum fields, Higgs-Boson, Weak Force and Electromagnetic Force.

science? Perhaps only five! They are Information, Quantum fields, Higgs-Boson, Weak Force and Electromagnetic Force. In the *intangible* domain players are mind, information, 'life' as life-principle, self and consciousness itself.

9. Dark Energy and Dark Matter in Neuroscience and Behavior

Philosophically, it can be said that information bombardment is handled mostly by mind and selectively by self. Mind is extremely fertile to be impregnated by information which splits *information* to generate 'form' i.e. image/space-time structure, and energy. This energy is dark energy which if not managed appropriately, may ruin the sensitive neurons. Here, come into play the orchestras of glial cells which outnumber neurons by seven-ten times. Where communication between neurons is merely a signal transmission and not transmission of information, astrocytes are irrelevant. That is why ganglion, a collection of nerve cells outside the central nervous system has no astrocytes. However, where communication involves information, the glia-neuron dynamic partnership takes the responsibility for effective

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transformation of this information-based dark energy into 'white' energy. This partnership works through glia-neuron synapses, glia-neuron electrotonic contacts and Ca^{++} wave-movement across this vast syncytium of trillions of astrocytes.

In this way an effective cellular mechanism restores the optimal impact of any information conceived by the mind with a repercussion on neurons of the brain. Following deft conversion of dark energy into rational energy by its cellular mechanism the brain gets back near to its original composure. At the level of the universe, dark matter holds together and dark energy propels the components of the universe. Extrapolate those phenomena in the mini-universe of our brain. When information bombardment on the cerebral cortex is at discordant, the self is perturbed and multiple 'self' may start working for different information. One can imagine the state of 'war' or disturbed peace within the brain amongst its nonlocal players. Apply the situation between two close persons or amongst a group of individuals with respective dark energy yet to be rationalized as 'white' energy within their brain. There will be repulsion, loss of cohesion and divorce from each other leading to division, detrimental behavior or even death. Also look at the social phenomenon when a successful mass leader in politics mesmerizes the mass with one or two forceful information and then works with them to rationalize his/her view point. In the process he/she helps to organize the massive dark energy within several hundreds and thousands of brains into a cohesive market of white energy. Congregational prayer, mass chanting of *mantra* (*mantra* is a symbolic information on the Divine) brings social harmony in a similar way.

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10. The Difficult Choice

We are entangled within a vast, seemingly endless, informational network. In this critical situation, our 'self' is to learn how to discriminate between information that is life-saving and information which is detrimental to life. We are to choose between information which is elevating, enlivening and brings light and joy to us and information which generates depression divisions and has only darkness to offer. We are to propagate that information which would bring cohesion in our belongingness to this universe,

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multiverse and to the Essence of the Multiversity. For reaching the bottom/ground from the coveted position of *Mother Matter* we are to dive deep into the nest of nature stuffed with information-manifold. Perhaps what we call *Mother Nature* operates on, or from this nest! When we reach this nest of Mother Nature, Consciousness is within a stone-throw distance.

11. The Time Frame

Nineteenth century was the century of classical physics in science. Twentieth century was occupied with Relativity and Quantum Physics. We are at the middle of the span of five century's science. In human scale of time while twenty first century is destined for doing science of information, we would be near to Mother Nature (and life-principle etc.) in twenty second century. Twenty third century is the period for realization of consciousness in science. This time scale is, however, for mass consumption. There are people around us who could contract these three centuries into three years, or three months, or three days or even three seconds to bring unconditional consciousness in their behavioral platform.

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About the Author



Dr. A.K. Mukhopadhyay, a medical graduate from the University of Calcutta (1977), a graduate (MD) from All India Institute of Medical Sciences (1981), joined the Faculty of AIIMS in 1985. At present he is Professor & Head, Department of Laboratory Medicine at AIIMS. He is Member of the National Academy of Medical Sciences (India), New York Academy of Sciences, USA, and Society for Scientific Exploration USA, Scientific and Medical Network, UK, a Fellow of International Society for Philosophical Enquiry, USA.

From India he was an invitee of Pontifical Academy of Sciences, Vatican, during Academy's meeting of Science for Man and Man for Science in November, 1999.

Dr. Mukhopadhyay coined the term and concept of supracortical consciousness in 1985 and developed further this idea integrating Science, Humanity and Spirit. His keen desire to develop a Science for Consciousness has given birth to four worthy documents. (i) *Frontiers of Research for Human Biologists* (1985), (ii) *The Dynamic Web of Supracortical Consciousness* (1987), (iii) *Conquering the Brain* (1995) and (iv) *The Millennium Bridge* (2000). His several lengthy scholarly papers have been published in Philosophical Volumes published from Centre for Study of Civilization, in the gigantic Project of History of Indian Science, Philosophy and Culture.

A. K. Mukhopadhyay/ God Particle to Consciousness

A new Paradigm is, therefore, on the making, which the author calls the *Akhanda* Paradigm. The Akhanda is an individual indivisible from the Whole. The Akhanda Paradigm is a Paradigm which deals with the divisions of the Indivisible holding Consciousness-Mother Nature as irreducible and inviolable constant.

A. K. Mukhopadhyay/ God Particle to Consciousness

SCIENCE AND SPIRITUAL QUEST

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