

Einstein's Abandoned Otherworld: How Conscious "Will" Manifests in a 4-D World?

Ashok Kumar Mukhopadhyay*

All India Institute of Medical Science New Delhi and North DMC Medical College & HRH, Delhi, India

***Corresponding Author:** Ashok Kumar Mukhopadhyay, All India Institute of Medical Science New Delhi and North DMC Medical College & HRH, Delhi, India.

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Abstract

The paper adds a new paragraph following Einstein's full stop for physical science at the cosmological constant. Based on the potential properties of non-zero energy in the space empty of matter and the known recognized functions of consciousness, the author works out the operations and their operators over an uncharted territory between the near-completed knowledge systems in physical science and specific ignorance of the causality matrix cascading down from the "conscious will". In the process, the dark cold terrain of the depth cosmology beyond zero-point energy and the warm enlightened vast of depth psychology has been systematized. The organogram of the activities between zero-point energy and conscious "will" has been constructed. The door is let open for deep physics of dark energy, information, and life.

Keywords: Non-Zero Vacuum; Cosmological Constant; Operational Consciousness; Organogram from Will to Event; Ethics and Aesthetics; Organogram from Consciousness to Energy

Introduction

The physicist and biologist think differently on consciousness. George Wald said, "Consciousness gives us no physical signals..... We have no way of identifying either the presence or absence of consciousness, let alone its content". The interest of Sir Francis Crick (of DNA fame) in consciousness research elevated the dignity of the subject in science. Crick made it neuro-centric and correlated conscious states with 40-hertz oscillations in the cerebral cortex [1]. He brought out his *Astonishing Hypothesis* in 1994 [2]. Gerald Edelman, the other molecular biologist of Nobel repute too made consciousness his central interest and offered Re-entrant theory of consciousness in thalamocortical loops [3]. Stephen Hawking in the cosmological context suggested, in a lighter vein, the Mind of God at the border of the Universe. Sir Roger Penrose, however, took a Platonic stand and proposed consciousness outside the system in Twitter's space. Presently, his focus is on the neuronal microtubules and information! Quantum physicists observe the role of the observer's consciousness in the collapse of the wave function. In the context of *Quo Vadis* Quantum Mechanics, physicist Henry P. Stapp argues, "Quantum theory will go where it is most needed, which is into the effort to understand ourselves and in particular the connection of our minds to our bodies" [4]. In the context of *Unde Venis* Quantum Mechanics, Gerhard 't Hooft's work suggests that the underlying structure of quantum mechanics can be formulated with the help of a cellular automaton [5].

Science progresses creating reconciliation between its existing knowledge systems and its primal basic ignorance. Albert Einstein was aware of both ends. He was a realistic and imaginative scientist and was aware of what he didn't know. As a realist, he dealt with four primary players of local science namely space, time, matter, and energy. He redefined gravity in his Theory of Relativity as the warping of space and time. He also bonded matter and energy in the equation $e=mc^2$. He emphasized the close association between space and

matter! Matter intelligently decides the properties of space. Space is always occupied by a matter. Einstein, however, in the course of his imagination for the existence of any space without a trace of matter eventually got realistically stuck with such a space that is empty of matter, but occupied with near-zero energy, not constant but randomly fluctuating which does not follow the law $e=mc^2$. Even in absolute zero temperature with nil thermal agitation, the activities are observed here. Einstein described this as Zero-point Energy (ZPE). He tried to connect Relativity with ZPE but it is reported that having worked with it for twelve years he discontinued this area permanently from his arena of doing science. Accomplished Einstein, however, was confident of his theories and described the rest of the work as the details! When asked if he were aware of what he didn't know, his considered response was, he did not know what God's will was!

The Objective and the Method

The objective of this paper is to identify one of the unfinished tasks at the crown of science and to connect the Top (conscious will) with the Bottom (fluctuating non-zero energy at vacuum space). Based on the facts and logic, the adapted method of Analysis, Abstraction, and Synthesis pursues objectively what makes sense. The method is reproducible at the appropriate level, and amenable to contingent modification for a science of quality.

Analysis, Abstraction, and Synthesis

We will do an analysis of the starting point, the endpoint, and then connect the two ends. Abstraction and Synthesis would be concomitant in the appropriate context.

A. The bottom

We begin with the vacuum space where Einstein paused for physical science. "The vacuum holds the key to a full understanding of nature". The current physics lacks a model for this [6]. Edgar Mitchell, the sixth man who walked on the moon, had firm belief in the potential of ZPE for extending the scope of science.

Explored properties of ZPE

Harold E. Puthoff and his co-authors have suggested a link of ZPE with quantum fluctuations of all matter fields (i.e. of leptons and quarks) and force fields (i.e., of photons and gluons). According to them the property of inertia is a manifestation of resistance to the accelerating effect of ZPE. ZPE also opens up the possibility for efficient interstellar propulsion. Finally, ZPE could be an alternate source of energy [7].

Unexplored properties of ZPE

There is a major discrepancy between the theorized and observed values of ZPE; the value is non-zero but not greater than 10^{-120}Ap . One Ap is equal to one Planck's mass per cubic Planck's length. In theoretical physics, it is said to be the most serious fine-tuning problem because of its inexplicable smallness as found by experiments [8]. This energy signifies a role in preventing the collapse of the universe or preventing inflation from being eternal. This fact suggests its relationship with dark matter and the dark energy of the universe. The other relevance of this value is that only a small fraction of the stable vacuum is hospitable to "life", which signifies a possible communication between systems cosmology and systems biology. For all the reasons, this is widely known as Einstein's Cosmological Constant.

Physical reality nearly ends at ZPE. The cognitive reality within a larger sphere of life and consciousness begins here (Figure 1). The mind-operation of every living entity, which has a cognitive system, happens through ZPE for behavioural expression in a 4-D world. All minds and information meet at ZPE. Immediately beyond ZPE is the domain of information and its different states, dark energy and dark matter. Therefore, ZPE is the communicating ground between deep physics and depth psychology through signal-information

transformation. Dark matter and dark energy belong to depth cosmology and are connected with energy fluctuation at ZPE. The systems cell, having a history of four billion years, is comfortable with life only with a phase of a stable vacuum of fluctuating ZPE, indicating the cell’s openness to cosmology through ZPE. Deep science of life, therefore, connects with depth cosmology through zero-point energy.

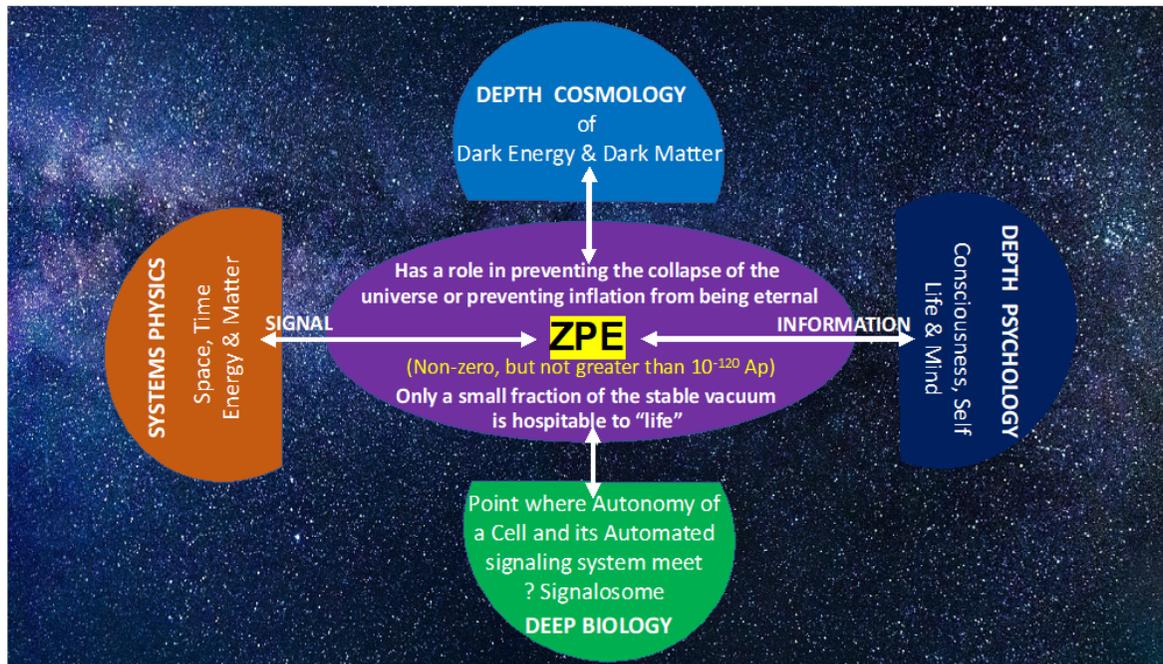


Figure 1: ZPE is shown as the meeting ground of Systems Physics and Depth Psychology, Deep Biology and Depth Cosmology. The vertical axis shows how the Depth Cosmology of Dark Energy and Dark matter communicates with a cell at a point where the automated signalling centre meets the cell’s autonomy. The communication requires the finest balance between Fluctuation of non-zero but not greater than 10^{-120} Ap energy and a small fraction of the Stable vacuum. The horizontal axis shows how Space, Time, Matter, and Energy of Local Science is connected with the Nonlocal Science of Consciousness, Self, Life, and Mind through inter-conversion of Signal and Information at ZPE. The figure indicates possible opening for deep physics of dark energy, life and information, and depth psychology of the mind, self, life, and consciousness.

B. The top: Non-observable consciousness

Non-observable consciousness is recognized in behavioural neuroscience by its operation of cognition, feelings, and will. An entity that cannot acquire knowledge, feel and make a will is not considered conscious! Three operations are respectively connected with the infrastructure of the cognitive, affective, and psychomotor brain (Figure 2). We define education as a system to bring desirable changes in the behaviour of the learner in terms of knowledge, attitude, and skill, the respective output of the cognitive, affective, and psychomotor brain.

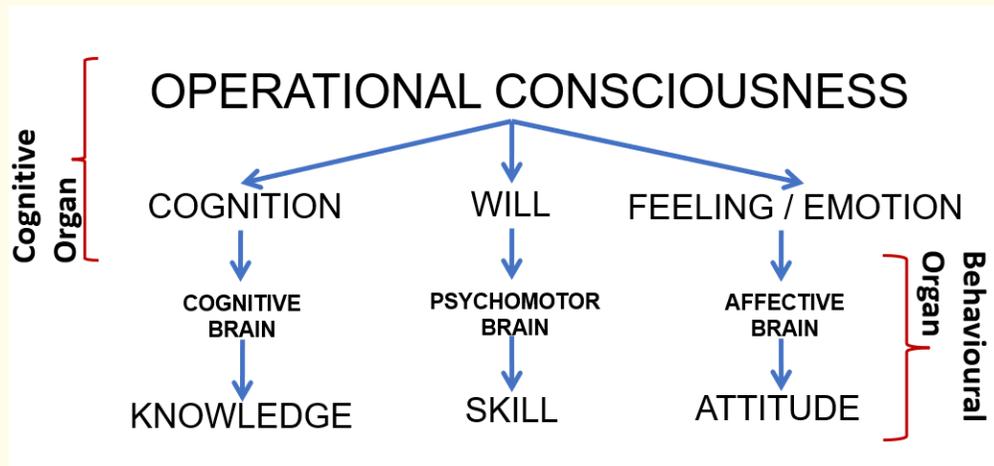


Figure 2: The brain, a ‘home’ for the cognitive operators, is a behavioural organ. The behaviour of consciousness is executed as will, cognition, and feeling/emotion, which are respectively expressed as skill, knowledge, and attitude by the psychomotor, cognitive, and affective brain.

In the context of “free will”, the will-maker (consciousness) is free but the will, once made, is bound by a causality matrix. Investigation of the causal matrix comes under the purview of science and that is what is narrated below.

C. The connection: Operational consciousness

How does consciousness operate? Consciousness does not operate with the currency of any known force, energy, or field. Consciousness disarms in its surrounding the operation funded by such currency. Consciousness operates by making a “will”, which reigns supreme within the systems. How does the “will” of consciousness become a behavioural event? The first step in this cascaded operation is to produce a letter of intent. Clarifying the purpose of the “will” this is executed by the operation of nature closest to consciousness, the nascent nature, “Mother” of the rest of the nature, that operates as a kinetic pole, mobile facet, or executive front of consciousness. Once the intent letter is prepared, the next step is to find out the funding agency, and the chief executive officer (CEO) of the systems.

The CEO of the systems is what in common language has been called “self”, which is categorically identical with consciousness and is customized to operate within the constraints of the system. Self is what creates the sense of “I”, me, and mine within the systems. The “self” builds up the flow of logic and ethical values for the event to occur. The “life” (read, subtle part of life-form) is chosen for funding the project and to bring the desired aesthetic sense to the event. Life acquires funds from the inexhaustible resource of dark energy. “Life” within a form (as life-form) is involved in three homeostases; uncertainty-certainty, asymmetry-symmetry, and dark-visible energy homeostasis.

With combined self-organization and life-organization, ethics, and aesthetics, the instruction sheet having laid down logics and logistics containing the crucial information in its non-observable different states is handed over to the event-making agent at the final common outpost of the Systems Psyche. In colloquial language, this event-making agency at the common final outpost has been called the Mind! The mind conceives information and brings out the *form* from the *information’s* inside. The “form” is nothing but a construct of the space and time. This delivery happens at the vacuum space of ZPE with a little fluctuation of non-zero energy (Figure 3).

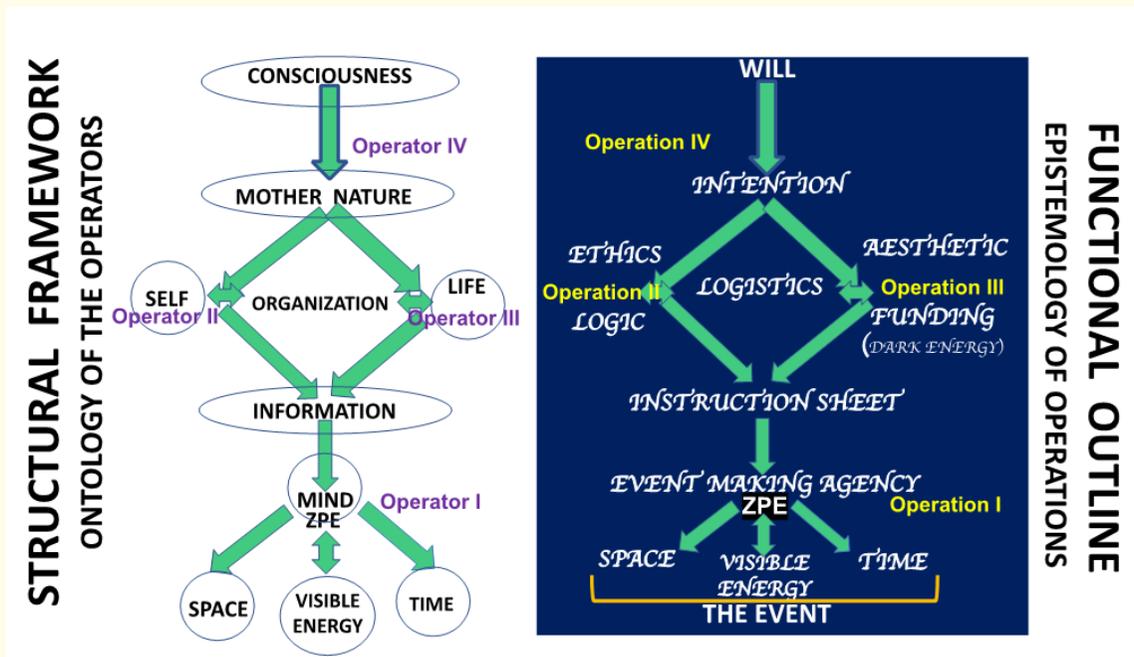


Figure 3: The Organogram from Consciousness to Energy, and from Will to the Event. The left side of the figure describes the structural framework of the ontological operators with their phase position, while the right side shows the functional outline of the epistemology of the executive processes. In absence of any known force, field or visible energy in the depth of non-observable nature, only will and intention execute a smooth Governance of the steps in the stratified hierarchical interaction between consciousness, self, life, information, and mind within the systems.

In this context, the readers are reminded of a quote from James Clerk Maxwell, "What is done by what I call myself is, I feel, done by something greater than myself in me". Perhaps he meant consciousness, which he described as "something greater than myself". We are also reminded of Bertrand Russell, "Mind and matter alike are for certain purposes convenient terms, but are not ultimate realities". Scientists of physical science feel uneasiness in using ontological terminology like mind, self, life, and consciousness. They might choose terms more convenient for science as the operators/operations, from below upward as I, II, III, and IV respectively. From below upwards, operation I is executed by the mind for the transition of signal to information. Operation II is executed by self for a transition of information to knowledge, operation III is executed by life from knowledge to experience, and operation IV is executed by consciousness for a transition of experience to wisdom [9]. The currency in the interconversion of such different information states is dark energy, operational in a live situation.

Result

1. The congregation site for Psychology, Physics, Cosmology, and Biology is identified to be Zero-point Energy.
2. The relationship between dark energy, subtle part of 'life', information, and its different states is formalized in systems science.
3. Besides consciousness and mind, the self and subtle part of 'life' are recognized as cognitive faculty of the systems psyche.

4. An organogram of the hierarchical power structure of live operators run by will, intention, and certain information states is developed.
5. Operation I of the organogram with the transition of a signal into information indicates an observable behavioural transition from the automation to an autonomous zone. On the reverse, the operation I indicates how the profound is conveyed as mundane in the 4-D world across ZPE.

Discussion

When asked how he knew that the plant had life, J C Bose replied that he became the plant. "A physicist is an atom's way of knowing about atoms", said George Wald. A consciousness scientist similarly will be a consciousness's way of knowing about consciousness. The first step, however, is to straighten up the axiology of the reality research. Biological reality is sandwiched between material reality at the Bottom and consciousness reality at the Top, doing homeostasis between the three [10]. Hooft's proposition of a possible formulation of quantum physics from cellular automaton is based on the determinism of information mechanics underlying quantum mechanics. The source of information is 'life', the biological reality! The paper brings the focus back in science to (i) unexplored potential of ZPE, which Einstein discontinued to investigate, but Puthoff and his group had explored in the realm of physical science, and (ii) 'life's role in funding dark energy for the creation of visible energy. The evidence for cognitive properties of the faculty of 'life' is remote but is seen to pop up from the brain scan report at the time across nine hundred seconds of death [11]. The evidence for "life' as a funding agency is also remote and circumstantial, but maybe investigated addressing questions like, why our brain constituting about 2% of body weight consumes about 15 - 20% of cardiac output? Why do neurons get most of their ATPs from astrocytes? Wherefrom comes energy for the dynamic protein folding states in an active cell? The answer to all such questions points towards some unconventional energy! That a signal is not a piece of information and to be that it requires operation I of mind forms the bottom line for reinvestigation of the organogram. The transition of automation to autonomy following the transition of a signal into information lets the door for a science of information open. The organogram of live operators stands in contrast to an algorithm, which is constructed by a sentient being on the hierarchy of flow of inanimate entities or events run by visible energy, field, or force.

Conclusion

We have added a new paragraph following Einstein's full stop for physical science at the cosmological constant. Without using any terminology unfamiliar to science or coining any new term, but standing on logic and sensibility, the article describes the steps from consciousness to visible energy and from the "will" to a signalling event. Involved operations and the operators are identified. The complete organogram is developed across a territory which appears otherworldly. The construction opens the door for deep physics of information, life, and dark energy.

Finally, the paper's address of Humanity's core question to Science without excluding its hunger for the Spirit has led to a new Worldview that accommodates Science, Humanity, and Spirit.

Still, although a theory based on facts and logic, supported by circumstantial, remote but compelling evidence, the strength of this study is its internal consistency probably created by the inclusion of properties of "life". It is difficult to "kill" this constellation of ideas. There is no viable alternate proposition on sight so far.

Perspectives

While honouring Einstein in London in 1930, George Bernard Shaw said, "Science never solves a problem without creating ten more". We may or may not agree with the view literally but a good theory or a piece of evidence has a number of perspectives. From neurocentric

consciousness, we shift to consciousness-centric neuroscience. The brain, although, practically an organ for the expression of behaviour of the being is also an organ that homes the cognitive faculties. This unique property of the brain which allows the operations of *nonlocal* cognitive faculties on its soil *locally* merits investigation. On the basis of this constructed organogram, we can elaborate on the mechanism of cerebral palsy, autism, and akinetic mutism, their diagnosis, and find appropriate remedial measures. The major impact of this paper is on the cognitive science, systems psyche, and on "greater psychology" of Sri Aurobindo [12]. Systems psychology is based on systems biology and has been found "open" to systems cosmology. In fact, the paper lets psychology and psychiatry be more objective. A new way of classifying psychological and psychiatric disorders is on the card, an attempt which could be found in the author's earlier paper [10]. The brain at a zero-point energy state is the epitome of whole-body healing [13], thus opening new doors of research for different kinds of psychic and "pranic" healing, based on the key principle that biology and cosmology have the natural ability to self-repair or self-heal because of activities of subtle part of "life". Author's brain-neutrino hypothesis comes into focus. New kinds of research may open up in AI on how a robot can be empowered with the skill of uncertainty and asymmetry management. In physical science, the proposition has implications for how to engineer vacuum, and how to harness dark energy using biotechnology. Cell biology has a scope to investigate unaccounted and unconventional energy in cellular function. In the context of signalosome, it draws attention to the role of neutrino and Higgs Boson ("God Particle"). In management one can specify where the thing can go wrong, how to prevent it, and develop the core training program for the staff. In social science, the far-reaching implications are in the development of collective ethics and aesthetics. Political will, autocracy, democracy, the consensus in smooth Governance with transparency in structure and efficiency in executive, all have a place in this model of political science. For spiritual science, the model calls for the pruning of irrelevant philosophical debate, illogical religious rituals, and contradictory sermons of fake Gurus. According to several scholars, Buddhism is not a religion but is a system for educating the Mind. The author feels that the whole training is to make the mind conscious of this zero-point energy, which controls the moral compass of the being along the large universal scale.

The explanatory gap as observed, between consciousness and energy at the crown of Science, between conscious will and a behavioural event at the quintessence of Humanity, and between the creation and the evolutionary process at the acme of the Spirit is a general problem, which the paper has attempted to address. Filling up this schism connects Material Reality, Biological Reality, and Consciousness Reality. The inconsistency and contradiction of the standard model of particle physics have a chance to be resolved by the introduction of the reality of 'life' and information. Within the biological reality the nervous system, 500 million years old, is evolved to home the cognitive operators and functions as an organ for behavioural expression. The sense of agency (consciousness and other cognitive operators) even on intracortical brain-machine interfaces in a quadriplegic patient [14] supports this view. Quantum to classical transition in physics is mediated by collapse/decoherence/symmetry homeostasis of the wave function, supposedly done respectively by consciousness, mind or cognizing 'life' of the observer.

The bottom line in science is its inability to investigate the scientist fully. The scientist determines science. Therefore, whether one prefers investigation in occasion of rejection of a grafted organ, the operator (self) or operation (MHC molecules), or both, remains the choice (will) of the scientist. We, although, do not have any clue on how consciousness makes its "will", the expected spin-off from the constructed causality matrix for the expressed "will" knows no bounds!

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Conflict of Interest

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