

# The Cosmic Microwave Background Radiation Temperature Signifying the Existence of the Thought-Carrying Particle, Thought Retaining Particle and Thought Force

Dhananjay Pal\* and ArunUday De<sup>†</sup>

## ABSTRACT

We developed a consciousness model. Our consciousness model incorporating Thought-carrying particle (TCP), Thought-retaining particle (TRP) and Thought Force ( $T_F$ ) signifies the existence of the universal consciousness that exists along with the universe. The universal consciousness is a functional state of the universal mind (UM). We indicated the existence of thought force ( $T_F$ ) that is an expression of the universal consciousness. This  $T_F$  is carried by the TCP in the presence of its super-symmetrical partner TRP. Many physicists believe that unifying all the forces, including gravity, into a single theory would require a phenomenon called super-symmetry. With super-symmetry, every fermion would have a boson twin, and vice-versa. TCP that behaves like boson should accompany its super-symmetrical partner TRP that functions like fermion in the generalized simpler way. The UM as well as the individual mind is constituted by these TCP and TRP. The quantized energy of the TCP is found to cause the universal consciousness as well as the cosmic microwave background radiation temperature. This  $T_F$  appears to be the primordial quantum field that, in turn, exerts its functions both *in vitro* and *in vivo*. The individual consciousness owes its origin to the universal consciousness created by the same quantized energy. The individual consciousness is generated and maintained by the quantum mechanical activities of these postulated TCP and TRP in the presence of the thought force ( $T_F$ ) *in vivo*. The existence of TCP, TRP and Thought force ( $T_F$ ) is indicated here to form a possible bridge between mind and matter.

**Key Words:** cosmic microwave background radiation, universal mind, thought force, though-carrying particle, thought retaining particle, quantized energy

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## I. Introduction

In contrast to the usual linear sequence of matter, body, life, brain, mind, consciousness, here the proposed cyclic sequence is first universal consciousness (a functional state of the universal mind), and then matter, body, life, brain, and regeneration of mind and consciousness. The evolution of life with mind and consciousness is possible purely due to the

inherent existence of universal consciousness which exists along with the universe. The human nervous system is evolved to provide an appropriate material structure to individualize consciousness, a characteristic of reality, pervading all manifestations.

As per Roger Penrose (1994), consciousness is a part of the universe. Van De Bogart (1993) explained, "Since consciousness is a part of the universe it then follows that all consciousness, and the universe, is of the same matrix of energy fields". Our consciousness model signifies the existence of the universal consciousness that exists along with the universe. The universal consciousness is a functional state of the universal mind (UM). We postulated and showed the existence of

Corresponding author: Dhananjay Pal

Address: \*Pharmaceutical Chemistry division, Bengal School of Technology, Sugandha-Delhi Road, Chuchura, Dist.-Hooghly, PIN-712 102, West Bengal, India. † Medicinal and Pharmaceutical Chemistry division, Department of Pharmaceutical Technology, Jadavpur University, Calcutta - 700 032, India.

Phone: + 033-2686 6064/ 2920

Fax: 03326864281

✉ dhananjay.pal123@gmail.com and paldhananjay46@yahoo.com

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thought force ( $T_F$ ) that, in turn, is an expression of the universal consciousness.

## II. Evolution of Universe

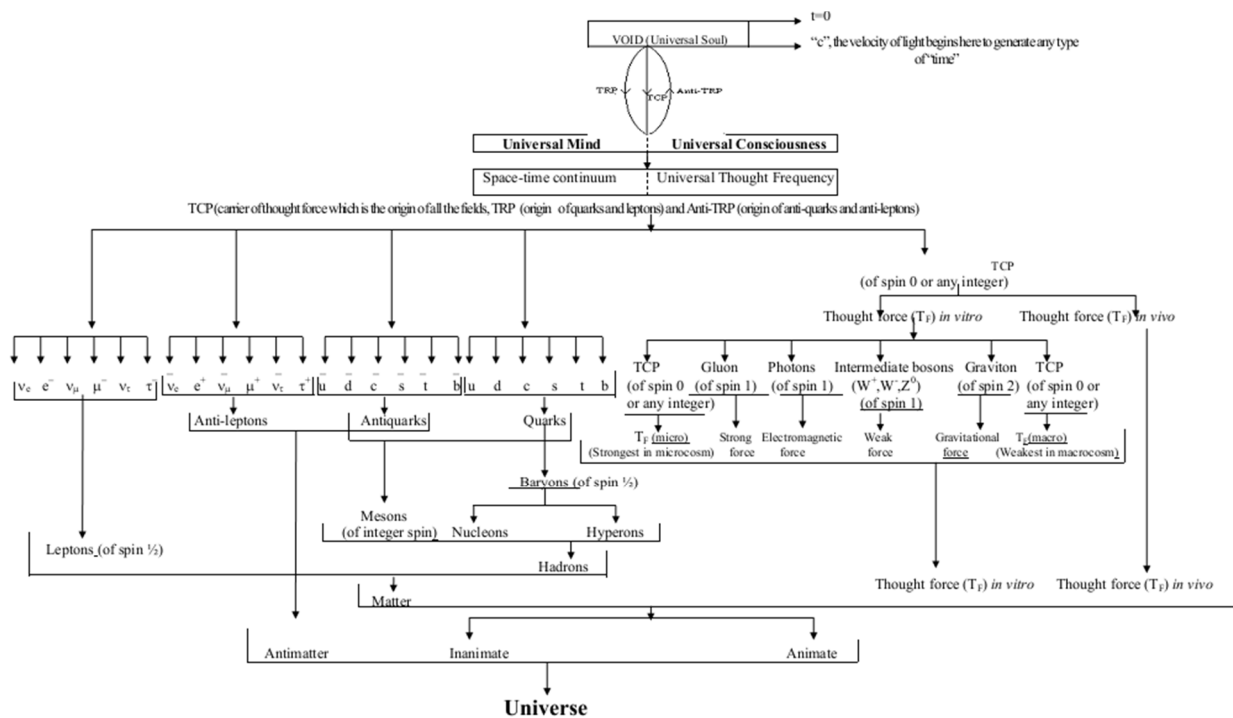
### General view for the evolution of universe

Big Bang  $\rightarrow$  Universe  $\rightarrow$  [Fields + Particles & Antiparticles + STC]  $\rightarrow$  [Matter and Fields + STC]  $\rightarrow$  Matter and Fields + STC + Life as well as consciousness

### Our view for the evolution of universe

VOID  $\rightarrow$  [Big Bang]  $\rightarrow$  [TCP, TRP & Anti-TRP in the inherent presence of thought force ( $T_F$ ) + STC]  $\rightarrow$  [Universal Mind with universal

consciousness + TCP & TRP in the inherent presence of thought force ( $T_F$ ) + STC + UTF]  $\rightarrow$  [Universal Mind with universal consciousness + Matter and Fields {including thought force ( $T_F$ )} + TCP & TRP + STC + UTF]  $\rightarrow$  Universal Mind with universal consciousness + Matter and Fields {including thought force ( $T_F$ )} + Life as well as consciousness + TCP & TRP + STC + UTF (where TCP is the origin of all the field particles, TRP is the origin of all the matter particles, anti-TRP is the origin of all the anti-particles, STC = Space time continuum and UTF = Universal thought frequency  $\cong$  frequency of the TCP) (Figure 1).



**Figure 1.** Schematic presentation showing the evolution of the universe from the Void incorporating the *postulated* TCP (Thought-carrying particle), TRP (Thought-retaining particle) and Thought Force ( $T_F$ ). Laws of absolute conservation of mass, charge (and color) are to be maintained in order to develop a general theory for the unification of physics which would be freely applicable to the more general situations involving both the non-living system and living system having consciousness.

Here TCP (Thought-carrying particle) is the carrier of thought force ( $T_F$ ) that, in turn, is the origin of all the fields. TCP is the origin of all the field particles. TRP (Thought retaining particle) is the origin of all the matter particles. It is to be noted that these TCP and TRP are interchangeable at super-symmetry and they function like *wavicle*: wave-particle duality. Here thought force ( $T_F$ ) is an expression of the universal consciousness which exists along with the universe. Thought force ( $T_F$ ) being the primordial quantum field

functions as the original single primary unified field that is the origin of all the four fundamental fields.  $T_F$  being an expression of the universal consciousness is applicable to any inanimate object as well as to any biological system (having thinking ability). The  $T_F$  exerts its functions both *in vitro* and *in vivo*.

What was previously called a force is now usually called a field or interaction. The existence of matter depends on the existence of force and vice versa. Matter particles are



usually designated as “Fermions”, because they follow Fermi-Dirac Statistics. Matter particles obey Pauli’s exclusion principle; they are of spin  $\frac{1}{2}$ . Force particles are usually designated as “Bosons”, because they follow Bose-Einstein Statistics. Force particles do not obey Pauli’s exclusion principle; they are of spin 0, or any integer like 1, 2, 3 etc.

TCP cannot exist without TRP and vice versa. Many physicists believe that unifying all the forces, including gravity, into a single theory would require a phenomenon called super-symmetry. With super-symmetry, every fermion would have a boson twin, and vice-versa. TCP that behaves like boson should accompany its super-symmetrical partner TRP that functions like fermion in the generalized simpler way. Thus TCP like boson cannot have anti-particle. But TRP that functions like fermion should have its anti-particle and here it is shown as Anti-TRP (Figure 2-3). Virtual particle-antiparticles do not have mass. TCP like boson is a “Virtual particle” and it should not have mass. It is found that these TCP and TRP may be mathematically allotted a mass ( $m_T$ ) equivalent to  $4.831 \times 10^{-37} g$  to  $5.5 \times 10^{-37} g$  that, in turn, is used for other calculations.

Schrödinger (2000) pointed out, “The earliest records to my knowledge date back some 2,500 years or more. From the early great Upanishads the recognition ATHMAN = BRAHMAN (the personal self-equals the omnipresent, all-comprehending eternal self) was in Indian thought considered, far from being blasphemous, to represent the quintessence of the deepest insight into the happenings of the world. The striving of all the scholars of Vedanta was, after having learnt to pronounce with their lips, really to assimilate in their minds this grandest of all thoughts”.

Ranganathananda(1988) expressed;

“In the eastern view, the reality underlying all phenomena is beyond all forms and defies all description and specification. It is, therefore, often said to be formless, empty, or void. But this emptiness is not to be taken for mere nothingness. It is, on the contrary, the essence of all forms and the source of all life.”

As per the Vedanta, there is only one Infinite Existence called BRAHMAN. This BRAHMAN is more or less equivalent to the Void of the modern science. This Void is not the meaning of nothingness. The Void is the

source of infinite energy. Anything and everything of this universe are its manifestations. Hawking (1989) mentioned,

“The Heisenberg’s uncertainty principle established that the Void is filled with infinite pairs of virtual particles and antiparticles. These pairs would have an infinite amount of energy and therefore, by Einstein’s equation:  $E=mc^2$ , they would have an infinite amount of mass”.

Without the uncertainty principle to forbid nothingness, there might not even be a universe.

Ranganathananda (1988) quoted the following: The UPANISADS say (Chândogya Upanisad, IV.10.4):

*“Brahman is life. Brahman is joy.  
Brahman is the Void  
Joy, verily, that is the same as the Void.  
The Void, verily, that is the same as Joy”.*

The eternal ‘Void’ has been covered by the mind to function as the Soul of the individual being. In the universe, behind the UM, there is a Soul ( $\cong$  VOID). In the individual, behind the individual mind (which is a constituent of the UM), there is also a Soul ( $\cong$  VOID).

Capra (1990) expressed through the ‘vacuum diagram’ that the ‘Void’ is the source of all the matters prevailing in this universe. Capra (1990) explained this fact through a ‘vacuum diagram’ as shown below:

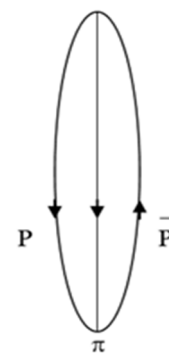
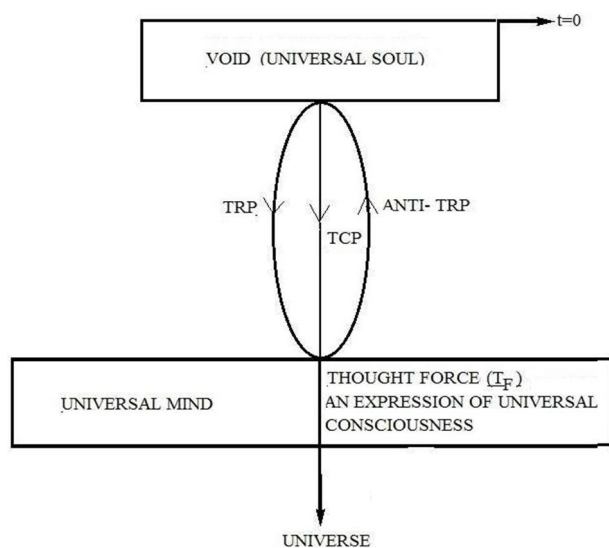


Figure 2. A Vacuum diagram.

This Vacuum diagram explains the process: three particles—a proton (P), an antiproton ( $\bar{P}$ ), and a pion ( $\pi$ ) - are formed out of nothing and disappear again into the vacuum. According to the field theory, events of that kind happen all the time. The vacuum is far from empty. On the contrary, it contains an unlimited number of particles, which come into being and vanish without end.



Similar to the ‘vacuum diagram’ as explained by Capra (1990), the evolution of the universe from the eternal ‘Void’ can also be lucidly explained through the generation of postulated TRP, anti-TRP and TCP as shown below:



**Figure 3.** Schematic presentation showing the evolution of the Universe from the ‘Void’. Here TCP is the thought-carrying particle, TRP is the thought retaining particle and TF is the thought force.

This Scheme lucidly shows the evolution of the universe from the Void incorporating the postulated TCP (Thought-carrying particles), TRP (Thought-retaining particles) and Thought Force ( $T_F$ ). Laws of absolute conservation of mass, charge (and color) are to be maintained in order to develop a general theory for the unification of physics which would be freely applicable to the more general situations involving both the inanimate and animate having consciousness (Figure 2).

### III. Existence of Universal Consciousness

It is most relevant and important to indicate the names of various eminent physicists like Schrödinger, Wigner, Josephson, Wheeler, Penrose, Stapp, Dyson, Davies, Bohm, Hiley, Capra, Wolf and Goswami who have addressed the inclusion of consciousness in their work.

Bhaumik (2006) in his Code Name GOD (p.177) pointed out,

“Walter Moore, biographer of quantum visionary Erwin Schrödinger, claims that Schrödinger was intuitively influenced by the ancient Indian school of spiritualism known as Vedanta when he formulated quantum

mechanics. Perhaps the concept of the oneness in Vedanta also led to Schrödinger’s decade-long search for the unified field theory. From the Upanishads, Schrödinger finds it to be really so simple and so clear: *Tat twamasi*, this is you”.

Schrödinger believed in the Vedic concept that all conscious beings are aspects of the same universal entity. Expressed in terms of our scientific worldview today, consciousness would be manifest when the individual brain’s quantum state is in resonance with the cosmic potentiality of consciousness. After Schrödinger, we may humbly assert that we are all equipped to be tuners of the universal source of consciousness.

Current scientific views regarding the origin of consciousness vary widely and range from an ‘epiphenomenon’ arising from neuronal networks, to neuronal quantum processes, to a separate undiscovered scientific entity.

In a purpose to determine the nature of human mind and consciousness as well as its relationship with the brain, Parnia (2007), Lommel (2001), Fenwick(2001) and Beauregard & O’Leary (2008; 2006) observed through different lines of experiments and through studies of cardiac arrest survivors that the cerebral functioning as measured by electrical activity of the brain ceases during cardiac arrest. Parnia (2007) observed in the cardiac arrest survivors that the human mind and consciousness continue to function in the absence of brain function when there is cardiac arrest. Thus observations in these studies of cardiac arrest survivors raise the possibility that human mind and consciousness may continue to function in the absence of brain function. Lommel (2001) in his “*About the Continuity of Our Consciousness*” mentioned, “The conclusion that consciousness can be experienced independently of brain function might well induce a huge change in the scientific paradigm in western medicine... There are still more questions than answers, but, based on the aforementioned theoretical aspects of the obviously experienced continuity of our consciousness, *we finally should consider the possibility that death, like birth, may well be a mere passing from one state of consciousness to another*”.





According to Beauregard & O'Leary (2008; 2006), "*Mind, consciousness, and self can continue when the brain is no longer functional*" and, *what is more, that phenomena generally associated with mystical states "can occur when the brain is not functioning"*.

Parnia (2007) said, "... *human consciousness, as bizarre as it may sound, could be non-local to the brain*", thus signifying the probable existence of universal consciousness, however odd it may sound. It is shown here that the individual consciousness owes its origin to the universal consciousness. The nervous system is evolved to individualize this universal consciousness that, in turn, exists along with the universe. The experimental observations of Parnia (2007), Lommel (2001), Fenwick (2001) and Beauregard & O'Leary (2008; 2006) demonstrate the existence of consciousness during the cessation of brain activity and support the substantial view of mind as indicated by the Indian Upanishads and Vedanta.

According to the modern physicists, the universe is the summation of fields, particles, space-time continuum, dark matter, dark energy, void and all the known and unknown parameters of the universe along with all its inhabitants (with or without consciousness), although the universe is always expanding.

The method of integration indicates that

$$\int dx = x + c$$

where  $c$  = a constant. Is there any mathematical fallacy if we like to use 'universe' in the place of 'x' here? If we at all theoretically like to apply the same method of integration to the whole universe itself, we will have to arrive at

$$\int (\text{universe}) = \text{universe} + c$$

where universe = universe with all its known and unknown parameters as well as its inhabitants (with or without consciousness) and  $c$  = a constant. The constituents of the universe are fields, particles, space-time continuum, dark matter, dark energy, void, all its inhabitants (with or without consciousness) and all the other unknown parameters of the universe that we have not yet faced. We simply propose to apply the method of integration theoretically over the universe as a whole with all its known and unknown parameters and all

the inhabitants (with or without consciousness). If we at all theoretically like to do so, we will mathematically arrive at a constant.

What is this constant here? It is our opinion that this constant is the universal consciousness that exists throughout the universe in the form of universe wide web (*uww*) covering fields, particles, space-time continuum, dark matter, dark energy, void and all its known and unknown parameters along with all its inhabitants (with or without consciousness). This universal consciousness is to be taken into account, but usually ignored.

### III. We Developed a Consciousness Model

In order to develop a possible relationship among matter, mind and consciousness, we postulate these TCP (Thought-carrying particle), TRP (Thought retaining particle) and thought force (Figure 1), the existence of which is indicated and expressed mathematically. Their possible fundamental roles in fundamental physics, biology and psychology are elaborately expressed.

Here TCP is the carrier of thought force ( $T_F$ ) that, in turn, is the origin of all the fields. TCP is the origin of all the field particles. TRP is the origin of all the matter particles. It is to be noted that these TCP and TRP are interchangeable at super-symmetry and they function like *wavicle*: wave-particle duality. Here thought force is an expression of the 'universal consciousness' which exists along with the universe. This  $T_F$  appears to be the primordial quantum field that, in turn, exerts its functions both *in vitro* and *in vivo*.

According to the ancient Vedanta, everything in this universe is a manifestation of the UM, the functional state of which is the 'universal consciousness'. And this UM is a finer matter. The 'individual mind' being a constituent of the UM is also a finer matter. The constituents of the UM and 'individual mind' are the same. Logically the ultimate constituents of matter and mind are the same as both, mind and matter are aspects of one fundamental reality, which is called UM. The brain is the mediating link or interface between the individual mind and the body. The constituents of the UM should logically be the ultimate constituents of 'matter' itself as



everything in this universe is a manifestation of this UM.

As per our proposition, the UM (as well as the individual mind) is constituted by these TCP and TRP. As the UM (as well as the individual mind) is constituted by these TCP and TRP, so the ultimate constituents of matter and mind, as per our proposition, are these postulated TCP and TRP in the inherent presence of thought force ( $T_F$ ) (Figure 1).

The UM is evolved at the 'Big Bang' from the eternal Void (Pal *et al.*, 2004; Hawking, 1989; Capra, 1990; Guth, 1987). This Void, in turn, is the source of infinite energy (Hawking, 1989; Capra, 1990; Guth, 1987). These TCP and TRP, the constituents of the UM and the ultimate constituents of matter and mind are conceived here to be originated from the Void at the 'Big Bang' to evolve the 'space-time continuum' and the UM along with the 'universal consciousness' (Pal *et al.*, 2004).

According to the Vedanta, consciousness is not an emergent property of matter that comes into existence only through the functioning of the human nervous system. Instead, consciousness is a characteristic of reality, pervading all manifestations. This unbounded field of nature's 'universal consciousness' is not limited to an individual consciousness. From this viewpoint, the role of the human nervous system is to provide an appropriate material structure to individualize consciousness. It appears that inanimate matter itself cannot generate 'consciousness' without the inherent existence of 'universal consciousness'.

Consciousness in living organisms is a process which involves the quantum mechanical activities of these postulated TCP and TRP, the ultimate constituents of matter and mind. And these TCP and TRP govern the activities of neurons (not the other way round). Neurons are simply the equipment used to generate consciousness and awareness.

The consciousness itself is functioning as an inter-linking agent between the animate and inanimate. These quantum mechanical activities of these TCP and TRP could also explain self-organization. Consciousness may thus be defined as the 'self-organized' capability of any living being to activate TCP and TRP, the ultimate constituents of mind and matter and to exert its functions. What can generate, maintain

and activate TCP and TRP is called animate having 'active consciousness' and what cannot be called inanimate, *i.e.*, devoid of active consciousness. As anything inanimate does neither have the power to activate the TCP and TRP nor have the capability to catalyze the activity of TCP and TRP, so it cannot generate consciousness. On the contrary, anything animate has the 'self-organized' power to generate, activate and catalyze the activity of TCP and TRP in order to generate and maintain consciousness along with the vital living force.

### III. What is Consciousness?

In a gross estimate consciousness has two aspects: one is sense organ dependent and the other sense organ independent. The first one includes mental events like visual, auditory, smell, heat, cold, taste, touch, pain, kinesthetic (position and movement) sensations and the likes. Whereas the other one includes emotions, images, memories, thoughts etc. These two aspects of consciousness are liable to be governed by the quantum mechanical activities of these TCP and TRP, the ultimate constituents of mind and matter.

Consciousness, not matter, is the ground of all existence, declares University of Oregon physicist Goswami through his published (1993) book, "*The Self-Aware Universe: How Consciousness Creates the Material World*". He accepts the Vedantic view and holds that the universe is self-aware, and that consciousness creates the physical world. Matter is an expression of mind, not separate from mind, but mind manifested materially.

### IV. Interpretation of Mind and Consciousness

We observe a great controversy concerning the exact definition of mind. There are two apparently opposite views: one is the substantial view and the other is the functional view. In the substantial view, the mind is a single entity, perhaps having its base in the brain but distinct from it and having an autonomy existence. In its most extreme form as in the Indian Upanishads and Vedanta, the mind is not only a finer matter but also it is an entity wholly separate from the body, in fact a manifestation of the soul, which will survive the body's death in the form of the spiritual body or mental body (Vivekananda, 1989) bearing all the mental impressions.



In the functional view, a functionalist tends to argue that the attributes which we collectively call the mind are closely related to the functions of the brain and can have no autonomous existence beyond the brain, nor can they survive its death. In this view, mind is a subjective manifestation of consciousness: the human brain's ability to be aware of its own existence. The concept of the mind is therefore a means by which the conscious brain understands its own operations.

It appears that scientists would have to decide in a purpose to conclude clearly whether mind is a 'state' (created by the activities of the brain with other parts of the nervous system as it is indicated by the functional view of mind) or 'a finer matter' (as it is indicated by the Indian Upanishads and Vedanta).

We are what our minds make us. The mind is a very powerful controller of the body. Dyson expressed in his "*Infinite in All Directions*" (1985);

"The universe shows evidence of the operations of mind on three levels. The first level is elementary physical processes, as we see them when we study atoms in the laboratory. The second level is our direct human experience of our own consciousness. The third level is the universe as a whole. Atoms in the laboratory are weird stuff, behaving like active agents rather than inert substances. They make unpredictable choices between alternative possibilities according to the laws of quantum mechanics. *It appears that mind, as manifested by the capacity to make choices, is to some extent inherent in every atom. The universe as a whole is also weird, with laws of nature that make it hospitable to the growth of mind*".

These statements clearly indicate the significant existence of TCP and TRP that are proposed here to be the ultimate constituents of mind and matter.

Mind has the capacity to make choices and this quality is demonstrated by atoms which make unpredictable choices between alternate possibilities according to the laws of quantum mechanics.

Dyson (1985) stated: "*It appears that mind, as manifested by the capacity to make choices, is to some extent inherent in every atom*". If the quality of mind is present at the atomic level as indicated by Dyson, this suggests a return to the Vedantic concept of a

Universal Mind (UM) which pervades all matter: a concept in agreement with the conclusion of University of Oregon physicist Goswami. This UM must have been present at the inception of the universe.

The basic mystery of the mind is how does it emerge from pure matter? How do those units that are made of tiny particles, give rise to the unique and essentially private, experience called consciousness? Do the particles that constitute our brain determine what we think and do? Do these tiny particles ultimately govern the thinking ability of the bioelectrical system? Or, are we free to have our own will? Is consciousness just froth sitting on top of the brain's electronics? How consciousness is being operated? Why should a bunch of atoms have thinking ability? Gross answers to all these inquiries are possible if we accept these TCP and TRP as the ultimate constituents of mind and matter.

Modern Scientists are not yet able to understand how the brain works to make the mind. They know that brain has got neurons that communicate across synapses by releasing a neurotransmitter, and that generates electrical impulses, and the receiving neuron then talks to its neighbor neurons the same way. If the mind depends on the brain, then all aspects of the mind are going to depend on these simple electrical, chemical processes. According to this concept, the existence of the UM requires the existence of the universal brain to form the UM. The concept of universal brain is not logically acceptable. Thus the concept that the mind depends on the brain becomes questionable if the existence of the UM is valid.

The science of the mind may be connected with the science of the body. It is possible that the modern mind has been developed to get its present shape by the directive of the UM. The mind is an all-purpose computer responding impartially to the world around it; and this mind had, through natural selection, evolved to respond in a particular way to particular environmental circumstances. Humans are 'adaptation executors' carrying out programs written into the mind's machinery long ago. "The machinery does not know its own programming", said Cosmides and Tooby (1987; 1992; 1994; 2003), intellectual leading evolutionary psychologists. The evolutionary psychologists see the mind as pre-programmed, made up of specialized



mechanisms-‘modules’ or ‘organs’. The evolutionary psychologists argue that their job is to approach the mind as an ancient engineering project, developing and testing out hypotheses about what ‘designed problems’ needed solving. Such an approach offers a badly needed bridge between psychology and the natural sciences. A plausible bridge between psychology and the natural sciences can be achieved through the presently proposed and developed consciousness model.

**V. Mathematical Model for Consciousness Involving TCP and TRP Relating to the Cosmic Microwave Background Radiation Temperature**

Consciousness appears to be a type of ‘mental light’. Although it is assumed that these postulated TCP and TRP exist in the universe to behave, in general, like photons or biophotons (Pal, 2005) for causing the universal consciousness as well as the Cosmic microwave background radiation (CMBR) temperature, yet they may be mathematically allotted a mass (m<sub>T</sub>) equivalent to 4.831x10<sup>-37</sup> g to 5.5x10<sup>-37</sup> g.

**Va. Development of First Equation**

In the case of photon,

$$\lambda = \left( \frac{h}{mc} \right) \quad (1)$$

where λ = wavelength in cm,

h=Planck’s quantum constant = 6.63x10<sup>-27</sup> erg.sec,

m = mass in g,

c = free-space velocity of light = 3x10<sup>10</sup> cm / sec,

As a TCP travels through the macroscopic four-dimensional space-time extended throughout the present volume of the universe (Dutta, 1995), so Equation (1), maintaining the dimensional equivalence, can be rearranged to Equation (2) as

$$\lambda_T = \left( \frac{hV_{pr}}{mc} \right)^{1/4} \quad (2)$$

where λ<sub>T</sub> = wavelength in cm of the respective TCP radiated from different sources having different values of mass (m) in g,

h=Planck’s quantum constant = 6.63x10<sup>-27</sup> erg.sec,

V<sub>pr</sub> = present volume of the universe =  $\left( \frac{4}{3} \right) \pi \left( \frac{c}{H_0} \right)^3 = 1.367x10^{88} \text{ cm}^3$ ,

H<sub>0</sub> = present value of Hubble’s parameter = 2.023988x10<sup>-19</sup> sec<sup>-1</sup>,

c=free-space velocity of light= 3x10<sup>10</sup> cm / sec,

c / H<sub>0</sub> = L (Hubble length) = radius of the universe = R = 1.482x10<sup>29</sup> cm.

The quantized energy of the said TCP is

$$\epsilon_T = \frac{hc}{\lambda_T} = \left( \frac{h^3 c^5 m}{V_{pr}} \right)^{1/4} \quad (3)$$

The quantized energy (ε<sub>T</sub>) of the TCP [radiated from 1.16025x10<sup>53</sup>g, the calculated radiant mass of the universe through Stephan-Boltzmann formula (Gamow, 1987) may thus be expressed as

ε<sub>T</sub> = quantized energy of the TCP =

$$\left( \frac{hc}{\lambda_T} \right) = \left( \frac{h^3 c^5 m}{V_{pr}} \right)^{1/4} = 4.95x10^{-16} \text{ erg}, \quad (4)$$

m<sub>T</sub> = quantized mass of the TCP = ε<sub>T</sub> / c<sup>2</sup>

$$= \left( \frac{h^3 m}{c^3 V_{pr}} \right)^{1/4} = 5.5x10^{-37} \text{ g}, \quad (5)$$

λ<sub>T</sub> = wavelength of the TCP = hc / ε<sub>T</sub>

$$= \left( \frac{hV_{pr}}{mc} \right)^{1/4} = 0.4018 \text{ cm}, \quad (6)$$

τ<sub>T</sub> = time period of the TCP = h / ε<sub>T</sub> = λ<sub>T</sub> / c

$$= \left( \frac{hV_{pr}}{c^5 m} \right)^{1/4} = 1.34x10^{-11} \text{ sec}. \quad (7)$$

ν<sub>T</sub> = frequency of the TCP = ε<sub>T</sub> / h =

$$7.466x10^{10} \text{ cps} \quad (8)$$

where, m = radiant mass of the universe = V<sub>pr</sub> · ρ<sub>r</sub> = 1.16025x10<sup>53</sup> g (9)

ρ<sub>r</sub> = density of the radiant energy according to Stephan-Boltzmann (Gamow, 1987) formula





$$= 8.5 \times 10^{-36} T^4 g / cm^3.$$

Thus  $\varepsilon_T$ , the quantized energy of the TCP radiated from the radiant mass of the universe is

$$\varepsilon_T = 4.95 \times 10^{-16} \text{ erg} \cong 3.08 \times 10^{-4} \text{ eV} \cong 3.08^\circ \text{ K}.$$

It is to be noted that  $1 \text{ erg} \cong 0.6241807 \times 10^{12} \text{ eV}$  and  $10^{-4} \text{ eV} \cong 1^\circ \text{ K}$  where  $K =$  Kelvin (Weisskopf, 1987).

The value of the  $3.08^\circ \text{ K}$  approximates the universal temperature corresponding to the cosmic microwave background radiation (CMBR) temperature reported by Penzias and Wilson (Guth and Steinhardt, 1987) who had observed background radiation and found it to be around  $3^\circ$  Kelvin in temperature.

### Vb. Development of Second Equation

In the Planck system of units, Planck Energy ( $E_p$ ) is expressed as

$$E_p = 2\pi \left( \frac{hc^5}{G} \right)^{1/2} \quad (10)$$

This  $E_p$  (Planck energy) is always free as expressed by Wheeler (1987). When  $\varepsilon_T$  is formulated like Planck energy (1899),  $E_p$ , by incorporating physical constants like  $h$ ,  $c$ ,  $G$  (Newton's gravitational constant),  $H_o$  and  $V_{pr}$ , we get

$$\varepsilon_T = \left( \frac{1}{4\pi} \right) \left( \frac{h^3 c^8}{GH_o V_{pr}} \right)^{1/4} = 4.7142 \times 10^{-16} \text{ erg} \quad (11)$$

where  $G =$  Gravitational constant  $= 6.67 \times 10^{-8} \text{ dyne.cm}^2 .g^{-2}$  Here  $1/4\pi$  in the place of  $2\pi$  and power  $1/4$  in the place of  $1/2$  of the Equation (10) are incorporated not only to take into account the presence of the four-dimensional space-time but also to get a value that is more or less equivalent to CMBR temperature  $\cong 2.725^\circ \text{ K}$ .

The four-dimensional space-time does not alter the Planck energy ( $E_p$ ) at all. We tried to develop an expression like Planck energy ( $E_p$ ) by incorporating physical constants like  $h$ ,  $c$ ,  $G$  (Newton's gravitational constant),  $H_o$  and  $V_{pr}$  so that we can arrive at the desired value.

Truly, we were trying to develop an expression that will ultimately yield a value that is more or less equivalent to CMBR temperature  $\cong 2.725^\circ \text{ K}$ .

Thus,

$$\varepsilon_T = 4.7142 \times 10^{-16} \text{ erg} \cong 2.9 \times 10^{-4} \text{ eV} \cong 2.9^\circ \text{ K} \cong \text{CMBR temperature} \cong 2.725^\circ \text{ K}.$$

Cosmic Background Explorer (COBE) successfully found that the CMBR has a perfect black body nature with a temperature of  $2.725^\circ \text{ K}$ , close to what Penzias and Wilson (Guth and Steinhardt, 1987) found.

### Vc. Development of Third Equation

$\varepsilon_T$  can also be expressed as

$$\varepsilon_T = \left( \frac{1}{(4+3/10)\pi} \right) \left( \frac{h^3 c^8}{GH_o V_{pr}} \right)^{1/4} =$$

$$4.384 \times 10^{-16} \text{ erg} \cong 2.73 \times 10^{-4} \text{ eV} \cong 2.73^\circ \text{ K} \cong \text{CMBR temperature}$$

$$\cong 2.725^\circ \text{ K} \quad (12)$$

$$\text{Here } \left( \frac{1}{(4+3/10)\pi} \right)$$

is incorporated in the place of  $1/4\pi$  of the Equation (11), because 4 is for the four-dimensional space-time and 3 is for the three-dimensional space and further, in M-theory (which encompasses all the string theories) strings vibrate in  $10$  space-time dimensions.

We have nothing to do with the M-theory. We were trying to find out a factor that will ultimately yield a value equivalent to CMBR temperature  $\cong 2.725^\circ \text{ K}$ . It is to be noted that strings in M-Theory vibrate in  $10$  space-time dimensions and thus we could incorporate  $1/(4+3/10)\pi$  in the place of  $1/4\pi$  [of the Equation(11)] and this is for getting the desired value.

Although  $1/(4+3/10)\pi$  apparently makes no sense, yet incorporation of  $1/(4+3/10)\pi$  in the place of  $1/4\pi$  of the Equation (11) helped us to get the desired value, thereby giving a future possibility of finding some meaning of this factor. In this situation, it is our plausible proposal that the CMBR temperature is due to the  $\varepsilon_T$ , the quantized energy of the TCP where  $\varepsilon_T = 4.384 \times 10^{-16} \text{ erg} \cong 2.73^\circ \text{ K}$  that is very close to  $2.725^\circ \text{ K}$  (CMBR temperature). All these



three expressions for  $\varepsilon_T$  [i.e. Equation Number (4), (11) and (12)] ultimately yield more or less the same value. A sort of relationship is thus observed between the  $\varepsilon_T$  and the CMBR temperature, thereby indicating the existence of these postulated TCP in the presence of TRP. *TCP cannot exist without TRP and vice versa. The presence of TCP, TRP and Thought force ( $T_F$ ) in the universe is thus indicated and expressed mathematically giving rise to the title of our paper. Ultimately this  $\varepsilon_T$ , the quantized energy of TCP represents consciousness.*

Analysis of consciousness and light yields many interesting and compelling parallelisms that are useful in trying to develop a theory of consciousness. Both consciousness (thought) and light (waves and photons) function as carriers of information and action, and both appear to be self-referential. In the mathematical model for consciousness presented here, consciousness is thought to be a 'mental light'. The  $\varepsilon_T$  is related with  $c$  (free-space velocity of light) through the expression:  $\varepsilon_T = hc / \lambda_T$ .

Schrödinger (1935) described a thought experiment in which a cat is placed in a box into which poison is released when triggered by a particular quantum event. Schrödinger pointed out that according to the Copenhagen interpretation, the cat would be both dead and alive until the box was opened and the cat observed by a conscious human. Schrödinger cat is the first instance (Thought Experiment) to show a relation between mind (consciousness) and matter in terms of probability (uncertainty). But the present physics has not yet been able to solve the riddle of consciousness.

As per our proposition (Figure 1), these TCP, TRP and Thought force ( $T_F$ ) had played their significant roles at the onset of the universe and they are existing till today in this universe. For this reason, we wanted to find out any possible relationship between the CMBR temperature and the quantized energy of the proposed TCP. Three different equations expressing the quantized energy of TCP have been shown and it is interesting to note that all of them ultimately give rise to the same result that is equivalent to the CMBR temperature. This coincidence is thus signifying a probable role of TCP on the maintenance of CMBR temperature. At present we are unable to

explain when and how these TCP and TRP decoupled from the primordial cosmic soup.

## VI. Thought Force

The natural forces that the modern scientists usually encounter in this world are of four types:

- (1) Gravitational force (GF) (mediated by graviton of spin 2),
- (2) Electromagnetic force (EMF) (mediated by photon of spin 1),
- (3) Weak nuclear force (WNF) (mediated by  $W^+$ ,  $W^-$ ,  $Z^0$  of spin 1),
- (4) Strong nuclear force (SNF) (mediated by eight kinds of gluons of spin 1).

Our consciousness model indicates that the universe exists along with the universal consciousness that, in turn, is created by the quantized energy ( $\varepsilon_T$ ) of the postulated TCP. This  $\varepsilon_T$  of the TCP exists along with the universe to cause the universal consciousness as well as the CMBR temperature. Pal *et al.*, (2004) explained that the quantized energy ( $\varepsilon_T$ ) of the TCP is the energy responsible for generating thought force ( $T_F$ ); thus the  $T_F$  may be expressed as

$$T_F = \varepsilon_T / D_i \quad (13)$$

where  $D_i$  = Interacting distance.

The thought force ( $T_F$ ) has been postulated to be carried by TCP in the inherent presence of TRP. The TCP being the carrier of the  $T_F$  would behave like bosons when TRP would function like fermions. Depending on the  $D_i$  (= Interacting distance), we can calculate and identify two new forces viz.  $T_F$ (micro) [= Thought force in microcosm] and  $T_F$ (macro) [= Thought force in macrocosm], the existence of which is indicated.

*Thought force ( $T_F$ )*, an expression of the universal consciousness, is the primordial quantum field that, in turn, functions as the primary unified field.  $T_F$  itself may thus be found to be the original single primary unified field that is the origin of all the four fundamental fields along with both the  $T_F$  (micro) and  $T_F$  (macro). This  $T_F$  being an expression of the universal consciousness is applicable to any inanimate object as well as to any biological system (having thinking ability). Thus the  $T_F$  being an



expression of the quantized energy ( $\varepsilon_T$ ) of the TCP exerts its functions both *in vitro* and *in vivo*.

In a purpose to involve both the non-living and living systems of the world, we can show the existence of these TCP, TRP and thought force ( $T_F$ ) *in vitro* and thought force ( $T_F$ ) *in vivo*. Anyone can call this TCP by any other name, but as the highly developed living system will have to be evolved and as the thought of the highly developed living system appears to be a kind of force to be called the thought force ( $T_F$ ) *in vivo*, we considered it is wise to call it as TCP.

### VII. Degrees of Freedom of a TCP

It is shown that these postulated TCP and TRP exist in the universe to behave, in general, like photons or bio-photons (Pal *et al.*, 2005) for causing the universal consciousness as well as the CMBR temperature.

As a TCP behaves like a photon/biophoton, its degrees of freedom should be same as the degrees of freedom of a photon. To get the degrees of freedom of a photon, it is found that Laughlin published a book entitled "A Different Universe: Reinventing Physics from the Bottom Down" (2005). In this book he mentioned that, unlike a sound wave, a light wave has only two degrees of freedom. The two degrees of freedom of the photon are its two polarization planes or equivalently its two helicities.

### VIII. Discussion

The existence of universal consciousness is to be taken into account. Most scientists generally assume that consciousness is purely an output of computation among brain neurons as indicated by Chalmers (1996). The brain can also somehow "tune into" fundamental proto-consciousness built into the quantum geometry of the universe. The existence of these TCP, TRP and Thought force ( $T_F$ ) appears to be helpful to provide guidelines to solve the riddle of consciousness as well as mental processes. It is fair to say that scientists have not yet observed the graviton whose existence is taken for granted.

We are happy that one of the learned reviewers of our paper has correctly realized that "there is much evidence that the consciousness of individuals may be independent of their physical bodies, as seen

*in recall of events by persons when they were clinically dead*". Vide the experimental observations of Parnia (2007), Lommel (2001), Fenwick (2001) and Beauregard & O'Leary (2008; 2006) that support the substantial view of mind. Further he mentioned;

"Their introducing *thought-carrying particle* and a primordial quantum field which they call the *thought force* interacting with all matter, living or not, is a nice touch, reminding me of Seth's consciousness units (e.g., Jane Roberts, The Unknown Reality, volume 1, Session 682)".

The same learned reviewer lastly pointed out;

"Nevertheless, I think that the authors quite reasonably associate energy with their thought-carrying particle. To quote Jane Roberts' Seth once more, "consciousness units... [are] aware energy" (op. cit., Session 682). In this view, consciousness is related to energy just as energy is related to mass through Einstein's famous formula".

We must thank him cordially as he could extract the fundamental truth of this paper where we tried to associate energy with the TCP and we really tried to show that "consciousness is a form of energy". In our proposition, consciousness is the quantized energy ( $\varepsilon_T$ ) of the TCP. If consciousness of individuals is at all independent of their physical bodies, then we should be able to find out any possible relationship between the universe and the consciousness. And ultimately we showed that the universe exists along with the universal consciousness. We initially assumed and then tried to prove that these postulated TCP and TRP exist in the universe to behave, in general, like photons or bio-photons (Pal *et al.*, 2005) for causing the universal consciousness. We like to mention that we have not performed any experiment on the existence of TCP and TRP along with the Thought force ( $T_F$ ).

Hameroff and Penrose (1996) expressed:

"One set of philosophical positions, addressing the hard problem, views consciousness as a fundamental component of physical reality. For example an extreme view – 'panpsychism' - is that consciousness is a quality of all matter: atoms and their subatomic components having elements of consciousness (e.g., Spinoza, 1677; Rensch, 1960). 'Mentalists' such as Leibniz and Whitehead (e.g., 1929) contended that systems ordinarily considered to be physical



are constructed in some sense from mental entities. In monistic idealism, matter and mind arise from consciousness - the fundamental constituent of reality (e.g., Goswami, 1993). Wheeler (1990) has suggested that information is fundamental to the physics of the universe. From this, Chalmers (1995; 1996) proposes a double-aspect theory in which information has both physical and experiential aspects. Among these positions, the philosophy of Alfred North Whitehead (1929; 1933) may be most directly applicable. Whitehead describes the ultimate concrete entities in the cosmos as being actual 'occasions of experience', each bearing a quality akin to 'feeling'. Whitehead construes 'experience' broadly - in a manner consistent with panpsychism - so that even temporal events in the career of an electron have a kind of 'protomentality'."

All these concepts ultimately signify and justify the conspicuous existence of TCP and TRP, the ultimate constituents of matter and mind in the inherent presence of thought force ( $T_F$ ) *in vitro* and the thought force ( $T_F$ ) *in vivo*.

Stapp's (2007) work concerns the implications of quantum mechanics for consciousness. Stapp favors the idea that quantum waves collapse only when they interact with consciousness. He argues that quantum waves collapse when intelligent brains select one among the alternative quantum possibilities. His theory of how mind may interact with matter via quantum processes in the brain differs from that of Penrose and Hameroff. While the latter postulates quantum computing in the microtubules in brain neurons, Stapp postulates more global collapse via his 'mind like' wave-function collapse. His views are spelled out most clearly in his book, *Mindful Universe: Quantum Mechanics and the Participating Observer*. The 'mind like' wave-function can be explained through the existence of the quantum mechanical activities of the TCP and TRP in the inherent presence of thought force ( $T_F$ ) *in vitro* and the thought force ( $T_F$ ) *in vivo*.

The debatable point is how can something without a spatial location interact at a specific location in the brain by firing a particular neuron inside the brain? Physicists have been puzzled with the idea of matter being moved around by anything other than the real forces, in particular, forces that have origins in other material particles. The

problem can be solved only if physical laws can be derived to establish a relationship between consciousness and other well-defined matter. The thought force ( $T_F$ ) and the developed consciousness model may provide plausible guidelines to form such a relationship of consciousness with other well-defined matter.

This consciousness model may also provide guidelines to form a possible gross bridge between mind and matter, present physics and cognitive science, psychology and natural sciences, classical physics and quantum physics.

As per our proposition, the ultimate constituents of matter and mind are these TCP and TRP in the inherent presence of thought force ( $T_F$ ) *in vitro* and the thought force ( $T_F$ ) *in vivo*. It appears that the development of 'self-organization' is possible through the generation and maintenance of consciousness by the quantum mechanical activities of these TCP and TRP, the ultimate constituents of matter and mind.

Everything in this universe is interlinked and intertwined through the existence of the quantum mechanical activities of these TCP and TRP which create and maintain consciousness. This consciousness functions as a universe wide web (*uww*) covering the universe as a whole with all its parameters (including void) and inhabitants (with or without consciousness). In this picture, *uww* of consciousness, quantum concepts like wave particle dualism, position momentum uncertainty, nonlocality and concept of unified field become somewhat understandable as all the entities of this universe are interlinked and intertwined. In this picture, the universal consciousness replaces ether of yesteryears and contains the whole of the universe in its fold.

The 'spooky action-at-a-distance' may thus be built in nature through the existence of these TCP and TRP in the presence of thought force ( $T_F$ ). Here thought force ( $T_F$ ) is an expression of the 'universal consciousness' which exists along with the universe.

It is possible that the quantum enigma can be explained by accepting the existence of the quantum mechanical activities of these TCP and TRP that are the ultimate constituents of any matter as well as any individual mind, the functional state of which, in turn, generates 'consciousness'. This





'consciousness' is acting as an inter-linking agent between the animate and inanimate.

Samanta-Laughton, (2005) expressed that;

"At a quantum level particles can exist in many states at a time. What brings them out of this superposition is a matter of debate, but according to the Copenhagen interpretation, it is the act of observing a particle that determines what it is. Bohr went further and said that there is no objective reality 'out there'. Things only exist when we observe them. This implies that the whole universe exists only in our consciousness. Although controversial, the Copenhagen interpretation has stood the test of time with its bizarre philosophical implications".

The reigning tenet of quantum mechanics is the uncertainty principle. A consequence of the uncertainty principle is that the presence of an observer or experimenter determines the outcome of the observation or experiment. Simply stated, this means there is no objective reality; you 'create' what you see through the quantum mechanical activities of these TCP and TRP in the presence of consciousness and these TCP and TRP are the ultimate constituents of matter and mind.

How could an object's existence depend upon the act of observation? This is due to the fact that an object's existence as well as the act of observation through the prevailing consciousness is totally dependent on the existence of the quantum mechanical activities of these TCP and TRP that are the ultimate constituents of any matter as well as any mind (Pal *et al.*, 2004).

It has been experimentally observed in the field of "biophotonics" (Popp, 1992; 1994; 1998) that living beings including human being emit microwaves constantly and regularly in a particular pattern which may be responsible for maintaining not only the 'metabolism' along with 'consciousness' but also for maintaining the universal existence. This microwave radiation is due to the emission of a type of photons usually called "biophotons" which, in our view, are nothing but the postulated TCP and TRP.

It can also be shown by calculation that the biological systems would have to emit microwaves having  $\lambda_T$  of the order of  $0.4\text{cm} \cong 10^{-4}\text{eV} \cong 10^{-16}\text{erg} \cong \varepsilon_T$ , the quantized energy of TCP radiated by the radiant mass of

this universe. The cosmic microwave background radiation temperature signifies the existence of the TCP, TRP and thought force ( $T_F$ ). Bohm's 'Implicate Order', which can enfold the primary field and consciousness, also signifies the possible existence of these TCP, TRP and Thought force ( $T_F$ ) that, in turn, may function as the primary unified field.

The developed mathematical model for consciousness may provide guidelines to solve the mystery of quantum mechanics. The quantum mechanical activities of mind are found to be present at several places at a time unless it is fixed at a particular point or place. It is the same case with the quantum particle.

Wolf (1986; 1989; 1994; 1998; 2000; 2004) has published a number of books to express the role of mind and consciousness through the quantum physics in order to interpret several aspects like Spirit, Soul, Matter, Self, A Mind-Expanding Journey Into the Realm Where Psyche and Physics Meet (1994), Mind into Matter, Matter Into Feeling, The Yoga of Time Travel: How the Mind Can Defeat Time (2004) etc. All these aspects can be explained through the existence of the quantum mechanical activities of these TCP and TRP in the inherent presence of thought force ( $T_F$ ) *in vitro* and the thought force ( $T_F$ ) *in vivo*.

The eternal Void has been covered by the mind to function as the Soul of the individual being. In the universe, behind the UM, there is a Soul ( $\cong$  VOID). In the individual, behind the individual mind (which is a constituent of the UM), there is also a Soul ( $\cong$  VOID). Any matter as well as the individual mind is constituted by these postulated TCP and TRP that, in turn, are originated from the same eternal Void. Thus the individual mind is operated by these TCP and TRP that, in turn, are ultimately governed and operated by the same eternal Void. The individual mind being a constituent of the UM has covered the eternal Void to serve the role of individual 'Soul'. This eternal Void is thus the common source and the source is still with us as indicated by Bhaumik (2006). This Void serves the role of Soul being covered by the mind.

The mind-brain and brain-body links which are addressed by psychology, cognitive science, neuroscience and neurophysiology are, in our proposition, ultimately governed by



the quantum mechanical activities of these TCP and TRP in the inherent presence of thought force ( $T_F$ ) *in vitro* and the thought force ( $T_F$ ) *in vivo*. Consciousness that signifies the realization of existence is a functional state of mind.

This Soul ( $\cong$  VOID) being the master ruler of the body exerts its functions through the finer instrument called mind. This mind (with the help of TCP and TRP), in turn, exerts its functions through the brain with other parts of the nervous system in the biological systems in order to grasp this physical universe, of course, in the inherent presence of consciousness. This consciousness is created and maintained by the quantum mechanical activities of these TCP and TRP. Thus any matter (as well as mind) being ultimately composed of these TCP and TRP should have some sort of 'mind' as Dyson indicated. *The more is the development of the organized brain, the more is the instrumental facility for the manifestation of consciousness* (Pal *et al.*, 2004). This consciousness itself is acting as an inter-linking agent between the animate and inanimate through the quantum mechanical activities of these TCP and TRP. Thus these TCP and TRP being the ultimate constituents of mind as well as matter play the most significant roles in many present day scientific enigmas. As mentioned earlier, consciousness may be defined as the 'self-organized' capability of any living being to activate TCP and TRP, the ultimate constituents of matter and mind, and to exert its functions.

As per Bhaumik (2006), observer and observed are fundamentally connected; their relationship is interactive and participatory. Numerous experiments like entanglement or nonlocality experiment demonstrate this relationship. The existence of TCP, TRP and thought force ( $T_F$ ) *in vitro* and thought force ( $T_F$ ) *in vivo* can be further verified by all those events where a piece of metal or a spoon is

caused to bend by the so-called 'will-power' through the projection of continued fixed look at the specified object. These events without any apparent physical contact can be explained by the application of the thought force ( $T_F$ ) *in vitro* and thought force ( $T_F$ ) *in vivo* in the inherent presence of TCP and TRP. These TCP and TRP are the ultimate constituents of matter and mind.

Wackermann (1999; 2001; 2003; 2002) conducted research to show a biological quantum entanglement and nonlocality existing between the mind-brains of separated human subjects and also separated human neuronal stem cells. Thaheld (2003; 2004; 2005; 2010) has conducted research in the field of Biological nonlocality and the mind-brain interaction problem. He has also tried to conduct research in the field of consciousness to unify physics and biology. All these experiments conducted by Wackermann (1999; 2001; 2003; 2002) and Thaheld (2003; 2004; 2005; 2010) clearly signify the existence of the quantum mechanical activities of these TCP and TRP, the ultimate constituents of matter and mind, in the inherent presence of thought force ( $T_F$ ) *in vitro* and the thought force ( $T_F$ ) *in vivo*.

It appears that the standard model of physics is to be correctly tuned by ascertaining the constituents of quarks and leptons in the presence of the unified field in order to explain the functional paranormal power like the Extra Sensory Perception (ESP) and Psychokinesis (PK).

The existence of ESP and PK significantly indicates the existence of these TCP and TRP in the inherent presence of thought force ( $T_F$ ) *in vitro* and the thought force ( $T_F$ ) *in vivo*. These TCP, TRP and the thought force ( $T_F$ ) *in vitro* and thought force ( $T_F$ ) *in vivo* can exert their roles mentally (internally) as well as physically (externally).



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