

Role of thought force (T_F) of consciousness model along with gravitational force (G_F) to explain the relevant conditions for the formation of a black hole

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Abstract: Scientists have arrived at a simple but decisive conclusion that consciousness is very much a part of the universe, like other objects. Our consciousness model involving thought-carrying particle (TCP), thought retaining particle (TRP) and thought force (T_F) signifies the existence of universal consciousness that exists along with the universe. This universal consciousness is a functional state of the universal mind. This universal mind (UM) is evolved at the Big Bang from void. The UM is constituted by these TCP and TRP in the inherent presence of thought force (T_F). Thought force (T_F) is an expression of universal consciousness. A single field emerged at the origin of the universe, already containing within itself the blueprint of the physical universe. The primordial single field triggered the onset of the universe. Most physicists believe that a single super-force dominated the first instants of creation. The Thought force (T_F) being the primordial quantum field functions as the original super-force. T_F being the original super-force functions as the origin of all the fundamental fields. TCP is the carrier of thought force (T_F) that, in turn, appears to be the origin of all the fields. The quantized energy (ϵ_T) of TCP is responsible to cause the universal consciousness as well as the cosmic microwave background radiation temperature. The individual consciousness owes its origin to the universal consciousness created by the same ϵ_T . The same ϵ_T is the energy responsible for generating thought force (T_F). 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*. We showed the existence of thought force in microcosm [T_F (micro)] and thought force in macrocosm [T_F (macro)]. This T_F (micro) is theoretically found to be stronger than the strong nuclear force. T_F (macro) is theoretically found to be weaker even than the gravitational force. Thought force (T_F) is found to be correlated with the gravitational force. Thought force (T_F) along with the gravitational force can explain the cause for the formation of a black hole.

Keywords: Universal Mind (UM), Cosmic Microwave Background Radiation (CMBR), Thought Force (T_F), Thought-Carrying Particle (TCP), Thought Retaining Particle (TRP), Quantized Energy (ϵ_T) of TCP, Gravitational Force (G_F), Schwarzschild Radius (R_s)

1. Introduction

A single field emerged at the origin of the universe, already containing within itself the blueprint of the physical universe. The primordial single field triggered the onset of the universe. Most physicists believe that a single super-force dominated the first instants of creation. Thought force (T_F) is an expression of universal consciousness.

The Thought force (T_F) being the primordial quantum field functions as the original super-force. T_F being the original super-force functions as the origin of all the

fundamental fields. TCP is the carrier of thought force (T_F) that, in turn, appears to be the origin of all the fields.

Pal [1] explained the existence of thought force (T_F) that is the primordial quantum field. Thought force (T_F), an expression of the universal consciousness, is the primordial quantum field that, in turn, functions as the primary unified field. 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 universal consciousness exerts its functions both *in vitro* and *in vivo*.

Physicists determined that underlying quantum fields give birth to elementary particles. Pal [1] expressed that the thought force (T_F) is the primordial quantum field. Thought force (T_F) being the primordial quantum field functions as the primary unified field. Thought force (T_F) being the primordial quantum field gives birth to TRP that appears to be the origin of all the matter particles. TCP is the carrier of thought force (T_F) that, in turn, appears to be the origin of all the fields. TCP thus appears to be the origin of all the field particles.

In a purpose to involve both the non-living and living systems of the world, Pal [1] has shown the existences of these TCP, TRP and thought force (T_F) *in vitro* and thought force (T_F) *in vivo*.

Pal (1) expressed that the non-living system of the world is governed by the thought force (T_F) *in vitro* and this Thought force (T_F) *in vitro* gives rise to T_F (micro), SNF, EMF, WNF, GF and T_F (macro)

where T_F (micro) = Thought force in microcosm, SNF = Strong nuclear force, EMF = Electromagnetic force, WNF = Weak nuclear force, GF = Gravitational force and T_F (macro) = Thought force in macrocosm. It is to be noted here that T_F (micro) is a stronger force than the SNF and T_F (macro) is a weaker force even than the GF.

Pal (1) also expressed that the living system of the world is governed by the thought force (T_F) *in vivo* and this Thought force (T_F) *in vivo* is a type of force that represents the biological 'thought' which is the action of mind. This 'thought' being a type of force controls the 'thought processes' involving the firing of neurons through the quantum mechanical activities of these TCP and TRP in the presence of consciousness. This consciousness, in turn, is the quantized energy (\mathcal{E}_T) of TCP. The thought force (T_F) *in vivo* is demonstrated in numerous experiments in which thought has an effect on a physical process (often known as mind over matter). This biological 'thought' is a type of force that can cause movement. Controlling movement through thought alone is observed in several experiments conducted by many scientists as indicated by Pal (1). These experiments thus signify the existence of thought force (T_F) *in vivo*.

Pal [1] explained the existence of T_F (micro) (= Thought force in microcosm). This T_F (micro) is the strongest interaction (a new class of 'extra strong' interaction). It is stronger than SNF (Strong Nuclear Force).

Pal [1] has also shown the existence of T_F (macro) (= Thought force in macrocosm). It is the "weakest force" which is much weaker even than the gravity.

1.1. Characteristics of T_F (Thought Force) and G_F (Gravitational Force) and Their Correlation

Our consciousness model involving TCP, TRP and thought force (T_F) signifies the existence of universal consciousness. Thought force (T_F) is an expression of the universal consciousness. Pal [1] showed the existence of thought force in microcosm [T_F (micro)] and thought force

in macrocosm [T_F (macro)]. Thought force (T_F) is found to be correlated with the gravitational force (G_F).

Pal [1] and Pal *et al* [2] explained that the quantized energy (\mathcal{E}_T) of the TCP is the energy responsible for generating thought force (T_F); thus the T_F may be expressed as

$$T_F = \mathcal{E}_T / Di \quad (1)$$

where, T_F = thought force,

\mathcal{E}_T = quantized energy of TCP radiated from the radiant mass of the universe = $(h^3 c^5 m / V_{pr})^{1/4} = 4.95 \times 10^{-16}$ erg,

Di = interacting distance,

h = Planck's quantum constant,

c = free-space velocity of light,

m = radiant mass of the universe = $V_{pr} \cdot \rho_r = 1.16025 \times 10^{53}$ g,

V_{pr} = present volume of the universe = $(4/3)\pi (c/H_0)^3 = 1.365 \times 10^{88} \text{ cm}^3$,

ρ_r = radiant density as per Stephan-Boltzmann formula indicated by Gamow [3]

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

H_0 = present value of Hubble's parameter = $2.023988 \times 10^{-19} \text{ sec}^{-1}$,

C/H_0 = radius of the universe = $R = 1.482 \times 10^{29} \text{ cm}$.

It is to be noted that these TCP and TRP function like wavicle: wave-particle duality.

When Di = radius of the TCP or TRP = 10^{-18} cm , then

$$T_F (\text{micro}) = \text{thought force in microcosm} \\ = 59.78 \text{ dyne} = 37.32 \times 10^{12} \text{ eV} = 37.32 \times 10^3 \text{ GeV}.$$

$$\text{Again, } T_F = (KG_F)^{1/2} = \mathcal{E}_T / Di \quad (2)$$

where, T_F = thought force,

$$K = c^4 / G = 12.144 \times 10^{48} \text{ dyne},$$

G = Newton's gravitational constant = $6.67 \times 10^{-8} \text{ dyne cm}^2 \text{ g}^{-2}$,

G_F = gravitational force.

T_F (= thought force) is thus found to be correlated with the G_F (= gravitational force).

When Di = R = radius of the universe = $1.482 \times 10^{29} \text{ cm}$, then

$$T_F (\text{macro}) = \mathcal{E}_T / R = (KG_F)^{1/2} \quad (3)$$

where, T_F (macro) = thought force in macrocosm.

$$G_F = (1/K)(\mathcal{E}_T / R)^2 = (1/K)[T_F (\text{macro})]^2 \quad (4)$$

where T_F (macro) = Thought force in macrocosm.

$$G_F = (G / c^4)(\mathcal{E}_T / R)^2 = (G / c^4)(h^3 c^5 m / V_{pr})^{1/2} (1/R)^2 = (1/K)[T_F (\text{macro})]^2 \quad (5)$$

$$[\because \mathcal{E}_T = (h^3 c^5 m / V_{pr})^{1/4}]$$

Thus, G_F is found to be correlated with \mathcal{E}_T and G_F for the general case having mass 'm' is $T_F (macro)$.

$$G_F = (G / R^2)(h^3 m / c^3 V_{pr})^{1/2} = (1 / K)[T_F (macro)]^2 \quad (6)$$

When $m = M_U = \text{mass of the universe} = 10^{57} \text{ g}$, then $G_F = 8.5398744 \times 10^{-137} \text{ dyne}$.

When $m = M_{UR} = \text{radiant mass of the universe} = 1.10625 \times 10^{53} \text{ g}$, then $G_F = 9.1987177 \times 10^{-139} \text{ dyne}$.

When $m = 3 \times \text{Solar masses} = 5.961 \times 10^{33} \text{ g}$, then $G_F = 2.0850235 \times 10^{-148} \text{ dyne}$.

When $m = m_T = \text{quantized mass of the TCP} = 5.5 \times 10^{-37} \text{ g}$, then $G_F = 2.002778 \times 10^{-173} \text{ dyne}$.

The Schwarzschild radius (R_s) is the distance from the center of an object such that, if all the mass of the object were compressed within that sphere, the escape speed from the surface would equal the speed of light. Once a stellar remnant collapses within this radius, light cannot escape and the object is no longer visible as indicated by Chaisson [4]. It is a characteristic radius associated with every quantity of mass.

An object with a radius smaller than its Schwarzschild radius (R_s) is called a black hole. The surface at the Schwarzschild radius acts as an event horizon in a non-rotating body. (A rotating black hole operates slightly differently.) Neither light nor particles can escape through this surface from the region inside, hence the name "black hole".

When $m = M = R_s c^2 / 2G$, one can get from the Equation (6),

$$G_F = (G / R^2)(h^3 R_s c^2 / c^3 V_{pr} 2G)^{1/2} = (1 / R^2)(h^3 G R_s / 2c V_{pr})^{1/2} = (1 / K)[T_F (macro)]^2 \quad (7)$$

where $R_s = \text{Schwarzschild radius} = 2GM/c^2$

here $G = \text{gravitational constant}$, $M = \text{mass of the gravitating object}$,

$c = \text{speed of light in vacuum}$.

Thus, G_F is related with R_s (schwarzschild radius) as

$$G_F = (1 / R^2)(h^3 G / 2c V_{pr})^{1/2} (R_s)^{1/2} = (1 / K)[T_F (macro)]^2 \quad (8)$$

$$G_F = 2.213176 \times 10^{-151} (R_s)^{1/2} = (1 / K)[T_F (macro)]^2 \quad (9)$$

$$R_s = 2.041587 \times 10^{301} (G_F)^2 = 2.041587 \times 10^{301} x (1 / K)^2 [T_F (macro)]^4 \quad (10)$$

Again, from the Equation (8) one can get,

$$R_s = (G_F)^2 R^4 2c V_{pr} / h^3 G = 2GM / c^2 = 1.482 \times 10^{-28} M \quad (11)$$

Thus, Schwarzschild radius (R_s) may be correlated not only with G_F and T_F but also with other physical constants like R , c , h , V_{pr} , and G .

From the Equation (2) one can get,

When $Di = R_s = 2GM / c^2 = 1.482 \times 10^{-28} M$, then

$$G_F = (1 / K)(\mathcal{E}_T / Di)^2 = 2.017663 \times 10^{-80} / Di^2 \quad (12)$$

Further, when $Di = R = \text{radius of the universe}$, putting $\mathcal{E}_T = (h^3 c^5 m / V_{pr})^{1/4}$ in the Equation (4) one can get

$$G_F = 9.186545 \times 10^{-25} / M^2 \quad (13)$$

$$G_F = (1 / K)(\mathcal{E}_T / R)^2 = (G / c^4 R^2)(h^3 c^5 m / V_{pr})^{1/2} = (G / R^2)(h^3 m / c^3 V_{pr})^{1/2} \quad (14)$$

The gravity may thus be related with \mathcal{E}_T and hence can be dissected into its component quantum packet which is found to be \mathcal{E}_T , the quantized energy of TCP radiated from the radiant mass of the universe. Thus TCP or TRP once detected may shed immense light on the gravity (even on black holes) in order to detect 'gravity waves', ripples in space-time predicted by Einstein.

3. Condition for the Formation of a Black Hole

A black hole is a region of space from which nothing, not even light, can escape. The theory of general relativity predicts that a sufficiently compact mass will deform space-time to form a black hole. Around a black hole there is a mathematically defined surface called an event horizon that marks the point of no return. It is called "black" because it absorbs all the light that hits the horizon, reflecting nothing, just like a perfect black body in thermodynamics as indicated by Davies [5].

$$5. \text{ When } G_F = 2.017663 \times 10^{-80} / Di^2 = 9.186545 \times 10^{-25} / M^2 = 3.035982 \times 10^{48} \text{ dyne} \quad (19)$$

$$6. \text{ When } T_F = 4.029273 \times 10^{-80} / Di^2 = 4.029273 \times 10^{-80} / R_s^2 \quad (20)$$

$$7. \text{ When } T_F = 1.997 G_F = 1.834553 \times 10^{-24} / M^2 = 6.071964 \times 10^{48} \text{ dyne} \quad (21)$$

4. Discussion and Conclusion

4.1. Discussion

Light travels fast and far, but even the light stops at a black hole. A black hole is a star that is so massive that it collapses to a practically no volume under its own gravity. The gravitational force in a black hole is so intense that even light cannot escape from it. A black hole is very hot, so it generates a lot of light, but the light never shines out. The heat does not escape either (as it is a form of light). The black hole thus cannot be seen. However, black holes have been detected, as they bend light from points beyond them.

In the theory of relativity there is no unique time, but instead each individual has his own personal measure of time that depends on where he is and how he is moving. Space and time are dynamic quantities and they not only affect but also are affected by everything that happens in the Universe. Time is not completely separate from and independent of space but is combined with it to form what is called 'space-time continuum' as expressed by Hawking [6].

Pal [7] explained that the manifestation of any type of "time" is solely dependent on the manifestation of

3.1. The Formation of A Black Hole Is Found to Be Dependent on the Following Critical Conditions

1. When the mass of a star system attains Schwarzschild radius (R_s)

$$\text{where } R_s = 2GM / c^2 = 1.482 \times 10^{-28} M \quad (15)$$

2. When the interacting distance (Di) = R_s and thus when

$$M / Di = M / R_s = 6.756756 \times 10^{27} = P / K \quad (16)$$

$$\text{where } P = 2.45313 \times 10^{64} \text{ cm}^{-1}$$

$$K = 3.630844 \times 10^{36} \text{ g}^{-1}$$

$$3. \text{ When } KM = PDi = PR_s \quad (17)$$

$$\text{where } Di = R_s$$

$$4. \text{ When } T_F / G_F = 1.997 \quad (18)$$

$$\text{where } T_F = c^4 / 2G = 6.071964 \times 10^{48} \text{ dyne}$$

$$G_F = c^4 / 4G = 3.035982 \times 10^{48} \text{ dyne}$$

"consciousness" ($= \mathcal{E}_T$). The concept of personal time (psychological time) begins to a person at the onset of the function of his or her "conscious mind" only. 'Time' is bound to the 'mind'. Even the existence of cosmological arrow of time is also dependent on the existence of universal consciousness that, in turn, is the quantized energy (\mathcal{E}_T) of TCP. This \mathcal{E}_T represents universal consciousness.

Pal [7] further explained that the apparent origin of "physical time" appears to be related with the origin of evolution of 'light' and its evolved velocity (c) as 'time' (as well as 'space') becomes zero at the inside singularity of a black hole. Thus, the velocity (c) of light as well as 'space-time' is always related with consciousness which is conjectured here to be the 'mental light'. The quantized energy (\mathcal{E}_T) of TCP represents universal consciousness. This \mathcal{E}_T is related with c (free-space velocity of light) through the expression: $\mathcal{E}_T = hc / \lambda_T$. Here h is Planck's quantum constant = 6.63×10^{-27} erg .sec, and λ_T is the wavelength of TCP in cm.

Overbye [8] explained that black hole is the prima donnas of Einstein's general theory of relativity, the idea explaining the gravity as a warp in space-time caused by

the matter and energy. But even Einstein could not accept that the warping could get so extreme that space could warp itself completely causing it to disappear as a black hole.

Overbye [8] further mentioned: The universe itself has an event horizon: it is the surface beyond which the galaxies (if they existed) would move away from us faster than light. According to Einstein's theory, time (as measured by any kind of clock) runs more slowly on a moving object than on static one. The faster an object moves away from us, the more time on it slows down. If the object moves away from us with the speed of light, time stops! But if there is no passage of time, there is no way to transmit any kind of information. We cannot observe such an object in any conceivable way. We cannot know whether it exists. In a Universe that is expanding, galaxies beyond the event horizon will remain unknowable forever.

Could there be another type of black hole in our modern universe that was created before the Big Bang? Carr and Coley [9] have published a paper on arXiv, where they suggest that some so-called primordial black holes might have been created in the Big Crunch that came before the Big Bang, which supports the theory that the Big Bang was not a single event, but one that occurs over and over again as the Universe crunches down to a single point, then blows up again, over and over. This theory also indicates that we have an eternal, cyclical cosmos as expressed by Gurzadyan and Penrose [10], thus signifying the existence of eternal KALPA (Cycle) of the Vedanta as it is explained by Vivekananda [11].

4.2. Conclusion

The condition for the formation of a black hole is dependent not only on the Schwarzschild radius (R_s) but also on the magnitude of T_F and G_F and their ratio. It is found that a black hole would be formed when the value of $T_F / G_F \leq 2$.

References

- [1] D. Pal, Existence of thought force and its characteristics. Communicated to American Journal of Modern Physics (AJMP) (2013)
- [2] D. Pal, and A.U. De, The cosmic microwave background radiation temperature signifying the existence of the thought-carrying particle, thought retaining particle and thought force. *NeuroQuantology* 10: Issue3; 428-442 (September 2012)
- [3] G. Gamow, The Great Expansion, *The World of Physics*, (Simon and Schuster, 1230 Avenue of Americas, New York 10020, New York 10020) 3: 271 (1987)
- [4] E. Chaisson, and S. McMillan, *Astronomy Today*. (San Francisco, CA: Pearson / Addison Wesley) (2008) Print
- [5] P. C. W. Davies, Thermodynamics of Black Holes. *Reports on Progress in Physics*, 41 (8) 1313– 1355 (1978)
- [6] S. W. Hawking, *A Brief History of Time from the Big Bang to Black Holes*. (Bantam Books. 666 fifth Avenue, New York 10103) pp. 15-36 (1989)
- [7] D. Pal, Sense of time and interpretation of the evolution of time. Communicated to American Journal of Modern Physics (AJMP) (2013)
- [8] D. Overbye, Mysteries of the Universe. Copyright 2002. *The New York Times Company*.
- [9] B. J. Carr, and A. A. Coley, Persistence of black holes through a cosmological bounce. *Astro-ph.CO* (2011); arXiv:1104.3796v1 [astro-ph.CO] <http://arxiv.org/abs/1104.3796>
- [10] V. G. Gurzadyan and R. Penrose, Concentric circles in WMAP data may provide evidence of violent pre-Big-Bang activity. *astro-ph.CO* (2010). arXiv:1011.3706 [astro-ph.CO].
- [11] Swami Vivekananda, The Vedanta Philosophy, *The complete works of Swami Vivekananda*, (Advaita Ashrama, India) 1, pp. 360; ibid, 2, The Cosmos, pp. 206- 211; Cosmology, pp. 434-436 (1989)