Scientific
Research
Publishing

Plank Scale with Siva's Constant "K"—A New Road to Grand Unification

Siva Prasad Kodukula

Visakhapatnam, INDIA
Email: sivkod@gmail.com

Abstract

Based on $Vd = K$ equation and the consideration that maximum velocity is "velocity of light", diameter of a space time for a particular fundamental force has been calculated. With Siva's classical equation for space time, the quantity of fundamental force has been calculated in terms of relative energy with photon. This has been converted into relative force and the relative forces interpreted in terms of coupling constants of fundamental forces. All the fundamental forces are manifestation of space time material only. Space time will be different for different fundamental forces and their elementary force carrying particles. Specially, it has elaborated the difference between mass and energy for gravity space time. A generalized equation of space time and coupling constants has been derived. This equation can be used to calculate the space time parameters of other fundamental forces by knowing the coupling constant and vice versa. Space time parameters will be different for fundamental forces. In order to keep the parameters such as c, G, h, l_p, t_p and m_p applicable to all other fundamental forces, a new parameter Siva's constant "K" has been introduced. Thus all the observations are based on "K" and transformation is possible by a new additional parameter "K" such that $c = h = G = K = 1$ instead of $c = h = G = 1$. Ultimately, this paper may be a ground work to discuss lot of issues such as "consciousness" and "decoding of quantum information" in future.

1. Introduction

Quantum vacuum has been considered in the form of space time with lowest

possible energy to keep its density with in specific limits. Several forms of space times have been considered with a limitation of "expansion" and "contraction" as upper and lower limits of fundamental nature of space time. All the fundamental forces are manifestation of space time material only. Space time will be different for different fundamental forces and their elementary force carrying particles. Specially, it has elaborated the difference between mass and energy for gravity space time. The same has been implemented for other particles with fundamental forces. But the energy interpreted by photons and the energy of all the particles irrespective of its fundamental nature of force can be expressed in terms of energy defined for photon. The complete quantum vacuum or space time will be contracted to form the particle so that the particle will have a separate nature than the energy. In case of gravity space time, mass is the particle and inertia is that specific nature that makes the difference between energy and equivalent mass. It can be explained by Siva's classical equation for space time and mass [1] (In its present form, equation has been slightly modified by taking "new gravity equation" in to consideration). In terms of quantum mechanics the same can be explained as the position of the particle created by its space time with in its own space time. The uncertainty of its position increases as the energy nature increases and its accuracy increases with its inertia nature. Thus quantum mechanics is probabilistic. But particle must be defined where the position and momentum of the particle can be determined accurately. Meanwhile, the uncertainty principle should be eliminated. At this point of space and time the velocity is invariant. The uncertainty differs from minimum to maximum depending upon fundamental nature of particle. The photon is maximum uncertainty. It is completely of energy. The relative energy of the particles created by other forces has been used to calculate the force and their coupling constants. A generalized equation of space time and coupling constants has been derived. This equation can be used to calculate the space time parameters of other fundamental forces by knowing the coupling constant and wise versa. Space time parameters will be different for fundamental forces. In order to keep the parameters such as c, G, h, l_p, t_p and m_p applicable to all other fundamental forces a new parameter Siva's constant "K" has been introduced. Thus all the observations are based on K and transformation is possible by a new additional parameter "K" such that $c = h = G = K = 1$ instead of $c = h = G = 1$.

2. The Concept

All the fundamental forces contains separate space times and will have separate plank scale .Their fundamental particles are made up of their own space times with diameter "d_x" and energy equal to "mc^2" in some other form like charge or mass. The coupling constant is the ratio of that force equivalent to its energy and photon. Each force will have a separate plank scale and will have a separate lower limit like plank length of particular space time and an upper limit as maximum diameter of space time at ultimate expansion. The lower limit follows

the equation $cd = K$ where "K" is value of Siva's constant of its space time [2]. If the space time dia exceeds these limits, a new force or a particle will be created and will be defined with separate space time dia and energy. It can be treated as a separate space time and expansion. All the space times will follow similar physical laws with different parameters. If we keep the parameters c, G, l_p, t_p and m_p same as our four dimensional space time (gravity space time), we can find out the basic building block of mass as per Siva's classical equation for space time. Thus, it is the transformation from one to another. With respect to gravity space time, space time of weak force will appear as charge. Thus only one universe with different forces and particles will exist. This transformation of space times is possible by a new additional parameter "K" such that $c = h = G = K = 1$.

2.1. Proof

We have Siva's new gravity equation [3]

$$K = Gt_p \left(\frac{m}{d} \right) \tag{1}$$

And

$$cd = K \tag{2}$$

∵ $Vd = K$ as per Double Relativity Effect [2] [3]

The solution for both the equations is

$$cd = \frac{Gt_p m}{d} \tag{3}$$

$$cd^2 = Gt_p m \tag{4}$$

$$m = \frac{d^2 c}{Gt_p} \tag{5}$$

$$mc^2 = \frac{d^2 c^3}{Gt_p} \tag{6}$$

If we suppose a fundamental force has a space time and formed in to a particle, the particle made-up of that space time will be balanced by some of its space time to maintain the particle nature than the wave nature. If it is not balanced properly, the particle cannot have a exact position and will be with a velocity. Its position and momentum cannot be determined exactly at a particular time and follows uncertainty principle as well as probabilistic nature of quantum mechanics. **Figure 1** explains it.

So, as explained in **Figure 1**, the particle with its full wave nature can be at any position within its diameter at any particular time of observation. As the wave nature decreases and particle nature increases, the balance between the particle and its space time cannot be maintained. It is well explained in case of creation of a particle by gravity space time (our conventional space time) by Siva's classical equation of space time. In that, the particle created is "basic building block of mass" and it will have hundred percent of particle nature called inertia with zero
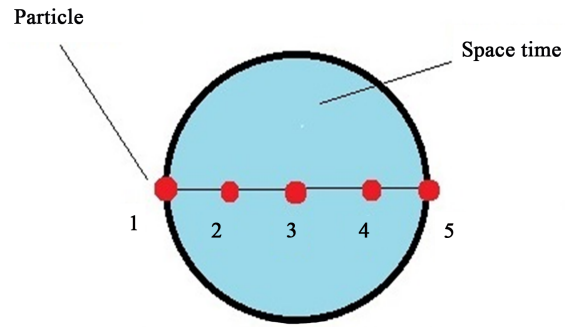
1. Position of particle with full wave nature
2. Position of particle with particle nature and wave nature
3. Position of particle with full particle nature
4. Position of Particle with both particle and wave nature
5. Position of Particle with full wave nature

Particle will have zero space time at positions 1 & 5
Particle will have maximum space time at its centre (position 3)

Figure 1. Positions of particle in its quantum of space time along diameter (The root cause for probability and uncertainty concepts in quantum mechanics).

percent of its wave nature within its space time. The charge which is a basic building block of some other space time can also be explained in the same way. All the fundamental forces can be explained in the same way.

Within its space time the particle will have momentum dependent upon its space time diameter. So the particle must work for its own movement within its space time. By fundamental principles we know the work is equivalent to its energy and equal to the product of force and the distance. Here the distance is its space time diameter and the force is force of the particle. Thus we can find a relation between force of the particle, its space time diameter and energy of that particle.

If we compare it with photon, photon is a particle made up of electromagnetic force space time. But photon is completely of energy rather than a particle. So we cannot find its position and velocity at a time at any point of its space time with in its plank length. So the particle of electromagnetic force may be at any point with in its space time diameter. It is the maximum uncertainty comparable to particles stability like inertia in the case of mass.

If we keep c, l_p, t_p and m_p are same for all space times we can find out the relation

Mathematically,

Let us say " F_x " is force of the particle " E_x " is Energy and " d_x " is space time diameter of that force

$$F_x = \frac{E_x}{d_x} \tag{7}$$

$$F_x = \frac{mc^2}{d_x} \tag{8}$$

$$F_x = \frac{d_x^2 c^3}{G t_p d_x} \tag{9}$$

$$F_x = \frac{d_x c^3}{G t_p} \tag{10}$$

If the space time diameter of that particle is plank length

$$d_x = l_p \tag{11}$$

Substitute (11) in (10)

$$F_x = \frac{l_p c^3}{G t_p} \tag{12}$$

Since $\dfrac{l_p}{t_p} = c$ we can rewrite the Equation (12) as

$$F_x = \frac{c^4}{G} \tag{13}$$

Its physical meaning is:

- All the fundamental forces will have separate plank scale and their fundamental particle is made up of its own space time with space time diameter "d_x" and energy equal to "mc^2" in some other form similar to charge or mass.
- The coupling constant is the ratio of that force and force defined for photon.
- It is comparable at plank scale only. Each force will have a separate plank scale and will have a separate lower limit at plank diameter and upper limit at maximum diameter of space time in expansion.
- If the space time diameter crosses these limits a new force or a particle will be created and will be defined with separate space time diameter and energy. But for our consciousness the space time dia will be constant equal to plank length. So in order to increase space time diameter, it will lose its energy comparable to photon.
- For example, if plank volume is filled with energy, it is a photon with wave length equal to plank length. If it changes to gravity, as per (25) the energy is $E = 1.3557317 \times 10^{-17}\,\text{J}$ and as per (21), $d = 1.3455278 \times 10^{-47}\,\text{mts}$. Here "$d$" reduced from plank length $l_p = 1.616229 \times 10^{-35}\,\text{mts}$ [4] to $1.3455278 \times 10^{-47}\,\text{mts}$. So energy will be reduced. The force is the ratio of Energy and space time diameter $i.e.$ $\dfrac{E}{d}$ and will be less than the force of a photon having a diameter equal to plank length.

Thus the coupling constant "α_x" for any fundamental force can be calculated as

$$\alpha_x = \frac{F_x}{F_p} \tag{14}$$

for gravity its value will be 4.591×10^{-38}.

Here it is to be noted that the coupling constant is calculated with respect to electromagnetic force only.

3. Equation for Space Time Diameter and Coupling Constants

Siva's classical Equations for space time [1] after considering final revision (The equations have been slightly modified by taking "new gravity equation" in to consideration).

1) $m = 7.9905778 \times 10^{-17} \times d^{1/3}$ (15)

2) $\gamma d^{8/3} = 1.526087946 \times 10^{-16}$ (16)

where "m" is the fundamental particle in with energy equivalent to mc^2 created by space time of any fundamental force and "d" is its "radius of its own space. γ is its space time density. Siva's gravity equation can be used for any fundamental force. Here let us consider gravity only for our convenience since "m" is nothing but basic building block of mass.

As per Double relativity Effect [2]

$$Vd = K \qquad (17)$$

where "V" is velocity of the body existed due to force of gravity at a point at distance "d" from any observer. "K" is Siva's constant and follows the gravity equation $K = Gt_p\left(\dfrac{m}{d}\right)$ It is obvious that velocity of light *i.e.* 2.99792458×10^8 mt/sec is the maximum signal velocity in our conventional four dimensional space time. This space time contains a density also. We can compare it with any mass density as explained in Siva's classical space time equations.

We have equations for quantum of energy

$$E = h\nu \qquad (18)$$

$$E = mc^2 \qquad (19)$$

As per (17),

The "d" will be maximum when "$V = c$". This is the stage of the universe contains a signal velocity "c" and the space time density representing "gravitational field".

So the dia of the universe

$$d_{ug} = \frac{K}{c} \qquad (20)$$

We have Siva's constant "K" as per Equation (1)

$$K = Gt_p\left(\frac{m}{d}\right)$$

And velocity of light $c = 2.99792458 \times 10^8$ mt/sec

$$\therefore d_{ug} = \frac{K}{c} = \frac{Gt_p m}{cd} = \frac{Gt_p \times 7.9905778 \times 10^{-17} \times \left(\dfrac{d_{ug}}{2}\right)^{1/3}}{c \times d}$$

Substitute values [4]

$$G = 6.67408 \times 10^{-11} \text{ m}^3 \cdot \text{kg}^{-1} \cdot \text{sec}^{-2}$$

$$t_p = 5.39116 \times 10^{-44} \text{ sec}$$

$$c = 2.99792458 \times 10^8 \text{ m/sec}$$

in

$$m = 7.9905778 \times 10^{-17} \left(\frac{d_{ug}}{2} \right)^{1/3}$$

($\because d_{ug}$ is diameter and Equation (15) contains radius only)

$$d = d_{ug}$$

$$\therefore d_{ug} = \frac{6.67408 \times 10^{-11} \times 5.39116 \times 10^{-44} \times 7.9905778 \times 10^{-17} \times d_{ug}^{1/3}}{2.99792458 \times 10^8 \times d_{ug} \times 2^{1/3}}$$

$$\therefore d_{ug}^{5/3} = 76.1180748 \times 10^{-80}$$

$$\therefore d_{ug}^{5/3} = 7.61180748 \times 10^{-79}$$

$$\therefore d_{ug} = 13.455278 \times 10^{-48}$$

$$\therefore d_{ug} = 1.3455278 \times 10^{-47} \tag{21}$$

$$\therefore \text{Its radius} = 6.727639 \times 10^{-48} \text{ mts} \tag{22}$$

This radius can be substituted in Siva's classical equation for space time.

We have Siva's classical Equation for space time (15)

$$m = 7.9905778 \times 10^{-17} \times d^{1/3}$$

where "d" is radius of space time as per (22)

$$\therefore m = 7.9905778 \times 10^{-17} \times d^{1/3}$$

$$\therefore m = 7.9905778 \times 10^{-17} \times \left(6.727639 \times 10^{-48} \right)^{1/3} \quad (\because d = 6.727639 \times 10^{-48} \text{ m})$$

$$\therefore m = 7.9905778 \times 10^{-17} \times \left(6.727639 \times 10^{-48} \right)^{1/3}$$

$$\therefore m = 15.08455 \times 10^{-33}$$

$$\therefore m = 1.508455 \times 10^{-34} \text{ kg} \cdot \text{s} \tag{23}$$

And space time density as per Equation (16)

$$\gamma d^{8/3} = 1.526087946 \times 10^{-16} \text{ kg/cum}$$

$$\gamma \left(6.727639 \times 10^{-48} \right)^{8/3} = 1.526087946 \times 10^{-16}$$

$$\gamma = \frac{1.526087946 \times 10^{-16}}{\left(6.727639 \times 10^{-48} \right)^{8/3}}$$

$$\gamma = \frac{1.526087946 \times 10^{-16}}{\left(6.727639 \times 10^{-48} \right)^{8/3}}$$

$$\gamma = \frac{1.526087946 \times 10^{-16}}{161.2997937 \times 10^{-128}}$$

$$\gamma = \frac{1526.087946 \times 10^{-19}}{161.2997937 \times 10^{-128}}$$

$$\gamma = 9.461189695 \times 10^{109} \qquad (24)$$

We have Equation (19)

$$E = mc^2$$

If we substitute the value of "m" in Equation (19)

The energy of gravity field

$$E = 1.508455 \times 10^{-34} \times \left(2.99792458 \times 10^8\right)^2 \text{ J}$$

$$E = 1.3557317 \times 10^{-17} \text{ J} \qquad (25)$$

Let us find out the space time dia of gravity space time and its coupling constant with photon.

As per (7)

$$\text{Energy } E_x = F_x \times \text{space time dia}$$

$$E_x = F_x \times d_x$$

And $E_p = F_p \times d_p$

As per (14) $\alpha_x = \dfrac{F_x}{F_p}$

$$\alpha_x = \frac{E_x}{d_x} \times \frac{d_p}{E_p} \quad \text{where} \quad \alpha_x \text{ is coupling constant} \qquad (26)$$

The conceptual conclusion is

$$d_x = d_p = \lambda \qquad (27)$$

We have

$$E_p = h\nu = \frac{c}{\lambda} \qquad (28)$$

As per (19),

$$E_p = m_x c^2 \qquad (29)$$

Substitute (27), (28) and (29) in (26)

$$\therefore \alpha_x = \frac{m_x c^2}{h\nu} \qquad (30)$$

$$\therefore \alpha_x = \frac{m_x c^2}{hc} \times \lambda$$

$$\therefore \alpha_x = \frac{m_x c}{h} \times \lambda$$

$$m_x = \frac{h}{\lambda c} \times \alpha_x$$

$$m_x d_x c = h \times \alpha_x \quad (\because \lambda = d_x) \qquad (31)$$

We have classical space time equation for mass

$$m = 7.9905778 \times 10^{-17} \times d^{1/3}$$

Substitute

$$m = m_x, \quad d = d_x \quad \text{in (31)}$$

$$m_x d_x c = h \times \alpha_x$$

$$7.9905778 \times 10^{-17} \times d_x^{1/3} \times d_x \times 2.99792458 \times 10^8 = h \times \alpha_x$$

$$2.39551 \times 10^{-8} \times d_x^{1/3} \times d_x = 6.6261 \times 10^{-34} \times \alpha_x$$

$$d_x^{4/3} = \frac{6.6261 \times 10^{-34} \times \alpha_x}{2.39551 \times 10^{-8}}$$

$$d_x^{4/3} = 2.766 \times 10^{-26} \times \alpha_x$$

$$d_x^{4} = \left(2.766 \times 10^{-26}\right)^{3} \times \alpha_x^{3}$$

$$d_x^{4} = 2.116991 \times 10^{-77} \times \alpha_x^{3} \qquad (32)$$

Thus (32) is the generalized equation for coupling constant and space time diameter

If we apply to gravity we can rewrite the equation as

$$d_g^{4} = 2.116991 \times 10^{-77} \times \alpha_g^{3} \qquad (33)$$

As per (22) space time radius for gravity space time 'd_g' = 6.727639×10^{-48} mts. Substitute

$$'d_g' = 6.727639 \times 10^{-48} \quad \text{in (33)}$$

$$\left(6.727639 \times 10^{-48}\right)^{4} = 2.116991 \times 10^{-77} \times \alpha_g^{3}$$

$$2048.56957 \times 10^{-192} = 2.116991 \times 10^{-77} \times \alpha_g^{3}$$

$$\alpha_g^{3} = \frac{2048.56957 \times 10^{-192}}{2.116991 \times 10^{-77}}$$

$$\alpha_g^{3} = 967.67987 \times 10^{-115}$$

$$\alpha_g^{3} = 96.767987 \times 10^{-114}$$

$$\alpha_g = 4.591 \times 10^{-38} \qquad (34)$$

Thus as per (34) Coupling constant for gravitational force "α_g" is 4.591×10^{-38} with respect to electromagnetic force.

Application to K-Suryon

We know that the universe is expanding from a diameter equal to plank length to maximum diameter of the universe as per Hubble's law.

So the maximum dia of universe as per Hubble's law *i.e.*

$$d = \frac{c}{H} \qquad (35)$$

We have

$$c = 2.99792458 \times 10^8 \text{ m/sec}$$

$$H = 2.255582386 \times 10^{-18} \text{/sec}$$

$$H = 69.6 \pm 0.7 \text{ km} \cdot \text{s}^{-1} \cdot \text{Mpc}^{-1} \quad [5]$$

the length of one parsec [6] is $3.085677581491 \times 10^{16} \text{ m}$

$$d = \frac{2.99792458 \times 10^8}{2.255582386 \times 10^{-18}}$$

$$d = 1.3291133 \times 10^{26} \text{ m} \tag{36}$$

Suppose a single photon with a wavelength with this maximum dia "*d*" of the universe. It is the least energy photon with maximum wavelength. Its energy as per (18)

$$E = h\nu$$

$$E = \frac{hc}{\lambda}$$

Substitute

$$h = 6.6261 \times 10^{-34}$$

$$c = 2.99792458 \times 10^8 \text{ m/sec}$$

$$\lambda = d = 1.3291133 \times 10^{26} \text{ m}$$

$$E = \frac{6.6261 \times 10^{-34} \times 2.99792458 \times 10^8}{1.3291133 \times 10^{26}}$$

$$E = \frac{19.864548 \times 10^{-26}}{1.3291133 \times 10^{26}}$$

$$E = 14.9457 \times 10^{-52}$$

$$E = 1.49457 \times 10^{-51} \text{ J} \tag{37}$$

We have Equation (19)

$$E = mc^2$$

$$m = \frac{E}{c^2}$$

$$m = \frac{1.49457 \times 10^{-51}}{\left(2.99792458 \times 10^8\right)^2}$$

$$m = \frac{14.9457 \times 10^{-52}}{8.98755 \times 10^{16}}$$

$$m = 1.6629337 \times 10^{-68} \text{ kg} \tag{38}$$

This is mass of "K-Suryon" [7]. The calculation mentioned in the paper [7] will be corrected accordingly. Up to this lower limit of mass, the space time is gravity space time and "*K*" value will be constant whatever may be the variation in mass and distance in (1) so this is the basic building block of mass.

We have Equation (4)

$$cd^2 = Gt_p m$$

$$d = \sqrt{\left(\frac{Gt_p m}{c} \right)} \qquad (39)$$

Substitute values of G, t, c from available data [4] and "m" from Equation (38) in Equation (39)

$$G = 6.67408 \times 10^{-11} \, \text{m}^3 \cdot \text{kg}^{-1} \cdot \text{sec}^{-2}$$

$$t_p = 5.39116 \times 10^{-44} \, \text{sec}$$

$$c = 2.99792458 \times 10^8 \, \text{m/sec}$$

$$m = 1.6629337 \times 10^{-68} \, \text{kg}$$

$$d = \sqrt{\left(\frac{6.67408 \times 10^{-11} \times 5.39116 \times 10^{-44} \times 1.6629337 \times 10^{-68}}{2.99792458 \times 10^8} \right)}$$

$$d = \sqrt{\left(\frac{59.83407 \times 10^{-123}}{2.99792458 \times 10^8} \right)}$$

$$d = \sqrt{\left(\frac{5.983407 \times 10^{-122}}{2.99792458 \times 10^8} \right)}$$

$$d = \sqrt{\left(1.9958497 \times 10^{-130} \right)}$$

$$d = 1.41274546 \times 10^{-65} \, \text{m} \qquad (40)$$

If $m = 1.6629337 \times 10^{-68} \, \text{kg}$ the space time dia $d = 1.41274546 \times 10^{-65} \, \text{m}$.

It shows that as per (1), "K" will change if "G" and "t_p" are constants.

So the mass created is some other space time other than gravity so that its "K" value will be different.

Let us find the space time diameter for mass of the universe with the use of Equation (39)

As per (39) $d = \sqrt{\left(\frac{Gt_p m}{c} \right)}$

Substitute values of G, c, t_p as per [4] and "m" as per [8]

$$G = 6.67408 \times 10^{-11} \, \text{m}^3 \cdot \text{kg}^{-1} \cdot \text{sec}^{-2}$$

$$t_p = 5.39116 \times 10^{-44} \, \text{sec}$$

$$c = 2.99792458 \times 10^8 \, \text{m/sec}$$

$$m = 1.7898298 \times 10^{53} \, \text{kg}$$

$$d = \sqrt{\left(\frac{Gt_p m}{c} \right)}$$

$$d = \sqrt{\left(\frac{6.67408 \times 10^{-11} \times 5.39116 \times 10^{-44} \times 1.7898298 \times 10^{53}}{2.99792458 \times 10^8} \right)}$$

$$d = \sqrt{\left(\frac{64.3999 \times 10^{-2}}{2.99792458 \times 10^{8}} \right)}$$

$$d = \sqrt{21.481494 \times 10^{-10}}$$

$$d = 4.634813 \times 10^{-5} \, \text{mts} \tag{41}$$

At this stage as per (2)

$$cd = K$$

Substitute (41) in (2)

$$c = 2.99792458 \times 10^{8} \, \text{m/sec}$$

$$d = 4.634813 \times 10^{-5} \, \text{mts}$$

$$K = cd$$

$$K = 2.99792458 \times 10^{8} \times 4.634813 \times 10^{-5}$$

$$K = 1.38948 \times 10^{4} \, \text{sqmt/sec} \tag{42}$$

This space time dia "d" and "K" will be different for the mass of universe.

This can be resolved by keeping velocity of light is constant for all space times.

Then for a particular space time with a specific value of "K" will have a value of "G" and will vary with "K".

(1) Can be written as

$$K = G \left(\frac{m}{d/t_p} \right)$$

It indicates that any change in "K" will change $\left(\dfrac{m}{d/t_p} \right)$ ratio. And "G" is

constant. "d" is space time diameter associated to mass "m". Thus space time density for any mass will change and plank time of that particular space time will also change to keep "G" and "K" constants with mass. For this universe, gravity space time is applicable and mass is mass of the universe. "G" and "K" are constants [8].

4. Siva's Constant "K" as New Parameter in Plank Scale

4.1. Concept

Every fundamental force will have a separate space time density and plank scale. Its space time will also follow expansion. So there will be a change in diameter. So the same plank diameter will be enlarged and the mass will be increased as explained in the case of expanding universe of our four dimensional space time. Let us say it as a gravitational space time. It follows Siva's new gravity equation [3]. As per Siva's new gravity equation, the mass and diameter ratio is constant so as to maintain Siva's constant "K" as constant through the expansion. Here "G" and "t_p" are constants.

Now, if the wave length of least photon exceeds the diameter of maximum limit of expansion for particular space time related to a fundamental force, then

it will change to space time of another fundamental force. In case of gravitational space time, after this critical limit of expansion, the space time will be converted from "gravitational" to space time of week interaction. The charge is the basic building block of this interaction. In this, the energy will be converted to charge similar to the case of mass in gravity space time. We can calculate its space time diameter by Equation (4). This space time diameter is the plank length for the energy whose wavelength exceeds the gravitational space time. The equivalent energy of new particle created by this new space time can be calculated in the similar way as calculated for mass "m" and space time dia "d". So for that plank length we can find out "K" but the t_p will also change in it. So in order to nullify changes in t_p and l_p we have to consider "c" as constant. Thus the Equation (1) can be written as

$$K = Gt_p \left(\frac{m}{l_p} \right)$$

$$\frac{l_p}{t_p} = c$$

$$K = \frac{Gm}{c} \quad \left(\because \frac{l_p}{t_p} = c \right) \tag{43}$$

If "K" and "c" are constants, "G" will be changed with "m". So for every particle created by space time of fundamental force, a separate K, G, l_p, t_p and "m_p" will exist. All these can be transformed from one to another.

Thus all the fundamental forces can be represented by separate space times.

So, minimum and maximum dia will exist for space time due to the expanding property of space time. As per the position of that particle in its space time the particle will contain energy or mass. Here mass represents the ultimate inertial nature of that particle (full particle nature with zero wave nature). The same is also applicable to charge. Thus all the fundamental forces will have its own space time and particle with nature similar to mass and charge of concerned fundamental forces.

4.2. Space Time Parameters by Coupling Constants

If we know coupling constant "α_x" of any fundamental force, we can calculate the parameters of its space time.

The relation between coupling constant and space time diameter "d_x" as per (33)

$$d_x^4 = 2.116991 \times 10^{-77} \times \alpha_x^3$$

If we substitute the space time diameter in (4), (2), (35) and (43)

$$cd^2 = Gt_p m$$

$$cd = K$$

$$c = Hd$$

$$G = \frac{Kc}{m}$$

We can find out the parameters such as *K*, *G* and *H*.

4.3. Incorporating Siva's Constant in Plank Scale

We have (4)

$$cd^2 = Gt_p m$$

$$d = \text{plank length '} l_p \text{'}$$

$$m = \text{plank mass '} m_p \text{'}$$

$$c^2 l_p = G m_p \quad (\because \frac{l_p}{t_p} = c)$$

$$c^2 l_p = G m_p$$

$$l_p = \frac{G m_p}{c^2}$$

$$\therefore c^2 t_p = K \quad (\because K = G t_p \left(\frac{m}{l_p} \right) \text{ as per (1)}$$

And $l_p = \frac{K}{c}$

And $t_p = \frac{K}{c^2}$

$$m_p = \frac{Kc}{G} \quad \because K = G t_p \left(\frac{m}{l_p} \right)$$

We have $m_p = \sqrt{\left(\frac{hc}{G} \right)}$

$$\sqrt{\left(\frac{hc}{G} \right)} = \frac{Kc}{G}$$

$$\therefore K = \sqrt{\frac{hG}{c}} \tag{44}$$

If $c = h = G = K = 1$

$$l_p = 1$$

$$t_p = 1$$

$$m_p = 1$$

For $l_p = 1.616229 \times 10^{-35}$

$$K = \sqrt{\frac{hG}{c}} = c \times 1.616229 \times 10^{-35}$$

$$hG = c^3 \times 2.612196 \times 10^{-70}$$

$$G = \frac{c^3}{h} \times 2.612196 \times 10^{-70} \tag{45}$$

$$G = \frac{c^3 \times 2.612196 \times 10^{-70}}{6.6261 \times 10^{-34}}$$

$$G = 10.6220877 \times 10^{-12}$$

$$G = 1.06220877 \times 10^{-11} \, \text{m}^3 \cdot \text{kg}^{-1} \cdot \text{sec}^{-2} \tag{46}$$

If we use the reduced plank constant $\hbar = 1.0545718 \times 10^{-34} \, \text{J} \cdot \text{s}$ [4] instead of $h = 6.6261 \times 10^{-34} \, \text{J} \cdot \text{s}$ in (45) we will get the value of $G = 6.6740847 \times 10^{-11} \, \text{m}^3 \cdot \text{kg}^{-1} \cdot \text{sec}^{-2}$. This is the exact experimental value of "G" [4] and shows that the introduction of "reduced plank constant" in plank range is mandatory in quantum physics.

5. Conclusions

1) A solution to the Siva's new gravity equation $K = Gt_p\left(\dfrac{m}{d}\right)$ and equation for Siva's contraction force of space time *i.e.* $cd = K$ has been concluded as $cd^2 = Gt_p m$. This is the basic equation to describe plank scale parameters of any space time with a specific plank hole parameter.

2) All the fundamental forces contain separate space times and will have separate plank scale. Their fundamental particles are made up of their own space times with diameter "d_x" and energy equal to "mc^2" in some other form like charge or mass. Coupling constant is the ratio of that force equivalent to its energy and photon. It is comparable at plank scale only.

3) Siva's constant "K" has to be included as a new parameter in describing the nature of space time. All fundamental forces and their particles are made up of their own space times. They will be observed as different forces in our four dimensional universe.

Thus only one universe with different forces and particles will exist. This transformation of space times is possible by the new additional parameter "K" such that $c = h = G = K = 1$.

4) As per the density parameters of space time, the force can be calculated for a particular particle made up of its own space time.

5) If "F_x" is force of the particle "E_x" is Energy and "d_x" is space time diameter of that force, they are related by equation $F_x = \dfrac{E_x}{d_x}$. The coupling constant α_x for any fundamental force can be calculated as $\alpha_x = \dfrac{F_x}{F_p}$. Physically coupling constant is the ratio of force of any fundamental force and force of electromagnetic force when the space time is in the form of energy only.

6) A generalized equation for space time diameter and coupling constant for a fundamental force has been derived. The equation showing the relation between space time diameter "d_x" and the coupling constant for the force concerned to that space time "α_x" is $d_x^4 = 2.116991 \times 10^{-77} \times \alpha_x^3$.

7) Application of above concluded concepts and equations explained the most basic building block of mass or charge is K-Suryon.

8) Finally concluded the importance of Siva's constant "K" as a space time parameter of a fundamental force and "K" included in the other parameters of plank scale such as c, h, m_p, l_p and t_p. The equation showing the relation between h, c, K and G is $K = \sqrt{\dfrac{hG}{c}}$. Finally a the relation If $c = h = G = 1$ is explained as $c = h = G = K = 1$.

9) Final calculations with plank scale showed that the introduction of "Reduced Plank constant" $\hbar$ is mandatory in place of plank constant "h" for all calculations with in plank length.

10) Ultimately, this paper is a ground work to discuss lot of issues such as "inclusion of Bio-force as fifth fundamental force and its unification with gravity, weak force, strong force and electromagnetic forces" [9], "Can we consider consciousness a form of matter and hows can it be distinguished from other forms of energy?" [10] "Are there any other approaches to decoding quantum information?"

References

[1] Kodukula, S.P. (2013) *International Journal of Advancements in Research & Technology*, **2**, 4. http://www.IJoART.org

[2] Kodukula, S.P. (2017) *International Journal of Physics,* **5**, 99-109. http://pubs.sciepub.com/ijp/5/4/1

[3] Kodukula, S.P. (2017) *International Journal of Theoretical and Mathematical Physics*, **7**, 155-158. http://article.sapub.org/10.5923.j.ijtmp.20170706.01.html

[4] Mohr, P.J., Newell, D.B. and Taylor, B.N. (2015) CODATA Recommended Values of the Fundamental Physical Constants. https://arxiv.org/abs/1507.07956

[5] Bennett, C.L., Larson, D., Weiland, J.L. and Hinshaw, G. (2014) *The Astrophysical Journal*, **794**, 135 (8pp). http://iopscience.iop.org/article/10.1088/0004-637X/794/2/135/pdf

[6] Prša, A., Harmanec, P., Torres, G., Mamajek, E., Asplund, M., Capitaine, N., *et al.* (2016) Nominal Values for Selected Solar and Planetary Quantities: IAU 2015 Resolution B3. arXiv:1605.09788v1 [astro-ph.SR]. https://arxiv.org/pdf/1605.09788.pdf

[7] Kodukula, S.P. (2014) *International Journal of Physics*, **2**, 12-14. http://pubs.sciepub.com/ijp/2/1/3

[8] Kodukula, S.P. (2017) *International Journal of Astronomy*, **6**, 17-19, http://journal.sapub.org/astronomy

[9] Kodukula, S.P. (2016) *International Journal of High Energy Physics*, **3**, 18-24. http://www.sciencepublishinggroup.com/j/ijhep https://doi.org/10.11648/j.ijhep.20160303.11

[10] Tegmark, M. (2015) Consciousness as a State of Matter. arXiv:1401.1219v3 [quant-ph] 18 Mar 2015. https://arxiv.org/pdf/1401.1219.pdf