

Theory of Universality

Kasibhatla Surya Narayana ¹

(SME – Physics, BYJU'S, IBC Knowledge Park, Bannerghatta Main Road, Bangalore-560029, India)
Corresponding Author: Kasibhatla Surya Narayana

Abstract: This theory is an attempt to describe the universal phenomena like space, time, matter and energy as an inter-relationship bound by a newly discovered force named as the universal force. The universal force is shown to be the force of gravitation, electricity, magnetism, strong nuclear and weak nuclear forces. I believe any other force, hitherto fore not discovered; also, can be explained in terms of this universal force.

Liberal use of wave-particle duality, relativity, quantum concepts is made to achieve a harmonious and comprehensive synthesis of all the existing beliefs in physics into a new theory with some new concepts added here and there. While adding new concepts, enormous care has been taken to ensure that the existing beliefs are not contradicted. Moreover, the new concepts are proved to be correct theoretically by deriving the constants like G , σ , etc.,

Keywords: space, time, matter, energy, universal force

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I. Introduction

Universe & Universality

From time immemorial, the struggle to understand the phenomena surrounding us, has been our chief occupation, second only to the struggle to survive. After successfully surviving the predators and harmful wild creatures, we have started building secure measures for food, cloth and shelter. Nevertheless, the natural calamities like floods, fire, earthquakes, and disease continue to wreak havoc with all the life and human life in particular. Death and disease could not be overcome fully by all the scientific measures invented so far.

We have started exploring our immediate environment in an attempt to understand the natural phenomena surrounding us. This attempt to understand is only to build safety and survival from the onslaught of the Nature's fury and to harness Nature's forces to the benefit of humankind. In the process, various gods and goddesses are proposed to be the cause of various phenomena. Sometimes, sacrifices are offered to gain the favor of the deities and worship also is done to please the gods and goddesses. For example, many rituals are done to get timely rain and to reap a good harvest. Worship is done for timely sunrise also. Slowly, we have realized the Sun and the Moon follow a regular pattern of rise and set whether a worship is done or not, and whether a sacrifice is made or not. We also, came to know that the celestial bodies behave in a regular pattern. Hence, the proposal came that the Earth was the centre of the world and the celestial bodies went around the Earth according to this pattern. Later investigations revealed that the Earth and the planets are spherical bodies which went around the Sun. Further, it was revealed by Newton's gravity and confirmed by Einstein's' relativity that gravity is indeed the major force acting among the celestial objects including our solar system.

Moreover, we have generalized the natural phenomena in the form of laws; because, they seem to follow the same behavior wherever and whenever we observe. Based on this observation, certain theories are proposed as the explanation for the behavior of the phenomena on the Earth and with regard to the celestial objects. A theory is a set of assumptions and rules, which describes the way the celestial bodies behave including the Earth on which we live. If the predictions made by the theory are observed in practice and also, if the theory can answer all the related questions, then, that theory is deemed as valid and used for further understanding of the universe.

As time progresses, better and more refined theories of the universal behavior are put forth for accurate, complete and comprehensive understanding of the universe we live in. Our ultimate goal is a total understanding of the universe. With the help of such understanding we can protect our life along with Solar System and Milky Way Galaxy against a possible, natural, cosmic calamity. So far, our assumption about the universe is that the laws which are valid on the Earth and the Solar System are also universally valid. This universality of the laws is at the basic core of the 'Theory of Universality' developed by the author. .

This theory is an attempt to describe the universal phenomena, the inter-relationships among the four fundamental quantities space, time, matter and energy with a precise and accurate mathematical quantification

of the relationships. In the process, a force, named as universal force pervading the universe; and, which in turn manifests as every other force locally or universally present is also described. That is to say there is only one force, the universal force. Every/any other force is a manifestation of universal force.

Liberal use of Einstein’s relativity, deBroglie’s wave particle duality, Planck’s quantum radiation is used to synthesize all the existing beliefs into a harmonious and comprehensive “**Theory of Universality**”.

II. Postulates

1. Space is the medium using which light travels.
2. Speed of light is the critical attainable speed in our universe.
3. The universe when the projection of time (4th dimension) is taken on a three dimensional medium, is like the two-dimensional sheet (shadow) model of a three - dimensional object in 2-dimensions.
4. Nothing in the universe can be fully destroyed.
5. Space, Time, Matter and Energy are inter-related. They exist together in anywhere and everywhere in the universe. None of the four fundamental quantities like space, time, matter and energy is uniquely existent in the universe.
6. There exists a very powerful force to be named as the universal force, because of which other forces like gravitation, electromagnetism, strong and weak nuclear forces manifest.
7. The universal force condenses space into matter.
8. Every physical law has some inertia of existence which is quantifiable in space-time-matter-energy frame of the universe.
9. Any physical law can be created and preserved with a certain inertia in space-time-matter-energy frame.
10. The truth of the universe keeps changing depending on where, how and at what time the observation for a certain truth is made with an inclination to reach experimental proof of theoretical conjectures.

In all, there are ten vital formulae; six of them describe the relationship among space, time, matter and energy; four of them describe the relationship between universal force and space, time, matter and energy.

III. Indentations And Equations

Assume that there is a particle of mass m , Compton wave length ℓ ; let, the energy stored in it be E . Assume, the universal force utilized in creating the particle is F . Here, let me assert that the universal force which created the particle also bestows on it a time of ‘ t ’, t is the time of inertia of existence the particle will have during which its changes become nil. Any change anywhere in the universe manifests as time. The time inertia (also called laziness of the particle) between two successive changes is ‘ t ’. Then the 10 (ten) formulae giving the relationship among space, time, matter and energy and F are as follows:

- 1 $E = mc^2$ Einstein’s mass-energy equivalence
2. $\ell = h/mc$ space-mass equivalence
3. $t = h / mc^2$ mass-time equivalence
4. $E = hc / \ell$ Energy-space equivalence
5. $E = h / t$ Energy-time equivalence
6. $\ell = c t$ space-time equivalence
7. $F = hc / \ell^2$ Force-space equivalence
8. $F = h / c t^2$ Force-time equivalence
9. $F = E^2 / c h$ Force-energy equivalence
10. $F = m^2 c^3 / h$ Force-mass equivalence

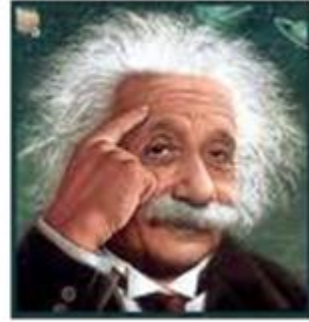
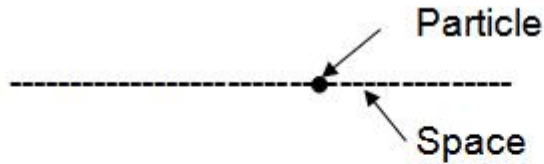
Where h = Planck’s constant ; c = speed of light

Derivation of the equations:

1. $E = m c^2$ is the popularly already- known equation of energy-mass equivalence of Einstein’s

2 . $\ell = h / m c$

Einstein



Space, is like a sheet in the 4th dimension of time, That is, assuming we have entered the 4th dimension of time, and, we are able to perceive past, present, and future as one; then, the 3 dimensional space, would look like 2-dimensional shadow in the time frame. The universal force F condenses space into matter. Suppose the energy spent / created in creating a particle of mass m is E. Suppose, the Compton wave length of the particle is ℓ , with a time inertia (also called laziness of the particle) of t. The mass - space vibration within the particle moves at a speed c, speed of light, to achieve simultaneity every where. Then, by wave - particle duality (of Louis d' Broglie):

$$\begin{aligned} \ell &= h / m c \text{ - this is true in case of proton.} \\ m &= \text{rest mass of neutron or proton} = 1.674 \times 10^{-27} \\ h &= \text{Planck's constant} = 6.626 \times 10^{-34} \\ \ell &= \text{proton Compton wavelength works out to be } 1.319 \times 10^{-15} \end{aligned}$$

by above equation of $\ell = h / m c$; which agrees with the experimental value of 1.321441×10^{-15} --- proved ! (all in MKS units). Similarly, in the case of an electron; $\ell = h / m c$.

$$m = 9.109 \times 10^{-31} \quad c = 3 \times 10^8 \quad h = 6.626 \times 10^{-34}$$

ℓ works out to be 2.424×10^{-12} which is Compton wavelength of an electron which agrees with experimental result of $2.4263107 \times 10^{-12}$ – proved !

So, the equation $\ell = h / m c$; where ℓ is Compton wavelength; m is the rest mass is true in the case of proton / electron.

$$3. \quad t = h / m c^2$$

By Planck's principle of Quantum radiation of energy; this very particle behaves like an energy packet of wavelength ℓ (ℓ is the Compton wave length) and time t.

$$E = m c^2 = h v = h / t \quad \rightarrow \quad t = h / m c^2$$

This implies that for an electron $m = 9.109 \times 10^{-31}$ kg;

$t = 8.081 \times 10^{-21}$ (all in MKS units everywhere) is the laziness or time inertia. This means that between two successive changes to an electron; there must necessarily be a period of 8.081×10^{-21} seconds. After which period only, a change can be enforced on an electron. So, it is impossible to change an electron in position or pace or state faster than this. If so, it will no longer be electron.

4. $E = h c / \ell$. We already know that $E = h v$ (Planck's theory). But, $v = c / \ell$, v is the frequency of the energy packet contained in the particle. $\rightarrow E = h c / \ell$

5. $E = h / t$. This is simple; because, $E = h v$; and $v = 1 / t \rightarrow E = h / t$.

Note: it is assumed that a particle of time inertia t., will also behave like a wave of cycle time 't', when converted into energy E. therefore, $E = h / t$.

6. $\ell = c t$. Now, the particle has mass 'm' in all directions of observation, and points of observation within the particle. This is possible only when the mass-space vibration within the particle moves at the speed of light (to ensure simultaneity) of wavelength ℓ (Compton wave length).

$$\ell / t = c \quad \rightarrow \quad \ell = c t$$

7. $F = h c / \ell^2$ – when universal force F; acts on the particle to create a particle of Compton wave length ℓ ; the energy spent / created is;

$$F. \quad \ell = h v = h c / \ell \rightarrow F = h c / \ell^2$$

A force of universal force = 3.395×10^{-2} Newtons is spent in creating the particle electron.

8. $F = h / c t^2$. It is assumed that the time inertia of a particle is the same as its cycle time when converted into energy-wave. This means $\ell = c t$; applied to the equation - 7 gives:

$$F = h c / \ell^2 = h c / c^2 t^2 = h / c t^2 . \rightarrow F = h / c t^2$$

9. $F = E^2 / c h$. Energy spent in creating a particle of Compton wave length ℓ , from the basics of physics is $E = F \cdot \ell$. Therefore, $F = E^2 / c h$

10. $F = m^2 c^3 / h$. from equation -9, we have $F = E^2 / c h$. We know that, $E = m c^2$. therefore, $F = m^2 c^3 / h$.
IV. PROOF

Proof that my theory is correct and valid follows. I will theoretically derive the value of 'G' (gravitational constant) and show that this coincides with experimental value.

Consider the gravitational constant as G, and take the gravitational force between the Sun and Earth as F. We know that

$$F = \frac{G M_1 M_2}{R^2}$$

. where $M_1 =$ mass of Sun
 $M_2 =$ mass of Earth
 $R =$ mean distance between the Earth and the Sun

But, according to my theory of universality, the universal force exerts a force of $m^2 c^3 / h$ for the particle. In the case of Sun, this universal force of the various atoms is compensated by various layers of the particles within the Sun; except the upper - most layer. In the case of upper-most layer, half of the tension created by the universal force on space appears as gravitation towards the outer space away from the Sun, the other half is turned inwards..... and is duly compensated within. No. of atoms (mostly Hydrogen) on the outermost layer of Sun is

$$\frac{4 \pi R_1^2}{4 \pi r_1^2} : \text{ where } R_1 \text{ is the outermost layer's radius on Sun}$$

and r_1 is the mean free path of the Hydrogen atom on the Sun's surface. The factor $4 \pi r_1^2$ is taken because hydrogen moves in 3 dimensions.

The comprehensive force released by this on the outer space away from the Sun is :

$$\frac{4 \pi R_1^2}{4 \pi r_1^2} \cdot \frac{m^2 c^3}{h} \cdot \frac{1}{2} : \text{ the factor } \frac{1}{2} \text{ appears because the other half is turned within. Therefore, the gravitational force exerted by the Sun is :}$$

$$\frac{1}{2} \cdot \frac{4 \pi R_1^2}{4 \pi r_1^2} \cdot \frac{m^2 c^3}{h}$$

The force experienced by the Earth due to the force emanating from the Sun is

$$\frac{4 \pi R_2^2}{4 \pi R^2}$$

fraction of the total force $\Rightarrow F = G \frac{M_1 M_2}{R^2} = \frac{1}{2} \cdot \frac{4 \pi R_1^2}{4 \pi r_1^2} \cdot \frac{m^2 c^3}{h} \cdot \frac{4 \pi R_2^2}{4 \pi R^2}$

Where R_2 is the radius of the Earth; R is mean distance between the Sun and the Earth . The fraction only is experienced because that is the area covered by the Earth. If the total area of $4\pi R^2$ from the sphere encompassing the Earth is considered. Again , half of this is not considered because, this is fully experienced by the Earth and therefore, this is the gravitational force exerted by the Sun and experienced by the Earth from the Sun. (Actually, volume and density should be taken. As an approximation area is taken)

Note: all values are taken in MKS units everywhere.

$$\Rightarrow G = \frac{R^2}{M_1 M_2} \cdot \frac{1}{2} \cdot \frac{4\pi R_2^2}{4\pi R^2} \cdot \frac{m^2 c^3}{h} \cdot \frac{4\pi R_1^2}{4\pi r_1^2} \text{-----} \textcircled{A}$$

r_1 = mean free path of the Hydrogen atom on the Sun's surface @ nearly 6000° K. Mean free path of air @ 288° K = 6.6317×10^{-8} . So, for Hydrogen atom approximately at temperature of 6000 ° K.

$$r_1 = 6.6317 \times 10^{-8} \times \frac{6000}{288} \times \frac{28.986}{1} = 4.14481 \times 10^{-5} \text{ metres}$$

(Actually, the mean free-path of air = 6.2205×10^{-8} m. And 28.986 is the average air weight : 1 is Hydrogen atomic weight on Sun's surface @ 6000° K. Hydrogen in that environment is in atomic state and not in molecular state. It is assumed that mean free path is directly proportional to the temperature and inversely proportional to the atomic weight) . So, r_1 is actually = 3.88781×10^{-5} m.

In the derivation of the gravitational constant G , the factor 1 was taken for the universal force on the outer space atoms of Hydrogen on SUN ; because, this factor 1= atomic weight of Hydrogen atom for proton was taken in the derivation of the mean free path for Hydrogen atom on the sun's surface (atmosphere) @ 6000 ° K, because the Hydrogen is in atomic state and not in molecular state.

r_1 = mean free path of Hydrogen on sun's Surface = 3.88781×10^{-5} m.

R_2 = Radius of Earth = 6.371×10^6

R_1 = Radius of Sun = 6.960×10^8

m = mass of the proton = 1.674×10^{-27}

c = Speed of light = 3×10^8

h = Planck's constant = 6.626×10^{-34}

M_1 = Mass of Sun = 1.99×10^{30}

M_2 = Mass of Earth = 5.977×10^{24}

Substituting the above values for r_1 , R_2 , R_1 , m , c , h , M_1 , M_2 in

equation – \textcircled{A} above;

we get $G = 6.6728 \times 10^{-11}$

which agrees with the experimental value of 6.673×10^{-11} .

The slight discrepancy can be due to the various assumptions and approximations and the too simple an approach taken for evaluating the mean free path of Hydrogen atom on the Sun's surface.

Hence , my theory is proved to be right !

Derivation of Stephen's constant : (MKS Units)

To prove my theory is right and valid once again :

Consider the total force emanating from the sun is

$$F = \frac{1}{2} \cdot \frac{R_1^2}{r_1^2} \cdot \frac{m^2 c^3}{h}$$

according to my theory.

Where $r_1 = 3.88781 \times 10^{-5}$ m. is the mean free path of Hydrogen on Sun's atmosphere.

But , according to my force – energy equivalence ,

$$F = E^2 / ch \Rightarrow E = \sqrt{Fch} \Rightarrow E = \sqrt{\frac{1}{2} \frac{R_1^2}{r_1^2} \frac{m^2 c^3}{h} ch} = \frac{1}{\sqrt{2}} \cdot \frac{R_1}{r_1} mc^2$$

: because of this energy outpouring away from the Sun ; the maximum power emanating from the Sun is E / t_p where t_p is the time inertia (or laziness of proton). t_p is the minimum time required for releasing energy by Sun's outermost Hydrogen surface. Therefore, maximum power released by the sun is ,

$$P = E / t_p = \frac{1}{\sqrt{2}} \cdot \frac{R_1}{r_1} \cdot \frac{mc^2}{t_p}$$

where $t_p = h / m c^2$ according to my theory.

$$\text{Hence } P = \frac{1}{\sqrt{2}} \cdot \frac{R_1}{r_1} \cdot \frac{m^2 c^4}{h} \quad \text{--- (B)}$$

But, according to Stefan-Boltzmann law of radiation : the total energy , E , of all wave lengths radiated per second per square meter by a full radiator at temperature T to surroundings at temperature T_0 is given by $E = \sigma (T^4 - T_0^4)$, where σ is Stefan's constant. The maximum power released by Sun (considered as full radiator) at any time is $\sigma (T^4 - T_0^4) \times 4 \pi R_1^2$ ----- C

where $4 \pi R_1^2$ is the total surface area of Sun.

Now , $T_0 = 0^0$ K (approximately)

$$\text{Therefore, from (B) \& (C) } \sigma = \frac{1}{4 \pi T^4} \cdot \frac{1}{\sqrt{2}} \cdot \frac{1}{r_1 R_1} \frac{m^2 c^4}{h}$$

Substituting values for T, R_1, r_1, m, c, h ; we get

$$\sigma = 5.6653 \times 10^{-8} ; \text{ which agrees with the experimental value of } \\ \sigma = 5.66969 \times 10^{-8} , \text{ hence, my theory is RIGHT.}$$

The slight discrepancy can be due to the approximations made in T, T_0, r_1

Values used are :

- T = Surface temperature of Sun = 6000^0 K
- T_0 = Temperature of surroundings (approximately) 0^0 K
- m = mass of proton/ neutron (rest mass) = 1.674×10^{-27} kg
- c = speed of light = 3×10^8 R₁ = radius of sun = 6.960×10^8
- r_1 = mean free path of Hydrogen on sun's surface = 3.88781×10^{-5} m.
- h = Planck's constant = 6.626×10^{-34}

Further Proof :

Here, follows further proof that my theory is right and valid . I will now theoretically derive the values of ϵ_0, μ_0, e and show that they coincide with the experimental results.

- ϵ_0 = free space permittivity
- μ_0 = free space permeability
- e = elementary charge of electron/proton

First, derivation of ϵ_0

One more postulate in my theory:

Charge e , is same as mass m_e of electron on its classical radius r_e . Electron's Compton wavelength is the wavelength it behaves (is observed) as a wave ℓ_e . Electron behaves like a mass of m_e (rest mass), wavelength (ℓ_e) of Compton wavelength, laziness $t_e = h / m_e c^2$ and an energy packet of $m_e c^2$, and a charge e all at the same time and also like a particle. That is e , m_e , r_e , ℓ_e , E_e are all synonymous at the same time. What you get is what you are observing for. Energy due to electronic charge =

$$= \frac{e^2}{4 \pi \epsilon_0 \epsilon_r r_e} = m_e c^2 \text{ (mass - energy)}$$

$$\rightarrow \epsilon_0 = \frac{1}{4 \pi} \frac{e^2}{r_e} \cdot \frac{1}{m_e c^2} = \frac{1}{4 \pi} \cdot \frac{(1.602 \times 10^{-19})^2}{2.817 \times 10^{-15}} \cdot \frac{1}{9.109 \times 10^{-31}} \cdot \frac{1}{9 \times 10^{16}}$$

$\epsilon_0 = 8.842 \times 10^{-12} \text{ Fm}^{-1}$ which agrees with experimental value of $8.854 \times 10^{-12} \text{ Fm}^{-1}$ **PROVED !**

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Which again proves that the assumption in the postulate is true and valid. Now, to derive the value of μ_0 (free space permeability):

We know; by using Ampere's law; the force of electron and proton as elements of current is $(\mu_0 e^2 c^2) / 4 \pi r^2$; where r is the Hydrogen covalent radius; which means the mean distance between proton and electron (i.e., 28pm).

According to my theory of universality, the force (universal force)

due to a particle of mass m is $\frac{m^2 c^3}{h}$

the force due to proton in Hydrogen is $(m)^2 c^3 / h$ from the nucleus ; the force experienced by electron in the orbit would be

$$\frac{m^2 c^3}{h} \cdot (4/3 \pi r_e^3) / (4/3 \pi r^3)$$

Where r_e is the classical radius of electron and r is the covalent radius of Hydrogen. Therefore,

$$\frac{\mu_0 e^2 c^2}{4 \pi r^2} = \frac{m^2 c^3}{h} \frac{r_e^3}{r^3}$$

Substituting , the values for all except μ_0 ; we get,

$$\mu_0 = 1.0637748 \times 4 \pi \times 10^{-7} \text{ MKS units.}$$

Which agrees with the experimental value of $4 \pi \times 10^{-7}$ for μ_0

And μ_r is approximately 1 (one) for Hydrogen. Hence, my theory is once again proved to be right and valid.

Note: the universal force due to electron is considered negligible. Hydrogen in ICAO atmosphere is considered, because only then μ_r is 1. Value of e : Once again, consider the electronic charge – energy ;

and equate it to mass-energy $m_e c^2 = e^2 / (4 \pi \epsilon_0 r_e)$

According to my theory charge and mass are same at the same time

Substitute $\epsilon_0 = 8.854 \times 10^{-12}$ in MKS units and we get $e = 1.603 \times 10^{-19}$

Which agrees with experimental result of 1.602192×10^{-19} . I have derived $G, \sigma, \epsilon_0, \mu_0$, using my theory and they have all agreed with experimental results. Hence, my theory is right and valid including the postulates made therein. In the derivation of μ_0 Electron's classical radius and volume is considered ; because electron is taken as one continuous and cohesive particle ; in which case, area is not applicable.

Discoveries : (PREDICTION – 1) :

1. I have made a discovery that the Earth is exerting a force on the sun which is nearly 20,000 billion times (2×10^{13}) the force which the Sun is exerting on the Earth. The force exerted by Sun on the Earth is manifesting mostly as gravitation. PROOF is given in Annexure-VIII.
Force emanating from Sun and exerted on the Earth

Force emanating from Sun and exerted on the Earth

$$F_1 = \frac{R_1^2}{r_1^2} \cdot \frac{m_1^2 c^3}{h} \cdot \frac{R_2^2}{R^2} \cdot \frac{1}{2}$$

Similarly emanating from Earth and exerted on the Sun

$$F_2 = \frac{R_2^2}{r_2^2} \cdot \frac{m_2^2 c^3}{h} \cdot \frac{R_1^2}{R^2} \cdot \frac{1}{2}$$

(according to my theory). $\frac{F_2}{F_1} = \frac{m_2^2 r_1^2}{m_1^2 r_2^2}$ ----- (1)

m_1 = elementary particle mass of Hydrogen on Sun's surface.
= 1.674×10^{-27}

r_1 = mean- free path of Hydrogen on sun's surface = 3.88781×10^{-5} m.

Regarding the Earth's surface sans the atmosphere,

Nearly 75% is water ; 25% is sand which is mostly silicon

Silicon density = 2300 ; water density = 1000

Average surface density = 1325

Silicon molecular weight= 28.09

Water molecular weight = 18.02

Average surface molecular radius r_2 is given by

$$r_2^3 = \frac{(0.75 \times 18.02 + 28.09 \times 0.25) \times 1.674 \times 10^{-27}}{1325} \times \frac{3}{4\pi}$$

$$r_2 = 1.83 \times 10^{-10} \text{ (Approximate)}$$

$$m_2 / m_1 = 0.25 \times 28.09 + 0.75 \times 18.02 = 20.5375$$

$$F_2 / F_1 = 2163.7258 \times 10^{10}$$

Substituting m_1, r_1, m_2, r_2 in equation ① above; we get

$$F_2 / F_1 = 2163.7258 \times 10^{10}$$

which is nearly 20,000 billion times ; or 2×10^{13} times

$F_2 / F_1 = 1903.7198 \times 10^{10}$, if we substitute $r_1 = 3.88781 \times 10^{-5}$ m.

The Earth exerts a force which is nearly 20,000 billion times (the gravitational force of sun on the Earth) on the sun. The sun is fusing with Hydrogen as the fuel. The enormous force (nearly 20,000 billion times the sun's gravity on earth), which the Earth is exerting on the Sun helps Hydrogen to fuse and helps sun to remain a shining star. The planets may be dragging Sun in the Galaxy.

2 . Planets are drifting away from the sun . (REFER ANNEXURE – II)

The energy released by sun causes space of equivalent amount to be released at the same time. Because of this release of space , all planets are drifting away from the sun as given below.

$$E = \frac{hc}{\ell} \Rightarrow \ell = \frac{hc}{E} = \frac{hc}{\sqrt{Fch}} \quad ; \text{ and } v \text{ is the speed of drift of the space}$$

$$\left[t_p = \frac{h}{mc^2} \right] \Rightarrow v = \frac{mc^3}{\sqrt{Fch}} = \frac{mc^3}{\frac{1}{\sqrt{2}} \frac{R_1}{r_1} mc^2} = \sqrt{2} \cdot \frac{r_1}{R_1} c \Rightarrow \boxed{v = \sqrt{2} \frac{r_1}{R_1} c}$$

Where r_1 , is the mean free path of Hydrogen atom on the surface of the sun and R_1 is the radius of the sun . This is approximately 2.4382×10^{-5} m/sec .

Which is approximately 768 m / year. $v = 768$ m/year. This is the rate of Compton wave length of space released radially at the solar– corona,(solar–corona is considered; because inside this Solar Corona, the atmosphere interferes with space released).An accurate derivation is given in Annexure – II

IV. Conclusions

1. The discrepancy in evaluating G & σ as compared to the experimental result is negligible.
2. It is possible to create any physical law and give it a certain amount of inertia in space – time – matter - energy frame.
3. It is possible to create planets , stars , satellites to the planets and it is equally possible to change and control the movement or momentum of any celestial body in the universe.
4. Reflection of light in a mirror is due to the nuclei gravity of the mirror. Incidentally, every neutron behaves like a black hole. The neutron gravity (super gravity) bends light in a U – turn . There is a time mirror on the surface of neutron because of which ; the reflection (image) looks equidistant from the mirror as the object.
5. Refraction of light is the bending of light by neutrons (black holes) within the atom .
6. The black hole surface acts like a time mirror showing future as past.
7. Gravity nullification can be achieved for gravity - zero travel.

8. Every object in the universe displays time inertia (also called laziness) ; which is quantifiable as $t = h / m c^2$
 9. Intelligence = memory X thinking (a product) , whenever either becomes zero ; Intelligence becomes nil .
 10. There is extra-terrestrial intelligent life.
 11. There is time crunch in the universe as in the case of lightning. The same event is described by light faster than sound. Sound is not only coming after lightning is seen; but, also the thunder is heard for longer time than the time lightning is seen.
 12. The laziness of any physical body is $t = h/mc^2$; the duration during which no change can be enforced on the particle or body in any manner whatsoever.
 13. Thought (impulsive thought) is a gravity wave.
 14. Cosmic waves can influence our intelligence, memory and thinking.
 15. Earth moves or any celestial body moves in jerks and not in a continuous manner..... similar to Planck's hypothesis that energy moves in Quanta.
 16. Any event is described by light, sound, and others over different durations of time.
 17. Smell and taste travel like sound, energy, light etc.,
 18. Thinking can be known in advance (or at the same time) if we can sense gravity waves.
 19. We can achieve vehicle – less travel other than walking, running, jumping, falling and crawling...Etc.,
 20. We can predict certain events (all, if required)
 21. There is no perceptible boundary to the universe in space-time-matter-energy frame.
 22. We can generate thinking in others along the pattern we desire using gravity waves.
 23. Time moves in a circle called circle of time. Any single point on it is present ; when we move in time by perception of changes around us ; we go into past and future at the same time from present. Any change anywhere manifests as time.
 24. Time and passage of time are same.
 25. Absolute time is maintained by black hole.
 26. There is no zero time except on black hole.
 27. All forces are components of the universal force ; manifestation of universal force
- New Discovery: The Sun and the planets in our Solar System are going at a speed in the universe higher than the speed of light.

Observations

1. The Earth going round the Sun has a speed (in an absolute sense) higher than the speed of the Sun , whatever the speed of the Sun maybe. (That is the Earth has its own speed plus the speed of the Solar System along with the speed of the Sun).
2. The starting mass of all celestial bodies is same.
3. A celestial body (like the Earth) going at a speed higher than the speed of the Sun has a mass less than the mass of the Sun. This is possible only if both are going at a speed higher than the speed of light as per equation.

$$m = \frac{m_0}{\sqrt{1 - \frac{v^2}{c^2}}}$$

Conclusion: This means that we are in a – v e World . The world of anti-matter.

Incidentally, there is a massive black hole in the Centre of the Universe around which the rest of the Universe is going around. The black hole is the window to the + v e world.

Proof:

Assume:

- M = Mass of the Sun
- M₂ = Mass of mercury
- M₁ = Mass of Venus
- T₂ = Period of Rotation of Mercury Round the Sun
- T₁ = Period of rotation of Venus round the Sun
- V₂ = Speed of the planet mercury round the sun
- V₁ = Speed of the planet Venus round the sun
- M₀ = Starting mass of all the celestial bodies in the Solar system
- R₂ = Mean distance of mercury from the Sun
- R₁ = Mean distance of Venus from the sun

[Refer Annexure – IV]

Then ,

$$M = \frac{M_0}{\sqrt{1 - \frac{v^2}{c^2}}} \text{ and } M_1 = \frac{M_0}{\sqrt{1 - \frac{(v+v_1)^2}{c^2}}} \text{ and } M_2 = \frac{M_0}{\sqrt{1 - \frac{(v+v_2)^2}{c^2}}}$$

$$\Rightarrow M \sqrt{1 - \frac{v^2}{c^2}} = M_1 \sqrt{1 - \frac{(v+v_1)^2}{c^2}} = M_2 \sqrt{1 - \frac{(v+v_2)^2}{c^2}}$$

$$\Rightarrow (M^2 - M_1^2)v^2 - 2v v_1 M_1^2 - M_1^2 v_1^2 - c^2 (M^2 - M_1^2) = 0 ; \text{ we know that}$$

$$M^2 \gg M_1^2 \text{ i.e., } M^2 - M_1^2 = M^2$$

$$\Rightarrow M^2 \cdot v^2 - 2v v_1 M_1^2 - (M_1^2 v_1^2 + c^2 M^2) = 0 ; \text{ Approx}$$

$$\Rightarrow v = \frac{2v_1 M_1^2 \pm \sqrt{4 v_1^2 M_1^4 + 4M^2 (c^2 M^2 + M_1^2 v_1^2)}}{2M^2} ; c^2 M^2 \gg M_1^2 v_1^2$$

$$\Rightarrow v = \frac{2v_1 M_1^2 \pm \sqrt{4 v_1^2 M_1^4 + 4c^2 M^4}}{2M^2} \text{ Approx ; } c^2 M^4 \gg v_1^2 M_1^4$$

$$\Rightarrow v = v_1 \frac{M_1^2}{M^2} \pm c = 2.0993 \times 10^{-7} \pm c \begin{cases} v_1 = 0.35032 \times 10^5 \text{ m/s} = \frac{2\pi R_1}{T_1} \\ M = 1.989 \times 10^{30} \text{ kg} \\ M_1 = 4.869 \times 10^{24} \text{ kg} \end{cases}$$

Now, I will re-derive the Kepler's laws of planetary motion to prove that all the above assumptions are correct.



$$M_1 = \frac{M_0}{\sqrt{1 - \frac{(v+v_1)^2}{c^2}}}; M_2 = \frac{M_0}{\sqrt{1 - \frac{(v+v_2)^2}{c^2}}}$$

$$\Rightarrow M_0^2 = M_1^2 \left(1 - \frac{(v+v_1)^2}{c^2} \right) = M_2^2 \cdot \left(1 - \frac{(v+v_2)^2}{c^2} \right)$$

$$\Rightarrow M_1^2 (2v v_1 + v_1^2) = M_2^2 \cdot (2 v v_2 + v_2^2); v \text{ is very nearly equal to } c \text{ as per above i.e., } v = c$$

$$\Rightarrow M_1^2 (2c v_1 + v_1^2) = M_2^2 (2 c v_2 + v_2^2)$$

Since c is very much greater than v_1 and v_2

$$M_1^2 \cdot 2 c v_1 = M_2^2 \cdot 2 c v_2$$

$$\Rightarrow M_1^2 v_1 = M_2^2 v_2$$

$$\Rightarrow M_1^2 v_1 = M_2^2 v_2$$

$$\Rightarrow \boxed{M_1^2 v_1 = M_2^2 v_2} \Rightarrow \boxed{M_i^2 v_i = \text{constant}}$$

In the case of planets $M_i^2 v_i = \text{constant}$ where M_i is the Mass of the planet and v_i is its rotational speed around the sun.

In the case of planets $M_i^2 v_i = \text{constant}$ where M_i is the Mass of the planet and v_i is its rotational speed around the sun.

The energy of a planet due to rotation around the sun is $\frac{1}{2} M_1 v_1^2$

The force is $\frac{M_1 v_1^2}{R_1}$

But, from my theory of Universality a force F is equal to an energy E given by $E = \sqrt{F \cdot ch}$; where h = Planck's constant

$$\text{This implies that } \frac{1}{2} M_1 v_1^2 = \sqrt{\frac{M_1 v_1^2}{R_1} ch} \Rightarrow M_1^2 v_1^4 = \frac{4M_1 v_1^2}{R_1} ch \Rightarrow M_1 = \frac{4ch}{R_1 v_1^2}$$

Substituting in (A) i.e., $M_i^2 v_i = \text{constant}$, we get

$$\frac{16 c^2 h^2}{R_1^2 v_1^4} v_1 = \text{constant} \Rightarrow \frac{16 c^2 h^2}{R_1^2 v_1^3} = \text{constant}$$

But, we know that $v_1 = \frac{2\pi R_1}{T_1}$; where T_1 is the period of rotation around the sun, by the planet.

$$\Rightarrow \frac{16 c^2 h^2 \cdot T_1^3}{R_1^2 \cdot 8\pi^3 R_1^3} = \text{constant} \Rightarrow \boxed{\frac{T_1^3}{R_1^5} = \text{constant}} \text{ --- (B)}$$

By Kepler's laws of planetary motion:

1. Planets sweep equal areas in equal times . $\frac{\pi R_1^2}{T_1} = \text{constant}$ --- (1)

2. The square of the periodic time is proportional to the cube of the mean distance of the planets from the Sun.

$$\frac{R_1^3}{T_1^2} = \text{constant} \text{ --- (2)}$$

By equations (1) and (2) ; we get

$$\frac{\pi R_1^5}{T_1^3} = \text{Constant} \Rightarrow \frac{R_1^5}{T_1^3} \text{ constant} \Rightarrow \boxed{\frac{T_1^3}{R_1^5} = \text{constant}} \text{ --- (C)}$$

Now , Both (B) & (C) are the same.

Hence , Kepler's Laws are proved as per theory of Universality. This implies that the assumptions :

1. The planets and sun are traveling at a speed higher than the speed of light.
 2. The starting mass of all celestial bodies is the same;
- are both correct and valid.

I have made a lot of approximations (reasonable approximations) in deriving the above. However, I believe the concept is more important than precision.

V. Annexure - I

1. Boltzmann Constant (k) :

As per kinetic theory of matter; the molecules of an ideal gas at temperature (T) have a mean thermal kinetic energy given by $E = (3/2) kT$; in 3-dimensions where k is Boltzmann constant. However, in uni-directional consideration; the same is $E = \frac{1}{2} kT$. The Sun's surface has mostly Hydrogen in atomic state. But, when hydrogen particles collide; they can fuse; the fusion dynamics being altogether different; let us take helium an inert gas; which does not fuse at the Sun's surface as reference. The layer below the Hydrogen layer is mostly Helium. Helium molecule has a mean free path given by

$$r = 6.6317 \times 10^{-8} \times (6000/288) \times (28.986/8)$$

Where. 6.6317×10^{-8} = mean free path of air @ 288°K

6000°K = Temperature of the Sun's photosphere

288°K = ICAO temperature of air.

28.986 = Average molecular weight of air.

8 = molecular weight of Helium (two He monoatomic molecules)

Helium exists as molecules on Sun's surface; $r = 0.5005897 \times 10^{-5}$

Now, suppose the Kinetic energy of Helium molecule is E; The Helium molecule travels in a linear path until collision. By my theory, E is equal to a force F given by $F = E^2 / c h$. So, the Helium molecule travels with this force until collision, which is assumed perfectly elastic.

This implies : $F \cdot r = (E^2 / c h).r = E \Rightarrow E = h c / r$.

Now, in one directional movement; which the Helium molecule does; till next collision:

This implies : $F \cdot r = (E^2 / c h).r = E \Rightarrow E = h c / r$.

Now, in one directional movement; which the Helium molecule does; till next collision:

$$\left(\frac{1}{2}\right) k T = h c / r \Rightarrow k = (2/T) \cdot (h c / r) = \frac{2}{6000} \cdot \frac{6.626 \times 10^{-34} \times 3 \times 10^8}{0.5005897 \times 10^{-5}}$$

$k = 1.3236389 \times 10^{-23}$; which agrees with experimental value of

$$k = 1.38062 \times 10^{-23}$$

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$$k = 1.38062 \times 10^{-23}$$

2.Hubble's Constant H_0 :

Hubble's law is $v = H_0 R$.

The Sun as per my theory is traveling at a speed $c + v$; where $v = 2.0993 \times 10^{-7}$; light is the information carrier. With respect to the light (which is used to get information about the speed of separation of stars); the relative speed of separation of Sun is v . This is the speed of separation (v) at the solar corona edge i.e., $21.14 R_s$. (Approx). R_s is the radius of Sun's photosphere. = 6.96×10^8 m

Actually $R_{s\text{-corona}} = 21.14 R_s = 147.1344 \times 10^8$ m

Compton wavelength of Sun

$$= 2 \pi \times R_{s\text{-corona}}$$

The speed of Sun $c + v$ is present over its Compton wavelength.

$$\Rightarrow H_0 = \frac{2.0993 \times 10^{-7}}{2 \pi \times 1.471344 \times 10^{10}} = 2.2667 \times 10^{-18} \text{ s}^{-1}$$

agrees with experimental value of

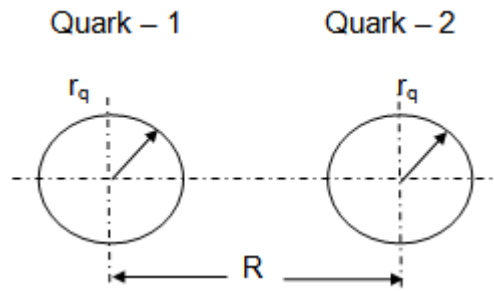
$$\Rightarrow H_0 = 2.5 \times 10^{-18} \text{ s}^{-1} \pm 15\% \text{ found in}$$

the year 2006 A.D.

Note: $R_{s\text{-corona}}$ is the radius of the Sun, till which atmosphere exists. (refer : Annexure – I : Age of Sun since its birth)

3.Strong Nuclear Force:

Suppose, the Confinement radius is R



Each, proton

Comprises of three quarks

Quark mass = $m_p / 3 = m_q$

$r_q = (r_p / 4) \times 1.732$; $r_p = \lambda_p / 2 \pi$; $\lambda_p =$ proton Compton wave length.

$\epsilon_r \cong 1$ for free space.

Then, the force of repulsion between two protons (6 quarks) is matched by the universal force of attraction as :

$$\frac{(6 m_p / 3)^2}{h} \frac{c^3}{4 \pi} \frac{\left(\frac{r_p}{4} \times 1.732 \right)^3}{R^3} = \frac{e^2}{4 \pi \epsilon_0 \epsilon_r} \frac{1}{R^2}$$

$$R = \frac{36 \times m_p^2 c^3}{9 h} \left(\frac{r_p}{4} \times 1.732 \right)^3 \frac{4 \pi \epsilon_0 \epsilon_r}{e^2}$$

$$R = \frac{36 \times 1.672^2 \times 10^{-54} \times 27 \times 10^{24}}{9 \times 6.626 \times 10^{-34}} \frac{\left(\frac{1.3214}{8\pi} \times 1.732 \right)^3 \times 10^{-45} \times 4 \pi \times 8.854 \times 10^{-12}}{1.603^2 \times 10^{-38}}$$

$$= 1.4453 \times 10^{-15}$$

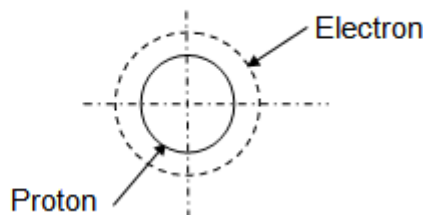
which agrees with experimental result of 10^{-15} m (Approximately).

4.Weak Nuclear Force :

Energy at speeds greater than the speed of light 'c', behaves like anti-matter. Within radioactive neutron the energy trapped within the neutron behaves like anti-matter and splits neutron into proton and electron. The resultant repulsion between matter and antimatter separates proton and electron.

UF around a proton is

$$\frac{m_p^2 c^3}{h}$$



Electrostatic force is

$$\frac{e^2}{4 \pi \epsilon_0 \epsilon_r r^2}$$

Where r is the distance of separation between the two nearly concentric spheres of proton (radius r_p) and electron (radius r_e). Force is inversely proportional to the square of distance r i.e., r^2 . Energy is work done; a product of force and distance (r). Therefore, energy is inversely proportional to the distance r i.e.

$\frac{e^2}{4\pi\epsilon_0 r} - \frac{r_p}{r_e}$ is the energy in the creation of electron from a neutron

(against the attraction of proton on electron) and r is the distance of the nuclear force by which proton and electron separate. This is equal to

the repulsion between matter and anti-matter = $\frac{m_p^2 c^3}{h} \cdot r$

Therefore, $\frac{m_p^2 c^3}{h} r = \frac{e^2}{4\pi\epsilon_0 r} - \frac{r_p}{r_e}$; $\epsilon_r = 1$

$$r = \frac{e^2}{4\pi\epsilon_0 r} \frac{h}{m_p^2 c^3} \frac{r_p}{r_e} - \frac{r_p}{r_e} = \frac{1.321 \times 10^{-15} \times \frac{1}{2\pi}}{2.426 \times 10^{-12} \times \frac{1}{2\pi}}$$

$$r^2 = 1.1023 \times 10^{-36}$$

$r = 1.0499 \times 10^{-18}$ which agrees with the experimental value of 10^{-18} m

5. Universal Gas Constant (R) :

Take one mole of Hydrogen @ 273° K. At this temperature Hydrogen is in molecular state. Therefore, mean free path of hydrogen is

$$r_H = \frac{28.966}{1.00792 \times 2} \cdot \frac{6.6317 \times 10^{-8} \times 273}{288.15} = 0.90277 \times 10^{-6} \text{ m}$$

$$V = \frac{4\pi}{3} r_H^3 \cdot N_A = 18.56725 \times 10^5$$

Where N_A is Avogadro constant. A force of $\frac{m^2 c^3}{h}$ is present at the

surface of the object with mass m and this force is present over a Compton wave length of λ and a sphere of radius $(\lambda/2\pi)$. Assume R_0 is the radius of one mole hydrogen sphere; and λ is the Compton wavelength of Hydrogen Molecule.

Force 'F' present at R_0 is given by :

$$F = \frac{1}{2} \frac{m^2 c^3}{h} \frac{4 \pi R_0^2}{4 \pi r_H^2} \frac{4 \pi \left(\frac{\lambda}{2 \pi}\right)^2}{4 \pi r_H^2}$$

We know that pressure P is Force per unit area.

$$P = \frac{1}{2} \frac{m^2 c^3}{h} \frac{4 \pi R_0^2}{4 \pi r_H^2} \frac{4 \pi \left(\frac{\lambda}{2 \pi}\right)^2}{4 \pi r_H^2} \frac{1}{4 \pi R_0^2}$$

Also, $PV = nRT$

$$\begin{aligned} \Rightarrow R &= \frac{1}{2} \frac{m^2 c^3}{h} \cdot \frac{R_0^2}{r_H^2} \cdot \frac{\lambda^2}{4 \pi^2 r_H^2} \cdot \frac{1}{4 \pi R_0^2} \cdot \frac{V}{nT} \\ &= \frac{1}{2} \cdot \frac{4 m_p^2 c^3}{h} \cdot \frac{\lambda_p^2}{4 \pi^2 r_H^4} \cdot \frac{1}{4 \pi} \cdot \frac{V}{nT} \quad ; n = 1 \end{aligned}$$

$$= \frac{1}{2} \frac{1.6726^2 \times 10^{-54} \times 27 \times 10^{24}}{6.6262 \times 10^{-34}} \times \frac{1.3214^2 \times 10^{-30}}{\pi^2 \times 0.90277^4 \times 10^{-24}} \times \frac{18.56725 \times 10^5}{4 \pi \times 273 \times 1}$$

= 8.21179 which agrees with experimental value of 8.3143

6.Free Space Impedance (Z_0) :

A wave of wavelength λ behaves like a spherical object of radius $(\lambda/2\pi)$. e_t is the charge of light when seen as a particle.

$$E = I_p^2 \cdot R_0 t_t = \frac{hc}{\lambda} = \frac{e_t^2}{4\pi \cdot \epsilon_0 \cdot \frac{\lambda}{2\pi}} \Rightarrow e_t^2 = 2\epsilon_0 \cdot hc \quad \text{--- (1)}$$

But, we know $I_p^2 = \frac{e_t^2}{t_t^2}$; where e_t is the charge of light when seen as a

particle and t_t is the time inertia of light as a wave particle; that is when seen as a charge particle.

Therefore,

$$E = I_p^2 \cdot R_0 t_t = \frac{e_t^2}{t_t^2} \cdot R_0 t_t = \frac{e_t^2}{t_t} \cdot R_0 \quad \text{----- (2)}$$

But as per Planck's hypothesis, light of wavelength λ and time inertia of t_t behaves like an energy packet of energy h/t_t . From ----- 2 , we have

$$\Rightarrow \frac{h}{t_t} = \frac{e_t^2}{t_t} \cdot R_0$$

$$R_0 = \frac{h}{e_t^2} = \frac{h}{2\epsilon_0 ch} = \frac{1}{2\epsilon_0 c} \quad \text{from ----- (1)}$$

$$R_0 \text{ due to resistance is } R_0 = \frac{1}{2\epsilon_0 c}$$

$$I_0 \text{ due to inductance is } I_0 = \frac{\mu_0 c}{2}$$

$$\text{So, } Z_0 \text{ due to impedance is } = R_0 + I_0 = \frac{1}{2} \left(\frac{1}{\epsilon_0 c} + \mu_0 c \right)$$

$$\text{As per Maxwell's equation } \mu_0 \epsilon_0 = \frac{1}{c^2}$$

$$\Rightarrow Z_0 = \frac{1}{2} \left(\frac{1}{\epsilon_0 c} + \mu_0 c \right) = \frac{1}{2} \left(\frac{1}{\epsilon_0 c} + \frac{1}{\epsilon_0 c} \right) = \frac{1}{\epsilon_0 c}$$

$$Z_0 = 1/\epsilon_0 c = 376.73021$$

which agrees with experimental value of $Z_0 = 376.7304$

Alternatively, since $\mu_0 \epsilon_0 = (1/c^2)$; $Z_0 = \mu_0 c$.

7.Speed of Rotation of the Sun (ω_s) :

R_s = radius of sun, ω_s = speed of rotation of sun,

v_s = speed of sun in absolute sense, M_u = starting mass of sun

$$R_s \omega_s = v_s; \ell_s = \frac{h}{M_s R_s \omega_s} ; \ell_s = \frac{h}{M_u c} \quad \text{as per my theory}$$

$$\Rightarrow \frac{h}{M_u \cdot c} = \frac{h}{M_s \cdot R_s \cdot \omega_s} \Rightarrow \omega_s = \frac{M_u}{M_s} \cdot \frac{c}{R_s} \quad (1)$$

since momentum is conserved.

We know that M_u for the Sun = 7.441×10^{22}

$$\text{Hence, } \omega_s = \frac{7.441 \times 10^{22} \times 3 \times 10^8}{1.99 \times 10^{30} \times 6.96 \times 10^8} = 1.61172 \times 10^{-8}. \quad (A)$$

Observed rotation is 11 years; actual rotation is 12 years for the sun spots

$$\Rightarrow \omega_s = \frac{2\pi}{T_s} = \frac{2\pi}{12 \times 365 \times 24 \times 3600} = 1.66099 \times 10^{-8}. \quad (B)$$

Now, both (A) and (B) are the same.

Note :

The space - mass vibration within the particle (Sun) released from the central object is 'c', and rotates at the speed of 'c'.

M_u = initial mass of the sun as released from the central object.

8. Newton's Law :

m = rest mass

m_1 = mass at speed v

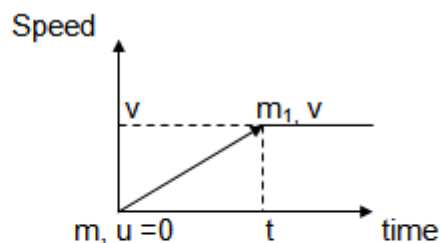
u = initial speed

v = final speed

a = acceleration due to force F .

$u = 0$

$$v^2 = u^2 + 2a \ell \Rightarrow v^2 = 2a \ell$$



We know that as per my theory; $E = \frac{1}{2} m_1 v^2 = \sqrt{Fch}$

$$\frac{1}{2} m_1 v^2 = (m_1/2) 2a \ell = m_1 a \ell$$

$$\Rightarrow \sqrt{Fch} = m_1 a \ell \Rightarrow Fch = m_1^2 a^2 \ell^2$$

But, according to my theory $(hc/\ell^2) = F$. A force F acting over a distance ℓ is equal to a force / energy wave of Compton wave length ℓ .

Hence, $Fch = m_1^2 a^2$. $(hc/F) \Rightarrow F^2 = m_1^2 a^2$
 $\Rightarrow F = m_1 a$. Since at lower speeds $m_1 \approx m$.

we have $F = ma$

ℓ , m_1 , v , F are all applicable to force F. A force F is equivalent to a Compton wave length of ' ℓ ' over which it is applicable. ' ℓ ' is here the distance over which the particle reaches speed ' v ' from zero.

9.CBMR – Cosmic Background Microwave Radiation :

Assume CBMR is a radiation given out by the Earth.

m_{10} = rest mass of earth.

ℓ_{10} = wave length of the CBMR

v_1 = Speed of the earth around the Sun, which is going at the speed ' $c + v$ ' in absolute sense.

ℓ_1 = wavelength of visible light.

m_0 = mass of light when treated as a particle.

By relativity ; $\ell_1 = \ell_{10} \cdot \sqrt{1 - \frac{(c+v_1)^2}{c^2}} = \sqrt{\frac{2v_1}{c}} \ell_{10}$

$$t_1 = t_{10} \cdot \frac{1}{\sqrt{1 - \frac{(c+v_1)^2}{c^2}}} = \sqrt{\frac{c}{2v_1}} \cdot t_{10}$$

$$\frac{\ell_1}{t_1} = \frac{2v_1}{c} \frac{\ell_{10}}{t_{10}} = 2v_1; \text{ because } \frac{\ell_{10}}{t_{10}} = c \text{ as per theory}$$

$$Y_1 = \frac{2v_1}{\ell_1} = \frac{2v_1}{\ell_t} \text{ (in the visible light range } \frac{\ell_{10}}{t_{10}} = c$$

$$\text{and } \frac{\ell_1}{t_1} = \frac{\ell_t}{t_t}$$

$$Y_1 = \frac{2 \times 2.9818 \times 10^8}{404.7 \times 10^{-9}}$$

is the peak frequency for the lowest wavelength of visible light i.e., violet light.

= 147.36 GHz which agrees with experimental result of 160.4 GHz..

Note : c is the speed of light only; not that of microwave radiation nor that of ultra-violet radiation. Actually

$$v_{(IR)} < c$$

$$v_{(UV)} > c$$

10.Age of the Sun (since its birth) :

Assumption : All celestial bodies jet out like a stream of particles from the central Black hole as particles; with the same starting mass and speed. u is the external starting speed . c is the space – mass vibration speed within the particle.

For all celestial bodies $M_i^2 v_i = \text{constant}$.

In the case of Sun $M_v^2 (c+v) = M_u^2 \cdot u$; where $M_u = 7.441 \times 10^{22}$, $M_v = 1.99 \times 10^{30}$

$$u = \left[\frac{1.99 \times 10^{30}}{7.441 \times 10^{22}} \right]^2 \cdot c = 2.1456 \times 10^{23}$$

Time inertia of the primordial particle of Sun w.r.t. the central black hole

Is $t_u = \frac{h}{M_u c^2}$; one cycle time is $2t_u$. λ_u w.r.t. the surroundings space is $\frac{h}{M_u u}$

;the rate of expansion is $v_{\text{exp}} = \frac{\lambda_u}{2 t_u} = \frac{c^2}{2 u}$ The sun expands to its

present stage i.e., diameter of the Sun is total upto the edge of the solar corona, in time

$$T_{\text{tot}} = \frac{2 \times R_{\text{sCorona}} - \lambda_u}{v_{\text{exp}}} \quad T_{\text{tot}} = \frac{2 \times R_{\text{sCorona}} 2u}{c^2}; \text{ since } \lambda_u \approx 0$$

$$= \frac{2 \times 21.14 \times 6.96 \times 10^8 \times 2 \times 2.1456 \times 10^{23}}{9 \times 10^{16}} = 140.31 \times 10^{15}$$

= 4.4491x10⁹ years or 4.4491 billion years.

Which agrees with observed / calculated value of 4.5 billion years.

Note : Cycle time = 2 t_u is t_u + t_u i.e., the period of expansion + period of rest. The sun expands in jerks with total period of 2t_u.

R_{Corona} : Is the radius from the center of the Sun till the edge of the sphere till which Sun's atmosphere is present; and after which the Sun's atmosphere is negligible and ceases to exist.

The primordial particle of Sun slows down to the speed of $c + v = c + 2.0993 \times 10^{-7}$ to become Sun.

DERIVATION OF R_{S-CORONA}

R_{geo, corona} = 4R_E (R_E is radius of earth)

$$g_{\text{geo, corona}} = 9.81 \times \frac{R_E^2}{(4R_E)^2} = 0.613125$$

$$\text{Similarly } R_{\text{s, corona}} = \sqrt{\frac{274}{0.613125}} \quad R_s = 21.14 R_s$$

PREDICTION - 2 : The celestial objects jet out like bubbles from the central black hole, at speeds greater than the speed of light ; with VOID inside them; which helps them to float through space. The void does not have space, time, matter and energy and is perfectly empty.

The Geocorona of the Earth is a distance of $4 R_E$ (R_E is the radius of Earth) from the center of the Earth., ie., $4 R_E$ is the space displaced by the Earth. This is equivalent to a space-mass of

$$\frac{h}{4R_E c}$$

By Archimedes Principle for floating objects this is the mass destroyed in creating the void for the Earth. Therefore, the Compton wave length of the void

$$\ell_V = 2 \pi R_V = (h/c) / \left(\frac{h}{4R_E c} \right) = 4R_E$$

Hence, $R_V =$ radius of the void inside the Earth $= \frac{4R_E}{2 \pi} = \frac{2 \times 6371}{\pi}$
 $= 4054$ Km.

This implies that the Earth's solid portion has a thickness of $R_E - R_V = 6371 - 4054 = 2317$ Km only. Except the top layer of crust and hydrosphere most of the solid material of the Earth consists of densest elements like OSMIUM or PLATINUM or IRIDIUM.

VI. Annexure - II

1. Separation of Earth from Sun :

The planet Earth is getting separated away from the Sun due to release of energy by the Sun (which in turn releases space which pushes the Earth away from the Sun)

The total force released by the Sun as per my theory is :

$$F = \frac{1}{2} \cdot \frac{R_1^2}{r_1^2} \cdot \frac{m^2 c^3}{h}$$

Energy out pouring : $E = \sqrt{Fch} = \sqrt{\frac{1}{2}} \cdot \frac{R_1}{r_1} \cdot m c^2$

But, as per my theory this energy outpouring away from the sun releases space as given by

$$\ell = \frac{hc}{E} = \sqrt{2} \cdot \frac{r_1}{R_1} \cdot \frac{h}{mc}$$

This is the compton wave length of the space released :-

Therefore, the thickness of the space layer released is :

$$r_s = \frac{\ell}{\pi} = \frac{\sqrt{2}}{\pi} \cdot \frac{r_1}{R_1} \cdot \frac{h}{mc}$$

This increase in the space layer is felt at the solar corona $R_{S\text{-corona}}$ radially. Increase in space linearly along the plane of the Sun – Earth is (at the surface of Sun)

$$r_{SE} = \frac{\sqrt{2}}{\pi} \cdot \frac{r_1}{R_1} \cdot \frac{h}{mc} \cdot \frac{\pi R_1^2}{4\pi R_1^2}$$

Now the space – volume is conserved in the same way as mass- energy is conserved.

Increase in space linearly along the plane of the Sun – Earth @ the surface of Earth

$$r_E = \frac{\sqrt{2}}{4\pi} \cdot \frac{r_1}{R_1} \cdot \frac{h}{mc} \cdot \frac{\pi R_2^2}{4\pi R_2^2} \cdot \frac{4\pi R_{S\text{-corona}}^2}{4\pi R^2}$$

Where $R_{S\text{-corona}} = 21.14 \times R_1 =$ Radius of solar corona

$R =$ Mean distance between the Sun and the Earth. The space is released at the least time period which is that of the time inertia of one

hydrogen atom on the Sun's surface $t_p = \frac{h}{mc^2}$

$$v_E = \frac{r_E}{t_p} = \frac{\sqrt{2}}{16\pi} \cdot \frac{r_1}{R_1} \cdot \frac{R_{S\text{-corona}}^2}{R^2} \cdot c$$

This is the speed of the drift of the planet Earth away from the Sun Substituting the values we get $v_E = 15.3318 \text{ cm / yr}$ which agrees with observed value of 15 cm / yr

$$\begin{aligned}
 r &= 4.14481 \times 10^{-5} \\
 R_1 &= 6.96 \times 10^8 \\
 R_{s\text{-corona}} &= 21.14 \times R_1 \\
 R &= 149.597 \times 10^9 \\
 c &= 3 \times 10^8
 \end{aligned}$$

and $v_E = 14.38 \text{ cm/yr}$, if we take $r_1 = 3.88781 \times 10^{-5} \text{ m}$.

2. Absolute Rest mass of Sun (M0) : $M (1 - (c-v)^2 / 2 c^2) = M0$

Note : c-v is the matter equivalent speed of the actual anti-matter Sun's speed c+v. Sun is anti-matter attracting the anti-matter planets, etc., in the solar system. Simplifying and taking the -ve component, we get $M0 = M \cdot (-v^2/2c^2)$. Here, we are taking the -ve component; because, Sun comes to absolute rest and starts going back towards the black hole at that point. Since, $v = 2.0993 \times 10^{-7}$, **M0 works out to be = 0.487 kg.** (Note : Any object which is faster than light is anti-matter and slower than light is matter).

VII. Annexure - III

1. Derivation of elementary charge, e:

Assumptions:

1. Charge energy is caused by rotation of the object; and electric charge energy is equal to the rotational energy.
2. The Earth is a hollow sphere of hollowness equal to a radius of $\frac{2R_\epsilon}{\pi}$ where R_ϵ is the radius of the Earth from the centre to the surface.

Suppose, the average mean free path of a molecule on the surface of Earth is equal to ' ℓ '; and the average molecular weight is m_ϵ . Then, the

number of free nucleons with elementary charge 'e' = $\frac{4 \pi R_\epsilon^2}{4 \pi \ell^2 m_\epsilon^2}$; because $m_\epsilon \cdot \ell$ is the mean free path of a free nucleon. Now,

let us equate the charge energy on the surface of the Earth and the rotational energy of the Earth. Only, the surface charges contribute to the rotation of the Earth. The charges inside cancel out.

$$\frac{1}{4 \pi \epsilon_0} \cdot \frac{R_\epsilon^4}{m_\epsilon^4 \cdot \ell^4} \cdot \frac{e^2 \cdot m_\epsilon^2}{R_\epsilon} = \frac{1}{2} \cdot I \omega^2 \quad \text{Where, } I = \text{moment of inertia of sphere} = \frac{2}{5} M R^2$$

Whereas, $I_\epsilon = \frac{2}{5} M_\epsilon R_\epsilon^2 \cdot \left[\frac{1 - \frac{2^5}{\pi^5}}{1 - \frac{2^3}{\pi^3}} \right]$ because Earth is a hollow sphere of $\frac{2 R_\epsilon}{\pi}$ radius

$$= \frac{1}{2} \cdot \frac{2}{5} \cdot \frac{1}{\pi^2} \cdot \frac{(\pi^5 - 32)}{(\pi^3 - 8)} M_\epsilon R_\epsilon^2 \cdot \frac{4\pi^2}{T_\epsilon^2} \quad \text{A}$$

Where M_ϵ is the mass of Earth and T_ϵ is the period of rotation of Earth. Now, we shall derive m_ϵ , ℓ and estimate the value of 'e' theoretically. R_ϵ , M_ϵ , T_ϵ are already known.

The Earth's surface consists of crust (with an area of 0.292 fraction of total area) and hydrosphere (with an area of 0.708 fraction of total area). The constituents

of crust are :	fraction		molecular weight		
Oxygen	- 0.4913	X	16	=	7.8608
Silicon	- 0.26	X	28	=	7.28
Aluminium	- 0.0745	X	26	=	1.937
Ferrous	- 0.042	X	52	=	2.184
Calcium	- 0.0325	X	40	=	1.3
Sodium	- 0.024	X	22	=	0.528
Potassium	- 0.235	X	38	=	0.893
Magnesium	- 0.235	X	24	=	0.564
Hydrogen	- 0.01	X	1	=	0.01
Others	- 0.187	X	20	=	0.374

$m_{\epsilon_1} : \text{Total} : 22.9308$

The average molecular weight of the crust is $m_{\epsilon_1} = 22.9308$ over area $a_1 = 0.292$ of total area.

Similarly, Hydrosphere :

	fraction		molecular weight		
Oxygen	- 0.8589	X	16	=	13.7424
Hydrogen	- 0.1082	X	1	=	0.1082
Chlorine	- 0.019	X	34	=	0.646
Sodium	- 0.0106	X	22	=	0.2332
Others	- 0.033	X	20	=	0.66

$m_{\epsilon_2} : \text{Total} : 15.3898$

The average molecular weight (m_{ϵ_2}) of Hydrosphere is 15.3898 over area 0.708 of the total area.

$$m_{\epsilon} = a_1 \cdot m_{\epsilon_1} + a_2 \cdot m_{\epsilon_2} = 17.592$$

$$\text{Moreover, } (a_1 \cdot \ell \cdot d_1) / (a_2 \cdot \ell \cdot d_2) = \frac{m_{\epsilon_1}}{m_{\epsilon_2}}$$

$$d_2 = \text{surface water density} = 1025$$

$$d_1 = \frac{22.9308}{15.3898} \times \frac{0.708}{0.292} = 3703$$

$$a \cdot \ell \cdot d = a_1 \cdot \ell \cdot d_1 + a_2 \cdot \ell \cdot d_2$$

$$\text{The average surface density } d = a_1 d_1 + a_2 d_2$$

$$\Rightarrow d = 1806.97 ; \text{ and } \frac{4}{3} \pi \ell^3 = \frac{m_{\epsilon} \times m_p}{d} \quad m_p = \text{proton (or nucleon) mass}$$

$$\text{Now, } \frac{4}{3} \pi \ell^3 = \frac{17.592 \times 1.673 \times 10^{-27}}{1806.97}$$

$$\Rightarrow \ell = 1.5724 \times 10^{-10}$$

From equation (A) :

$$\frac{1}{4\pi\epsilon_0} \frac{R_{\epsilon}^3 e^2}{m_{\epsilon}^2 \ell^4} = \frac{1}{2} \times 0.48263 \times M_{\epsilon} R_{\epsilon}^2 \times \frac{4\pi^2}{T_{\epsilon}^2}$$

$$\Rightarrow e^2 = 8\pi^3 \epsilon_0 \frac{M_{\epsilon} m_{\epsilon}^2}{R_{\epsilon}} \times \frac{\ell^4}{T_{\epsilon}^2} \times 0.48263$$

Substituting the values :

$$\epsilon_0 = 8.85 \times 10^{-12}$$

$$M_{\epsilon} = 5.977 \times 10^{24}$$

$$m_{\epsilon} = 17.592$$

We get

$$R_{\epsilon} = 6.371 \times 10^6$$

$$T_{\epsilon} = 2.393 \times 3.6 \times 10^4$$

$$\ell = 1.5724 \times 10^{-10}$$

$$e^2 = 2.5368603 \times 10^{-38}$$

$$\Rightarrow e = 1.592752 \times 10^{-19} ; \text{ which agrees with the experimental value of } 1.602 \times 10^{-19}$$

The slight discrepancy i.e., 0.925% is due to approximation in m_e and ℓ . Hence, the assumptions are correct and valid.

PREDICTION – 3 :

In the Solar System, the ratio of the mass of Sun to the mass of Saturn is nearly same as the ratio of the mass of one neutron plus one proton to the mass of an electron. We can predict that the Solar System follows Deuterium atomic model with the Sun as the nucleus and Saturn as the electron. Moreover, we can also predict that Saturn is the only planet which has come out of Sun and all other planets of the Solar System are like sub-atomic particles of the Deuterium atomic model.

PREDICTION – 4 :

We have seen in PREDICTION – 1 that the force of Sun on Earth is nearly 20,000 billion times less than the force of Earth on the Sun. We can predict that the Solar System is a whirlpool of space in which all the planets and the Sun are floating and the planets are kept in motion by the space in motion and the Sun happens to be at the centre and the Sun's hold on the planets is feeble; compared to the planets' force on the Sun. Moreover, we can also predict that the planets like Earth can become stars after it slows down to a speed of 'c' from its present speed of $c + v_1$

PREDICTION – 5 :

The central black hole is matter with a highest speed of 'c'; and all the protons in the universe rotate at nearly the speed of light 'c' in the direction of the central black hole; and all the electrons in the universe rotate in the opposite direction at nearly the speed 'c'.

PREDICTION – 6 :

A freely moving sphere in space will have a rotational motion also, if it has a linear motion, and the corresponding relationship between the rotational speed and the linear speed can be derived.

PREDICTION – 7 :

The central body of the universe is rotating in one direction; and all the protons of the universe are rotating at nearly the speed of light 'c' in that direction; electrons in the opposite direction at nearly the speed of light 'c'.

PREDICTION – 8 :

The elementary particles neutron, proton and electron are stable because the universe is vibrating at the speed of light 'c' along with the particles which also vibrate at the speed of light 'c'.

PREDICTION – 9 :

The least speed of any celestial body in absolute sense; outside the central body is 'c'; the highest speed within the central body is 'c'.

PREDICTION – 10 :

The celestial objects jet out like stream of particles from the central body. The central body and the celestial objects rotate in the same direction and the celestial objects go around the central body in the same direction.

PREDICTION – 11 :

Positive and Negative electrical charges are because of rotation of protons and electrons at nearly the speed 'c' in opposite directions.

PREDICTION – 12 :

In reflection, refraction and diffraction of light; light is attracted by the nucleus of protons and neutrons (which behave as matter) and repelled by electrons (which behave as anti-matter); because light behaves like matter particles.

PREDICTION – 13 :

The universe is a finite sphere with space, celestial objects, energy and expanding. It appears to be infinite and every point of the universe appears to be a centre ; because, of multiple reflections of light and energy by the surface (or boundary or edge which is actually expanding) back into the universe.

PREDICTION – 14 :

The universe is expanding into void and will fall back into the central black hole; because of all anti-matter getting exploded into matter or space which will then be attracted by the matter in the central black hole.

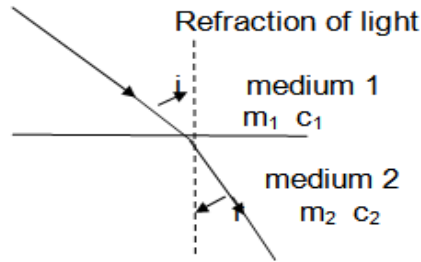
PREDICTION – 15 :

The plane of the planetary orbits around the sun is inclined in the direction of movement of the solar system in Milky way galaxy and the planets are partly dragging the Sun in its motion around the galaxy; along with space.

This is so because; something has to energize the movement of sun against spatial friction. Space in motion also causes partly the movement of the solar system in the galaxy.

2.SNELL's Law :

The coefficient of refractive indices: Light behaves as matter waves; and is repelled by electrons in medium which behave as anti-matter; and attracted by neutrons / protons which are matter which causes refraction. Suppose, light has a mass m_1 and m_2 ; and speeds c_1 and c_2 in the two media. The horizontal component of the force of light from medium 1 to medium 2 does not change; as there is no force in this direction.



Therefore,

$$\frac{m_1^2 c_1^3}{h} \sin i = \frac{m_2^2 c_2^3}{h} \sin r \text{ as per my theory of universality.}$$

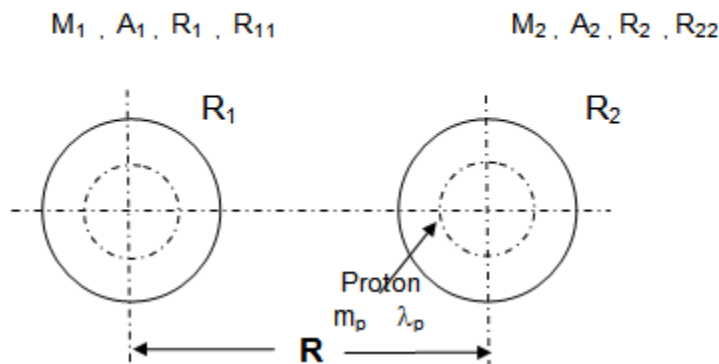
$$\Rightarrow \frac{\sin i}{\sin r} = n = \frac{m_2^2 c_2^3}{m_1^2 c_1^3} = \frac{m_2^2 c_2^4}{m_1^2 c_1^4} \frac{c_1}{c_2}$$

Now energy is conserved $\Rightarrow m_1 c_1^2 = m_2 c_2^2$

$$n = \frac{\sin i}{\sin r} = \frac{c_1}{c_2} = \text{coefficient of refraction}$$

Hence, Snell's law is derived as per theory.

3.GRAVITATIONAL LAW: $F=G \frac{M_1 M_2}{R^2}$



Take two bodies of mass M_1, M_2 ; radii R_1, R_2 ; mean free path of molecules r_1, r_2 molecular weight z_1, z_2 ; and having A_1, A_2 moles of weight. Consider one mole of each with radii R_{11}, R_{22} .

As per my theory, the force due to one mole of M_1 at a distance of

$$R \text{ is: } \frac{1}{2} \frac{4\pi R_{11}^2}{4\pi r_1^2} \frac{z_1 m^2 c^3}{h} \frac{R_{22}^2}{R^2} \text{ on one mole of } M_2$$

The force will act on one proton along the line joining the centers of mass. Hence, the force on one mole of M_2 along the line joining

$$\text{centers of mass is : } \frac{1}{2} \frac{z_1 R_{11}^2}{r_1^2} \frac{m^2 c^3 R_{22}^2}{h R^2} \frac{m_p}{z_2 N_a m} \text{ where}$$

N_a is Avogadro constant and $N_a \cdot m = 1$.

The force due to A_1 moles of M_1 on A_2 moles of M_2 along or parallel to the lines joining the centers of mass on the nearest protons would be;

$$F_{12} = \frac{1}{2} \frac{R_{11}^2}{r_1^2} \frac{z_1 A_1 m^2 c^3}{h} \frac{R_{22}^2}{r_2^2} \frac{r_2^2}{R^2} \frac{A_2 m_p}{z_2 \cdot 1}$$

we know that $r_2 = z_2 \cdot (2 \lambda_p)$ { mean free path of proton = $2 \lambda_p$ }

$$\text{Also, } A_1 z_1 m = \frac{M_1}{N_a} ; \text{ and } A_2 z_2 m = \frac{M_2}{N_a}$$

Therefore ,

$$F_{12} = \frac{1}{2} \frac{R_{11}^2}{r_1^2} \frac{M_1 M_2}{N_a^2} \frac{c^3}{h} \frac{R_{22}^2}{r_2^2} \frac{z_2 4\lambda_p^2}{z_2} \cdot m_p \text{---} A$$

$$\text{Moreover, for one mole of a body } \frac{z_1 m N_a}{\frac{4}{3} \pi R_{11}^3} = \frac{z_1 m}{\frac{4}{3} \pi r_1^3}$$

$$\Rightarrow \frac{R_{11}^3}{r_1^3} = N_a \Rightarrow \frac{R_{22}^3}{r_2^3} = N_a \text{---} B$$

from A and B , we have

$$F_{12} = \frac{1}{2} \cdot \frac{N_a^{2/3} \cdot N_a^{2/3}}{N_a^2} \cdot 4 \cdot \frac{M_1 M_2}{R^2} \frac{c^3 \cdot \lambda_p^2 \cdot m_p}{h}$$

Similarly, the force of M_2 on M_1 will be an equal amount. The total force of gravitation between two bodies of mass M_1 and M_2 along the line joining the centers of mass at a distance R is :

$$F = F_{21} + F_{12} = \frac{4c^3 \cdot \lambda_p^2 \cdot m_p}{N_a^{2/3} \cdot h} \cdot \frac{M_1 M_2}{R^2}$$

Hence, we can conclude that $G = \boxed{\frac{4c^3 \cdot \lambda_p^2 \cdot m_p}{N_a^{2/3} \cdot h}}$

works out to be $G = 6.66889 \times 10^{-11}$ and agrees with experimental

value of $G = 6.67384 \times 10^{-11}$

Hence Newton's law of gravitation for large distances is derived as per my theory of universality

PREDICTION – 16 :

4.The surface speed of a charged fundamental particle : In the case of charged fundamental particles like, proton and electron charge energy is equal to the mass energy as per observation and also equal to the rotational energy.

$$\text{That is } m_0 c^2 = \frac{1}{2} \cdot \frac{2}{5} \cdot m r^2 \cdot \omega^2 = \frac{1}{2} m v^2 \cdot \frac{2}{5} = \frac{1}{5} m v^2$$

where v is the surface speed of the particle of rotation

$$\Rightarrow \frac{1}{5} \frac{m_0}{\sqrt{1 - \frac{v^2}{c^2}}} \cdot v^2 = m_0 c^2$$

$$\Rightarrow v^4 + 25 c^2 v^2 - 25 c^4 = 0$$

$$\Rightarrow v^2 = \frac{(-25 \pm 26.926)}{2} c^2$$

$$\Rightarrow v = 0.98133 \cdot c, \text{ or } \sqrt{-25.963} \cdot c$$

That is to say the charged positive matter particle i.e., proton, moves with a surface speed of rotation 0.98133c in the direction of the central black hole which gives it the positive charge; and since, the speed is less than 'c' it is matter particle.

The charged negative anti-matter particle, i.e., electron, moves with a surface speed of rotation of -25.963 c in the direction opposite that of the central black hole which gives it the negative charge; and since, the speed is more than 'c' it is anti-matter particle.

5.Surface density of central black hole (ρ_{BH}) : Compton wave length of Sun = 2π · R_{sc} where R_{sc} is the solar corona radius; and Sun is anti-matter The central black hole keeps a matter equivalent mass of every anti-matter particle / object jetting out of it ; whose mass and size keep changing as per the antimatter object which came out. However, the surface density of the central black hole remains constant.

The mass of the matter particle equivalent of this Compton wave length of

Sun (on the central black hole) = $\frac{h}{2\pi \cdot R_{sc}}$ and the Compton wave length of

the matter particle equivalent of the Sun (on the central black hole is: $\frac{h}{M_s c}$

Therefore, the surface density of the central black hole is

$$\rho_{BH} = \left[\frac{h}{2\pi \cdot R_{sc} c} \right] / \frac{4\pi}{3} \left[\frac{h}{2\pi \cdot M_s c} \right]^3$$

$$\rho_{BH} = 3\pi \cdot \frac{M_s^3 \cdot c^2}{R_{sc} \cdot h^2}$$

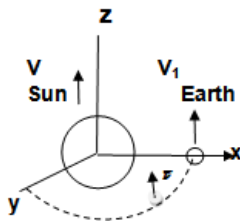
Under normal circumstances, the surface density of the central black hole is constant in equilibrium with the universe. Hence, $M_s^3 \propto R_{sc}$.

That is, the cube of mass of a star is directly proportional to the star's corona radius.

VIII. Annexure – IV

The absolute speed of Earth (U) :

Suppose, the relative speed of rotation of Earth around sun is V₁ and the relative speed of Earth-plane parallel to the direction of motion of Sun is v. The Sun moves perpendicular to the plane connecting the Sun and the Earth rotationary plane; otherwise there will be collision between Sun and Earth .



Suppose the absolute speed of Sun is V .
 Now, the transverse relativistic z component of velocity of Earth due to the V_1 speed in x - y frame is

$$V_1 \sqrt{1 - \frac{v^2}{c^2}}$$

The absolute speed of Earth along z -axis is :

$$U = \frac{V + V_1 \sqrt{1 - \frac{v^2}{c^2}}}{1 + \frac{V V_1 \sqrt{1 - \frac{v^2}{c^2}}}{c^2}}$$

Now, we know that $v = 0$; because the plane of rotation of Earth around the Sun and the Sun are at rest; and it is the proper frame. Therefore,

$$U = \frac{V + V_1}{1 + \frac{V V_1}{c^2}}$$

Since V is approximately $= c$ (because the Sun's mass is huge as a star compared to other celestial bodies like planets and this is possible only if V is approximately $= c$)

$$U = \frac{V + V_1}{1 + \frac{V_1}{c}}$$

Now, $V_1 \ll c \Rightarrow U = V + V_1$ as taken in my theory in New Discovery.

DARK ENERGY:

Assumptions :

1. The universe vibrates at the speed of light to keep the fundamental particles stable (as stated in PREDICTION – 8).
2. The space filling the galactic distances is equivalent to dark energy due to this vibration

Proof :

Energy due to this vibration is a lowest value of $E_t = \frac{hc}{\lambda} = \frac{hc}{\lambda_{t,max}}$
 $= 2.56135 \times 10^{-19} \text{ J (as per my theory)}$.

Where $\lambda_{t,max}$ is the highest visible light wave length. Hence this is the lowest energy density. $\lambda_{t,max} = 775 \text{ nm}$.

The energy due to this energy within pluto's orbit of solar system is

$$E_{de} = \frac{\pi ab}{\pi (\lambda_{t,max} / 2\pi)^2} \cdot E_t = \frac{4\pi^2 ab \cdot E_t}{\lambda_{t,max}^2}$$
; where a and b are the

aphelion and perihelion of Pluto's orbit

\Rightarrow DARK ENERGY WITHIN PLUTO'S orbit of solar system is at least equal to an amount :

$$= E_{de} = \frac{4\pi^2 \times 7.311 \times 4.437 \times 10^{24}}{7.75^2 \times 10^{-14}} \times 2.56135 \times 10^{-19} = 5.46564 \times 10^{20} \text{ J}$$

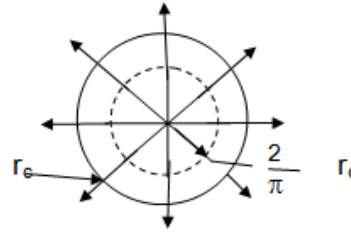
This implies := Ede = 6.08136 TONNES ; which agrees with the observed value of the total dark energy within Pluto's orbit in solar system equal to 6 Tons. Hence, my theory is right., along with the above assumptions.

IX. Annexure – V

1. Derivation of Electron / Proton charge :

Electron / Proton is like sun model.

Electron vibrates in 3 dimensions.



- a). classical radius of electron = r_c
- b) inertial radius = resonant wavelength
= $2\pi \lambda = 2\pi r_c$
- c) electron is a hollow sphere of hollowness
radius $\frac{2}{\pi} r_c$. [Every object in the universe
is a hollow sphere of radius = $\frac{2}{\pi} r_c$]
- d) gravitational radius of electron = $21.14 \times 2\pi \times r_c$

Hence, we have the following relation by equating charge energy to rotational energy of electron : (Note, it is assumed that charge of electron / proton is due to their rotation)

$$\frac{e^2}{4\pi \epsilon_0 r_c} = \frac{1}{2} \cdot \frac{2}{5} \cdot \frac{(\pi^5 - 32)}{\pi^2 (\pi^3 - 8)} \times m_e \times (2\pi \times 21.14 r_c)^2 \times \left[\frac{4\pi}{\hbar m_e c^2} \right]^2 = m_e c^2$$

(Note: for the angular speed $\frac{4\pi}{t}$ was taken; because electron as a fireball moves internally in all the 4π radians; only the outer sphere spins 2π radians. Eliminating r_c ; we get

$$e^2 = \sqrt{\frac{1}{2}} \times \sqrt{\frac{1}{0.48263}} \cdot \frac{\epsilon_0 c h}{\pi (21.14)} \Rightarrow e = 1.6412 \times 10^{-19} \text{ c}$$

Which agrees with experimental value of $e = 1.602 \times 10^{-19} \text{ c}$

Compton wavelength of electron :

If we take $r_c = 2.8179 \times 10^{-15} \text{ m}$; we have

$$\begin{aligned} \text{Compton wavelength} &= 2\pi \times \text{gravitational radius} \\ &= 2\pi \times (21.14 \times 2\pi r_c) = 2\pi (21.14 \times 2\pi \times 2.8179 \times 10^{-15}) \\ &= 2.3536 \times 10^{-12} \text{ m} \end{aligned}$$

Which agrees with observed value $2.42631 \times 10^{-12} \text{ m}$

Note :- An exactly similar deviation can be done for proton.

2. Percentage of Dark energy, Dark matter and ordinary mass in solar system upto Pluto orbit :

- a) D E = Dark energy = spatial vibration energy upto Pluto planet in Solar system = 6.08136 tons as per my theory.
- b) D M = Dark matter (the matter equivalent of the energy outpouring from sun) upto Pluto orbit in solar system = 2.2689 tons.
(derived below)
- c) O M = Ordinary mass upto Pluto orbit in solar system = 0.092 tons.
(i.e., the rest mass of sun, planets, moons to the planets, asteroids (one planet broken into pieces) = $(1+9+178+1) \times 0.487 \text{ kg}$
= $189 \times 0.487 \text{ kg} = 0.092 \text{ tons}$. Note : The absolute rest mass of sun is already derived to be 0.487 kg (in Annexure – II) and the same applies to other celestial objects in the solar system.

Dark Matter : we know as per my theory, the energy released by sun in unit time is :- $\frac{1}{\sqrt{2}} \times \frac{R_1}{r_c} \times \frac{m^2 c^4}{h}$

Dark Matter ; which is the matter equivalent of the energy out pouring upto Pluto orbit would be :

$$\frac{1}{\sqrt{2}} \times \frac{R_1}{r_1} \times \frac{m^2 c^4}{h c^2} \times T_{\text{pluto}}$$

where T pluto is the time for energy to reach Pluto from Sun.

The fraction of Dark matter present upto Pluto orbit as compared to the total dark matter released upto the midpoint between Sun and the nearest star proxima centauri is :

$$\text{Mdm:} = \frac{1}{\sqrt{2}} \times \frac{R_1}{r_1} \times \frac{m^2 c^4}{h c^2} \times T_{\text{Pluto}} \times \frac{(T_{\text{pluto}} \times c)^3}{(T_{\text{mpc}} \times c)^3}$$

We know T pluto = 19680 seconds, T mpc = 2.12 years

Substituting, we get Mdm = 2.2689 Tonnes

That is upto Pluto orbit .
 D.E. = 6.08136 tons i.e., 72.03 %
 D.M. = 2.26890 tons i.e., 26.87 %
 O.M. = 0.092 tons i.e., 1.10 %

These percentages agree with observed / predicted Percentages of D. E., D. M, & O M.

Hence, my theory explains the D. E., D. M & O. M.

3. The time sun will last before it explodes into supernova:

As per my theory, the surface density of central black hole is

$$\rho_{\text{BH}} = 3\pi \frac{M_s^3 c^2}{R_{\text{sc}} \cdot 4^2} \Rightarrow M_s^3 \propto R_{\text{sc}}$$

$$\Rightarrow M_s^3 = k R_{\text{sc}}$$

$$\Rightarrow 3M_s^2 \frac{dM_s}{dt} = k \frac{dR_{\text{sc}}}{dt}$$

We know, $\frac{dR_{\text{sc}}}{dt} = v_{\text{exp}} = \frac{c^2}{2u}$ where u is the speed of the object jetting out of the black hole.

$$\begin{aligned} \Rightarrow \frac{dM_s}{dt} &= \frac{M_s}{3 \cdot R_{\text{sc}}} \cdot \frac{dR_{\text{sc}}}{dt} \\ &= \frac{1.989 \times 10^{30} \times 9 \times 10^{16}}{3 \times 21.14 \times 6.96 \times 10^8 \times 2 \times 2.1456 \times 10^{23}} \\ &= 9.45 \text{ Billion Tons /s} \end{aligned}$$

Actually, the Sun's mass decrease due to combustion = 4.52 million Tons/s.
 Therefore, the net increase in Sun's mass is nearly = 9.45 Billion Tons / s.
 Chandrashekhar limit of mass for a star = 1.4 Ms before it explodes and becomes supernova.

Applying the above limit , we get

$$\text{time sun will last} = \frac{0.4 \times 1.989 \times 10^{30}}{9.45 \times 10^{12}} = 8.42 \times 10^{16} \text{ s}$$

$$\text{Total time} = 2.67 \text{ Billion years.}$$

Hence, the sun will last 2.67 Billion years from now before it explodes into supernova as per the above calculation. After exploding as supernova, the Sun will become a black hole and fall back into CUBH (Central Universal Black Hole).

4. The actual radius of the universe :

Suppose, the universe is finite with a definite boundary and :

- . ρ_{BH} = density of central universal black hole .
- . M_{BH} = Mass of central universal black hole .
- . R_u = Actual radius of the finite universe with boundary.
- . M_u = Mass of the universe other than the central universal BH .
- . ρ_u = density of the universe excluding the central universal BH

Then we have:

$$\frac{\rho_{BH}}{\rho_u} = \frac{M_{BH}}{\frac{4\pi}{3} R_{BH}^3} \times \frac{\frac{4\pi}{3} \left(\frac{h}{cM_u} \right)^3}{\left(\frac{h}{R_u} \right)}$$

Since, the universe other than the BH in **total** behaves like anti-matter, we have to take matter equivalents.

For the universe to be in balance ; $M_u = M_{BH}$

$$\Rightarrow \frac{\rho_{BH}}{\rho_u} = \frac{1}{M_{BH}^2} \cdot \frac{R_u}{R_{BH}^3} \cdot \frac{h^2}{c^2}$$

$$\Rightarrow \frac{\rho_{BH}^3}{\rho_u} = \frac{9}{16\pi^2} \cdot \frac{R_u}{R_{BH}^9} \cdot \frac{h^2}{c^2} \quad \text{--- (1)}$$

The force of gravitation at the surface of the BH or the universe :

$$\frac{h}{cR_u} \cdot \frac{GM_{BH}}{R_{BH}^2} = \frac{M_{BH}^2 \cdot c^3}{h} \Rightarrow \frac{h}{c \cdot R_u} \cdot \frac{G}{R_{BH}^2} = \frac{M_{BH} \cdot c^3}{h}$$

$$\Rightarrow \frac{h}{c \cdot R_u} \cdot G = \frac{4\pi}{3} \cdot \frac{R_{BH}^5 \cdot c^3}{h} \cdot \rho_{BH} \quad \text{--- (2)}$$

Substituting R_u from (1) above into equation (2) ; we get

$$R_{BH}^{14} = \left(\frac{3}{4\pi} \right)^3 \cdot \frac{h^4}{c^6} \cdot G \cdot \frac{\rho_u}{\rho_{BH}^4} \quad \text{--- (3)}$$

We know that : $\rho_{BH} = 1.037 \times 10^{165} \text{ kg / m}^3$ $\rho_u = 3 \times 10^{-27} \text{ kg / m}^3$

Substituting in (3) above, we get. $R_{BH} = 9.81 \times 10^{-64} \text{ m}$

$$\Rightarrow R_u \text{ from (1)} = 0.1324 \times 10^{40} \text{ m}$$

$$= 140 \text{ Billion Trillion light years}$$

We can conclude that:

1. The size of the actual universe is nearly 140 Billion Trillion light years radius
2. The size of the central universal black hole is $9.81 \times 10^{-64} \text{ m}$
3. The mass of the central universal black hole is $1.2 \times 10^{-23} \text{ kg}$
4. The density of the central universal black hole is $1.037 \times 10^{165} \text{ kg / m}^3$
5. The density of the universe excluding the black hole at the centre is $3 \times 10^{-27} \text{ kg / m}^3$

X. Annexure - VI

1. The reason why electron does not lose energy in a circular orbit inside an atom is as follows :

When an electron travels in a straight line in vacuum in outer space where there are no fields or forces ; it will come to a stop due to back emf of its self-induction. However, when electron travels in a circular orbit inside an atom, almost at the speed of light, it comes back to itself almost instantly and the back emf propels it, making up for the loss of speed or energy. Hence, no energy loss.

PROOF:

$$\text{Emf} = E = \frac{d\phi}{dt} = LI$$

$$\text{And, } \frac{d\phi}{dt} = \frac{d}{dt} (BA) \Rightarrow \frac{d\phi}{dt} = \frac{\mu_0 I}{2\pi R_e} \cdot \pi R_e^2 = \frac{\mu_0 R_e}{2} \cdot I$$

$$\text{So, } LI = \frac{\mu_0 R_e}{2} \cdot I$$

$$\Rightarrow L = \frac{\mu_0 R_e}{2}, \text{ where, } R_e \text{ is the radius of electron orbit and } I \text{ is electron as current.}$$

The energy stored in electron as inductor energy:

$$= \frac{1}{2} L \cdot I^2 = \frac{1}{2} \left[\frac{\mu_0 R_e}{2} \right] \left[\frac{ev}{2\pi R_e} \right]^2 = \frac{\mu_0}{16\pi^2} \frac{e^2 v^2}{R_e} \quad \text{--- (A)}$$

The energy dissipated due to back emf

$$= E \cdot e = \frac{\mu_0 \cdot R_e}{4\pi R_e^2} \cdot \frac{e^2 v^2}{2\pi} = \frac{\mu_0}{8\pi^2} \cdot \frac{e^2 v^2}{R_e} \quad \text{--- (B)}$$

$$\begin{aligned} \text{(Note : } E &= \frac{d\phi}{dt} = \frac{d}{dt} (BA) = \frac{d}{dt} \left[\frac{\mu_0 I}{2\pi R_e} \cdot \pi R_e^2 \right] \\ &= \frac{d}{dt} \left[\frac{\mu_0 \cdot R_e}{2} \right] I = \frac{\mu_0 \cdot R_e}{2} \frac{d}{dt} \left[\frac{ev}{2\pi R_e} \right] \\ &= \frac{\mu_0 \cdot R_e}{2} \cdot \frac{e v}{2\pi R_e^2} \frac{dR_e}{dt} = \frac{\mu_0 R_e}{4\pi R_e^2} \frac{e v^2}{2\pi} \end{aligned}$$

When electron travels a distance of $2\pi R_e$ in a straight time, There is a net loss of energy given by, $-\frac{1}{2} \mu^2 + E \cdot e = \frac{\mu_0}{16\pi^2} \frac{e^2 v^2}{R_e}$ from equations A and B. Hence, it stops.

However, when electron travels in a circle, after half circle, the loss in energy $= \frac{1}{2} E \cdot e = \frac{\mu_0}{16\pi^2} \frac{e^2 v^2}{R_e}$, is equal to energy stored in electron inductor.

Since, back emf propels electron, the electron inductor energy supplies equal amount of energy for electron to complete, the other half of circle. Energy loss during one half circle is equal to the energy gained during that half circle due to the energy stored in electron as an inductor, Hence, no energy loss no energy gain.

2. Derivation of g-factor of electron :

Suppose, electron is a hollow sphere of hollow radius. $\frac{2.1435}{\pi} r_c$, where r_c is the classical radius.

In my theory, I have already derived correct values of electronic charge assuming electron to be a hollow sphere of radius of hollowness $\frac{2}{\pi} r_c$. But, the correct hollowness radius is $\frac{2.1435}{\pi} r_c$. So, $\mu = g \frac{-e}{2m_e}$. $L =$ magnetic dipole moment of an electron.

Where, $L =$ angular momentum $= I \omega$. For a sphere of radii r_1 (internal) and r_2 (external),

$$I = \frac{2}{5} M \left[\frac{r_2^5 - r_1^5}{r_2^3 - r_1^3} \right] \Rightarrow g = \left[\frac{\pi^3 - (2.1435)^3}{\pi^5 - (2.1435)^5} \right] (5\pi^2/2) = 2.0023716677$$

agrees with the experimental value = 2.00231930436182

3. Negative time : If you take the flow of time from the surface of Central Universal Black Hole (CUBH) away in the universe as positive, then the flow of time into CUBH is negative.

4. Life span of electron :

In my theory, I have already stated that solar system is like a Deuterium model with Saturn as electron and Sun as proton and neutron.

Time inertia of electron at speed "c" = $\frac{h}{m_e \cdot c^2}$

Time inertia of Saturn at speed "v": $\Delta t = \frac{\Delta t_0}{\sqrt{1-v^2/c^2}} = \frac{1}{\sqrt{1-v^2/c^2}} \left[\frac{h}{m_e \cdot c^2} \right]$

But... $\frac{1}{\sqrt{1-v^2/c^2}} = \frac{M}{m_e} = \frac{\text{Mass of Saturn}}{\text{Mass of electron}}$

So, life span of electron, which is one of the quantum pair of entangled elements of proton and electron coming out of neutron, till it becomes Saturn

= $\frac{M \text{ saturn}}{m_e} \times \frac{h}{m_e c^2} = \frac{5.683 \times 10^{26}}{9.1 \times 10^{-31}} \times \frac{6.626 \times 10^{-34}}{9.1 \times 10^{-31} \times 9 \times 10^{16}}$

$0.0505 \times 10^{38} \text{ s} = 1.60134 \times 10^{29} \text{ years.}$

The electron stays as Saturn for only a few billion years.

Similarly, life span of proton = $\frac{(\text{Mass of sun}) / 2}{\text{Mass of electron}} \times$ time inertia of electron

= $\frac{1.989 \times 10^{30}}{2 \times 9.1 \times 10^{-31}} \times \frac{6.626 \times 10^{-34}}{9.1 \times 10^{-31} \times 9 \times 10^{16}} = 2.804 \times 10^{32} \text{ years}$

The life span of electron = 1.60134×10^{29} years
 agrees with the estimated value of at least 6×10^{28} years.

The life span of proton = 2.804×10^{32} years
 agrees with the proton decay life span of half-life of about 10^{32} years.

5. Age of the observable universe :

The universe other than the Central Universal Black Hole (CUBH) has an average velocity “c” for all the celestial objects in it.

The time inertia of the particle jetting out of CUBH:

Suppose, a particle of mass m_u and initial speed u comes out of CUBH. It slows down to a speed of “c” the velocity of light and becomes an electron.

The time inertia till the particle becomes electron = $\frac{(h/m_u \cdot c^2)}{(h/m_u \cdot u^2)} \cdot \frac{h}{m_e c^2} = \frac{u^2}{c^2} \cdot \frac{h}{m_e c^2}$

Suppose, the total mass of the universe is M_u and number of stars = 10^{24} . As most of the stars are binary, and also, a star system like solar system is binary, with sun as one star and a planet like Jupiter on the verge of becoming star. Hence, the number of star-like objects = 2×10^{24} .

The primordial particle which jets out of CUBH becomes electron and then a star, and then a matter particle (black hole) and then falls back into CUBH. So, maximum average mass of a star – like object since its journey out of CUBH into star = $\frac{M_u}{2 \times 10^{24}}$, where M_u = mass of the observable universe.

Therefore,

Time span or age of observable universe, T = time of the oldest star

$$T = \frac{M_u}{2 \times 10^{24} \times m_u} \times \frac{u^2}{c^2} \times \frac{h}{m_e c^2}$$

$$\Rightarrow T = 4.4348 \times 10^{17} \text{ s} = 14.05 \text{ Billion years.}$$

agrees with estimated value of $T = 13.8 \text{ Billion years.}$

Values used are :

$$M_u = 1.59486 \times 10^{55} \text{ kg}$$

$$m_u = 7.441 \times 10^{22} \text{ kg. (as per my theory)}$$

$$u = 2.1456 \times 10^{23} \text{ m/s (as per my theory)}$$

$$m_e = 9.1 \times 10^{-31} \text{ kg}$$

$$c = 3 \times 10^8 \text{ m/s.}$$

$$h = 6.626 \times 10^{-34} \text{ J s}^{-1}$$

XI. Annexure - VII**1. Quantum Gravitational constant (G_A) :**

Consider Hydrogen atom. The force due to proton on the space

surrounding it is = $\frac{m_p^2 c^3}{h}$, half of this force is turned inwards, the other

half appears as tension on the space, which is gravity. That is, $\frac{1}{2} \frac{m_p^2 c^3}{h}$

Now, the force experienced by electron in the orbit is given by

$$\frac{1}{2} \frac{m_p^2 c^3}{h} \cdot \frac{\pi V_i^2}{4\pi V_e^2} \quad \text{where :}$$

v_i = inertial radius of electron = $2\pi v_c$ (v_c = classical radius of electron)

v_e = orbital radius of electron.

This is the gravitational force experienced by electron in the orbit around proton in Hydrogen atom.

$$\text{Hence, } G_A \cdot \frac{m_p m_e}{v_e^2} = \frac{1}{2} \cdot \frac{m_p^2 c^3}{h} \cdot \frac{\pi v_i^2}{4\pi v_e^2}$$

$$\Rightarrow G_A = \frac{1}{2} \frac{m_p \cdot c^3 \cdot v_i^2}{h \cdot m_e \cdot 4}, \quad \text{where } m_p = 1.673 \times 10^{-27}$$

$$c = 3 \times 10^8$$

$$v_i = 2.8179 \times 10^{-15} \times 2\pi$$

$$\Rightarrow G_A = 2.933844 \times 10^{33} \quad \text{which agrees with observed value of}$$

$$\Rightarrow G_A = 2.9772774 \times 10^{33}$$

2. C M B R :

$$\text{As per my theory, CMBR frequency} = \gamma_1 = \frac{2v_1}{c} \cdot \frac{c}{\ell_t} = \frac{2 v_1}{\ell_t}$$

Where ℓ_t is the wavelength of violet and v_1 is the relative speed of the Earth w.r.t. the Sun's speed which is nearly "c". That is the absolute speed of Earth is $c + v_1$. Now, suppose, the absolute speed of Sun or any planet is $c + v_i$, Then, CMBR from Sun or any planet as observed by an observer on Earth, due to relativistic doppler effect :

$$(\gamma_1) \text{ Sun / planet} = \frac{2 v_i}{\ell_t} \times \frac{c - c - v_1}{c - c - v_i} = \frac{2 v_1}{\ell_t}$$

Hence, CMBR is same frequency for all observers within the universe, because of Doppler effect, even though the absolute velocities of various celestial objects are different, The CMBR is due to the absolute motion of the various celestial objects. The various celestial objects originated with the same initial mass from CUBH and are at different stages of evolution. However, because of relativistic Doppler effect as above, CMBR is same frequency for all observers within the universe.

3. The angle Sun's motion in the galaxy makes with the Earth's ecliptic (α)

The Earth's ecliptic changes from $+ 23.5^\circ$ to $- 23.5^\circ$ during one year, so on an average 47° is the angle which the Earth – Sun line makes with the perpendicular line from Sun to Earth, along the ecliptic. Hence, the

average gravitational force felt along the ecliptic is $G \frac{M_S M_E}{R^2} \sin 47^\circ$

Suppose, α is the angle between the Earth's ecliptic and the Sun's path, then

$$\tan \alpha = \frac{\frac{dm_d}{dt} \times u \times \frac{\pi R_E^2}{4\pi R^2}}{G \frac{M_S M_E}{R^2} (\sin 47^\circ)}, \text{ where } \frac{dm_d}{dt} .$$

is the rate of dark matter production from Sun and 'u' is the speed of the dark matter = 2.1456×10^{23}

$$\Rightarrow \frac{1}{\sqrt{2}} \frac{R_1}{r_1} \frac{m_p^2 c^2}{h} \frac{\pi R_E^2}{4\pi R^2} \cdot u = G \frac{M_S M_E}{R^2} (\sin 47^\circ) \tan \alpha$$

$$\Rightarrow \tan \alpha = 1.798 \Rightarrow \alpha = 60.92^\circ \text{ which agrees with observed}$$

value of 60.2° .

Values used are:

$$R_1 = 6.96 \times 10^8$$

$$r_1 = 4.14481 \times 10^{-5}$$

$$m_p = 1.674 \times 10^{-27}$$

$$c = 2.99 \times 10^8$$

$$R_E = 6.378 \times 10^6$$

$$h = 6.6236 \times 10^{-34}$$

$$u = 2.1456 \times 10^{23}$$

$$G = 6.673 \times 10^{-11}$$

$$M_S = 1.989 \times 10^{30}$$

$$R = 1.496 \times 10^{11}$$

$$M_E = 5.972 \times 10^{24}$$

4. Negative time Sun takes to reach CUBH from absolute rest.

Let M_o be the rest mass of Sun. The change in mass of the Sun as it changes direction from going away to coming towards CUBH:

$$= - M_o - (+ M_o) = - 2 M_o$$

$$\text{Compton wavelength of } - 2M_o = - \frac{h}{2M_o c}$$

When Sun reaches CUBH, it will have mass M_u and speed u ; which

$$\text{means Compton wavelength} = + \frac{h}{M_u \cdot u}$$

$$\text{change in Compton wavelength} = \frac{-h}{2M_o c} - \frac{h}{M_u \cdot u} = \frac{-h}{2M_o c}$$

$$\text{as } \frac{h}{M_u \cdot u} \approx 0$$

$$\text{The rate of contraction} = \text{rate of expansion} = \frac{c^2}{2u}$$

$$\text{Time taken to reach CUBH} = - \frac{h}{2M_o c} \times \frac{2u}{c^2} = - \frac{h \times u}{M_o c^3}$$

The average velocity of Sun on its returns path to

CUBH = $\frac{0 + u}{2} = \frac{u}{2}$. Hence, considering the time inertia across the journey :

$$\begin{aligned} \text{Total time to reach CUBH from rest} &= - \frac{h \times u}{M_o c^2} \times \left[\frac{h}{M_o c^2} \right] \\ &= - \frac{h \times M_u \times u^3}{M_o^2 c^5 \times 4} = - 2.11175 \times 10^{17} = - 6.6963 \text{ billion years} \end{aligned}$$

Values used :

$$M_u = 7.441 \times 10^{22} \text{ kg}, M_o = 0.487 \text{ kg}, h = 6.6236 \times 10^{-34}$$

$$u = 2.1456 \times 10^{23} \text{ m/s}, c = 3 \times 10^8 \text{ m/s}$$

The time Sun has taken to come to present stage from CUBH = 4.4491 billion years

Time to become BH = 2.67 billion years

So, time to come to absolute rest = $4.4491 + 2.67 = 7.1191$ billion years

Total life cycle of Sun from a bubble from CUBH and back to CUBH = $7.1191 - (-6.6963) = 13.8954$ billion years, which agrees with the age of the observable universe.

5. Why light has universal speed limit :

The speed of light in vacuum is the speed at which the space vibration propagates (nearly 3×10^8 m/s) in the universe. Light being carried by space cannot exceed the speed of its carrier). The space vibration and its speed are explained in the explanation of Dark Energy. (Annexure – IV)

6. Some more of my research findings:

- a) All black holes are matter.
- b) Black hole sucks in only matter stars and repels antimatter stars.
- c) There are matter and antimatter stars.
- d) The atomic nucleus keeps matter equivalent of its particles entangled with it, as already mentioned earlier in my theory. Similarly, the solar system, galaxy, cluster, super cluster and the universe.
- e) If the entangled particles (entangled within themselves or with the nucleus) separate; the time to communicate between them would be the distance between the matter equivalents of the entangled particles on the nucleus, divided by the surface speed of rotation of the nucleus, which is infinitesimally small. Hence, the communication between entangled particles, even if they be at the two opposite ends of the universe looks to be instantaneous.
- f) The quantum communication between two entangled photons released from laser through diamond crystal would take a time of :
 $(2\pi r_n)/0.9c = 6.16 \times 10^{-23}$ seconds, i.e., 61.6 yocto seconds. Where, r_n = radius of the diamond nucleus = 2.65×10^{-15} m, and $0.9c$ is the surface speed of the nucleus. This time for quantum communication, 61.6 yocto seconds, is the same for all distances of separation between the two entangled photons. Since, this time is so small, it looks to be instantaneous.

g) The time inertia for black hole body radiation (CUBH) is of the order of 10^{-73} seconds. Hence, this can be utilized to measure the quantum communication.

XII. Annexure-VIII

1. PROOF that the planets attract the Sun with a force which is nearly 20,000 billion times greater than the Sun’s force of gravitational attraction on the planets:

I have already predicted that the Earth exerts a force on the Sun which is 2.1637×10^{13} times the gravitational force of the Sun on the Earth.

The acceleration of Sun away from the Central Universal Black Hole(CUBH) due to repulsion from the CUBH =
 = (speed of sun bubble from CUBH – present speed of sun)/age of sun
 = $(2.1456 \times 10^{23} - 3 \times 10^8 - 2.0993 \times 10^{-7})/2.603$ billion years
 = 0.0147809×10^8

The force of repulsion from the CUBH
 = $0.0147809 \times 10^8 \times 1.99 \times 10^{30} = 2.9414 \times 10^{36}$

The force of attraction from the planets’ calculation:

Planet	Average Density (g/cm ³)	Mass (10 ²⁴ kg)	Distance From sun (10 ⁹ m)	Density Factor (d/d _E) ^{2/3}	$\frac{GMm}{R^2}$ (10 ²³ N)	Force from planets (10 ³⁶ N)
Mercury	5.4	0.330	57.9	0.9878	0.1307	0.2793
Venus	5.2	4.87	108.2	0.9633	0.5524	1.1514
Earth	5.5	5.97	149.6	1.0000	0.3542	0.7664
Mars	3.9	0.643	227.9	0.7952	0.0164	0.0282
Jupiter	1.3	1898	778.6	0.3823	3.9695	3.2835
Saturn	0.7	568	1433.5	0.2530	0.3670	0.2009
Uranus	1.3	86.8	2872.5	0.3823	0.0139	0.0115
Neptune	1.6	102	4495.1	0.4390	0.0067	0.0063

Note: 1. Speed of Sun bubble from CUBH was derived in Age of the Sun (since its birth) in Annexure – I.

2. Force from planets = $(GMm/R^2) \times$ density factor $\times 2.1637 \times 10^{13}$
 Total force from planets = 5.7275×10^{36}

Adding the force from asteroids (equal to one planet, Mars) and the moons of the planets (equal to one planet, Mars) approximately, then

Total attractive force on the Sun = $5.7839 \times 10^{36} \text{N}$

So, now if we take the component of the total attractive force on the sun along the line joining the CUBH and the Sun:

(As per my theory Sun's path of motion makes an angle 59.34° with the ecliptic of the planets)

Then, total attractive force = $5.7839 \times 10^{36} \times \cos(59.34^\circ) = 2.9494 \times 10^{36} \text{N}$

The net attractive force = $2.9494 \times 10^{36} \text{N}$

The net repulsive force = $2.9414 \times 10^{36} \text{N}$

Hence, it follows that both the repulsive force from CUBH and the Attractive force from the planets, moons and the asteroids are equal; and opposite along the line joining the CUBH with the Sun, resulting in no net force. That is no acceleration or deceleration of Sun in an absolute sense. However, because the mass of the Sun is increasing at the rate of 9.45 billion tons per second, it will explode as a supernova and become a black hole after 2.67 billion years when its mass reaches 1.4 times its present mass.

2. Derivation of Planck's constant (h) :

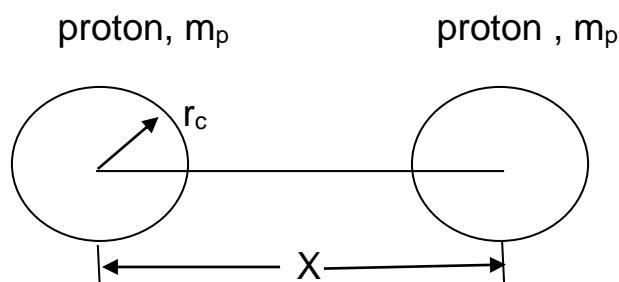
The power radiated by Sun as per my theory is :

$$\frac{1}{\sqrt{2}} \times \frac{R_1}{r_1} \times \frac{m_p^2 c^4}{h} = 4 \times 10^{26} \text{ watts}$$

$$\Rightarrow h = \frac{1}{\sqrt{2}} \times \frac{6.96 \times 10^8}{4.14481 \times 10^{-5}} \times \frac{1.672^2 \times 10^{-54} \times 2.99^4 \times 10^{32}}{4 \times 10^{26}}$$

$\Rightarrow h = 6.6326 \times 10^{-34}$ SI units; which agrees with the experimental value of 6.626×10^{-34} SI units.

3. Quantum tunneling :



r_c = Compton wavelength of proton.

$$\text{Potential energy} = U = \frac{m_p^2 c^3}{h} \cdot r_c^2 \left[\frac{1}{x} - \frac{1}{2r_c} \right], \text{ for}$$

$x > 2 r_c$, $U < 0$, force is repulsive

$x = 2 r_c$, $U = 0$, force is zero

$x < 2 r_c$, $U > 0$, force is attractive

So, quantum tunneling between two protons takes place at a distance of less than 2 x Compton wavelength of proton. This agrees with the fact that strong force between two protons starts from a distance less than 2.5×10^{-15} m. Here, quantum tunneling starts from $2r_c = 2.6418 \times 10^{-15}$ m. Both agree.

Now, density in the core of Sun = 113420 kg / m^3 . No of protons per m^3
 $= 67.834 \times 10^{30}$ protons

No of protons in volume of sphere of radius $2r_c =$

$$= \frac{4\pi}{3} \times (2.6428 \times 10^{-15})^3 \times 67.834 \times 10^{30}$$

$= 5.2448 \times 10^{-12}$ protons per sphere of radius $2r_c$

Probability of finding another proton in the sphere of radius $2r_c$

$= 5.2448 \times 10^{-12} \times 5.2448 \times 10^{-12}$. Speed of protons in the core 500 km/s (distance from which a proton has to come for quantum tunneling on an average =250 km in one second) So, probability of quantum tunneling in the core of sun in one second

$$= P_t = \frac{5.2448 \times 10^{-12} \times 5.2448 \times 10^{-12} \times 1}{250 \times 10^3}$$

That is $0.9088 \text{ in } 10^{28}$ ($\frac{1}{P_t} = 0.9088 \times 10^{28}$) agrees with the observed value of 1 in 10^{28} per second.

4. Solar Corona heating :

The net attractive force on the sun by the planets = $F = 2.9494 \times 10^{36}$ N (derived in Annexure – VIII above).

$$\left[\begin{array}{l} \text{This force is at Sun's chromosphere.} \\ \text{Force in the corona} = F \times \frac{R_s^3 - \text{corona}}{R_s^3} \end{array} \right]$$

The force per unit volume at corona – chromosphere interface of the solar corona region is given by (Fv) :

$$\begin{aligned} F_v &= F \times \frac{1}{\frac{4\pi}{3} R_s^3} \cdot \left[\frac{\frac{4\pi}{3} [R_s^3 - \text{corona} - R_s^3]}{\frac{4\pi}{3} \times R_s^3} \right] \\ &= F \times \frac{3}{4\pi} \cdot \left[\frac{[21.14]^3 - 1}{R_s^3} \right] \\ &= 2.9494 \times 10^{36} \cdot \frac{3 \times [21.14]^3}{4\pi \times [6.96]^3 \times 10^{24}} \end{aligned}$$

$$F_v = 19.7302 \times 10^{12}$$

Energy per unit volume of the corona – chromosphere interface

$$= \text{SQRT}(F_v \times ch) = 19.771 \times 10^{-7}$$

$$\text{Density of the corona} = 1.5 \times 10^{-16} \text{ kg/m}^3$$

$$\text{Mass per unit volume} = 1.5 \times 10^{-16} = \text{kg} = m_v$$

$$\text{Heat energy per unit volume} = m_v \times C_v \times \Delta T$$

$$\Rightarrow 1.5 \times 10^{-16} \times 10142 \times \Delta T = 19.771 \times 10^{-7}$$

$$\Delta T = 1299608 \text{ } ^\circ\text{K}$$

T corona = 1299608 + 6000 = 1305608 \approx 1.305 million $^\circ\text{K}$;
at the solar corona-chromosphere interface;
which agrees with the observed value of 1 to 1.5 million degrees Kelvin

5. Strong CP problem :

The radioactive neutron splits due to weak nuclear force into proton – electron with a separation distance of 1.0499×10^{-18} m. Neutron mean square radius = 0.8×10^{-15} m. Electron Compton wavelength = 2.43×10^{-12} m . Assuming, the electron fits into ordinary neutron; the separation of proton and electron inside a neutron would be .

$$= \frac{(0.8 \times 10^{-15})^3}{(2.43 \times 10^{-12})^3} \times 1.0499 \times 10^{-18} \text{ m}$$

$$= 0.374627 \times 10^{-26} \text{ cm}$$

Therefore, the neutron electric dipole moment = 0.374627×10^{-26} e. cm; which agrees with experimental value of $< 3 \times 10^{-26}$ e. cm.

The probability of CP violation in strong interaction is less than one – billionth.

Hence , CP violation does not occur in strong interaction.

Hence there is always strong CP symmetry. This solves the strong CP problem.

XIII. Annexure - IX

1. Matter – Anti matter parity in mass within Solar system:

$$\text{Mass of neutrino} = \frac{9.1 \times 10^{-31}}{5.2 \times 10^5} = 1.75 \times 10^{-36}$$

$$\text{Compton wavelength of neutrino} = \frac{h}{m_n c} = \frac{6.626 \times 10^{-34}}{1.75 \times 10^{-36} \times 2.99 \times 10^8}$$

$$= 1.26632 \times 10^{-6}$$

$$\text{Number of neutrinos up to Pluto} = \frac{(19680 \times 2.99 \times 10^8)^2}{(1.26632 \times 10^{-6})^2}$$

$$= N = 21.592634 \times 10^{36}$$

$$\text{Mass of neutrinos} = 21.592634 \times 10^{36} \times 1.75 \times 10^{-36} = 37.78711 \text{ Kg.}$$

Mass of void inside the neutrinos

$$= m_n \times \frac{\pi}{2.1435} \times N \text{ factor of the above mass added}$$

$$\text{Total matter mass} = \left[\frac{\pi}{2.1435} + 1 \right] \times 37.78711 = 93.169 \text{ kg} = 0.0932 \text{ tons}$$

Which agrees with the total antimatter mass of Sun + planets+ moons + Asteroids = 0.092 tons

Hence, there is a slight matter- antimatter disparity inside the solar system, which may mean similar disparity in the universe as well.

2. Speed of separation of earth due to neutrinos impact:

$$\text{Radius of the hollow (void) of the earth} = \frac{4 R_E}{2 \pi} = 4054 \text{ km}$$

$$\text{No of neutrinos reaching Earth} = 3 \times 10^6 \times 10^9 / \text{s}$$

Area of Earth facing neutrinos' impact,

$$\text{when the neutrinos rebound} = 2\pi (4054 \times 10^3)^2$$

$$\text{Momentum neutrinos} = \frac{\Delta E}{3 \times 10^8} \text{ each}$$

$$\text{Suppose, mass of Earth} = M_E, \text{ then } M_E \cdot V_E = N (2 m_n \cdot v_n)$$

where N= no of neutrinos , m_n = mass of neutrino , v_n = speed of impact

$$\Rightarrow M_E \cdot V_E = 2 (N \Delta p)$$

Assuming the collision is perfectly elastic and head – on , then the acceleration

$$A_E = \frac{3 \times 10^6 \times 10^9 \times 2\pi (4.054 \times 10^6)^2 \times \frac{2 \times 2.864 \times 1.6 \times 2}{3 \times 10^8}}{5.972 \times 10^{24}}$$

(Note : neutrino energy = 6MeV on an average because, 86% of energy = 400 keV, 14 % of energy = 18 MeV

$$\Rightarrow \Delta p = (2 \times KE)/c, \text{ where KE = kinetic Energy), Average energy} = 2.864 \text{ MeV)}$$

S (distance of separation of Earth in one year)

$$= \frac{1}{2} A_{E..t}^2 = \frac{3 \times 2\pi \times 4.054^2 \times 2 \times 2.864 \times 1.6 \times 10^{-18} \times t^2}{2 \times 5.972 \times 3}$$

Where t = 365.4 X 24 X 3600 seconds i.e., one year

So S = 15.79483 cm / yr, agrees with observed value of 15.3 cm / yr.

3. SONOLUMINESCENCE:

Solubility of air in water at STP = 0.023 g /kg of water

In the air 99.91% is empty space. Radius of the air bubble

$$= \left(\frac{3}{4\pi} \times 0.023 \times 10^{-6} \right)^{1/3}$$

$$r = 0.176 \times 10^{-2} \text{ m} \quad \frac{\lambda}{4} = r, \text{ for resonance.}$$

The air bubble is antinode for the acoustic wave. $\lambda = 0.7057 \times 10^{-2}$

Speed of sound in water = 1480 m/s. Frequency, f of the acoustic

$$\text{wave in resonance with the air bubble} = \frac{1480}{0.7057 \times 10^{-2}} = 209721.$$

Suppose, the empty space and the neutrinos get destroyed due to Sonoluminescence:

$$\text{Energy} = 0.023 \times (\text{Mass of neutrinos in the air bubble per mass, 1g}) \times c^2$$

$$\text{Volume of 1g of air bubble} = V = \frac{10^{-3}}{10^3} V_0 = 10^{-6} V_0.$$

$$\text{No of neutrinos in 1g} = \frac{10^{-6}}{\frac{4\pi}{3} (1.2136 \times 10^{-6})^3} = 1.3356 \times 10^{11}$$

Where $1.2136 \times 10^{-6} \text{ m} = \text{Compton wavelength of neutrino.}$

$$\Rightarrow \text{energy} = \frac{0.023 \times 1.3356 \times 10^{11}}{\left(1 - \frac{2.1435^3}{\pi^3}\right)} \times \frac{9.1 \times 10^{31}}{500000} \times 9 \times 10^{16}$$

$$\left(\text{Note : Actual volume} = \frac{0.023 \times 10^{-6}}{\left(1 - \frac{2.1456^3}{\pi^3} \right)} \right)$$

Power = energy X frequency .

= 1.26 mW ; agrees with observed value of 1 to 10 mW.

$$\frac{4\pi}{3} \times 0.3176 \times r^3 = 0.023 \times 10^{-6}$$

$$\Rightarrow r = 0.2585 \times 10^{-2} . \quad \text{Empty space} = 99.91\%$$

actual air molecules = 0.09%

$$r = 0.09 \times 0.2585 \times 10^{-2} = 2.3265 \times 10^{-4}$$

Applying Stefan's law : $1.26 \times 10^{-3} = 4\pi r^2 \times \sigma \times T^4$

$$\Rightarrow T^4 = \frac{1.26 \times 10^{-3} \times 4 \times 209721}{4\pi (2.3265 \times 10^{-4})^2 \times (5.67 \times 10^{-8})} = 2.74 \times 10^{16}$$

$T = 12,412^\circ \text{K}$, this is the temperature due to sonoluminescence ; agrees with the observed range of 5000°K to $20,000^\circ\text{K}$.

4. Energy Density of vacuum space:

As per my Theory,

Dark Energy up to Pluto = 6.08136 tons

Dark Matter up to Pluto = 2.26890 tons

Anti-matter up to Pluto = 0.0934 tons

Matter up to Pluto = 0.0934 tons

Total Energy up to Pluto = 8.53706 tons

$$\Delta E = \Delta mc^2 = 8537.06 \times 9 \times 10^{16} = 7.683354 \times 10^{20} \text{ J}$$

Volume up to Pluto

$$= \pi ab \times (\text{linear length of space energy vertically, totally})$$

Where , a = aphelion and b = perihelion of Pluto orbit.

$$\text{Energy Density} = \frac{7.683354 \times 10^{20}}{\pi \times 7.311 \times 4.437 \times 10^{24} \times (\text{total vertical linear length of space wave})}$$

(Note : Energy with amplitude A is given by

$$E = \frac{1}{4} \mu A^2 4\pi^2 f^2 \lambda, \quad \text{where } \mu = \text{mass density / unit length}$$

$$\Rightarrow A = 0.9676 \times 10^{-6}$$

$$\text{Compton amplitude} = 2 \pi \times 0.9676 \times 10^{-6}$$

$$\text{Linear length due to Compton amplitude above mid-point} = 2 \pi \times 2 \pi \times 0.9676 \times 10^{-6}$$

$$\text{Total vertical length of the space wave} = 2 \times 2 \pi \times 2 \pi \times 0.9676 \times 10^{-6}$$

$$\text{Energy Density} = \frac{7.683354 \times 10^{16}}{\pi \times 7.311 \times 4.437 \times 10^{24} \times 2 \times 4\pi^2 \times 0.9676 \times 10^{-6}}$$

$$= 0.0987 \text{ J / m}^3, \text{ agrees with observed value of nearly } 0.1 \text{ J / m}^3.$$

5. Dark Matter does quantum communication:

A) Every energy-emitting object emits an

equivalent amount ($\Delta m = \frac{\Delta E}{c^2}$) of dark matter.

B) Dark Matter travels at the speed of 2.1456×10^{23} m/s through space and does quantum communication (proof of speed was given in Annexure – VII in the derivation of the angle, Sun's motion in the galaxy makes with Earth's ecliptic.)

C) Observable universe diameter = 28 BLY = 2.65×10^{26} m
 is travelled by dark matter in 0.3432 hours

That is,
$$\frac{2.65 \times 10^{26}}{2.1456 \times 10^{23}} = 1.2355 \times 10^3 \text{ s} = 0.3432 \text{ hours}$$

because most of the universe is just space.

D) Time to travel 1400 km distance for the dark matter through space for

quantum communication =
$$\frac{1.4 \times 10^6}{2.1456 \times 10^{23}} = 6.525 \times 10^{-18} \text{ s}$$

which is almost instantaneous

E) Dark Matter travels through space, celestial objects, black holes, except through the void inside them.

F) Dark Matter can be slowed down by spatial friction.

6. Dark Matter particle emitted by electron is the biggest dark matter particle in size :

$$r_{dme} = \frac{h}{2\pi m_e u} = 0.54 \times 10^{-27} \text{ m} \Rightarrow \text{size} = 4\pi r_{dme}^2 = 3.665 \times 10^{-54} \text{ m}^2$$

which is nearly 1000 times smaller than the sensitivity of the XENON1T detector (sensitive down to $4.1 \times 10^{-51} \text{ m}^2$) ; and hence escapes detection in XENON1T detector.

7. Speed of separation of Proxima Centauri star from the Sun (due to impact of dark matter) (Proof of Dark Matter Speed) :

Acceleration of Proxima Centauri (pc) away from Sun = $a_1 =$

$$\text{m/s}^2 \frac{1}{\sqrt{2}} \cdot \frac{R_1}{r_i} \frac{m^2 c^4}{hc^2} \frac{2\pi (r_{pc} \times \frac{2.1435}{\pi})^2}{4\pi R^2} \times \frac{2u}{M_{pc}} = 0.0116 \times 10^{-7}$$

Acceleration of Sun away from PC = $a_2 =$

$$= a_2 = \frac{1}{\sqrt{2}} \frac{R_{pc}}{r_{1pc}} \frac{m^2 c^4}{hc^2} \frac{2\pi (R_1 X \frac{2.1435}{\pi})^2}{4\pi R^2} \frac{2u}{M_s}$$

$$= 0.0177 \times 10^{-7} \text{ m/s}^2$$

$$\text{Relative acceleration} = a = a_1 + a_2 = 0.0293 \times 10^{-7} \text{ m/s}^2$$

Velocity of separation = SQRT(2 a x distance to proxima centauri) = 16.415 km/s ; due to impact of dark matter. Actually, the radial velocity of separation is 22.4 km/s, (difference being due to impact of dark energy).

Where , R_{pc} = radius of PC = 0.1542 R_s
 M_{pc} = mass of PC = 0.1221 M_s

$$r_{1pc} = \text{mean-free path on PC} = r_1 X \frac{3100 \text{ (temperature on PC)}}{6000 \text{ (temperature on Sun)}}$$

$$u = \text{speed of dark matter} = 2.1456 \times 10^{23} \text{ m/s}$$

Note : Another Proof of Dark Matter speed was given in Annexure-I: point.10, in the derivation of Age of the Sun(since its birth).

XIV. Annexure – X

1. Star formation in the observable universe (OU):

Energy released per second in the observable universe

$$= \frac{1}{\sqrt{2}} \frac{R_1^1}{\gamma_1^1} m_{pc}^2 \times 10^{24} \times \frac{m_{pc}^2}{h} \left(\text{i.e., } \frac{U^1}{t_p} \right), \text{ where}$$

$$R_1^1 = \text{average star radius} = \frac{(M^1)^3}{(M_s)^3} \times \sqrt{4.25} R_s$$

$$\gamma_1^1 = \text{average star mean-free path} = \gamma_1 \text{ (on the surface of sun)}$$

$$M^1 = 4.25 \times M_s = \text{average mass of a star;}$$

$$10^{24} = \text{number of stars in observable universe (OU).}$$

$$= 3.4553 \times 10^{51}$$

If 'n' number of stars are formed per second, (due to the re-conversion into matter of the energy released by stars). Then, $n \times M^1 \times c^2 = 3.4553 \times 10^{51}$, $n = 4,516$

\Rightarrow 4,516 stars are formed per second in the observable universe; which agrees with the observed value of nearly 4,800 stars per second.

The difference can be due to star formation from black holes.

2. Relative velocity of separation (expansion) of the universe:

The Sun goes with an absolute speed of nearly 'c' and retarded by spatial friction 'a'.

$$\vartheta = \sqrt{u^2 - 2as} = \sqrt{c^2 - 2as} = c \sqrt{1 - \frac{2as}{c^2}}$$

$$\text{since } \frac{2as}{c^2} \ll 1 \quad \vartheta = c \left(1 - \frac{as}{c^2}\right)$$

Relative velocity of separation observed from one star is ϑ_s .

$$\Rightarrow 2 \vartheta_s = c - \vartheta = \frac{as}{c} \Rightarrow \vartheta_s = H_o s \text{ \& } H_o = \frac{a}{2c} ; \text{ we know that}$$

$$\text{retardation due to spatial friction} = a \frac{1}{M_s} \cdot c \cdot \frac{dM_s}{dt} \Rightarrow H_o = \frac{1}{2M_s} \cdot \frac{dM_s}{dt}$$

$$\text{(and } \frac{dM_s}{dt} = 9.45 \times 10^{12} \text{ as per my theory)}$$

$$= \frac{9.45 \times 10^{12}}{2 \times 2 \times 10^{30}} = 2.3675 \times 10^{-18}$$

Which agrees with the observed value of $H_o = 2.5 \times 10^{-18}$

3. Matter – mass and anti –matter mass of the universe:

Anti –matter mass of the universe (i.e., the mass of all stars)

$$= \left[\frac{R_A}{R_o} \right]^3 \times N_1 \times M^1 = 2.5927 \times 10^{92} \text{ kg.}$$

R_A = actual radius of the universe = 140 BT ly = 1.3244×10^{39} m

R_o = radius of the observable universe = 43.989×10^{25} m

$N_1 =$ number of stars in the observable universe = 10^{24} .

M^1 average star mass = $4.25 \times M_s$.

$$\text{Space-mass} = \frac{h}{lc} \times \frac{4\pi l^3}{3} \times \frac{4\pi}{3} \times R_A^3, \text{ (where } l = \text{amplitude}$$

of space wave = $8 \pi^2 \times 0.9676 \times 10^{-6}$) = 1.506×10^{92} kg.

Matter-mass of the black holes = 1.450×10^{92} kg.

$$(\text{= } 4.25 \times 2 \times 10^{30} \times 6.25 \times 10^9 \times \frac{R_A^3}{R_o^3} \times (= 27.3 \times 10^{36}) \times \frac{10^{24}}{10^{11}})$$

$$(\text{= } M^1 \times \text{number of Black holes per galaxy} \times \text{Black hole mass} \times \frac{R_A^3}{R_o^3} \\ \times \text{number of galaxies per } R_o .$$

Matter-mass = Black holes mass + space-mass = 2.956×10^{92} kg.

Anti matter mass = mass of stars = 2.5927×10^{92} kg.

Matter-mass and anti matter mass are almost equal ; with matter – mass slightly more. In the process, the actual radius of the universe is confirmed as 140 Billion Trillion Light years.

4. Pressure of space at the surface of CUBH (Central Universal Black hole):

Pressure due to a column of height R_A is

$$P = \rho \times R_A \text{ where } \rho = \text{spatial density,}$$

$a =$ spatial retardation, $R_A =$ actual radius of the universe.

$$P = \frac{h}{lc} \times \frac{4\pi l^3}{3} \times \frac{c}{M_s} \cdot \frac{dM_s}{dt} \quad R_A = 29056$$

Where $l = 8\pi^2 \times 0.9676 \times 10^{-6}$ m. $R_A = 140$ BTL y
Suppose, CUBH is full of electrons. Then,

$$\gamma = \gamma_e \times 3 \sqrt{\frac{1.2 \times 10^{-23}}{0.91 \times 10^{-32}}} = 3.090 \times 10^{12}$$

Where r_e = classical radius of electron = 2.818×10^{-15}

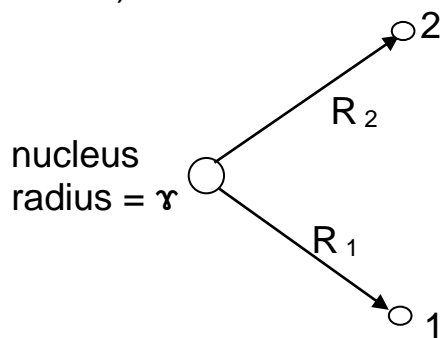
$$P_{\text{CUBH}} = \frac{m c^3}{h} \times \frac{\pi r^2}{4\pi l^2 \times 4\pi l^2} = 32,715 \text{ N / m}^2.$$

agrees with 29056 N / m^2 ; which means the CUBH is anti-matter spinning at speed more than the speed of light.

5. Quantum entanglement & Quantum communication:

a) QC is done by dark matter at the speed of $2.1456 \times 10^{23} \text{ m/s}$ as per my Theory.

b) QE :



1 and 2 are entangled pair. The time of QC between QE pair is a max of

$$\frac{R_1}{u} + \frac{R_2}{u} + \frac{2\pi r}{c} \quad \text{where}$$

R_1 & R_2 are the distances of QE pair from the nucleus (radius = r) from which they have cone; & u is the speed of dark matter.

6. Smallest possible mass at Earth:

$$\frac{h}{lc} = \frac{6.626 \times 10^{-34}}{2 \times 4\pi^2 \times 0.9676 \times 10^{-6} \times \frac{1}{0.1646} \times 3 \times 10^8} = 0.476 \times 10^{-38} \text{ kg}$$

l – the amplitude of space wave = $8\pi^2 \times 0.9676 \times 10^{-6} \text{ m}$ is at a distance of $1230 l \text{ s}$ from the sun (the mid - point amplitude – wise; between Sun and Pluto).

$$\text{The factor} = 0.1646 = \left[\frac{499 l \text{ s}}{1230 l \text{ s}} \right]^2$$

This smallest mass of space wave at Earth is less than the minimum neutrino mass of $0.04 \text{ eV} = 7.12 \times 10^{-34} \text{ kg}$

7. Distance of Sun from CUBH:

Speed of Sun released from CUBH = $u = 2.1456 \times 10^{23}$ m/s

Retardation by space to Sun .

$$= \frac{u - c}{\text{age of sun}} = \frac{2.1456 \times 10^{23}}{140.31 \times 10^{15}} = 1.5292 \times 10^6 \text{ m/s}^2$$

Distance of separation of sun from the CUBH =

$$\text{CUBH} = \frac{u^2 - c^2}{2a} = \frac{2.1456^2 \times 10^{46}}{2 \times 1.5292 \times 10^6} = 1.5052 \times 10^{40} \text{ m}$$

Actual radius of the universe = 0.1324×10^{40} m

Assuming a layer of thickness = 0.1324×10^{40} m,

for each layer of mini universe above CUBH, we are (along with sun)

now in $\left[\frac{1.5052 \times 10^{40}}{0.1324 \times 10^{40}} = 11.37 \right]$, 12th mini universe from CUBH.

8. Brahma day :

One Brahma day is 4.32×10^9 human years. Suppose our 12th universe is half bright with stars and half-dark with black holes. Also , Suppose, the 8th universe (= $7.03231987 R_A$) is the place from where humans have migrated to the 12th universe. If the plate of the universe (8th) is moving tangentially at the speed of dark matter, then it would take

$$\frac{0.1324 \times 10^{40} \times 7.03231987 \times \pi}{2.1456 \times 10^{23}} \text{ seconds to see}$$

one Brahma (bright) day = $1.363288323 \times 10^{17}$ seconds. which agrees with

the belief that one Brahma (light) day = 4.32×10^9 human years
= $1.36328832 \times 10^{17}$ seconds.

9. Every second in the observable universe, 10 stars explode forming black holes / neutron stars:

Stars with final masses in the range of 2.5 solar masses collapse to form black holes.

Total mass in OU : 1.5×10^{53} kg.

Average mass of a star = $\frac{1.5 \times 10^{53}}{10^{24}} = 1.5 \times 10^{29}$ kg

Per second, the number of stars which come to 2.5 solar masses explode and become black holes.

$$\frac{dm_{\text{star}}}{dt} = \frac{M_{\text{star}}}{3R_{\text{star}}} \times \left[\frac{dR_{\text{star}}}{dt} = \frac{c^2}{2u} \right]$$

$$= \frac{9.45 \times 10^{12} \times 1.5 \times 10^{29}}{2 \times 10^{30} \times (13.33)^3} \times \frac{1}{\frac{21.14}{\sqrt{13.33}}}$$

R_{star} will be less by a factor of $\frac{21.14}{\sqrt{13.33}}$ where $21.14 \times R_s = R_{s\text{-corona}}$

$$\text{and } 13.13 = \frac{2.0 \times 10^{30}}{0.15 \times 10^{30}} = \frac{M_s}{M_{\text{star}}} ;$$

$$\frac{2.99 \times 10^8 \times 10^{24}}{33.33 \times 2.5 \times 2 \times 10^{30}} \times \frac{21.14}{\sqrt{13.33}} = 10.387$$

10.387 stars per second become black holes in the observable universe; which agrees with 10 stars / s.

10. Speed of Dark Energy:

Temperature of the universe $2.7525 \text{ } ^\circ\text{K}$

$$\text{Dark energy up to Pluto} = \frac{(\pi ab) 4\pi E_\ell}{\lambda^2_{\ell,\text{max}}} = \approx 19680 \times \pi ab \times \frac{c}{\vartheta_{dE}} \times T^4$$

Where symbols have usual meaning as per my Theory and ϑ_{dE} = speed of dark energy. We know, by observation

$T = 2.732 \text{ }^{\circ} \text{K}$, $E_{\ell} = 2.56135 \times 10^{-19} \text{ J}$, $\lambda_{\ell, \text{max}} = 7.75 \times 10^{-7}$ and $19680 \text{ c} = \text{distance(average) to Pluto solving the above, we get } \vartheta_{\text{dE}} = 9.9758 \times 10^{12} \text{ m/s}$.

11. Proof of speed of dark energy (ϑ_{dE}):

Assume, the dark energy causes the centrifugal force on the Earth , which is required to keep the Earth in equilibrium.

$$F = G \frac{M_{\text{S}} M_{\text{E}}}{R^2}, \text{equivalent energy} = \sqrt{Fch} = 84118 \times \sqrt{G \frac{M_{\text{S}} M_{\text{E}} ch}{R^2}}$$

$$= 8.4118 \times 10^{-2}$$

2 space waves separated by a (peak to peak) distance of $4 \times 8\pi^2 \times 0.9676 \times 10^{-6} \times \frac{1}{0.1646}$ impact as dark energy on the Earth along the equator .

$$\frac{1}{2} \times \frac{h}{\ell c} \times \vartheta_{\text{dE}}^2 \times \frac{\pi R_{\text{E}}}{4 \ell} = 8.4118 \times 10^{-12}$$

$$\vartheta_{\text{dE}} = 9.4225 \times 10^{12} \text{ m/s}.$$

Which agrees with the speed of dark energy, calculated as per the temperature of the universe = $9.9758 \times 10^{12} \text{ m/s}$

12. Proof of speed of dark energy (2nd time) using the kinetic energy of the rogue planet SIMP J013656.5 + 093347:

1. Velocity(μ -proper motion) = $1.189 \text{ mas /yr} = 34.44 \text{ km /s}$
2. Distance = $19.93 \ell \text{ y}$.
3. Mass = 12.7 MJup
4. Radius = $1.22 \text{ R}_{\text{S}}$

$$\frac{1}{2} \times \frac{m_{\text{S-W}} \times \vartheta_{\text{dE}}^2 \times 2 \pi (1.22 \times 6.96 \times 10^8)^2}{\pi (8\pi^2 \times \frac{0.9676 \times 10^{-6}}{0.1646} \times 7.9339^2 \times 10^{-4})^2}$$

$$= \frac{1}{2} \times 12.7 \times 1.898 \times 3.444^2 \times 10^8 \times 10^{27}$$

Where m_{S-W} mass of space-wave at Earth = 0.476×10^{-38} kg; and

$$7.9339 \times 10^{-7} = \frac{499}{1220} \times \frac{1}{19.93 \times 365.25 \times 24 \times 3600}$$

Solving the above, we get

$\vartheta_{dE} = 9.9727 \times 10^{12}$ m/s. ; which agrees with the first derivation of

$$\vartheta_{dE} = 9.9758 \times 10^{12} \text{ m/s}$$

13. Proof of speed of dark energy (3rd time) using the speed of separation of Proxima Centauri (pc):

speed of PC separation = 22.4 km / s = ϑ

speed of PC separation due to dark matter = 16.415 km = ϑ_{dm}

$$(\vartheta^2 - \vartheta_{dm}^2) = 501760000 - 269452225 = 232307775$$

$$\vartheta_{dE}^2 = \frac{10^{15} \times 2.446 \times 232307775 \times (8\pi \times 0.9676)^2 \times 3.726^4}{2 \times 2.89 \times 0.1646 \times 1.0728^2 \times 0.1646^2 \times 4\pi^2 \times 5269.23}$$

$$\text{where } 5269.23 = \frac{27400}{5.2} = \frac{\text{Surface gravity of sun}}{\text{Surface gravity of pc}}$$

$\vartheta_{dE} = 10.1777 \times 10^{12}$ m/s., the average of all the four findings of

$$\vartheta_{dE} = 9.88705 \times 10^{12} \text{ m/s}$$

14. Smallest measurable time:

The biggest neutrino mass = 0.19 eV = m_n

$$\text{- smallest measurable time} = \frac{h}{m_n u^2}$$

$$= 4.248 \times 10^{-44} \text{ seconds; agrees with Planck time of } 5.39 \times 10^{-44} \text{ seconds.}$$

15. Vacuum energy density :

We are in an ocean of space with the matter as the solid ice; If we take space as liquid water and steam vapor as the energy waves.

The three states obey :

$$E = mc^2 = \frac{hc}{\lambda} = hf$$

$$\text{vacuum energy density} = \frac{hc}{\lambda} \times \frac{1}{\frac{4\pi\lambda^3}{3}} \times 2.$$

The factor of 2 appears; because of energy due to a) space - wave and b) due to space – mass.

= 0.108 J/m³ , which agrees with the observed value of 0.1J/m³ (nearly).

16. Fifth force:

The X17 particle observed in the search for dark matter which is a likely fifth force as observed in Hungarian beryllium experiment, has a mass of 17 MeV.

This was calculated for mass using my universal force and it came as 16.512 MeV. Thus, it is confirmed that if there is a fifth force, that again is a manifestation of my universal force. (Explained in detail in Annexure – XI)

17. Solar Corona Heating Mystery:

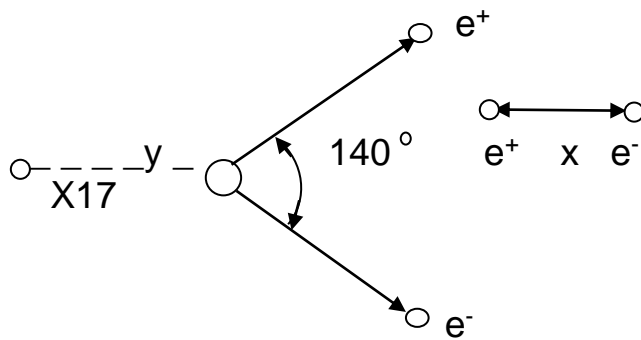
The solar corona heating mystery was solved using the impact of dark matter particles from the Sun on the solar corona electrons, and the solar Corona temperature was derived as 1,697,309⁰K, which agreed with the observed values of 1 to 2 million⁰K. (Explained in detail in Annexure – XI)

XV. Annexure - XI

1. How FIFTH force is same as universal force:

Suppose, the X17 particle which is observed in Hungarian beryllium experiment ; and helium experiments subsequently ;

which was supposed to be the fifth force particle split into positron (e^+) and electron (e^-) as shown



(y) is an energy such that $\lambda_{\text{photon}} = 1.213 \times 10^{-12}$ m. The energy as per universal force is given by :

$$U = \frac{2 m_e^2 c^3}{h} \cdot \lambda_{c,\text{photon}}^2 \left[\int_{\ell^1}^{\infty} \frac{1}{x^2} dx \right] \times \frac{1}{\frac{140}{360}}$$

Where , $\ell^1 = \frac{\lambda_{c,\text{photon}}}{2}$ for complete repulsion between e^+ and e^- which

are matter and antimatter ; the phase angle must be half of between the positron and electron.

$$U = \frac{2 \times 9.1^2 \times 10^{-62} \times 27 \times 10^{24}}{6.626 \times 10^{-34}} \times \frac{4\pi^2 \times 1.213^2 \times 10^{-24} \times 2}{2\pi \times 1.213 \times 10^{-12}} \times \frac{360}{140}$$

Note: $\lambda_{c,\text{photon}} = 2\pi \times \lambda_{\text{photon}}$

We get, $U = 16.512$ MeV, which agrees with the observed value of 17 MeV, confirming that the fifth force if it exists, is a manifestation of universal force. Fifth force , causes accelerated expansion of the universe.

2. Solar Corona heating mystery solved using the impact of dark matter particles on solar corona electrons:

$$v_{rms} = \sqrt{\frac{3RT}{M}}$$

Assuming a normal temperature of the surface ,for the corona ie; 6000⁰ k, then the speed of the particles in solar corona = 386 m/s.
Mass of dark matter particle from sun .

$$m_{dmp} = \frac{1}{\sqrt{2}} \times \frac{R_1}{r_1} \times \frac{mc^2}{c^2} \times \frac{v_1^2}{R_1^2} = 0.7 \times 10^{-40} \text{ kg}$$

In the event of collision of dmp with an electron, the velocity likely for the electron after collision

$$v = \frac{0.7 \times 10^{-40} \times 2.1456 \times 10^{23}}{9.1 \times 10^{-31}} = 0.165 \times 10^{14} \text{ m/s}$$

Probability of collision is given by P =

$$\frac{\left(\frac{4\pi}{3}\right) \lambda_e^3}{\left(\frac{4\pi}{3}\right) (386)^3} \times \frac{R_1^2}{r_1^2} \times \frac{m_p c^2}{h} \times \frac{4\pi R_1^2 \times 4}{4\pi \times R_{corona}^2} \times \frac{4 \times 4\pi (386)^2}{4\pi \times R_{corona}^2}$$

at the middle of corona. = 4.4781 X 10⁻¹⁰

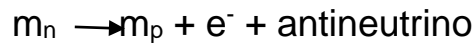
$$v_{rms} = 4.4781 \times 10^{-10} \times 0.165 \times 10^{14} = 6501 \text{ m/s}$$

$$T = \frac{v_{rms}^2}{3R} = 2,188,776 \text{ }^0\text{k} , \text{ which agrees}$$

with observed value of 1 to 2 million⁰ k

3. Half life time of neutron decay :

The free, unstable neutrons outside the nucleus decay as per :



$$\begin{aligned} \text{Mass - defect in the decay} &= \Delta m = (m_n - m_p - m_{e^-} - \frac{m_n}{\gamma}) \\ &= (1.6749274980 - 1.6726219237 - 0.0009109384 \\ &\quad - 0.0000000002) \times 10^{-27} \text{ kg} = 0.0013946357 \times 10^{-27} \text{ kg} \end{aligned}$$

$$\text{Time created} = \frac{h}{\Delta mc^2}$$

We know that $\frac{h}{m_n c^2}$ is the time inertia in seconds of one neutron.

One second is equal to $\frac{m_n c^2}{h}$ neutrons. Total time created before

$$\text{decay} = \frac{h}{\Delta mc^2} \times \frac{m_n c^2}{h} = \frac{m_n}{\Delta m} \text{ seconds}$$

$$\text{Half - life if neutron decay} = \frac{m_n}{2 \times \Delta m} \text{ seconds}$$

$$= \frac{1.6749274980}{0.0013946351 \times 2} = 600.489 \text{ seconds}$$

Which agrees with the half - life for free, unstable neutrons observed outside the nucleus = 611 ± 1 seconds.

Note : during the time created by the destruction of mass - defect of neutron = proton + electron + antineutrino; the neutron stays as neutron and is under going the process of decay.

4. Mean temperature of the universe:

Assume a vacuum cube of side 1m, volume = 1m^3 , then the energy inside the cube is 0.0987 J as per my Theory; which is the energy density of vacuum = $0.0987 \text{ J} / \text{m}^3$

Suppose, T is the temperature of the cube. One space – wave for inside the cube has length

$$l = 8\pi^2 \times 0.9676 \times 10^{-6} \text{ m.}$$

The no of waves inside the cube = $1 / l^3$

Energy per one wave – length = $0.0987 \times l^3$

Time inertia of space – wave for 1m = $1/c$

Power as per Stefan – Boltzmann law is

$$\sigma T^4 \times 6 \times 1^2 = \frac{0.0987 \times (8\pi^2 \times 0.9676 \times 10^{-6})^3}{1/c}$$

$$T^4 = \frac{0.0987 \times (8\pi^2 \times 0.9676 \times 10^{-6})^3 \times 3 \times 10^8}{5.66969 \times 10^{-8} \times 6}$$

$$\Rightarrow T = 2.496^0 \text{ k agrees with the observed value of } 2.725^0 \text{ k}$$

5. Solution of hierarchy problem :

Electro weak force (F_w) is 10^{25} times gravitational force (F_G). Two oppositely spinning spherical bodies, that is, proton and electron (hence the opposite charge) repel at distances less than r_w = distance of weak interaction and start attracting at distances greater than this (r_w) This is the property of all spinning objects.

The universal force due to electron is negligible. The universal force due to

$$\text{proton and electron} = \frac{m_p^2 c^3}{h} + \frac{m_e^2 c^3}{h} \rightsquigarrow \frac{m_p^2 c^3}{h} \text{ acting upon a radius of}$$

r_c = Compton wave-length of proton .

Compton wave length of weak interaction = γ_w

Classical radius of weak interaction = $\frac{\gamma_w}{2\pi}$

Maximum repulsion at the mid point = $\frac{\gamma_w}{2 \times 2\pi} = \frac{\gamma_w}{4\pi}$

$$\begin{aligned} \text{So, } \frac{F_W}{F_G} &= \frac{m^2_p c^3}{h} \times \frac{(\gamma_w / 4\pi)^2}{\gamma_c^2} \times \frac{(\gamma_w / 4\pi)^2}{G m_p \cdot m_e} \\ &= \frac{1.674 \times 10^{-27} \times 27 \times 10^{24} \times \left[\frac{1.05 \times 10^{-18}}{4\pi} \right]^4}{6.626 \times 10^{-34} \times 1.3209^2 \times 10^{-30} \times 6.6 \times 10^{-11} \times 9.1 \times 10^{-31}} \\ &= 3.168 \times 10^{25}; \text{ which agrees with the observed value of } \frac{F_W}{F_G} \\ &\text{being } 10^{25} \text{ times} \end{aligned}$$

6. Fermi scale (electro weak scale) :

The Fermi scale of electro weak energies happens at a radius

r_{ew} = effective radius of electro – weak interaction = 10^{-17} m.

Therefore, it is maximum at mid-point $\frac{10^{-17}}{2}$

So, Fermi scale of electro weak energy :

$$\begin{aligned} &= \frac{m^2_p c^3}{h} \cdot \frac{\gamma_c^2}{\gamma_{ew} / 2} \\ &= \frac{1.6726^2 \times 10^{-54} \times 27 \times 10^{24} \times 1.3214^2 \times 10^{-30} \times 2}{6.626 \times 10^{-34} \times 10^{-17}} \end{aligned}$$

= $3.1981 \times 10^{-8} \text{ J} = 248.5 \text{ GeV}$; which agrees with the observed value of 246 GeV .

Note : The electro - weak force peaks at distance $\frac{1.05 \times 10^{-18}}{4\pi} \text{ m}$;

and electroweak energy peaks at a distance of $\frac{10^{-17}}{2} \text{ m}$;

because force and energy follow different graphs and peak at different distances .

7. Gravitational waves travel at the speed of dark energy :

Suppose, T is the actual time gravitational waves take to travel to earth in the recent LIGO experiment done in 2015.

$$T^1 = T \sqrt{1 - \frac{c^2}{\vartheta_{gw}^2}} \Rightarrow T - T^1 = T \frac{c^2}{2\vartheta_{gw}^2}$$

$$\Rightarrow 2\Delta T^1 = T \frac{c^2}{2\vartheta_{gw}^2} \text{ ————— (A)}$$

But, we know that (by differentiating)

$$\Delta T^1 = \Delta T \sqrt{1 - \frac{c^2}{\vartheta_{gw}^2}} - T \frac{c^2 \Delta \vartheta_{gw}}{\vartheta_{gw}^3}$$

$$= \Delta T - \frac{T \cdot c^2 (\Delta \vartheta_{gw} - c)}{\vartheta_{gw}^3} = \Delta T - \frac{T c^2}{\vartheta_{gw}^2} + T \frac{c^3}{\vartheta_{gw}^3}$$

From (A), $\frac{T c^2}{\vartheta_{gw}^2} = 4\Delta T^1$

$$\Rightarrow 5 \Delta T^1 = \Delta T + T \frac{c^3}{\vartheta_{gw}^3} ; \text{ and } \Delta T = - \Delta T^1 , \text{ because } \vartheta_{gw} > c.$$

Suppose, T_o is the observed time of travel and ; ϑ_s is the relative speed of separation of the two black holes which merged. Then ,

$$T = \frac{T_o c + T_o \vartheta_s}{\vartheta_{gw}} , \text{ Now, since } \vartheta_s = 2.87 \times 10^7 \text{ m/s} ,$$

$$\text{we have, } T = T_o \frac{C + \vartheta_s}{\vartheta_{gw}}$$

$$\begin{aligned} \Delta T^1 &= 1.3372396 \times 10^9 \times 365.25 \times 24 \times 3600 \times \frac{27 \times 10^{24} \times 10^7}{6 \times (\vartheta_{gw}^3)} \times \frac{32.87}{\vartheta_{gw}} \\ &= 7 \text{ milliseconds observed in the two Hanford and Louisiana LIGO detectors. Hence, the speed of gravitational waves is given by solving the above equation} = 9.718 \times 10^{12} \text{ m/s; which agrees with the speed of dark energy} = 9.887 \times 10^{12} \text{ m/s.} \end{aligned}$$

Hence, gravitational waves travel at the speed of dark energy.

XVI. Annexure - XII

I. Proof of speed of gravitational waves :

$$\text{Power of motion of Sun} = \frac{dMs}{dt} \cdot c \cdot c = 8.505 \times 10^{29} . \text{ (Total).}$$

Power due to creation of dark matter particles

$$= \frac{dm_{dmp}}{dt} \cdot u^2 = 7.3216 \times 10^{29}$$

$$\text{Balance} = D E + \text{Gravity} = \left(\frac{1}{2} + \frac{1}{2} \right) = 1.1834 \times 10^{29}$$

$$\text{Number of dmp released per second} = \frac{2m_p c^2}{h} = 2 \times 2.272 \times 10^{23}$$

$$\text{Gravity wave energy} = \frac{1.1834 \times 10^{29}}{2 \times 2.272 \times 10^{23}} = 0.1302 \times 10^6$$

We have ℓ (space- wave, wavelength) = 693.7 n m.

$$\text{From the equation of time - inertia ; } \Delta T' = \Delta T = \frac{\vartheta_{gw}}{c}$$

$$\Delta T' = \frac{\ell}{c} ; \Delta T = \frac{h}{2m_p c^2} \Rightarrow \frac{\ell}{\vartheta_{gw}} = \frac{h}{2m_p c^2} \cdot \frac{\vartheta_{gw}}{c}$$

$$\Rightarrow \vartheta_{gw}^2 = \frac{2m_p c^3 \ell}{h} \Rightarrow \vartheta_{gw} = 9.7242 \times 10^{12} \text{ m/s} ;$$

Which agrees with the average 9.887×10^{12} m/s derived earlier.

2. Quantum decoherence time:

mass of space - wave = 0.476×10^{-38} kg

$$\text{Time inertia of a space - wave} = \frac{h}{m_{sw} \times c^2} =$$

$$\frac{6.626 \times 10^{-34}}{0.476 \times 10^{-38} \times 9 \times 10^{16}} = 1.5467 \text{ ps.}$$

This is the time for decoherence at the highest; and agrees with 1 to 5 ps observed typically for quantum decoherence of qubits in quantum computers.

3) Quantum computing using dark matter particles :

The dark matter particles released on Earth have radius =

$$\frac{1}{\sqrt{2}} \times m_p \times \frac{r_2}{R_2} \times \frac{m_1}{m_2} \times 2 = m_{dmp. E}$$

$$= \frac{1}{\sqrt{2}} \times \frac{1.6726 \times 10^{-27} \times 1.83 \times 10^{-10}}{6.357 \times 10^6 \times \frac{20.5375}{2}} = 0.3316 \times 10^{-44}$$

$$\text{Time- inertia of a dmp on Earth} = \frac{6.626 \times 10^{-34}}{0.3316 \times 10^{-44} \times 9 \times 10^{16}}$$

$$= 2.222 \times 10^8 \text{ s.} = 2569.7 \text{ days .}$$

The decoherence time for qubits using dark matter particles on Earth = 2569.7 days = 7.0354 years.

The speed of such a quantum computer Will be 0.7152×10^{15} times the proton based or even electron- based quantum computers. [Because, all dark matter particles of all origins travel at 2.1456×10^{23} m/s].

4) Total Energy of CUBH :

Suppose, the matter equivalent mass of CUBH

$$= M, \text{ then } \left(\frac{M}{m_e} \times m_{dme} \right)^2 \times \frac{u^3}{h} \text{ is the force} = \frac{M^2_{DME} c^3}{h}$$

$$= \frac{m^2_{dme} c^3}{h} = \frac{m^2_e u^3}{h} \Rightarrow m^2_{dme} = m^2_e \cdot \frac{u^3}{c^3}$$

(M = matter equivalent mass for CUBH

$$= \frac{h}{2\pi R_{CUBH} \times c} = \frac{h}{2\pi \times 9.81 \times 10^{-64} \times 3 \times 10^8} = 3.5953 \times 10^{20}$$

$$M^2 \times \frac{u^6}{c^3 h} = M^2_{DME} \times \frac{c^3}{h} \Rightarrow M_{DME} = M \times \frac{u^3}{c^3}$$

Here, M_{DME} is one dark matter particle - equivalent of CUBH. m_{dme} is dark matter particle - equivalent of electron.

Hence, the energy of CUBH = $M \times \frac{u^3}{c^3} \times u^2 = 6.055 \times 10^{111} \text{J}$.

Energy of 132 universes = 1 cosmos = $6.0424 \times 10^{111} \text{J}$.

14 mini universes (Earth in one of the mini universe), each being 140 BT ly (BT ly = Billion Trillion light years) wide make one universe, and :

132 universes = 1 cosmos.

That is 132 X 14 mini universes around CUBH. All concentric spheres of 140 BT ly width.

5) Rate of increase of Sun's mass:

Force of attraction by planets = $5.7839 \times 10^{36}N$ in a direction at an angle 59.34° to the direction of repulsion from CUBH.

Perpendicular component to force from CUBH = 5.7839×10^{36}
Sine (59.34°)

Velocity of expansion of Sun in the direction of force from the planets

$$= \frac{c^2}{2u}$$

Hence, velocity of expansion perpendicular to force from the CUBH =

$$\frac{c^2}{2u} \text{ Sine } (59.34^\circ)$$

Therefore, $\frac{dM_s}{dt} c^2 = 5.7839 \times 10^{36} \text{ Sine } (59.34^\circ) \times \frac{c^2}{2u} \text{ Sine } (59.34^\circ)$

$$\Rightarrow \frac{dM_s}{dt} = \frac{5.7839 \times 10^{36} \times \text{Sine}^2 (59.34^\circ)}{2u}$$

= 9.9735 B tons/s ; agrees with the earlier derivation of 9.45 B tons/s.

6) Speed of snapshot of the cosmos taken by the CUBH (speed of imagination):

$$\text{Time inertia of the CUBH} = \frac{hc^3}{Mu^5}$$

$$\text{Total time of mapping the cosmos once by CUBH} = \frac{2hc^3}{Mu^5}$$

$$\text{Total distance covered for mapping of the cosmos} = 2\pi R_{TOT}$$

Therefore, highest possible speed is the speed of snapshot of the cosmos

$$\text{taken by the CUBH} = \frac{2\pi R_{TOT} \times Mu^5}{2hc^3} =$$

$$\frac{7.68669 \times 10^{42} \times 1.4146 \times 10^{22} \times 4.572 \times 10^{116}}{1.789 \times 10^{-8}}$$

$$= 2.7638 \times 10^{189} \text{ m/s}$$

$$= 1.4146 \times 10^{22} \text{ is the dark matter equivalent mass of CUBH.}$$

7) Cosmological constant (Δ):

$$\Delta = 8\pi d_{\text{vac}} \frac{G}{c^4}$$

2 Space - waves with a peak to peak distance of

$$4 \times 8\pi^2 \times \frac{0.9676}{0.1646} \times 10^{-6} \text{ hit the earth.}$$

$$r \text{ (space - wave)} = 4 \times \frac{8\pi^2 \times 0.9676 \times 10^{-6}}{4 \times 2 \times 2 \pi \times 0.1646}$$

$$\text{Volume of space - wave} = \frac{1.68855 \times 10^{-12}}{8}$$

$$\text{mass-energy of space - wave} = \frac{0.476 \times 10^{-38}}{4} \times 9 \times 10^{16}$$

$$\text{Energy density} = \frac{8}{4} \times 2 \times 537 \times 10^{-10} \text{ J/m}^3 \text{ for one space - wave.}$$

Note: 2 space waves impact Earth @ 180° phase difference between them.

Maximum energy density of vacuum at Earth = $2 \times 2.537 \times 10^{-10} \text{ J/m}^3$

$$= 5.074 \times 10^{-10} \text{ J / m}^3$$

$$\text{Therefore, } \Delta = 8\pi \times 5.074 \times 10^{-10} \times \frac{6.676 \times 10^{-11}}{81 \times 10^{32}}$$

$$= 1.051046 \times 10^{-52} / \text{m}^2,$$

which agrees with observed volume of $1.1056 \times 10^{-52} / \text{m}^2$,

8) When matter is destroyed in sun dark matter and dark energy are released which are nearly equal in energy content and in opposite directions at the same time :

In Sun, $m_{\text{dmp}} = 0.62 \times 10^{-40} \text{ kg}$ (as per Theory)

$$\text{No. of hydrogen atoms on Sun's surface} = \frac{4\pi R_1^2}{4\pi r_1^2} = \frac{R_1^2}{r_1^2}$$

Dark-matter released energy =

$$(1 / 2) \times \frac{R_1^2}{r_1^2} \times m_{\text{dmp}} \times u^2 = 8.03663 \times 10^{19} \text{ J along the ecliptic.}$$

So, over the entire Sun's surface

$$= 2\pi \times 8.03663 \times 10^{19} \text{ J} = 50.49566 \times 10^{19} \text{ J}$$

So, comparing with the dark energy up to Pluto orbit (= $54.73224 \times 10^{19} \text{ J}$) both are nearly equal. Here. DME < DE, hence the expansion.

There is an equal amount of DME released by the Sun as the energy is released. The DME released from the sun keeps the solar system in tact within its coordinates in the Milky Way galaxy; because, DME is attractive and tends to contain. The DE within solar system up to Pluto orbit is because of the rotation of the seen and the planets. Since DE is slightly more than DME, the solar system slowly expands.

9) Proof that the cosmos consists of 132 universes, with each universe containing 14 mini universes of 140 BT ly - width :

$$\begin{aligned} \text{Space density} = \ell &= \frac{0.467 \times 10^{-38}}{\frac{4\pi}{3} \left[\frac{4\pi \times 0.9676}{0.1646} \times 10^{-6} \right]^3} \\ &= 2.818 \times 10^{-23} \end{aligned}$$

Suppose R is the radius of the cosmos.

Assume a square cylinder of cross section square with v_e side (v_e is the Compton wave length of one electron in CUBH)

$$\frac{\ell^2 c^3 \times (r_e^2 \times R)^2}{h A} = + \frac{1.2^2 \times 10^{-46} \times 2.1456^3 \times 10^{69}}{2 \times A \times h}$$

[the factor half is because, half the force is inwards]

$$\text{Note } v_e = 24.3 \times 10^{-12}$$

$$R^2 = 6.1363 \times 10^{84}$$

$$\Rightarrow R = 2.4772 \times 10^{42}$$

⇒ 133.64 universes and 14 mini universes.

The discrepancy between 132 (earlier value) and the present value 133.64 is because there is space gap between universes. That is, 24.567 BT ly; between successive universes.

10. Hubble’s constant (H_o) derived using excess DE in solar system :

$$\begin{aligned} &\text{Excess DE over DME} \\ &= (54.73224 - 50.49566) \times 10^{19} \text{ J.} \\ &= 4.23568 \times 10^{19} \text{ J} \end{aligned}$$

$$\frac{1}{2} m \vartheta^2 = \text{Excess DE} = \frac{1}{2} \times 1.989 \times 10^{30} \cdot \vartheta^2 = 4.23568 \times 10^{19}.$$

$\vartheta = 6.5262 \times 10^{-6}$ and $\vartheta^1 = 2\pi\vartheta$, when ϑ^1 is radial speed.

$$\vartheta^1 = H_o 2\pi R_{sc} \Rightarrow H_o = \frac{6.5262 \times 10^{-6}}{2\pi \times 2\pi \times 1.471344 \times 10^{10}} \times \frac{1}{4\sqrt{2}}$$

= $1.9862 \times 10^{-18} \text{ s}^{-1}$ which agrees with observed value of $2.262 \times 10^{-18} \text{ s}^{-1}$

[2 space waves = peak to peak 4 amplitudes = $\frac{1}{16^{\text{th}}}$ of DE is

to be taken, Half the DE helps in separation of sun from stars

and $\frac{1}{2}$ in separation from planets.

Hence, the factor $\frac{1}{\sqrt{2}}$ appears]

11. Using Poiseuille’s law to find out the time of formation of the cosmos :

Force of retardation of sun

$$= 5.9645524 \times 10^{36} \text{ N} = 6\pi \eta R_{sc}\vartheta \text{ (Stoke’s law)}$$

$$\Rightarrow \eta = \frac{5.9645524 \times 10^{36} \times \cos(59.43)}{6\pi \times 1.471344 \times 10^{10} \times 3 \times 10^8} \times \frac{1}{1.989 \times 10^{30}} \times \frac{2.5}{2.266}$$

fractional difference due to Hubble constant

$$= 3.6 \times 10^{-14} \times \cos(59.43) \times \frac{2.5}{2.266}$$

Poiseuille's equation :

$$Q \text{ (volume rate of flow of space from CUBH)} = \frac{\pi Pr^4}{8 \eta R} \quad \text{Where, P is the}$$

pressure difference between CUBH and the periphery of cosmos, η is the viscosity of space, r is the Compton wave length of one electron in CUBH, and R is the radius of cosmos.

$$Q = \frac{v}{T} = \frac{\pi Pr^4}{8 \eta R} \Rightarrow T = \frac{(4\pi/3)R^4 8 \eta}{\pi Pr^4} ; \text{ and } P = \frac{m^2 u^3}{h r^2}$$

$$\Rightarrow T = (4\pi/3) \frac{6.1363^2 \times 10^{168} \times 8 \times 3.604 \times 10^{-14} \times \cos(59.43)}{\pi \times 1.2^2 \times 10^{-46} \times 2.1456^3 \times 10^{69}} \times \frac{2.5}{2.266}$$

$$\frac{6.626 \times 10^{-34}}{\times 2.43^2 \times 10^{-24}}$$

= 309.7944 trillion years; which agrees with the Indian estimate of 311.04 trillion years.

12) Fine structure constant (α):

As per my theory, the time inertia of a body with speed, ϑ is $\frac{h}{m\vartheta^2}$

To cover distance of $2\pi r$ in time-inertia, is possible only if 'r' is the

Bohr radius for electron of mass m_e

$$\text{Hence, } \vartheta = \frac{2\pi r}{h/m_e\vartheta^2} \Rightarrow \vartheta = \frac{h}{2\pi m_e r}$$

$$\text{Therefore, fine structure constant} = \frac{\vartheta}{c} = \frac{h}{2\pi m_e r c} \text{ using}$$

the values $v = 5.291772109 \times 10^{-11}$

$$m_e = 9.10938356 \times 10^{-31}$$

$$c = 2.99792458 \times 10^8$$

$$h = 6.62607004 \times 10^{-34}$$

We get α = fine structure constant

$$= 0.0072973526 ; \text{ which agrees}$$

with observed value = 0.0072973525628.

13) Speed of space flow at our mini universe (or observable universe) :

We are in the 12th mini universe from the CUBH, at 11.762 R_A , where $R_A=140$ BT ly.

Recall, I said dark energy is due to the flow of space.

Speed of space flow at the periphery of cosmos =

$$\frac{(133.64 \times 10 \times 0.1324 \times 10^{40})}{311.04 \times 10^{12} \text{ years}} / 2\pi \leftarrow \text{Compton factor.}$$

$$= 2.5254 \times 10^{20} / 2 \pi$$

Speed of space flow @ 11.762 R_A distance that is our observable universe.

$$= \frac{4\pi}{3} \times (11.762 \times 0.1324 \times 10^{40})^3 \times \frac{2.5254 \times 10^{20}}{2\pi} \times \frac{4\pi}{3} \times (133.64 \times 14 \times 0.1324 \times 10^{40})^3$$

= 9.9862 $\times 10^{12}$ m/s. agrees with the earlier derived speed of dark energy for our OU = 9.887 $\times 10^{12}$ m/s.

14) Rydberg constant:

As per my theory the universal force due to Proton in hydrogen atom is given by:

$$\frac{1}{2} \frac{m_p^2 \vartheta_p^3}{h} \quad \text{Suppose } v_i \text{ is the inertial radius} \\ \text{and } v_e \text{ is the orbital radius of electron}$$

$$\text{Energy } U = \frac{1}{2} \times \frac{m_p^2 \vartheta_p^3}{h} \times \int_{\alpha}^{v_e} \frac{\pi r_i^2}{4\pi r_e^2} \times dr_e = \frac{1}{8} \frac{m_p^2 \vartheta_p^3}{h} \frac{r_i^2}{r_e}$$

$$\text{So } \Delta E = \frac{m_p^2 \vartheta_p^3}{8h} \times r_i^2 \left[\frac{1}{n_1^2} - \frac{1}{n_2^2} \right] \text{ since } r_e = 0.529 \text{ n}^2 \text{A}^0 \\ = \frac{h \vartheta_e}{\lambda} \quad \text{Therefore } R_{\alpha} = \frac{m_p^2 \vartheta_p^3}{8h \vartheta_e} \times r_i^2$$

Value R_{α} for hydrogen = 890377.587 ; agrees with observed value of 10973731.5685

Values used are : $m_p = 1.67262119 \times 10^{-27}$

Proton speed = 2.2233×10^6

r_i = inertial radius of electron = $2 \pi \times 2.81794 \times 10^{-15}$

$\vartheta_e = 2.2 \times 10^6$

15) Ratio of dark energy to dark matter energy :

Protons per cubic meter on an average in the universe = 6

$m_{dmp} = 0.62 \times 10^{-40} \text{ kg}$

dark matter energy = $6 \times m_{dmp} \times u^2$
 $= 6 \times (0.62 \times 10^{-42}) \times 2.1456^2 \times 10^{46}$
 $= 17,125,389.6 \text{ J/m}^3$

Space-wave mass = $0.476 \times 10^{-38} \text{ kg}$

Dark energy density = $\frac{h \vartheta_{dE}}{\ell_s \times \left(\frac{\ell_s}{2\pi} \right)^3}$

Where $\ell_s = \frac{0.9676}{2 \times 0.1646} \times 10^{-6}$

Dark energy density = 44,860,826.648 J/m^3

Ratio of DE to DM = 2.6195507195 which agrees

with the observed value of 2.5185185185.

16) Speed of light:

The carrier for light is space. Space flows like a venture orifice flow into our mini universe from the radial flow from CUBH to periphery of cosmos. Space actually flows at a very high speed radially from CUBH to periphery of cosmos. The radial flow of space at our OU is the speed of DE in our OU, The venturi flow perpendicular to this radial flow is the speed of light in our OU.(11.762 R_A from CUBH).

Proof: Using Bernoulli's equation and CUBH Density:

$$\vartheta^2_l = \frac{2}{d} \cdot \frac{(P_1 - P_2)}{1 - \left(\frac{A_2}{A_1}\right)^2} = \frac{2}{d} \frac{\frac{m^2_u u^3}{h^4 \pi \ell^2} \left(\frac{1}{10} - \frac{1}{11}\right)}{(1 - 0.01)}$$

$$= \frac{2 \times 3.583^2 \times 10^{40} \times 2.1456^3 \times 10^{69}}{2.5323263 \times 10^{-13} \times 6.57156569 \times 10^{157}} \times 110 \times 0.99 \times 6.26 \times 10^{-34} \times 4\pi \times \ell^2$$

$$\left(\text{Note : } d = 1.037 \times 10^{165} \times \frac{\pi (11.762)^2}{\frac{4\pi}{3} (133.64 \times 14)^3} \times \frac{0.762 \times 44.4 \times 10^{26}}{0.1324 \times 10^{40}} \right)$$

$$= 2,5323263 \times 10^{-13} \text{ factor appears.}$$

Therefore, $\vartheta_l = 2.83062749 \times 10^8$. Now a factor of $\sqrt{\frac{12}{11}}$

is to be taken as we are moving flow 11th mini universe to 12th mini universe

$$\text{Hence } \vartheta_{\text{light}} = c = 2.83062749 \times 10^8 \times \sqrt{\frac{12}{11}}$$

$$= 295649399 \text{ agrees with } 299792458$$

17) Speed of light (proof) :

Using Bernoulli's equation and CUBH force

$$\vartheta^2_{\ell} = \frac{2}{d} \frac{m_c^2 \vartheta^3_{\ell}}{4 \pi \ell^2 h} \left(\frac{1}{110} \right)$$

$$= \frac{2}{h} \times \frac{4\pi}{3} \left(\frac{\ell}{2\pi} \right)^3 \times \frac{m_c^2 \vartheta^3_{\ell}}{4 \pi \ell^2 h} \cdot \left(\frac{1}{110} \right)$$

$$= \frac{\ell \vartheta_{\ell}}{h} \times 2 \times \frac{4\pi}{3} \times \frac{\ell^3}{8\pi^3} \times \frac{m_c^2 \vartheta^3_{\ell}}{4 \pi \ell^2 h} \left(\frac{1}{110} \right)$$

$$\Rightarrow \vartheta^3_{\ell} = \frac{3h^2 \times 110 \times 4\pi^3}{\ell^2 \times m_c^2} \Rightarrow \vartheta_{\ell} = \sqrt{330 \times 4\pi^3} \times \frac{h}{\ell m_c}$$

$$= \sqrt{330 \times 4\pi^3} \times \frac{6.626 \times 110 \times 4\pi^3}{\frac{0.9636}{0.1646} \times 10^{-6} \times \frac{1.2 \times 10^{-23}}{1.60621144 \times 10^5} \times \frac{(11.7116)^3}{(133.64 \times 14)^3}}$$

$$= 7.64831760 \times 10^8$$

No of electrons on the surface of CUBH

$$= \frac{4\pi (3.090 \times 10^{-12})^3}{4\pi (2.818 \times 10^{-15})^2 \times 4 \times 4} = \frac{6.4248576 \times 10^5}{4 \times 4}$$

$$= \frac{1.6062144 \times 10^5}{4}$$

$$\vartheta_{\ell} = \frac{12.2848378748 \times 10^8}{4} = 3.07120946 \times 10^5 \times \left(\frac{132}{133.64} \right)^3$$

$\vartheta_l = 299789668$ for R_{vu} @ $11.7116 R_A$
 agrees with 299793458 m/s.

18. Speed of dark matter:

mp. $\vartheta_p = m_{dmp} u$ conservation of momentum

$$u = \frac{1.6726219 \times 10^{-27} \times 9.987 \times 10^{12}}{4\pi \times 100 \times 0.62 \times 10^{-40}}$$

$$\left(\text{angular momentum of proton} = \frac{m\vartheta}{4\pi} \right)$$

$$\left(\vartheta_{vac} = \frac{c}{100} \quad \vartheta = \frac{\vartheta_{dE}}{c} \right) \Rightarrow u = 2.144 \times 10^{23} \text{ m/s, which}$$

agrees with earlier prediction of $u = 2.1456 \times 10^{23}$ m/s

19) Coulomb's constant :

$$\frac{Ke^2}{v_c} = \frac{1}{2} \cdot \frac{2}{5} \cdot \frac{(\pi^5 - 32)}{\pi^2 (\pi^3 - 8)} \times m_e \times (2\pi \times 22.65763 v_c)^2 \left[\frac{4\pi}{h/m_e c^2} \right]^2$$

from my theory :

Note : change energy is equated to rotational energy of electron

$$K = \frac{1}{4\pi} \times \frac{1}{\sqrt{2}} \times \frac{1}{\sqrt{0.48263}} \times \frac{ch}{\pi (22.65763) e^2}$$

= 8.8056125143×10^9 agrees with
 the observed there of 8.9875517923×10^9 .

20) Wien's displacement law constant :

$$\frac{hc}{2\lambda_{max}} = \frac{5}{2} K_B \cdot T. = \text{average energy.}$$

emitted by the black body of linear molecules. Linear molecules have 5 degrees of freedom. Hydrogen has 5 degrees of freedom : 3 translational + 2 rotational @ NTP

$$\lambda_{\max} = \frac{hc}{5 \cdot k_B T} \quad \text{So, } b = \frac{hc}{5 k_B} = 2.87755469 \times 10^{-3}$$

agrees with measured value of $2.89771956 \times 10^{-3}$

21) Hubble's constant using dark energy per cubic meter :

$$\begin{aligned} \text{Excess DE over DME} &= 44860826.65 - 17125389.6 \\ &= 27,735,437.05 \text{ J/m}^3 \end{aligned}$$

Excess energy per proton in the side - wise
Opposites of the cube with side one meter

$$= \Delta E = \frac{27735437.05}{6} \times (2 \pi \times 0.855 \times 10^{-15})^3 \times \left(\frac{2 \pi \times 0.855 \times 10^{-15}}{1} \right)^2$$

$$\text{felt at a distance of one meter, } \Delta E = \frac{1}{2} \times (2m_p) \vartheta^2$$

$$5 \times 2 \vartheta = H_0 \times R (= 1\text{m})$$

↑
5 degrees of freedom

$$H_0 = 2.2758952 \times 10^{-18} \text{ s}^{-1} \text{ which agrees with observed value of } 2.2620639 \times 10^{-18} \text{ s}^{-1}$$

22) Magnetic flux quantum:

In a super conductor, resistance is zero. Therefore , electrons travel at nearly the speed of light "c":

ϑ is the speed of electron , inside the atom ; and c outside in the

super conductor . Hence $\frac{c}{\vartheta} = 1/\alpha$ electrons are released in a super conductor at any time.

Time inertia of electron moving at 'c' = ℓ / c .

$$= \text{where } \ell \text{ is the length of the quantum ring } \text{So } \bar{\ell} = \frac{\ell}{2\pi r} = \frac{ec}{2\pi r \vartheta}$$

Around a small loop, the flux.

$$= BA = \frac{\psi_0 I (\pi r^2)}{2r} = \frac{\psi_0 e c}{2\pi r (2r)} \cdot \pi r^2 = \frac{\psi_0 e c}{4}$$

Suppose, $\frac{c}{\vartheta} = \frac{1}{\alpha} = n$ the number of electrons released,

$$\text{Then } \Phi_0 = \frac{\psi_0 e c}{4} \times n = 2.0678338366 \times 10^{-15}$$

agrees with observed value of $2.06783383 \times 10^{-15}$ webers.

23) Josephson current constant :

Suppose the thickness of the Josephson junction is ' α '

$$\frac{\partial \psi}{\partial t} = 8\pi \frac{nc}{d} = 2\pi k_J \frac{d\phi}{dt} = 2\pi k_J \frac{\psi_0 nc}{2\pi r d} \cdot 2\pi r d \cdot \frac{nc}{d}$$

$$\Rightarrow k_J = \frac{4}{n\psi_0 e c} = 4.83597859 \times 10^{14} \text{ agrees with}$$

observed value of 483597.8484 GHz \mathcal{J}

Note : $\frac{\partial \psi}{\partial t} = 2 \times 4\pi \times \frac{nc}{d}$

24) Klaus von Klitzing constant :

Magnetic flux quantum for a super conducting matter .

$$\Phi_0 = BA = \psi_0 n e c$$

Hall voltage is in + ve and ve directions of y –axis.

Then, in one direction.

$$V_{\text{Hall},y} = \frac{1}{2} \frac{d\Phi_0}{dt} = \frac{1}{2} \frac{\psi_0 n e c^2}{d}, \quad I_x, \text{ current} = \frac{ec}{d}$$

$$R_K = \frac{V_{\text{Hall},y}}{I_{x,\text{current}}} = \frac{1}{2} \frac{\psi_0 n e c^2}{d} \times \frac{1}{ec/d} = \frac{\psi_0 n c}{2}$$

$$= \frac{2 \pi \times 10^{-7} \times 299792458}{0.00729735256} = 25812.80747807 \text{ ohms}$$

agrees with observed value of 25812.80745 ohms

25). Bohr magneton (χ) :

$$\begin{aligned} \chi &= I \cdot A = \frac{e}{h/m_e \vartheta^2} \cdot \pi r^2 \\ &= \frac{e \vartheta^2 m_e}{h} \cdot \pi r^2 = \frac{e \vartheta^2 m_e}{h} \cdot \left[\pi \times \left(\frac{\vartheta}{2\pi} \times \frac{h}{m_e \vartheta^2} \right)^2 \right] \\ &= \frac{e h}{4\pi m_e} = 9.27401 \times 10^{-24} \text{ J/T} . \text{ agrees with} \\ &\text{observed value of } 9.7274009 \times 10^{-24} \text{ J/T} \end{aligned}$$

26) Nuclear magneton:

$$\begin{aligned} \chi &= I \cdot A = \frac{e}{m_P \vartheta_P^2} \cdot \pi r^2 = \frac{\ell \vartheta_P^2 m_P}{h} (\pi r^2) \\ &= \frac{e \vartheta_P^2 m_P}{h} \cdot \pi \times \left[\frac{\vartheta_P}{2\pi} \times \frac{h}{m_P \vartheta_P^2} \right]^2 = \frac{h}{4\pi m_P} = 5.0507837 \times 10^{-27} \end{aligned}$$

agrees with observed value of $5.05078369 \times 10^{-27} \text{ J/T}$

27) Proof of Sun's mass increasing:

The observed drift of Earth = 1.5 cm/yr. The drift should be 14.38 cm/yr as per my Theory due to the space released when mass is destroyed in Sun. The drift nullified due to Sun's increased mass = $14.38 - 1.5 = 12.88 \text{ cm/yr}$.

By applying inverse square law, the $(dR/dt)_{F_{\max}} = (12.88^2 / 1.5^2) \times 14.38$
Therefore, $(dM_S/dt)_{\max} = (2 M_S/R) \times (dR/dt)_{F_{\max}} = 8.9336 \text{ B Tons/s}$,
Which agrees with the earlier estimated value of 9.45 B Tons/s.

THEORY OF UNIVERSALITY

Annexure – XIIA

1) Number of black holes in Andromeda Galaxy = N:

Peripheral speeds of stars in A. G = 9.4×10^6 m/s

No. of stars in the stellar halo in A. G. = 14 %

$$\text{Energy of the halo stars} = (1/2) \times 0.14 \times 10^{12} \times 2 \times 10^{30} \times 9.4^2 \times 10^{12} \quad \text{--- (A)}$$

$$= N \cdot \frac{hc}{2\pi\lambda u} \text{ where } \lambda u \cdot 2\pi \text{ is the Compton wavelength of the}$$

DM particles from black holes.

$$= N \frac{hc}{2\pi \frac{h}{M_u \cdot u}} = \frac{(M_u \cdot u c) N}{2\pi} \quad \text{--- (B)}$$

Equating A and B we get $N \approx 33$; which agrees with the 35 discovered so far.

Now, M_u = Mass of DM particle coming out of BH = 7.441×10^{22} kg.

u = speed of dark matter = 2.1456×10^{23} m/s; is proved for the 4th time in my Theory.

2) Escape velocity of CCBH:

Let it be ϑ_e .

$$\frac{1}{2} \vartheta_e^2 = \frac{G'' m''_{\text{CCBH}}}{R''_A}, \text{ i.e., } \vartheta_e = \sqrt{\frac{2Gm_{\text{CCBH}}}{R_A}} \cdot \frac{c}{c^{11}}$$

Where G^{11} , m^{11}_{CCBH} , R^{11}_A are the gravitational constant, mass of CCBH, actual radius of CCBH at a point where

speed of light = $c^{11} = 2.148285$ m/s,

$$m_{\text{CCBH}} = 1.2 \times 10^{-23} \text{ kg,}$$

$R_A = 9.81 \times 10^{-64}$ m. Substituting, we get

$$\vartheta_e = 2.1053 \times 10^{23} \text{ m/s observed in our Milky Way Galaxy}$$

space-time and agrees with dark matter speed of 2.1456×10^{23} m/s. That is, the dark matter just escapes CCBH.

3) Radius of Cosmos using gravitational pull:

The universal force of CCBH when

we consider its matter equivalent:

$$\frac{m^2_{CCBH} \cdot c^3}{h} = \frac{c^2}{u^2} \cdot \frac{r^3}{R^3} \text{ on 1kg mass } \text{---} \textcircled{A}$$

The gravitational force on one kg mass at the periphery of the cosmos

$$= G \frac{m_{CCBH} \cdot X \frac{C}{u} \times 1 \times \frac{u}{c}}{R^2} \text{---} \textcircled{B}$$

Equating A and B, we get

$$R = \frac{m_{CCBH} \cdot X \cdot C^3}{h \cdot G} \times r^3 \times \frac{C^2}{u^2} \text{ where the}$$

$$r \text{ is given by } \frac{1\text{kg}}{1} = 9.9 \times 10^{-24} \times \frac{4\pi}{3} \times r^3$$

$(2 \times 3.87)^4$
 \uparrow
 speed of light @ OU edge.

Hence, we get. $R = 262.1$ T T light years;
 which agrees with the earlier derived value of 258.72 T T light years.

4) Mass of Solar Corona electron neutrino at Earth:

(Note: Energy follows inverse square law with distance).

Solar Corona electron neutrino has energy 0.81 Mev.

Time taken for light to clear a distance of 8 million km above photosphere

$$\text{i.e., Corona} = \frac{80}{3} = 26.67 \text{ s}$$

Divide by two because this time is considered in 500s for light to travel from Sun to Earth = 13.34 s

Divide by another two; because it is considered in travel from corona to

$$\text{photosphere and back to Earth} = \frac{13.34}{2} \text{ s}$$

$$\text{Mass of the neutrino at Earth} = \frac{0.81 \times 10^6 \times 1.6 \times 10^{-19} \times 4}{9 \times 10^{16} \times (13.34)^2 \times 500^2}$$

$$= 1.2947 \times 10^{-37} \text{ kg; agrees with observed value} = 1.25 \times 10^{-37} \text{ kg.}$$

5) Matter – Anti matter Asymmetry in Milky Way Galaxy:

OU is expanding at the rate of 67.5 km / s/ 3.26 mly.

$$R_{\text{MNG}} = 52.850 \text{ ly} . \quad v = \frac{4\pi}{3} r^3 \Rightarrow \frac{dv}{dt} 4\pi r^2 \frac{dr}{dt} \Rightarrow \frac{dv}{dt} \text{ year.}$$

$$= 4 \pi \times (52850 \times 9.461 \times 10^{15})^2 \times 67500$$

$$\times \frac{0.5285}{32.6} \times 1.339 \times 10^{-39} \times (365.25 \times 24 \times 3600) \text{ Mass of space}$$

$$\frac{4\pi}{3} \times (8\pi^2 \times 0.9676 \times 10^{-6})^3 \times \left(\frac{26.67c}{500c - 13.34c} \right)^6$$

$$= 28.6478 \times 10^{32} \text{ kg / year} \longrightarrow \text{matter created per year}$$

Compare it with nearly 7 stars born per year = 28 X 10³² kg/year → anti matter

The matter - antimatter asymmetry is 2.26%;

which agrees with the nearly 1 % found.

6) Speed of light at the periphery of OU:

Suppose, the speed difference between the speed at Earth and the edge of OU (Observable Universe) is:

$$\Delta \vartheta = c' - \vartheta_{dE}, \text{ , where } \vartheta_{dE} \text{ is the speed of dark energy at Earth.}$$

$$\text{Then, } \Delta \vartheta = \frac{\Delta x}{R} \times \left(\frac{R}{R_1} \right)^2 \vartheta_{tot}, \text{ where}$$

Δ x = radius of OU. R= radius of Cosmos.

R_1 = radius of Earth from CCBH.

ϑ_{TOT} = speed of dark energy @ periphery of Cosmos

$$\Delta \vartheta = \frac{133.64 \times 14}{(11.762)^2} \times \frac{4.4 \times 10^{26} \times 2\pi}{0.1324 \times 10^{40}} \times \frac{2.5254 \times 10^{20}}{2\pi}$$

$$= 3.7833 c$$

The speed at the periphery of the OU (Observable Universe) = 3.7833 c
Which agrees with the estimated value of 3.47 c.

7) Total time of Cosmos:

Radius of CCBH after Compton factor = $\frac{9.81 \times 10^{-64}}{2\pi}$

Speed of dark matter ejection from CCBH, within the beginning 10^{-43} s

$$\vartheta = \frac{9.81 \times 10^{-64}}{2\pi \times 10^{-43}} = \frac{9.81 \times 10^{-21}}{2\pi} \text{ m/s}$$

Energy of the dense ball before big bang

$$E = \frac{h}{\underbrace{M_{CCBH} \times \vartheta}} \times v^2 = 2.59 \times 10^{14} \text{ J} = \text{Total pure energy in cosmos}$$

↑
To convert CCBH mass into Antimatter mass

Smallest energy of neutrino = 0.055 eV = E_o

$$\text{So time of Cosmos} = \frac{h}{E_o} \times \frac{E}{E_o} = 311.65 \text{ Trillion years}$$

Which agrees with the well-established value of 311.04 trillion years.

8) Earth is spinning faster:

Time inertia of Earth changed by neutrinos' impact is

$$T = \frac{h}{E} \times N \times A, \text{ where } N = \text{number of neutrinos per second}$$

A = area of neutrinos bombardment

E = neutrino energy

If, we take, the charge radius of a neutrino = 1.48379×10^{-18} m; and the energy of the neutrinos bombarding the Earth on an average to be 3 Mev,

Then T= 0.000000002 s/s; and the Earth is spinning faster by 63.11 ms per year which agrees with the observed value.

9) Age of Sun due to its time inertia:

The average energy of neutrinos released by Sun = 0.53 Mev

Number of neutrinos released by Sun = 1.8×10^{37} / s = N
 Time inertia of formation for 0.53 Mev of neutrino energy.

$$\Delta t = \frac{h}{0.53 \text{ Mev}}$$

for 1.8×10^{37} neutrinos/s, the total time inertia of formation = $N \times \Delta t$

$$= \frac{6.624 \times 10^{-34} \times 1.8 \times 10^{37}}{0.53 \times 10^6 \times 1.6 \times 10^{-19}} = 4.455 \text{ billion years};$$

Which agrees with the already established value of 4.5 billion years.

10) Half-life decay time of neutron:

Time-inertia of neutron half-life before it decays into proton, electron and anti neutrino:

$$n = p + e + \bar{\nu}_n$$

$$= \frac{E_n}{E_o} \cdot \frac{E_{\bar{\nu}_n}}{E_o} \cdot \frac{h}{E_o} \cdot \frac{1}{2} \cdot \frac{1}{3} \leftarrow 3 \text{ particles (p, e, } \bar{\nu}_n)$$

↑
half-life

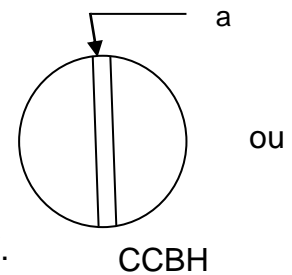
where, $E_o = 0.055 \text{ eV}$
 $E_n = 939.37 \text{ Mev}$
 $E_{\bar{\nu}_n} = 0.156 \text{ Mev}$ (electron anti neutrino)

Then,

T = half-life of neutron decay = 607.75s which agrees with the observed value of 615s

11) Radius of OU(Observable Universe) R_{ou}:

Suppose, the area of the corridor away from CCBH having one neutrino width is a = R X 2πr; where 2r is the diameter of neutrino of the OU.



$$R = \frac{6.624 \times 10^{-34} \times 2.82 \times 10^{-25} \times 2 \times 1.298 \times 10^{79} \times 60 \text{ eV.}}{0.055 \text{ eV} \times 13.787 \times 3.1557 \times 10^{16} \times \pi \times 0.55 \text{ eV}}$$

$$= 4.398 \times 10^{26} = 46.611 \text{ billion light years}$$

which agrees with the estimated R_{ou} = 46.527 billion light years.

Note:

It is indeed the lowest-energy neutrinos which create lime. Taking the size of an average neutrino to be 10⁻⁴⁴ sq.cm., and the energy to be 60 eV; and the total no. of neutrinos in OU = 1.298 x 10⁷⁹ and the OU formed 13.787 billion years back, we get the result.

12) Radius of OU around CCBH:

The energy of vacuum @ Earth per m³ using inverse square law:

$$\frac{E \times R^2_{\text{CUBH}}}{\frac{4\pi}{3} R^3_{\text{CUBH}} \times R_1^2} = 0.1 \text{ J/ m}^3$$

Where E is the pure energy in the cosmos

And R₁ radius of OU from CCBH .

$$\Rightarrow R_1^2 = \frac{2.59 \times 10^{14}}{\frac{4\pi}{3} \times \frac{(9.81 \times 10^{-64})}{(2\pi)^3}} \times 0.1$$

Solving, we get R₁ = 11.1593 x 140 Billion Trillion light years; which agrees with the earlier derived value of R₁ = 11.762 x 140 Billion Trillion light years

13) Life span of an electron:

Let's take the size of an electron = 2.43×10^{-12} and that of neutrino = $10^{-25} \times 2.82$

Then, the time inertia of electron =

$$= \left(\frac{2.43}{2.82} \times 10^{13} \right)^3 \times \frac{260 \text{ ev} \times h \times 0.51 \times 10^6}{0.55 \times 0.55 \text{ ev} \times 0.55}$$

(Note : The average energy of a terrestrial neutrino is 260 eV. Compton Wavelength of electron = 2.43×10^{-12} m; radius of an average neutrino = 2.82×10^{-25} m)

$$T = 2.0299903 \times 10^{36} \text{ s} = 6.689956 \times 10^{28} \text{ years ;}$$

which agrees with the already estimated value of 6.6×10^{28} years

14) Life span of proton:

Compton wave length of proton = 1.32×10^{-14} m

Time inertia T =

$$= \left(\frac{1.32 \times 10^{11}}{2.82} \right)^3 \times \frac{505 \times 10^{14} \text{ ev} \times h \times 938.08 \times 10^6 \text{ ev}}{0.055 \times 0.055 \text{ ev} \times 0.055}$$

(Note : Extra galactic neutrinos' average energy = $\frac{10^{15} + 10^{17}}{2}$

$$\frac{10^{15} + 10^{17}}{2} = 10^{14} \frac{(1010)}{2} = 505 \times 10^{14}$$

Proton life span = 3.832×10^{39} years which agrees with the already estimated value of 3.7×10^{39} years.

15) Speed of dark energy and light @ periphery of Cosmos:

$$C \propto \vartheta_{dE} \Rightarrow C^1 = \frac{\vartheta_{dE}^1}{\vartheta_{dE}}$$

Speed of dark energy at the periphery of Cosmos = 4.02×10^{19} m/s and at our OU = 9.887×10^{12} m/s.

Therefore. $c^1 = 1.2196 \times 10^{15}$ m/s. Moreover, the dark matter speed at the periphery is given by:

$$\vartheta = u = \sqrt{1 - \frac{2aR}{u^2}} = u \left(1 - \frac{2aR}{u^2} \right)$$

$$= u (1 - 8.1 \times 10^{-15}) \quad \square \quad u$$

So, the dark matter speed is nearly 2.1456×10^{23} m/s
Which is more than dark energy speed; hance, the Cosmos is contained from expansion.

16) Fundamental constants change across Cosmos:

The speed of dark energy (ϑ^1_{dE}), and the speed of light (c^1) at the periphery of cosmos are 4.02×10^{19} m/s and 1.2196×10^{15} m/s respectively; (they are 9.887×10^{12} m/s, 3×10^8 m/s at our OU). And the light speed is a constant equal to 3×10^8 m/s in a thin spherical shell of radius 1.64682 Trillion Trillion light years from CCBH; with a thickness of ± 10 billion light years. ie, our OU. The speed of light increases as we go towards the periphery; so all the constants change as we move up and down from this above shell. This is because the space-time existing for each shell is different.

THEORY OF UNIVERSALITY

Annexure - XIV

1) Value of gravitational constant G near the periphery of cosmos (= G¹):

By, Newton's law:

$$F = G \frac{m_1 m_2}{R^2}$$

$$G^1 = G \frac{(c^1)^4}{c^4} = 0.182266 \times 10^{17} \text{ terrestrial SI units} \text{ ——— (A)}$$

(Note: This is as per Lorentz transformation, c¹ = periphery speed of light)

$$\text{As per my Theory, } G = \frac{4 c^3 \lambda_p^2 m_p}{N_a^{2/3} h}$$

Near the periphery of cosmos:

$$G^1 = \frac{4 (c^1)^3 \times \lambda_p^2 \times \frac{(c^1)^2}{c^2}}{N_a^{2/3} h} \times \frac{m_p}{h} \frac{(c^1)^{2/3}}{(c^1)^{2/3}}$$

$$= 0.181423 \times 10^{17} \text{ terrestrial SI units} \text{ ——— (B)}$$

(Note : c¹ = speed of light at the periphery of Cosmos)

Both A and B agree. Hence, the gravitational Constant value changes depending on the space- time and G¹ = 0 .182266 x 10¹⁷ terrestrial SI units.

2) How much is 1 m/s on Earth; when considered at the periphery of cosmos:

By Lorentz transformation, a particle with an absolute speed of 1 m/s on Earth, would move with an absolute speed of -1.653 X 10¹³ m/s terrestrial m/s; because of the very high speed of space flow along the periphery, at the periphery. The '-ve' sign means all the objects will be bouncing back from the periphery and going towards CCBH.

Note: Earth one m looks like *i* X 4.065 X 10⁶ terrestrial meters and one Earth second is

$$- i \times 2.4598 \times 10^{-7} \text{ terrestrial seconds at the periphery.}$$

3) Gravitational Force magnitude remains the same:

If you consider a thin spherical shell of thickness 15 billion light years near the periphery of the cosmos, then 1kg mass (Earth) and 1 m length (Earth) would be

6) Gravitons are space-waves that travel at an absolute speed of 4586509 m/s.

By Force-Energy equivalence, the gravitational force at Earth by Sun and the mass (m_{sw}) and speed of gravitons ϑ_g are related as:

$$\sqrt{\frac{G M_S M_E}{R^2}} ch = \frac{1}{2} m_{sw} \vartheta_g^2 \frac{R_E^2}{\ell_{sw}^2}$$

Solving, we get $\vartheta_g = 4586509$ m/s.

where R = distance of Earth from Sun

R_E = radius of Earth

ℓ_{sw} = Compton wavelength of the space-wave

m_{sw} = mass of the space - wave = 0.476×10^{-38} kg

Since gravitons are space-waves that do not interact with matter, they cannot be detected.

7) Speed of formation of cosmos:

$$\begin{aligned} \text{Speed of formation of cosmos} &= \frac{133.64 \times 14 \times 140 \times 10^9 \times 3 \times 10^8}{311.04} \\ &= 2.52637 \times 10^{20} \text{ m/s} \quad \text{--- (A)} \end{aligned}$$

Speed with which space –mass is released from CCBH:

$$\begin{aligned} &= \frac{\ell}{\frac{h}{m_{CCBH} u^2 \times \frac{(c^{11})^2}{c^2}}} = \frac{\ell}{\frac{h}{\ell c} \frac{u^2 \cdot (c^{11})^2}{c^2}} = \frac{u^2 \cdot (c^{11})^2}{c^3} \\ &= 2.93787 \times 10^{20} \text{ m/s} \quad \text{--- (B)} \quad \text{A and B agree} \end{aligned}$$

8) Density of OU:

Taking the density of the cosmos to be uniform and inversely proportional to the square of the distance from CCBH (of density = 1.037×10^{165} kg / m³)

We wave

$$\ell_{ou} = \frac{\ell_{CCBH} \times (8\pi^2 R_A \times \frac{c}{c^{11}})^2}{R_1^2 \times \frac{(\Delta R_1)}{2\Delta R_1}} \quad \text{where } \Delta R_1 \text{ is radius of OU.}$$

Solving, we get $\rho_{ou} = 10.292 \times 10^{-24} \text{ kg / m}^3$,

which agrees with the observed value of $9.9 \times 10^{-24} \text{ kg/m}^3$,

Note: $R_A = 140 \text{ Billion Trillion Ly}$

$R_1 = 11.762 \times 140 \text{ Billion Trillion Ly}$

$c^{11} = \text{speed of light close to CCBH} = 2.148285 \text{ m/s}$

9) Mass of electron:

Speed of electron in Hydrogen in water molecule =

$$v_e = 2.2 \times 10^6 \text{ m/s}$$

Speed of gravitons = $v_g = 4586509 \text{ m/s}$

Electrons are space waves like gravitons.

Equating the energies of gravitons and electrons

$$\frac{1}{2} m_g \cdot v_g^2 \left[\frac{c^2}{-v_g^2} \cdot i \frac{c}{v_g} \right] \leftarrow \text{energy converted to Earth space-time}$$

$$= \frac{1}{2} \frac{1}{3} m_e v_e^2 \left(\frac{1}{\sqrt{-25.963}} \right)^2 \leftarrow \text{Surface speed correction}$$

↑
3 degrees of freedom , and in uni-direction.

Solving we get $m_e = i 9.11941635 \times 10^{-31} \text{ kg}$

agrees with observed value, 'i' means total speed more than c.

10) Speed of gravitons at periphery of Cosmos:

$$v_g^1 = - \left(\frac{c^1}{c} \right)^2 \times - \left(\frac{c}{v_g} \right)^2 \times v_g$$

↑
with respect to periphery space-time

↑
with respect to Earth space-time

Solving, we get $v_g^1 = 3.243 \times 10^{23} \text{ m/s}$ which is much greater than the speed of expansive dark energy near the periphery (= $4.02 \times 10^{19} \text{ m/s}$). Hence, the

expansion of the Cosmos is contained by gravitons. The space-mass wraps around and falls towards CCBH, replaced by the new space-mass coming from CCBH. The cycle goes on eternally and keeps the image of the cosmos the same all the time, until and unless disturbed by a super, mega force.

11) Speed of gravitons in Milky Way Galaxy:

$$\vartheta_{g \text{ MWG}} = \text{in MWG space-time} = -\frac{C^2}{\vartheta_g} = -1.959563 \times 10^{10} \text{ m/s}$$

The negative sign indicates that while space and objects move away radially outward from the CCBH, the gravitons move radially inward towards the CCBH.

12) Amount of gravitons in our OU:

Rate of mass of gravitons falling into CCBH =

$$\frac{R_E^2}{l_{sw(g)}^2} \times \frac{R_{ou}^2}{R_E^2} \times 4\pi R_1^2 \times \vartheta_{g(ou)} \times l_{ou} = 5.31655 \times 10^{48} \text{ kg}$$

Space – mass = 8.8513793×10^{48} kg. This is what is observed at our OU as space-mass produced by CCBH

The difference = 3.5348293×10^{48} kg is the space-debris which falls into CCBH

13) Mass of proton:

Protons are space – waves just like electrons, and taking the speed of proton to be

$\left(\frac{1}{43}\right)^{rd}$ of electron speed and applying the same logic as applied to electron, we have ;

$$\frac{1}{2} m_g \vartheta_g^2 = \frac{1}{2} m_p \vartheta_p^2 \text{ as a guiding principle,}$$

$$\text{Then, } m_p = m_g \left(\frac{iC}{\vartheta_g}\right) \vartheta_g^2 \left(\frac{-C^2}{\vartheta_g^2}\right) \cdot \frac{1}{\vartheta_p^2}$$

$$\Rightarrow m_p = -i m_g \cdot \frac{C^3}{\vartheta_g} \cdot \left(\frac{43}{\vartheta_e}\right)^2 \cdot \left(\frac{3}{2}\right)$$

↑ Hydrogen is mono atomic

$$= -i \times 1.63193 \times 10^{-27} \text{ agrees with the observed}$$

value. Both, in the case of electron and proton (i) means mass is imaginary. Only space can have realistic mass. Speed of space is the same as the speed of light in that space-time.

14) Fine structure constant for cosmos:

$$\Delta E = \frac{2\pi \left(\frac{R}{2}\right) \pi \frac{R^2_{AU}}{4} l_E}{\frac{4\pi}{3} R^3} \quad \text{where } l_E = \frac{E}{\frac{4\pi}{3} R^3} \quad \& \quad (Z \alpha)^2 = \Delta E$$

Now, compare cosmos to hydrogen atom

$$\Rightarrow Z = 1$$

$$\alpha^2 = \frac{3\pi}{8\sqrt[3]{2}} \cdot \frac{R^2_{AU}}{R^2}$$

$$\Rightarrow \alpha = \frac{1}{138.2} = 0.00723589; \text{ which}$$

agrees with α for hydrogen = 0.00729927

Hence, the Indian belief as the atom so the cosmos is proved to be correct.

15) Ratio of Hydrogen atom radius to Proton radius:

Radius of CCBH at a point where speed of light is 2.14825 m/s; that is close to CCBH

$$r^{11} = \frac{h^{11}}{m^{11}_{CCBH} \times C^{11}} = \frac{h}{m_{CCBH}} \times \left(\frac{C^2}{(C^{11})^3} \right) = 500536.673616$$

Radius of cosmos at a point where speed of light = 2.148285 m/s that is close to CCBH

$$= R^{11} = \frac{R}{2} \cdot \frac{(C^{11})^2}{C^1 \vartheta^1_{dE}}$$

$$\text{Ratio} = \frac{R^{11}}{r^{11}} = 97,240 \quad \text{--- (A)}$$

Consider, Hydrogen atom.

Van der Waals radius = 120 pm = r_H

$$\text{Proton radius} = 1.237 \times 10^{-15} = r_p ; \text{ Ratio} = \frac{r_H}{r_p} = 97009 \quad \text{--- (B)}$$

Now, both A and B agree. So, the Indian belief as the atom so the Cosmos is once again proved to be true and Correct !!.

16) Time inertia for the release of a dark matter particle from CCBH:

$$\begin{aligned} \text{Time inertia of CCBH} = t_{\text{CCBH}} &= \frac{8 \times \pi^2 \times R_{\text{CCBH}}}{c_{\text{CCBH}}} \\ &= 1.604 \times 10^{29} \text{ s} \quad \text{————— (A)} \end{aligned}$$

[Note: Assuming the same angular speed for the CCBH (Central Cosmic Black Hole) and the Cosmos.

$$c_{\text{CCBH}} = c^{11} \times (R_{\text{CCBH}} / R^{11}) = 4.828989 \times 10^{-91} \text{ m/s]$$

Time inertia of the dark matter particle released from CCBH:

$$t_u = \frac{h}{\frac{h}{M_u u} c^2} = 1.775 \times 10^{29} \text{ s} \quad \text{————— (B)}$$

Now, both A and B agree. This means, in one rotation of the CCBH around itself, it releases one dark matter particle.



K.S. Narayana
(KASIBHATLA SURYA NARAYANA)(1959 -)

Author : Theory of Universality(1982 -)

The author is a graduate in Electronics from Indian Institute of Technology (1977-82); and has passed the Civil Services (Main) Exam , 1983.

He learned Physics during his graduate studies in the institute. He has worked in Computer Application Software since 1982, and is presently working for the Content Department of BYJU'S as SME (Subject Matter Expert) – Physics, IBC

Knowledge Park, BANGALORE-560029, India.

With an interest in developing a fundamental theory in Physics; which will encompass the existing beliefs; and solve some of the paradoxes already existing since 1960s, he has taken up this Theory of Universality as a project out of personal interest and hobby. He is not basically a physicist by career, however, with whatever knowledge picked up during the graduate studies, and after consulting some periodicals; he went on to develop this theory.

This theory will serve to be the basic foundation for the future development of Modern Physics; and also be the GUT (Grand Unified Theory) in Physics ; unifying the four fundamental quantities space, time, matter and energy; and the four fundamental forces gravitation, electromagnetism, strong and weak nuclear forces.

It is sincerely hoped that this theory will generate interest in the reading public and become useful in further understanding of universe and universality.

K.S. Narayana

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