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Research Article

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The Proton, Gravity, and Black Hole Equations

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Abstract

In these papers, I presented and explained the Potential Energy Equation "P.E.E."; this equation is about discovering how gravitation works, the cosmological facts for the Black Hole physics "B.H.", and the "B.H." primary role in the gravitational energy at both the astronomical (planets: Earth, Sun, etc.) and microscopic atomic (Protons) levels. "P.E.E." equation is uncovering a new concept for the Planck Constant and the Fine Structure, as an inhibition for the "B.H." energy and as a convertor from one type of energy to another in the "P.E.E." energies parts; this new concept is also explaining the "Attractive Mass" or "central mass" and redefining the Gravitational Potential Energy U_g; and the Kinetic Energy as well; and it is clarifying the difference in apply between U_g and the Weak Potential Energy of mass (Attracted Mass) "A_g". I already defined the "B.H." potential energy (f_s) equation, the mass compressed "N_p" with radius"r_s" of the "B.H" equation, the mass compressing distance "r_c" and the radius "r_s" of the "B.H." equation; and the gravitational and "B.H." energy equations; I have also applied these equations on astronomical and microscopic dimensions.

Keywords: Gravitation, Black hole, Sun, Proton

In these papers, we will attempt to comprehend the gravitational potential energy in large astronomical mass levels, such as planets, based on the extremely tiny microscopic mass levels, such as atoms. This will unify the physical sciences.The identical mathematical structure of the Newton gravitation law and the Coulomb charge law inspires the notion that there is a relationship between them, which is the (f_s) or what we will conclude later is the "B.H." potential energy component; these three energy components constitute the "P.E.E." equation.From the calculation of the frequency (f_s) formula in terms of the speed of light and the distance between the charges or masses (equation 5), I determined that the (f_s) value is equal to the potential electromagnetic energy value between these charges or masses, indicating that (h^0=1).In addition, I formulated the "P.E.E." equation using the Planck and Fine structure constants. According to the "P.E.E." equation's results, in its formula of Planck and Fine structure constants, there is no direct equivalence between the weak potential energy of mass "A_g" and K.E at the microscopic atomic level; instead, we must add a mathematical change in the "A_g" to obtain "U_g", whose value is equal to direct K.E; this change creates a new concept, the "Attractive Mass."

I concluded by defining the "B.H." equations and explicating their relationship to the "Attractive Mass" via the "B.H." (r_s). I concluded by describing and supplying the equations for the "B.H." black hole.In addition, I discussed significant examples of calculations that apply to the new K.E. equation at the microscopic atomic and large astronomical body levels.In addition, I applied the new equations for gravity and "B.H." to the microscopic atomic and large astronomical bodies level and calculated the acceleration of the Earth's gravity (g).

2. The Potential Energy Equations "P.E.E." and "B.H."

The "P.E.E." defines the "B.H." potential energy by its hidden protons mass-weak potential energy (Attracted Mass) (A_g) and its hidden charges potential energy (U_g); and I say hidden because the protons and charges are contained within the "B.H.". The equation reveals that the (6. f_s) where (f_s) "B.H." potential energy or frequency value at the same time (I will elaborate on this point in Section 4); and is compressing by distance (r_c) inside this "B.H."; and multiplied the weak potential energy of the hidden proton square mass (Attracted Mass) (A_g) and is also compressing by distance (r_c) inside this "B.H." This leads to the square of the hidden charge's potential energy (U_q^2), of these protons. This system of hidden protons, masses, and "B.H." can constitute the "Attractive Mass" or "central mass." This mass's hidden contents have an effect on masses that aren't hidden or located outside of the "B.H.", such as charged masses like the proton or neutral masses like the neutron, or ionized or neutral atoms. Fundamental to the definitions of "Attractive Mass" and "B.H." is the availability of potential energy between these concealed charges, not the sum of these electrical charges. The primary function of "B.H." or "Attractive Mass" is to position each unhidden charge or mass in a specific orbit where there is neither infinite repulsion if the charges are similar nor fusion if the charges are dissimilar; in other words, the availability of "B.H." energy is what creates stability.

The "P.E.E." formula:

$$6.\, f_s \;.\; A_g = U_q^2 \qquad (1)$$

$$6.\, \frac{C}{2\pi\, r_c} .\, G\, \frac{m_{p1} .\, m_{p2}}{r_c} = \left(\frac{1}{4\pi\epsilon_0} .\frac{q_1 .\, q_2}{r_c}\right)^2 \qquad (1)$$

The "P.E.E." element in the "m" and "c" equation (3) can be expressed as the Einstein mass-energy equivalent equation [1], where this energy equals the compressing energy imparted by "B.H.":

$$6.\, \frac{C}{2\pi\, r_c} .\, G\, \frac{m_{p1} .\, m_{p2}}{r_c} = (m.\, c^2)^2 \qquad (2)$$

Where:

$$U_q = \frac{1}{4\pi\epsilon_0} \frac{q_1 .\, q_2}{r_c} \qquad (3)$$

U_q: represents the charge potential energy in joules [2] .
q_1, q_2 : are the charges, and each one corresponds to the electron charge of 1.67×10^{-19} coulombs [3].

ϵ_0: represents the vacuum permittivity, which is 8.85×10^{-12} f.m^{-1}) [4].

r_c : is the separation between the two charges (or the compressing distance for protons within "B.H.").

$$A_g = G\, \frac{m_{p1} .\, m_{p2}}{r_c} \qquad (4)$$

A_g: the weak potential energy of mass (because in A_g we use m_{p1} as a "Attracted Mass", and later we will define U_g as gravitational potential energy because in U_g relations we use m_{p1} as a "Attractive Mass".

m_{p1} and m_{p2} are the proton masses 1.67×10^{-27} kg [5]
G:is the gravitational constant 6.67×10^{-11}(m^3.kg^{-1}.s^{-2}) [6]

$$f_s = \frac{C}{2\pi\, r_c} \qquad (5)$$

f_s: represents the "B.H." potential energy and frequency in Hertz, where $f_s .\, h^0 = f_s$ (I will elaborate on this point in Section 4).

r_c: denotes both the distance between two protons and the compression distance in meter (m).

C: The constant speed of light is 3×10^8 m/s [7].

m : represents the total mass-energy equivalent [8] divided by the total compressing energy from "B.H."

2.1. The applicability of the "P.E.E." to various "r_c" and "B.H." proton examples:

The "P.E.E." is applicable to any compression distance "r_c" within the "B.H."; therefore, if we have:
$r_c = 1.0\times10^{-11}$ m

Derived from equation (4): $U_q{}^2 = 5.3\times10^{-34}\ \mathrm{J}^2$,

Derived from equation (6): $f_s = 4.7770\times10^{18}$ J ,

Derived from equation (5): $A_g = 1.86\times10^{-53}$ J

So:

$$(6.\, f_s \;.\; A_g\,)/\; U_q^2 = 1.005888$$

We will repeat what was done above:

For: $r_c = 1.0\times10^{-7}$ m

$U_q{}^2 = 5.3\times10^{-42}\ \mathrm{J}^2$,

$f_s = 4.777\times10^{14}$ J ,

$A_g = 1.86\times10^{-57}$ J

Therefore:

$$(6.\, f_s \;.\; A_g\,)/\; U_q^2 = 1.005888$$

For $r_c = 1.0\times10^{-4}$ m

$U_q{}^2 = 5.3\times10^{-48}\ \mathrm{J}^2$,

$f_s = 4.777\times10^{11}$ J ,

$A_g = 1.86\times10^{-60}$ J

Therefore:

$$(6.\, f_s \;.\; A_g\,)/\; U_q^2 = 1.005888$$

By substituting the previously calculated values into the "P.E.E." formula, we find that the percentage ratio for both sides is (1.005888); therefore, both sides of the formula are equal.

2.1.1. The "B.H." of the Proton example

where the neutron is not as stable as the proton (its mean lifetime is 879.4 (6) s [9]; I will use the proton as an example for the validity of the "P.E.E."

For a single proton, we'll use the following equation (3):
Here, the (mass-energy equivalent) (m)should equal total Proton mass(m_(p)), therefore:

$$U_q = m_p .\, c^2 = 1.5\times10^{-10}\ \mathrm{J}$$

Derived from equation (14)

$$f_s = \frac{U_q}{\alpha .h} = 3.107\times10^{25}\ \mathrm{J}$$

Derived from equation (6)

$r_c = \frac{C}{2\pi.\, f_s} = 1.5 \times 10^{-18}$ m, (the compressing distance); (Note: I have already resolved this example in Section 12 using the equation (36), which contains the number of hidden Protons (N_p); and I obtained the same value for "r_c")

So:

$U_q{}^2 = 2.35 \times 10^{-20}$ J^2, $f_s = 3.107 \times 10^{25}$ J ,

$A_g = 1.24 \times 10^{-46}$ J

And if we substitute these values into the "P.E.E." formula, we find that the percentage ratios for both sides are:

$(6.f_s \,.\, A_g\,)/\, U_q^2 = 0.98366$

Therefore, both sides are equal.

3. P.E.E. Derived

From the previous, we know that:

$$A_g = G\,\frac{m_{p1}\,.\,m_{p2}}{r_c}, \qquad U_q = \frac{1}{4\pi\epsilon_0}\,\frac{q_1.\,q_2}{r_c}$$

We can express U_q in terms of the charges of the electric field (E) and the storage volume (V) [10]:

$$U_q = \epsilon_0.\, E^2.\, V \qquad (6)$$

So:

$$U_q{}^2 = \epsilon_0{}^2.\, E^4.\, V^2 \qquad (7)$$

$$\frac{U_q{}^2}{A_g} = \frac{\epsilon_0{}^2 . E^4 . V^2 . r_c}{G . m_p^2} \qquad (8)$$

Where $m_{p1} = m_{p2} = m_p$ and $r_c = r$

and if

$$m_p.\, v^2 = \epsilon_0.\, E^2.\, V \qquad (9)$$

$$\frac{U_q{}^2}{A_g} = \frac{\epsilon_0{}^2 . v^4 . V^2 . r}{\epsilon_0{}^2 . G . V^2} \quad ; \qquad (10)$$

The calculation revealed, however, that the right side must be multiplied by the fraction (1/6) for the uber relation to be valid, so:

$$\frac{U_q{}^2}{6.A_g} = \frac{v^4 . r}{G} = f_s \qquad (11)$$

(I will explain later that " r " here corresponds to the "B.H." radius "r_s"; v=c and "r_d" utilizing U_g)

4. The "B.H" (f_s) Energy Units

I've already mentioned that the f_s value can be viewed as a frequency and an energy at the same time, Below is the derivation of its unit:

based on the conclusion reached in Section 3:

$$f_s = \frac{v^4 . r}{G} \;\; is \;\; \left(\frac{m^4 . m}{s^4} . \frac{kg\, . s^2}{m^3} = \frac{kg\,.\,m^2}{s^2} = Joule\right)$$

The calculation also revealed the following relationship between c, r_c and f_s:

$$f_s = \frac{C}{2\pi\, r_c} \;\; is \;\; \left(\frac{m}{s\,.m} = Hertz\right)$$

5. Planck Constant and P.E.E.

The charge potential energy can be expressed as follows in terms of the magnetic wave frequency, blank constant, and fine structure constant:

$$U_q = \alpha\, .\, h\, .\, f \qquad (12)$$

Where:

h: represents the Planck constant, 6.626× 10^{-34} J.Hz^{-1} [11]

□: is the constant of fine structure $\frac{1}{137}$ [12]

And if we assume that $f = f_s$

then

$$U_q = \alpha\, .\, h\, .\, f_s \;\; , \qquad (13)$$

Moreover,

$$U_q{}^2 = \alpha^2 .\, h^2 .\, f_s{}^2 \qquad (14)$$

Based on equation (12), we can write

$$6.\, A_g = \alpha^2 .\, h^2 .\, f_s \qquad (15)$$

Therefore , Based on equation (12) and (14), we can write

$$U_q = \frac{6.A_g}{\alpha\, .h} \qquad (16)$$

Therefore, the P.E.E. can then be written as follows:

$$f_s .\, \alpha^2 .\, h^2 .\, f_s = \alpha^2 .\, h^2 .\, f_s{}^2 \qquad (17)$$

We can equalize charge potential energy and kinetic energy in the following manner:

$$U_q = 2.\, KE = m_p .\, v^2 \qquad (18)$$

So:

$$6.\, A_g = 2.\, \alpha\, .\, h.\, KE \qquad (19)$$

So:

$$3.\, A_g = \alpha\, .\, h\, .\, KE \qquad (20)$$

From equations (14), (16), and (21), we can determine the significance of the Planck and Fine Structure Constants, in which these constants serve as an inhibition or constant converting instrument for converting from one form of energy to another; this is the new concept for the Planck constant.

6. Kinetic Energy (KE) and Gravitational Energy (U_g) Relations

Observing from Equation (20) that there is a ratio ($\frac{3}{\alpha.h}$) between the KE and the "mass potential weak energy," A_g, and if :

$$KE = U_g$$

Therefor, we can now define the "gravitational potential energy" as follows:

$$U_g = G\frac{\frac{3.m_{p1}}{\alpha.h}.\ m_{p2}}{r_d} \qquad (21)$$

Where:

r_d: is the distance for the mass m from the "B.H" or "Attractive Mass" central

The kinetic energy will therefore be:

$$KE = U_g = G\frac{\frac{3.m_p}{\alpha.h}.\ m_p}{r_d} \qquad (22)$$

The attractive and attracted bodies for N protons are calculated as follows:

$$KE = G\frac{\frac{3.N_{p1}.m_{p1}}{\alpha.h}.\ N_{p2}.m_{p2}}{r_d} \qquad (23)$$

Therefor, we can now define:

$$M = \frac{3.N_{p1}.m_{p1}}{\alpha.h} \quad \text{(Attractive Mass)} \qquad (24)$$

$$m = N_{p2}.m_{p2} \text{ (Attracted Mass)} \qquad (25)$$

Then:

$$KE = U_g = G\frac{M.\ m}{r_d} \qquad (26)$$

Therefore, if we have $W_{1,2}$; are the works of the gravitational force (F_g) ;and (g) is the acceleration of gravity; where both (F_g) and (g) are related to the Attractive Mass M; where ($r_{d2} > r_{d1}$),and ($r_{d2} - r_{d1} = r_d$):

$$W_1 = G\frac{M.\ m}{r_{d1}} \qquad (27)$$

, and

$$W_2 = G\frac{M.\ m}{r_{d2}} \qquad (28)$$

$$W_1 = F_g.r_{d1} = g.m.r_{d1}\ , \qquad (29)$$

and;

$$W_2 = F_g.r_{d2} = g.m.r_{d2} \qquad (30)$$

$$KE = U_g = W_2 - W_1 = F_g.(r_{d2} - r_{d1}) = F_g.r_d \qquad (31)$$

7. The Kinetic Energy (KE) and Gravitational Energy (U_g) Calculation Problem

We do not have a problem with astronomical bodies because we already use the "Attractive Mass" implicitly in the planet mass (big mass) "M." in equations (24) and (27) in Newton's Law to calculate (U_g) and (KE), but we do have a problem with atomic microscopy level; when we apply the "weak mass potential energy" (A_g) or equation :

$$A_g = G\frac{m_{p1}.\ m_{p2}}{r_d},$$

and consider it as (U_g) and (KE). In reality, when we use this (Attracted Mass) I mean (*the value of* m_p *only*) in our calculations, the values for (A_g) will not represent the true attractive energies (very weak energy), and we cannot rely on these atomic energy values to determine the energy of a large body (complex body). Multiplying (U_g) and (KE) for a single proton by (N_p), the number of protons for both masses, is all that is required. Using its attractive mass M, I will illustrate how to solve the problem below.

7.1. Level of Atomic Microscopy

The "Weak mass potential energy" for two protons with r_d= 1.0×10^{-4} m when we are using the (Attracted Mass):

$$A_g = G\frac{m_p^2}{r_d} = \frac{(6.67\times10^{-11})(1.67\times10^{-27})^2}{(1.0\times10^{-4})} = 1.86\times10^{-60}\text{ j}$$

The gravitational potential energy for two protons with r_d= 1.0×10^{-4} m ; when we are using the (Attractive Mass):

$$U_g = G\frac{\frac{3.m_{p1}}{\alpha.h}.\ m_{p2}}{r_d} = \frac{(6.67\times10^{-11}).\frac{3.(1.67\times10^{-27})}{(\frac{1}{137}).(6.626\times10^{-34})}.\ (1.67\times10^{-27})}{(1.0\times10^{-4})} = 3.85\times10^{-25}\text{ j}$$

The last example demonstrates that the (A_g) formula yielded a very weak energy value, whereas the (U_g) formula yielded the potential energy value, which is sufficient to provide thermal energy and motion for molecules (1.0×10^{-4} m, it is in the infrared spectrum of electromagnetic radiation [13].

7.2. Level of astronomical bodies:

We will now apply the last equation to the large bodies: the Earth, mass, and r_d (the Earth' s radius)= 1 kg 6.36×10^6 m [14]: The (Attractive Mass) for Earth= $M = 5.9\times10^{24}$ kg

so according to $M = \frac{3.N_{p1}.m_p}{\alpha.h}$.

N_{p1} (number of proton in Earth "B.H")= 5.69×10^{15} protons. (In sections 8 and 9, I will explain how and why this number, "N_p" was derived)

And for the mass:

$$N_{p2}(\text{ number of proton in the mass}) = \frac{1\,kg}{m_p} = 5.98 \times 10^{26} \text{ protons}$$

$$U_g = G\,\frac{\frac{3\,.N_{p1}\,.m_p}{\alpha\,.h}.\;N_{p2}.m_p}{r_d} = \frac{\left(6.67\times10^{-11}\right).\frac{3.\left(5.69\times10^{15}\right).\left(1.67\times10^{-27}\right)}{\left(\frac{1}{137}\right).\left(6.626\times10^{-34}\right)}.\left(5.98\times10^{26}\right).\;\left(1.67\times10^{-27}\right)}{\left(6.36\times10^{6}\right)}$$

$= 6.1 \times 10^{7}$ j

$$U_g = 2.KE = m.\,\upsilon^2$$

Where $m = N_{p2}.m_p$

So,

$$\upsilon^2 = \frac{2\left(6.1\times10^{7}\right)}{1\,.\text{kg}}$$

and

$$\upsilon = 11.1 \times 10^{3}\ \text{ms}^{-1}$$

8. The Attractive Mass and the Black Hole

We have already discussed "Attractive Mass" in equation (25):

$$M = \frac{3\,.N_{p1}\,.m_p}{\alpha\,.h}\ (\text{ the Attractive Mass})$$

Consequently, this is the mass calculation approach that must always be used when (A_g) must equal KE based on our equation (21):

$$3.A_g = \alpha.h\,.KE$$

This is the mass that we already always use in our calculations when dealing with the gravitational force of large bodies (complex bodies) such as planets (Sun, Earth, etc.)

$$KE = G\,\frac{M.\;m}{r_d} \qquad (32)$$

I have already clarified the relationship between this " Attractive Mass " and the proton (m_p) using N_p, h and α. this relationship is significant because it is the gateway between the small particle level (atoms) and the large body level, or, in other words, the connecting ring between classical and modern physics.

8.1. calculation of Earth Attractive Mass and (N_p)

$$M = M_{Earth} = (5.9 \times 10^{24}) = \frac{3\,.N_{p1}\,.m_p}{\alpha\,.h} = \frac{3\,.N_{p1}\,.\left(1.67\times10^{-27}\right)}{\left(\frac{1}{137}\right)\left(6.626\times10^{-34}\right)}$$

N_{p1}(number of protons in the Earth's black hole)= 5.69×10^{15} protons

The (N_p) calculation reveals that the Earth's Attractive Mass derives its effect not only from the number of masses($N_p.m_p$), but also from the compression of this mass as a result of its availability in its black hole; see Section 10.

9. The derivative relationships of the "B.H."

From equations (21) and (24), we know:

$$3.A_g = \alpha\,.h\,.KE$$

$$KE = G\,\frac{\frac{3\,.N_{p1}\,.m_{p1}}{\alpha\,.h}.\;\;N_{p2}.m_{p2}}{r_d}$$

Therefore:

$$G\,\frac{3.\;N_p.m_p\,.\;\;N_p.m_p}{r_d} = \alpha\,.h\,.\,\frac{1}{2}.\,N_p.m_p.\,\upsilon^2 \qquad (33)$$

For inside the "B.H" $\upsilon^2 = C^2$ and $r_d = r_s$; Consequently,

$$G\,\frac{6.\frac{N_p\,.m_p}{\alpha\,.h}}{r_s} = C^2\,; \qquad (34)$$

; Therefore,

$$\frac{N_p}{r_s} = \frac{C^2.\alpha\,.h}{6.G.\,.m_p} \qquad (35)$$

$$\frac{6.N_p\;.m_p}{\alpha\,.h} = \frac{C^2.r_s}{G}$$

And using the following equation (24):

$$2.M = \frac{C^2.r_s}{G} \qquad (36)$$

Already in 1916, the German astronomer Karl Schwarzschild obtained the exact solution to Einstein's field equations [15] for the gravitational field outside a non-rotating, spherically symmetric body with mass and discovered the same relation (37), but I used the "P.E.E." equation and the "Attractive Mass" concept here.

Where:
M:represents the "Attractive Mass" in kilograms
r_s: represents the "B.H" radius in meter
C: the constant of light speed
N_p: the number of compressed protons inside the "B.H."
Equations (25), (37) demonstrate that the "Attractive Mass" M increases as the number of compressed protons N_p inside the "B.H." and the radius of the "B.H." both increases.

10. Derivation of P.E.E. and black hole relationships

The final equation (6) states:

$$f_s = \frac{C}{2\pi\, r_c}$$

r_c: is the distance between protons within the "B.H." (or the compressing distance for protons within the "B.H."). And according to the final equation (10):

$$f_s = \frac{v^4.r_d}{G};$$

Moreover, if $v=C$ and $r_d = r_s$ so:

$$f_s = \frac{c^4.r_s}{G} \qquad (37)$$

r_s: represents the "B.H" radius in meter
Equation (38) demonstrates that the "B.H." energy (or frequency, as previously explained in Section 4) increases as the "B.H." radius increases, as does its energy.

And using equations (5)and (38), we can formulate the following:

$$\frac{c}{2\pi\, r_c} = \frac{c^4.r_s}{G} \qquad (38)$$

Then:

$$r_s.r_c = \frac{G}{2\pi\, .c^3} \qquad (39)$$

It is evident from Equations (38) and (40) that there is an inverse relationship between "r_s" and "r_c," such that if the "B.H." compresses its contents more (the "r_c" decreases), then its radius, or energy for compressing, or gravity will increase.

From (37) and (40), we can deduce the following:

$$2\,M = \frac{c^2}{G} \cdot \frac{G}{2\pi\, .c^3.r_c} = \frac{1}{2\pi\, .c.r_c} \qquad (40)$$

$$M = \frac{1}{4\pi\, .c.r_c} \qquad (41)$$

Equation (42) demonstrates that the "Attractive Mass" M increases as the compressing distance "r_c" for protons within "B.H." shrinks.

We are aware of the P.E.E. formula:

$$6.\ \frac{C}{2\pi\, r_c} \cdot\ G\frac{m_{p1}^2 .m_{p2}^2}{r_c} = \left(\frac{1}{4\pi\epsilon_0} \cdot \frac{q_1 \cdot q_2}{r_c}\right)^2$$

Therefore, we can now express the P.E.E. equation as follows:

$$6.\ \frac{c^4.r_s}{G} \cdot\ G\frac{m_{p1}^2 .m_{p2}^2}{r_c} = \left(\frac{1}{4\pi\epsilon_0} \cdot \frac{q_1 \cdot q_2}{r_c}\right)^2 \qquad (42)$$

Or

$$6.\ \frac{c^4.r_s}{G} \cdot\ A_g = U_q^2$$

When the distance between the charges (or the compressing distance for protons inside "B.H.") (r_c) increases, it is evident that the square charge (U_q^2) potential and the mass potential weak energy (A_g) decrease; simultaneously, the (r_s) decreases and the "B.H." energy decreases.

11. The Earth and Sun Calculation of the "B.H." radius (r_s) and its compressing distance (r_c)

11.1. Earth

We know from last calculation that the
N_p (for Earth)= 5.69×10^{15} protons, and according to the equation (36), therefor:

$$\frac{N_p}{r_s} = \frac{C^2.\alpha\,.h}{6.G.\,.m_p}$$

$$\frac{1}{r_s} = \frac{(3\times10^8)^2.\left(\frac{1}{137}\right).(6.626\times10^{-34})}{6(6.67\times10^{-11})(1.67\times10^{-27}).(5.69\times10^{15})}$$

$$r_s(\text{ Earth Black Hole radius}) = 8.748 \text{ mm}$$

Using equation (40), we can also calculate the compressing distance within the "B.H."

$$r_c = \frac{G}{2\pi\, .c^3 r_s} = \frac{(6.67\times10^{-11})}{2\pi.\,(3\times10^8)^3(8.748\times10^{-3})}$$

r_c (Earth "B.H" comressing distance) = 4.49×10^{-35} m

11.2. Sun

The mass of Sun is 1.989×10^{30} kg,
And according to the final equation (37)

$$r_s = \frac{2.G.M}{C^2} = \frac{2.(6.67\times10^{-11}).(1.989\times10^{30})}{2\pi.(3\times10^8)^2} = 2.948\times 10^3 \text{ m}$$

$$r_s(\text{ Sun Black Hole radius}) = 2.948 \text{ km}$$

$$r_c = \frac{G}{2\pi.c^3 r_s} = \frac{(6.67\times10^{-11})}{2\pi.(3\times10^8)^3(2.948\times10^3)} = 1.33\times 10^{-40} \text{ m}$$

$$r_s(\text{ Sun Black Hole comressing distance}) = 1.33\times 10^{-40} \text{ m}$$

12. Calculation of the hydrogen atom's "B.H." radius (r_s) and its compressing distance (r_c)

In this instance, the Np value for the hydrogen atom is:
Np (Hydrogen atom) = 1 proton, and according to the equation (36), therefor:

$$\frac{N_p}{r_s} = \frac{C^2.\alpha.h}{6.G..m_p} =$$

$$\frac{1}{r_s} = \frac{(3\times10^8)^2.\left(\frac{1}{137}\right).(6.626\times10^{-34})}{6(6.67\times10^{-11})(1.67\times10^{-27}).(1)}$$

r_s (Hydrogen atom "B.H" rdius)=1.535×10^{-18} m

Also, we can calculate the proton radius from the center of the black hole, given that there is only one proton and compression occurs on the proton itself.

$$r_c = \frac{G}{2\pi.c^3 r_s} = \frac{(6.67\times10^{-11})}{2\pi.(3\times10^8)^3(1.535\times10^{-18})}$$

$$r_c = 2.56\times 10^{-19}\ m$$

13. Equations for gravitational and "B.H." potential energy

(Gravitational Potential Energy and the "B.H" "r_s" equation)

$$U_g = \frac{r_s.\ N_{p2}.m_{p2}.C^2}{2.r_d} \qquad (44)$$

(Gravitational Force and the "B.H" "r_s" equation)

$$F_g = \frac{r_s.m.C^2}{2.r_d^2} \qquad (45)$$

Where: $m = N_{p2}.\ m_{p2}$

(Gravitational Acceleration and the "B.H" "r_s" equation)

$$g = \frac{r_s.C^2}{2.r_d^2} \qquad (46)$$

Where:
r_d: is the distance for the mass m from the "B.H" or "Attractive Mass" central
F_g :is the gravity force on the mass m
g :is the gravitation acceleration Also, from (42) we can write the gravitational potential energy in (24):

(Gravitational Potential Energy and the "B.H" "r_c" equation)

$$U_g = \frac{G.\ N_{p2}.m_{p2}}{4\pi.c.r_c r_d} \qquad (47)$$

(Gravitational Force and the "B.H" "r_c " equation)

$$F_g = \frac{G.m}{4\pi.c.r_c r_d^2} \qquad (48)$$

Where: $m = N_{p2}.m_{p2}$

(Gravitational Acceleration and the "B.H" "r_c" equation)

$$g = \frac{G}{4\pi.c.r_c r_d^2} \qquad (49)$$

14. Calculation of the Earth's gravitational acceleration (g)

And we can calculate the gravitation acceleration (g); if we have m=1 kg , Earth radius r_d =6.36×10^6 m, and Earth "B.H" radius r_s=8.75×10^{-3} m, from equation (47):

$$g = \frac{r_s.C^2}{2.r_d^2} = \frac{(8.75\times10^{-3}).(3\times10^8)^2}{2.(6.36\times10^6)^2}$$

$$g = 9.734 \text{ ms}^{-2}$$

15. Conclusion

I concluded that "B.H." energy is the connecting ring between the astronomical and microscopic bodies' attraction by the concept of "Attractive Mass," where the gravity of any body depends on how much mass is being compressed by its "B.H." and not just the amount of mass in that body. In addition, Newton's law of gravity already includes the "Attractive Mass" in the mass of the astronomical bodies it employs; this means that the planet's mass is not a normal mass, but a "Attractive Mass." When calculating gravity on a microscopic scale, the concept of this mass must be taken into account. In addition, I came to the conclusion that the Planck and Fine structure constants are essential for comprehendingthe energy types.

16. Data availability

The supporting data for this article can be found in the article itself and in the list of references.

Statements and Declarations

Conflicts of Interest: The author declares there are no competing interests in this work.

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