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REVOLUTIONARY DYNAMIC THEORY OF GRAVITATION

O. Nwagbara, A.O. Obioha, S.C.I. Igbokwe, P.O. Ogwo and M.U. Nduka

Department of Physics, Faculty of Scince, Kingsley Ozumba Mbadiwe University, Ideato Orlu, Nigeria

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ABSTRACT

Gravitation is one of the fundamental forces of Physics and the current understanding of gravity is based on Einstein's General Relativity theory which is formulated within the entirely different framework of Classical Physics. In this research, a generalized Newton's gravitational field equation for a dynamic homogeneous spherical massive body that depends on the radial distance and time only was obtained using the Golden Riemannian Laplacian Operator. The generalized gravitational field equation was also applied to a dynamic homogeneous spherical massive body in order to obtain a generalized Newton's gravitational scalar potential exterior and interior to the body. The results are that the Revolutionary dynamical gravitational field equation and gravitational scalar potential exterior and interior to the body contains terms of order c^{-2} *which are neither found in the existing Newton's and Einstein's gravitational field equations and gravitational scalar potentials*

1.0 INTRODUCTION

In the year 1686, Sir Isaac Newton published his dynamical theory of gravitation. This theory was successful in explaining the gravitational phenomenon on the earth and some observed facts of the solar system [1]. However, Newton's dynamical theory of gravitation could not account for the observed anomalous orbital precession of the orbit of the planets as well as gravitational shifts by the sun.

In the year 1915, Albert Einstein published his geometrical theory of gravitation, which is popularly known as" General Relativity". This theory was able to offer the resolution of the anomalous precession of the orbit of the planet as well as the gravitational shifts by the sun [3]. Despite the famous tests of General Relativity, a number of Physicists have continue to hold on to the view that General Relativity is incomplete; describing the gravitational field of a black-hole in General Relativity, physical quantities such as the space-time curvature diverge at the centre of a black-hole [6].

*Corresponding author: Nwagbara O.
E-mail address: obinna.nwagbara@komu.edu.ng, Tel: +2348166648888
https:xxxxxxxxxxxxxxxxxxxxxxxxx

At the distances very close to the centre of a blackhole (closer than Planck's length), quantum fluctuations of spacetime are expected to play an important role[7]. How do Physicists say that Einstein's theory of General Relativity breaks down in the interior of a black-hole when it is not possible to make observations of the interior of a black-hole? Because the equations results in singularity; meaning, they predict something infinite, in this case, infinite density!! The idea of infinite density does not make sense with our understanding of what density is, but more so, this is far from the first time a theory has predicted a singularity [7]. In general, when this happens, it is a signal that a theory that has a good approximation in many or most cases is no longer accurate. This signals the breakdown of General Relativity and the need for another theory that goes beyond General Relativity into the quantum[4].

In the year 2013, S.X.K Howusu in his book titled "Riemannian Revolution in Physics and Mathematics", discovered a unique metric tensor for all gravitational fields in nature that is necessary and sufficient for the formulation of theoretical Physics based on the Riemannian geometry [5]. Howusu theorized that gravitational field equations can be generalized by using the Golden Laplacian Operator.

In this research, the Golden Laplacian Operator was used to derive a generalized Newton's dynamical gravitation field equation and scalar potential exterior and interior to the body for a dynamic homogeneous spherical distribution of mass whose tensor field varies with the radial distance and time only.

(2.0)**THEORETICAL ANALYSIS**

Consider a dynamic homogeneous spherical massive body of radius R and total rest mass M, the well-known Newton's dynamical gravitational field equation [5] is given by

$$\nabla_E^2 f(t,r,\theta,\emptyset) = \begin{cases} 0; & r > R \\ 4\pi G P_o; & r < R \end{cases} \qquad (1)$$

Where G is the universal gravitational constant, f is the well-known Newton's gravitational scalar potential exterior and interior to the body, P_o is the proper density of mass in a distribution, ∇_E^2 is the well-known Euclidean Laplacian Operator, R is the radius of the body and r is the mean distance from the sun respectively.

The Golden Laplacian Operator is given explicitly in the spherical polar coordinate as [5]

$$\nabla_G^2(t,r,\theta,\emptyset) = \frac{1}{r^2}\left\{1+\frac{2(t,r,\theta,\emptyset)}{c^2}\right\}\frac{\partial}{\partial r}\left\{r^2\frac{\partial\,(t,r,\theta,\emptyset)}{\partial r}\right\} + \frac{1}{r^2 sin\theta}\left\{1+\frac{2(t,r,\theta,\emptyset)}{c^2}\right\}\frac{\partial}{\partial\theta}\left\{sin\theta\frac{\partial\,(t,r,\theta,\emptyset)}{\partial\theta}\right\} + \frac{1}{r^2 sin^2\theta}\left\{1+\frac{2(t,r,\theta,\emptyset)}{c^2}\right\}\frac{\partial^2(t,r,\theta,\emptyset)}{\partial\emptyset^2} - \frac{1}{c^2}\left\{\frac{\partial}{\partial t}\left\{1+\frac{2(t,r,\theta,\emptyset)}{c^2}\right\}^{-1}\frac{\partial(t,r,\theta,\emptyset)}{\partial t}\right\} \qquad (2)$$

For a dynamic homogeneous spherical distribution of mass, the gravitational field equation will then depends on the radial distance and time only. Consequently, equation (2) reduces to the form;

$$\nabla_G^2(t,r) = \frac{1}{r^2}\left\{1+\frac{2(t,r)}{c^2}\right\}\frac{\partial}{\partial r}\left\{r^2\frac{\partial\,(t,r)}{\partial r}\right\} - \frac{1}{c^2}\left\{\frac{\partial}{\partial t}\left\{1+\frac{2(t,r)}{c^2}\right\}^{-1}\frac{\partial(t,r)}{\partial t}\right\} \qquad (3)$$

As the gravitational field depends on the radial distance and time only. $f(t,r)$, is the generalized Newton's gravitational scalar potential exterior and interior to the body, $\nabla_G^2$is the generalized Euclidean Laplacian Operator also known as the Golden Laplacian Operator.

Applying equation (3) into (1), by replacing the well-known Euclidean Laplacian Operator with the Golden Laplacian Operator and simplifying, we obtain

$$f^{II} + \frac{2}{r}f^{I} + \frac{2}{c^2}f^{II} + \frac{4}{c^2}ff^{II} - \frac{1}{c^2}\ddot{f} = \begin{cases} 0\,; & r > R \\ 4\pi G P_o; & r < R \end{cases} \qquad (4)$$

Where $f^I$is the one time differentiation w. r. t the radial distance r, f^{II} is the two time differentiation w. r. t the radial distance r and $\ddot{f}$ is the two time differentiation w. r. t time t respectively.

Equation (4) is the Revolutionary dynamical gravitational equation for a dynamic spherical massive body. The Revolutionary dynamical gravitational equation contains:

i. $\left\{1+\frac{2k}{c^2r}\right\}$ which are not found in the existing Newton`s dynamical gravitational field equation. It immediate consequence is that, it will add correction terms to the existing Newton`s gravitational field equation, scalar potential exterior and interior to the body as well as to the gravitational intensity.

ii. $\left\{1+\frac{2k}{c^2r}\right\}$, which are not found in the existing Newtonian dynamical field equation. The immediate implication is that, it will predict correction terms to gravitational field of all massive bodies.

iii. $\left\{1+\frac{2k}{c^2r}\right\}$, which are not found in the well-known Newtonian gravitational field theory. The absence of this factor in the well-known Newtonian field equation explains why at Classical Physics, the Newton's gravitational field theory could not account for the observed anomalous orbital precession of the orbits of the planets as well as the gravitational shifts by the sun.

iv. $\left\{1+\frac{2k}{c^2r}\right\}$, which are not found in the well-known Newtonian gravitational field theory. The absence of this factor in the well-known Newtonian field equation explains why at Classical Physics, the Newton's gravitational field theory could not account for the observed geometrical curving of space and time.

Seeking the solution of the exterior field equation (4) in the form [2] as

$$f^{+}(t,r) = R_1(r)e^{iwt} + R_2(r)e^{2iwt} + \dots\dots\dots \quad (5)$$

$$f^{I}(t,r) = R_1^{I}(r)e^{iwt} + R_2^{II}(r)e^{2iwt} + \dots\dots\dots \quad (6)$$

$$f^{II}(t,r) = R_1^{II}(r)e^{iwt} + R_2^{II}(r)e^{2iwt} + \dots\dots\dots \quad (7)$$

$$\ddot{f}(t,r) = -w^2R_1(r)e^{iwt} - 4w^2R_2(r)e^{2iwt} + \dots\dots\dots \quad (8)$$

Where $R_1^{+} = \frac{A_1}{r}e^{iwt} + \frac{A_2}{r^2}e^{iwt} + \dots\dots\dots\dots$ (9)

Substituting equations (5), (6), (7) and (8) into (4) and equating coefficients of $\frac{1}{r^3}$ and $\frac{1}{r^4}$ on both sides of the equations, we obtain

A_1= Arbitrary constant (10)

$$A_2 = \frac{2KA_1}{c^2}\left(1 + \frac{2K}{c^2}\left(1 + \frac{iw}{c}\right)\right)^{-1} \tag{11}$$

Where K= GM, i is a complex term, M is mass of the spherical body and w is the angular frequency. It follows from equation (10) and (11) that the general solution of the exterior field equation is given by

$$f^+(t,r) = \frac{A_1}{r}e^{iwt} + \frac{2KA_1}{c^2r^2}\left(1 + \frac{2K}{c^2}\left(1 + \frac{iw}{c}\right)\right)^{-1} e^{iwt} \tag{12}$$

Also seeking the solution of the interior field equation (4) [2] as

$$f^-(t,r) = f_c^-(t,r) + f_p^-(t,r) = B_O + D_2r^2 + D_4r^4 \tag{13}$$

Where $f_c^-(t,r)$ and $f_p^-(t,r)$ are the complementary and particular solution of the interior field equation, B_O, D_2, and D_4 are all constants. The interior field complementary equation is giving by

$$f_c^-(t,r) = B_O$$

(14)

Seeking the particular field solution of the form

$$f_p^-(t,r) = D_2r^2 + D_4r^4$$.

(15)

Differentiating equation (15) w. r. t r, we obtain the following equations as

$$f_p^I(t,r) = 2D_2r + 4D_4r^3$$

(16)

$$f_p^{II}(t,r) = 2D_2 + 12D_4r^2$$

(17)

Applying equations (15), (16) and (17) into equation (4) and equating coefficients of r^0, r^2 and r^4 on both sides of the equations, we obtain

$$D_2 = \frac{2}{3}\pi G P_O\left\{1 - \frac{3K}{c^2}\right\}^{-1} e^{iwt} \tag{18}$$

Using the well-known physical restriction between density and mass for a sphere of radius R, equation (18) becomes

$$D_2 = \frac{\mathrm{GM}}{2\mathrm{R}^3}\left\{1 - \frac{3K}{c^2}\right\}^{-1} e^{iwt} \tag{19}$$

By the condition of continuity of the gravitational scalar potential function across boundaries, we obtain

$$B_O + D_2R^2 + \dots. = \left\{\frac{\mathrm{A}_1}{\mathrm{R}} + \frac{\mathrm{A}_2}{\mathrm{R}^2}\right\}\mathrm{e}^{\mathrm{iwt}} + \dots \tag{20}$$

By the conditions of the continuity of normal derivative of gravitational scalar potentials across all boundaries, we have

$$\left\{\frac{\partial f^+}{\partial r}\right\}_{r=R} = \left\{\frac{\partial f^-}{\partial r}\right\}_{r=R} \tag{21}$$

And

$$2D_2R = -\left\{\frac{\mathrm{A}_1}{\mathrm{R}} + \frac{\mathrm{A}_2}{\mathrm{R}^2}\right\}\mathrm{e}^{\mathrm{iwt}} \tag{22}$$

Solving equation (22) for A_1 and substituting equation (19) for D_2, we obtain

$$A_1 = -k\left\{1 + \frac{3K}{c^2R}\right\}\left\{\left(1 + \frac{4K}{c^2R}\left(1 - \frac{2K}{c^2}\left(1 + \frac{iw}{c}\right)\right)\right)\right\} \tag{23}$$

It follows from equation (12) subject to (23), the equation for the exterior gravitational scalar potential is given by

$$f^+(t,r) = -\frac{K}{r}\left\{1 + \frac{3K}{c^2R}\right\}\left\{\left(1 + \frac{4K}{c^2R}\left(1 - \frac{2K}{c^2}\left(1 + \frac{iw}{c}\right)\right)\right)\right\}e^{iwt}$$

$$-\frac{2K^2}{C^2r^2}\left\{1 + \frac{3K}{c^2R}\right\}\left\{1 + \frac{2K}{C^2}\left(1 + \frac{iw}{c}\right)\right\}^{-1}\left\{\left(1 + \frac{4K}{c^2R}\left(1 - \frac{2K}{c^2}\left(1 + \frac{iw}{c}\right)\right)\right)\right\}e^{iwt} \tag{24}$$

Equation (24) is the Revolutionary dynamical gravitational scalar potential exterior and interior to the body. To the order of c^0 *and* c^{-2}, the exact case of equation (24) becomes

$$f^+(t,r) = -\frac{K}{r}\left\{1 + \frac{2K}{c^2r} + \frac{7K}{c^2R}\right\}e^{iwt} \tag{25}$$

The exact form of equation (25) is given as

$$f^+(t,r) = -\frac{K}{r}\left\{1 + \frac{2K}{c^2r}\right\}e^{iwt} \tag{26}$$

At the static case, i. e when t = 0 and c^{-2} we have

$$f^{+}(t,r) = -\frac{K}{r}\left\{1 + \frac{2K}{c^{2}r}\right\} \tag{27}$$

At the static case, i. e when t = 0 and c^{0}, we have

$$f^{+}(t,r) = -\frac{K}{r} \tag{28}$$

The result of equation (25) obtained in this research indicates that it obeys the well-known Equivalence Principle of Physics and contains the well-known Newtonian term, Einstein’s term as well as an unknown term which are open up for theoretical developments and experimental investigations and applications. Equation (26) which is the exact form of equation (25), contains the well-known Newton’s and Einstein`s terms incorporated as a unit and is called the Revolutionary Dynamic gravitational scalar potential as it varies with time. The reduced form of equation (26) at the static case, when the time component is not varying, equation (27) is obtained. Equation (27) contains the well-known Newtion`s and Einstein`s terms when the speed of light is taken to the order of $c^{2}$. It indicates that it obeys the well known Equivalence Principle of Physics and its immediate consequences is that, it is compactable with quantum mechanics, upgrades Newtonian Dynamical Theory of Gravitation to Einstein`s General Theory of Relativity, unifies Quantum Mechanics with Classical Physics and as well as accounts for the quantum fluctuations of space-time within the vicinity of a blackhole when it`s been applied. Equation (28) is the well-known Newtonian dynamical gravitational scalar potential exterior to the body and is obtained from equation (27) at the static case when time is constant and the speed of light is taken to the order of c^{0} . The immediate consequence of equation (28) is that, it obeys the well known Equivalence Principle of Physics.

Now, resolving equation (20), for B_{o} to the order of c^{-2}, we obtain

$$B_{o} = \left\{\frac{\mathrm{A}_{1}}{\mathrm{R}} + \frac{\mathrm{A}_{2}}{\mathrm{R}^{2}}\right\}\mathrm{e}^{\mathrm{iwt}} - D_{2}R^{2} \tag{29}$$

Equation (28) simplifies into

$$B_{o} = -\left\{\frac{3\mathrm{K}}{2\mathrm{R}} + \frac{21\mathrm{K}^{2}}{2\mathrm{c}^{2}\mathrm{R}^{2}}\right\}\mathrm{e}^{\mathrm{iwt}} \tag{30}$$

At c^0 and when t = 0, we obtain the static case of the well-known Newtonian complementary interior field equation given by

$$B_o = -\frac{3\mathrm{K}}{2\mathrm{R}} \quad (31)$$

Equation (31), indicates that this research once again obeys the Equivalence Principle of Physics. Equation (30) is the generalized Newtonian complementary interior field equation for a dynamic gravitational field equation that depends on radial distance with time only.

It also follows from equation (13) subject to equations (19) and (30), the complete solution of the interior gravitational scalar potential is given by

$$f^-(t,r) = -\frac{K}{R}\left\{1 + \frac{3K}{c^2R}\right\}\left\{\left(1 + \frac{4K}{c^2R}\left(1 - \frac{2K}{c^2}\left(1 + \frac{iw}{c}\right)\right)\right)\right\}e^{iwt}$$

$$-\frac{2K^2}{C^2R^2}\left\{1 + \frac{3K}{c^2R}\right\}\left\{1 + \frac{2K}{C^2}\left(1 + \frac{iw}{c}\right)\right\}^{-1}\left\{\left(1 + \frac{4K}{c^2R}\left(1 - \frac{2K}{c^2}\left(1 + \frac{iw}{c}\right)\right)\right)\right\}e^{iwt}$$

$$-\frac{K}{2R}\left\{1 + \frac{3K}{c^2R}\right\}e^{iwt} + \frac{Kr^2}{2R^3}\left\{1 + \frac{3K}{c^2R}\right\}e^{iwt} \quad (32)$$

To the order of c^{-2}, equation (32) becomes

$$f^-(t,r) = -\left\{\frac{3\mathrm{K}}{2\mathrm{R}} + \frac{21\mathrm{K}^2}{2\mathrm{c}^2\mathrm{R}^2}\right\}\mathrm{e}^{\mathrm{iwt}} + \frac{Kr^2}{2R^3}\left\{1 + \frac{3K}{c^2R}\right\}e^{iwt} \quad (33)$$

To the order of c^{-2} and in the static case (i.e when t = 0), equation (32) becomes

$$f^-(t,r) = -\left\{\frac{3\mathrm{K}}{2\mathrm{R}} + \frac{21\mathrm{K}^2}{2\mathrm{c}^2\mathrm{R}^2}\right\} + \frac{Kr^2}{2R^3}\left\{1 + \frac{3K}{c^2R}\right\} \quad (34)$$

Equation (34) is the Revolutionary dynamical gravitational scalar potential interior to the body for a dynamic homogeneous spherical distribution of mass whose tensor field varies with the radial distance and time only. At the static case and at c^0, equation (32), reduces to the well-known Newtonian interior gravitational scalar potential given as

$$f^-(t,r) = -\frac{3\mathrm{K}}{2\mathrm{R}} + \frac{Kr^2}{2R^3} \quad (35)$$

Equation (34) indicates that this research paper obeys the Equivalence Principle of physics.

The gravitational field intensity is obtain as thus

$$g = -\nabla f^{+}(t,r) = \frac{\partial}{\partial r}\left(\frac{K}{r}\left\{1 + \frac{2K}{c^2 r}\right\}\right) = -\frac{K}{r^2}\left\{1 + \frac{4K}{c^2 r}\right\} \quad (36)$$

Equation (36) contains correction terms which are not found in the well known Newton`s gravitation field intensity and its immediate consequence is that it will either predicts or updates the actual facts as regards gravitational massive bodies such as planets, stars etc. The table below reveals the gravitational field intensities for planets in our solar system and in comparison with the actual data from the Astronomy-Planetary-Fact-Sheet.

Table 1: Gravitational intensities for all the planets in the solar system

(Planets)	**Mass of The Planets 10^{23}(Kg)**	**Radius of the Planets10^{6}(m)**	**Value of g ms^{-2} in R. D. T. G**	**Ratio of theR. D. T. G to the N. D. T. G intensities**
Mercury	3.30	2.440	3.6970983610	1.0000000004
Venus	4.87×10^{1}	6.052	8.8686385970	1.0000000024
Earth	5.97×10^{1}	6.378	9.7886007681	1.0000000028
Mars	6.42	3.397	3.68696366990	1.0000000006
Jupiter	1.90×10^{4}	71.492	24.7950264380	1.0000000788
Saturn	5.68×10^{3}	60.268	10.4303918071	1.0000000280
Uranus	8.68×10^{2}	25.559	8.8625326368	1.0000000101
Neptune	1.02×10^{3}	24.766	11.0921127072	1.0000000122

The table one (1) indicates the gravitational intensities for all the planets in our solar system. Column four (4) was obtained when all the data gotten from column two (2) and three (3) were applied to equation (36). Column five (5), was obtained by comparing the

results obtained in column four (4) with the well-known Newtonian gravitational intensities across all the planets of our solar system. The results obtained in column four (4), indicates that this research falls within the range and the discrepancies are as a result of the correction terms attached to equation (36).

The generalized gravitational field equation and scalar potential exterior and interior to the body for a dynamical homogeneous spherical distribution of mass were found to be equations (4), (24) and (32) respectively. To the order of c^{-2} and a varying time t, the exterior and interior gravitational scalar potential equations (24) and (32) reduces to equations (26) and (33) respectively. In static case, at the limit of c^{-2} , the exterior and interior gravitational scalar potential equations (24) and (32) reduces to equations (27) and (34) respectively. In static case, at the limit of c^{0} , the exterior and interior gravitational scalar potential equations (24) and (32) reduces to the well-known Newtonian equations, (28) and (35) respectively.

These equations obey the Equivalence Principle of Physics and are open up for theoretical developments, experimental investigations and applications.

(3.0) **CONCLUSION**

Gravitation is the study of nature which gives us a better understanding of the earth in relation with the universe and beyond [5]. The results obtained in this research indicates that it is possible to obtain similar results predicted by Einstein`s General Relativity Theory of Gravitation by generalizing the well-known Newton`s Theory of Gravitation. The results obtained from this research opens all possible doors for Physics, Science and Technology at large as it has the capacity to reconcile both Classical Physics with Quantum Mechanics when appropriately applied.

The standard model of particle Physics, which describes quantum particles and their interactions, does not include gravity and several theories as well have been proposed to reconcile the apparent contradictions between Quantum Mechanics and General Relativity, including String Theory and Loop Quantum Gravity, but none of them have been confirmed by experimental evidence[11].

The gravitational field intensity obtained from this research will help in upgrading the well-known Newton`s gravitational theory to similar results obtained by General Relativity when applied to the well-known Newton`s gravitation field equations of motion to Albert Einstein's General theory of Relativity if applied into the Newton's dynamical equations of motion, the Lagrangian equations of motion and the Hamilton's equations of motion.

The Revolutionary Dynamical Theory of Gravitation has produced the most profound results and these equations;

i. Obeys Correspondence Principles of Physics
ii. Obeys Equivalence Principles of Physics
iii. Are capable of unifying both Classical Mechanics and Quantum Mechanics
iv. Are compatible with Quantum Mechanics
v. Are compatible with Planck`s Blackbody Radiation Theory
vi. Are compatible Hawking`s Black-hole Thermodynamic Field Theory.
vii. Contains $\left\{1+\frac{4k}{c^2 r}\right\}$ attached to the radial speed term which term are not found in the existing Newtonian dynamical field equation. Its immediate implications is that, it will predict correction terms to the radial acceleration and subsequently, lead to the upgrade of the Newtonian Planetary equation of motion to the well-known Einstein`s General Relativity planetary equation of motion.
viii. Contains $\left\{1+\frac{2k}{c^2 r}\right\}$, which are not found in the existing Newtonian dynamical field equations. The immediate implication is that, it will predict correction terms to gravitational field of all massive bodies.

ix. Contains $\left\{1 + \frac{2k}{c^2 r}\right\}$, which are not found in the well-known Newtonian gravitational field theory. The absence of this factor in the well-known Newtonian field equation explains why at Classical Physics, the Newton's gravitational field theory could not account for the observed anomalous orbital precession of the orbits of the planets as well as the gravitational shifts by the sun.

x. Contains the time component, which is not found in the well-known Newton's dynamical field equation. The immediate consequence is that, it will predict the existence of gravitational waves. The presence of the time component makes the field a dynamical one.

xi. Contains $\frac{-K}{r}\left\{1 + \frac{2K}{c^2 r}\right\} e^{-iwt}$, in the exterior gravitational scalar potential which are found to contain the well-known Newtonian and Einstein's terms. The immediate consequences is that, it can be applied to the well-known Newtonian dynamical equations of motions to obtain additional correction terns to planetary equations of motion and hence revisions to the planetary parameters such as the orbital angular frequency, amplitude, eccentricity, period, perihelion and aphelion distances and as well as resolve the problem of the anomalous orbital precession of the orbits of the planets as well as the gravitational shifts by the sun.

xii. Contains $\frac{-K}{r}\left\{1 + \frac{2K}{c^2 r}\right\} e^{-iwt}$. It immediate consequence is that, it is compactable with quantum mechanics.

xiii. Contains $\frac{-K}{r}\left\{1 + \frac{2K}{c^2 r}\right\} e^{-iwt}$. It immediate consequence is that, it upgrades Newtonian Dynamical Theory of Gravitation to Einstein`s General Theory of Relativity.

xiv. Contains $\frac{-K}{r}\left\{1 + \frac{2K}{c^2 r}\right\} e^{-iwt}$. It immediate consequence is that, it unifies quantum Physics with Classical Physics.

xv. Contains $\frac{-K}{r}\left\{1+\frac{2K}{c^2r}\right\}e^{-iwt}$. It immediate consequence is that, it will accounts for the quantum fluctuations of space-time within the vicinity of a black hole.

xvi. Contains $\frac{-K}{r^2}\left\{1+\frac{4K}{c^2r}\right\}e^{-iwt}$correction terms which are not found in the well-known Newton`s gravitation field intensity. Its immediate consequence is that it will upgrade the well-known Newton`s gravitation field equations of motion to Albert Einstein's General theory of Relativity if applied into the Newton's dynamical equations of motion, the Lagrangian equations of motion and the Hamilton's equations of motion.

xvii. Derived are mathematically most simple and elegant.

xviii. Obtained are astrophysically most satisfactory.

(4.0) **REFERENCES**

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