Quantum Gravity

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Insection (A) i will propose the law of quantum gravity and its unification with electromagnetic interaction and similarly in section (B) the mathematical relation of gravitational equivalent of magnetic field will be deduced there from and similarly in section (C) the inter-relation between gravity and time will be established...

AND in section (D) I will hint the microscopic analysis for particle physics of gravity in the light of proposal of quantum gravity law.

SECTION (A).

HERE the law of Quantum Gravity is proposed .i.e.

$$J \cdot p \cdot g = \{ dm \}^2 \cdot \{ sqrt (c^2 / v^2 - 1) \} ....(1)$$

WHERE $J = h / c^4$

with $h = 6.626.(1o)^{-34}$ joule.sec

and

$c = 3*(1o)^8$ meter/sec.

Similarly p , g are magnitude of momentum and gravity of particle and dm is the differential of mass with

$dm.c^2 = h / dt,$

Working on equation (1), I discovered that R.H.S of (1) is equivalent to $(dq'/ Y)^2$

i.e. $(dq' / Y)^2 = (dm)^2 \cdot \{sqrt (c^2 / v^2 - 1)...(2)$

Where Y is a Lorentz-invariant factor with dimensions as coulomb / kg.And dq' is induced charge(due to motion) like differential dm .

(NOTE)

THIS IS A NEW CONCEPT INTRODUCED HEREIN,WE WILL VERIFY THIS IN THE FOLLOWING LINES......

By integration and other mathematical process, equation (2) gives the results as,

q' = (3.87113* 10 ^ 8).mvr / M.... (3)

For eccentricity e = 0, for orbiting particles...and the dimensions of the constant involved here are coulomb.second / m^2.

Where mvr is the angular momentum of orbiting object and M is the mass of central body. Clearly the induced charge (3) satisfies the charge conservation principle as the angular momentum is conserved.

Clearly for m less than less than M (as the stones etc. over earth...) q' proposed by (3) is highly negligible, that is why (we find) it has not been detected so far.....

THUS HERE WE , CONSEQUENTLY BY NEWLY DISCOVERED RELATION , OFFER A HYPOTHESIS.

HYPOTHESIS

TOTAL CHARGE = CHARGE AT REST + INDUCED CHARGE

or   Q   =   q   + q' ......(3 a)

IN RESPECT OF PROPOSED HYPOTHESIS BY (3).

Here, now on the basis of above results, we assume that gravitational interaction of solar system is electromagnetic interaction as the momentum of the orbiting objects are considerably high, meaning thereby will be observable and detectable......

SO,

F = q.E + q' v (cross)B'

where q is charge at rest ,as for originally neutral particle

q = 0 . and only induced (hypothesised)

charge q' in the light of (3) should exist ,thus in this case the interaction will be as...

F = q'. v (cross)B'

or

F = q' v B'.Sin p ,

for nearly circular orbit eccentricity e = o and Sin p = 1. so

F = q' v B'............ (4)

where B' is magnetic flux density of central body around which q' is orbiting.

and B' is equal to { V.E / c^2 } with E = k.Q' / r^2.

and c is velocity of light. similarly k = 9* 10^ 9,(Coulomb-Constant).

HERE capital V and E represent velocity and electric intensity of central body respectively. Thus equation (4) takes the form as...

F =   q' v.V.kQ' / c^2 .r^2.......(5).

Now we test the equation (5) using equation (3) for the case of moon and earth.. FOR that, using the same newly discovered relation by (3) , the induced charge of earth Q' will be as.

Q' = (3.87113* 10^8). MVR / M^

similarly here MVR is the angular momentum of earth around the SUN. and M^ is the mass of central body. i.e. SUN. Now by putting moon charge q' and earth charge Q' in (5), we get as

F={3.87113*10^8 *mvr / M}.(v).{Vk /c^2..r^2 }.{ 3.87113*10^8 *MVR / M^}

OR

F={14.98564*10^16 .k.v^2 .V^2 .r.R / c^2 *MM^ }.{Mm / r^2 }..(5)

Here v is moon-velocity, capital V is earth-velocity, M is earth mass , M^ is sun mass,r is moon-earth distance, R is earth-sun distance, K is coulomb constant and c is the velocity of light.. Now putting the (exact) values of v, capital V, M ,M^, r , R ,k and c in the first bracket of (5), we find that it is equal to 6.673 * 10^ -11, which is the value of gravitational constant G (which appears as a compound one , namely not an original constant).

SO,

 F = 6.673*10^ -11 .{ Mm / r^2 }....(5)

THUS our proposed relation (3) and hypothesis (3a) both stand Verified Meaning thereby that it is actually the electromagnetic interaction that manifests itself as changeless gravitational interaction.....or they can be said as mutually exclusive.....

 (RESULT)....As the deduction , from equation (1).i.e. the proposal for quantum gravity law , is verified as it paves the way for the Unification of gravity and electromagnetic interaction and renders the empirical relation of Newtonian gravity by mathematical process. THUS the proposal for quantum gravity appears valid.

SECTION (B).

DEDUCTION OF GRAVITATIONAL EQUIVALENT OF MAGNETIC FEILD.

WE know that by the ' equivalence principle ' of general relativity gravity is termed as acceleration.. SO by equation (4), which is recently in the previous section verified by equation (5), We will here establish the mathematical and measurable relation for gravitational equivalent of magnetic feild as,

$F = m.g = q'.v.B$.........(6)

Using the value of q' from equation (3), we get,

 $m.g = \{ 3.87113 * 10^8 \}.m.v^2 .r.B / M^$......(7).

WE know that $v^2 = G.M / r$.

Using this equation (7) becomes as,

 $g = \{ 3.87113* 10^8 \}.G.B$,   where $G = 6.673 * 10^{-11}$

OR, $g = \{ 2.58321 * 10^{-2} \} .B$.............(8).

Here dimensions of the constant involved here are ampere.meter / kg . In equation (8)
 g is acceleration (gravity) and B is the magnetic flux density induced by the acceleration.

Clearly B is proportional to g (acceleration).THIS factum of equation (8) can be tallied with the results of experiments by ACCELERATOR......OR it is a testable prediction of the proposal too.

SECTION (C)

UNIFIED RELATION FOR GRAVITY AND TIME ETC

Here at this juncture we would like to caste light via

proposed 'Quantum Gravity Law' of equation (1) on the unification of gravity and time.i.e.

J.p.g = {dm^2 }.sqrt {c^2 / v^2 - 1 }....(1)

Now the R.H.S of the equation being Lorentz-Invariant rendered the relation (3) of induced charge.i.e.

q'=(3.87113*10^8)(particle angular momentum) /central particle mass.

This subsequently appeared verified by equation (5),

CONSEQUENTLY, L.H.S of (1) must be lorentz-invariant.i.e.
p.g = p'.g' (6).

Where p' and g' are relative momentum and gravity of particle w.r.t velocity,

But we (by special relativity) know that p' = p / sqrt{1- v^2 /c^2 }

and   t' = t / sqrt{1-v^2 /c^2}

Thus by these two equations (6) takes the form as,

g.t = g'.t'.......(7).

This must too be Lorentz-invariant, meaning thereby that

d (g.t) / dv = 0..........(8)\
Now the dimensions of equation (7) are of some velocity, So the necessary condition of Lorentz-invariance , satisfying equation (8), only suggests that equation (7) is as,

g.t = c ....(9), where c is the

velocity of light. or   t = c / g , meaning thereby that gravity slows down the time as proposed by General-Relativity' thus equation (9) establishes inter-relation between gravity and time and offering towards the relativistic aspect of gravity in the following manner

AS,

 g.t = c ....(9).

OR   g.t = g'.t'

but we know that,   t' = t / sqrt{1-v^2 / c^2 }

SO

$g' = g \cdot \sqrt{1 - v^2 / c^2}$

OR

$g' = G.m / r^2 \cdot \sqrt{1 - v^2 / c^2}$......(10)

$g' = G.m / r^2 \cdot \{1 - v^2 / 2. c^2 .. + .. + .. + .. \text{infinity} \}$.

THIS IS THE EQUATION, WHICH UNEARTHS THE RELATIVISTIC ASPECT OF GRAVITY....

This is the relativistic aspect of gravity,undiscovered uptill now for clearly due to lower velocities, and this aspect of gravity should also be so because if gravity varies time and time is varied by velocity then why not velocity should affect gravity. (10),Clearly hints towards this (uptill) hidden aspect of gravity.....

 SECTION (D)

MICROSCOPIC ANALYSIS OF GRAVITY.

Quantum law of gravity is the law , which can be put into the theories of particle (quantum) physics.

For that we know that, wave-length = h / p, where p is momentum of particle, by De Broglie hypothesis. NOW in equation (1), substituting wave-length in place of momentum of particle and employing wave equations , we can easily analyse the gravitational behaviour and effects of microscopic particles.