The General Relativistic Perspective

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Abstract

This paper formulates additional General Relativistic [GR] equations that do not contradict the originals. They rephrase Dr. Einstein's equations from a Relativistically distorted Perspective. The equations reason the distorted Escape velocity of a GR object, determining its real Escape velocity after the distortions of Relativity slow Bosons||Gravitons. In contrast to the variables in the Classical equations of Relativity, variables are more specific in their respect and relationship to Escape Velocity and Graviton distortion, not just the Time distortion.

There are fewer Time units from the Relativistically distorted Perspective, so the equations from that Perspective have a different relation. Observers would perceive a higher velocity in a General Relativistically distorted body. An undistorted Escape velocity would appear to increase in precisely the same proportion as Time. But the energy (and Real/non-Relativistic Velocity) would not have a Relativistic increase. The maximum energy required for that Escape velocity would never exceed what would be needed to reach light Velocity were there no Relativistic effects because of the slowing of all Bosons – including the Graviton.

Equations reasoning is from those appearing in A Relativistic Light Speed Limit to Escape Velocity[(1)], but two examples show the principle. The classic Relativity equation showing the Time distortion relationship is

$$Time' = Time/(1 - 2GM/rc^2)^{0.5}\text{(2)}$$

Escape velocity [$V_{esc} = (2GM/r)^{0.5}$], can be phrased [$V_{esc}^2 = 2GM/r$)]. So the |Time| equation can also be expressed as

$$Time' = Time/(1 - V_{esc}^2/c^2)^{0.5}$$

The above can be reasoned to mean Escape velocity is limited to light speed, just as Real||non-Relativistic Velocity is limited to "c." The Relativistic slowdown of Time is confirmed to mean a Boson velocity slowdown. The General Gravitation Relativistic Boson deformation (including the Graviton) would lose their velocity/mass/energy. However, that would not mean a simple slowdown of Time because the matter controlled by those Bosons would gain in mass. The inverse relation would be where the independent variables were the observed Velocity from the Relativistic or distorted view. The dependent variable would be the True||non-

relativistic||non-distorted Time||Escape Velocity||V_{Esc}. The parallel equation for that **G**eneral **R**elativistic **P**erspective is the inverse:

$$Time = Time'/(1 + V_{GRPDesc}^2/c^2)^{0.5}$$

This relationship allows the additional development of 2 formula/equations for the Escape velocity. There are several other equations for the Mass and Radius proposed in the following paper. These equations are all of the two Perspectives.

The Relativistic Perspective equations are Table confirmed for 35 different values with a range of 1.0E-500 m/s to *c*-(1.0E-500) m/s to two thousand decimal places without error greater than 1.000~000E-1992.

General Relativistic Escape Velocities

Light speed limits are one of the defining aspects of our Reality. While exceptions are conceived and reasoned from observations of non-experimentally controlled data, they have not been confirmed. The principal General Relativistic[GR] equation establishes the same principle that the maximum Velocity of a matter object is light speed[c]. A *c* maximum to Escape velocity is reasoned. What follows are reasons that begin the formulation of new equations to GR theory. These equations will overcome the fundamental "imaginary" values contradiction inherent in the Classic GR Time distortion equation. Though because they are reasoned directly from that Classic, they argue <u>for</u> its validity, not against it.

"On the Electrodynamics of Moving Bodies" is accepted by the Science Community as establishing a speed limit of light in our Universe. That limit has characterizations inherent to the theory – a vessel that exceeds a Velocity of $(c/(2^{0.5}))$ m/s (approximately

2.11985280E8m/s) would be perceived by observers inside it to be moving faster than the speed of light. For the Relativistic equation illustrations that follow, all theoretical values are presumed exact to 100 decimal places. The presumption is not a declaration but simply a valid theoretical assignment. Light speed |c| is presumed to be: 2.9979245800~00E+08 $m/s^{(3)}$

The principal equation is

$$Time' = Time/(1-2GM/rc^2)^{0.5(4)}$$

|Time| is real & undistorted, |Time' | is the real Time that passing when the expression |GM/rc^2| is greater than zero. |G| is the Gravitational Constant – 6.674286700~00E-11 $m^3\ kg^{-1}\ s^{-2\ (5)}$ – theoretically presumed to be exact to 100 decimal places. |M| is the Mass of object and |r| is its radius

The expression |GM| can argued to be greater than |rc^2| – the current interpretation of formula reasons that describes an imaginary environment. In a Universe with Real Mass there is no verifiable evidence of what an imaginary ($-1^{0.5}$) quantity is. In circuit design, astronomy and other applications they are a logic technique, not an observable phenomenon. Electron charges are not "negative"; they are opposite to proton charges. Assignment of a negative value was human bias, not a description of a physical aspect/event. Merging an Electron with a Proton results in a Neutron with more mass than the sum of both.

The Classic General Relativity [GR] Time equation is from the non-Relativistic Perspective. GR Time [Time] represent undistorted units occurring for an event, with the greater number [Time'] occurring when the event is distorted. Two alternate inverse variables, would recognize the undistorted GR Perspective [GRP], with fewer Time units passing when distorted [GRPD].

The inverse equation from the GR Perspective uses the fewer Time units of the distorted

body. $|Time_{GRP}|$ when no distortion; $|Time_{GRPD}|$ when there is.

$$Time_{GRPD} = Time_{GRP} * (1\text{-}2GM/rc^2)^{0.5} \qquad \text{Equation 1}$$

Assume theoretic ideal: the undistorted Time the outcomes of that presumption. The Escape Velocity equation $|V_{GRPesc} = (2GM/r)^{0.5}|$, squared is $V_{GRPesc}^2 = (2GM/r)$

So the GR equation can be re-written

$$Time_{GRPD} = Time_{GRP}*(1 - (2GM/r)/c^2)^{0.5}$$

$$Time_{GRPD} = Time_{GRP}*(1 - V_{GRPesc}^2/c^2)^{0.5} \qquad \text{Equation 2}$$

Using SR logic, GR shifted gravitons would distort the V_{GRPesc} and it would never exceed *c*. SR distortion argues all Bosons in the propellant slow||lose mass and acceleration decreases. GR distortion must be parallel: slowdown of Time on a gravitational body slow Gravitational Bosons [Gravitons]. If Gravitons were not slowed, all other forces maintaining Universe structure would be overpowered and forced into a Classic SO: a single non-radiating body that whose only energy would be its GF.

So a hot and dense Big Bang would not be pure energy – all Bosons would slow under Relativistic distortions. GR distortion must DIRECTLY affect GF and limit the Escape Velocity to *c*. Declaring Relativistic slowdown does not affect Gravitons denies GR legitimacy. Graviton slowdown adds to the legitimacy of Classic Relativity. The fact that SO's are the brightest objects in our Reality becomes consistent with both GR and the Uncertainty Principle. There would be no stop at the Schwarzschild border; there would be an acceleration. Though the acceleration would be reduced by GR distortion, it would not stop.

Fewer GRPD Time units (e.g., seconds) will pass for any given number of GRP Time units. Gravitons move at a relativistic speed – they are Bosons. That is fundamental to General Relativity. Other equations proceed from assumption of Time Distortion slowing Bosons.

$$Time_{GRPD} = Time_{GRP} * (1-V_{GRPesc}^2/c^2)^{0.5}$$

Set the variable $Time_{GRP}$

$$Time_{GRP} = 1m / V_{GRPesc}$$

$$V_{GRPesc} = 1m / Time_{GRP}$$

The definition of $V_{GRPDesc}$ with those presumptions would be

$$V_{GRPDEsc} = 1m / Time_{GRPD}$$

Divide both sides of the Relativistic Perspective equation with 1 Real||Undistorted metre||1m:

$$Time_{GRPD} /1m = (Time_{GRP}/1m)*(1-V_{GRPesc}^2/c^2)^{0.5}$$

$$1m/Time_{GRPD} = (1m/Time_{GRP})/(1-V_{GRPesc}^2/c^2)^{0.5}$$

So the distortion could be expressed:

$$V_{GRPDesc} = V_{GRPesc}/(1-V_{GRPesc}^2/c^2)^{0.5} \quad \text{Equation 3}$$

SR logic argues the above means V_{GRPesc} has Real limit of *c* – from the undistorted GRP. The Time distorted GRPD, Escape Velocity would appear greater than *c*. GR distortion would mean Matter mass of a body would increase because of the slowdown in Bosons. The mass||speed||energy of all Bosons would decrease. The Velocity/mass of Gravitons MUST be reduced under GRD. So the Gravitational Constant||G would be reduced.

The $V_{GRPDesc}||V_{GRPesc}$ equation could be reasoned be from within the area of distortion by squaring both sides to determine its inverse form:

$V_{GRPDesc}^2 = V_{GRPesc}^2/(1- V_{GRPesc}^2/c^2)$

$V_{GRPDesc}^2 * (1 - V_{GRPesc}^2/c^2) = V_{GRPesc}^2$

$V_{GRPDesc}^2 - V_{GRPDesc}^2 * V_{GRPesc}^2/c^2 = V_{GRPesc}^2$

$V_{GRPDesc}^2-(V_{GRPDesc}^2*V_{GRPesc}^2/c^2)+(V_{GRPDesc}^2*V_{GRPesc}^2/c^2)=V_{GRPesc}^2+(V_{GRPDesc}^2*V_{GRPesc}^2/c^2)$

$V_{GRPDesc}^2 = V_{GRPesc}^2 + (V_{GRPDesc}^2* V_{GRPesc}^2/c^2)$

$V_{GRPDesc}^2 = V_{GRPesc}^2 * (1 + V_{GRPDesc}^2/c^2)$

$V_{GRPDesc}^2 / (1+ V_{GRPDesc}^2/c^2) = V_{GRPesc}^2$

$V_{GRPesc}^2 = V_{GRPDesc}^2/(1 + V_{GRPDesc}^2/c^2)$

Taking the square root of both sides, and we have the GRP Escape Velocity without GR effects

$V_{GRPesc} = V_{GRPDesc}/(1 + V_{GRPDesc}^2/c^2)^{0.5}$ Equation 4

Equation 3 and Equation 4 for can also be used to show the same relationship for the Time equation. They can reason the proportion of the $|(1 - V_{GRPesc}^2/c^2)^{0.5}|$ and the $|(1 + V_{GRPDesc}^2/c^2)^{0.5}|$

$V_{GRPesc}/V_{GRPDesc} = (1 - V_{GRPesc}^2/c^2)^{0.5}$

And

$V_{GRPDesc}/V_{GRPesc} = (1 + V_{GRPDesc}^2/c^2)^{0.5}$

So use those proportions against the classic Time equation:

$Time' = Time / (1 - V_{GRPesc}^2/c^2)^{0.5}$

$Time' = Time / V_{GRPesc}/V_{GRPDesc}$

$Time = Time' / V_{GRPDesc}/V_{GRPesc}$

$Time = Time' / (1 + V_{GRPDesc}^2/c^2)^{0.5}$ Equation 5

A <u>critical</u> piece of logic in the evaluation of these equations: not all observation items can be

taken as valid. The change in the state of the observing object will not mean that Reality has changed. The Escape Velocity will appear to be greater than the speed of light for any observer either on the Relativistic scale body or on the escaping body. From the viewpoint of an observation not subject to any of those distortions, the body will Escape without ever moving faster than the speed of light. All mathematical reasoning for Physics hypotheses presumes an ideal. There is nowhere in our observed Reality where there are only 2 objects that exert an above-Planck-level gravitational force. That does not invalidate Sir Newton's equations.

Let us examine the Escape Velocity at the surface of a Schwarzschild Sphere $|Schwarz_{Sun}|$ with the mass of the Sun $|Mass_{Sun}|$. We assume a theoretic 100 decimal place accuracy

$Mass_{Sun}$ = 1.989100~00E+30 kg^4

$Schwarz_{Sun}$ = (2*6.674286700~00E-11*1.989100~00E+30)/299,792,4582

$Schwarz_{Sun}$ = 2.954269191222665029918311344788781224854878020436973142527~

7615261531334596851134087483161015331701111E+03 m

The Escape Velocity $|Sun_{esc}|$ from the border of that object is (unsurprisingly) the following:

$Sun_{esc} = (2GM/ Schwarz_{Sun})^{0.5}$

Sun_{esc} = ((2*6.674286700~00E-11 * 1.98900~00E+30)/(2.954~111E+03))$^{0.5}$

Sun_{esc} = 299,792,458 m/sec

However, consider the following: because Special Relativistic effects will make any Velocity appear to be greater than it is, Relativistic Escape Velocity would appear to be GREATER than light speed. That would not indicate that Escape Velocity was unattainable; instead, it would indicate that distortive effects made it APPEAR to be greater than light speed. The Escape Velocity after considering the Relativistic effects would not be that, and those effects would

slow the exertion of gravity for the Relativistic body. That is very fundamental in SR, and it is confirmed by observations of the entire Universe. A body under slowdown from Special Relativistic effects will not emit as much EM energy (or Strong Nuclear, Weak Nuclear or Gravitational) as it would were it not in a Relativistic Environment. The above Velocity is what Escape Velocity would be were there no distortion.

Additional Arguments that Regard Escape Velocity Light Speed Limits

There is another form of the light speed limit for Escape velocities. Although the equations are very similar, they do offer a reasonable postulate with regard to the source of the above limitation.

Again, we begin with the GRP Time equation:

$$Time_{GRPD} = Time_{GRP}*(1-GM/rc^2)^{0.5}$$

$$Time_{GRPD}^2 = Time_{GRP}^2*(1-(GM/r)/c^2)$$

Since it is currently assumed that the current equation for the Escape Velocity presumes no Relativistic distortion to the Gravitational constant G_{GRP}.

The General Relativistic Escape Velocity equation becomes the following:

$$V_{GRPesc} = (2G_{GRP}M/r)^{0.5}$$

$$V_{GRPesc}^2 = (2G_{GRP}M/r)$$

So the G_{GRP} mathematical definition is

$$G_{GRP} = (V_{GRPesc}^2 r/2M)$$

Currently, the Velocity of Gravitons/gravitational propagation speed is thought to be $[c]^4$. In Special Relativity, the G constant would have to vary with the Velocity; otherwise, moving

objects would behave in a fundamentally different way at high velocities. If nothing else, the apparent Velocity of the Graviton would appear to increase beyond light speed at high velocities. The Velocity of the Graviton must slow under Gravitational Relativistic distortion.

Thus, the parallel distortion from the General Relativistic Perspective would presume the following Relativistic distortion with the Gravitational Constant presumed altered under GR Distortion [G_{GRPD}]

So its mathematical definition would be

$$G_{GRPD} = (V_{GRPDesc}^2 r/2M)$$

Again, Relativistic Distortions are presumed to affect the other Bosons: it is not reasonable it not do the same to the Graviton. Next, let us write the General Relativistic Escape Velocity equation more specifically:

$$V_{GRPDesc} = V_{GRPesc} /(1-(2G_{GRP}M/r)/c^2)^{0.5}$$

$$(2\ G_{GRPD}\ M/r)^{0.5} = (2\ G_{GRP}\ M/r)^{0.5}/(1-(2\ G_{GRP}\ M/r)/c^2)^{0.5}$$

$$(2G_{GRPD}M/r) = (2\ G_{GRP}\ M/r)/(1-(2\ G_{GRP}M/r)/c^2)$$

$$(\cancel{2}G_{GRPD}\cancel{M/r})/(\cancel{2M/r}) \cancel{=} (\cancel{2}\ G_{GRP}\ \cancel{M/r})/(1-(2\ G_{GRP}M/r)/c^2)/\ (\cancel{2M/r})$$

Thus,

$$G_{GRPD} = G_{GRP}/(1-2\ G_{GRP}M/rc^2) \qquad \text{Equation 6}$$

While the above does not have the complication of imaginary values because "G" is a scalar value – a negative value for the gravitational constant has never been observed. The above is also consistent Relativistic logic: Time distortion will have the effect of slowing the propagation of the gravitational force. However, that slowdown will also have the effect of reducing the

mass of the force because the signal that carries it will be zero when it reaches the Velocity of zero.

Multiplying both sides of $|(2G_{GRPD}M/r) = (2\ G_{GRP}\ M/r)/(1-(2\ G_{GRP}M/r)/c^2)|$ with $|(1-(2\ G_{GRP}M/r)/c^2)|$:

$(2G_{GRPD}M/r)\ *(1-(2\ G_{GRP}M/r)/c^2) =(2\ G_{GRP}M/r)$

$2G_{GRPD}M/r – ((2G_{GRPD}M/r)*(2G_{GRP}M/r))/c^2) = (2\ G_{GRP}M/r)$

$2G_{GRPD}M/r = (2\ G_{GRP}M/r) + ((2G_{GRPD}M/r)*\ (2G_{GRP}M/r)/c^2)$

$2G_{GRPD}M/r = (2\ G_{GRP}M/r)*(1 + (2G_{GRPD}M/r)/c^2)$

$(2G_{GRPD}M/r)/(1 + ((2G_{GRPD}M/r)/c^2)\ = (2\ G_{GRP}M/r)$

$(2\ G_{GRP}\ M/r) =\ (2G_{GRPD}M/r)/(1 + (2G_{GRPD}M/r)/c^2)$

$G_{GRP}\ =\ G_{GRPD}/(1 + (2G_{GRPD}M/r)/c^2)$

or more simply

$$G_{GRP} = G_{GRPD}/(1 + 2G_{GRPD}M/rc^2) \qquad \text{Equation 7}$$

or alternately

$$G_{GRP} = G_{GRPD}/(1 + V_{GRPDesc}^2/c^2) \qquad \text{Equation 8}$$

and

$$G_{GRPD} = G_{GRP}/(1 – V_{GRPesc}^2/c^2) \qquad \text{Equation 9}$$

In the Special Relativistic Perspective, the determination is what is the “Real” or - Relativistic Velocity, with mass, Time, and linear distortions, and the values that those variables would take when the observation point was either from the Relativistic or non-Relativistic Perspective.

The GR Perspective is parallel. An object observed from a non-GR Perspective will appear to have an Escape Velocity limited to light. From the Relativistic Perspective, the Escape

Velocity can approach infinity. Though that would only be because of Time distortion. There is no suggestion that there is a parallel mass increase with the increase of the Escape Velocity. The mass of any energy associated with a Relativistic object will decrease by exactly the same proportion as the mass of matter increases with the Velocity in SR. This writer makes no suggestion that the energy disappears; similar to all “disappearing” pure energy in SR, it would add to the mass of the matter.

It should be emphasized that the above refers to a point in Space, and the observations are from the two Perspectives. Movement in any direction would change the values. The above, however, is valid and is the creature that inhabits so much of Classic/Relativistic/Quantum science – the theoretical "ideal".

Summary

A Relativistically consistent mechanism for Big Bang theory - can be reasoned by the more Universal view of Relativity of this paper. It supports the Einsteinian limit of light speed, and does not deny it, as current theory does, although it does redefine certain aspects of that limit. It proposes a number of unassailable additional equations to Relativity, as well as the following:

$$Time_{GRP} = Time_{GRPD}/(1+ V_{GRPDesc}^2/c^2)^{0.5}$$

Its veracity is perhaps slightly more debatable, but only if the fundamental tenets of Relativity are challenged. That also leads to Gravitational Constant distortion

$$G_{GRP} = G_{GRPD}/(1 + V_{GRPDesc}^2/c^2)$$

And

$$G_{GRPD} = G_{GRP}/(1 + V_{GRPesc}^2/c^2)$$

An Absolute application of the original General Relativity equation -

$$Time' = Time/(1-2Gm/rc^2)^{0.5}$$

- will declare the entire Universe to now be or have been imaginary. Under Classic Relativity, an estimation of Universe can determine that Schwarzschild Radius of that imaginary Universe.

Current theory is that the Singularity that led to the Big Bang was dimensionless. If it is also presumed original General Relativity Theory is complete that would mean that Time on that Singularity was infinitesimally distorted and absolutely imaginary. Relativistic Perspective reasons that Quantum Mechanics & the Uncertainty Principal means that a Singularity could never have anything but a Real Escape velocity and Graviton distortion in a way that limited Escape velocity to light speed.

References

1. A Relativistic Light Speed Limit to Escape Velocity, *The Journal of High Energy Particles, Gravity annd Cosmology.* *https://www.scirp.org/journal/paperinformation.aspx?paperid=68063*
2. Hartle, J.B. *Gravity: An Introduction to Einstein's General Relativity* (Addison Wesley, San Francisco, CA, 2003).
3. The NIST Reference on Constants. *Units and Uncertain – Fundamental Physical Constants: Speed of Light in Vacuum* http://physics.nist.gov/cgi-bin/cuu/Value?bg|search_for=universal_in!
4. A. Einstein, On the Theory of the Static Gravitational Field, *Annalen der Physik*, 1912
5. The NIST Reference on Constants. *Units and Uncertainty – Fundamental Physical Constants: Newtonian Constant of Gravitation* http://physics.nist.gov/cgi-bin/cuu/Value?bg|search_for=universal_in!