

The General Relativistic Perspective

David Taylor (✉ dgtaylor@telusplanet.net)

Relativistic Perspective

Article

Keywords: General Relativistic Perspective, Escape Velocity distortion, parallel relativistic distortion, Time, Mass, Radius, Strong||Weak||Gravitational Force Distortion, Boson Mass distortion, Infinite Energy Universe

Posted Date: March 8th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-155095/v2>

License:  This work is licensed under a Creative Commons Attribution 4.0 International License.
[Read Full License](#)

Abstract

This paper formulates additional General Relativistic [GR] equations. They do not contradict General Relativity. They examine Dr. Einstein's equations from a Relativistically distorted Perspective. The equations examine the distorted Escape velocity [v_{esc}]a GR object, determining its Real v_{esc} 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 own respect and in their relationship to v_{esc} , not simply the Time distortion. The values for the quantities of rate (Time and Velocity) are the quantities for zero v_{esc} ||zero deformation. The slowdown of all Bosons also can be showed to mean an absolute limit to v_{esc} . The form of all atoms is not the permanent thing supposed in current thinking. Slowdown of atomic structure Bosons would mean all elements subject to decay. The energy in Boson Structure particles would mean a increase in in particle velocity. With a light speed limit to v_{esc} , all Elements could eventually escape. Hydrogen would be the most likely, with a transformation of free energy into the Kinetic energy needed for escape.

Introduction

This paper formulates additional General Relativistic [GR] equations. They do not contradict General Relativity. They examine Dr. Einstein's equations from a Relativistically distorted Perspective. The equations examine the distorted Escape velocity [v_{esc}]a GR object, determining its Real v_{esc} 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 own respect and in their relationship to v_{esc} , not simply the Time distortion. The values for the quantities of rate (Time and Velocity) are the quantities for zero v_{esc} ||zero deformation. The slowdown of all Bosons also can be showed to mean an absolute limit to v_{esc} . The form of all atoms is not the permanent thing supposed in current thinking. Slowdown of atomic structure Bosons would mean all elements subject to decay. The energy in Boson Structure particles would mean a increase in in particle velocity. With a light speed limit to v_{esc} , all Elements could eventually escape. Hydrogen would be the most likely, with a transformation of free energy into the Kinetic energy needed for escape.

Results

Results of Theoretic Reasoning

There are fewer Time units from Relativistically distorted Perspective so the perspective equations have a different relation. A higher velocity would be perceived by observers in a General Relativistically[GR] distorted body. Thus, an undistorted v_{esc} would appear to increase in exactly the same proportion as Time. However, the energy would not have a Relativistic increase. Thus, the maximum energy required for that v_{esc} would never exceed what would be required to reach light velocity were there no Relativistic effects because of the slowing of all Bosons – including the Graviton.

The development of the equations is accomplished more completely in [A Relativistic Light Speed Limit to Escape Velocity¹](#) appearing in [Journal of High Energy Physics, Relativity and Cosmology](#), but two examples show the principle below. The classic Relativity equation that was formulated to show the Time distortion relationship is

$$\text{Time}' = \text{Time}/(1 - 2GM/c^2)^{.5}$$

Escape velocity [$V_{csc} = (2GM/r)^{.5}$], can be phrased [$V_{esc}^2 = 2GM/r$]. So the |Time|

$$\text{Time}' = \text{Time}/(1 - V_{sec}^2/c^2)^{.5}$$

Real||non-Relativistic velocity is limited to c . The Relativistic slowdown of Time has been confirmed to mean a slowdown Bosons velocity. The GR Gravitation deformation Bosons (including the Graviton) would lose their velocity/mass/energy. However, that would not mean a simple slow-down 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 GR Perspective is the following:

$$\text{Time} = \text{Time}'/(1 + V_{GRPesc}^2/c^2)^{.5}$$

This relationship allows the additional development of 2 formula/equations for the Escape velocity. There are a number of other equations for the Mass and Radius that will be proposed in the following paper. These equations are all of the two Perspectives. The Relativistic Perspective equations are Table confirmed to 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.

Light speed limits are accepted as one of the defining aspects of our reality. While exceptions have been both conceived and reasoned from observations of non-experimentally controlled data, they have never been demonstrated. The principal GR equation can be shown to establish the same principal that the maximum velocity of a matter object is light speed[c]. It can be reasoned to set a “ c ” maximum Escape velocity. What follows are reasons that begin the formulation of additional equations to GR theory, equations that will overcome the fundamental “imaginary” values contradiction that is inherent in the primary GR Time distortion equation.

After its introduction in “On the Electrodynamics of Moving Bodies” and fuller recognition by the Science Community, the theory of Special Relativity has always been accepted to establish a speed limit for light in our Universe. That limit has characterizations that are inherent to the theory – a vessel that exceeds a velocity of $|c/(2^{.5})|$ m/s would be perceived by observers inside it to be moving faster than the speed of light. Then, a parallel of what was established in the SPECIAL Relativistic Perspective pages can be reasoned. For the Relativistic equation illustrations that follow, all theoretical values are presumed to be

exact to 100 decimal places. This presumption is not a declaration, only a valid theoretical assignment. Light speed $|c|$ is: presumed to be $2.9979245800\sim00E+08$ m/s

The principal equation is

$$\text{Time}' = \text{Time}/(1-2GM/rc^2)^{.5}$$

$|\text{Time}|$ is Real & undistorted, $|\text{Time}'|$ is the Real Time that passing when the expression $|GM/rc^2|$ is greater than zero. $|G|$ is the Gravitational Constant – $6.674286700\sim00E-11$ $\text{m}^3 \text{ kg}^{-1} \text{ s}^{-2}$ (3) – 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 ($-1^{.5}$) quantity represents. 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.

The Classic GR Time distortion equation is entirely from the non-relativistic Perspective. GR Time $[\text{Time}]$ represent undistorted units occurring for an event, with the greater number $[\text{Time}']$ occurring when the event is distorted. Two alternate 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. $|\text{Time}_{\text{GRP}}|$ when no distortion; $|\text{Time}_{\text{GRPD}}|$ when there is.

$$\text{Time}_{\text{GRPD}} = \text{Time}_{\text{GRP}} * (1-2GM/rc^2)^{.5} \quad \text{Equation 1}$$

Assume theoretic ideal: an undistorted Time and the outcomes of that presumption.

The Escape Velocity equation $|V_{\text{GRP_esc}} = (2GM/r)^{.5}|$, squared is $V_{\text{GRP_esc}}^2 = (2GM/r)$

So the GR equation can be re-written

$$\text{Time}_{\text{GRPD}} = \text{Time}_{\text{GRP}} * (1 - (2GM/r) / c^2)^{.5}$$

$$\text{Time}_{\text{GRPD}} = \text{Time}_{\text{GRP}} * (1 - V_{\text{GRP_esc}}^2 / c^2)^{.5} \quad \text{Equation 2}$$

Using SR logic GR shifted gravitons would distort the $V_{\text{GRP_esc}}$ and it would never exceeds c. SR distortion argues all Bosons in the propellant slow 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 would add to the legitimacy of the 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 “halt” at the Schwarzschild border; there would be an acceleration – though it 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 - it is a Boson. That is fundamental to General Relativity. Other equations proceed from assumption of TD.

$$\text{Time}_{\text{GRPD}} = \text{Time}_{\text{GRP}} * (1 - V_{\text{GRPesc}}^2/c^2)^{.5}$$

Set the variable Time_{GRP}

$$\text{Time}_{\text{GRP}} = 1\text{m} / V_{\text{GRPesc}}$$

$$V_{\text{GRPesc}} = 1\text{m} / \text{Time}_{\text{GRP}}$$

Define V_{GRPDes}

$$V_{\text{GRPDes}} = 1\text{m} / \text{Time}_{\text{GRPD}}$$

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

$$\text{Time}_{\text{GRPD}} / 1\text{m} = (\text{Time}_{\text{GRP}} / 1\text{m}) * (1 - V_{\text{GRPesc}}^2/c^2)^{.5}$$

$$1\text{m}/\text{Time}_{\text{GRPD}} = (1\text{m}/\text{Time}_{\text{GRP}}) / (1 - V_{\text{GRPesc}}^2/c^2)^{.5}$$

So the distortion could be expressed:

$$V_{\text{GRPDes}} = V_{\text{GRPesc}} / (1 - V_{\text{GRPesc}}^2/c^2)^{.5} \quad \text{Equation 3}$$

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 would be reduced.

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

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

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

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

Add $|(V_{\text{GRPDesc}}^2 * V_{\text{GRPesc}}^2/c^2)|$ to both sides

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

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

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

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

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

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

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

$$V_{\text{GRPesc}} = V_{\text{GRPDesc}} / (1 + V_{\text{GRPDesc}}^2/c^2)^{.5} \quad \text{Equation 4}$$

A critical piece of logic in the evaluation of this equation: 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 no greater than 2 objects exerting 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

$$\text{Mass}_{\text{Sun}} = 1.989100\sim00\text{E}+30 \text{ kg}^3$$

$$\text{Schwarz}_{\text{Sun}} = (2 * 6.674286700\sim00\text{E}-11 * 1.989100\sim00\text{E}+30) / 299,792,458^2$$

$$\text{Schwarz}_{\text{Sun}} = 2.9542691912226650299183113447887812248548780204369731\sim$$

$$425277615261531334596851134087483161015331701111\text{E}+03 \text{ m}$$

The escape velocity from the border of that object is (unsurprisingly) the following:

$$\text{Sun-}V_{\text{esc}} = (2GM/\text{Schwarz}_{\text{Sun}})^{.5}$$

$$\text{Sun-}V_{\text{esc}} = ((2*6.674286700\sim00E-11 * 1.98900\sim00E+30)/(2.954\sim111E+03))^{.5}$$

$$\text{Sun-}V_{\text{esc}} = 299,792,458 \text{ m/sec}$$

However, because Special Relativistic effects will make any velocity appear to be greater than it is, Relativistic V_{GRPDes} 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 Special Relativity, 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.

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 General Relativity Gravity equation:

$$\text{Time}_{\text{GRPD}} = \text{Time}_{\text{GRP}} * (1-GM/c^2)^{.5}$$

$$\text{Time}_{\text{GRPD}}^2 = \text{Time}_{\text{GRP}}^2 * (1-(GM/r)/c^2)$$

Since it is currently assumed that the current equation for the esc velocity presumes no Relativistic distortion to the Gravitational constant G_{GRP} , $|6.674286700\sim00E-11 \text{ m}^3 \text{ kg}^{-1} \text{ s}^{-2}|$, again, presumed exact to 100 decimal places.

The General Relativistic Escape velocity equation becomes the following:

$$V_{\text{GRPesc}} = (2G_{\text{GRP}}M/r)^{.5}$$

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

So the G_{GRP} mathematical definition is

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

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 c 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_{GRP_D}]

So its mathematical definition would be

$$G_{GRP_D} = (V_{GRP_Desc}^2 * r / 2M)$$

Again, Relativistic distortions are presumed to affect the other 3 Bosons: is it reasonable it not do the same to the Graviton? Next, let us write the General Relativistic Escape velocity equation more specifically:

$$V_{GRP_Desc} = V_{GRP_{esc}} / (1 - (2G_{GRP}M/r)/c^2)^{.5}$$

$$(2 G_{GRP_D} M/r)^{.5} = (2 G_{nonGRP_D} M/r)^{.5} / (1 - (2 G_{nonGRP_D} M/r)/c^2)^{.5}$$

Square both sides:

$$(2G_{GRP_D}M/r) = (2G_{nonGRP_D}M/r) / (1 - (2G_{nonGRP_D}M/r)/c^2)$$

Divide both sides with |2M/r|:

$$G_{GRP_D} = (2G_{nonGRP_D}M/r) / (1 - (2G_{nonGRP_D}M/r)/c^2) / (2M/r)$$

Thus, another expression of the above, and the parallel to Equation 4, would be

$$G_{GRP_D} = G_{nonGRP_D} / (1 - (2G_{nonGRP_D}M/r)/c^2) \quad \text{Equation 5}$$

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 $|(2G_{GRP_D}M/r) = (2G_{GRP}M/r) / (1 - (2G_{GRP}M/r)/c^2)|$ with

$|(1 - (2G_{GRP}M/r)/c^2)|$:

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

Expand the left side

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

Adding $|((2G_{GRPD}M/r) * (2G_{GRP}M/r)) / c^2|$ to both sides:

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

Simplifying the left side

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

Dividing both sides with $|(1 + ((2G_{GRPD}M/r) / c^2))|$

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

Reversing the terms

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

Dividing both sides with $(2M/r)$

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

or more simply

$$G_{GRD} = G_{GRPD} / (1 + 2G_{GRPD}M/r c^2) \quad \text{Equation 6}$$

or alternately

$$G_{GRPD} = G_{GRP} / (1 - V_{GRPesc}^2 / c^2) \quad \text{Equation 7}$$

and

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

So it is mathematically reasoned that GR Gravitational distortions slows the velocity of all Boson, including Gravitons. It is not reasonable that they do not.

Declarations

Methods

This paper is absolutely theoretic, with no Laboratorial or Observation details, aside from widely accepted current data.

Data Availability

The data availability is entirely from Classic Theory and open public References

Acknowledgements

This paper was written entirely with no outside contributions

Author Contributions

DGT did all theoretic formulation, reference research and the manuscript authorship

Competing Interests statement

There are no competing interests

References

1. David Grant Taylor, The Journal of High Energy Physics and Cosmology *A Relativistic Light Speed Limit to Escape Velocity*, , <https://www.scirp.org/journal/paperinformation.aspx?paperid=68063>
2. 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!
3. 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!