A Relativistic Light Speed Maximum to Escape Velocity

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1.0 Introduction/Abstract

Direct mathematic reasoning is used to show Escape velocity can never be greater than light speed||"c". The White radiations from the Abell 2261 Galaxy Cluster should be much more Red-Shifted, because a large part of the signal would be generated at the border of that object. That is not observed. For a theoretic ideal Schwarzschild object with Sagittarius A mass distortion ranges from infinity at the border to 7.49E44 one Planck length farther, to 1.21E10 a full metre from the border. The gravity values range from:

3.711772274890199586456777417144170173727765368347 02E6 m/s^2
– at the border.

3.711772274890199586456777417144170173727765358436 64E6 m/s^2
– one Planck length farther.

3.711772274277029114902988605385146345650648027918 66E6 m/s^2
– at 1 full metre from the border.

The total arithmetic range downward is less than
– 6.131704715537888117590238280771173404283623107028 18E-4

Even allowing for the fundamental arithmetic difference between Gravity and Escape velocity logic, the above values are not consistent

2.0 Light Speed Limits for Escape Velocities

The mathematic argument for a light speed limit to escape velocity is very direct - the formula for escape velocity is:

$$Velocity_{Escape} = (2GM/r)^{½}$$

Then

$$Velocity_{Escape}^2 = 2GM/r$$

And because the General Relativity Time distortion equation is

$$Time' = Time/(1 - 2GM/rc^2)^{½}$$

Or also

$$Time' = Time/(1 - (2GM/r)* 1/c^2)^{½}$$

It could be rewritten as

$$Time' = Time/(1 - (Velocity_{Escape}^2)* 1/c^2)^{½}$$

So

$$Time' = Time/(1 - Velocity_{Escape}^2/c^2)^{½}$$

The most fundamental of all Relativistic Distortions, the most confirmed is the slowdown of Photons, by which it is reasoned that all Bosons are slowed. So isn't it reasonable that General Gravitational Distortion slows Gravitons to the point that escape velocity can never go above light-speed? But because of the difference in equations, the gravitational force can be limitless. There then be a continual slowdown of the Bosons, by Gravitational and Relativistic effects, merging at the

centre. Accepting the above equations, the slowing Bosons won't to escape, but pass their energy onto the matter particles captured by that White Hole. Those captured matter particles eventually acquire sufficient kinetic Energy to escape. Because of those escapes, some of the energy would gather in matter free areas and do nothing but compress. Through the inevitable Relativistic slowdowns would become denser, and slower, to the point it can be theorized it could eventually form into matter. The argument is strengthened by non-Black Schwarzschild Objects like the bright Abell 2261 Galaxy Cluster. Brightness caused primarily by descending captured matter that would mean that the signal would be quite Red-Shifted, by Gravity, withdrawal of the captured matter away from us it and extremely high Relativistic effects at the border of the object. An extremely good image of the very bright Abell 2261 object is at the NASA Internet site[A]: http://www.spacetelescope.org/images/heic1216a/.

[A] HUBBLE SPACE TELESCOPE, Galaxy Cluster Abell 2261
http://www.nasa.gov/mission_pages/hubble/science/a2261-bcg.html

3.0 Reasoning the Limits Supposition with an Observed Phenomenon

The limits declaration will be argued with current Schwarzschild Object [S.O.] equations against a known S.O. to illustrate the incompletion of those equation - the inconsistency of the General Relativity equation with the S.O. equations. Values for the mass of defined objects are assumed as precise to 50 decimal places. Invalid in a number of cases, but it is necessary to establish theoretic principles in this paper. The principles do not require precision to establish, simply consistency:

Gravitational_Constant[B] = G = 6.67384800~00E-11 $m^3kg^{-1}s^{-2}$

Mass_Sun[C] = 1.9885500~00E30kg

The mass of the largest S.O. in our Galaxy is assumed to be the Sagittarius A[D] object formed at the Core of the Milky Way, with a Right Ascension of $17^h\ 45^m\ 40.0409^s$ and a Declination of −29° 0′ 28.118″

Mass_SagittariusA[E] = 4. 100~00E6 * Mass_Sun

Mass_SagitarriusA = 8.15305500~00E36kg

Determining the Schwarzschild radius from that estimated mass -

ScwarzsChild_SagitariusA = 2 * G * Mass_Sagitarrius_A / c^2

[B] George T. Gillies (1997), "The Newtonian gravitational constant: recent measurements and related studies", *Reports on Progress in Physics* **60** (2): 151–225, Bibcode:1997RPPh...60..151G, doi:10.1088/0034-4885/60/2/001.

[C] Williams, D. R. (1 July 2013). "Sun Fact Sheet". NASA. Retrieved 12 August 2013.

[D] *Eisenhauer, F.; et al. (23 October 2003). "A Geometric Determination of the Distance to the Galactic Center". The Astrophysical Journal* ***597***

[E] *Ghez, A. M.; et al. (December 2008). "Measuring Distance and Properties of the Milky Way's Central Supermassive Black Hole with Stellar Orbits". Astrophysical Journal* ***689*** *(2): 1044–1062. arXiv:0808.2870. Bibcode:2008ApJ...689.1044G. doi:10.1086/592738.*

ScwarzsChild_SagitariusA = (2 * 6.67384800~00E-11 $m^3kg^{-1}s^{-2}$ *~

8.15305500~00E36kg)/ (299792458 m s)$^{-2}$

ScwarzsChild_SagitariusA = 1.21068200333411391318057703 02~

879104399497026421E10 m

Under Classic Relativity theory, the distortion at the exact border of the S.O. would be infinite. As we are establishing a Physics principle and not examining a particular case we will assume ideal: a non-Relativistic single second. The time distortion 1 Planck Length(1.61619997E-35m[F]) beyond the S.O. would be:

Time_Distortion_ScwarzsChild_SagitariusA_Plus_Planck_Length = ~

(1 - 2 * Gravitational_Constant * Mass_Sagitarrius_A / ~

(ScwarzsChild_Sagitarius_A + l_p)* c^2)^{½}

Time_Distortion_ScwarzsChild_SagitariusA_Plus_Planck_Length = ~

(1 - 2 * 6.67384800~00E-11 $m^3kg^{-1}s^{-2}$ * 8.15305500~00E36kg / ~

(1.21068~26421E10 m+1.6161999700~00E-35m)* c^2)^{½}

Time_Distortion_ScwarzsChild_SagitariusA_Plus_Planck_Length = ~

7.490675979575672068344398214436303496915720 0961E44

[F] The NIST Reference on Constants, Units and Uncertainty; Planck Length; http://physics.nist.gov/cgi-bin/cuu/Value?plkl

The Time distortion 1 full metre out is:

Time_Distortion_ScwarzsChild_SagitariusA_Plus_1_Metre = ~

(1 - 2 * Gravitational_Constant * Mass_Sagitarrius_A / ~

(ScwarzsChild_Sagitarius_A + 1 .00~00m)* $c^2)^{½}$

Time_Distortion_ScwarzsChild_Sagitarius_A_Plus_1_Metre = ~

(1 - 2 * 6.67384800~00E-11 $m^3kg^{-1}s^{-2}$ * 8.15305500~00E36kg / ~

(1.21~21E10 m + 1.0E00~00)* $c^2)^{½}$

Time_Distortion_ScwarzsChild_SagitariusA_Plus_1_Metre = ~

1.21068200343411391318057703028791043994970264 21E10

The Proportion of those distortions is:

PROPORTION_Distortions =

Time_Distortion_ScwarzsChild_SagitariusA_Plus_Planck_Length / ~

Time_Distortion_ScwarzsChild_SagitariusA_Plus_1_Metre

PROPORTION_Distortions = 7.49067~00961E44 / 1.21068~26421E10

PROPORTION_Distortions = 6.18715398290243060743328078865143348 7~

27975497060379E34

In contrast, let us compare the Gravitational forces between the two points:

Gravitational_Force_ScwarzsChild_Border_SagitariusA = ~

(1 - 2 * Gravitational_Constant * Mass_Sagitarrius_A / ~

(ScwarzsChild_Sagitarius_A)* c^2)^{½}

Gravitational_Force_ScwarzsChild_Border_SagitariusA = ~

(6.6738480~0E-11 m^3kg^{-1} s^{-2} * 8.1530550~0E36kg) / ~

(1.21068~26421E10m)^2

Gravitational_Force_ScwarzsChild_Border_SagitariusA = ~

(3.711772274890199586456777417144170173727765358 4E6m/s

At one Metre

Gravitational_Force_ScwarzsChild_SagitariusA_Plus_1_Metre = ~

(1 - 2 * Gravitational_Constant * Mass_Sagitarrius_A / ~

(ScwarzsChild_Sagitarius_A + 1.00000~00000E0)* c^2)^{½}

Gravitational_Force_ScwarzsChild_SagitariusA_Plus_1_Metre = ~

(6.6738480~0E-11 m^3kg^{-1} s^{-2} * 8.1530550~0E36kg / ~

(1.21068~26421E10 m+1.00000~00000m)^2

Gravitational_Force_ScwarzsChild_SagitariusA_Plus_1_Metre= ~

3.711772274277029114902988605385146345650648027 9E6m/s^2

The difference between those two values:

DIFFERENCE_GRAVITATIONAL_FORCES = ~

Gravitational_Force_ScwarzsChild_Border_SagitariusA –

Gravitational_Force_ScwarzsChild_Border_SagitariusA_Plus_1_Metre

DIFFERENCE_GRAVITATIONAL_FORCES = ~

$3.71177227489019958645677741714417017372776535843664E6m/s^2$ –

$3.71177227427702911490298860538514634565064802791866E6m/s^2$

DIFFERENCE_GRAVITATIONAL_FORCES = ~

6.131704715537888117590238280771173404283623107028l8E-4m/s

4.0 Summary

What current theory argues is that a typical scale of distortion reduction over 1.0 meter would range from Infinity at the Schwarzschild border to a distortion greater than 1.749E44 one Planck length further out, then to 1.210~421E10 at a full metre beyond the border. Over a metre spread of distance, the gravitational force ranges from 3.711~702E6m/s^2 at the border to 3.711~866E6 m/s^2 1 metre further out. A difference reduction of -6.131~818E-4 rather than a multiple reduction of 1.616~007E-35. The point of this paper was not to dismiss the value of Relativity Theory, but to identify some of the incompletions in its mathematic reasoning. This point is argued much more thoroughly and mathematically in **The General Relativistic Perspective** at http://vixra.org/abs/1306.0103.

5.0 References

HUBBLE SPACE TELESCOPE, Galaxy Cluster Abell 2261
http://www.nasa.gov/mission_pages/hubble/science/a2261-bcg.html

George T. Gillies (1997), "The Newtonian gravitational constant: recent measurements and related studies", *Reports on Progress in Physics* **60** (2): 151–225, Bibcode:1997RPPh...60..151G, doi:10.1088/0034-4885/60/2/001.

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