

A Relativistic Light Speed Maximum of 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:

3.71177227489019958645677741714417017372776536834702E6 m/s²
– at the border.

3.71177227489019958645677741714417017372776535843664E6m/s²
– one Planck length farther.

3.71177227427702911490298860538514634565064802791866E6m/s²
– at 1 full metre from the border.

The total arithmetic range downward is less than

– 6.13170471553788811759023828077117340428362310702818E-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:

$$\text{Velocity}_{\text{Escape}} = (2GM/r)^{1/2}$$

Then

$$\text{Velocity}_{\text{Escape}}^2 = 2GM/r$$

And because the General Relativity Time distortion equation is

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

Or also

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

It could be rewritten as

$$\text{Time}' = \text{Time}/(1 - (\text{Velocity}_{\text{Escape}}^2) * 1/c^2)^{1/2}$$

So

$$\text{Time}' = \text{Time}/(1 - \text{Velocity}_{\text{Escape}}^2/c^2)^{1/2}$$

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. the notion of [no - "Dark Energy" is signal devay], though not with the absolute outward pressure that Dark Energy

brings about. When the Dark Energy converged to a point that the inward Gravitational forces become stronger than it is (in current thinking) it forces the Dark Energy into a White Hole. There then be a continual slowdown of the Bosons||Dark Energy, 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 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 incompleteness of those equations - 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:

$$\text{Gravitational_Constant}^B = G = 6.67384800 \times 10^{-11} \text{ m}^3\text{kg}^{-1} \text{ s}^{-2}$$

$$\text{Mass_Sun}^C = 1.9885500 \times 10^{30} \text{ kg}$$

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"

$$\text{Mass_SagittariusA}^E = 4.100 \times 10^6 * \text{Mass_Sun}$$

$$\text{Mass_SagittariusA} = 8.15305500 \times 10^{36} \text{ kg}$$

Determining the Schwarzschild radius from that estimated mass -

$$\text{Schwarzschild_SagittariusA} = 2 * G * \text{Mass_Sagittarius_A} / c^2$$

^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](#).*

$$\text{SwarzsChild_SagitarriusA} = (2 * 6.67384800 \sim 00\text{E-}11 \text{ m}^3\text{kg}^{-1} \text{ s}^{-2} * \sim 8.15305500 \sim 00\text{E}36\text{kg}) / (299792458 \text{ m s})^{-2}$$

$$\text{SwarzsChild_SagitarriusA} = 1.2106820033341139131805770302 \sim 879104399497026421\text{E}10 \text{ m}$$

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:

$$\text{Time_Distortion_SwarzsChild_SagitarriusA_Plus_Planck_Length} = \sim (1 - 2 * \text{Gravitational_Constant} * \text{Mass_Sagitarrius_A} / \sim (\text{SwarzsChild_Sagitarrius_A} + l_p) * c^2)^{1/2}$$

$$\text{Time_Distortion_SwarzsChild_SagitarriusA_Plus_Planck_Length} = \sim (1 - 2 * 6.67384800 \sim 00\text{E-}11 \text{ m}^3\text{kg}^{-1} \text{ s}^{-2} * 8.15305500 \sim 00\text{E}36\text{kg} / \sim (1.21068 \sim 26421\text{E}10 \text{ m} + 1.6161999700 \sim 00\text{E-}35\text{m}) * c^2)^{1/2}$$

$$\text{Time_Distortion_SwarzsChild_SagitarriusA_Plus_Planck_Length} = \sim 7.4906759795756720683443982144363034969157200961\text{E}44$$

^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_Schwarzschild_SagittariusA_Plus_1_Metre = ~

$$(1 - 2 * \text{Gravitational_Constant} * \text{Mass_Sagittarius_A} / \sim$$

$$(\text{Schwarzschild_Sagittarius_A} + 1.00 \sim 00\text{m}) * c^2)^{1/2}$$

Time_Distortion_Schwarzschild_SagittariusA_Plus_1_Metre = ~

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

$$(1.21 \sim 21\text{E10 m} + 1.0\text{E}00 \sim 00) * c^2)^{1/2}$$

Time_Distortion_Schwarzschild_SagittariusA_Plus_1_Metre = ~

$$1.2106820034341139131805770302879104399497026421\text{E}10$$

The Proportion of those distortions is:

PROPORTION_Distortions =

$$\text{Time_Distortion_Schwarzschild_SagittariusA_Plus_Planck_Length} / \sim$$

$$\text{Time_Distortion_Schwarzschild_SagittariusA_Plus_1_Metre}$$

$$\text{PROPORTION_Distortions} = 7.49067 \sim 00961\text{E}44 / 1.21068 \sim 26421\text{E}10$$

$$\text{PROPORTION_Distortions} = 6.187153982902430607433280788651433487 \sim$$

$$27975497060379\text{E}34$$

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

$$\text{Gravitational_Force_ScwarzsChild_Border_SagitarriusA} = \sim$$

$$(1 - 2 * \text{Gravitational_Constant} * \text{Mass_Sagitarrius_A} / \sim$$

$$(\text{ScwarzsChild_Sagitarrius_A}) * c^2)^{1/2}$$

$$\text{Gravitational_Force_ScwarzsChild_Border_SagitarriusA} = \sim$$

$$(6.6738480 \sim 0\text{E-}11 \text{ m}^3\text{kg}^{-1} \text{ s}^{-2} * 8.1530550 \sim 0\text{E}36\text{kg}) / \sim$$

$$(1.21068 \sim 26421\text{E}10\text{m})^2$$

$$\text{Gravitational_Force_ScwarzsChild_Border_SagitarriusA} = \sim$$

$$(3.7117722748901995864567774171441701737277653584\text{E}6\text{m/s}$$

At one Metre

$$\text{Gravitational_Force_ScwarzsChild_SagitarriusA_Plus_1_Metre} = \sim$$

$$(1 - 2 * \text{Gravitational_Constant} * \text{Mass_Sagitarrius_A} / \sim$$

$$(\text{ScwarzsChild_Sagitarrius_A} + 1.00000 \sim 00000\text{E}0) * c^2)^{1/2}$$

$$\text{Gravitational_Force_ScwarzsChild_SagitarriusA_Plus_1_Metre} = \sim$$

$$(6.6738480 \sim 0\text{E-}11 \text{ m}^3\text{kg}^{-1} \text{ s}^{-2} * 8.1530550 \sim 0\text{E}36\text{kg} / \sim$$

$$(1.21068 \sim 26421\text{E}10 \text{ m} + 1.00000 \sim 00000\text{m})^2$$

$$\text{Gravitational_Force_ScwarzsChild_SagitarriusA_Plus_1_Metre} = \sim$$

$$3.7117722742770291149029886053851463456506480279\text{E}6\text{m/s}^2$$

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/s² -

3.71177227427702911490298860538514634565064802791866E6m/s²

DIFFERENCE_GRAVITATIONAL_FORCES = ~

6.13170471553788811759023828077117340428362310702818E-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 $1.210\sim 421E10$ at a full metre beyond the border. Over a metre spread of distance, the gravitational force ranges from $3.711\sim 702E6\text{m/s}^2$ at the border to $3.711\sim 866E6\text{ m/s}^2$ 1 metre further out. A difference reduction of $-6.131\sim 818E-4$ rather than a multiple reduction of $1.616\sim 007E-35$. 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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The NIST Reference on Constants, Units and Uncertainty; Planck Length;
<http://physics.nist.gov/cgi-bin/cuu/Value?plkl>

