Isaac Newton and Planet Mercury

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Isaac Newton and Planet Mercury [1][1]

BOSMIN® Gravity Analysis
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ABSTRACT
This report considers an adjustment to the value of constant G required to eliminate the anomaly noted with the orbit of the planet Mercury, and further remarks on measured variations to recent measurements to G. The Mercury anomaly is associated with a gravity influence due to the mass of the Sun, which also extends out to planet Venus. Consideration of the 'Pioneer Anomaly' associates with an overall view that gravity on Earth is controlled by gravitons forming at a black hole some 3,343 light years away. This is close to the estimated distance for the largest black hole known in the solar system region of the Milky Way, and named V616 Monocerotis.

Keywords:
Newton, G, V616, Mercury, Pioneer Anomaly, CODATA, graviton, positronium, black hole

1) Introduction:

G is an empirical constant that Sir Isaac Newton introduced to quantify the force experienced when separated masses mutually attract under the influence of gravity. In cosmology there is much reliance placed on the Newtonian constant G, with a quoted value of 6.67266E-011 $m^3kg^{-1}s^{-2}$. However, it is noted under the Committee on Data (CODATA) of the International Science Council (ISC). [2]

> CODATA's latest set, released in 2010, recommended a value for G of 6.673 84(80) x 10-11 m3 kg-1 s-2 compared to its previous result from 2006 of 6.674 28(67) x 10-11 m3 kg-1 s-2. The values in parentheses indicate standard uncertainty (based on standard deviation), in this case plus or minus 0.000 80 x 10-11 m3 kg-1 s-2 and plus or minus 0.000 67 x 10-11 m3 kg-1 s-2 respectively.

[1] http://www.bosmin.com/PSL/NewtonAndMercury.pdf

These differences can be graphed using the three significant underlined numbers (above) with others numbers truncated:

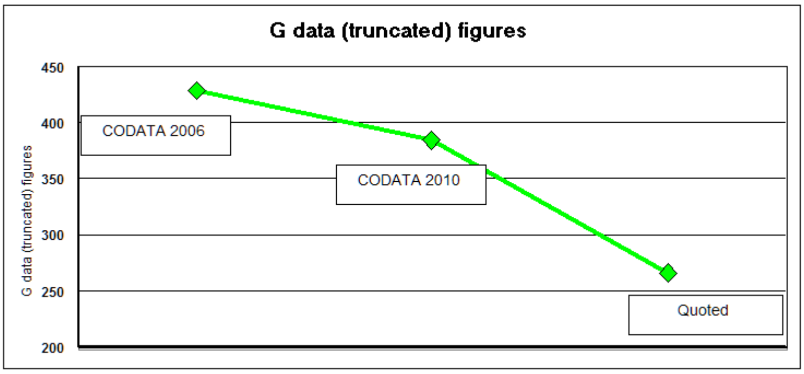

Exhibit 1.

So there is measured evidence that G is not constant, but may vary slightly on Earth through unknown causes.

2) Relevant Physics Calculations:

Newton's law of universal gravitation is given by:

$$F = G\frac{m_1 m_2}{r^2}$$

Exhibit 2.

and from this can be derived the orbital velocity of a satellite [3]given by:

$$v_{\text{orbital}} = \sqrt{\frac{GM}{r}}$$

Exhibit 3.

3) Anomalous Precession of Mercury's Orbit Perihelion: [4]

This site is described as:

> MOLWICKPEDIA Museum of future science Life, science and philosophy within your reach. New paradigms of physics, biology, and educational psychology. Authored by José Tiberius

The site includes the Exhibit 4 summary of planet orbit anomalies observed for the inner planets particularly including Mercury, Venus, Earth and Mars. The anomalies are greatest for planets closest to the Sun with reducing size of anomaly observation with increasing distance. No anomalies are observed with the outer planets, but the two calculation methods, Celestial Mechanics and Einstein's General Relativity, show slight anomalies for the outer planets as well.

Average Orbit Radius 10E+6 km	Planets	Radians	Revolutions 100 years	Total radians	Precession arc second		
					Observed	RG	GF
57.9	Mercury	5.03E-002	41,493,780	2.09E+001	43.1	429,195	4,308,581
108.2	Venus	2.69E-002	16,260,160	4.38E+000	8.65	86,186	903,498
149.6	Earth	1.95E-002	10,000,000	1.95E+000	3.85	38,345	401,882
227.9	Mars	1.28E-002	5,319,150	6.80E-001	1.36	13,502	140,323
778.3	Jupiter	3.75E-003	843,170	3.16E-002		623	6,513
1427	Saturn	2.04E-003	339,440	6.93E-003		137	1,430
2869.6	Uranus	1.02E-003	119,030	1.21E-003		24	249
4496.6	Neptune	6.48E-004	60,680	3.93E-004		8	81
5900	Pluto	4.94E-004	40,320	1.99E-004		4	41

Exhibit 4.

A further reference to the Mercury Anomaly is recorded in The Universe of Particles [5], including the following statement:

> Mercury makes its rounds around the Sun a little faster than predicted by Newton. This can be seen in the precession of Mercury's orbit which is measured to be 5600 seconds of arc per century, some 43 arc seconds more than Newton's formula predicts.

This conclusion agrees with the José Tiberius publication, and implies from Exhibit 3 that G near the Sun will be slightly lower than further out.

It is easier to assimilate results when the anomalies are reported in metres per second rather than arc seconds. To convert from arc seconds we use the formula s = Rθ [6] where the velocity in mps is s, R is the average radius of the orbit, and θ is the arc second. The average variation in orbital velocity (mps) is tabulated in Exhibit 5.

To convert arc seconds anomaly to mps			Mercury	Venus	Earth	Mars
Input	Average Radius of Planet Orbit	m	5.79000E+010	1.08200E+010	1.49600E+010	2.27900E+010
	Arc Seconds in Radians per hundered years	R	43.1	8.65	3.85	1.36
Output	S = m R	m/100 years	1.20985E+007	4.53752E+005	2.79233E+005	1.50265E+005
	Anomaly in metres per year	m	1.20985E+005	4.53752E+003	2.79233E+003	1.50265E+003
	Anomaly in metres per second	mps	0.00384	0.00014	0.00009	0.00005

Exhibit 5.

The average radius of Mercury's orbit centre to centre with the Sun is 5.79000E+010 metres, and the orbital anomaly observed as 0.00384 mps. Lesser anomalous values attribute to the outer planets, as shown.

The question then is how does the assumption that G is constant throughout the Solar system (and Universe) hold up to this observation?

4) “G” Variation:

Exhibit 6 shows a ‘break even’ value of G’ required to eliminate the recorded velocity anomalies at the four inner planets.

Inputs			Mercury Base Case	Mercury With Break Even G' value	Venus Base Case	Venus With Break Even G' value	Earth Base Case	Earth With Break Even G' value	Mars Base Case	Mars With Break Even G' value
Quoted G Constant Value	G		6.67266E-011	6.67266E-011	6.67266E-011	6.67266E-011	6.67266E-011	6.67266E-011	6.67266E-011	6.67266E-011
Added Incremental Variation to G				2.00E-005		2.00E-005		3.00E-005		4.00E-005
Mass of Sun	M	kg	1.98892E+030	1.98892E+030	1.98892E+030	1.98892E+030	1.98892E+030	1.98892E+030	1.98892E+030	1.98892E+030
Distance between the CENTRE of the masses	r	m	5.79000E+010	5.79000E+010	1.08208E+011	1.08208E+011	1.49600E+011	1.49600E+011	2.28000E+011	2.28000E+011
Outputs										
Anomaly in metres per second (from page C)		mps	0.00384	0.00384	0.00014	0.00014	0.00009	0.00009	0.00005	0.00005
Constant G and Adjusted G' Values			6.6726600E-011	6.6727935E-011	6.6726600E-011	6.6727935E-011	6.6726600E-011	6.6728602E-011	6.6726600E-011	6.6729269E-011
Factor GM /r			2.29212E+009	2.29217E+009	1.22647E+009	1.22649E+009	8.87125E+008	8.87151E+008	5.82078E+008	5.82102E+008
Square Root	Orbital Velocity	mps	47,876	47,877	35,021	35,021	29,785	29,785	24,126	24,127
Anomaly Variation		mps		0		0		0		0

Exhibit 6.

G values are recalculated to eliminate the recorded anomalies. All G values are increased slightly above the quoted base value of 6.67266E-011, but values for Venus and Mercury are increased less than for Earth and Mars. The highest variation was for Mars where the truncated adjustment for G reached 9269, Earth was 8602. Planets Mercury and Venus were truncate adjusted to 7935 as shown in Exhibit 7.

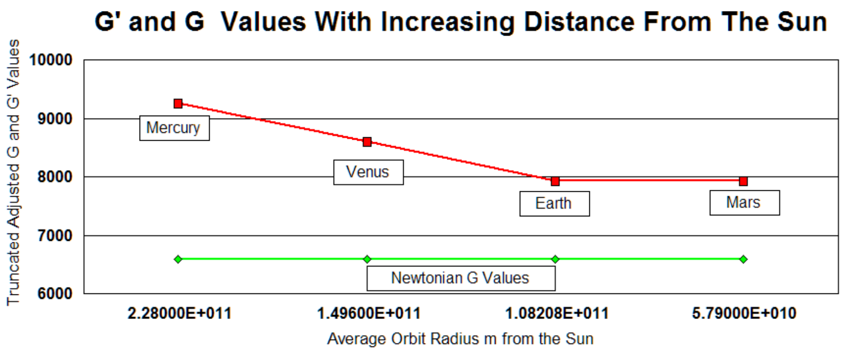

Exhibit 7.

This raises the point of how can G constant values be higher in some parts of the Solar System? The answer seems to be that G is a measure of the strength of gravity - which varies depending on the concentration of Gravitons available at any location. However, the G values for planets closest to the Sun (Mercury and Venus) are slightly lower than those further away (Earth and Mars). A lower G value allows the planets to orbit slightly faster than predicted by Newton in formula Exhibit 3.

It appears that the Sun collects additional Gravitons as a function of it’s high mass, which provides a lower concentration of Gravitons in the surrounding region where Mercury and Venus orbit. G should not be regarded as a constant, but better described as a measure of the local gravitational strength, or available Graviton concentration.

Another example of strange movement within the solar system involves the ‘Pioneer Anomaly’. This was studied previously [7] and included the statement:

> The Pioneer satellites will continue to slow while the G vector points towards the Sun, but will start to accelerate again when the G vector direction turns towards V616.

5) “G” Variation within a Gravisphere:

My report, using the inverse square law on page 5 [8], calculated that gravity on Earth came from a source 3,343 light years away. This distance was similar to the estimated largest black hole in the Solar system region, named V616 Monocerotis. A straight line progression for G and a reciprocal line for time was graphed, showing the value for G at a black hole was in the order of power 39 times greater than on Earth. The cause of the high strength gravity at a black hole was studied [9]. The report included Exhibit 8 illustrating and discussing how gravitons may form at black holes, on pages 6-7:

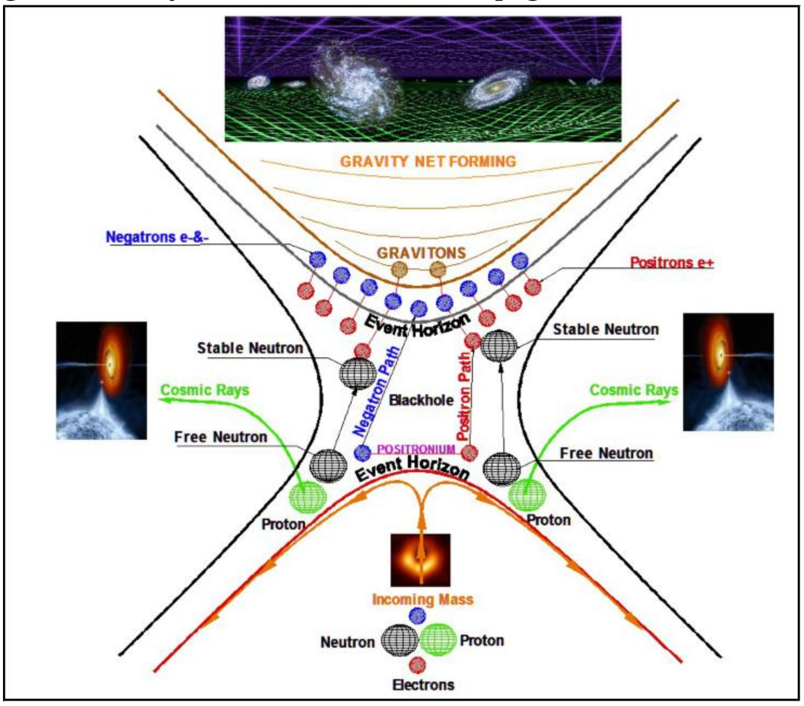

Exhibit 8.

This black hole interpretation proposes a close connection between electrons and gravitons. The field of gravitons stays entangled with their positron host at the black hole. However, gravitons can radiate throughout a Gravisphere following the inverse square law.
This implies there are two forms of electrons - one form has a graviton entangled association with a black hole and the other form does not. I would expect the former to be slightly lighter than the latter due to the entangled connection with the black hole. This conundrum was recognised in the paper ‘Positronium is positively puzzling’ [10]

6) Gravity Variation through Space:

The maximum value for G at any black hole has a calculated value of G = 6.693E+028 and considerably stronger than G is on Earth. At a black hole gravity becomes more powerful than the ‘strong force’ which binds quarks and gluons together, and includes any gravitons associated with the mass being ingested by the black hole. See page 3 [11]:

> It appears that mass entering a black hole is ‘stripped clean’ which includes losing its graviton association. In this mode, protons can escape as massless, positively charged particles, travelling at high speed.”

Under the influence of the inverse square law, the force of gravity in our Gravisphere progressively weakens until it drops to the level we are familiar with in the solar system.

However, G may reduce lower with increasing distance from a black hole. This has implications for the so called ‘dark matter’ theory - discussed in the Gravispheres paper [12], and for blue and red shifted star light as discussed at [13] and included Exhibit 9.

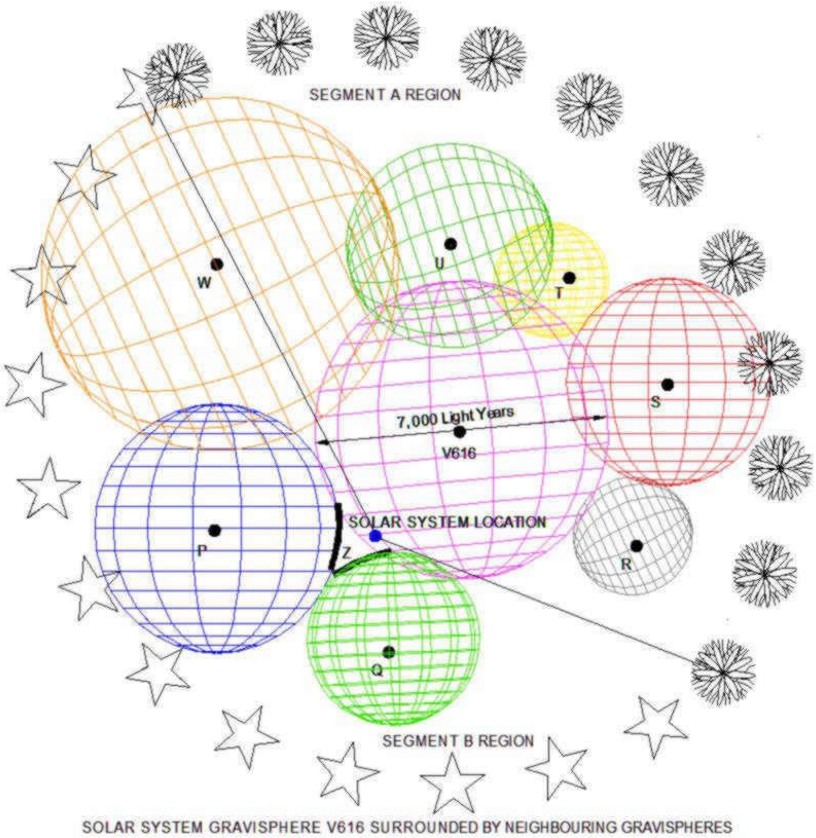

Exhibit 9.

It appears that gravitons are attracted to mass objects in proportion to their size. This is illustrated in Exhibit 10, and supports calculations shown in Exhibit 6:

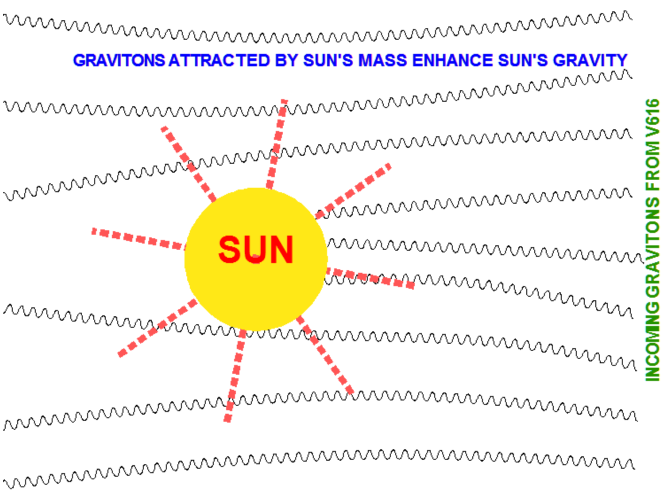

Exhibit 10.

The Gravispheres paper included a version of Exhibit 11 showing a straight line variation to the G value from V616 to the Solar system. The straight line can be expected to show minor fluctuations due to gravity fields associated with other more distant, or weaker black holes.

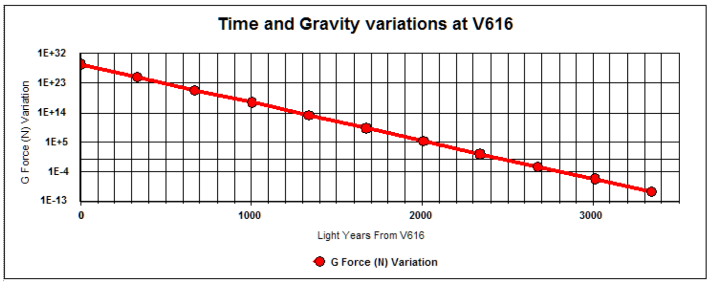

Exhibit 11.

However, the reciprocal time graph previously shown with this exhibit is now regarded as not applicable. Time seems to follow mass and forms an integral component with each mass. Animated objects have a ‘life span’ before disassembling back to their constituent parts, while inanimate objects usually last longer, but also disassemble - particularly when approaching a black hole. They are similarly returned to their constituent components when time stops for each particular mass. Therefore time is not regarded as a separate commodity, but is associated solely with a specific mass.

Variation to the value of G throughout the universe has profound implications for our understanding of how the universe ‘works’. This empirical Newtonian constant is currently applied in several cosmology formulae. Adopting a variable form of G changes much of what we are used to, and will considerably test our computing skills. We can assume a maximum value for G at a black hole, but where those black holes are, and how G varies throughout a galaxy or the universe, leaves cosmologists with many questions to contemplate.

7) Conclusions:

1) In cosmology there is much reliance placed on the Newtonian constant G, but there is empirical evidence that G is not constant, but may vary slightly on Earth through unknown causes.
2) The anomalies are greatest for planets closest to the Sun with reducing size of anomaly observation with increasing distance.
3) Mercury makes its orbits around the Sun a little faster than predicted by Newton.
4) All G' values are increased slightly above the quoted base value of 6.67266E-011, but values for Venus and Mercury are increased less than for Earth and Mars.
5) A lower G value allows the planets to orbit slightly faster than predicted by Newton.
6) The Sun collects additional Gravitons as a function of its high mass, which provides a lower concentration of Gravitons in the surrounding region where Mercury and Venus orbit.
7) G should not be regarded as a constant, but better described as a measure of the local gravitational strength, or available Graviton concentration.
8) Another example of strange movement within the solar system involves the 'Pioneer Anomaly' which might be explained by variation to G.
9) There are two forms of electrons - one form has a graviton entangled association with a black hole and the other form does not.
10) Gravity is strongest at black holes where it becomes more powerful than the 'strong force' which binds quarks and gluons together.
11) The force of gravity progressively weakens with distance from a black hole until it drops to a level we are familiar with at the solar system.
12) It appears that gravitons are attracted to mass objects in proportion to their size. Time seems to follow mass and is an integral component with each mass.
13) Variation to the value of G throughout the universe has profound implications for our understanding of how the universe 'works'.

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