

# NATURAL GRAVITY

Interstellar G-Strings(1)

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## **Abstract:**

Electromagnetic Gravity Strings coming from Black Hole V616 appear to be the major cause of natural gravity experienced at the Solar system. The effects include both gravitational attraction between all masses, and the transfer of mass as well as radiation to the orbiting objects. The quantitative mass effect on the Sun is estimated and frequencies associated with the radiation are correlated with “hum” measurements taken on Earth as well as mass identified in the controversial expanding earth theory. The mass accumulation on Earth varies due to oscillations in Earth’s orbit, and V616 gravity shadow effect.

## **Keywords:**

Electromagnetic Gravity Strings, EGS, egs, elastic link, electromagnetic rays, black hole V616, photon

## **Abbreviations and Definitions:**

EGS:	Electromagnetic Gravity Strings coming from BH V616
egs:	Electromagnetic Gravity Strings reflecting from the Sun.
Elastic link:	A none rigid bond between objects, such as a gravity link.
EM	Electromagnetic rays.
BH:	Black Hole.
V616:	One of two objects at binary star system AO620-00. One object is an invisible BH and referenced as V616 Monocerotis.
J/P	Joules per Photon
tpa	Tonne per annum

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**Verity Beatty** (my wife) assisted with proofreading and discussing draft copies of this document.

**Principia-Scientific International** article “The Allais Effect – Coincidence Between Newtonian and LeSagian Gravity”(26) Written by Dr. Raymond H.V. Gallucci, P.E. attracted several comments relevant to this paper.

## 1) Introduction.

Previously, the concept of Gravimass(2) was introduced, which proposed mass transfers to Earth through the agent of an 'elastic link'. The energy so expended might appear on Earth as extra mass, thereby providing a mechanism to explain the controversial expanding earth theory(3). Further work analysed the Big Bang theory(4) and calculated that Black Hole (BH) V616 Monoceros was at a distance from earth compatible with the force required to strip an electron from an atom, as compared to the local gravity attraction of an electron to an atom.

The relevant quote stated;

*“the gravitational force can appear extremely weak compared with other fundamental forces. For example, the gravitational force (Fg) between an electron and proton one meter apart is approximately  $10^{-67}$  newton, while the electromagnetic force between the same two particles still 1 metre apart is approximately  $10^{28}$ newton. Both these forces are weak when compared with the forces we are able to experience directly, but the electromagnetic force in this example is some 39 (power) orders of magnitude (i.e.  $10^{39}$ ) greater than the force of gravity—which is even greater than the ratio between the mass of a human and the mass of the Solar System!”*

V616 is the largest and nearest BH in our region. Other BHs have been proposed through observation of adjacent orbits or lensing observations, but they are controversial and subject of much analysis. Nothing found so far compares with V616 for size and proximity. Distance is critical in this discussion. The structure at the centre of the Milky Way appears as a combination of powerful BHs, but is so far from our Solar system, they only represent a small portion of the influence we get from V616.

Using this information, the concept of Gravispheres was proposed.(5) Gravispheres introduced a mechanism whereby mass consumed at a BH is recycled through the universe as Electromagnetic Gravity Strings (EGS), further discussed at Gravipower,(6) and includes the Figure 1 summary. Dark matter theory assumes that the gravitational constant G is constant throughout the universe.

Figure 1 shows G diminishes with distance from the black hole. Many BHs are identified throughout the universe which shows there are regions of high and low gravity. Our solar system is in a low gravity location implying there are a lot of other high gravitation regions, which obviates the need to propose dark matter.

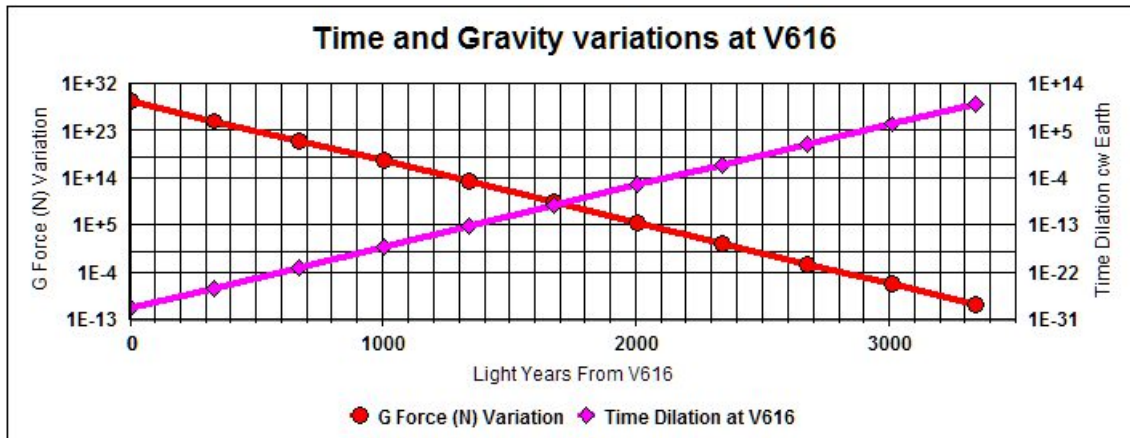


Figure 1.

It was proposed that EGS manifests itself physically as entangled electrons radiating from BHs, with associated positrons remaining at the event horizon surface. The positrons provide sufficient positive charge to stabilise the neutrons after many of the protons have discharged from the BH. This report develops this line of thought and quantifies the rate of energy and mass transferred from a BH V616 to the Sun, and from the Sun to the Earth.

## 2) Background.

What is the nature of gravity? This is one of the great scientific conundrums which has exercised the minds of scientists over many years. If we review the fundamental force particles in Figure 2, which include Gravity, Weak Force, Electromagnetism, and Strong Force as discussed and illustrated at (27):

### Fundamental Force Particles

Force	Particles Experiencing	Force Carrier Particle	Range	Relative Strength*
<b>Gravity</b> acts between objects with mass	all particles with mass	graviton (not yet observed)	infinity	much weaker ↓ much stronger
<b>Weak Force</b> governs particle decay	quarks and leptons	$W^+$ , $W^-$ , $Z^0$ (W and Z)	short range	
<b>Electromagnetism</b> acts between electrically charged particles	electrically charged	$\gamma$ (photon)	infinity	
<b>Strong Force**</b> binds quarks together	quarks and gluons	$g$ (gluon)	short range	

Figure 2.

It is apparent that only Gravity and Electromagnetism have an infinite range, with Electromagnetism being a stronger force than Gravity. Gravity and electromagnetism, in the form of entangled particles, both exhibit instantaneous action at a distance. A combination of both Electromagnetic and Gravity appears to be a possible answer to the 'nature of gravity' conundrum.

The broad history is recorded,(7) and includes:

*Gravitational waves are disturbances in the curvature of spacetime, generated by accelerated masses, that propagate as waves outward from their source at the speed of light. They were proposed by Henri Poincaré in 1905 and subsequently predicted in 1916 by Albert Einstein on the basis of his general theory of relativity.*

*Gravitational waves transport energy as gravitational radiation, a form of radiant energy similar to electromagnetic radiation. Newton's law of universal gravitation, part of classical mechanics, does not provide for their existence, since that law is predicated on the assumption that physical interactions propagate instantaneously (at infinite speed) – showing one of the ways the methods of classical physics are unable to explain phenomena associated with relativity.*

String Theory is included with this discussion on the nature of gravity and is introduced at:(8)

*In physics, string theory is a theoretical framework in which the point-like particles of particle physics are replaced by one-dimensional objects called strings. It describes how these strings propagate through space and interact with each other. On distance scales larger than the string scale, a string looks just like an ordinary particle, with its mass, charge, and other properties determined by the vibrational state of the string. In string theory, one of the many vibrational states of the string corresponds to the graviton, a quantum mechanical particle that carries gravitational force. Thus, string theory is a theory of quantum gravity.*

*String theory is a broad and varied subject that attempts to address a number of deep questions of fundamental physics. String theory has been applied to a variety of problems in black hole physics, early universe cosmology, nuclear physics, and condensed matter physics, and it has stimulated a number of major developments in pure mathematics. Because string theory potentially provides a unified description of gravity and particle physics, it is a candidate for a theory of everything, a self-contained mathematical model that describes all fundamental forces and forms of matter. Despite much work on these problems, it is not known to what extent string theory describes the real world or how much freedom the theory allows in the choice of its details.*

In proposing string theory to explain the transfer of energy from a BH, it is necessary to establish that this may be technically feasible. The MIT Technology Review paper “Physicist Discovers How to Teleport Energy”(9) suggests such a mechanism;

*First, they teleported photons, then atoms, and ions. Now one physicist has worked out how to do it with energy, a technique that has profound implications for the future of physics.*

### **Interim Conclusion.**

- + There is sufficient reputable science to enable the study of energy and mass transfer through space in the manner proposed in this paper.

### 3) Graphic Display.

Figure 2 shows incoming EGS rays from BH V616, attaching to the Sun. However, rays are re-transmitted from the Sun at a longer wave length and at lower energy to the rest of the Solar System. Hereby referred to as **egs** rays. Every mass in the solar system receives egs rays and retransmits gravity rays at an energy level, proportional to their mass, as illustrated.

Calculations show that EGS and egs gravity rays attach between objects in a bidirectional way, as illustrated in Figure 3.

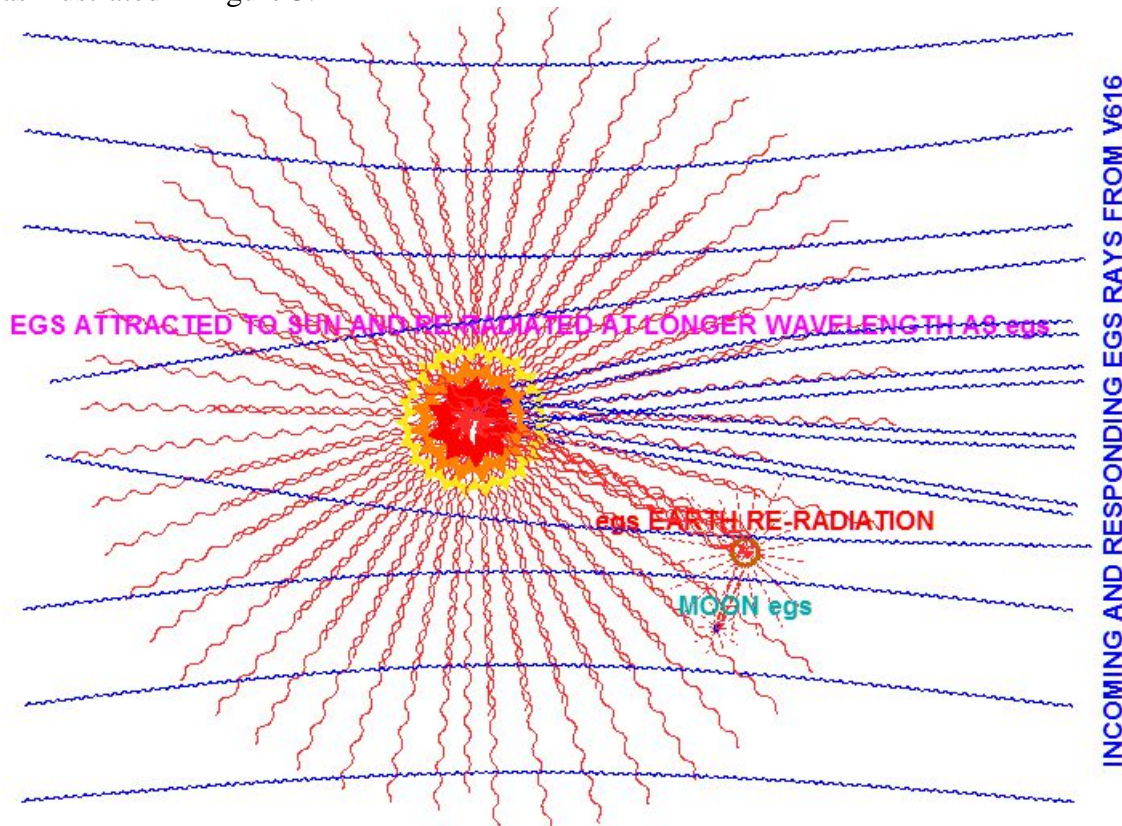


Figure 3.

Gravity strings reaching the Solar system appear to originate at a BH V616 some 3,343 light years away.(4) However, the distance calculation assumes no other BHs contribute to our force of gravity. Certainly, Sagittarius “A” at the centre of the Milky Way, some 25,640 light years away, will have a gravity field impact (about 1.4%). There could be other undiscovered, but closer BHs that make a bigger contribution. The overall effect is that the calculated distance to V616 of 3,343ly may be higher than the actual distance.

#### Interim Conclusion.

- + BH V616 may be closer to the Solar system than 3,343ly due to gravitational contributions from other BHs in the Milky Way.
- + EGS rays are re-transmitted from the Sun at a longer wave length and a lower energy to the rest of the Solar System now described as ‘egs’.

#### 4) String Energy Contribution.

The energy distribution from BHs is referenced to photons of energy.(11)

*Photon energy is the energy carried by a single photon. The amount of energy is directly proportional to the photon's electromagnetic frequency and thus, equivalently, is inversely proportional to the wavelength. The higher the photon's frequency, the higher its energy. Equivalently, the longer the photon's wavelength, the lower its energy.*

*Photon energy is solely a function of the photon's wavelength. Other factors, such as the intensity of the radiation, do not affect photon energy. In other words, two photons of light with the same color and therefore, same frequency, will have the same photon energy, even if one was emitted from a wax candle and the other from the Sun.*

*Photon energy can be represented by any unit of energy. Among the units commonly used to denote photon energy are the electronvolt (eV) and the joule (as well as its multiples, such as the microjoule). As one joule equals  $6.24 \times 10^{18}$  eV, the larger units may be more useful in denoting the energy of photons with higher frequency and higher energy, such as gamma rays, as opposed to lower energy photons, such as those in the radio frequency region of the electromagnetic spectrum.*

*Formula*

*The equation for photon energy is*

$$E = h c$$

*Where  $E$  is photon energy,  $h$  is the Planck constant,  $c$  is the speed of light in vacuum and  $\lambda$  is the photon's wavelength. As  $h$  and  $c$  are both constants, photon energy  $E$  changes in inverse relation to wavelength  $\lambda$ .*

The shortest possible wave is three Plancks long applicable at a BH event horizon,(14) but it is probable that a variety of longer waves are also generated. Our calculations show an average emitting wave length is in the order of 40 Plancks long.

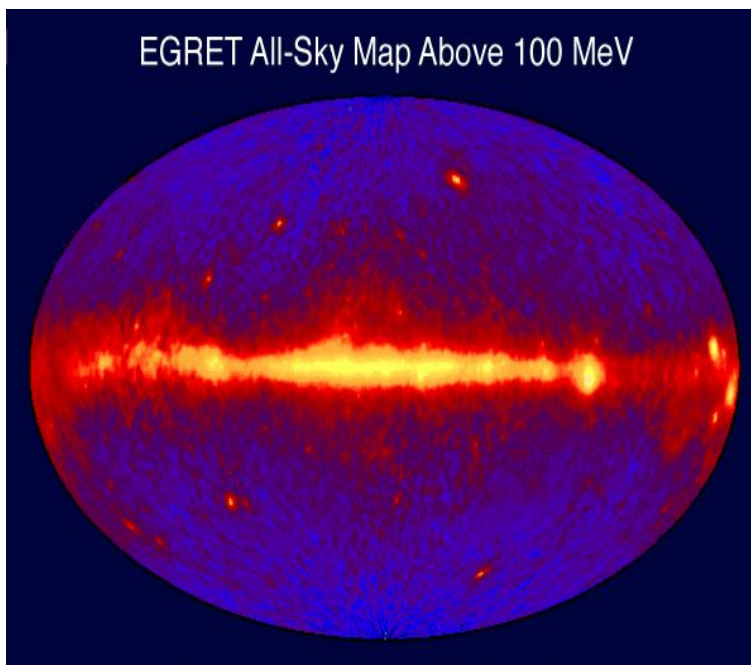
## 5) Gamma Rays.

Gamma rays are the most energetic forms of astrophysical electromagnetic radiation and are further described at:(12)

*Natural sources of gamma rays on Earth include gamma decay from naturally occurring radioisotopes such as potassium-40, and also as a secondary radiation from various atmospheric interactions with cosmic ray particles. Some rare terrestrial natural sources that produce gamma rays, that are not of a nuclear origin, are lightning strikes and terrestrial gamma-ray flashes, which produce high energy emissions from natural high-energy voltages. Gamma rays are produced by a number of astronomical processes in which very high-energy electrons are produced. Such electrons produce secondary gamma rays by the mechanisms of bremsstrahlung, inverse Compton scattering and synchrotron radiation. A large fraction of such astronomical gamma rays are screened by Earth's atmosphere and must be detected by spacecraft. Notable artificial sources of gamma rays include fission such as occurs in nuclear reactors, and high energy physics experiments, such as neutral pion decay and nuclear fusion.*

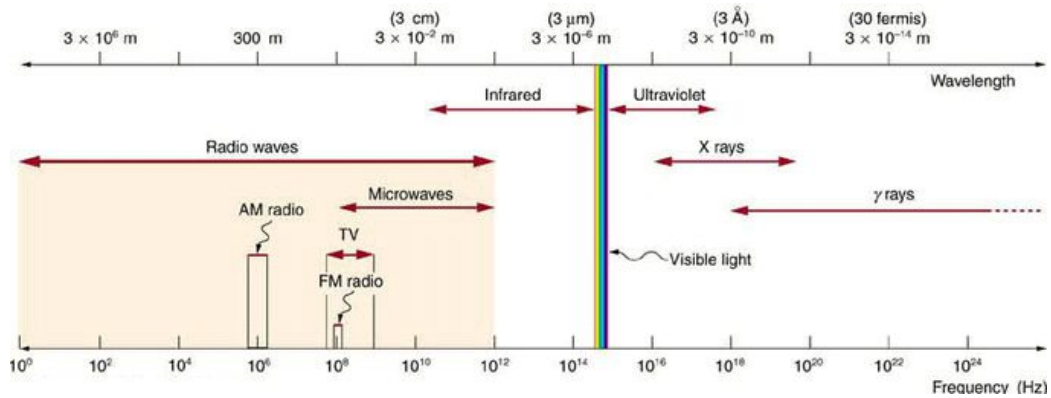
And:

*Astrophysical processes are the only sources for very high energy gamma rays (~100 MeV).*



*Gamma Ray Sky Map: This is an image of the entire sky in 100 MeV or greater gamma rays as seen by the EGRET instrument aboard the CGRO spacecraft. Bright spots within the galactic plane are pulsars (spinning neutron stars with strong magnetic fields), while those above and below the plane are thought to be quasars (galaxies with supermassive black holes actively accreting matter)*

Figure 4.



*Electromagnetic Spectrum: The electromagnetic spectrum, showing the major categories of electromagnetic waves. The range of frequencies and wavelengths is remarkable. The dividing line between some categories is distinct, whereas other categories overlap. Microwaves encompass the high frequency portion of the radio section of the EM spectrum.*

Figure 5.

The wave lengths shown in Figure 5 max out just below  $3 \times 10^{-14} \text{m}$ . The smallest practical unit of measurement in physics is given by three times the Planck Constant at  $4.8 \times 10^{-35} \text{m}$ , (14) and the most energetic gamma particles identified are therefore some 20 times larger than the minimum recognised (highest energy) EM wave length. Wave lengths shorter than  $3 \times 10^{-14} \text{m}$  are now referred to as Electromagnetic Gravity Strings (EGS), and come from BH regions. Other electromagnetic gravity strings may reflect from suns and planets (egs), but have lower frequencies in the infra sound range below 1 Hertz.

NASA Science provides a comprehensive discussion of BHs at (13) including the opening remark

*“it is a great amount of matter packed into a very small area - think of a star ten times more massive than the Sun squeezed into a sphere approximately the diameter of New York City.”*

This remark is based on the Schwarzschild Radius which is given by  $R_s = 2GM / c^2$ .  $G$  is the universal gravitational constant which is an empirical physical quantity defined by Newton’s force of gravity formula:  $F_g = GMm / r^2$  This has proved to work reasonably well under solar system conditions. However, it is surprising that  $G$  is regarded as a constant elsewhere in the universe, as there is much observable evidence to show  $F_g$  varies in strength in other parts of the universe. If we accept that  $F_g$  can vary, and assuming  $M$   $m$  and  $r$  remain unchanged, then  $G$  must vary. It was calculated  $G$  is a power of 39 times higher at an event horizon in accordance with the  $F_g$  required to disassemble an atomic structure, (4) and shown in Figure 1. Under these circumstances,  $R_s$  will also be power 39 times higher, so Earth’s  $R_s$  moves from  $8.87 \times 10^{-3} \text{m}$  within the solar system to  $8.87 \times 10^{36} \text{m}$  at an event horizon, ensuring black holes have significant dimensions.



### **Interim Conclusion.**

- + Other electromagnetic gravity strings may reflect from suns (egs) and planets, but have lower frequencies in the infra sound range.
- + Wave lengths shorter than  $3E-14m$  are EGS, and wave lengths greater than  $1.6E-35m$  with frequencies lower than 1Hz are 'egs'.
- + The Schwarzschild Radius has a much bigger value when approaching an event horizon.

### **6) Electromagnetic Gravity Strings (EGS).**

The concept of EGS was previously introduced in the Gravispheres paper.(5) Calculations following the Inverse Square Law, show the value for G is greater at BH V616 by a power factor 39 times higher than on Earth. EGS preferentially attach to the largest mass in a solar system. Here the Sun represents 99.8% of the total system mass. EGS rays from V616 are primarily focussed on the Sun which then re-radiates egs to the other solar system objects, but at a lower frequency as illustrated in Figure 3.

Scientific comment, relevant to EGS include:

*"Hawking radiation reduces the mass and energy of black holes and is therefore also known as black hole evaporation."*

There appears limited reason for BHs to evaporate. If they have the ability to attract mass due to their high gravitational attraction and widespread influence, would they not continue as long as there is mass to attract? Hawking radiation is a function of high temperature which produces  $0.5E-6m$  wave length compared with this paper figure of  $6.4E-34m$  - a much shorter wave length. The argument then gets back to, "is it reasonable to use a high temperature black body model as a limit for EM radiation?" If the body stays together, it probably is reasonable. However, if the mass is completely decomposed, it seems more reasonable to ignore the black body limitation, together with the associated high temperature.

Khan Academy reference (14) shows three plank lengths as the minimum occurring photon energy level. Table 1 uses 40 plank lengths as a starting radiation level for our Gravisphere, which ties in with subsequent calculations for mass accumulation on Earth as well as recorded infra sound readings.

Figure 1 shows time dilation is inversely proportional to G values. Interesting to note time is infinitely slow at a BH. This is consistent with mass ceasing to exist in its current form when it reaches the BH event horizon, because the mass becomes degraded down to its basic atomic components.

EGS and egs rays appear to operate in a similar fashion to radar waves, in that there is a back radiation which establishes the contact with a mass object. This effect reduces the energy transfer to the object by half. Conversely it can be regarded as a doubling of the distance required to calculate the inverse square relationship between the two masses.

This discussion considers how an EGS, otherwise known as Matter Waves,(15) and coming from BH V616 might be energy degraded, when travelling from the BH. Degradation of EM

was discussed in paper Light Momentum in Gravispheres,(16) and showed EM slowed when moving towards regions of lower gravity, consistent with the Shapiro Effect.

The Planck distance of  $1.6 \times 10^{-35}$  m times 3 ( $4.8 \times 10^{-35}$  m), is the shortest wave length technically possible at BH V616, but ultra high energy rays are discussed at:(17)

*Ultra-high-energy gamma rays are gamma rays with photon energies higher than 100 TeV (0.1 PeV). They have a frequency higher than  $2.42 \times 10^{28}$  Hz and a wavelength shorter than  $1.24 \times 10^{-20}$  m. As of 2014, they are theoretical only and have not been detected. The highest energy astronomical sourced gamma rays detected are very-high-energy gamma rays.*

	energy	energy	energy	frequency	wavelength	comparison	properties
	eV	eV	Joules	Hertz	meters		
	1	1	0.1602 aJ	241.8 THz	1.2398 $\mu$ m	near infrared photon	for comparison
Very-high-energy gamma rays	100 GeV	$1 \times 10^{11}$	0.01602 $\mu$ J	$2.42 \times 10^{25}$ Hz	$1.2 \times 10^{-17}$ m	Z boson	
	1 TeV	$1 \times 10^{12}$	0.1602 $\mu$ J	$2.42 \times 10^{26}$ Hz	$1.2 \times 10^{-18}$ m	flying mosquito	produces Cherenkov light
	10 TeV	$1 \times 10^{13}$	1.602 $\mu$ J	$2.42 \times 10^{27}$ Hz	$1.2 \times 10^{-19}$ m		air shower reaches ground
	100 TeV	$1 \times 10^{14}$	0.01602 mJ	$2.42 \times 10^{28}$ Hz	$1.2 \times 10^{-20}$ m	ping pong ball falling off a bat	causes nitrogen to fluoresce
Ultra-high-energy gamma rays	1 PeV	$1 \times 10^{15}$	0.1602 mJ	$2.42 \times 10^{29}$ Hz	$1.2 \times 10^{-21}$ m		
	10 PeV	$1 \times 10^{16}$	1.602 mJ	$2.42 \times 10^{30}$ Hz	$1.2 \times 10^{-22}$ m	potential energy of golf ball on a tee	
	100 PeV	$1 \times 10^{17}$	0.01602 J	$2.42 \times 10^{31}$ Hz	$1.2 \times 10^{-23}$ m		penetrate geomagnetic field
	1 EeV	$1 \times 10^{18}$	0.1602 J	$2.42 \times 10^{32}$ Hz	$1.2 \times 10^{-24}$ m		
	10 EeV	$1 \times 10^{19}$	1.602 J	$2.42 \times 10^{33}$ Hz	$1.2 \times 10^{-25}$ m	air rifle shot	

The shortest wave length delivers the maximum possible photon energy level. However, a wide range of energy levels probably occurs at an event horizon resulting in a number of EM wave lengths. Our selection is 40 Plank lengths, as it produces outcomes more consistent with existing geophysical information.

## 7) Energy Calculations.

Table 1 includes four columns of similar data. The Plank Multiplier is an input variable shown in row d, and starts at 40 for Column 1 V616, and then adjusts up under the subsequent columns to match and check corresponding energy levels in the Output calculations.

			Column1	Column2	Column3	Column4
Inputs			V616	Sun/Incoming EGS	Sun/Outgoing egs	Earth/Incoming egs
Speed of Light	c/mps	a	299792459	299792458	299792459	299792459
Planck Length	m	b	1.60E-035	1.60E-035	1.60E-035	1.60E-035
Plank Constant	h/joules-seconds	c	6.63E-034	6.63E-034	6.63E-034	6.63E-034
Plank Multiplier	factor	d	4.00E+001	1.56E+003	1.00E+013	4.39E+045
Outputs						
Wavelength	$\lambda$ wavelength m	$g = b \times d$	6.40E-034	2.50E-032	1.60E-022	7.02E+010
Frequency	Hertz	$f = a / g$	4.68E+041	1.20E+040	1.87E+030	4.27E-003
$E = hc/\lambda$	Joule per Photon	$e = c \times a / g$	3.10E+008	7.96E+006	1.24E-003	2.83E-036

Table 1.

EGS energy at V616 calculates to  $3.10E+8$  J/P (Column 1). When it reaches the Sun (Column 2), the photon energy is  $7.96E+6$  J/P, which is calculated at 39 times less energy than V616.(2) This is an empirical value chosen to match geophysical observations made on Earth, while recognising our lack of knowledge of energy losses associated with String Energy transmission.

Similarly, division by nine is used to reflect the level of energy reduction coming from the Sun (Column 3), and consistent with the mass reduction range reported for the Sun and V616. This results in egs photon energy at earth of  $2.83E-36$  J/P, at a frequency of 4.27 mHz. (Column 4)

Of note is that a base of nine is on the low side of the published range of 9 to 13 mass multiplier for V616, as compared to the Sun. However, the published range assumes the value for G is constant throughout the universe, which we have previously queried. If the value for G is higher at V616, the Newton gravitation formula  $F_g = G \times m_1 \times M_2 / r^2$  will record a higher value for  $F_g$  without any change to the  $m_1$  and  $M_2$  values. Using a low field value for mass is valid under these circumstances.

EM energy difference between the V616 and the Solar system confirms large gravity forces emanating in the region of BHs can travel over considerable distances while diminishing in strength, but still remaining at a potent energy level.

“Gravitational Lensing” is caused by a distant star being viewed behind a nearer source of gravity, which can be a BH or another star. Lensing requires the presence of mass before the light rays are influenced by gravity. This is not usually associated with EM radiation, but the BOSMIN Effect previously proposed that EM rays go through an ephemeral mass stage as they cycle between electrical and magnetic phases which makes them susceptible to gravity changes. This can alter the wavelength and the photon energy levels as established in the Shapiro Effect.(18)

The outgoing Solar System EM frequency of  $4.68E+41$ Hz corresponds to ultra high frequency rays, while 4.27 mHz is ultra low and below radio waves as shown in Figure 6.(19)

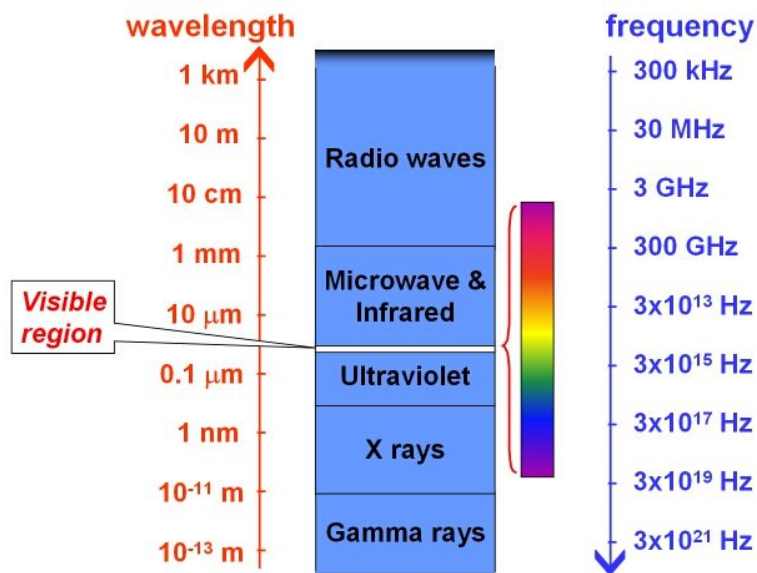


Figure 6.

Re-radiation of EGS gravity influence in the Solar system seems possible due to the large mass of the Sun, but it likely occurs at a much lower frequency than incoming rays from BH V616, as depicted in Figure 3. The eggs reflected rays, appear to radiate like Sun's rays to every orbiting mass in the solar system as EM gravity strings.

It appears that eggs rays not only radiate, but they reflect back to the Sun in similar fashion to a radar wave, thus forming an elastic link with the orbiting object. The reflected transmission system would normally require a doubling of distance when calculating the inverse square effect of separation (square power of 2 goes to 4). Halving the radiated energy produces a similar result. Gravitational energy travelling from the Sun to Earth follows the Inverse Square law, but depreciates by a factor of 4, as with radar losses. Gravity operates in a round trip mode which effectively confirms that a mass was encountered by the outgoing EM ray, before energy transfer takes place. This results in a slightly differing amount of photon energy reaching Earth, depending on how much the oscillation orbit varies, as shown in Tables 2 and 3. Table 3 includes the modified Inverse Square calculation.

Earth's Orbital Eccentricity					
	Eccentricity e	Semimajor axis (km)	Seminor axis distance to Sun (km)	Minimum distance to Sun (km)	Maximum Distance to Sun (km)
Maximum e	0.057	149,597,900	149,354,680	141,070,819	158,124,980
Current e	0.0167	149,597,900	149,577,046	147,099,615	152,096,185
Minimum e	0.005	149,597,900	149,596,030	148,849,910	150,345,890

Table 2.

Input					
Max Distance Sun to Earth	m				1.58E+008
Min Distance Sun to Earth	m		1.41E+008		
Distance Sun to Earth	m	1.50E+008			
Sun to Earth eggs	Joule per Photon	1.24E-003	1.24E-003	1.24E-003	
Output					
Earth Photon eggs Energy	Joule per Photon	2.48E-036	3.13E-036	1.99E-036	

Table 3.

The Sun mass is considered to be nine times less than V616 as it more closely matches known geophysical information discussed below, a variable value for G, and Table 1 Column 3 & 4 results.

The chosen power factor delivers  $1.24E-3$  J/P from the Sun to the rest of the Solar system. On Earth the energy level drops through the Inverse Square Law, to  $2.83E-36$  J/P delivering 4.27milli Hertz.(Column 4)

Recent field research discovered the Earth hums in the infra-sound frequency range, recorded at a deep Indian Ocean site between 2.9 and 4.5 mHz.(21)

*For the past few decades, something has been becoming increasingly clear: Earth constantly hums, even though we can't hear it.*

*Earth expands and contracts constantly, ever so slightly. This is known as "free oscillations", and they register as a background vibrational signal - or hum - in the absence of any other seismic activity.*

*Based on the signal they found, the researchers determined that Earth's natural vibration peaks at frequencies between 2.9 and 4.5 millihertz,*

The calculated value of 4.27 mHz is within the range of field recordings, and we conclude the hum indicates a gravity effect.

#### **Interim conclusions.**

- + Large gravity forces emanating in the region of BHs travel over considerable distances while diminishing in strength, and frequently referred to as a weak force, but remaining at potent energy levels.
- + Ultra short wavelengths as presented have not yet been physically identified, neither has gravity been defined, but it certainly exists.
- + Gravity waves identified during various LIGO recordings show BH impact data, and not ray data associated with EGS radiation from undisturbed BHs. This is the difference between a hand clap and a hand wave.
- + Gravity operates in a round trip mode which effectively confirms if an outgoing EM ray encounters a mass object.
- + The EGS rays reflect like Sun's rays to every mass in the solar system as egs gravity strings, but at a much lower energy level, due to the lower mass of the Sun.
- + There are frequency similarities to solar egs with sound records from a deep Indian Ocean site of between 2.9 to 4.5 mHz. Our calculated value of 4.27 mHz is within the range of field recordings, and we conclude the hum indicates a gravity effect.

### 8) Sun EGS Factors.

The energy radiating from the Sun is reported at (22) and (23). The average of these two methods of calculation gives  $1.2E+28$  joules. Thermonuclear reactions are credited for producing this result, but incoming EGS rays may also contribute, as discussed. However, under the influence of Matter Waves it is reasonable to assume a level of mass transfer also occurs from V616 to the Sun.

If we assume, this amount is similar to the identified radiating energy level of  $1.2E+28$  joules it converts to the addition of  $4.22E+15$  tonnes per annum. This is a large quantity, but only a  $2.12E-12$  fraction of the mass of the Sun, as shown in Table 4.

Input		
Seconds pa	sec	3.15E+007
Mass of Sun	kg	1.99E+030
Output		
Mass kg/sec	$m=E/c^2$	1.34E+011
<b>Mass tpa</b>	<b><math>M=m/1000sec</math></b>	<b>4.22E+015</b>
Mass of Sun	t	1.99E+027
Mass increase fraction pa		2.12E-012

Table 4.

### Interim Conclusion.

- + Energy accumulating on the Sun from EGS activity includes both annual mass accumulations and energy released as EM radiation.

### 9) Earth egs Factors

The Earth stays in orbit around the Sun due to the force of gravity acting between the two bodies. This link is an elastic link operating over a distance subject to periodic variations in the orbit radius. Three main orbit radius variations are defined by the Milankovitch cycles include eccentricity, axial tilt, and precession. The most relevant to this discussion is the eccentricity variation shown at Table 2.(24)

*The Earth's orbital eccentricity varies from a maximum to minimum eccentricity over a period of approximately 92,000 years. The maximum eccentricity for the Earth is 0.057, while 0.005 is the minimum.*

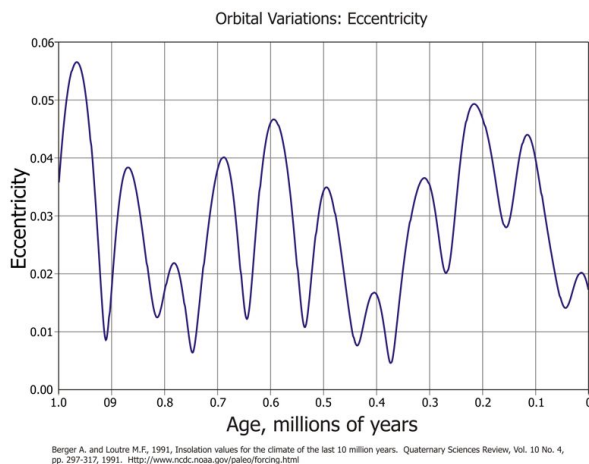


Figure 7.

Submarine observations along the Mid Atlantic Ridge reveal a series of parallel ridges either side of the central fissure as seen in National Geographic magazine 2<sup>nd</sup> Feb 2017.(25)

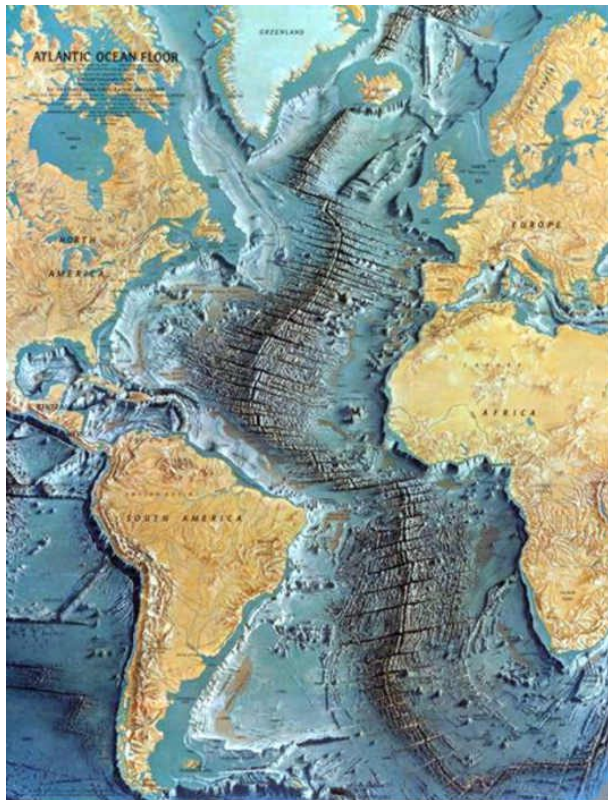


Figure 8.

The ridges indicate a spasmodic introduction of substantial quantities of magma which may be associated with eccentricity variations in Earth's orbit around the Sun, and egs connections.

Applying the orbital variations shown in Table 2, the annual transfer of mass to Earth appears to occur in a cyclical fashion as tabulated in Table 5. This shows for minimum values of eccentricity e, Earth accumulates extra mass at the rate of 131 tpa. When e is at the maximum, the Earth is furthest away from the Sun and the rate of mass accumulation drops to 83 tpa.

			Base Case	Minimum e	Maximum e
<b>Inputs</b>					
Earth Mass	kg	a	5.98E+024	5.98E+024	5.98E+024
Earth Mass	t	b	5.98E+021	5.98E+021	5.98E+021
Sun Mass	kg	c	1.98E+033	1.98E+033	1.98E+033
Sun Mass	t	d	1.98E+030	1.98E+030	1.98E+030
Mole Earth weighth	Gm/mole	e	33.04	33.04	33.04
Mole Sun weighth	Gm/mole	f	1.79	1.79	1.79
Avogadro's Number	parts/mole	g	6.02E+023	6.02E+023	6.02E+023
Earth Joules per Photon	J/P	h	2.48E-036	3.13E-036	1.99E-036
Sun Joules per Photon	J/P	i	4.14E-030		
Speed of light	c mps	j	3.0E+008	3.0E+008	3.0E+008
Seconds pa	sec	k	3.15E+007	3.15E+007	3.15E+007
<b>Earth Outputs</b>					
Earth Energy	Joules	$l = e \times a \times g \times h$	2.95E+014	3.73E+014	2.36E+014
Mass Addition M-E, t/c <sup>2</sup>	kg/sec	$m = l / i^2$	3.3E-003	4.2E-003	2.6E-003
<b>Mass Addition to Earth</b>	<b>tpa</b>	<b><math>n = m \times k / 10^3</math></b>	<b>104</b>	<b>131</b>	<b>83</b>
Mass increase fraction pa	###	$o = n / b$	1.7316E-020	2.189E-020	1.39E-020

Table 5.

Both annual increases are less than the previous estimate of 212,245 tpa disclosed in paper (2). The latter figure is based on geological estimates of the change in surface area since the Paleozoic era.

However, there remains the possibility of some EGS rays attaching directly to minor orbiting bodies such as Earth, as well as those attaching as egs rays from the Sun. EGS rays are much more powerful than egs rays, and a small quantity attaching directly to Earth makes a substantial difference to the mass transfer quantity. In addition to this effect there is direct thermal radiation from the Sun which is calculated to add 7,000 tpa.(4)

#### **Interim Conclusions.**

- + The elastic gravity link operates over distances which are subject to periodic variations in Earth's orbit radius, as defined by the Milankovitch cycles. This results in small variations to the rate of mass accumulation on Earth.
- + Submarine observations along the Mid Atlantic Ridge reveal a series of parallel ridges either side of the central fissure which indicates a spasmodic introduction of substantial quantities of magma.
- + In addition to this effect there is direct thermal radiation from the sun which is calculated to add 7,000tpa.



## 10) Earth EGS Factors

If we assume that both egs and EGS rays are affecting gravity strength on Earth, we can add a component of EGS to the Table 5 calculation as shown in Tables 6 and 7.

Input				
Max Distance Sun to Earth	m			1.58E+008
Min Distance Sun to Earth	m		1.41E+008	
Distance Sun to Earth	m	1.50E+008		
Sun to Earth egs	J/P	1.24E-003	1.24E-003	1.24E-003
EGS Energy Reaching Earth	J/P	7.96E+006	7.96E+006	7.96E+006
Fraction of EGS reaching Earth	###	6.4E-040	6.40E-040	6.40E-040
Output				
Earth Photon egs Energy	J/P	2.48E-036	3.13E-036	1.99E-036
Earth EGS	J/P	5.09E-033	5.09E-033	5.09E-033
Total Earth Gravity	J/P	5.10E-033	5.10E-033	5.10E-033

Table 6.

Table 6 combines egs reaching Earth from the Sun at a frequency of 4.27 milli Hertz, with a small portion (1/6.4E-040) of EGS coming directly from V616 at a frequency of 1.20E+040 Hertz.

This combination of energy components delivers a mass increase as shown in Table 7 of between 212.837 and 212,789 tpa. Which is similar to the calculated rate of Earth mass accumulation since the Paleozoic era.

			Base Case	Minimum e	Maximum e
Inputs					
Earth Mass	kg	a	5.98E+024	5.98E+024	5.98E+024
Earth Mass	t	b	5.98E+021	5.98E+021	5.98E+021
Sun Mass	kg	c	1.98E+033	1.98E+033	1.98E+033
Sun Mass	t	d	1.98E+030	1.98E+030	1.98E+030
Mole Earth weight	Gm/mole	e	33.04	33.04	33.04
Mole Sun weight	Gm/mole	f	1.79	1.79	1.79
Avogadro's Number	parts/mole	g	6.02E+023	6.02E+023	6.02E+023
Speed of light	c mps	i	3.0E+008	3.0E+008	3.0E+008
Seconds pa	sec	k	3.15E+007	3.15E+007	3.15E+007
Outputs					
Total Earth Gravity	J/P		5.10E-033	5.10E-033	5.10E-033
Earth Energy	Joules	$l = e \times a \times g \times h$	6.06E+017	6.06E+017	6.06E+017
Mass Addition $M = E / c^2$	kg/sec	$m = l / i^2$	6.7E+000	6.7E+000	6.7E+000
<b>Mass Addition to Earth</b>	<b>tpa</b>	<b><math>n = m \times k / 10^3</math></b>	<b>212,809</b>	<b>212,837</b>	<b>212,789</b>
Mass increase fraction pa	###	$o = n / b$	3.5587E-017	3.558E-017	3.56E-017

Table 7.

Earth may be subject to variations in EGS strength occurring through eclipse effects of the Sun, or the V616 twin star, or a large planet associated with V616, interrupting the flow of gravitation rays reaching Earth.

### Interim Conclusion.

- + A small fraction of EGS rays reaching directly to the Earth, in addition to egs rays, provides sufficient total energy to account for the mass accretion estimated since the Paleozoic era.
- + Table 7 mass accretion levels do not occur during small periods of time Earth is in a V616 gravity shadow behind the Sun each year.
- + Gravity rays reaching Earth are occur in two frequency ranges including 4.27 milli Hertz and 1.20E+040 Hertz.
- + Earth may be subject to variations in EGS strength occurring through eclipse effects of the Sun, or the V616 twin star, or a large planet associated with V616, interrupting the flow of gravitation rays reaching Earth.

## 11) **Conclusions.**

- + There is sufficient reputable science to enable the study of energy and mass transfer through space in the manner proposed in this paper.
- + BH V616 may be closer to the Solar system than 3,343ly calculated due to gravitational contributions from other BHs in the Milky Way.
- + Other electromagnetic gravity strings may reflect from suns (egs) and planets, but have lower frequencies in the infra sound range.
- + The Schwarzschild Radius has a much bigger value when approaching an event horizon.
- + Wave lengths shorter than  $3E-14m$  are EGS, and wave lengths greater than  $1.6E-35m$  with frequencies lower than 1Hz are 'egs'.
- + Large gravity forces emanating in the region of BHs travel over considerable distances while diminishing in strength, and frequently referred to as a weak force, but remain at potent energy levels.
- + Ultra short wavelengths as presented have not yet been physically identified, neither has gravity been defined, but it certainly exists.
- + Gravity waves identified during various LIGO recordings show BH impact data, and not ray data associated with EGS radiation from undisturbed BHs. This is the difference between a hand clap and a hand wave.
- + Gravity operates in a round trip mode which effectively confirms if an outgoing EM ray encounters a mass object.
- + The EGS rays reflect like Sun's rays to every mass in the solar system as egs gravity strings, but at a much lower energy level, due to the lower mass of the Sun.
- + Energy accumulating on the Sun from EGS activity includes both annual mass accumulations and energy released as EM radiation.
- + There are frequency similarities to solar egs with sound records from a deep Indian Ocean site of between 2.9 to 4.5 mHz. Our calculated value of 4.27 mHz is within the range of field recordings, and we conclude the hum indicates a gravity effect.
- + The elastic gravity link operates over distances which are subject to periodic variations in Earth's orbit radius, as defined by the Milankovitch cycles. This results in small variations to the rate of mass accumulation on Earth.
- + Submarine observations along the Mid Atlantic Ridge reveal a series of parallel ridges either side of the central fissure which indicates a spasmodic introduction of substantial quantities of magma.
- + In addition to the egs effect there is direct thermal radiation from the sun which is calculated to add 7,000tpa.
- + Physical experiments based on this theory of gravity showed interesting results:(6)
- + A small fraction of EGS rays reaching directly to the Earth in addition to egs rays, provides sufficient total energy to account for the mass accretion estimated since the Paleozoic era.
- + Table 7 mass accretion levels will not occur during the small period of time Earth is in a V616 gravity shadow behind the Sun each year.
- + Gravity rays reaching Earth are expected in two frequency ranges including 4.27 milli Hertz and  $1.20E+040$  Hertz.

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