European Journal of
**Physical Sciences**
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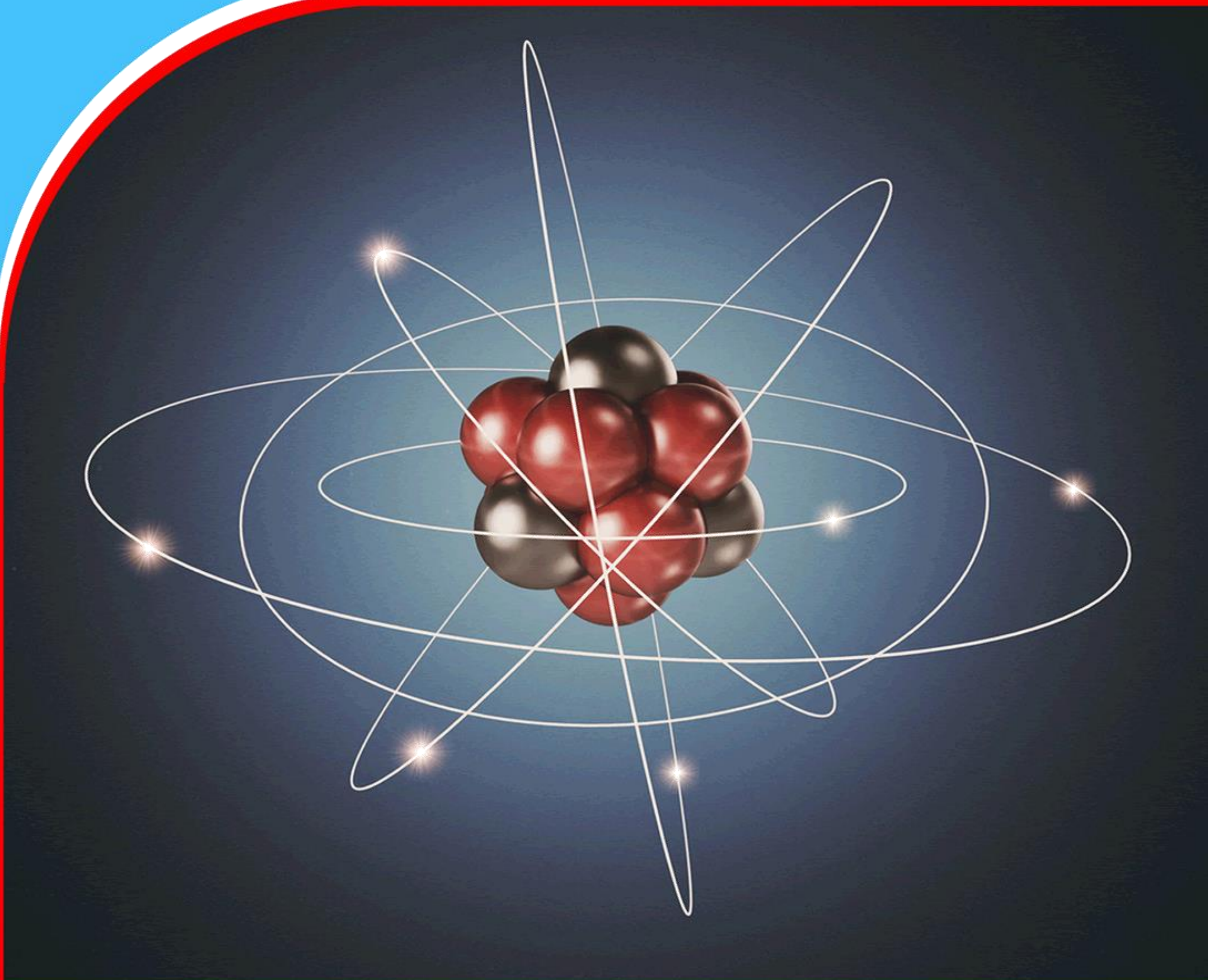

# Calculating All Dark Energy and Dark Matter Effects through Dynamic Gravity Theory

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AJPO

European Journal of physical Sciences
ISSN 2788-8223 (Online)
Vol.6, Issue 2, pp 1 - 10, 2023
www.ajpojournals.org

# Calculating All Dark Energy and Dark Matter Effects through Dynamic Gravity Theory

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Crossref

***Article history***

*Submitted 09.06.2023 Revised Version Received 17.06.2023 Accepted 18.06.2023*

## Abstract

Newton's Universal Law of Gravitation was augmented by Einstein's General Relativity to include factors such as time dilation from speed and gravity field strength. But this augmentation has proven to be incomplete as the math fails in almost all settings outside our solar system hence the need for Dark Energy and Dark Matter to resolve the math. Dynamic Gravity has new math that augments GR in much the same way GR augments Newton's Law, and this math has the potential to completely explain the motions of all celestial bodies throughout the entire universe with zero need to correct the math with Dark Matter or Dark Energy. This paper explores the notion that gravity must obey the law of conservation of energy as all other forces in this universe have been shown to do. Explaining exactly what gravity is and how it manifests itself on a sub-atomic level. And explaining the many different implications that would be created from this theory. And finally using the math of Dynamic Gravity to calculate Dark Energy and Dark Matter effects within the Milky Way, and between the Milky Way and Andromeda to explain observations without the need of exotic measures.

**Keywords:** *Dark Energy, Dark Matter, Dynamic Gravity, Gravity.*

## 1.0 INTRODUCTION

Gravity is currently regarded as spontaneously forming from the curvature of space-time with no energy transfer and thereafter having infinite range and lifespan. Even Einstein stated that a "gravitational field and matter together must satisfy the Law of Conservation of Energy" [1], of course he didn't mention how this would apply to gravity's creation in General Relativity. But there is another way to explain gravity, one that satisfies the Law of Conservation. Once presumption that gravity is confined to operate requiring energy to manifest as all other known forces. Then freedom in choosing purposed methodology of gravity's creation can arise solidly based on origins of energy feeding it. This paper purposes a thought that is not entirely original, but none the less has not been entirely explored. That gravity does not perpetuate in waves on spacetime, nor is there any such exotic graviton or axion particle exerting the force recognized as gravity. Instead, gravity manifests itself as a field. Generating itself from the displacement of the electromagnetic force, particularly under extreme pressure and high temperatures found in the cores of celestial bodies. This is not to say that only celestial bodies are capable of producing displaced electromagnetic forces, the electromagnetic force is within all atoms. Dynamic Gravity Theory believes it can and does confidently explain Dark Matter and Dark Energy with its math.

### Main Body

As atoms are forced tightly together encroaching two separate electromagnetic force fields together at an uncomfortably close proximity. The fields do not merge into one field with the same dimensions with simply twice the strength, but rather behave as like entities in a field displacing each field slightly further away from its source. As more protons are encroached tightly together the external field strength grows at a hybrid rate that is neither linear nor exponential, allowing the electromagnetic force to reach vast distances and remain exceptionally strong. The more protons forced to encroach the stronger the gravity field that will be emitted based not only on mass, but also density. Perhaps this is why Cavendish experiments are unsuccessful using lighter materials then lead as the source of gravity.

Protons represent the positive entity in the electromagnetic force, the negative entity being the electron. However, protons are forced tightly together within the nucleus of an atom while the electrons are confined and spaced out within the electron shells, this means that the positive field of the protons will be displaced outward while the electrons negative field won't be displaced nearly as much despite the fact that both the proton and electron possess the same charge of 1.602E-19 C. As atoms are compressed the electromagnetic field carried by virtual photons expands, drawing towards it all electrons, which all matter contains even a naked proton in the form of a hidden attribute of the down quark. Force is exerted on the electrons not only from their parent protons, but also from any large external electromagnetic fields. Pulling the electrons toward the gravitational field's source, all while the parent proton to the electron is exerting its pull as well. The end result is a net force exerted on the entire atom as a whole towards the source of gravity. Orbital paths of the electrons becoming seemingly erratic could be contributed to such an effect. How curious that the most erratic particle of mass in a gravity field is a single unpaired proton. The particle that is so erratic that modern science must still deduce its mass from hydrogen by subtracting the measured mass of an electron. The proton is classified as extremely reactive requiring an electron to become stable, and perhaps this is mostly true. Along with the notion that naked protons have not been observed to fall in a gravitational field as all other matter does.

European Journal of physical Sciences
ISSN 2788-8223 (Online)
Vol.6, Issue 2, pp 1 - 10, 2023
www.ajpojournals.org

Additionally considered, of the four fundamental forces only gravity and the electromagnetic force share the $1/r^2$ falloff rate.

When two large celestial bodies become in range to be affected by their gravity fields the result is dynamic, in that both bodies emit strong gravitational fields that are positive, and hence will repel each other. But both bodies contain electrons which are attracted to the positive gravity fields. If given a long enough period of time, the overall effect is the celestial bodies will eventually stabilize a distance apart from each other dependent on field strength; locking them into relatively steady orbiting distances. Evidence in this capacious sorting effect can be seen in looking at our own solar system observing the moons of Saturn [2], or even the trend of planets going from smaller to larger in moving further away from the Sun. This is simply because our solar system has had billions of years to reach a state of quasi-stability.

The smallest planets will produce the smallest gravitational fields, meaning the gravitational field of the Sun will not be resisted as much when the Sun's gravity field is pulling on the electrons in a smaller planet like Mercury. From this a rough estimate of how far the effective gravitational fields emanate from celestial bodies can be inferred in proportion to their size and distance. Although, it is not unreasonable to assume that vast majority of stars having neighbor stars only 5 light-years away in our galaxy; is the result of a typical star's gravitational field finding stability among other stars at that distance. This repulsive force completely accounts the force currently known as dark energy, as will be shown in DG calculations in this paper.

If gravity was displacement of the electromagnetic force, then it could theoretically be shielded and even canceled out. Which could radically change our perception of faster than light speed travel. This is inferred from Einstein's equation for relativistic kinetic energy of:

(1) $$E_k = mc^2\left[\frac{1}{\sqrt{1-\frac{v^2}{c^2}}} - 1\right]$$

By using a more detailed definition of mass such as:

(2) Mass = Weight/Gravitational Acceleration As compared to the standard:

(3) Mass = Volume*Density

The true reason for why no matter can travel faster than the speed of light is revealed. Drag force is exerted on it by gravity's carrier particles, drag that must be overcome by energy. However, when the gravity exerted on a mass becomes zero, we get the same result in the equation as when the object reaches the speed of light. A zero in the denominator, which is an illegal function, hence the equation no longer applies. Meaning if you can be 100% free of gravity acting on mass, the mass is now free to travel speeds faster than that of light. In calculating energy levels required by intelligently designed objects in space, the assumption that object density is more important than gravitational forces acting upon it is untested, and therefore unfounded. While time travel is impossible, time dilation is expected as the gravity field increases from either field strength or traveling through a gravity field. All natural processes such as aging involve chemistry of some sort to occur. And the ability of an atom to conduct chemical process will be slowed and even halted as the external electromagnetic force of gravity envelops and affects an atom. Simply put, an electron in a valence shell is not free to interact with other atoms if it is overwhelmed by a stronger external field such as a gravity field. And an atom that is incapable of performing any chemical bond remains static, or frozen in time.

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It is important to understand the significance of mathematics. Generic formulas like that of exponential growth can be used to calculate a plethora of processes from albedo to nuclear fission. More complicated mathematical formulas will apply to more specific processes, but never entirely exclusive to any one process. Gravity Probe B used a gyroscope to measure the geodetic effect and frame dragging caused from the Earth warping space-time [3]. However, the formulas used are incapable of determining if the effect is caused by a medium such as space-time, or a medium such as a field. Newton's equation for calculating gravity has stood the test of time over the centuries.

(4) $$F_N = G\frac{m_1 * m_2}{r^2} = \frac{G_1 m_1 * G_2 m_2}{r^2}$$

Einstein added extra calculations to Newton's formula to account for: speed, field strength, and gravity distortion.

(5) $$G_{\mu v} + g_{\mu v}\Lambda = \frac{8\pi G}{c^4}T_{\mu v}$$

He did this by creating a 3D coordinate system through metric tensors that partitions segments of 3D space to measure the effect strength that falls off with distance to account for differences within his coordinated system compared to Newton's formula. But, under conditions that are not considered extreme, the equations of General Relativity ultimately cancel out to just Newton's equation.

Because Dynamic Gravity Theory states that gravity is a product of displacement of the Electromagnetic Force; it is necessary to examine Coulombs Law in looking at how the math of DG will behave. Coulomb's Law governs the interaction between the proton and the electron through the medium of the electromagnetic force.

(6) $$F = k\frac{q_1 * q_2}{r^2}$$

Notice how Coulomb's Law bears striking similarity to Newton's Law. Where k is Coulombs Constant which is just a constant of proportionality for the strength of the electromagnetic force. And Newton uses G as the constant of proportionality for gravity. Both equations utilize the same $1/r^2$ falloff rate because both are facilitated by the carrier particle of the virtual photon. Which means that gravity is expected to travel at the speed of light. DG contest that both k and G are actually the same constant. Where k is proportional to the sum of the entire system externally. And G is proportional to breaking down the object into partitions of kilograms and adding the sum. One gives you attractive gravity while the other gives equilibrium based upon the sum of attractive gravity.

It is important to understand that effect of gravity is created from encroachment of the electromagnetic force, hence displacing the field out further. This leads Dynamic Gravity to make the bold claim that the Gravitational Constant G, is not actually constant. Without extensive research it is impossible to know exactly how the constant changes from gravitational source to source. Would the Gravitational Constant G be identical if experiments used gold as their source of gravity as compared to the standard lead? It could easily be that atoms being packed as tight as possible in all standard matter, leading to only minor variations in measured G measurements. But there are noticeable variations in the measurement of the Gravitational Constant G as shown in figure 1 [5]:

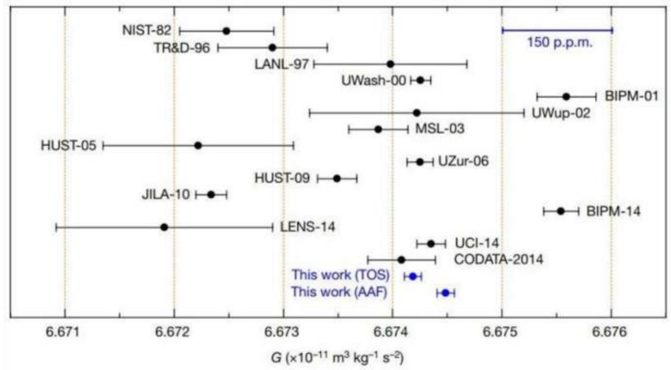


*Figure 1: Showing Major Experiments to Measure the Value of G and Their Results [6]*

But two things will defiantly be true, the value of G will change even if ever so slightly from different sources of gravity used to measure it. Second, the value of G will be significantly altered from sources such as Super Celestials. Dynamic Gravity uses the terminology Super Celestial to describe an object (Black Hole or Neutron Star) that has such a strong gravity field; that the very atoms that it is comprised of are ripped into more elementary particles such as electrons and protons, perhaps even quarks themselves. Simply put, Super Celestials do not play by the same set of rules of normal matter. This means that the protons that generate the electromagnetic force can be packed much more tightly together hence pushing the gravity field caused from its displacement out much farther. It is believed that

99.9999999999996% of a hydrogen atom is empty space. Hence, by dividing 1 by .000000000000004 we obtain the value of 2.5E+14. Meaning if we assume optimal sphere packing efficiency of 74.048% [4], then we can theoretically fit up to 1.85E+14 protons in the space of a normal hydrogen atom.

Additional reasoning for belief that it is possible to push protons sufficiently together with the immense gravity found within a Super Massive Black Hole can be found upon examining the math of our own Galactic Core Black Hole in the Milky Way. Using Coulomb’s Law with the distance of 1.0E-11 nm the amount of force needed to push two protons that close comes out to be about 2.3E+12 N. Now using Newtons Gravity Law and assuming our Milky Way Galactic Black Hole has a mass of 8.6E+36 Kg, normal G value, and a distance right on the surface of 100 nm; the force exerted on a Proton with 1.67262E-27 Kg mass will have approximately 9.6E+13 N force acting on it. And assuming the proton has a radius of 8.77E-7 nm, and that a hydrogen atom has a radius of .05 nm; under these pressures it would be possible to fit up to 50,000 protons in a line side by side within the size of a hydrogen atom. How many must be fit to produce the required effect is open for debate. It is unknown how close a Super Celestial, such as a Supermassive Black Hole found the cores of galaxies, could squeeze protons together. But, given our crude assessment it is not unrealistic to think that you can increase the value of the Gravitational Constant by 11 orders of magnitude giving a value of 6.6743 for G, or even much higher if necessary within the immense gravity of a Galactic Core Black Hole.

**Math**

The math of Dynamic Gravity augments General Relativity as GR augmented Newton’s Law. DG math is derived from Coulomb’s Law. Where the charge strength of the charged particles has been replaced with the gravity strength of a celestial body.

(7) $M_g = \left(k\frac{g_1 * g_2}{r^2}\right) * \left(\frac{g_1}{g_2}\right) = k\frac{g_1 * g_1}{r^2}$

All other components remain the same aside from charge being swapped for gravitational acceleration; and to multiply the ratio of the smallest celestial bodies' $g_1$ per the larger celestial bodies' $g_2$. This is because the positive gravitational field is best created when atoms are compressed together under extreme conditions such as those found in the core of celestial bodies. For example, if one object is very small like a tennis ball, and the other is very large like the Earth. Then there will be almost no positive gravity working between the two objects. The answer to this modified formula is to be considered a modifier designated $M_g$. After attempting to cancel out the units this $M_g$ modifier appears to have somewhat of the opposite units of a Newton. A Newton's units are (Kg$^{m}/_{s}$2). Where $M_g$ appears to have the units of ($\frac{m^3/_{s^4}}{Kg}$), which simplifies too just ($mg^2$ $/_{Kg}$). Perhaps this unit can be called a "Kinney" after my untimely death. But to show the difference a Newton is (g by a Kg), where $M_g$ units appear to be (m$g^2$ per Kg). $M_g$ is then multiplied by the attractive force of gravity calculated either through Newton's Law or General Relativity depending on how accurate of an answer you require. We will designate the attractive force as $F_N$. And we will designate the true force exerted upon the celestial body as F. Hence, the following formula to calculate true force exerted upon a celestial body is:

(8) $F = F_N - F_N M_g$

This formula will give a negative answer for gravity indicating that the gravity exerted is repulsive if the distance is less than that of equilibrium. Equilibrium distance designated by $D_E$ can be calculated with the following modification to the DG equation as follows:

(9) $D_E = \sqrt{\frac{k*(g_1 * g_1)}{1}}$

If $D_E$ is used as the distance for "r" in Newtons Gravitational Law, then the value for equilibrium is obtained where the positive force of positive gravity is exactly equal to the negative gravity. This value shall be called $F_E$ for equilibrium.

(10) $F_E = G\frac{m_1 * m_2}{{D_E}^2}$

## Simple Derivation

Here is a simple derivation showing why $M_g$ is a ratio that can be applied to $F_N$.

(11) $F_N = F_N$

(12) $F_N \times 1 = F_N \times 1$

(13) $F_N = F_N \times \frac{kg_1g_1}{kg_1g_1}$

(14) $F_N = F_N \times \frac{kg_1g_1}{\sqrt{kg_1g_1}^2}$

(15) $F_N = F_N \times \frac{kg_1g_1}{\sqrt{kg_1g_1/_1}^2}$

(16) $F_N = F_N \times \frac{kg_1g_1}{{D_E}^2}$

(17) $F_N = G\frac{m_1 * m_2}{r^2} \times \frac{kg_1g_1}{{D_E}^2}$

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ISSN 2788-8223 (Online)
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(18) $F_N = G\frac{m_1 * m_2}{{D_E}^2} \times \frac{kg_1 g_1}{r^2}$

(19) $F_N = F_E \times M_g$

(20) $M_g = \frac{F_N}{F_E}$

$M_g$ can now be seen for what it is, as a ratio of $F_N$ in relation to how far the system is out of equilibrium, and in which direction the unbalance lies. Hence, multiplying $F_N$ by $M_g$ calculates the force offsetting Newton's value of $F_N$.

Additionally, we will require one last equation to see the full picture of what is happening when celestial bodies orbit another. The formula for Centripetal force is:

(21) $F_C = \frac{m * v^2}{r}$

**Calculation**

Let us now use this knowledge and calculate the interactions between the Earth and the Moon.

**Table 1: Showing the Accepted Values Used For DG Equations and the Calculated Values between Moon and Earth**

| **Earth** | **Moon** |
|---|---|
| Mass: 5.9722E+24 Kg | Mass: 7.3477E+22 Kg |
| g: 9.807 m/$s^2$ | g: 1.62 m/$s^2$ |
| Distance: 3.84E+8 meters | Distance: 3.84E+8 meters |
| | Orbit speed: 1,022 m/s |
| **Calculated Values** | |
| $F_N$=1.98E+20 N | |
| $M_g$=1.596E-07 m$g^2$/Kg | |
| F=(1.98E+20)-(3.164E+13) N | |
| $D_E$=1.536E+5 meters | |
| $F_c$=1.999E+20 N | |

As you can clearly see the centripetal force is almost exactly equal to the $F_N$. With the amount of repulsive gravity of 3.164E+13 N, being just a fraction in this system of the attractive gravity of 1.98E+20 N. However, if the Moon where to wonder closer than the equilibrium distance of 1.536E+5 meters, then repulsive gravity will overwhelm the attractive gravity and net force exerted on the moon will actually be pushing the Moon away from the Earth. This is how gravity works and elliptical orbits are formed, through dynamic gravity interactions.

Let us solve for Dark Energy now that we have established the basic framework required. First though we must consider the equation for calculating Gravitational Acceleration g.

(22) $g = \frac{G * m}{r^2}$

Notice how the relationship between g and G is linear in the equation. For every order of magnitude you increase G, equates equally to g and vice versa. It is a poor choice to attempt to calculate the Dark Energy between the Milky Way and Andromeda, since Andromeda is blue shifted and hence traveling towards the Milky Way. However, making the assumption that the average galaxy

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ISSN 2788-8223 (Online)
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distance from its galactic neighbor is generally about as far away as Andromeda is from the Milky Way we can get an estimate of: how densely compact a Galactic Black Core is, how strong its gravitational field is, and how many Newtons of force are between the two galaxies if they were traveling away from each other according to DG math. But actually calculating the Dark Energy between galaxies receding from each other would be complicated as you would also have to calculate all adjacent galaxies to begin to get an accurate picture of all that is in motion. Plugging in the values for the Milky Way Supermassive Black Hole and Andromeda's Supermassive Black Hole will yield the following answers:

**Table 2: Showing the Accepted Values Used For DG Equations and the Calculated Values for Milky Way and Andromeda Core Black Holes**

| **Milky Way Core Black Hole** | **Andromeda Core Black Hole** |
|---|---|
| Mass: 8.6E+36 Kg | Mass: 1.99E+38 Kg |
| g: 3,986,040 m/$s^2$ | g: 4,500,000 m/$s^2$ |
| Distance: 2.40E+22 meters | Distance: 2.40E+22 meters |
| **Calculated Values** | |
| $F_N$=1.98E+20 N | |
| $M_g$=2.48E-22 m$g^2$/Kg | |
| F=(1.98E+20)-(4.91E-02) N | |

If we consider Galactic Supermassive Black Holes to operate by the same rules as normal celestials, you can see the contribution of Dark Energy is almost null in comparison. But as we mentioned earlier Super Celestials do not behave as normal matter. So, by augmenting the value of the Gravitational Constant G over 11 orders of magnitude to 6.6743, we now yield the answers of:

**Table 3: Showing the Accepted Values Used For DG Equations and the Calculated Values for Milky Way and Andromeda Core Black Holes**

| **Calculated** |
|---|
| g: 3.986E+17 m/$s^2$ (Milky Way Core Black Hole) |
| g: 4.5E+17 m/$s^2$ (Andromeda Core Black Hole) |
| $M_g$=2.478 m$g^2$/Kg |
| F=-2.93E+31 N |

Now using the math of Dynamic Gravity making no other assumption then then value of G is changed by 11 orders of magnitude from how DG predicts how matter behaves in the core of a Super Massive Black Hole. We can now calculate Dark Energy if Andromeda was indeed redshifted and traveling away from the Milky Way. With the true F=-2.93E+31 N, we see that as Super Celestials grow from feeding on ordinary celestial bodies, they emit positive gravity fields so powerful that they actually extend out to neighboring Super Celestials, hence exerting a pushing force between the objects driving the expansion of the Universe. This repulsive gravity force will mainly be felt between Super Massive Black Holes and not their stars in orbit around them. Hence, galaxies as a whole will be pushed further apart until equilibrium is met.

Now, let us calculate the effects of Dark Matter using the same parameters set forth for Dark Energy. The example given will use is the Sun orbiting around the Milky Way Galactic Black Hole:

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**Table 4: Showing the Accepted Values Used For DG Equations and the Calculated Values for Sun and Milky Way Core Black Hole**

| **Sun** | **Milky Way Core Black Hole** |
|---|---|
| Mass: 1.989E+30 Kg | Mass: 8.60E+36 Kg |
| g: 274 m/$s^2$ | g: 3.986E+17 m/$s^2$ |
| Distance: 2.46E+20 meters | Distance: 2.46E+20 meters |
| Orbit speed: 230,000 m/s | |
| **Calculated Values** | |
| $F(\boldsymbol{Normal\ G})$=1.887E+16 N | |
| $F(\boldsymbol{Modified\ G})$=1.887E+27 N | |
| $F_C$=4.28E+20 N | |
| $M_g$=1.115E-26 m$g^2$/Kg | |
| F=(1.887E+27)-(2.10E+1) N | |

As can clearly be seen, if we use normal G value then the amount of attractive gravity $F_N$, is only a fraction of the calculated centripetal force $F_C$. With $F_C$ being well over 4 orders of magnitude larger then $F_N$. You can see why the need for an invisible, and undetectable matter surrounding the entire galaxy is required to resolve General Relativity and Newtonian Gravity. But, by modifying the Gravitational Constant G, as Dynamic Gravity suspects it would be in the core of a Super Celestial. We have not only solved all problems apparently caused by Dark Energy, but also all problems solved all problems caused by Dark Matter. With modified G value of 6.6743 our new value for True Force F is now 1.887E+27 N, where the centripetal force $F_C$ only has a value of 4.28E+20 N. There is obviously much more attractive gravity pulling the Sun in orbit around the Supermassive Galactic Black Hole then is necessary to keep it in stable orbit. This is very good because the attractive gravitational force $F_N$ must still be strong enough to hold all stars in orbit around the Galactic Core, even the ones in the outer rim of the galaxy.

The question must be asked in the face of such numbers. If the Super Massive Galactic Black Hole is pulling on its stars that orbit it, with a force of 7 orders of magnitude larger then needed to maintain a stable orbit, then why does the star not fall towards the center of the galaxy? The answer is that Dynamic Gravity, is dynamic. Everything tends to fall into states of equilibrium all around the universe as it is the lowest energy state required. And as the Galactic Core pulls on its orbiting stars, the very stars themselves repel each other pushing back with their repulsive gravity until they are at a state of equilibrium. Think of the galaxy and stars in it, similar to a large bag holding many inflated beach balls which represent the stars contained within the galaxy, you cannot push on one ball without it pushing on other balls adjacent to it, and hence, then it pushes back on you. Dynamic Gravity demands that the stars have some sort of stability among themselves being spaced apart to a reasonable degree of equilibrium. And this is observed with as far as we can tell stars being 5-10 light years spread apart throughout not just our galaxy, but every galaxy observed. There are no galaxies where there are vast regions of voided space empty of stars without reason. Dynamic Gravity predicts this, but if you believe in General Relativity, you must accept that this is just a mere co-incidence, like the planets and moons in just the perfect orbital speed to remain in stable orbit. GR cannot explain why the universe is in equilibrium, but DG demands it.

## 2.0 CONCLUSION AND RECOMMENDATIONS

### Conclusion

Let us review this learned knowledge. According to Dynamic Gravity: we should be living in an expanding universe as it matures, where the speed of gravity is equal to the speed of light, nothing can travel faster than the speed of light in a gravity field, light has weight, orbiting objects will go in the same direction of a spinning anchor celestial, orbits will be elliptical, time dilation is caused by gravity, the universe is homogeneous, gravity will not exist on a quantum level, gravity and electromagnetic force have same falloff rate, planets and moons will be somewhat capaciously sorted with smaller bodies orbiting closer to its parent body, and finally celestial bodies will never under normal conditions collide. And we have calculated exactly what Dark Energy and Dark Matter are using the math of Dynamic Gravity, a feat that General Relativity can only dream of.

Make no mistake, the universe is observed to be exactly how Dynamic Gravity predicts in almost every way. Do not believe it if you wish, but do not blindly believe another theory that cannot offer as many answers as Dynamic Gravity can. Before understanding must come acceptance, of misconceptions discombobulated over time in regard to the subject of gravity. Gravity is one of the last great scientific frontiers, in that there is no cogent evidence to support any of the numerous theories explaining the mechanisms how gravity manifest itself. In the name of science, proceed cautiously and assume nothing is incontrovertible.

### Recommendations

Recommendations of the author are for astronomers to utilize the math of Dynamic Gravity to calculate both Dark Matter and Dark Energy within various galaxies. And find out how well the math of DG fits into all observations around the observable universe. If the math of DG can consistently calculate both Dark Energy and Dark Matter observations for galaxies, then it should be taken seriously as an upgrade to the math of General Relativity.

## REFERENCES

Chaisson, E., & McMillan, S. (1996). *Astronomy Today: Second Edition*. New Jersey: Prentice Hall, Inc. (Table 12.2)

Dai, D. C. (2021). *Variance of Newtonian constant from local gravitational acceleration measurements*. *Physical Review D*, *103*(6), 064059, arXiv:2103.11157 **[gr-qc]**

Einstein, A. (1920). *Relativity: The Special and General Theory*. Methuen & Co Ltd.

Kontorovich, A., & Lutsko, C. (2022). *Effective counting in sphere packings*. *arXiv preprint arXiv:2205.13004*, e-Print: arXiv:2205.13004 **[math.GT]**

Overduin, J. (2015). *Spacetime, Spin and Gravity Probe B*. Classical and

Quantum Gravity, *32*(22), 224003, e-Print: 1504.05774 [gr-qc]

*Two new ways to measure the gravitational constant*. Retrieved January 9, 2023, from https://phys.org/news/2018-08-ways-gravitationalconstant.html