A Tale of Two Physics

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It was the most explained of times...
It was the least explained of times.

In relativistic physics, gravity travels at a velocity of c...
In Newtonian physics, gravity travels at a velocity that is infinitely fast.

Using Relativity, all relativistic corrections are correctly predicted...
Using the very same relativity, the mass of galaxies is always understated by the mass relativistic "correction" by 5.6 times.

Instead of backtracking the error derived from a flawed interpretation of the r in Newton's law, dark matter was invented since it was the intuitive solution, invented as a Band-Aid to increase the apparent mass in the universe so as to match Hubble's, Zwicky's, and Rubin's observations which systemically exhibit 5.6 times the mass that relativity predicts.

![Figure 1. Milky Way Galactic Rotation Curve randomly pulled from Google images.](image-url)

Dark Matter was invented to explain this gap.
This begat a round of errors starting by misreading the nature of dark energy which then led physicists to grossly understate the age of the universe by linearly extrapolating the Hubble constant backwards from what we now know to be a curve that can exhibit accelerated acceleration as it does now.

This begat the non-mathematical \[4\] inflation theory as the "solution" to a problem that should have been a warning that physics was on the wrong track when the WMAP showed too much homogeneity for the universe to only be 13.8 billion years old.

Thus, begins another round of errors to explain more observations about observed objects that cannot exist in the young universe where they are seen, despite inflation. Super massive black holes for example, are observed but not explained in a 13.8-billion-year universe.

I should add to our tale of two physics, there is a world where planets follow the declining Kepler curve, and a world where stars in galaxies follow a rising plateau.

That is the world that we live in, where planets trace orbits as defined by Kepler, yet, instead and on average, stars’ velocities follow a rising plateau with velocities far faster than Kepler's curve and trace a shape that resembles, to my eye at least, a square root sign.
This is the right time to introduce an earlier paper which explains the core math principles quite well.

The Origins of Dark Matter, Dark Energy, and their Causal Linkage

Cover:
This paper offers an alternative explanation for Dark Matter, Dark Energy, and their unexpected causal linkage by creating an alternative version using a leg of Laplace's and Le Sage's Shadow theory. A geometric proof is derived that explains the origins of Dark Energy and Dark Matter, predicting both in amounts that agree with observed data. This leads to a different interpretation of $r$ in Newton's Law for orbiting masses.

This research affects multiple topics of which these five stand out:
1. Currently Dark Matter is considered a different type of matter than visible or ordinary.
2. There's no accepted explanation of Dark Energy.
3. There's no current proof of a linkage between Dark Energy and Dark Matter.
4. Mechanistic gravity is currently considered to travel infinitely fast.
5. The $r$ in Newton's Law seems inviolate.

Star formation from cloud collapse, black hole and the big bang theories are also affected in that we can compare more exactly the inward pull of all matter versus the outward pull resulting from Dark Energy's tangential acceleration vector, at various orbit velocities in a two-body analysis.
The Origins of Dark Matter, Dark Energy, and their Causal Linkage

Abstract:
Newton’s Law of universal gravitation provides that any two bodies in the universe attract each other with a force that is proportional to the product of their masses and inversely proportional to the square of the distance between them. However, in observed galactic rotation, gravitational forces are found to be larger than can be explained by visible or ordinary matter.

To address this apparent discrepancy, termed cosmology’s “missing mass” problem, Zwicky accommodates the 5.6-fold greater force observed than predicted, by postulating that a further invisible mass termed “Dark Matter” makes up the difference. *1

\[ F_g = \frac{(G) \cdot m_1 \cdot m_2}{r^2} \]

(1)

The following alternative approach works by instead manipulating the \( r \) in the denominator.

\[ F_g = (G) \cdot \frac{m_1 \cdot m_2}{(r')^2} \]

(2)

Looking at this concept through the lens of a revised shadow theory but without Fatio’s “ultramundane corpuscles”, we can see how the finite speed of gravity generates dark forces that dwarf Newton’s non-orbiting visible matter force in a specific ratio based on the velocity of gravity and the speed of the orbiting bodies.

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1 Zwicky was referring to baryonic matter—dust and such that emit no light so it could not be seen. Since the 60’s this non-luminescent matter is now considered to be non-baryonic as there is not enough baryonic or “visible” matter.
Introduction

There is a theoretical phenomenon that seems to pop up every century or so before quickly becoming discredited. In 1690, Nicolas Fatio de Duillier (1664-1753) was the first to record the concept and almost certainly shared it with his friend Sir Isaac Newton (1642-1727). It was eventually given the name “Shadow Theory” by the French mathematician Georges-Louis Le Sage (1676-1759) and examined with respect to orbits by French mathematician and astrophysicist Pierre-Simon Laplace (1749–1827). He was interested in proving the stability of the orbits, so he had to address the Shadow Theory, which predicts unstable orbits.

By studying historical records of lunar eclipses, Laplace looked at the lengthening of the moon’s cycle and concluded it was off by one arc second per century. He then used that number to calculate that the speed of the force of gravity must be seven million times the speed of light for the moon to stay in its one arc second per century-off orbit, if the Shadow Theory and eclipse records were right.

Modern relativistic physics has the speed of the gravity traveling at $c$, but “mechanistic” physics states gravity must be traveling infinitely fast or else all orbits would be unstable. At this point, we should take a quick look at this Shadow effect.
Figure 2. The Shadow Theory effect.

Two stars A and B orbit each other. B_{t_2} is directly across from A_{t_2} but because of the finite speed of gravity, is pulled toward where A was at time t_1, when the gravity was emitted. Current theory says mechanistic gravity travels infinitely fast; therefore, frictionless orbits are stable since the gravity from A_{t_2} hits B at t_2.
These gravitational forces point exactly toward each other if $V_Fg = \infty$. If $V_Fg < \infty$, a tangential acceleration vector results. In the original Shadow Theory as studied by Fatio, Le Sage, and Laplace, this was the only vector considered. The reduction of $r$ would be so small at high gravitational velocities as to be irrelevant and besides, the tangential acceleration vector was clearly impossible for orbits to be stable, so why look any further?
However, if gravity takes any amount of time to get from A to B, then there must be a difference between locations At₁ and At₂, meaning that there must arise a tangential acceleration vector increasing the star’s velocity, and subsequently its orbit radius, in frictionless orbiting systems. A larger $F_g$ results from a reduced $r$ or $r'$. 

The Shadow effect refers to the idea that each star chases the other’s shadow, or where it was rather than where it actually is.
To further digress, another way of looking at the speed of gravity and the speed of light is:

*The sun only wobbles a bit in its “orbit” around the earth, so the orbit is very small, the axis being inside the sun’s diameter and fairly close to the sun’s actual center of gravity - not what people think when they think about the sun moving across the sky. They equate amount of travel across the sky to a certain speed of light but the effect is exaggerated by the spinning of the earth making the sun’s location appear to change much more that it really does. Although not technically accurate, this exaggeration makes the idea of light and gravity taking time to travel more clear in many people’s minds. This delayed effect is sometimes referred to as aberration.*
In Figure 5, does gravity pull us towards \(At_1\) or \(At_2\), or somewhere in between? In the earth to sun’s case, the time it takes for light to reach the earth is a little over eight minutes. This means that the sun you see is not in the same location as where it really is. You see it where it was eight minutes previously because that’s how long it took for the sun’s light to arrive here - but how about the gravity? Are you pulled to where the sun is or where it was eight minutes early, or somewhere in between? Any time delay at all would cause instability of all frictionless orbits. Physicists and mathematicians have concluded during the intervening centuries that this Shadow effect must prove that in a mechanistic sense gravity travels infinitely fast. This was most recently studied in 1998 and it was reconfirmed that the Shadow effect is completely and irreparably discredited, best relegated to the dustbin of historical curiosities.

Coincidentally, and perhaps ironically, it was also in that same year astronomers discovered Dark Energy. It followed the 1930’s claim by Dutch astronomer Jan Oort (1900-1992) that there was too much gravity in the universe, confirmed by Vera Rubin (1928-present) at 5.6 times the expected amount.

Fritz Zwicky (1898-1974) speculated that to achieve this amount of gravity, there must be “Dark Matter”. Like Dread Pirate Roberts’ Iocane powder, Dark Matter is an odorless and tasteless invisible substance scattered about the universe in just the right amounts, adding the necessary gravity to hold it together. For neither Dark Matter nor Dark Energy is there external corroboration or triangulating evidence to affirm their existence beyond a shadow (ahem) of doubt. Their effect reveals that visible or ordinary matter makes up only 5% of the universe, Dark Matter 27%, and Dark Energy 68%, with physicists in debate as to where Dark Matter and Dark Energy come from, and indeed what they actually are.
A Geometric Proof

Our stars $A$ and $B$ are in their usual orbit but $B$ is feeling 5.6 times as much pull towards $A$ as $B$ should. Zwicky approached this problem by considering Newton’s Law:

$$F_g = (G) \frac{m_1 m_2}{r^2}$$

(3)

On the one hand, theorizing Dark Matter provides the most straightforward approach since, intuitively, more mass yields more gravity, so if one or a mix of masses are increased 5.6 times, there will be an increased gravitational pull of 5.6 times $F_{expected}$ satisfying both the gravitational evidence and Newton’s Law.

On the other hand, there is another way:

instead of increasing the mass product $(m_1 * m_2)$ to get

$$\ (5.6 \ * \ F_{expected})$$

as Zwicky did,

(4)

it is also possible to decrease the $r$ in Newton’s Law to get the same

$$\ (5.6 \ * \ F_{expected})$$

(5)
Figure 6. $r$ and $r'$. 

As you see from Newton’s Law, decreasing $r$ increases $F_g$

Or \[ F_g' = 5.6 F_g \text{ when } r' = r/\sqrt{5.6} \]

(6)

So by reducing $r$ to $r'$

\[ r' = r/\sqrt{5.6} \text{ or } 0.423 \times r \]

(7)

As will be shown, by using $r'$ in Newton’s Law, we can see where both the effects ascribed to Dark Energy and Dark Matter come from, without need of such hypotheses.

But how can the distance between $A$ and $B$ be $r'$ when astronomers assure us that they are at a real distance of $r$?
Swing $r'$ to meet A's orbit. There are two points on A's orbit when it is at a distance of the exactly $r'$ from B. If you swing the $r'$ from Bt$_2$, you see the two intersections with A's orbit.

The only one that is logical is the At$_1$ point ahead of Bt$_2$. This is the only spot that is at the right distance to emit the “correct” gravity of $F_g'$ that is also on A's orbit path.

$$5.6 \ F_{\text{expected}} = F_{g'}, \text{ when } r = r'$$
This spot $A_{t_1}$, is the only place that $A$ could have been when it emitted the correct amount of gravity.

\[ \text{Figure 8. Breakdown of gravity's force between } A_{t_1} \text{ and } B_{t_2}. \]

If we look at this gravitational force vector, it is pointed at an unexpected $65^\circ$ off of where it should be if indeed gravity does travel infinitely fast. The angle is expected to be a $0^\circ$ and $V_F g$ is expected to equal $\infty$ resulting in stable orbits.

This means that $A_{t_1}$ was at an angle of $65^\circ$ pulling $B_{t_2}$ in and forward at a $65^\circ$ angle instead of the expected $0^\circ$ angle. This shows the effect of the revised Shadow Theory. The visible matter force grows in addition to a Dark Energy component forming as the angle $\theta$ increases. At $\theta = 65^\circ$, the net gravitation can be broken down into $\sin(65) \times r'$ and $\cos(65) \times r'$.

The radial inward energy as a percent of the total is:

\[ \frac{\cos(\theta)}{\cos(\theta) + \sin(\theta)} = 32\% \text{ of all gravitational energy} \]
The gross tangential energy component being added is

\[
\frac{\sin(\theta)}{\cos(\theta) + \sin(\theta)} = 68\% \text{ of all gravitational energy}
\]

Thus, this rethinking of Shadow Theory obviates the need to postulate a distinct source of either Dark Matter or Dark Energy. The tangential acceleration vector can be relabeled Dark Energy. The inward pulling vector can now be relabeled “All Matter”. There really is no Dark Matter other than the effect, which is actually caused by the Shadow Theory prediction resulting from non-infinitely fast \( V_u \). The empirical predictions Dark Matter and Dark Energy were invented to satisfy are, in this conceptualization, the natural consequence of the calculated non-infinitely fast \( V_{fg} \). The predicted result matches astronomers’ empirical results by using the corrected Shadow Theory which takes into the account the slowness of gravity and expands the gravitational pull of orbiting objects by significantly decreasing their \( r \) to \( r' \) and correcting the angle \( \theta \) at which they are pulled by arriving gravity.

9. Relabeled axes of Figure 7.
Because of the effect of geometry of the galaxy on any single star, a simple two-body analysis does not enable a direct $Vf_g$ calculation.
The steps taken above are on the Figure 10:

**A Geometric Look at the Causal Link Between the Abberation of Gravity, Dark Energy, and the Effects of Dark Matter.**

Astronomers have known for almost 100 years that galaxies exhibit 5.6 times the gravitational force Newton’s law would predict.

Newton’s law of gravity says that for orbiting masses A and B:

\[ F_g = \frac{M_1 \times M_2}{r^2} \]

Dark Matter is called “non-baryonic matter”, and was invented to add more mass to the numerator of Newton’s law to bring the gravity to 5.6, matching observations.

Instead of adding more (dark) matter here, there is another way.

Assigning a finite speed to gravity, reduces \( r \) to some \( r' \) by shortening the distance that gravity travels between orbiting masses.

\[ \theta = 65' \]

Swing \( r' \) to find the spot \( A1 \) on the orbit path.

\[ \cos(\theta) / (\sin(\theta) + \cos(\theta)) \]

\[ \sin(\theta) / (\sin(\theta) + \cos(\theta)) \]

At \( \theta = 65 \), the red tangential acceleration vector is 68% of the Net Gravity. The red line represents the tangential acceleration force that must arise between orbiting objects when gravity travels any finite speed other than infinity. As with dark energy, this is an outward forcing vector.

**Observed values in galaxies (NASA)**

- Dark + visible matter: 32%
- Dark Energy: 68%

**Figure 10. Proof Results.**
Conclusion:

This revised Shadow Theory addresses the empirical observation that the gravitational force is 5.6x as great as predicted. Rather than solving this by postulating increased mass via Dark Matter, it explores what would take place if the denominator of Newton’s Law were instead reduced, making a smaller r through a re-envisioning of Shadow Theory by which a finite speed of gravity causes the gravitational pull of a body at the “opposite” point in the orbit to be exerted from a prior location of that body. The resulting prediction obviates the need to invent the concept of Dark Matter and predicts Dark Energy in amounts matching the observations of astronomers.

A total inward pulling force which is 5.6 times larger than the predicted visible mass inward pull indicates that gravity arrives at the orbiting partner at an angle of 65° in the galaxies we see. This is greater than the expected zero degrees that we would see if gravity traveled infinitely fast or they were orbiting at zero velocity.

Dark Energy represents the tangential acceleration vector component of the total gravitational force between orbiting masses. The inward pulling vector represents what people refer to as the sum of Dark Matter and visible matter. This is due to a smaller r’ and not to any matter that is ‘dark’. Due to the finite speed of gravity, or rather the slowness of gravity, Dark Matter and Dark Energy appear in a specific ratio based on the angle at which gravity arrives.

The most important conclusion we can draw from this is that Newton’s “Universal” Law of Gravity is only a specific case of gravity, applicable to non-orbiting objects like we see in our everyday life on earth. The proper universal or general law of gravity should be thus:
Universal or General Law of Gravity:

\[ F_g = (G) \frac{m_1 m_2}{(r')^2} \]  

(11)

The force of gravity \( F_g \), is equal to a constant \( G \), multiplied by the product of the two masses \( m_1 m_2 \), whose mutual gravity is being measured, all divided by the distance \( r' \) that each gravitationally perceives the other to be, squared.

In Newton’s case, he is correct if:

1. Gravity travels infinitely fast (the current physics paradigm)

or

2. The masses rotational velocity is zero and they are not rotating about each other

This more comprehensive Law of Gravity both predicts and explains the hitherto unexplained empirical evidence of Dark Matter and Dark Energy provided to us by our hard-working astronomers. The difference between Newton’s Law and this General Law of Gravity can range from zero in the case of non-orbiting bodies, to substantial amounts in the case of masses orbiting near the speed of light. Since all galaxies and perhaps the entire universe are in an orbit of one kind or another, this more comprehensive law applies to free-floating bodies in space. Bodies “orbiting” at a zero-rotational velocity or not undergoing acceleration will obey Newton’s specific law of gravity and generate neither Dark Energy nor the extra gravity that is currently defined as coming from Dark Matter. Although our calculated \( \theta = 65^\circ \) seems anti-intuitive, it is easy to forget that even this finite speed of gravity creates minuscule dark forces that are only noticeable at high rotation velocities.
One of the things that made this puzzle hard to solve was that $r$ seems to be inviolate, a constant and not subject to manipulation. By using $r = \text{diameter of orbit}$, gravity was assumed to be instant at all distances. However, using $r'$ allows for a velocity of gravity that is less than infinitely fast.

Secondly, after using $r'$, gravity between orbiting bodies is then predicted to come in from a $65^\circ$ angle, far off from the expected zero degrees.

After making these two unobvious assumptions and plowing ahead with the discredited Shadow Theory, the proportions of visible matter, Dark Matter and Dark Energy in the universe can be calculated.

This gravitational effect is caused by the slow speed of gravity[3] between all rotating and orbiting masses. All spinning mass systems are affected from large to small, from orbits on a universal scale to atoms and their constituents, and everything in between.

Although dark force vectors look large on paper, they are directly related to the visible matter vector. So, it is well worth remembering that the visible matter and its dark gravitational forces, at any significant distance — let alone at a distance of 100 million light years between orbiting masses, is going to be breathtakingly small — so if you don’t feel 5.6 times as heavy as you think you should after reading this paper, that’s OK.
Kepler’s Curve

Tests and time make dark matter, as a viable explanation, less likely each passing year. It is the hope of this theory to eliminate it as a logical candidate altogether as an explanation for the extra 5.6 gravity in galaxies, by introducing a 'relatonian' view that as a side benefit of calculations that match relativity's in height, length, and time dilatation, correct the understated 5.6 times gravity in galaxies, and allow an easier visualization of the growth of dimensions at high relative speeds instead of the generally more opaque relativistic “corrections.”

Planets follow a specific curve decreasing in velocity as their orbit radius increases.

Figure 11. Planets on Kepler curve.
The stars however, follow a distinctly different curve, showing much higher velocity than would be possible on the expected Kepler curve. This gap is precisely the reason that “Dark Matter” was conceptualized.

Kepler's curve is derived by logically setting the centrifugal force equal to the gravitational inward pull as measured by Newton's Law.

\[
\frac{v^2}{r} = \frac{m_1 m_2}{r^2}
\]

(12)

This yields the asymptotically declining curve,

\[
V = \frac{1}{\sqrt{r}}
\]

(13)
However, if we decrease the $r$ to the reduced $r'$ from the aberration of gravity stemming from orbital speed, then the inward pull changes with orbital speed.

The net inward pull, written in terms of the angle theta at which the gravitational pulls across a chord of the orbit and which changes with orbital speed looks like this when one sets centrifugal force equal to Newton's law (which is only correct at an orbital velocity of zero). This is obtained in this manner:

Calculating the orbital geometry...
Figure 13. Diagram Showing Vector Corrections
Beginning now with the corrected dark matter and dark energy equations, one can derive a Kepler curve corrected for a reduced r or r' to compare with actual observations of stars. Note they follow a uniquely shaped galactic rotation curve. The curve generated by replacing Kepler’s law with inward pull written as a function of theta, shows an identical shape to observations, predicting a dip followed by a rising plateau.

\[ \frac{V_{orb}}{V_{fg}} \]

\[ \theta^\circ \]

Figure 14. Kepler’s Curve as a function of \( \theta \).

In this graph, \( r \) is in terms of \( \theta \) on a solid black velocity line, uncorrected for a linear x-axis.
In the following modified Kepler curve, the x-axis has been converted to linear distance.

Figure 15. Kepler’s Curve and Kepler’s curve modified for a $Vfg < \infty$ with linear x axis.
Figure 16. Milky Way Galactic Rotation Curve randomly pulled from Google images.

Dark Matter was invented to explain this gap.
To label the y-axis of Figure 15, $Vfg$ must be calculated.

Although, there is a math proof using regression [1] another and predicting $Vfg << c$ using calculus [2] that was derived to solve the flyby anomaly by Joe Hafele, there is a more fun demonstration that we can do in our heads to calculate the speed of gravity.

From observations, we know that the largest galactic structures appear to top out at around 5 MPC in diameter.

We also know that the Hubble constant measures at around 70 KPS/MPC

$$70\text{KPS/MPC} \times 5\text{KPS} = 350\text{KPS}$$

(14)

Multiplying these together gives a speed of separation which would explain the lack of larger orbits found because at around the distance of 5mpc, on average, the gravity between them can never overcome their separation speed.

This is of course analogous to the Hubble sphere where stars blink out at a distance of about 14 billion years, as their photons can no longer overcome separation speeds, but with the added advantage that we are able to literally view what happens at the actual moment of gravitational disconnection in galactic clusters.

Ignoring the paucity of significant digits, we can at least get a label on the y axis of the graph where velocity was only indicated in terms of the constant $Vfg$.

This modified Kepler curve predicted the square root sign shape that also predicts a rising plateau in the 250 KPS range far above the unmodified Kepler curve where the stars aren’t.

This concept makes the need for the (unproven) existence of non-baryonic solutions, completely redundant, along with inflation.
Visualizing relativistic corrections is possible using our geometry and a finite $V fg$.

1. Imagine two rulers $A$ and $B$, in orbit about each other.

2. Assume light travels at a constant speed.

3. Due to aberration, the $B$ ruler sees $A$ where $A$ was, rather than where it is.

4. The faster the orbit, the closer each ruler appears from the point of view of the other.

5. If gravity is infinite, there is no aberration and the opposing ruler is exactly where it appears.

6. However, with aberration actually existing, at the resulting closer distance from aberration, the opposing ruler would appear to be both longer and wider as it begins to appear closer and cover more and more of the field of view. Imagine eyeballing the length of the ruler if it is a millimeter from your nose when you think it is at the farther full diameter distance of say, a football field. It is going to appear and therefore measure to be much larger than it was at $V orb = 0$. This is directly linked to their relative velocity with $r'$.

7. The larger appearing ruler would appear to grow and be larger than it really is if $r$ was not reduced for aberration although which is what actually happens, hence the required necessary relativistic corrections.

8. However, aside from ‘Newtonially’ explaining relativistic corrections in size, can it explain the accompanying time dilation? Yes.
9. **Time Dilation:**
   a. Imagine a clock measuring a light beam traversing the opposing orbiting ruler.
   b. The ruler will appear longer due to the aberration of light.
   c. If one does not account for the reduced $r$ produced by aberration, the distance light travels would appear to be larger to the other ruler. Imagine measuring the other ruler with a protractor when it is practically touching your nose while knowing it is really much farther away on the orbit diameter. This growth of dimensions increases with higher relative velocities.
   d. This "longer" ruler would show time dilation as the light beam, traveling at a constant speed of $c$, takes longer to traverse the ruler.

10. As orbit speeds approach $c$ and angle theta goes to 90 degrees, the apparent size of the opposing ruler grows to be infinitely large as they appear to get close to touching while in real time they are still a diameter apart.

11. Relativistic corrections happen automatically in Newtonian or “Relatonian” physics when the aberration of light is admitted to.

Another thing that this method of calculations does, is to compute and therefore explain relativity in a much more understandable way. Note that our orbital math using a variable $r'$, depends on the relative speed between masses A and B, shown in terms of theta which represents the arrival angle of gravity.

While we can see that the using a speed of gravity in the 350 KPS range will lead to predictions matching observations, it is worth noting that the same Newtonian calculations will predict the same relativistic corrections as Einstein's if the value of $c$ is used for the speed of the arriving visual information concerning height, width and time dilation, and the maximum orbit speed is set to $V_{orb} = c$. 
By using a $Vf_{g}$ of about 350 KPS as the constant speed of gravity for gravity calculations, the extra 5.6 gravity in galaxies is explained. Corrections where the information arrives via light, height, width, and time are no longer needed as the measurements now must directly show a growth in dimensions due to higher orbital speeds that match relativistic predictions.
Ramifications

1. Dark matter is an effect caused by a reduced distance gravity has to travel between orbiting masses when $Vfg < \infty$.

2. Stars’ rotational speeds follow a curve defined by modifying Kepler's curve to allow for gravity to travel at a finite speed thus obviating the need to have non-baryonic “Dark Matter.”

![Figure 17. Modified Kepler Curve](image)

3. Gravity travels surprisingly slowly - almost 1000 times slower than the speed of light, creating enough aberration to explain 5.6 times extra gravity.

4. At this same speed, an outward forcing vector is created that matches what astronomers call "dark energy", both in quantity and direction.

5. This dark energy rotation curve predicts a universe that is far older than currently thought, going back to some initial conditions start. All the effects (such as the WMAP and the (too) early super-massive black holes) we see point to a far older universe. The
longest possible age could be traced back to some initial conditions start, perhaps as far back to the vacuum energy of space. (If that exists.) This would be a lot of zeros or as some people like to call it deep time.

Distance from Axis

Figure 18. Dark Energy Rotation Curve

6. The Dark Energy rotation curve indicates while a big freeze is in the future of any friction less orbiting system. New orbits are being started all the time, each looking to follow its own universal development curve powered by dark energy. A sort of a cosmological constant with a split personality.

7. The math used to describe the dilation of gravity in general relativity is flawed because it assumes gravity travels at c. This error predicts 5.6 times too much mass is needed to explain the high speeds of galactic rotation curves.
8. Gravity, a force, has its own speed constant, like light's c. Treating the information flow of visual information as the same as the gravitational information arriving via force at $Vf_{\text{g}}$, is what creates the "dark" matter gap. Allowing for a separate distinct speed for a distinctly different nature of information flow, cleanly explaining all the missing mass that cosmologists seek.

9. The idea of measurement dilation at relative velocities is clearly explained in a superior way with our geometry by allowing a visualizable working model.

10. Using $r'$ is internally consistent at all speeds, not needing two distinct "physics" for high and low velocities, not needing the relativistic "correction" which caused the dark matter correction which along with mischaracterizing dark energy, needed the inflation correction.

Figure 19. ‘Relatonian’ Math
11. In 2012, the Chandra telescope observed the aftermath of two galaxies clusters colliding. It is thought that Dark Matter was left in the middle area between the collisions as they now separate. This is actually a consequence of the now (post collision) faster rotation speeds of what’s left of each galaxy vis a vis the other.

12. The velocity increasing with the radius leads to the bars on the barred spiral galaxies instead of the perfect spiral which would be predicted by a $V_{fg} = \infty$.

13. Super massive black holes are more evidence that the age of the universe is far older as our math say it can be.
Cited References:


Red Dark Energy Rotation Curve
Purple Dots Kepler Curve
Black Dot Kepler Curve modified

for $V_f g = \text{Finite Speed}$