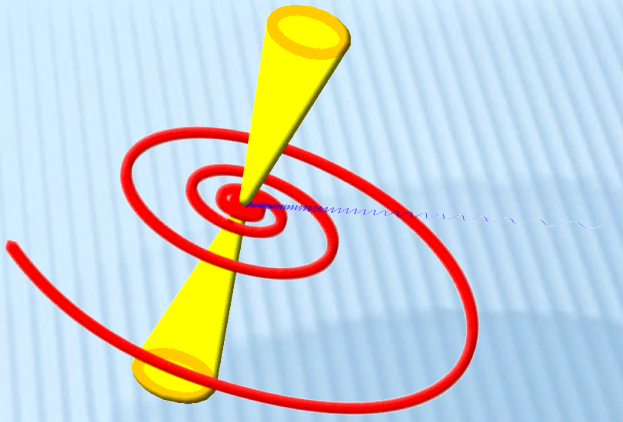

STAR SYSTEMS ARE ATOMS

GPRA Project
Robert L. DeMelo

REALITIVISTIC RELATIVITY

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ABSTRACT

- This work introduces an alternative theoretical framework to Einstein's Special Relativity Theory.
- It is a velocity dependent relativity theory similar in respect to Einstein's theory with regards length contraction, but significantly different in all other respects.
- It includes size scaling dependent on velocity and a Universal static frame of reference
- It details that star and atomic systems are the same thing at two different points on the velocity spectrum, where star systems exist at low velocities and atomic systems exist at high velocities near and at the speed of light, and that our Solar System is a celestial Beryllium atom.
- The mathematical observations in this work have been very interesting.
- These observations show that mass and charge are the same thing at two different points on the velocity spectrum, that gas-giant planets in the outer system have a direct scale relationship to electrons, that rock planets in the inner system are directly related to neutrons, that the star itself is related to protons and that asteroids are related to photons.
- This work maps celestial objects to quantum objects

INTRODUCTION

- I have always been fascinated with Neil Bohr's analogy between star and atomic systems from a very young age.
- Bohr, a very intelligent man, must have seen obvious common characteristics between the two systems to make such an analogy.
- Over 20 years ago, I thought that Einstein's length contraction had a connection to Bohr's analogy.
- 15 years ago, while studying engineering and learning much more physics, I realized that Einstein's mass & time dilation equation (SRT) contradicted my infant belief that length contraction was related to Bohr's analogy.

INTRODUCTION

- But I never could shake the idea as I continued my studies.
- Until the official demotion of Pluto on Aug 24, 2006.
- Pluto's demotion sparked insight into the number 4 in our Solar System; 4 rock planets (inner system) and 4 gas-giant planets (outer system).
- Speculated that ***4 was related to the atomic number of our system, which equated to a Beryllium atom.***
- In 2007, derived a scale value (S) between the two systems which further derived Jupiter's mass to an electron's charge. ***I was onto something***.

INTRODUCTION

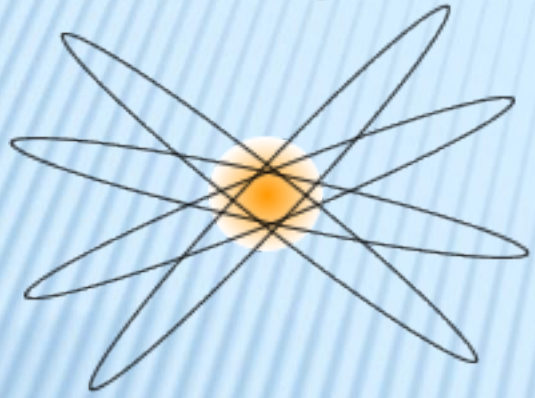
- In late 2007, wrote a book titled '***The General Principles of Reality A***' containing all my ideas and shared it freely. The versioning letter 'A' means Alpha.
- Also in 2007, wrote a paper titled '***Realitivistic Relativity***' focusing on my scaling theory.
- The following is a continuation of this initial work, with ***some very interesting results***, proving that old ideas die hard.
- It is written to be as informative and entertaining as possible. Please enjoy and share it with friends and colleagues.

THEORETICAL PREMISE

- There are obvious similarities between star and atomic systems
- The two systems are the only two natural systems to have quantifiable objects circulating around a large core
- Star system objects travel much slower than the speed of light while atomic system objects travel near or at the speed of light
- If star and atomic systems are more than just remotely similar, then properties and characteristics held by atoms could be superimposed onto star systems and vice-versa
- One obvious property is the atomic number defined partially by the electron count
- Electrons form the outer body of the atom, as gas-giant planets form the outer body of our star system and that of many others. Is there a link between electrons and gas-giants?
- If the two systems and their objects are relative to each other, then one obvious link between the two systems is through scale

ARE STAR SYSTEMS ATOMS?

Atomic System

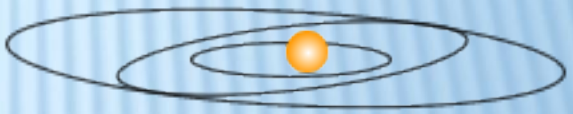


velocity ≈ *speed of light (c)*

?

=

Star System

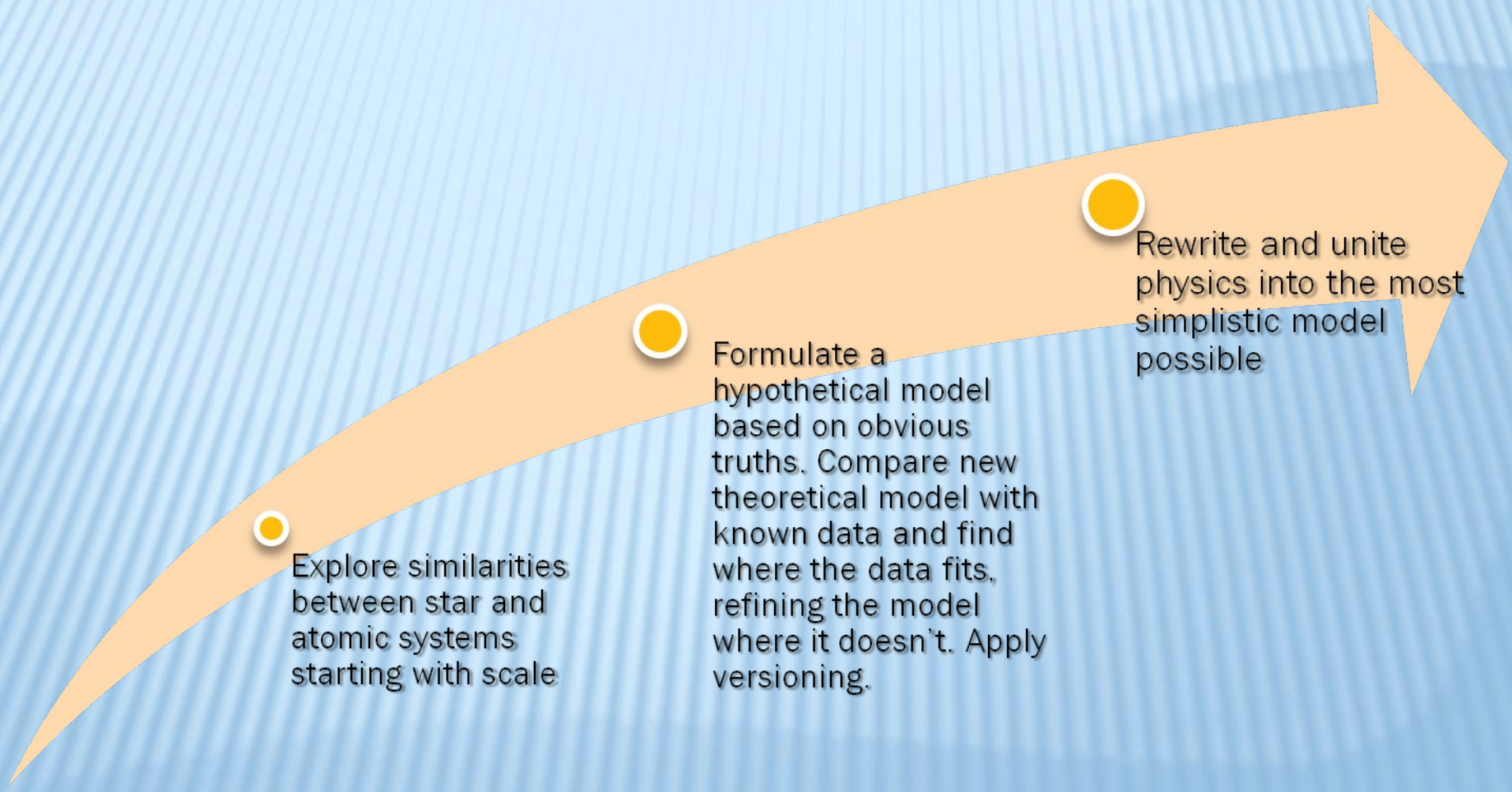


velocity ≈ *square root of the speed of light (c)*

GPRA PROJECT

- Acronym project title of my research stands for the "General Principles of Reality Alpha"
- The project is to determine obvious and ambiguous truths in nature, to explore them and link them
- Analyze known empirical experiments and data from every conceivable/inconceivable angle to determine if they are truly thorough and complete
- Determine if physical interpretations and definitions can be defined differently from different perspectives
- Re-construct a new physical model of nature based on this reexamination
- Make this new physical model simple and avoid complexity at all costs
- Program a computerized virtual environment based on this model

GPRA PROJECT GOALS



GPRA PREMISE OF ANALYSIS

Perspective

- Start from a fundamental point of perspective
- Consider the very obvious classical facts and theory such as Newtonian physics as most correct while all other theories/interpretations are ignored
- Consider experimental data independent of interpretation

Progressive

- Only after truly exhaustive attempts to verify non-verified predictions through any conceivable, plausible and, most importantly, inconceivable means, that the initial hypothetical framework must change

Simple

- Keep it simple
- Start from the very obvious and attempt to avoid assumed or imaginary theoretical complexities
- Define new concepts simplistically so everyone or the majority can understand

FORWARD SUMMARY OF OBSERVATIONS

Mass-Charge Equivalence

- Same thing existing in two different space-time densities
- Experienced differently due to large difference in velocity
- Electric and gravity force are the same thing

Gravity Attracts and Repels

- Strength of force is based in mass-density ratio
- Wave theory defines the character of this force

Quantum to Celestial Object Equivalence

- Same thing separated in two different space-time densities
- Space-time density on the object is directly proportional to velocity of the object in the surrounding space

ACTUALITY VS. HUMAN INTERPRETATION

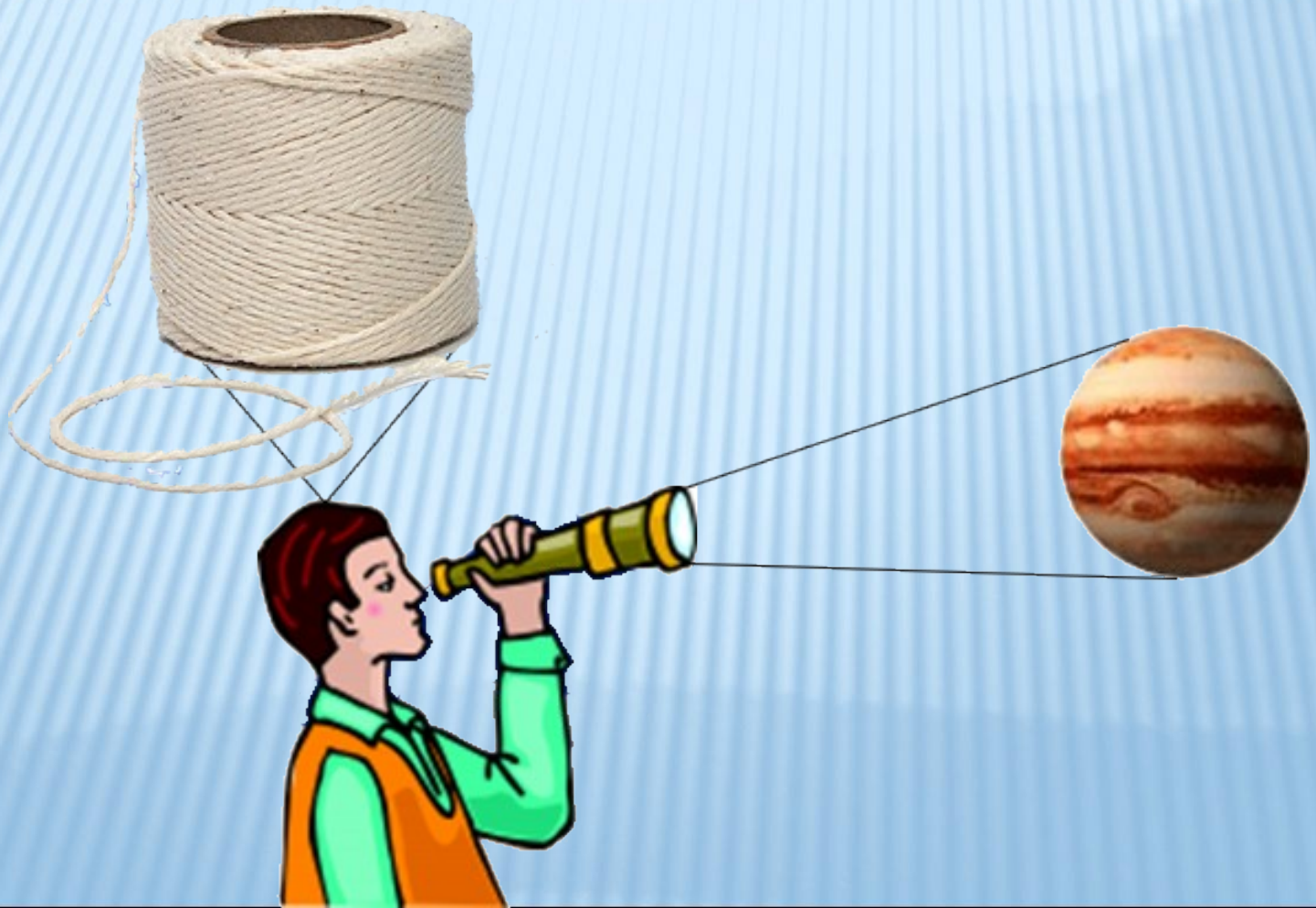
- Actuality refers to actual physical context and the very obvious truths and observations of nature
- The human interpretation of observational data has always taken on an imaginary element due to what remains unknown
- More recently there is a the stringent belief that mathematics is infallible when interpreting data
- In actuality, mathematics can be just as imaginary as the human mind depending on its context on which it is again defined by the human
- “I have 3 pink elephants. The math is right, but the context is imaginary.”

ACTUALITY VS HUMAN INTERPRETATION

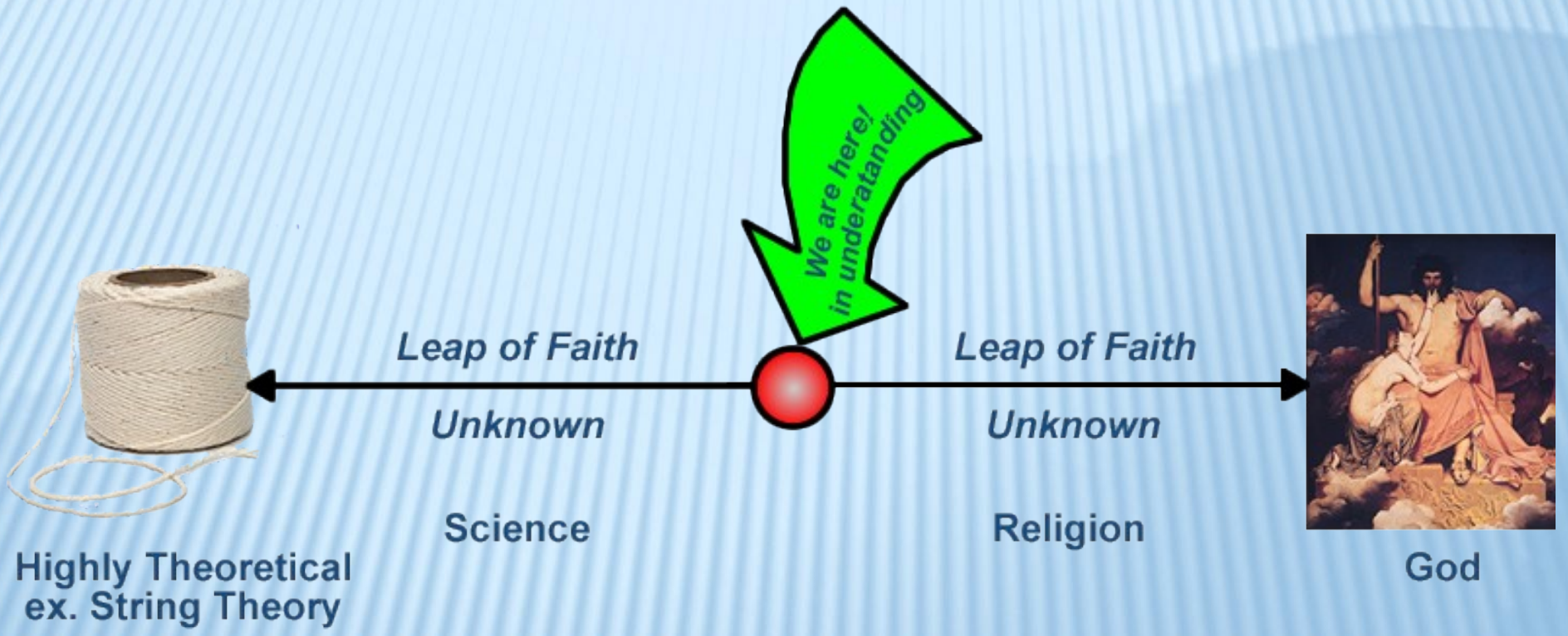
Some see gods

ACTUALITY VS HUMAN INTERPRETATION

Others see strings



ACTUALITY VS. HUMAN INTERPRETATION



From our point of understanding, currently neither can be proven absolutely wrong and very logical arguments can be made for both. The very obvious is that both exist between large areas of unknown which begs a very fundamental question…

GOING BACK TO THE DRAWING BOARD

In order to see the obvious and see it clearly
we have to go back to the beginning and
ask some very simple questions

WHAT DO WE REALLY KNOW?

QUESTIONS NEVER TRULY ANSWERED

- What really is space?
- What really is time?
- What really are atoms?
- What really are quantum particles?
- What really is light?
- All that amounts to what really is matter?
- And what really is life? How does it arise and work?
- What we really know are that all these ***unknown things*** are connected and defined ***somewhat*** in the framework of modern science

WHAT IS REAL?

- Something tangible, easily seen and understood
- Atoms are somewhat tangible but not easily seen up close as we would see a rock in our hand and due to that it is not fully understood leaving lots of room for misinterpretation of data
- Quantum particles are not fully tangible and have ***never*** been seen up close because our instrumentation still lacks the ability to truly do so

TWO ASSUMPTIONS

1. Space and time are infinitely homogenous
2. The Universe is infinitely big

INFINITELY HOMOGENOUS

- Something that is infinitely homogenous means that it is uniform at any scale, infinitely divisible, which also means scale is invariant
- By using a very powerful instrument, similar to a telescope, to see a finite piece of space extremely up close, space will still have a 3D characteristic no matter how small the space being analyzed is
- Even if there are fluctuations in this analyzed space, the 3D characteristic of space is still needed to see those fluctuations therefore it remains homogenous

SPACE-TIME ζ

- It's obvious that space and time define each other
- One cannot be measured without the other
- In actuality, space and time are not separate
- Space-time is a singular "thing" and inseparable
- All objects in the Universe are comprised of space such as a rock and all its atoms
- There is space between atoms and between quantum particles
- Space is infinitely homogenous, therefore so is time

UNIVERSAL STATIC FRAME OF REFERENCE

REFINING THE RELATIVITY PERSPECTIVE

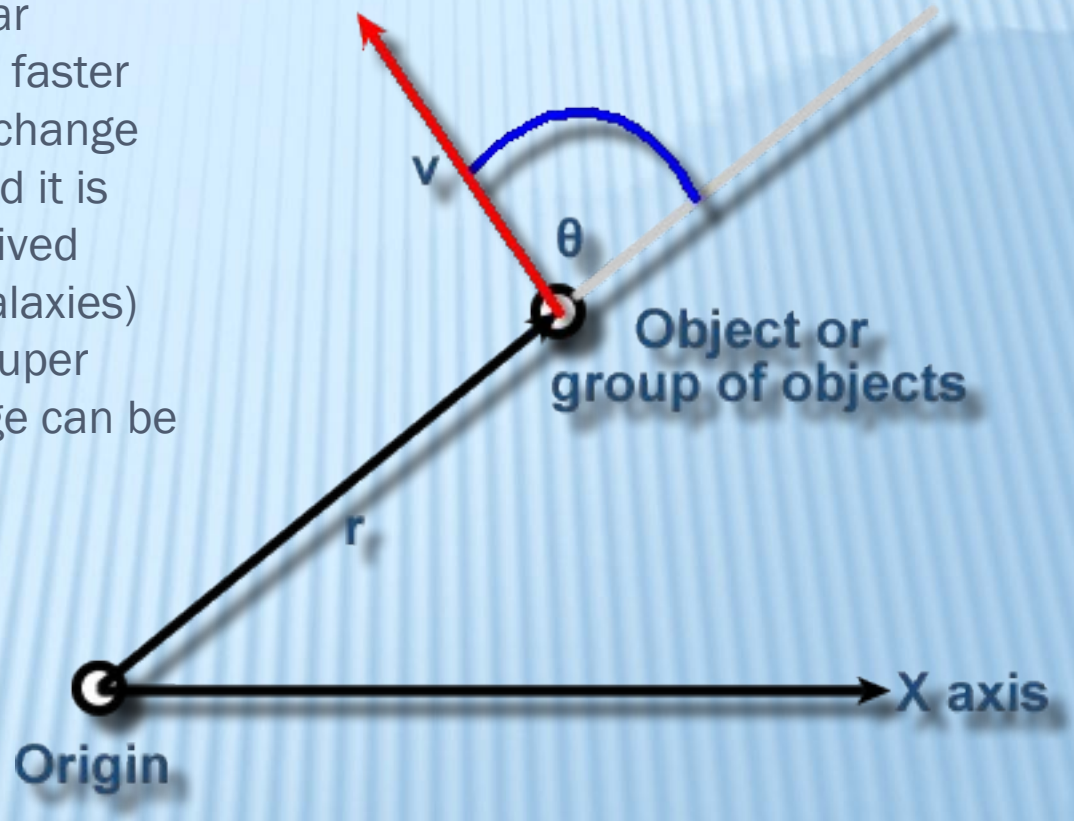
- 2 objects traveling relative in opposite directions, display relative velocities (v1=v2) if the two objects only reference each other
- 2 objects traveling relative in opposite directions but seen from a 3rd position, frame of reference, object 1 and object 2 are possibly not traveling at the same velocity
- If this 3rd frame of reference is the surrounding Universe, which is essentially static from our perspective (the larger the containing reference becomes), object 1 and object 2 are possibly not traveling at the same velocity in reference to this Universal reference
- In *actuality*, all objects traveling within the Universe reference this Universal static frame of reference by which all relative measurements (and positioning) are obtained
- The larger the celestial object, such as galaxy clusters, the more static they are in reference to smaller objects

UNIVERSAL STATIC FRAME OF REFERENCE

A static Universal frame of reference exists at an infinitely large scale all around us because the Universe exists all around us seemingly unchanged during our life time. For example the Big Dipper has existed virtually unchanged for thousands of years, well beyond our lifetimes, but the Earth goes around the Sun about 75 times over the course of an average lifetime.

UNIVERSAL STATIC FRAME OF REFERENCE

Planets change faster than star systems, star systems change faster than entire galaxies, galaxies change faster than galaxy clusters, and it is deduced that our entire perceived Universe (a super cluster of galaxies) changes faster than a super-super cluster of galaxies. The change can be measured in angular velocity.



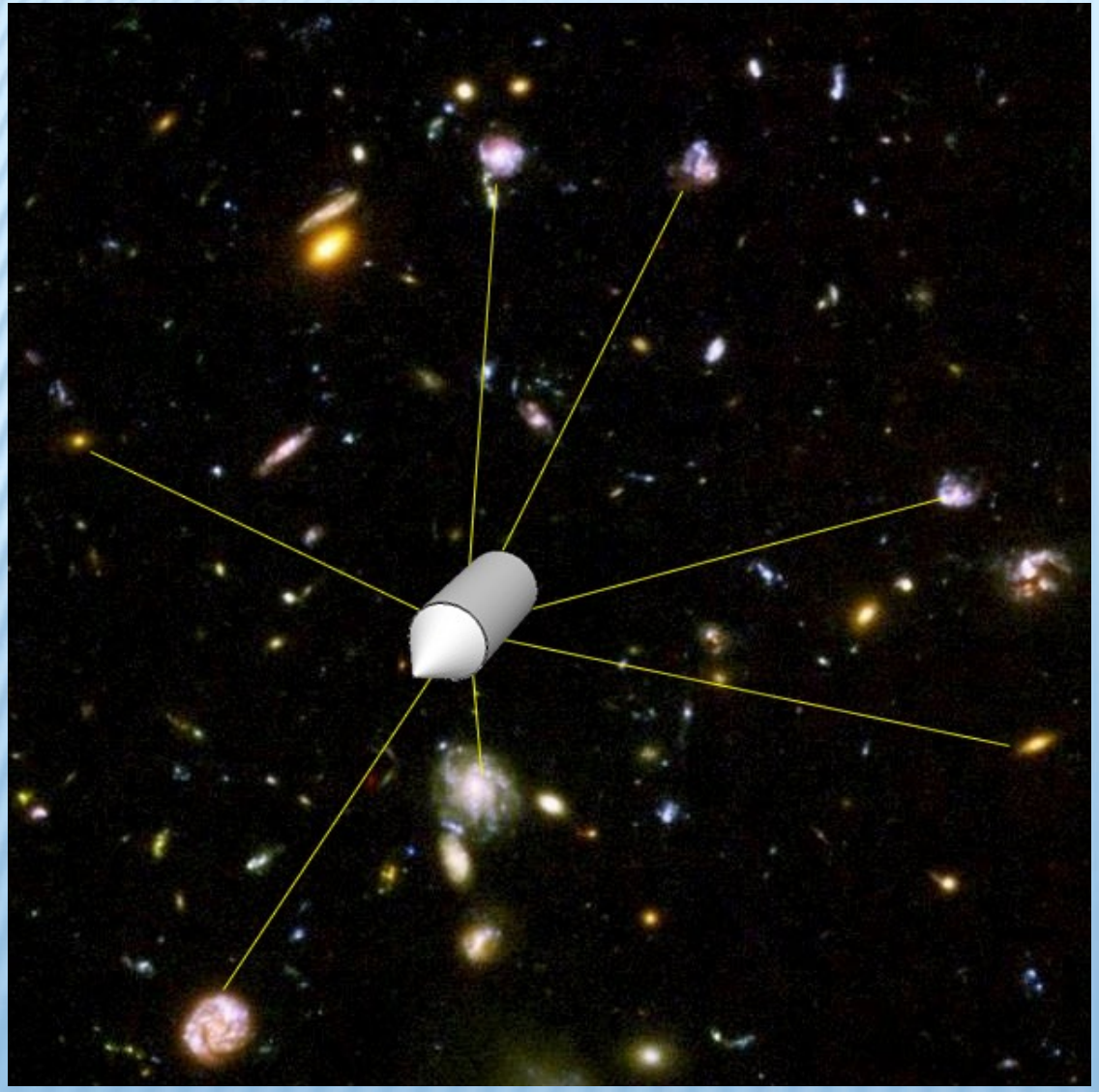
$$\omega = \frac{|v| sin(\theta)}{r}$$

As the distance (r) increases approaching infinity (∞), angular velocity (ω) approaches zero (0) while the object's velocity (v) remains finite and constant

UNIVERSAL STATIC FRAME OF REFERENCE

- The larger the scale of the system, the slower motion is for the entire system in relation to smaller scaled systems. This implies, because it's impossible to measure, that at an infinitely large scale sized system, the whole Universe is static in motion. It doesn't move.
- This is *actuality* not fantasy. Einstein's notion of relative frames of reference work well in an imaginary Universe where small finite number of objects existed and would reference only each other (2 objects usually).
- In reality, that Einsteinian Universe, as far as we can "see", doesn’t really exist. The *actual* Universe is riddled with an infinite number of objects of infinitely various scales and velocities. So to see a static frame of reference, and understand it, you have to see it at the infinitely largest scale.

UNIVERSAL STATIC FRAME OF REFERENCE



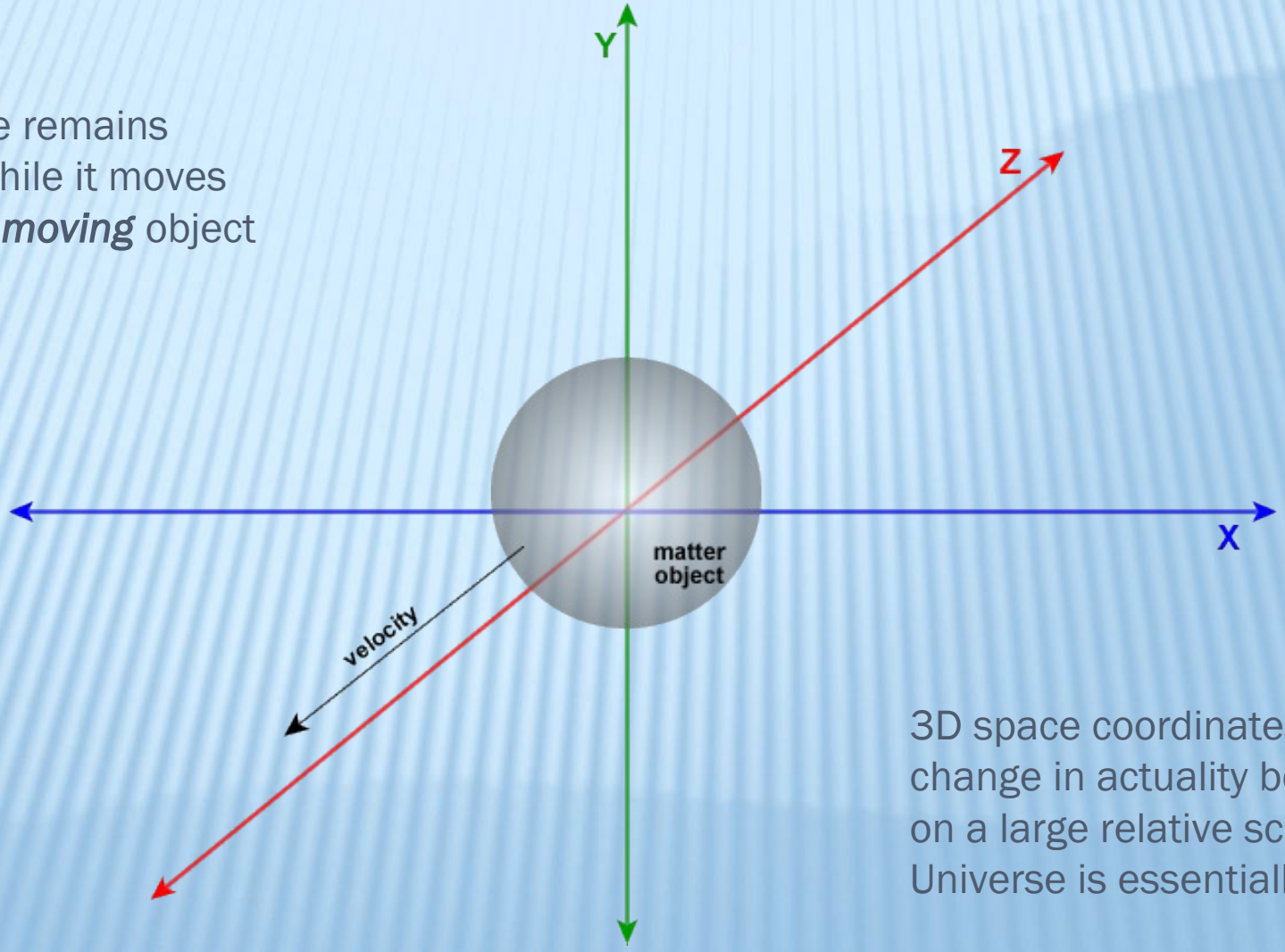
In relation to us, our planet will travel around the Sun thousands (or millions) of times before the entire galaxy cluster makes any considerable movement in relation to other galaxy clusters and to us. From our perspective, we can virtually hard-wire all our Universal positioning systems in reference to the location of these galaxy clusters (or even just the galaxies) and these Universal positioning systems will work excellent and long outlast you and me because the galaxy clusters (and galaxies) will still be there to reference. Stars in the galaxies might change, the whole system will still be there.

SPACE MOVES THROUGH MOVING MATTER

- A 3D coordinate point in space is fixed in reference to the rest of the Universe.
- Due to space being infinitely homogenous and it having a Universal static nature (a stationary nature), it can be said that a point in space actually exists as an infinitely small “object” of space
- An infinitely small object will pass with no effort through the large spaces between atoms and quantum particles in any object

SPACE MOVES THROUGH MATTER

Empty space remains stationary while it moves through the ***moving*** object



3D space coordinates do not change in actuality because on a large relative scale, the Universe is essentially static

SPACE-TIME DENSITY CONCEPT

- Empty space does not move if an object is moving through it
- Space moves through the ***moving*** object
- In *actuality*, all matter in the Universe is moving at various velocities
- The faster the object, the more space it moves through, the more space passes through the object, therefore the more space-time the object exists in
- Space-time density is directly proportional to velocity
- Mass-density to space-time density ratio ***is a natural constant***
- The higher the space-time density, the higher the matter density of the object to maintain this constant
- The higher the matter density, the ***smaller*** the object becomes
- The higher the space-time density, the ***faster*** time passes within it

SPACE-TIME DENSITY CONCEPT

$$Density_{\zeta} \propto Object's\ Velocity$$

$$Constant = \frac{Density_{\zeta}}{Density_{matter}}$$

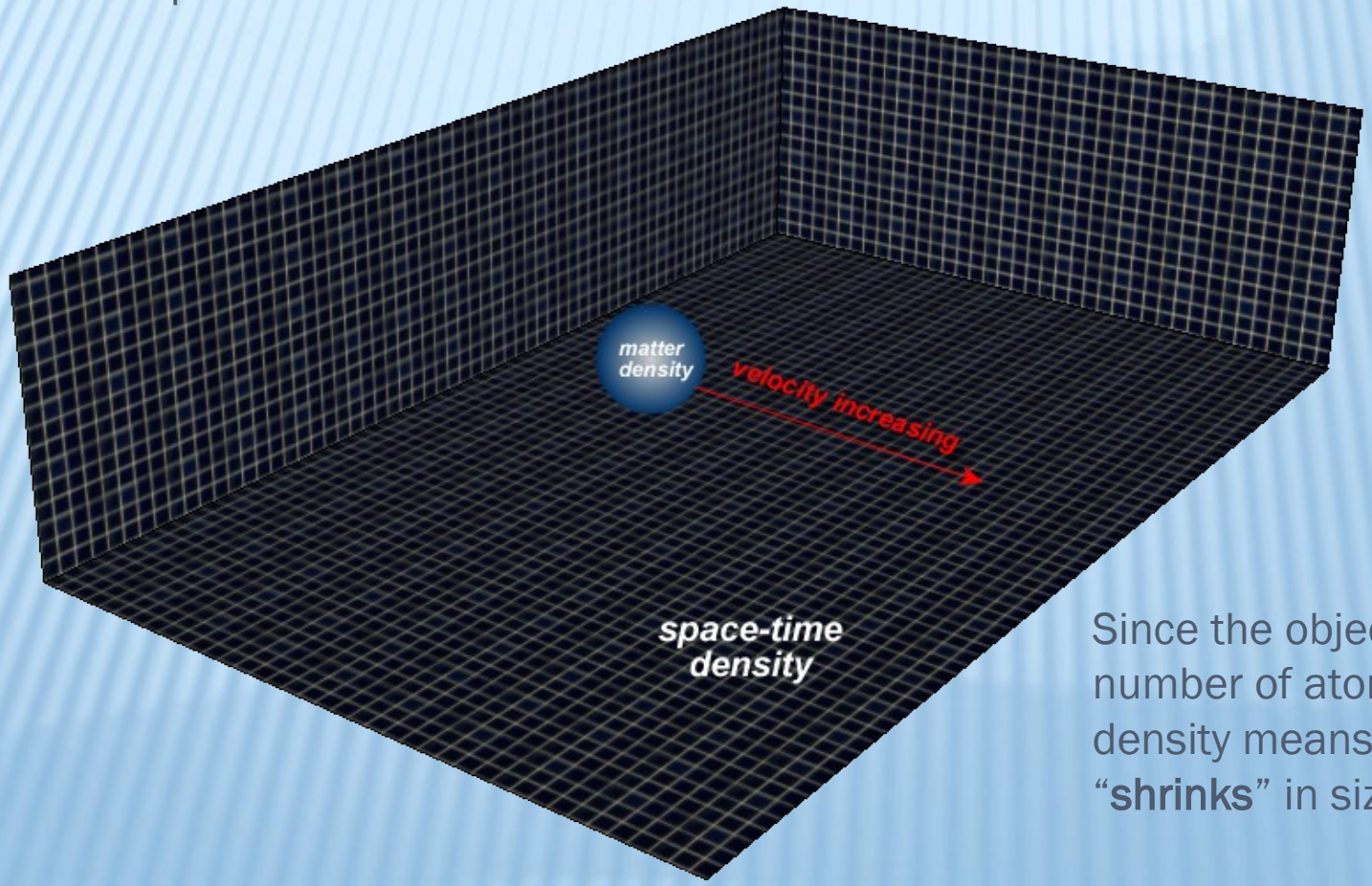
The constant and matter density is specific to each substance and element

SPACE-TIME DENSITY CONCEPT

- Why is the ratio between space-time density and matter density a constant?
- In order to maintain normalcy from the moving object's perspective
- To maintain physical normalcy in all inertial frames of reference at any given velocity
- The only exception is when the object is accelerating between two velocities

SPACE-TIME DENSITY CONCEPT

For a ratio between space-time density and matter density to remain constant as the object's velocity increases, the matter density must increase to compensate for the increase in space-time density. Remember, the faster the object, the more space moves through it, the denser the space it exists in.



Since the object has a finite number of atoms, an increase in density means the object "**shrinks**" in size.

WHAT IS MATTER?

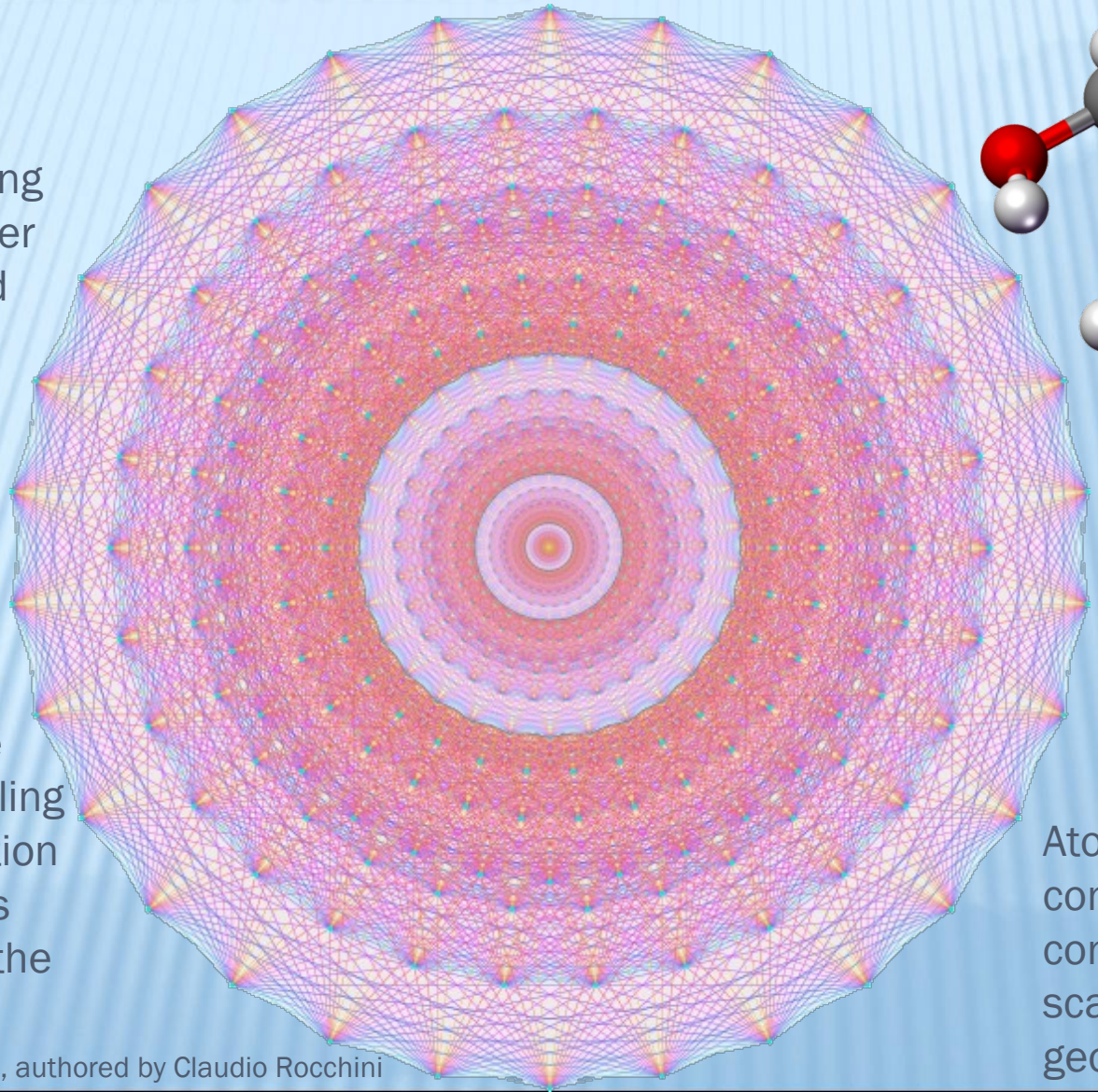
- Matter is an “imbalance” in the infinitely homogenous space-time
- It can be defined as denser space-time existing in less dense space-time
- What causes, or caused, this imbalance producing known matter is a mystery
- From a highly theoretical perspective, it can be logically argued that space-time has a 3rd element which is consciousness (an aspect of life or life itself) and that it is this consciousness that causes this imbalance producing matter (*which is beyond the scope of this presentation*)

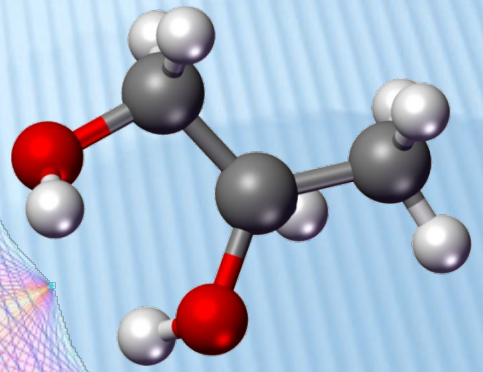
GEOMETRIC MATTER

- Because of the fact that matter is comprised of space between all its continuously scaling substructure, it can be said that matter is a geometric formation within space comprised of space of various densities
- At an infinitely small scale level, at the beginning of a matter object, matter starts from a singularity imbalance in space-time which connects to other matter singularities creating geometric forms
- These geometric forms connect to other geometric forms continuously getting bigger at a specific scale interval (which explains discrete quanta)

GEOMETRIC MATTER

Each node is a geometric formation looking just like its larger inter-connected whole (picture presented)





This is an infinite continuously scaling Lie Group formation based on E8. It is used to present the concept.

E8 graph by Peter Mullen, authored by Claudio Rocchini

Atoms and molecules constitute the continuation of this scaling and linking of geometric matter

HYPOTHESIS OF UNIVERSAL SCALING

- If space-time density as perceived by a moving object increases by increasing its velocity which subsequently shrinks the size of the object
- And if all matter exists based on a continuously discrete scaling interval forming its scale intervals of material substructure

Therefore, star systems separated by a discrete scale interval could actually be atoms moving at different velocities

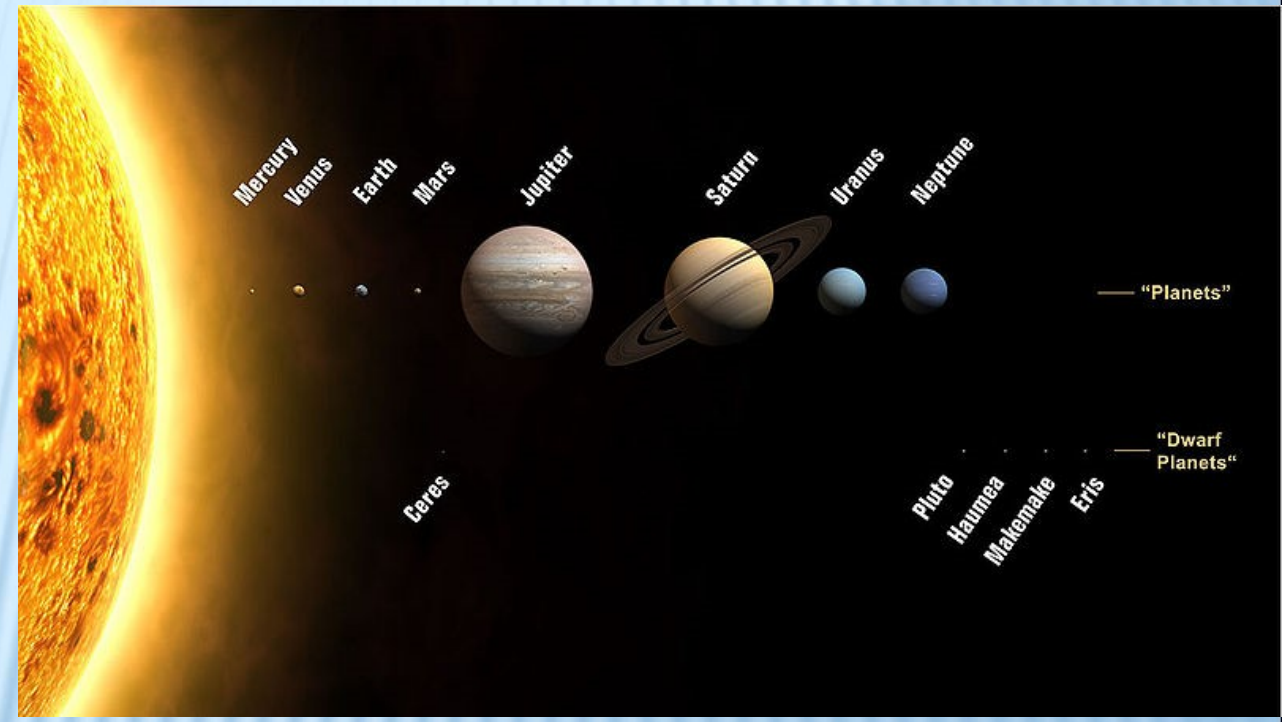
HYPOTHESIS OF UNIVERSAL SCALING

- It is very well known and obvious that various quantum particles ***in*** an atom move near, at and possibly faster than the speed of light
- It is also very well known that planets and asteroids moving within a star system travel at very low speeds. What is ***very interesting*** is that they travel near the square root of the speed of light (velocity of asteroids in Asteroid Belt, ***a unique formation***):

$$v = \left(\sqrt{299792429}\right) = 17314.515\ m/s$$

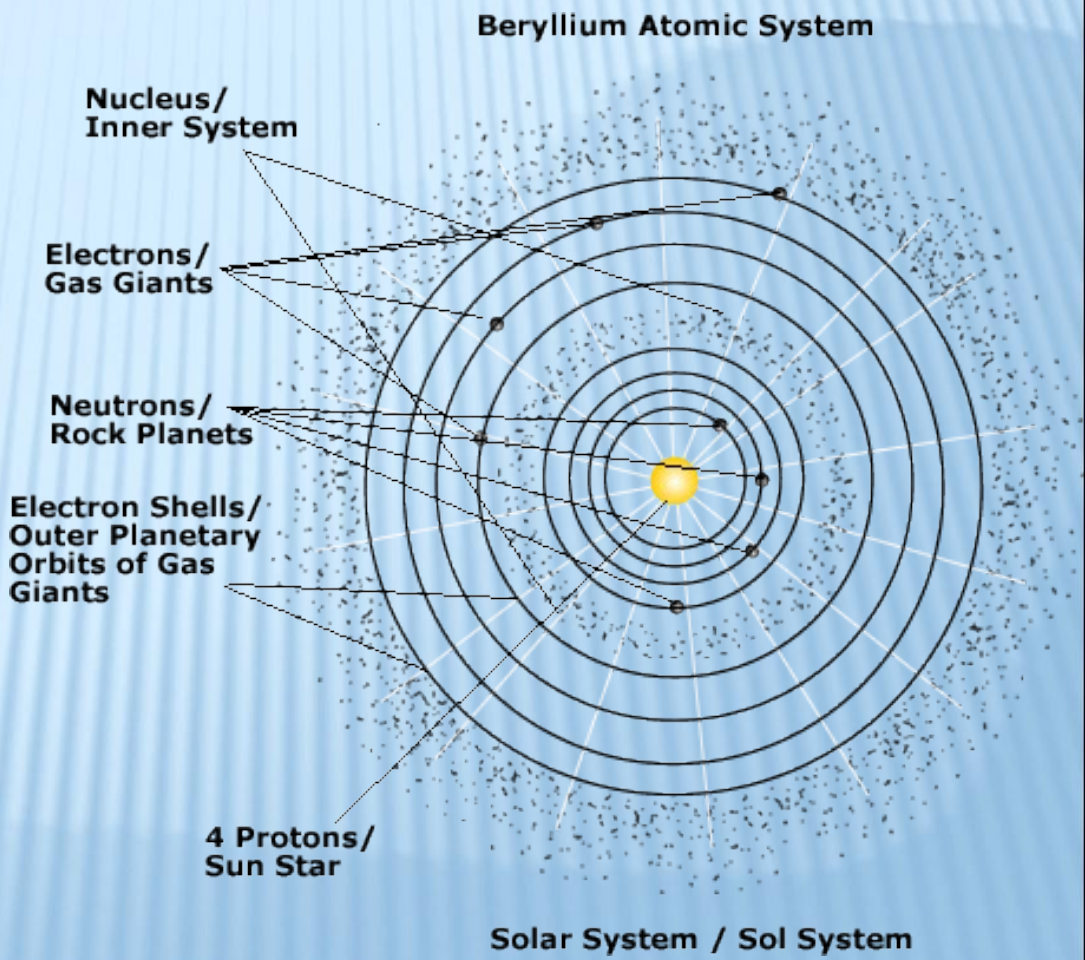
SOLAR SYSTEM IS A BERYLLIUM ATOM

- If there are star system equivalents to atoms, then the outer most planets would be equivalent to celestial electrons
- In our Solar System, there are ***4 gas giants*** in the ***Outer System*** and ***4 rock planets*** in the ***Inner System***
- ***4*** being a significant number could correspond to the atomic number
- ***The Beryllium atom has an atomic number of 4***



HYPOTHESIS OF QUANTUM STAR SYSTEMS

- **Gas giants** are **electrons**
- **Inner planetary system** is the **atomic nucleus**
- **Rock planets** are **neutrons**
- **Stars** are **comprised of** one or more **protons** fused together by the star's own matter
- **The Asteroid** and **Kuiper belt** are natural **formations** common to the majority of systems **distinguishing** a separation between the **inner** and **outer system**
- **The Kuiper belt** and **Scattered disc** form the **outer boundary** of the system
- **Specific atoms** have relative scale **equivalent star systems based** on the corresponding **atomic number** to the **number of gas giants**
- **Photons** are made of **asteroids from** the **Asteroid Belt and near it,** up to the 1st gas-giant's orbit travelling close to ***c*** or 17315m/s (square root of ***c***)



REALITY SCALE CONSTANT

- If our Solar System and the Beryllium atom are the same type of system separated in two very different space-time densities
- Then what is the scale difference?
- Is that scale difference between these two systems a Universal scale constant?

REALITY SCALE CONSTANT S

$$S = \frac{radius_{Solar\ System}}{radius_{Be\ Atom}}$$

$$r_{Solar\ System} = \frac{r_{Kuiper\ Belt} + r_{Scattered\ disc}}{2}$$

$$r_{Solar\ System} = (77.5AU)(149597870691m/AU) = 11593834978552.5\,m$$

$$r_{Beryllium} = 105pm$$

$$c_o = 299792458 \approx 3.0x10^8\ (no\ units)$$

$$S = \frac{11593834978552.5m}{105pm}$$

$$S = 110417475986214285714285.71$$

$$S = {c_o}^{2.718358524145351634416342759878 7} = 1.1042x10^{23}$$

$$S = {c_o}^{e} = {c_o}^{2.718281828459} = 1.1025x10^{23}$$

$$S = 1.1025x10^{23}$$

Radius of the Solar System extends from the Kuiper belt into the Scattered disc because Scattered disc objects still orbit the star and are part of the system

Radius of the Beryllium atom is the measured radius and not the calculated value

REALITY SCALE CONSTANT RELATION

It was a surprise to find that *S* was also related to two other Universal constants.

$$S = c_o{}^{e}$$

$$e = \frac{\log(S)}{\log(c_o)}$$

$$c_o = 299792458\ (no\ units)$$

numeric value of the speed of light

$$e = 2.718281828459$$

MYSTERIOUS e

- The value of e is found to occur naturally with unexplainable frequency:
  - formulas describing nonlinear increase or decrease for growth or decay
  - infinite series summation
  - problems of probability
  - counting problems
  - statistical bell curve
  - distribution of prime numbers
  - shape of a hanging wire or standing arch
  - ultrasound attenuation in a material
  - Energy decay of sound moving away from source

REALITY SCALE CONSTANT RELATION

The S value relation to the speed of light implies that scale is directly proportional to velocity of the object. It also implies that the Universe is fractal due to an infinite series of velocity.

$$S \propto v = \frac{dx}{dt}$$

$$scale = f(v) = v^e = \left(\frac{dx}{dt}\right)^e$$

The derived units in this equation make little sense unitarily, so the following ***convention*** was developed to completely remove the units :

$$s = \left[\sqrt[e]{S}\left(\frac{v}{c}\right)\right]^e$$

What is important is the numeric value of the Speed of Light

CONTINUOUS SCALING INTERVAL

Going from quantum to sub-quantum:

$$v \rightarrow c_o^2 \; m/s$$

$$scaling = S\left(\sqrt[e]{S}\left(\frac{c_o^2}{c}\right)\right)^e$$

$$= S(c_o)^e$$

$$= S(S) = S^2$$

NEW RELATIVITY

- Scaling directly proportional to velocity requires a correction to Special Relativity
- This new relativity theory is called ***Realitivisitic Relativity***
- Realitivisitic means “Real”
- It has direct impact on: Size contraction, Matter Density and Mass

NEW RELATIVITY EQUATIONS

Scale (**s**) is a function of velocity:

$$s = \left[\sqrt[e]{s}\left(\frac{v}{c}\right)\right]^{e} = \left[c_o\left(\frac{v}{c}\right)\right]^{e}$$

$$s = [\lambda(v)]^{e}$$

$$\lambda(v) = \sqrt[e]{s}\left(\frac{v}{c}\right)$$

This lambda function is linear and is missing the inclusion of the effect of gravity (General Relativity). It will be developed later in this work.

RELATIVE SCALING

$$\textit{Relative Scale} = \left(\frac{\lambda(v)^e}{\lambda(v_o)^e}\right)^2 = \left(\frac{v}{v_o}\right)^{2e}$$

$v_o = \textit{initial velocity}$ $v = \textit{current velocity}$

$$c = 299792458\ m/s$$
$$c_s = 17314.515\ m/s$$

$$S = \left(\frac{\lambda(c)}{\lambda(c_s)}\right)^{2e} = \left(\frac{c}{c_s}\right)^{2e}$$

$S = \textit{Reality Scale Constant}$

Note: Initial velocity is very important

NEW LENGTH RELATIVITY EQUATION

The scaling value of S gives the quantum equivalent length for a celestial object. This is somewhat inline with Einstein's length contraction, but this equation effects length, width and depth in the same way.

$$l_q = \frac{l_o}{S}$$

$$l_q = \frac{l_o}{\lambda(v_o)^e}$$

NEW DENSITY RELATIVITY EQUATION

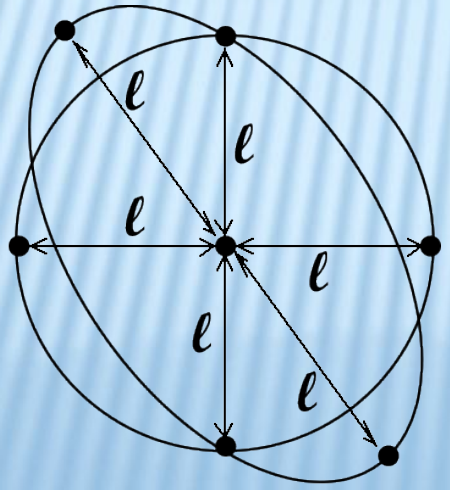
Using the value of S, a quantum to celestial mass-density formula can be derived. As perceived by us, the density of quantum matter would be S times denser than celestial matter because the distance between quantum atoms (sub-quantum particles) in quantum matter is S times smaller in any direction, thus quantum density is S times greater. The key here is each atom's size also reduces by a factor S.

$$density_{quantum} = S(density_{celestial})$$

$$\rho_q = S\rho_o$$

$$\rho_q = \left[\left(\sqrt[e]{S}\left(\frac{v}{c}\right)\right)^e\right]\rho_o$$

$$\rho_q = [(\lambda(v))^e]\rho_o$$



ℓ reduces by a factor of S

NEW MASS RELATIVITY EQUATION

$$density = \frac{mass}{Volume}$$

$$\frac{mass_{quantum}}{Volume_{quantum}} = s\frac{mass_{celestial}}{V_{celestial}}$$

$$\frac{m_q}{\frac{4}{3}\pi r_q^3} = S\frac{m_o}{\frac{4}{3}\pi r_o^3}$$

$$\frac{m_q}{\left(\frac{r_o}{S}\right)^3} = S\frac{m_o}{r_o^3}$$

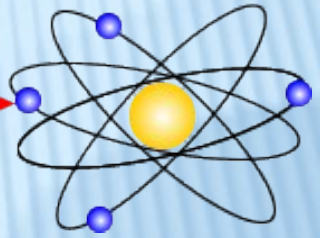
$$m_q = \frac{m_o}{S^2}$$

$$m_q = \frac{m_o}{\left(\lambda(v)\right)^{2e}}$$

EXAMPLE OF NEW MASS RELATIVITY

by increasing velocity to near c

scale decreases making mass charge



$$m_q = \frac{m_o}{S^2}$$

$$Jupiter_{\substack{quantum \\ mass}} = \frac{1.898x10^{27}kg}{(S)^2}$$

$$= 1.56x10^{-19}kg$$

$$\approx Electron\ charge = 1.6x10^{-19}C$$

Eureka Moment

2007

Remarkably close in numeric value. It was here I noticed I was really onto something.

THE PASSAGE OF TIME

- If electrons are gas giants, then they travel much faster than gas giant's naturally travel
- This explicitly means that the passage of time travels faster for a gas giant planet like Jupiter traveling near the speed of light (electron) compared to a gas giant traveling at it's celestial velocity around the Solar System
- Because the two systems are relative representations of each other in two different space-time densities
- This means that the higher the space-time density is (the faster the object moves), the faster the passage of time is along with the smaller the object becomes

RELATIVE QUANTUM PASSAGE OF TIME

A calculated estimate of the passage of time at the quantum scale derived using Pluto

Measured radius of Be (Beryllium) atom = 105pm

Measured radius of Pluto is = 5.9064E12 m and orbital velocity is 4666 m/s

$$s/orbit = 90613.31\ days/orbit = 7.8290x10^{9}\ s/orbit$$

At quantum scale, orbital velocity ratio is (4666/17315)c m/s = 0.26c m/s = 7.7946E7 m/s

$$C = 2\pi r \qquad s/orbit = \frac{2\pi(105pm)}{7.794x10^{7}m/s} = 8.4639x10^{-18}\ s/orbit$$

That results in an increase in the passage of time by a factor of:

$$\tau = \frac{7.8290x10^{9}}{8.4639x10^{-18}} = 9.2498x10^{26}$$

Note this increase in time factor is a relative perception by us on Earth which is important.

Taking a lesson from the value of S, this factor related to the value of c is related by a power of 3.1812 which is 98.76% similar to the value of Pi (another constant).

$$\frac{Log(9.2498x10^{26})}{log(299792429.69)} = 3.181161 \qquad \frac{\pi}{3.181161} = 98.7562\%$$

NEW TIME RELATIVITY EQUATION

$$\Delta t_q = \Delta t_o \left(\sqrt[e]{S} \left(\frac{v}{c} \right) \right)^{\pi}$$

As velocity increases, the passage of time also increases for the traveling object in relation to a stationary observer. Note that the passage of time directly affects the strength of force.

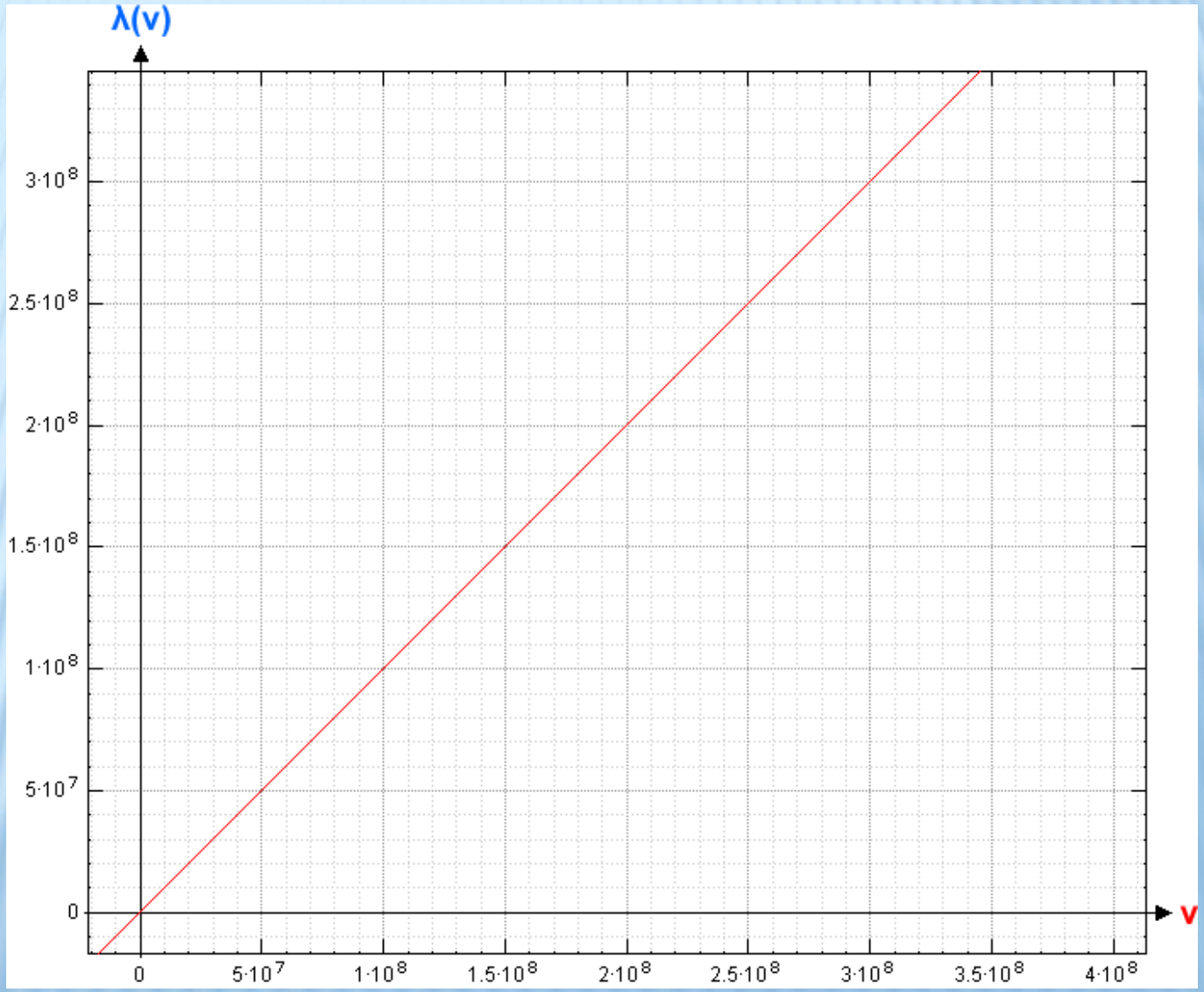
$$\Delta t_q = \Delta t_o (\lambda (v)^{\pi})$$

This breaks Special Relativity's time dilation of the passage of time slowing down as velocity increases, but if atoms are accelerated star systems, time passes faster for them because electrons orbit the nucleus near the speed of light in direct relation to gas giant velocities around their star.

VELOCITY TRANSFORM EQUATION

$$\lambda(v) = \sqrt[e]{s}\left(\frac{v}{c}\right)$$

This is the linear lambda function explicitly extrapolated from the value of S. This function alone can be used to calculate the velocity needed by ***celestial objects to match their theorized quantum counter parts.***



CALCULATING QUANTUM VELOCITY

- Remember that at the quantum scale, the Asteroid Belt objects travel at ***exactly*** the speed of light $v = \left(\sqrt{299792429}\right) = 17314.515\ m/s$
- This means that the **outer system objects** like the gas giant planets **travel slower than the speed of light**
- This also means that the **inner system objects**, which form the atomic nucleus, **travel faster than the speed of light.**

CALCULATING QUANTUM VELOCITY

$$m_q = \frac{m_o}{\left(\lambda(v)\right)^{2e}}$$

$$m_q = \frac{m_o}{\left(\sqrt[e]{s}\left(\frac{v}{c}\right)\right)^{2e}}$$

$$v = \sqrt[2e]{\frac{m_o}{m_q}}$$

OBJECTIVE OF CELESTIAL QUANTUM MATCHING

- The objective is to just **give a chart of possible velocities**, inside or outside an atomic system, in order **to match celestial to quantum objects** using the theoretical framework described here.
- ***It is important to note that this has never been done before, even if the values are not absolutely correct.***
- It is to prove that this path of research is just as legitimate, if not much more, as those currently accepted by mainstream science and that this is truly a protoscience.

CELESTIAL TO QUANTUM MAPPING

Celestial Object	Initial Mass (kg)	Velocity (m/s)	Velocity (c)	Final Mass (kg) or (C)	Quantum Object
Neptune	1.02E+26	174403583	0.5817	1.6022E-19	Electron
Uranus	8.68E+25	169216298	0.5644	1.6022E-19	Electron
Saturn	5.68E+26	239089742	0.7975	1.6022E-19	Electron
Jupiter	1.90E+26	298449669	0.9955	1.6022E-19	Electron
Asteroid avg.*	2.75E+15	299792458	1	2.2618E-31*	Photon
Asteroid	1.79E+20	299792458	1	1.4725E-26	1E24 Hz Photon
Mars	6.42E+23	v>c	v>c		Neutron
Earth	5.98E+24	v>c	v>c		Neutron
Venus	4.87E+24	v>c	v>c		Neutron
Mercury	3.30E+23	v>c	v>c		Neutron
Sun/4 **	0.4973×10^{30}	830984370	2.7699 ≈2.71828	1.6022E-19	Proton

The Final Mass is *how we perceive these masses from our celestial scale*

* Calculated average of 700,000 to 1.7mil asteroids with total mass of 3 to 3.6×10^{21} kg

** Sun theoretically comprises 4 protons, plus debris mass reduces the velocity needed

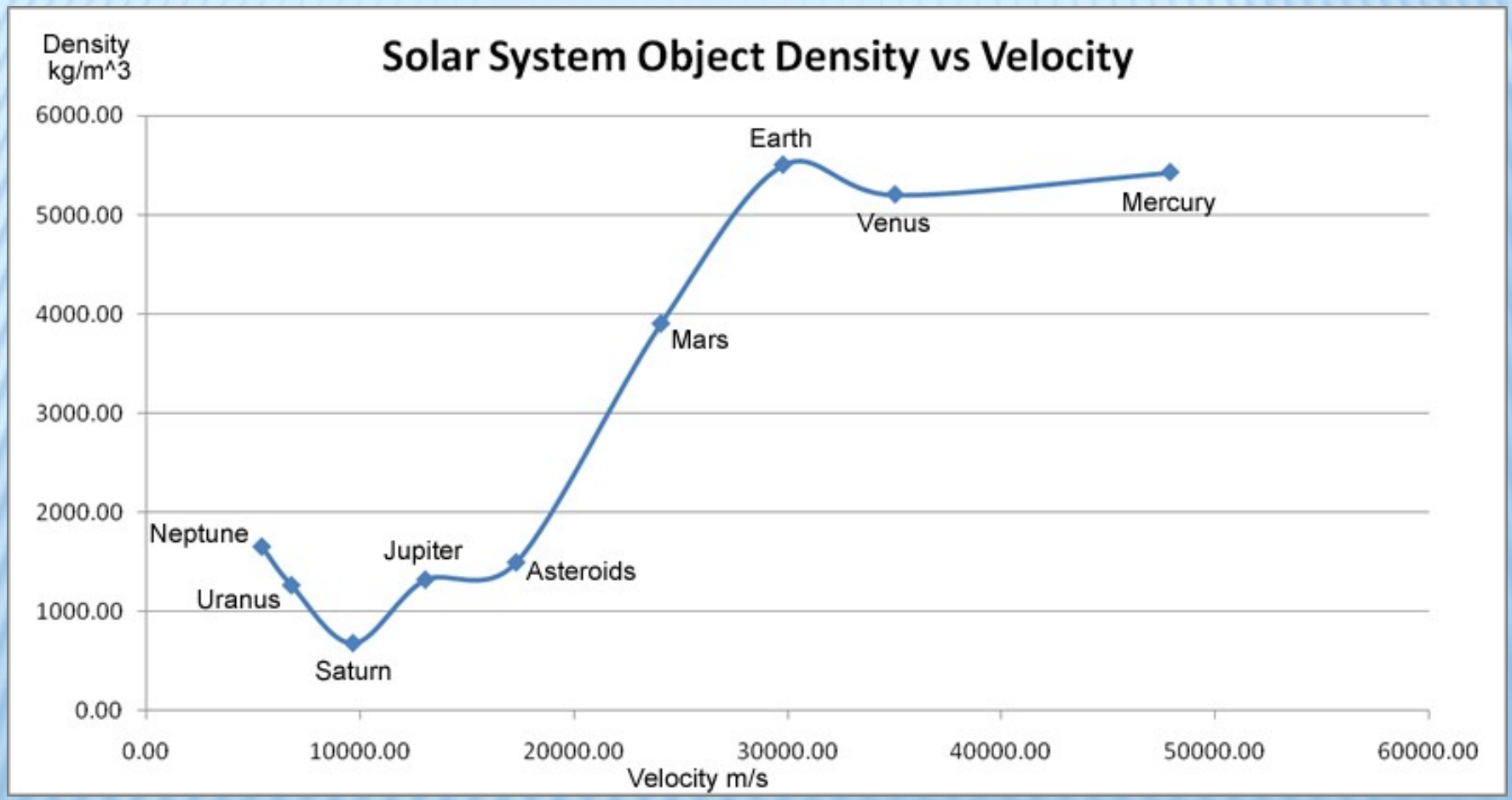
PROBLEM WITH MATCHING

- Neutrons reportedly have no charge, but using this equation a result of absolute 0 would require a velocity of ∞ which is highly unlikely.
- Photons reportedly have no charge also, but I was able to calculate a value with this framework which is 10million times smaller than an electron's charge.
- So it's postulated that a Neutron's charge value is small enough to be undetected by our instruments and a Neutron with charge would also explain it's magnetic moment property.

SOLVING THE PROBLEM

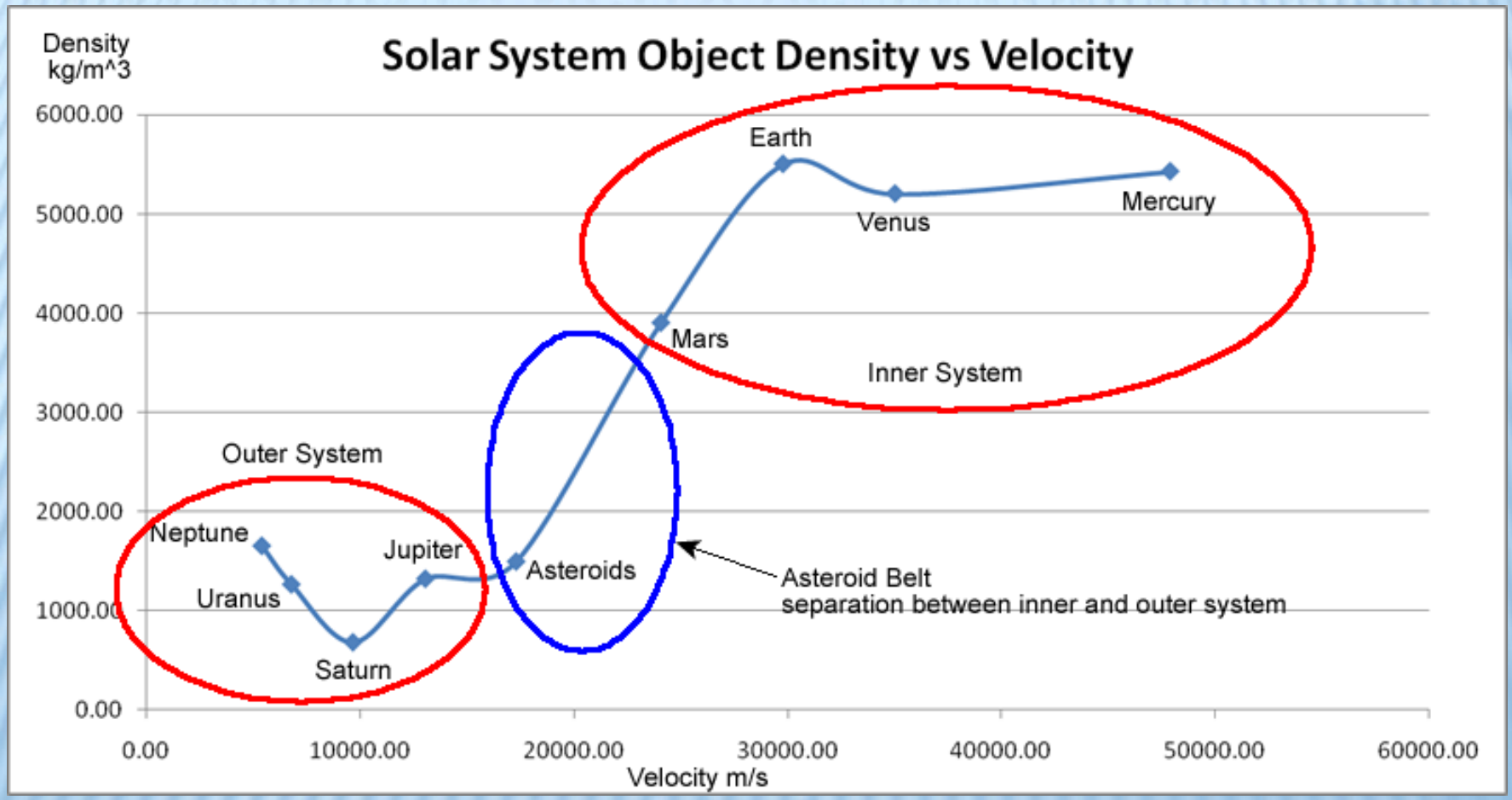
- This problem with a Neutron's neutral charge property can be solved by analyzing density vs. velocity data for the Solar System's celestial objects
- Because velocity directly affects the spaces between atoms in matter directly affecting the matter's density
- It will reveal an very interesting pattern

CELESTIAL DENSITY VS VELOCITY GRAPH



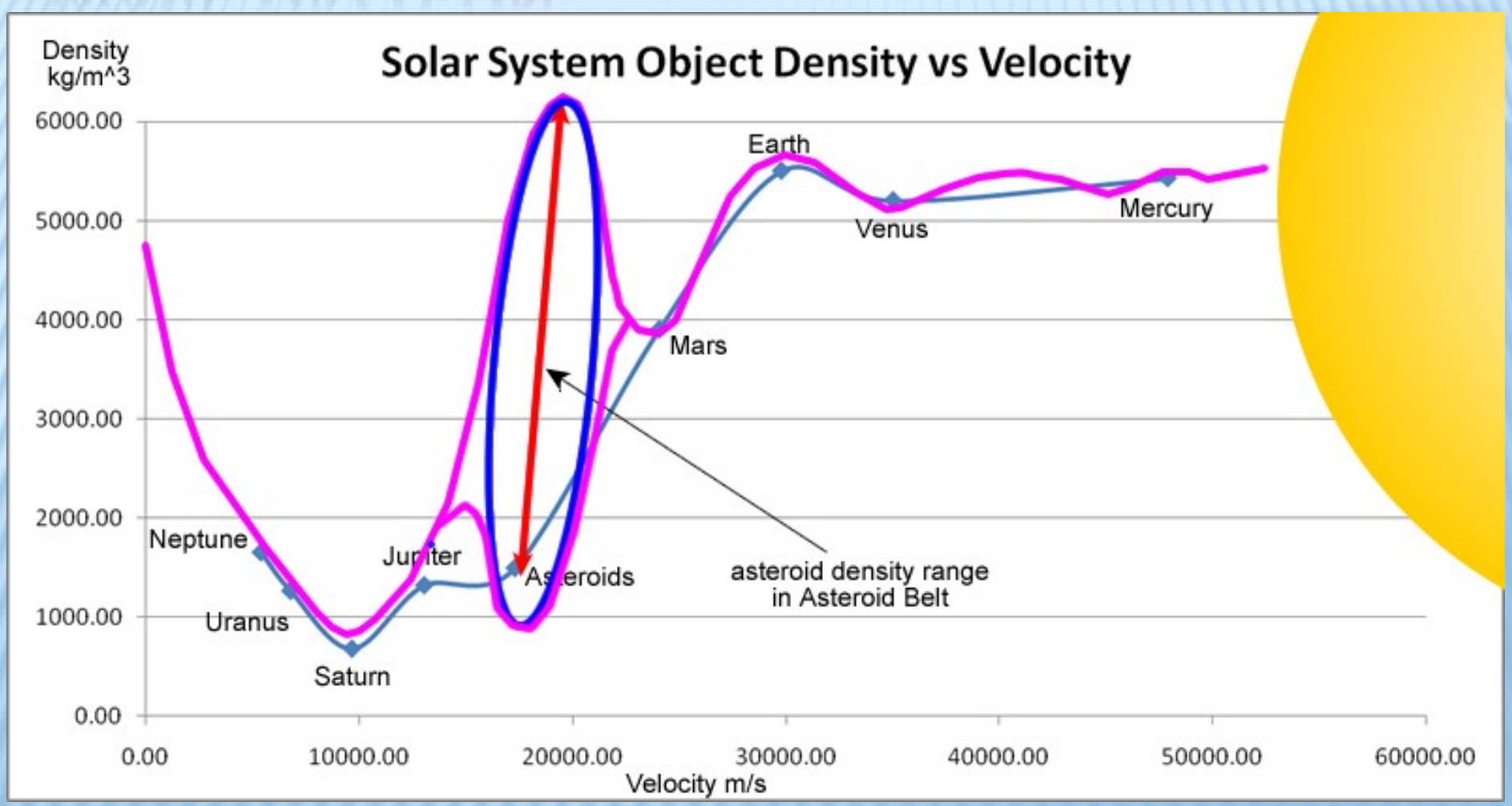
This graph is interesting that the density of 3 inner planets (nearest the Sun) plateaus, while between the Earth and Asteroids, the density falls sharply. The graph appears to showing a ***wave form*** relation.

ANALYZING DENSITY VS. VELOCITY GRAPH



The wave form becomes more visible when separating inner and outer system. The dips and peaks are very apparent and exist where planets are except for Neptune and Uranus. *These two planets in a Beryllium atom would be considered valence electrons*. The wave characteristic is very reminiscent of atomic energy orbitals.

WAVE PATTERN

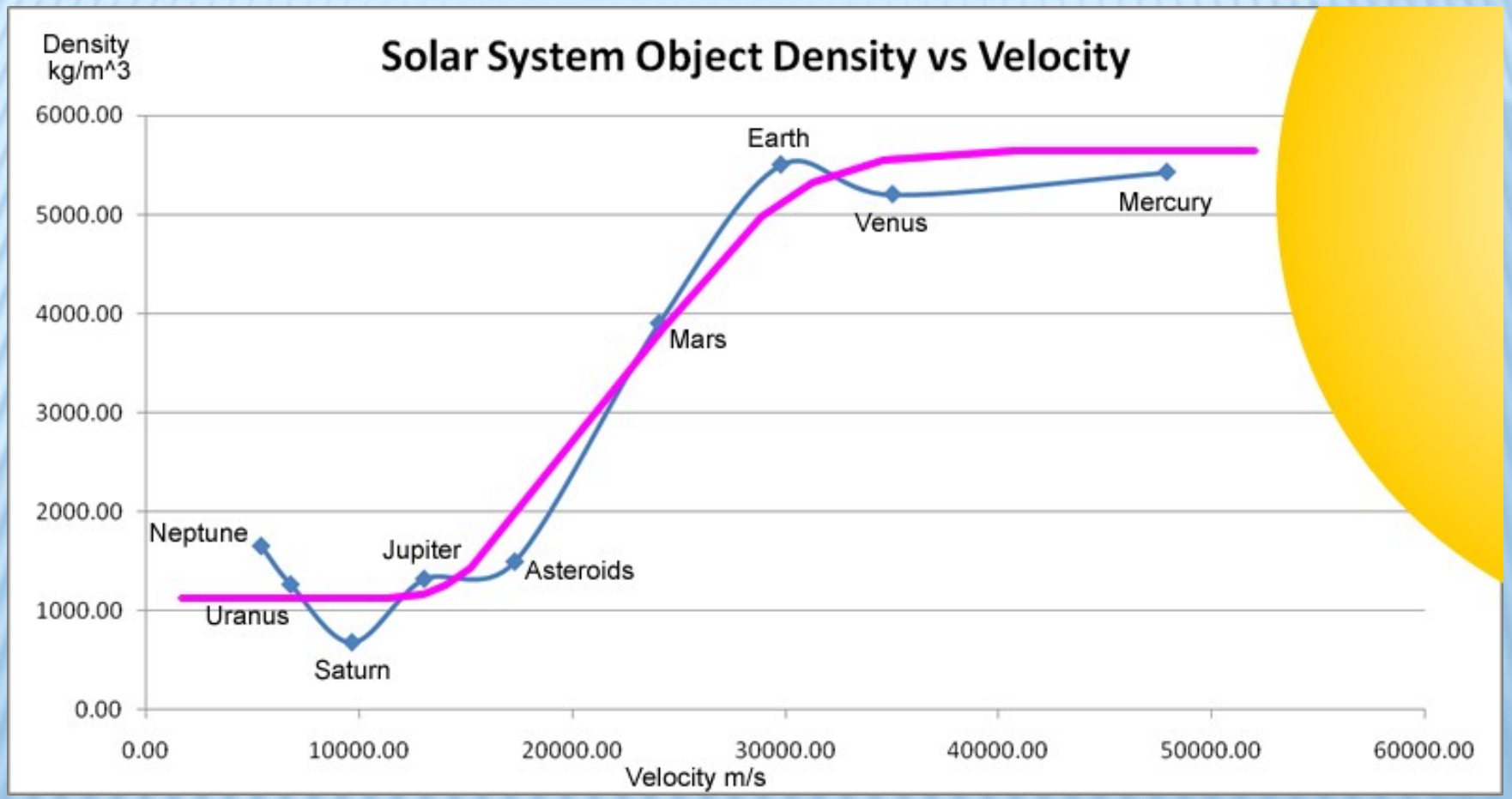


This details a wave pattern in regards to density distribution throughout the system. This is akin to atomic orbital wave patterns. The Asteroid Belt appears as a barrier between inner and outer systems

CLUES

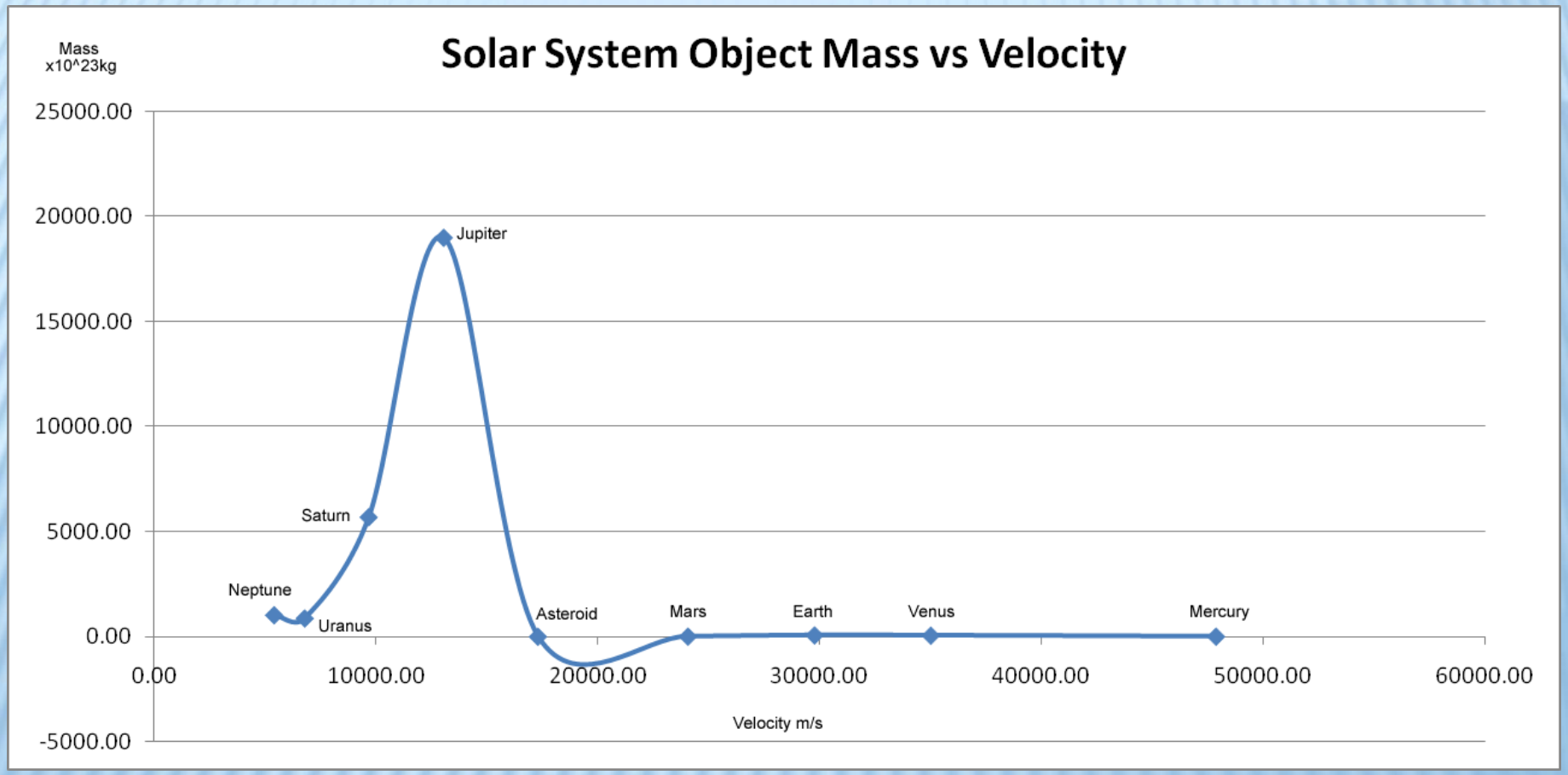
- There is a very apparent wave form between planet density and velocity
- The density of the 3 inner planets plateau near the Sun
- What does this mean?
- Obviously this means that ***lambda velocity transform is a bit more complex because its missing the effect of the Sun's gravity on the planets***

GENERAL RELATIVITY IS CORRECT!



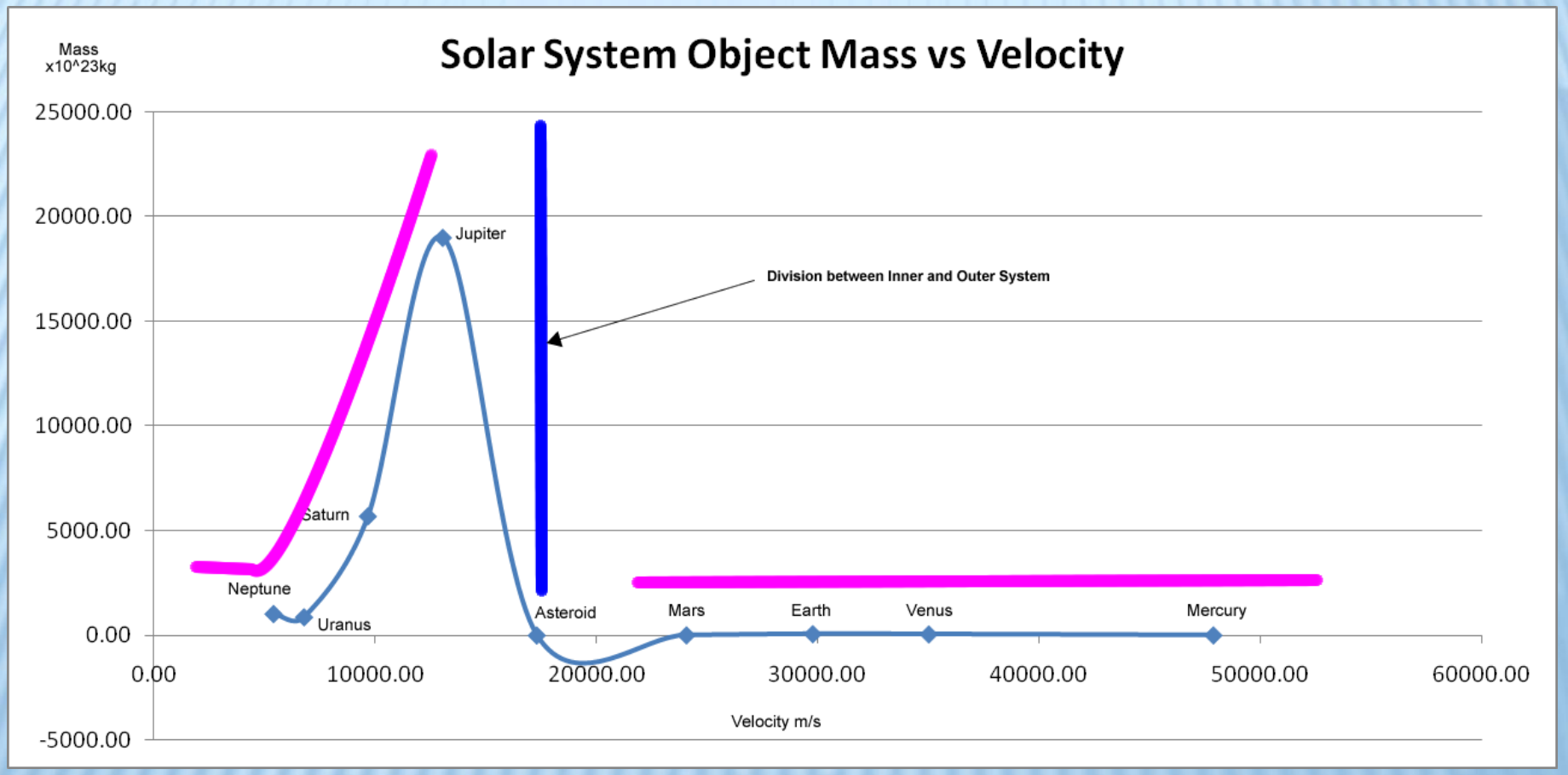
General Relativity describes bending of space which explains why the graph plateaus near the Sun. General Relativity is mostly correct but Special Relativity is very wrong.

CELESTIAL MASS VS. VELOCITY GRAPH



Once again the graph plateaus near the Sun in relation to mass. This plateau effect is attributed to General Relativity, or a modified version of it, and definitely attributed to expelled properties of the Sun such as gravity, photons, cosmic rays and heat.

ANALYZING MASS VS. VELOCITY GRAPH

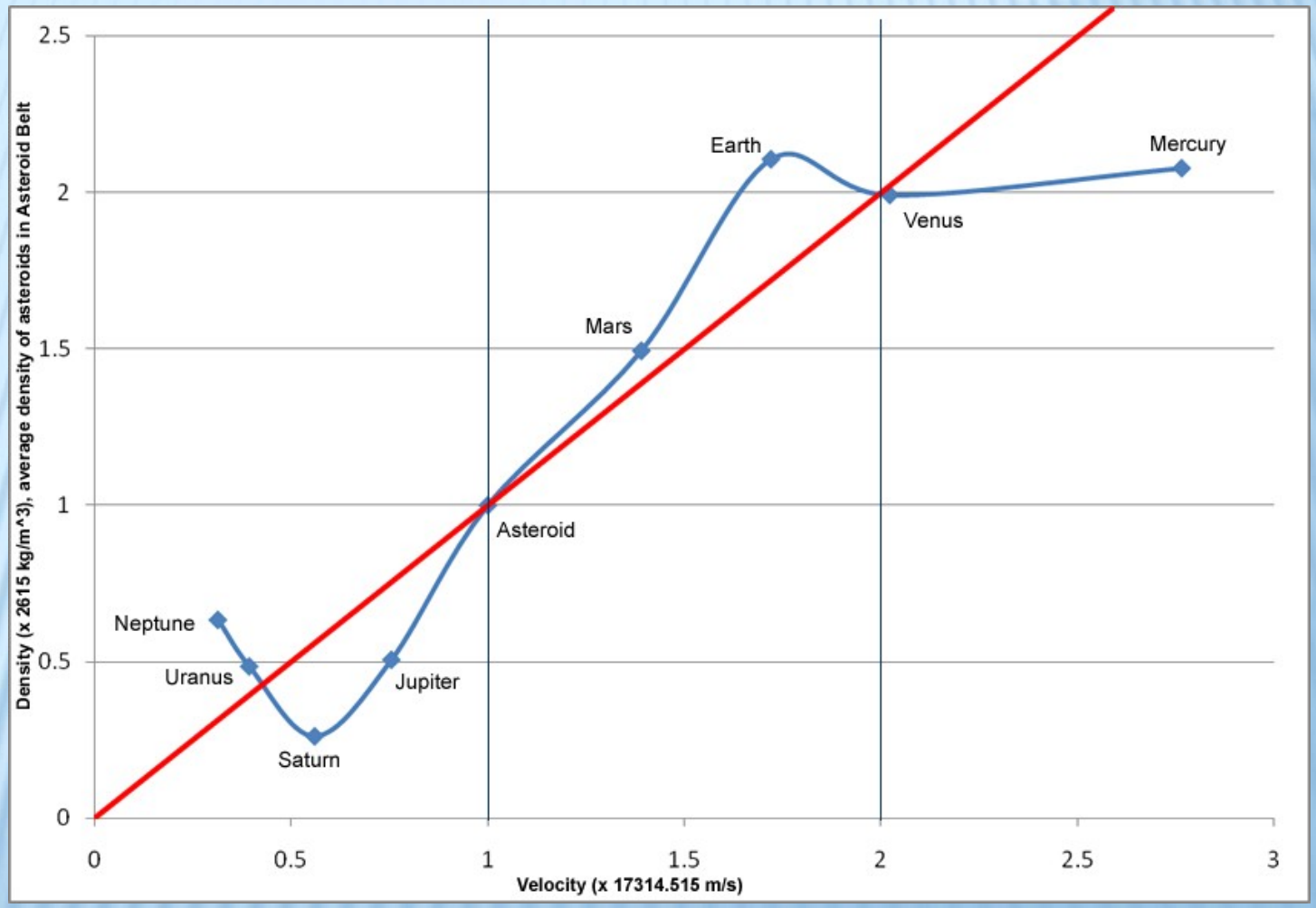


Here you see the plateaus effect clearly outlined.

ACTUAL λ() FOR A SYSTEM

Based on data, it is interesting to note that Mercury's velocity and the velocity of the Celestial Proton (1/4 the Sun) are very close.

This means that the **system lambda** is related somehow to the velocity of the massive central core object (star) in the system.



From this chart, the Neutron velocities can be extrapolated and used to calculate resulting masses (or charges)

NEUTRON MAPPING BASED ON DATA

Celestial Object	Initial Mass (kg)	Velocity (m/s)	Velocity (c)	Final Mass (kg) or (C)	Quantum Object
Asteroid avg.	2.75E+15	299792458	1	2.2618E-31	Photon
Asteroid	1.79E+20	299792458	1	1.4725E-26	1E24 Hz Photon
Mars	6.42E+23	447560118	1.4929	5.9757E-24	Neutron
Earth	5.98E+24	630823231	2.1042	8.6168E-24	Neutron
Venus	4.87E+24	596616914	1.9901	9.4999E-24	Neutron
Mercury	3.30E+23	622279146	2.0757	5.1208E-25	Neutron
Sun/4	4.97E+29	830984370	2.7699	1.6022E-19	Proton

It is important to note that the resulting mass values somewhat plateaus along Mars, Earth and Venus. The curious one is Mercury. It is about 16 times smaller than the average of the other three. This characteristic might be related to it's unique orbit, but another explanation will be detailed later. Also note that the resulting asteroid mass (or charge) is considered 0 (no charge) by our instrumentation. In this theory, photonic charge is 10million times smaller than an electron's charge. Therefore in comparison, the Neutron's resulting average mass (or charge) is close to that of a photon which is difficult for our instrumentation to detect essentially giving the Neutron the characteristic of no charge.

CELESTIAL TO QUANTUM MAPPING

Celestial Object	Initial Mass (kg)	Velocity (m/s)	Velocity (c)	Final Mass (kg) or (C)	Quantum Object
Neptune	1.02E+26	174403583	0.5817	1.6022E-19	Electron
Uranus	8.68E+25	169216298	0.5644	1.6022E-19	Electron
Saturn	5.68E+26	239089742	0.7975	1.6022E-19	Electron
Jupiter	1.90E+26	298449669	0.9955	1.6022E-19	Electron
Asteroid	2.75E+15	299792458	1	2.2618E-31*	Photon
Asteroid	1.79E+20	299792458	1	1.4725E-26	1E24 Hz Photon
Mars	6.42E+23	447560118	1.4929	5.9757E-24	Neutron
Earth	5.98E+24	630823231	2.1042	8.6168E-24	Neutron
Venus	4.87E+24	596616914	1.9901	9.4999E-24	Neutron
Mercury	3.30E+23	622279146	2.0757	5.1208E-25**	Neutron
Sun/4	0.4973×10^{30}	830984370	2.7699 ≈2.71828	1.6022E-19	Proton

* Note that this mass (or charge) is considered 0 by our instrumentation (over 10million times smaller than an electron's charge). Photon calculations are shown later.

** It's interesting that Mercury's resulting mass is about 16 times smaller than the other inner planets. This might be related to it's unique orbit.

PROTON

- The proton exists as ¼ the Sun's mass at a velocity of 2.7699c (using linear $\lambda()$).
- The Sun's rotational velocity is 1996m/s which is no where near 2.7699(17315m/s).
- For a celestial proton to exist, the Sun must be shattered (destroyed) which destroys the system.
- It is postulated that the ***net escape velocity*** from the system's embodiment of 4 large segments of the Sun is 2.7699(17315m/s) post star destruction.

PROTON VELOCITY

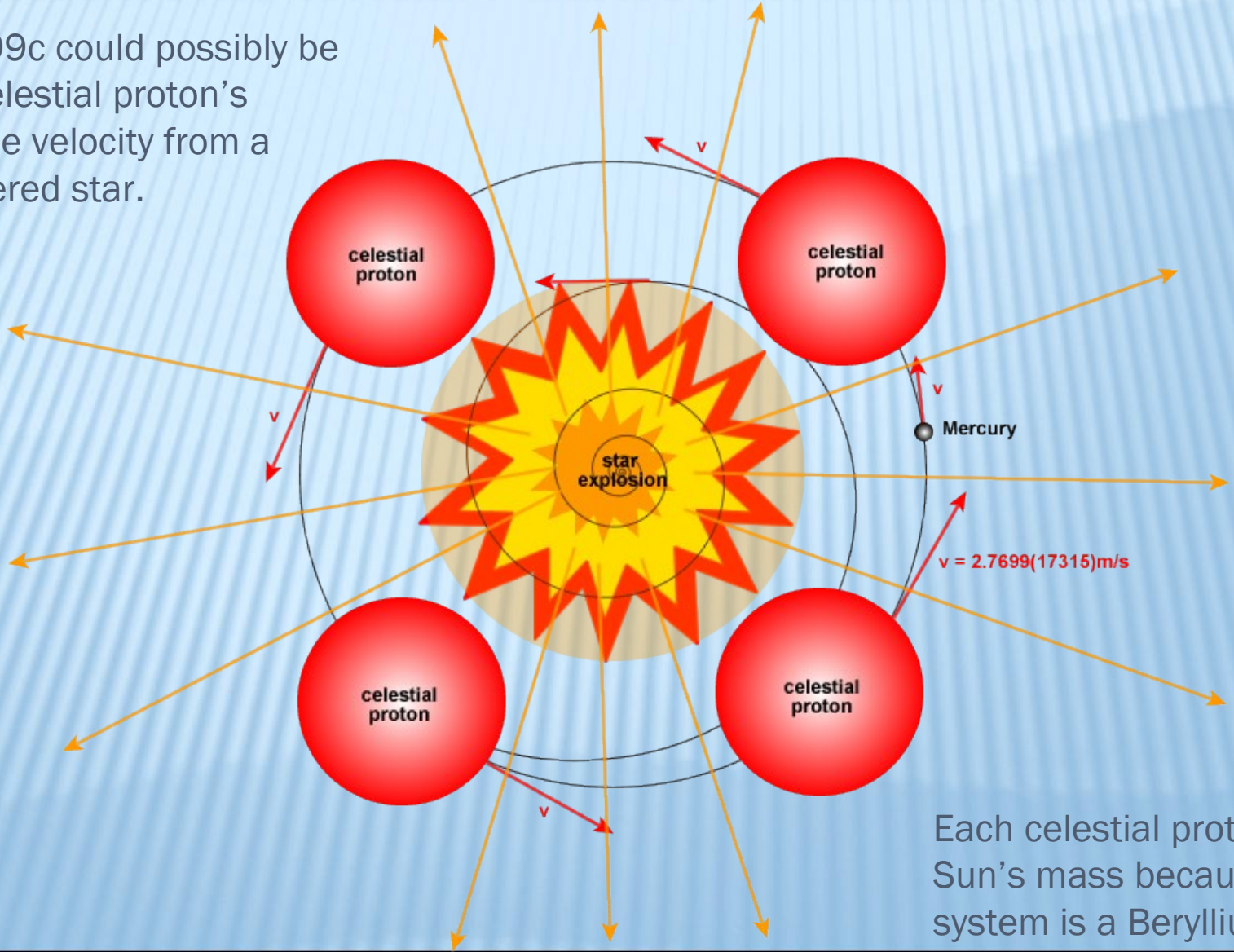
$$v = \sqrt[2e]{\frac{m_o}{m_q}}$$

$$v_{proton} = \sqrt[2e]{\frac{m_{\frac{1}{4}Sun}}{1.6022x10^{-19}kg}}$$

$$v_{proton} = 2.7699c$$

PROTON'S BIRTH FROM SUPERNOVA

2.7699c could possibly be the celestial proton's escape velocity from a shattered star.



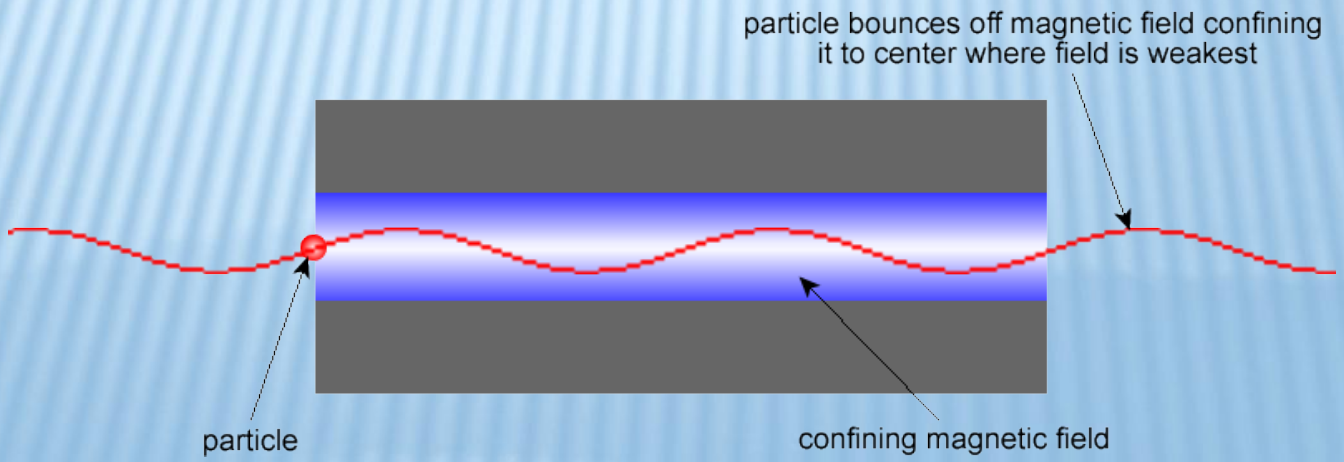
Each celestial proton is ¼ Sun's mass because our system is a Beryllium atom

FASTER THAN LIGHT SPEEDS

- The speed of 2.7699c is far greater than our instrumentation have been able to achieve
- But this research strongly suggests that this speed is very real and attainable by Neutrons and Protons especially within an atomic system and post destruction.
- A ***missing factor is the angular velocity (rotational velocity)*** of the object and it's contribution to the object's relation to space-time density and that it affects the object's size and mass along with linear velocity.
- Therefore 2.7699c might be the accumulated velocity representation of linear and angular velocity ***outside*** the atomic system. As linear velocity is retarded to c by obstructions in space (*space-time and/or matter density obstructions*), the object's angular velocity increases maintaining the object's original total kinetic energy.
- It is also possible that the protons we currently work with are far less massive than ¼ the Sun's mass requiring only the velocity of c to give it the same charge which would mean the Sun has much more smaller debris perceived by us as photons and radiation energy post atomic destruction.
- **The fact remains that the data on the inner most planet, Mercury, and the theoretical research on the celestial proton are remarkably almost the same velocity which is 2.7699(17315m/s).**

FASTER THAN LIGHT SPEEDS

- Our particle accelerators encase quantum particles in a magnetic field.
- Magnetic fields that we produce travel at c.
- It is postulated here that these magnetic fields actually retard the particle from achieving faster than light speeds.



SYSTEM'S RELATIVE QUANTUM VELOCITY

What is a planet's natural relative velocity at the quantum scale? It's a ratio between the planet's natural velocity at the celestial scale and the celestial speed of light.

$$v_{quantum} = \left(\frac{v_{planet}}{c_s}\right) * c$$

$$c_s = 17314.5159 m/s$$

$$c = 299792458 m/s$$

$$17314.5159 = \sqrt{299792458}$$

Why is 17315m/s so special? Because it is the numerical square root value of c and it is also the orbital velocity of a unique formation within the system containing many asteroids.

KINETIC NET VELOCITY OF OBJECT'S MOVEMENT

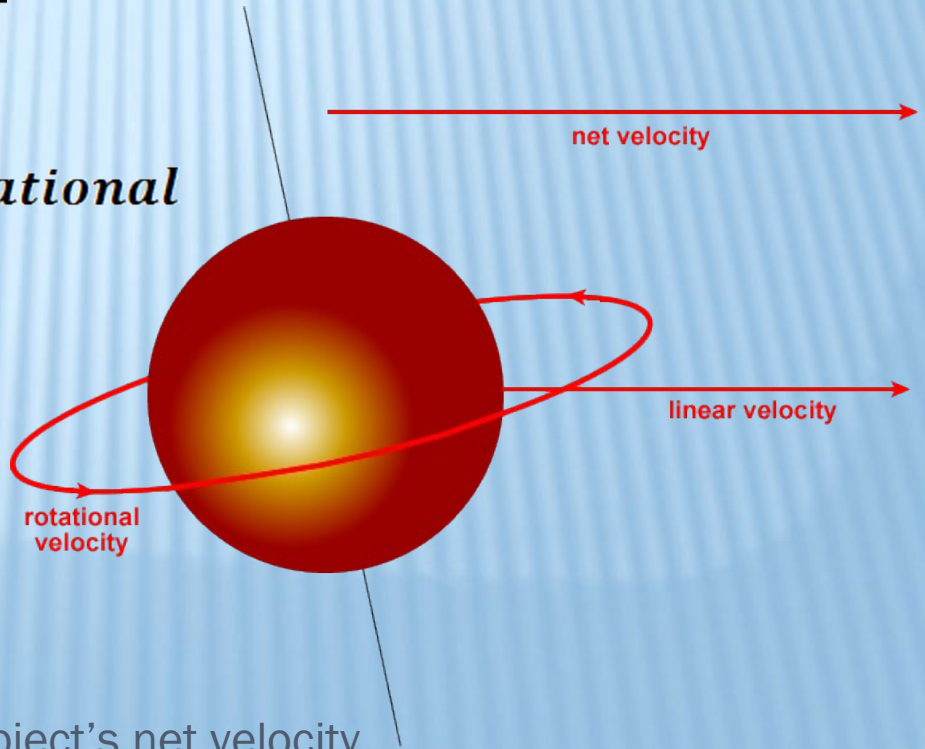
$$K_{linear} = \frac{m(v_{linear})^2}{2}$$

$$K_{rotational} = \frac{m(v_{rotational})^2}{2}$$

$$K_{total} = K_{linear} + K_{rotational}$$

$$v_{net} = \sqrt{\frac{2K_{total}}{m}}$$

All movement through space contributes to the space-time density experienced by the object which can be derived to a single net linear velocity component.



Energy of an object is directly proportional to object's net velocity

ENERGY CALCULATED C2Q MAPPING

These results are based on the velocity derived by the total kinetic energy:

	mass	radius	v rot	v sat	v linear	E rot	E linear	E total	v net
obj	kg	m	m/s	m/s	m/s	J	J	J	m/s
4p	1.989E+30	6.9550E+08	1989		47870	3.93436E+36	2.27893E+39	2.28287E+39	47911.3037
mr	3.3022E+23	2.4397E+06	3.026		47870	1.51186E+24	3.78356E+32	3.78356E+32	47870.0001
v	4.868E+24	6.0518E+06	1.81		35020	7.97403E+24	2.98506E+33	2.98506E+33	35020.0001
e	5.9736E+24	6.3710E+06	465.1		29783	6.46099E+29	2.64937E+33	2.65002E+33	29786.6314
em	7.347E+22	1.7371E+06	4.627	1022	29783	7.86464E+23	3.25849E+31	3.25849E+31	29783.0004
m	6.4185E+23	3.3962E+06	241.17		24077	1.8666E+28	1.86041E+32	1.8606E+32	24078.2078
j	1.898E+27	7.1492E+07	12600		13070	1.50663E+35	1.62113E+35	3.12776E+35	18154.4733
s	5.6846E+26	6.0268E+07	9870		9690	2.76888E+34	2.66881E+34	5.43769E+34	13831.5943
u	8.681E+25	2.5559E+07	2590		6810	2.91165E+32	2.01295E+33	2.30412E+33	7285.8905
n	1.0243E+26	2.4764E+07	2680		5430	3.67847E+32	1.51007E+33	1.87792E+33	6055.3530

	v net:c (ratio)	v net:c	vnet c qmass	qmass avg.	expected q	actual v:c	actual v
obj	m/s	c	C (or kg)	C (or kg)	C (or kg)	m/s	c
4p	8.2956E+08	2.77	6.46816E-19		6.4088E-19	8.3097E+08	2.7718
mr	8.2885E+08	2.76	1.07891E-25		8.7311E-24	3.6940E+08	1.2322
v	6.0635E+08	2.02	8.70024E-24		8.7311E-24	6.0596E+08	2.0213
e	5.1574E+08	1.72	2.57382E-23		8.7311E-24	6.2921E+08	2.0988
em	5.1568E+08	1.72	3.16767E-25		8.7311E-24	2.8019E+08	0.9346
m	4.1690E+08	1.39	8.79223E-24	8.73107E-24	8.7311E-24	4.1744E+08	1.3924
j	3.1434E+08	1.05	1.20699E-19		1.6022E-19	2.9838E+08	0.9953
s	2.3949E+08	0.80	1.58572E-19		1.6022E-19	2.3903E+08	0.7973
u	1.2615E+08	0.42	7.89913E-19		1.6022E-19	1.6918E+08	0.5643
n	1.0485E+08	0.35	2.54816E-18	9.04336E-19	1.6022E-19	1.7440E+08	0.5817

Legend:

Objects (obj): 4p = Star/Sun 4 protons; mr = Mercury; v = Venus; e = Earth; em = Earth's Moon; m = Mars; j = Jupiter; s = Saturn; u = Uranus; n = Neptune

Quantities: E = kinetic energy; q or qmass = charge/quantum mass (this framework); v rot = rotational velocity, v sat = satellite orbital velocity; v linear = linear velocity; v net = velocity derived from total kinetic energy (pg. 79); v net:c = quantum velocity (pg 78)

C2Q RESULTS ANALYSIS OF NEUTRONS

- Mars and Venus have the exact same q≈8.7E-24C which is also the same as the average q=8.7311E-24C
- ***It is assumed the neutron's charge is = 8.7311E-24C***
- Earth's charge divided by the average 8.7311E-24C is 2.9479. ***Earth's charge is almost exactly 3 times the charge of Mars and Venus***.
- Mercury's charge is less the 3 times that of the Earth's Moon which 81 times smaller than the average q≈8.7311E-24C. ***It is negligible and not in the same class as that of Venus, Mars or Earth***.
- ***Conclusion: Venus and Mars are neutrons and the Earth is actually 3 neutrons giving our system a total of 5 neutrons***.

C2Q RESULTS ANALYSIS OF ELECTRONS

- ***Saturn's charge is almost exactly equal to an electron's charge*** of 1.6022E-19C.
- Jupiter's charge is 75.3146% of an electron's charge. Jupiter's linear velocity is also 75.48% that of celestial speed of light (17315m/s). A ***small change in kinetic net velocity*** would give it the charge closer to 1.6E-19C.
- In a Beryllium atom, Uranus and Neptune are in the position to valence electrons which share charge with other systems.
- Uranus is exactly 4.9302 times the electron's charge.
- Neptune is 15.9041 times the electron's charge.
- 4.93 and 15.9 are ***both almost whole numbers***. This appears to have something to do molecular bonds because
- ***15.9 is exactly the atomic mass of Oxygen***.
- Could our Beryllium system be connected to an Oxygen system and some other system(s)?

$$e = \frac{F}{N_A}$$

RELATIVE SCALING TRANSFORM

This is the relative scaling transform for any object in a natural system of multiple gravity fields, which is essentially everywhere, based on its position and velocity. In actuality, most system velocities are natural and the ones that are not are artificially induced by people.

$$s(v, x, y, z) = \left(\frac{v}{v(x, y, z)} \right)^{e}$$

v = the current velocity, v() = natural velocity due to gravity at position x,y,z

s() scale function is truly a ***relative*** *function*

v() is a complex gravity-based velocity function. This function is the application of General Relativity, or more specifically all the effects due to gravity fields

v() function is directly dependent on the object's distance from all other matter especially matter objects much, much larger than itself

v() function is most importantly directly tied to the object's initial velocity in a natural system

RELATIVE TIME DILATION TRANSFORM

Just like the relative scaling transform, the relative time dilation transform is related to surrounding gravity fields in the same way.

$$\tau(v, x, y, z) = \left(\frac{v}{v(x, y, z)} \right)^{\pi}$$

v = the current velocity, v() = natural velocity due to gravity at position x,y,z

v(X,Y,Z) GRAVITY COMPONENT

- **v()** is dependent on the surrounding gravity fields
- **v()** is dependent on cosmic rays
- **v()** is dependent on the density of space particles of all sizes
- **v()** is also ***dependent on the scaling of the object*** as it increases in velocity (scaling & velocity ***feedback***)
- **v()** has a wave form component in an orbital system produced by the core object (it's heliosphere)
- For the Solar System, the Sun has a strong gravity field, produces cosmic rays of various speeds, and aids the density of space particles
- All these dependences can impede scaling of an object in relation to it's velocity

VELOCITY RELATION TO GRAVITY

$$v = \sqrt{\frac{GM_{Sun}}{r_{planet}}}$$

$$c_s = \sqrt{\frac{GM_{Sun}}{r_{Asteroid\ Belt}}}$$

$$= 17315 m/s$$

INTERESTING NOTE:

Voyager 1 is travelling close to the limits of the Solar System just over 17000 m/s though its initial velocity was much higher. Is it possible that 17315 m/s is a natural velocity in interstellar space just as c is for quantum particles outside the atom?

v() INITIAL NATURAL VELOCITY EQUATION

$$v() = \sum_{n=1}^{\infty} \left[\left(\sqrt{\frac{G(M_n + m_o)}{d_n}} \right) \right]$$

This is still work in progress, but the following is the best so far. The equation inherently produces a waveform pattern due to it's dependency on surrounding matter objects, but the wave form is not explicitly described.

$$d_n = \sqrt{(x_o - x_n)^2 + (y_o - y_n)^2 + (z_o - z_n)^2}$$

ρ = density, M = remote mass, m = mass of obect at v,

G = gravitational constant, d = distance from object to remote mass

v() EXAMPLE OF COMPLEXITY

$$v() = \sqrt{\frac{GM_{Earth}}{d_{Earth}}} + \sqrt{\frac{GM_{Sun}}{d_{Sun}}} + \sqrt{\frac{GM_{Galactic\ Core}}{d_{Galactic\ Core}}} + \sqrt{\frac{GM_{Unknown\ Super\ Galactic\ Mass}}{d_{Unknown\ Super\ Galactic\ Mass}}} + \sqrt{\frac{GM_{Mars}}{d_{Mars}}} + \sqrt{\frac{GM_{Venus}}{d_{Venus}}} + \sqrt{\frac{GM_{Mercury}}{d_{Mercury}}} + \sqrt{\frac{GM_{Jupiter}}{d_{Jupiter}}} + \sqrt{\frac{GM_{Saturn}}{d_{Saturn}}} + \sqrt{\frac{GM_{Uranus}}{d_{Uranus}}} + \sqrt{\frac{GM_{Neptune}}{d_{Neptune}}} + \sqrt{\frac{GM_{Star1}}{d_{Star1}}} + \sqrt{\frac{GM_{Star2}}{d_{Star2}}} + \dots$$

This sum of velocities in a natural system is extremely close to the ***initial*** velocity of all objects from our relative station in the Universe ***here on Earth***.

THE VERY IMPORTANT INITIAL VELOCITY

No object in the known perceivable Universe is moving at absolutely v=0 m/s (besides the entire infinite Universe itself; the static frame of reference). All known objects are moving through space at a natural, gravity related initial velocity.

For the Earth ***and objects on it*** this natural initial velocity is:

$$v() = v()_{Sun} + v()_{GalacticCore} + v()_{MassiveUnkownMass}$$

$$v() = v_{Earth} + v_{Sun} + v_{Galaxy}$$

$$v() = 29783m/s + 220000m/s + 600000m/s$$

$$v() = 849783m/s$$

Massive unknown mass is the mass attracting our local group of galaxies

This total velocity might actually be greater. The true initial velocity is difficult to determine.

This initial velocity defines the level of space-time density we all exist it

In some parts of the Universe, the star and galactic velocities could be less than a planet's velocity in a star system depending on the material structure in that part of the Universe.

RELATIVE λ() TRANSFORM

$$\lambda_{relative}(v) = \left(\frac{v}{v()}\right)$$

Closely resembles the relative scale equation shown before, because this equation was extrapolated from it as a generalization.

ONE REALITY SCALE JUMP

This goes for atomic and star systems where the initial velocity is that of it's previous reality scale which is why v is squared.

$$\lambda_r(v) = \left(\frac{\lambda(v)}{\sqrt{\lambda(v)}}\right)^2 \qquad s(v) = \left(\frac{\lambda(v)}{\sqrt{\lambda(v)}}\right)^{2e}$$

$\sqrt{v}$ = *velocity numeric value of object 1 reality scale from* v

$$\lambda_r(v) = \lambda(v) \qquad s(c) = S$$

Note that the ***v()*** gravity based equation is not used, but if it were remember that scaling affects ***v()*** as velocity increases (feedback). Again, it can be conceptually difficult to see these velocities in reference to a Universe static frame of reference, but this is how it works and subsequently defining fractal scaling nature of the Universe.

SCALE STABILITY

The initial velocity of the collective system keeps the objects at a stable scale level.

$$s(v) = \left(\frac{v}{849783m/s}\right)^{e}$$

Velocity starts at 849783m/s and increases or decreases affecting its size.

But the value of 849783 m/s is a calculation dependent on the distance from and velocity of surrounding matter.

Example: At an ***artificially*** induced velocity= 5000 m/s = 18000 km/h from our velocity perspective:

$$s(5000) = \left(\frac{849783 + 5000}{849783}\right)^{e}$$

$$s(5000) = 1.0161$$

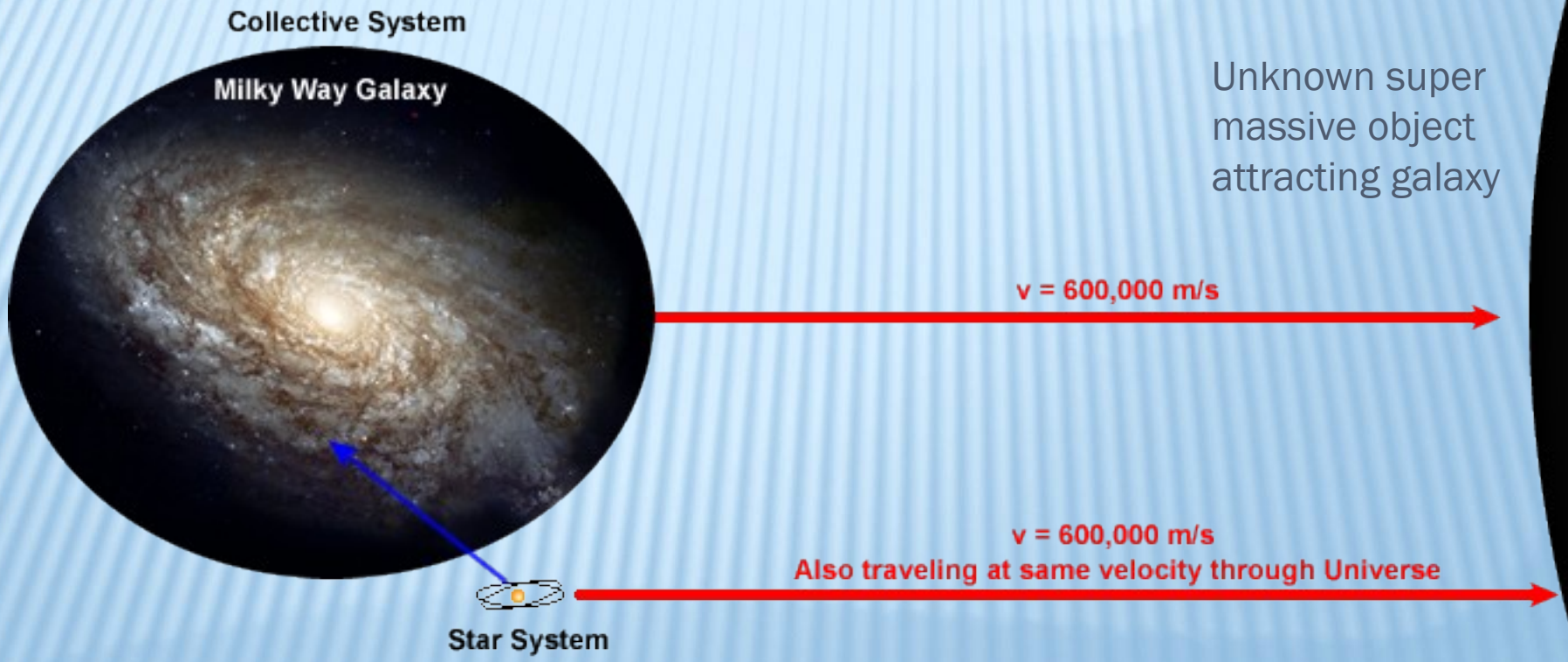
Even at 18000 km/h, the scaling of the object is close to a 1.6% shrink. In absolutely empty space (except for the object in question) this scaling factor is much larger.

SCALE STABILITY

- It is postulated that the nature of Universe limits scaling due to velocity by employing the effects of gravity fields (General Relativity) and distribution of temperature via thermal communicators
- The relative scaling function ***s(v, x, y, z)*** intrinsically describes this
- The closer a space object is to a very large gravity source, it increases in size, but also increases in velocity due to gravity attraction counteracting the increase in size maintaining a stable size (scale)

COLLECTIVE SYSTEM VELOCITY

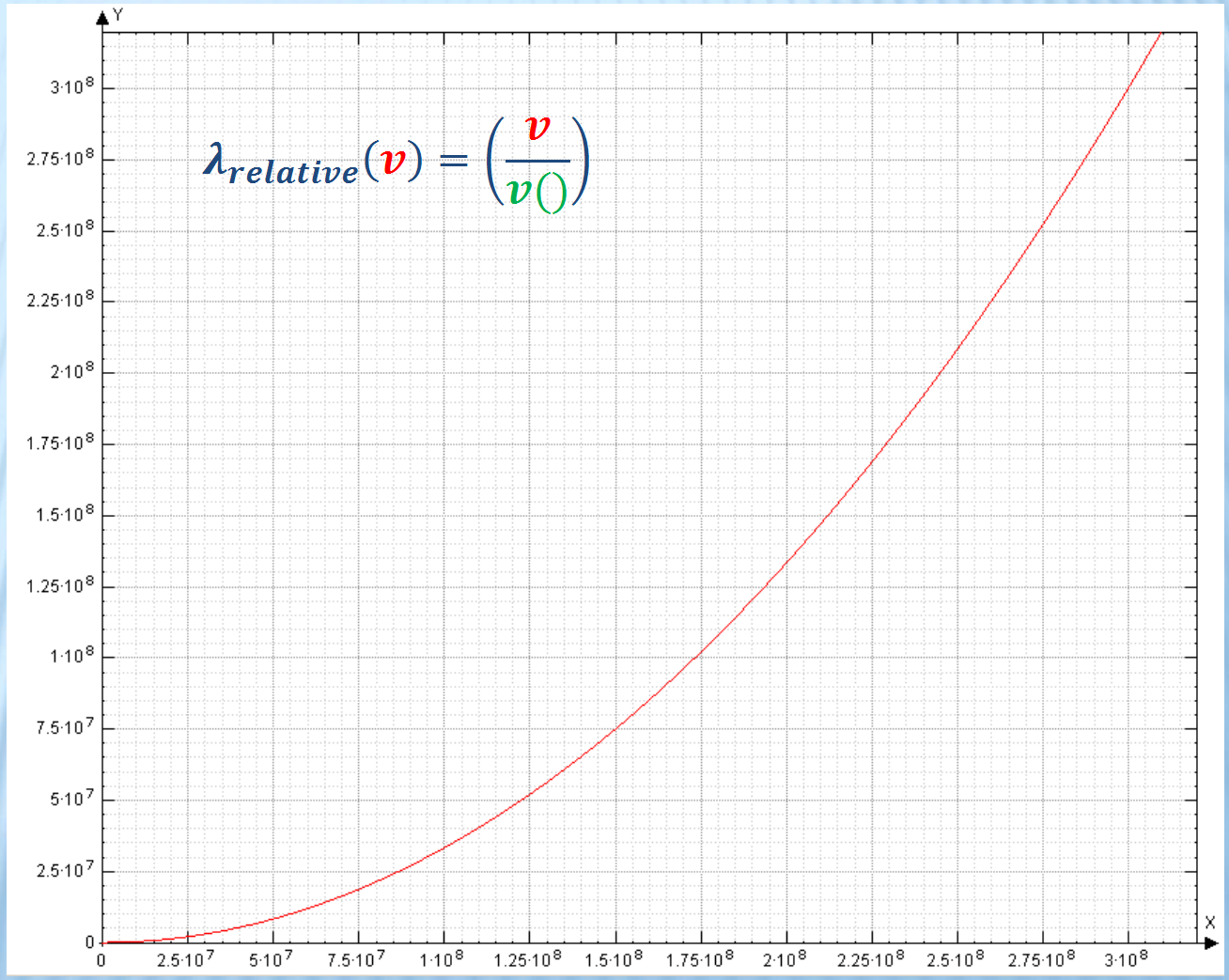
The Milky Way galaxy is traveling at about 600,000 m/s through our section of the known Universe. Some other estimates suggest that its traveling much faster.



600000 m/s is a base velocity for our collective system in an external gravity field

RESEMBLES LORENTZ TRANSFORM

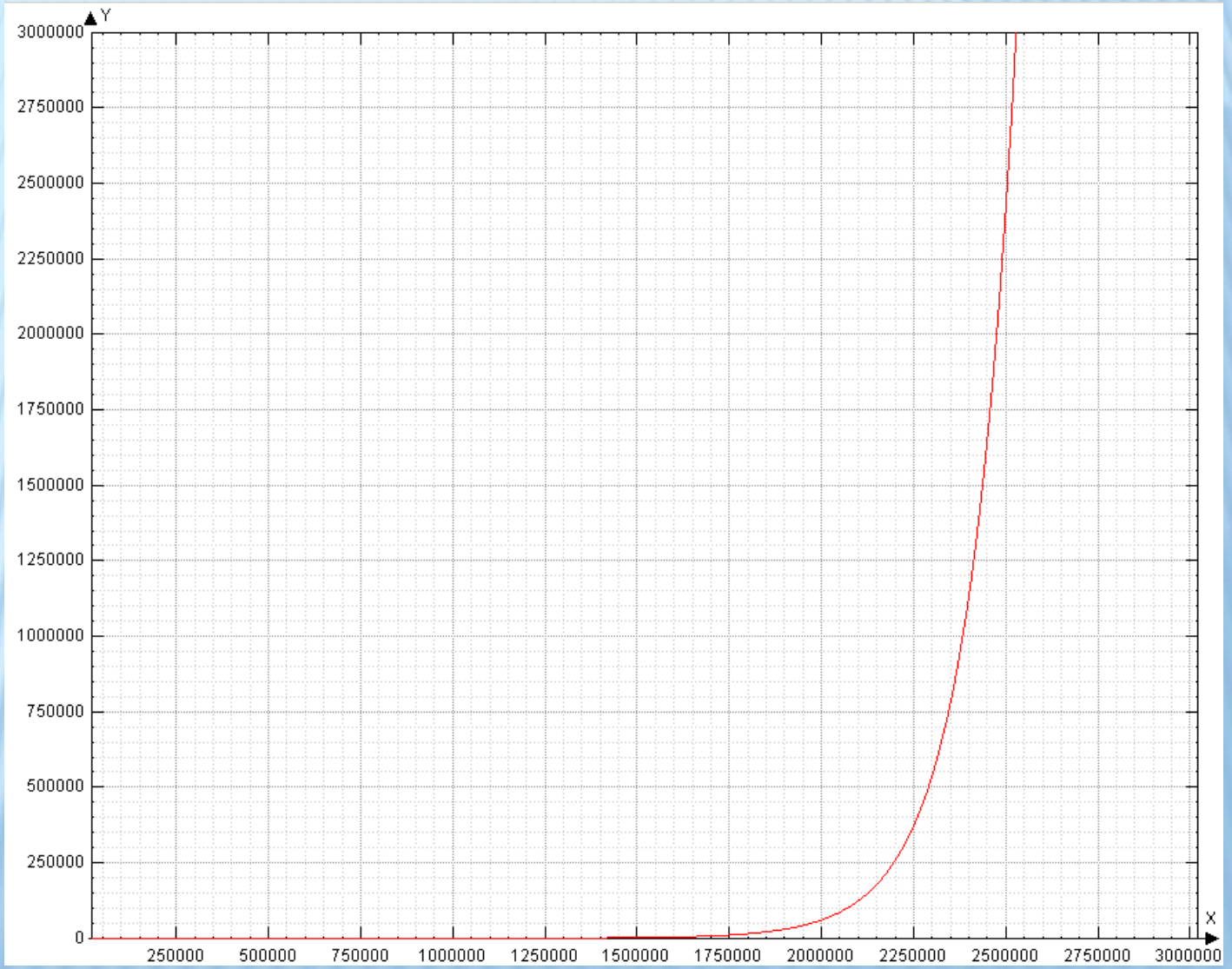
This graph presents how a gravity field “resists” the relativistic effect of motion on an object. The result is lambda=1 (no scaling) at low speeds and near a much larger object (planet, star). As the object’s velocity increases, its distance also increases away from the large gravity source resulting in lambda >1. *The closer to matter and gravity fields the object is as it accelerates, the* ***flatter*** *the graph resembling that of Einstein-Lorentz transform.*



SCALING MATTER-DISTANCE DEPENDENCY

Accounting for an increasing distance as the object accelerates in velocity ***away from all known matter into the empty void of space***, the graph sharply increases at low velocities.

This is a hypothetical scenario because all of known space is filled with matter that we can see and matter that we can not (dark matter).



SUMMARY OF REALITIVISTIC RELATIVITY

$$s(v,x,y,z) = \left(\frac{v}{v(x,y,z)}\right)^{e}$$

$$\tau(v,x,y,z) = \left(\frac{v}{v(x,y,z)}\right)^{\pi}$$

$$\Delta t_q = \Delta t_o(\tau(v))$$

$$l_q = \frac{l_o}{s(v)}$$

$$\rho_q = s(v)\rho_o$$

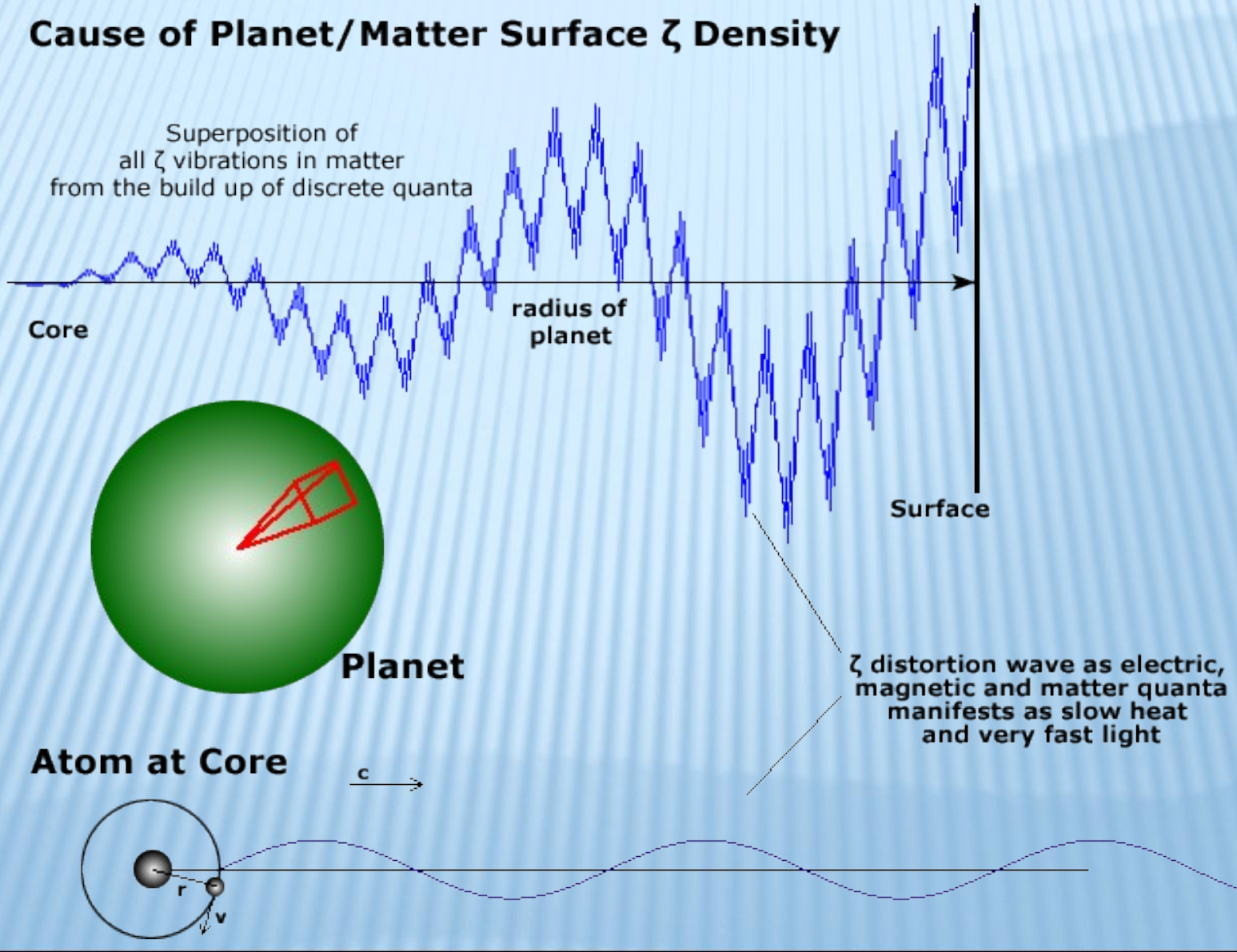
$$m_q = \frac{m_o}{s(v)^2}$$

This framework states that as an object accelerates towards the speed of light (c) and beyond from a stationary perspective, its space-time density increases, its mass decreases, its matter density increases, its collective size decreases and the passage of time for the object increases turning the object into a quantum

GRAVITY, WAVE THEORY AND GR

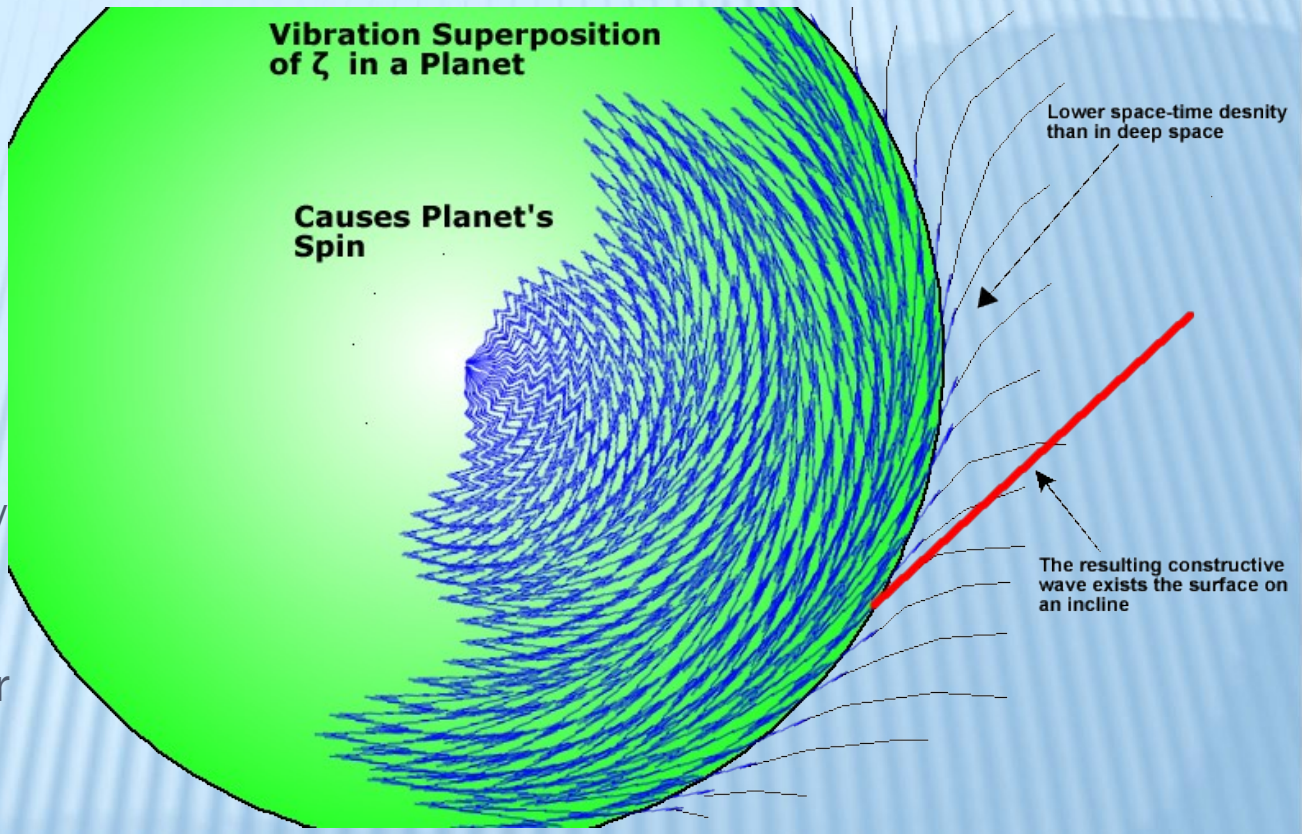
- Gravity obeys the laws of wave theory
- The carriers of gravity are quanta that travel at the speed of light (to our best understanding)
- Therefore in this framework, natural heat communicators of all frequencies and amplitudes (photons, fire, heat) are the communicators of the gravity effect
- Light has a very obvious wave component, therefore gravity also has a wave component
- Light/quanta also has a very obvious matter component,
  ζ vibrations are not independent of matter
- This means that this gravity communicator wave component can be constructive and destructive according to wave theory

PLANET SURROUNDING SPACE-TIME DENSITY



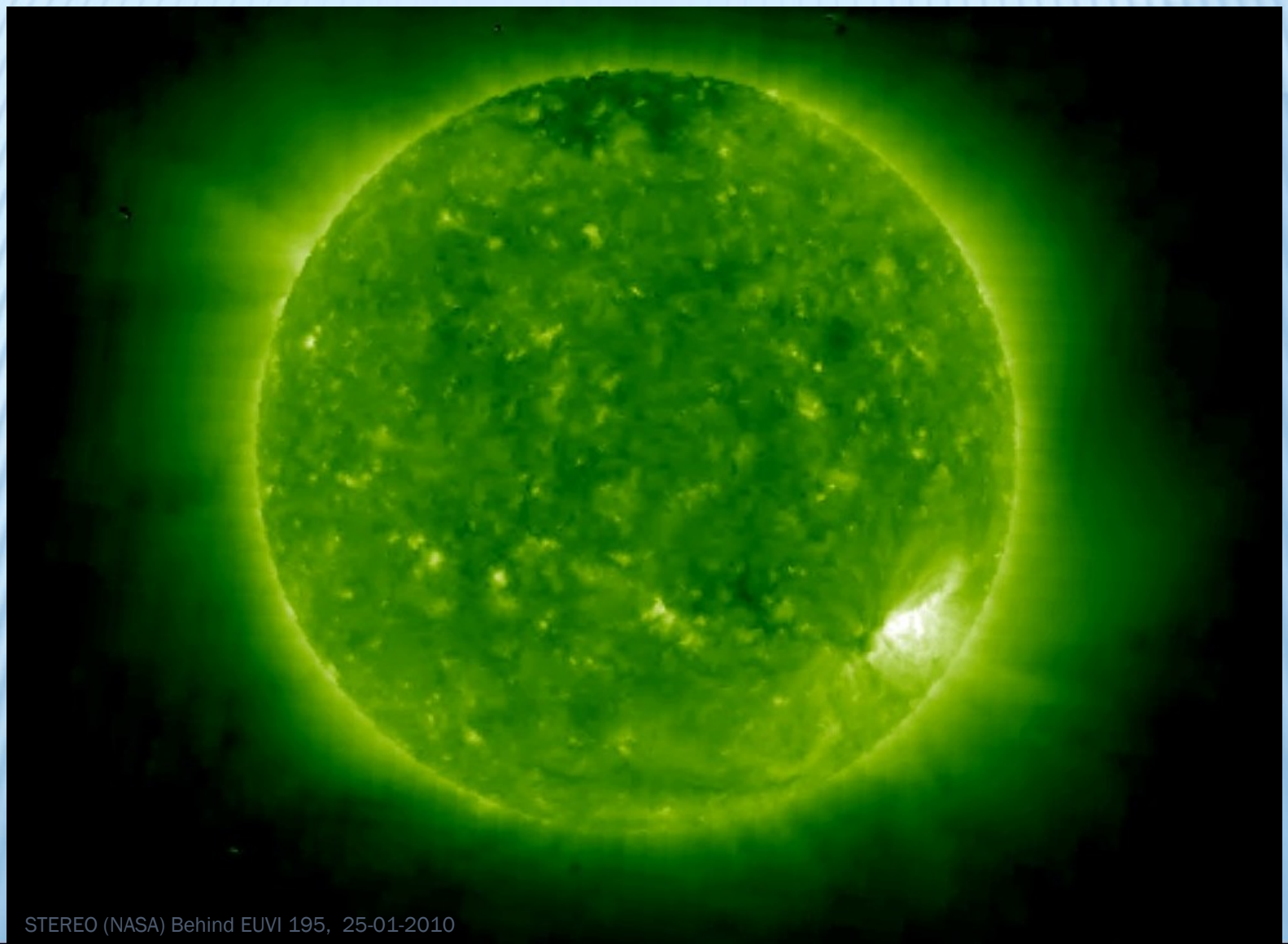
PLANET SPACE-TIME DENSITY CAUSES SPIN

The resulting constructive surface wave (*of infinite frequencies*) leaves at an incline manifesting as slow heat and fast light which pushes against the surrounding ζ space-time causing spin. The resulting wave also leaves the surface with a large amplitude which makes the space-time density at the surface of the planet less than in the deep blackness of space. It's hotter on the surface. All matter is hotter than the absolute void of space. ***The larger the object the larger the resulting constructive wave amplitude; ex. Sun's solar "flames"***



Also notice the effect of inner planet rings of different matter densities. Some of these rings cause molten lava.

PLANET SPACE-TIME SURFACE DENSITY

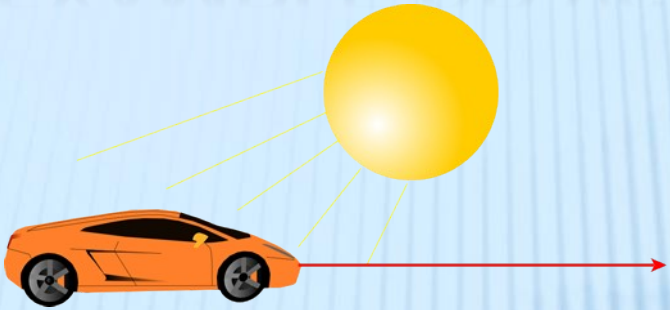


STEREO (NASA) Behind EUVI 195, 25-01-2010

GENERAL VS. REAL RELATIVITY

- GR counteracts the effect of RR due to the traveling object's velocity.
- The closer an object is to a larger, massive object, time slows down for the smaller object (relative to the massive object's net kinetic velocity) unless the object's velocity increases which increases it's passage of time.
- This means that space-time density near and on matter is less than in deep space due to matter's amplification of space-time vibrations (quanta to fire and heat wave forms)

VERY SIMPLE EXAMPLE GR VS. RR

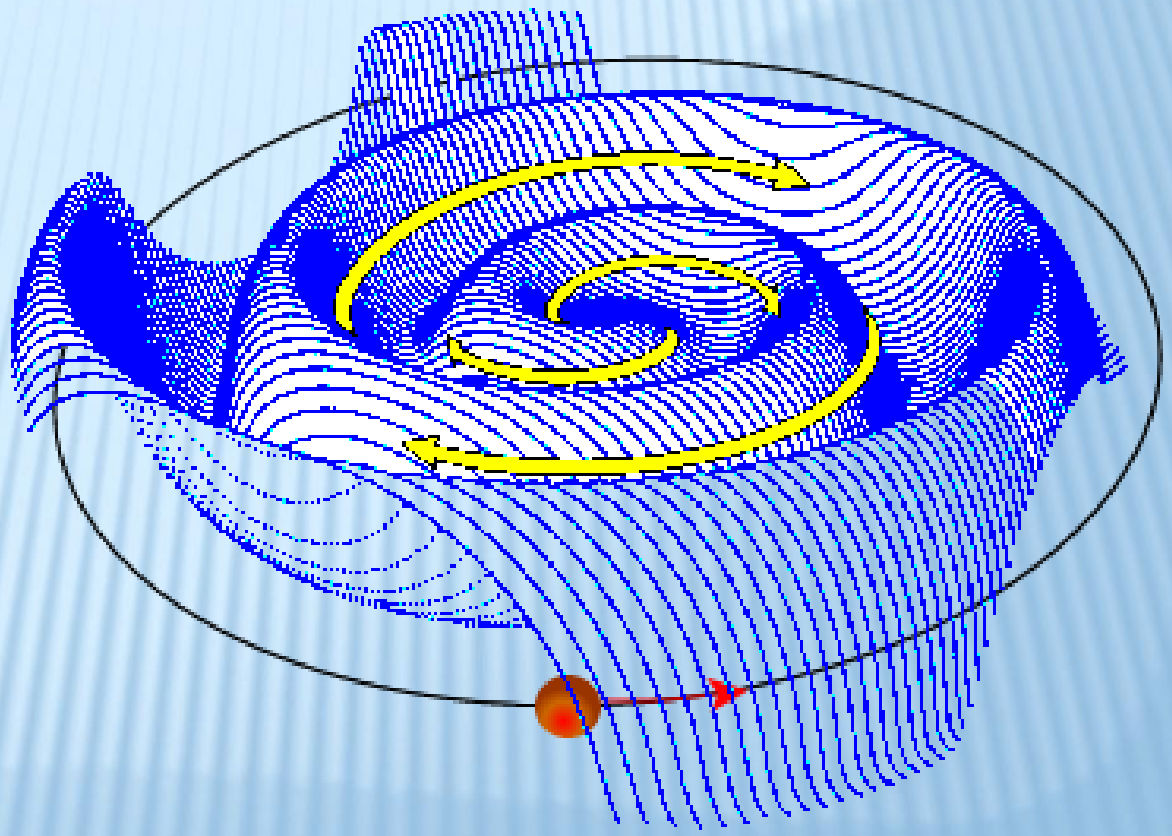


- GR and RR can be easily perceived as a manifestation of ***two very well known localized or down-to-Earth effects***
- A warm vehicle accelerating in warm weather (air) cools down as it pushes through the air by leaving heat communicators behind it in the air and by forming a slight magnetic field due to acceleration acting as a shield
- Cooling condenses its material structure
- If the Sun's rays are intense (no obstruction) the vehicle's material structure heats up and expands requiring it to go faster to cool off (ignore engine heat)
- The heat from the Sun is part of the GR effect. The cooling and condensing due to motion is the RR effect

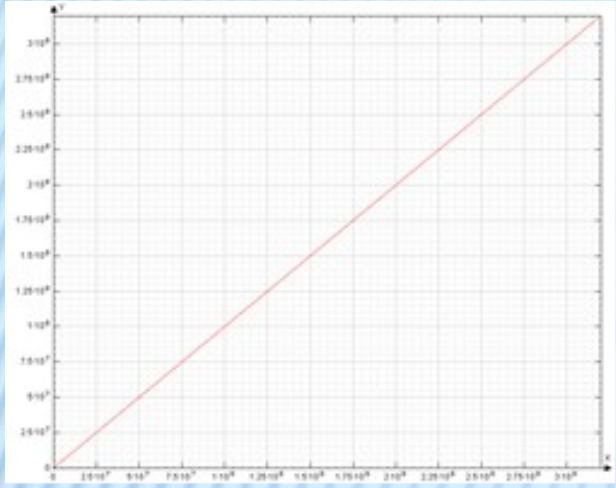
λ() IN A SYSTEM - HELIOSPHERE

Lamda in a system is affected by the star's (core object's) magnetic field or more specifically the heliosphere current sheet (HCS) where the star's magnetic field changes from north to south.

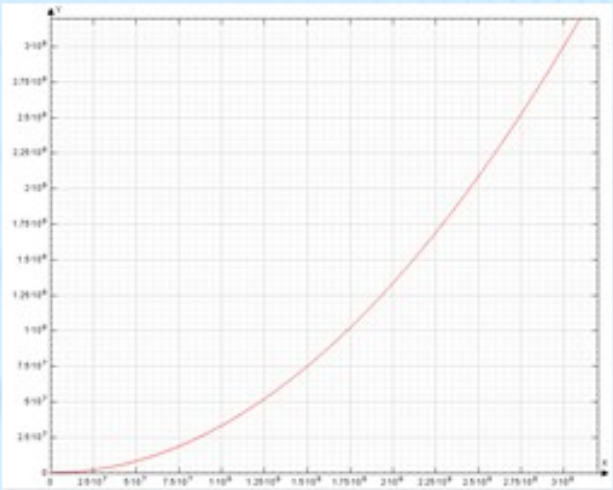
This field directly affects the density of objects in orbit around the core object in a naturally coalesced system. This magnetic field also affects the solar wind throughout the system thus affecting the heat distribution and the GR effect. This is reminiscent of atomic orbital energy levels.



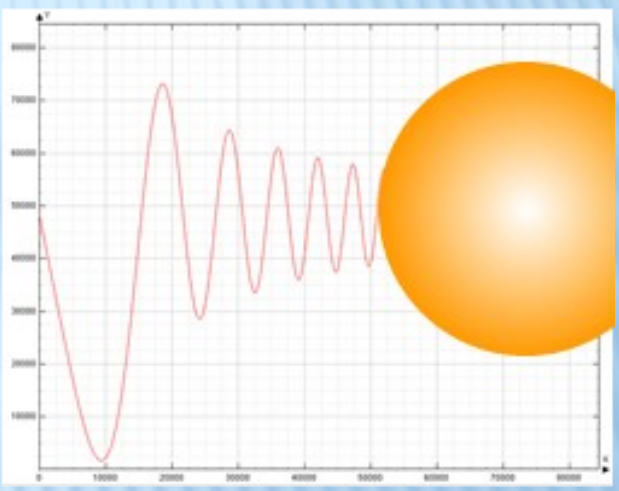
λ() CHARACTERISTICS



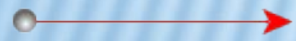
In absolutely empty space



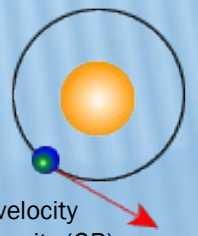
Object moving away from initial position near larger object from low velocity to c



Objects in a natural and stable orbit around larger core system object



This acceleration is artificially induced



Natural velocity
Due to gravity (GR)

All velocity references are made in relation to the rest of the Universe.

PHOTONS

How much mass is actually absorbed and released by excited atoms using the Reality Scale Constant S and this framework that matter at the celestial scale is charge at the quantum scale. First off is the very well known photon energy equation:

$$E = hf$$

$$h = 6.62606896x10^{-34}Js$$

h = Plank's constant, but Plank himself didn't believe this value was constant or well defined but that it worked for the time being.

$$E = \frac{1}{2} m_q v^2 = hf$$

Match photon energy equation to another energy equation for kinetic energy

PHOTONS ARE ASTEROIDS

$$E = \frac{1}{2} m_q c^2 = hf$$

$$m_q = \frac{2hf}{c^2}$$

Calculate at various light frequencies:

$f = 10^0 \text{Hz}$ $\quad m_q = \dfrac{2(6.62606896\text{x}10^{-34}\ \text{Js})(10^0\ \text{Hz})}{c^2} = 1.4725x10^{-50}C$

$f = 10^{24} \text{Hz}$ $\quad m_q = \dfrac{2(6.62606896\text{x}10^{-34}\ \text{Js})(10^{24}\ \text{Hz})}{c^2} = 1.4725x10^{-26}C$

PHOTONS ARE ASTEROIDS

$$m_q = \frac{m_o}{S^2}$$

$$m_o = m_q S^2$$

By this point it is this framework's conclusion that charge and mass units are interchange-able with this framework. Different units given to two different points on the velocity spectrum.

Using the quantum mass/charge results from before, the celestial masses are:

$$m_q = 1.4725x10^{-50}C$$

$$m_o = (1.4725x10^{-50}C)S^2 = 1.1025x10^{-9}kg$$

$$m_q = 1.4725x10^{-26}C$$

$$m_o = (1.4725x10^{-26}C)S^2 = 1.79x10^{20}kg$$

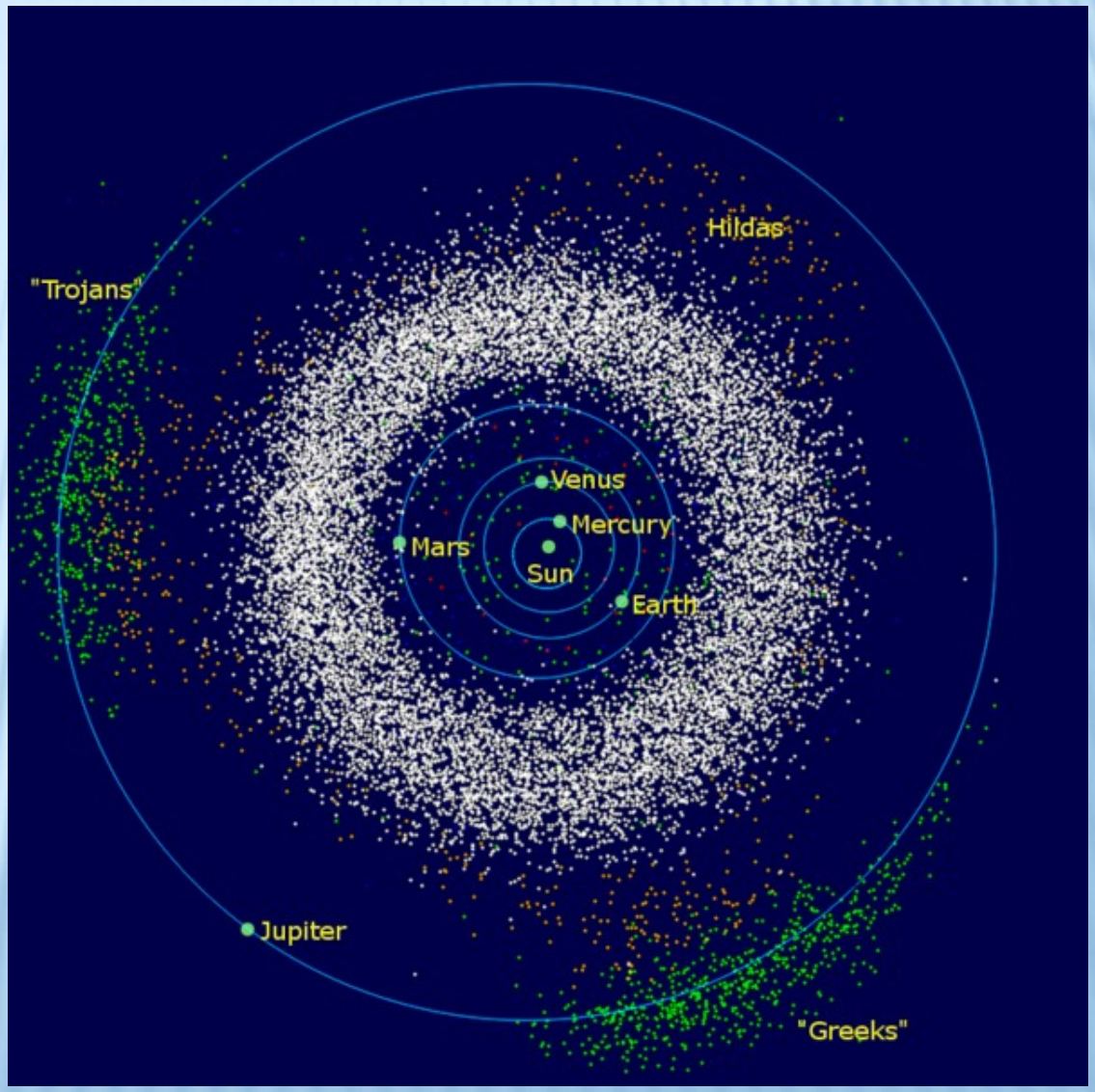
There's no denying it, the values fall within acceptable range of asteroid masses found in the Asteroid Belt including space dust.

CELESTIAL PHOTONS

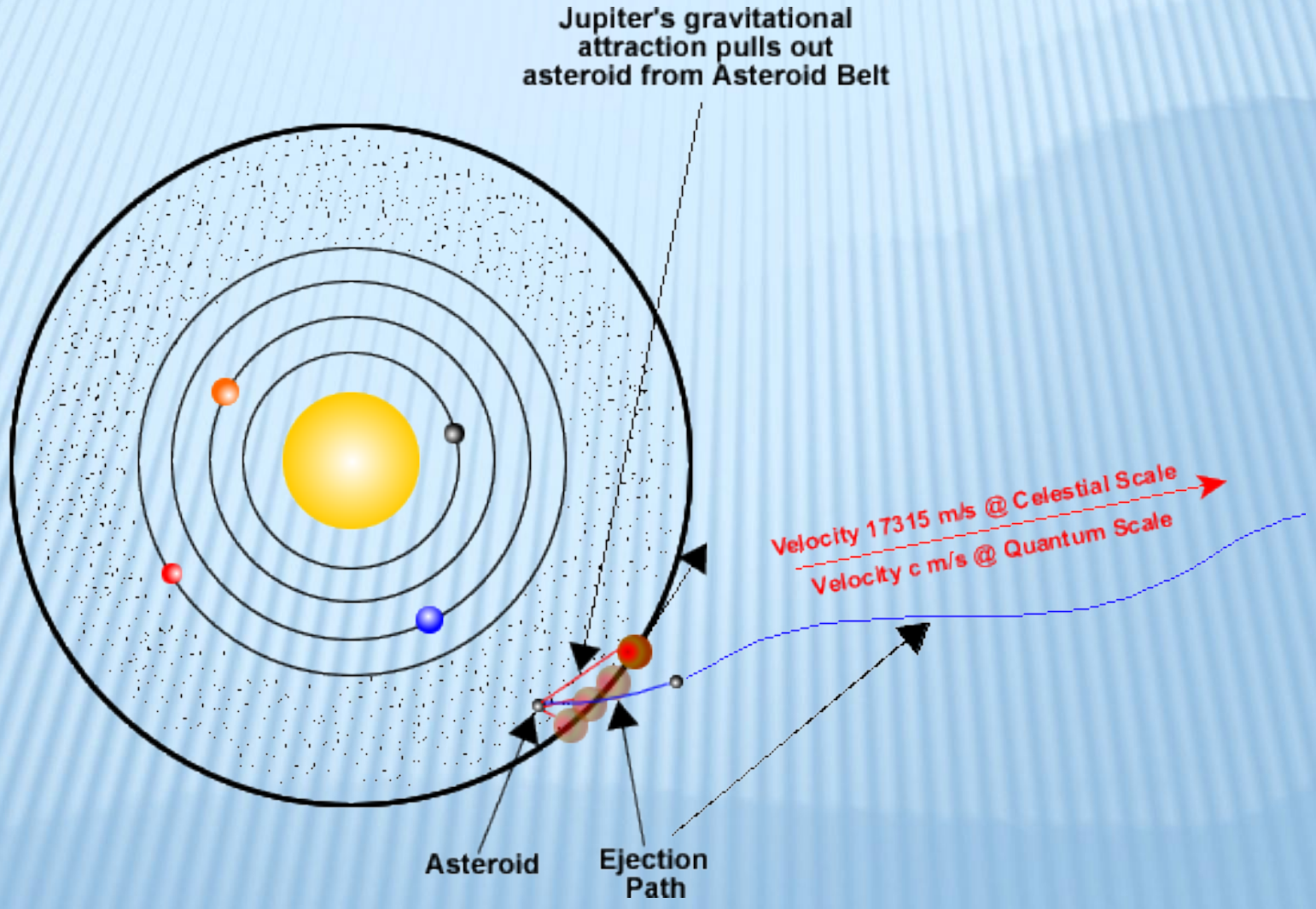
The asteroids in our system between Mars and Jupiter are celestial photons.

These asteroid groups are a repository of celestial photons and depict the level of “energy” our system has or how excited it is akin to an atom that is externally heated.

It is postulated that a “heated” star system, absorption of external asteroids and space dust, diminishes, by obstruction, the star’s gravitational attraction to the outer system planets having them expand their orbit akin to an electron raising an energy level.



PHOTON RELEASE

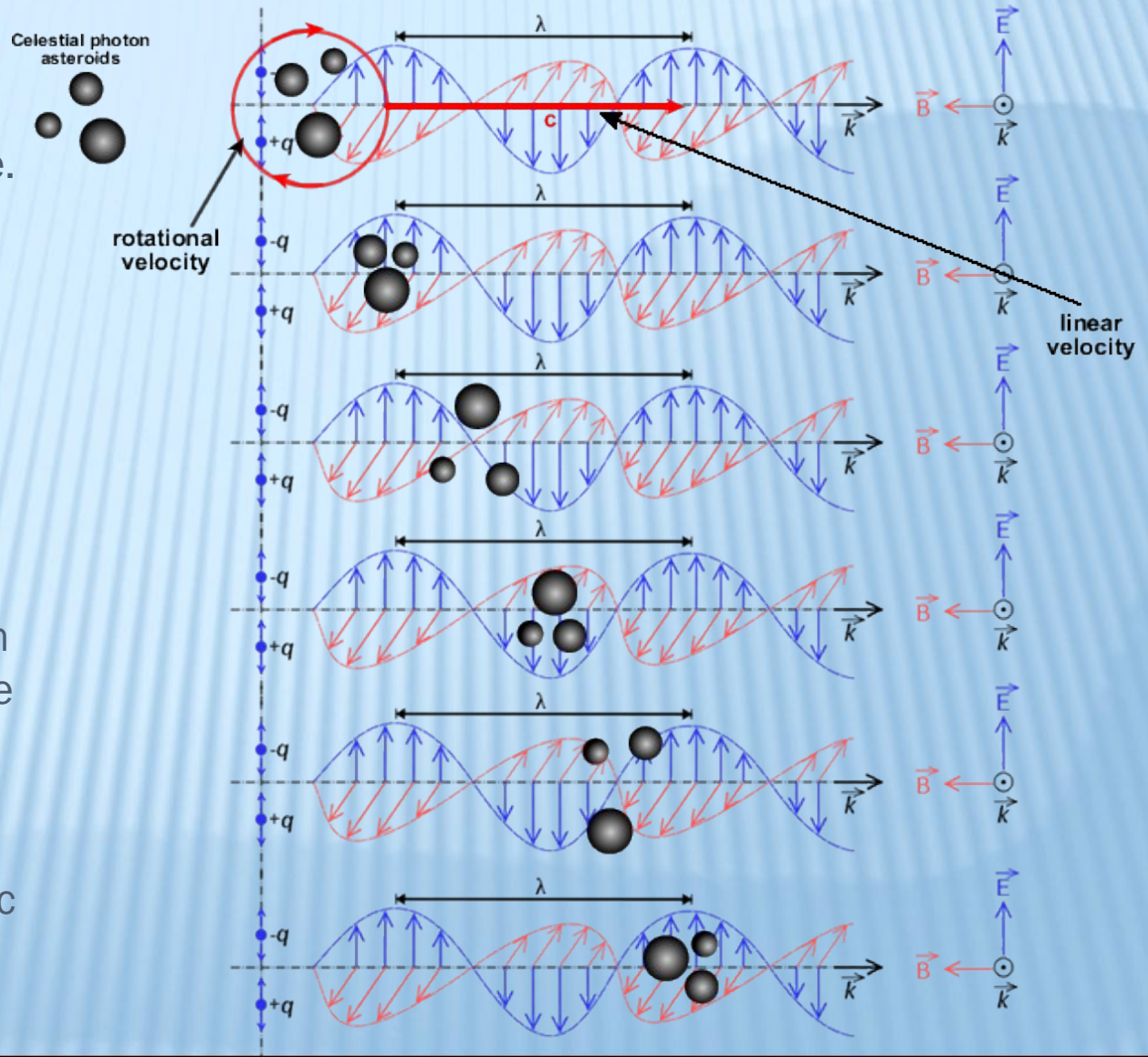


The asteroid presented here can either be an single asteroid or a group of asteroids.

CELESTIAL PHOTONS

Celestial photons are comprised of one or more asteroids at the quantum scale. They travel in a wave like pattern due to their rotational velocity, and if in a group of asteroids, due also to their gravitational attraction and repulsion between each other.

The greater the mass/charge, the higher the frequency. When dispersed, the collective charge is less reducing magnetic and electric field strength. When close together, the charge is greater increasing the magnetic and electric field strength.



QUANTUM SPEED OF LIGHT

The squaring of our speed of light gives the speed of light at the other reality scales:

$$c_o^{\,2} = 9.0\text{x}10^{16}$$

$$c_o = 299792458 \ (no\ units)$$

$$\sqrt{c_o} = 17314.515$$

Our speed of light: $c = 299792458\ \text{m/s}$

Celestial speed of light: $c_s = 17314.515\ \text{m/s}$

Quantum speed of light: $c_q = 9.0\text{x}10^{16}\text{m/s}$

This means to travel to Alpha Centuri which is 4.1343E16 m (4.37 light years) away at the quantum speed of light would take 0.46 seconds. The communication applications are mind boggling and possibly why we haven't received any intelligent space communications. We're don't have a quantum radio (yet) to receive those types of communications.

QUANTUM INVARIANT MASS

- What about the current invariant mass of quantum particles documented in every physics text book?

$$m_{neutron} = 1.6749x10^{-27}kg$$
$$m_{proton} = 1.6749x10^{-27}kg$$
$$m_{electron} = 9.1093x10^{-31}kg$$

- How are these values related to the hypothesis that a particle's charge is actually it's quantum mass?

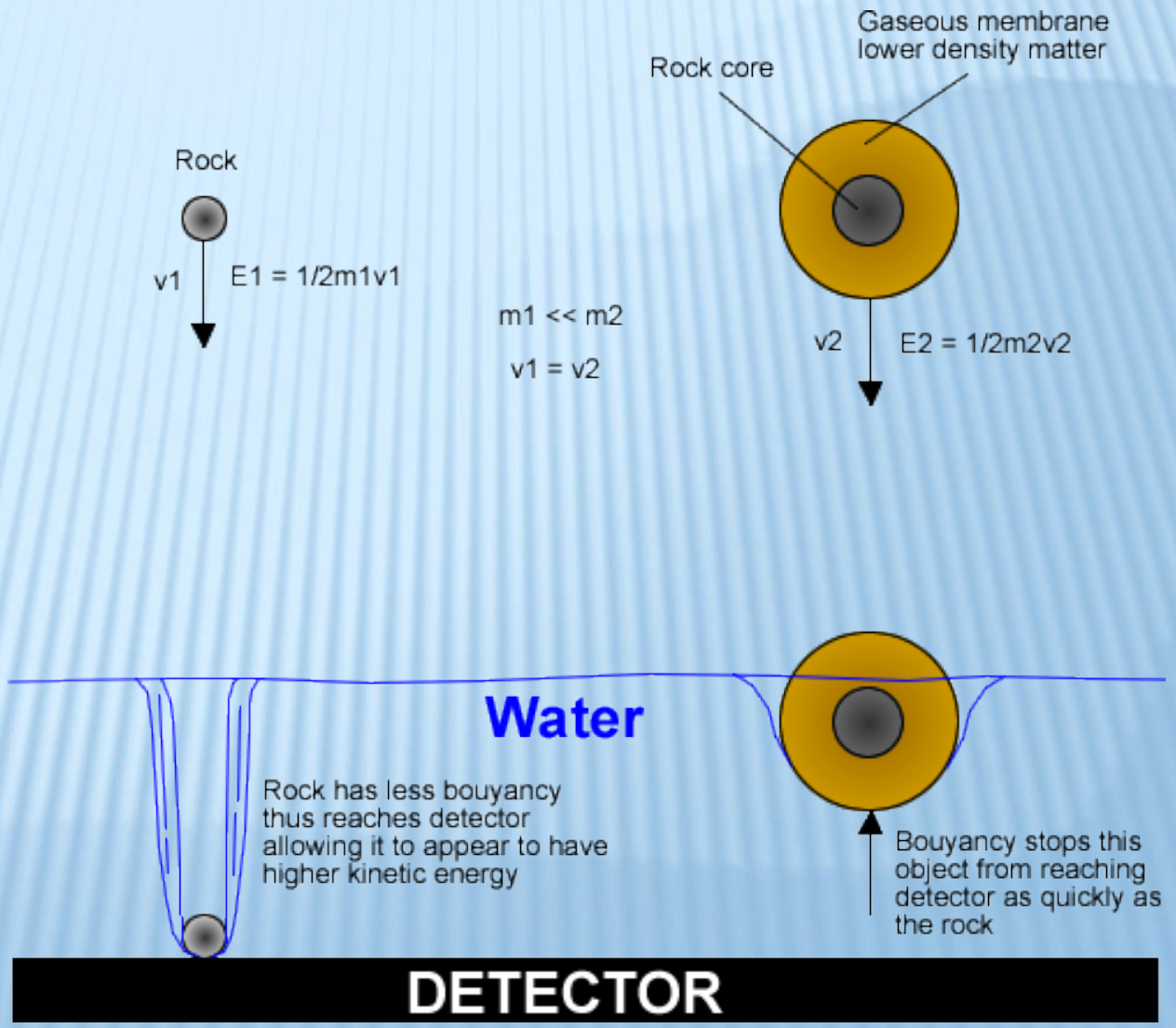
QUANTUM INVARIANT MASS

- In this framework, protons and neutrons are denser than electrons therefore it takes more voltage polarity from our instrumentation to either accelerate or decelerate these particles because it is more difficult for space to pass through them and for our instrumentation to manipulate them
- This higher polarity amounts to more energy expended to move or stop the particles and this measured energy along with Einstein's E=mc^2 calculates a higher mass than electrons
- In actuality, and in this framework, ***neutrons are less massive than electrons and protons are greater in mass than both neutrons and electrons***

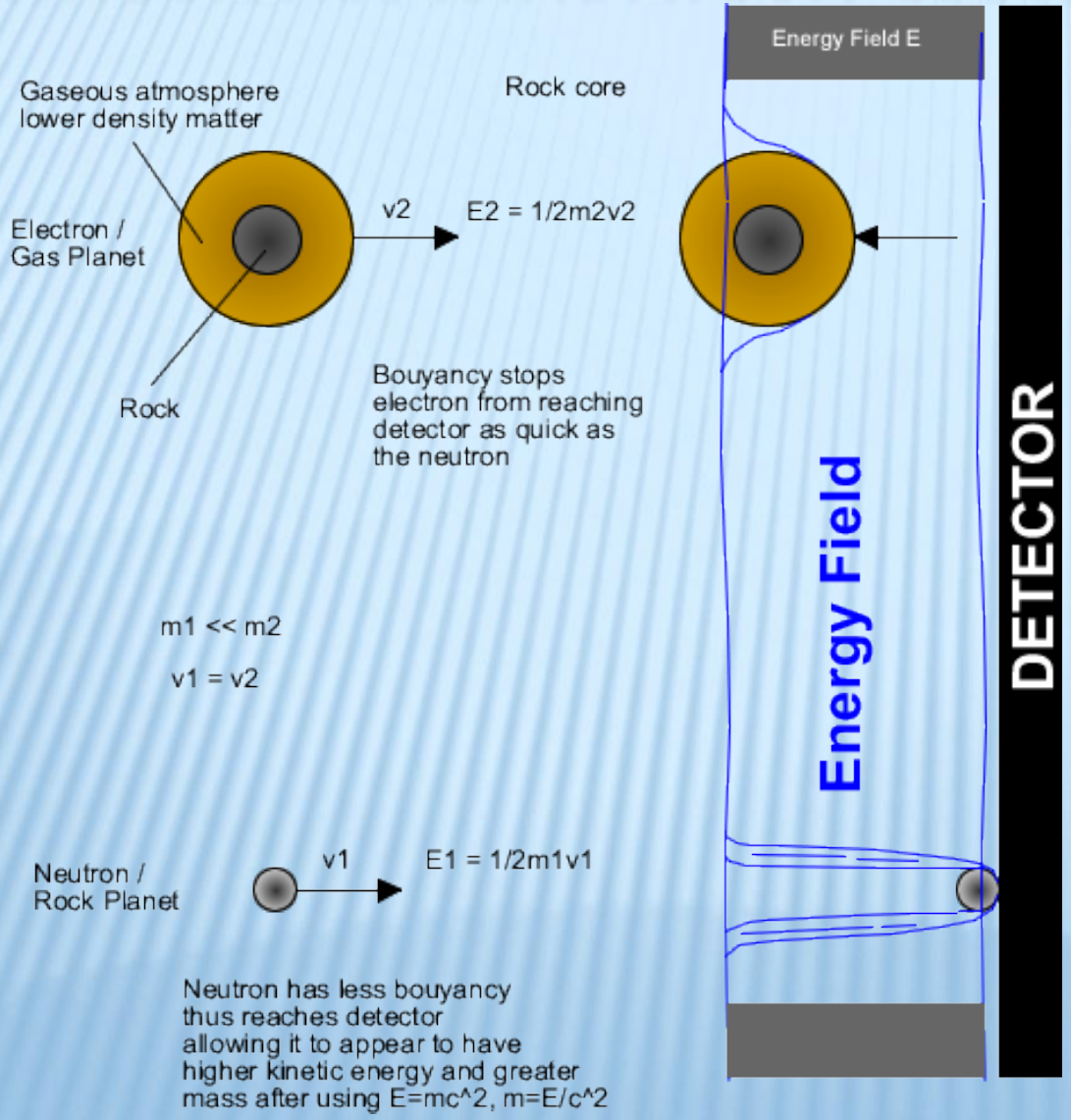
QUANTUM INVARIANT MASS

Buoyancy of a matter object in a fluid plays an important role in the resulting perception of kinetic energy on the a dropped object into the fluid.

If buoyancy is neglected, the following scenario of incorrectly attributing the greater mass to the object of actually less mass will occur.



QUANTUM INVARIANT MASS



The energy field is either purely magnetic or a mixture of a dilute distribution of infinitesimal matter particles akin to cosmic dust and rays but at the quantum scale.

Also, detectors are made of matter, therefore atoms in the detector are bound together by magnetic and electric fields. The bombarding quantum particles must first penetrate those magnetic and electric fields and because of that ***the composition and buoyancy of quantum particles, it plays a very important role which we have neglected to consider***.

ACTUAL QUANTUM INVARIANT MASS

$$m_{electron} \gg m_{neutron}$$

$$v_{electron} = v_{neutron}$$

$$E = \frac{mv^2}{2}$$

$$\frac{1}{2} m_e v^2 \gg \frac{1}{2} m_n v^2$$

$$E_{electron} \gg E_{neutron}$$

QUANTUM INVARIANT MASS PROBLEM

$$E = Energy\ of\ Field$$

The problem occurs when we ignore the effect of buoyancy on quantum particles. Ignoring the effect of buoyancy can ***reverse*** our calculation of kinetic energy:

$$E_{IM\ electron} = E - E_e \qquad E > E_e, E > E_n$$

$$E_{IM\ neutron} = E - E_n$$

$$\frac{2E_{IM\ electron}}{v^2} \ll \frac{2E_{IM\ neutron}}{v^2}$$

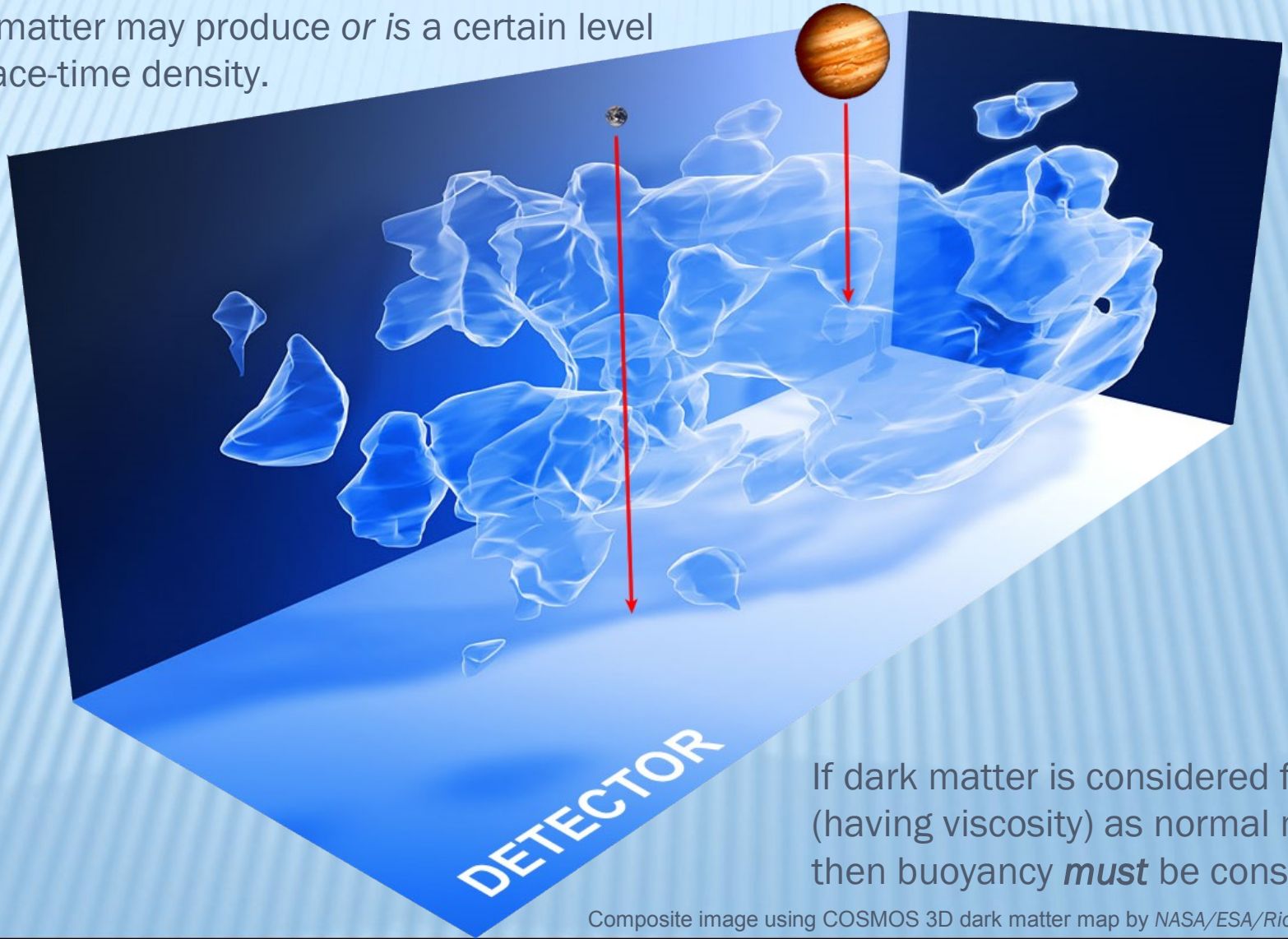
$$E = mc^2 \qquad m = \frac{E}{c^2}$$

$$\frac{E_{IM\ electron}}{c^2} \ll \frac{E_{IM\ neutron}}{c^2}$$

These equations are only to present the logic not the actual solution which has been more difficult to resolve

QUANTUM INVARIANT MASS

Dark matter may produce *or is* a certain level of space-time density.



If dark matter is considered fluidic (having viscosity) as normal matter is, then buoyancy ***must*** be considered.

Composite image using COSMOS 3D dark matter map by *NASA/ESA/Richard Massey*

QUANTUM INVARIANT MASS

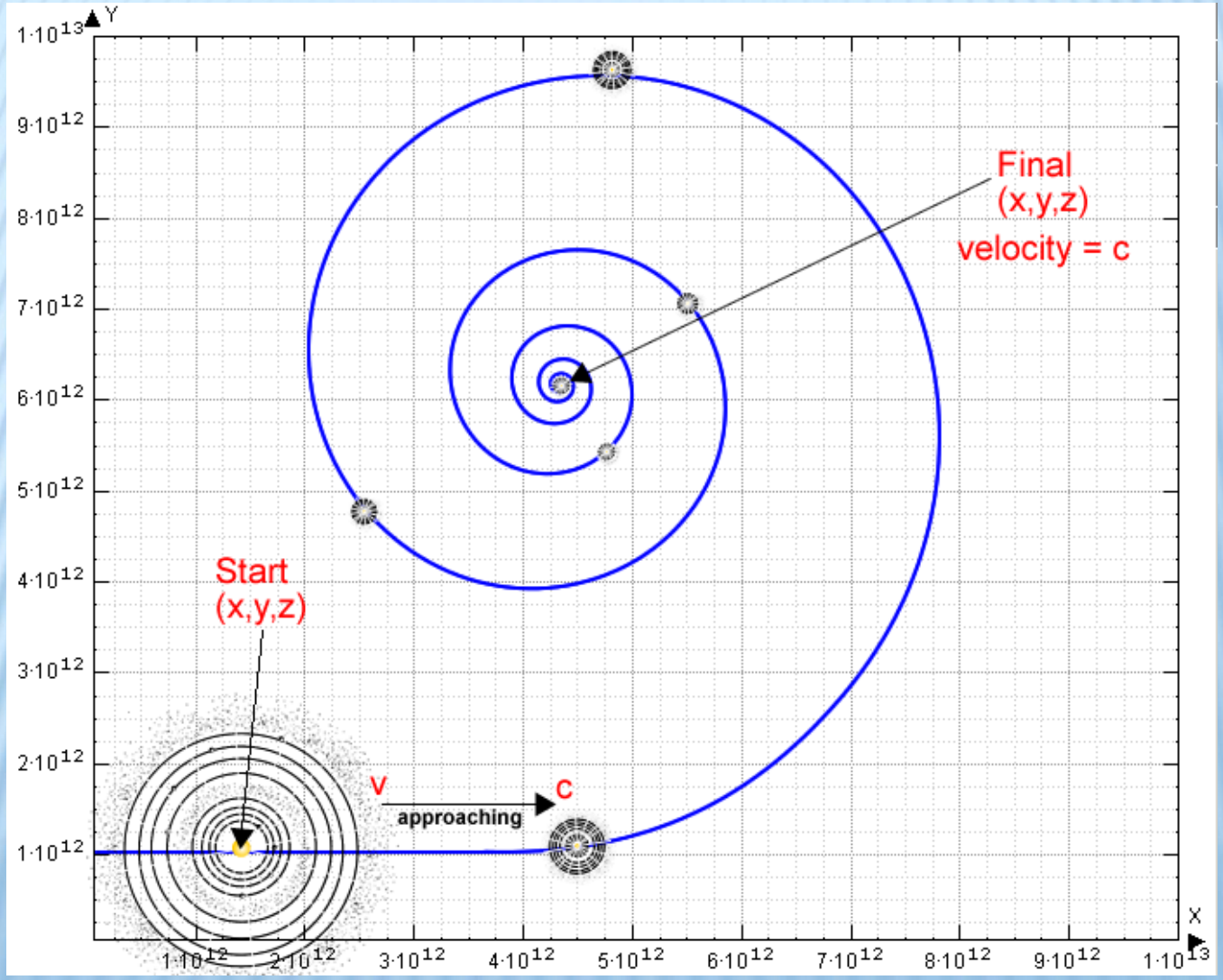
- It is the hypothesis here that ***the current quantum invariant mass of quantum particles is actually directly related to their quantum matter density***
- The solution to solving this problem is to examine in detail how these currently accepted values were measured instrumentally and subsequently derived mathematically (using E=mc^2) in order to extrapolate a relation to the particle's charge (actual quantum mass).

STATIONARY POSITIONING OF ATOMIC SYSTEMS

Star system starts accelerating a low velocity.

As speed increases, the system starts to shrink.

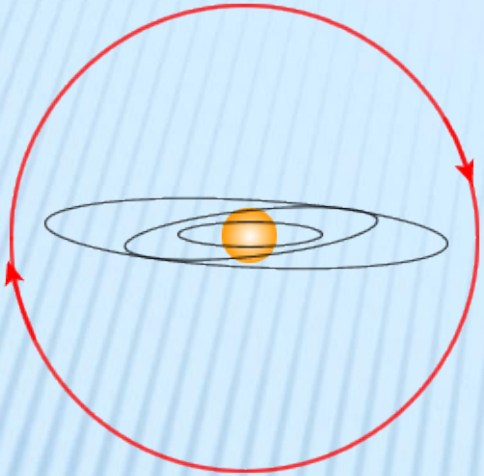
Due to the system's natural spin, its path of acceleration will curve into a spiral.



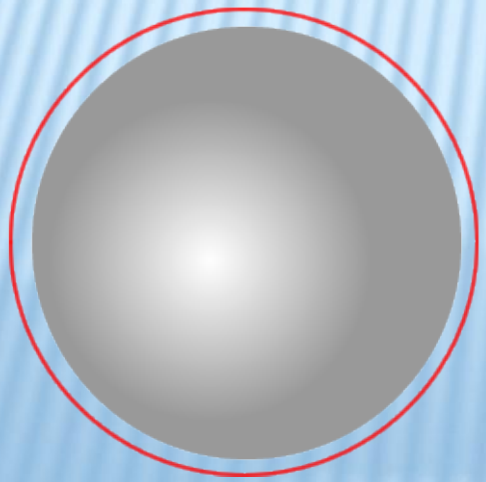
When it reaches the speed of light along this path, becoming an atom in the process, all of its ***linear velocity transfers to rotational velocity*** giving it a stationary position at (x,y,z).

SHAPE OF ATOM

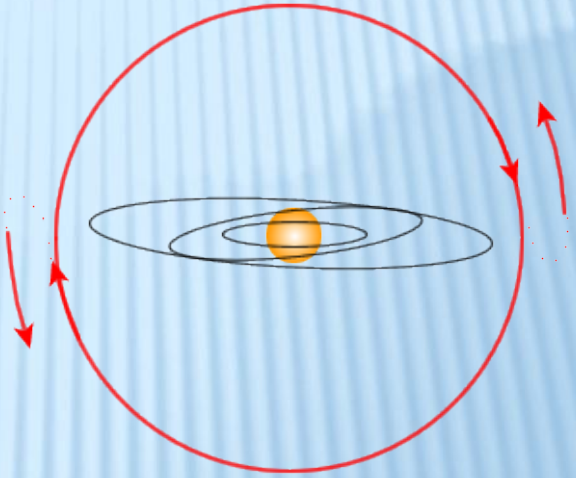
Collective system
spinning at around c velocities



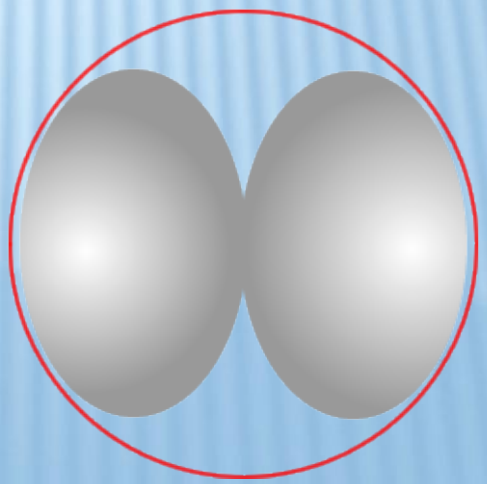
From our scale perspective this spinning appears
as a blur producing a magnetic field surface



Collective system
wobbles at around c velocities



From our scale perspective this wobbling appears
as a blur producing a magnetic field surface



SHAPE OF ATOM IS A BLUR

Measured radius of Be (Beryllium) atom = 105pm

$$C = 2\pi r$$

Measured radius of Neptune is = 4.534E12 m and orbital velocity is 5430 m/s

$$\#Orbits/s = \frac{5430m/s}{2\pi(105pm)} = 8.2306E12/s$$

At estimated outer electron orbital velocity of about 0.10c m/s = 3E7 m/s

$$\#Orbits/s = \frac{3E7m/s}{2\pi(105pm)} = 4.55E16/s$$

At such a small scale, either velocity will appear as a ***complete blur*** and produce a ***magnetic field shell*** as perceived by us at our scale due to the object's charge in motion which accounts for an ***atom's luster***. The more electrons, the greater the luster.

At 5430m/s @ r=105pm,
$\triangle t$ = (8.2306E12)(5.2422E9s/orbit) = 4.2889E22 seconds = ***1.35E15 years pass for 1 sec our time***.

At 0.10c m/s @ r=105pm,
$\triangle t$ = (4.5473E16)(5.2422E9s/orbit) = 2.3837E26 seconds = ***7.5587E18 years pass for 1 sec our time***.

ATOMIC ORBITAL ENERGY LEVELS

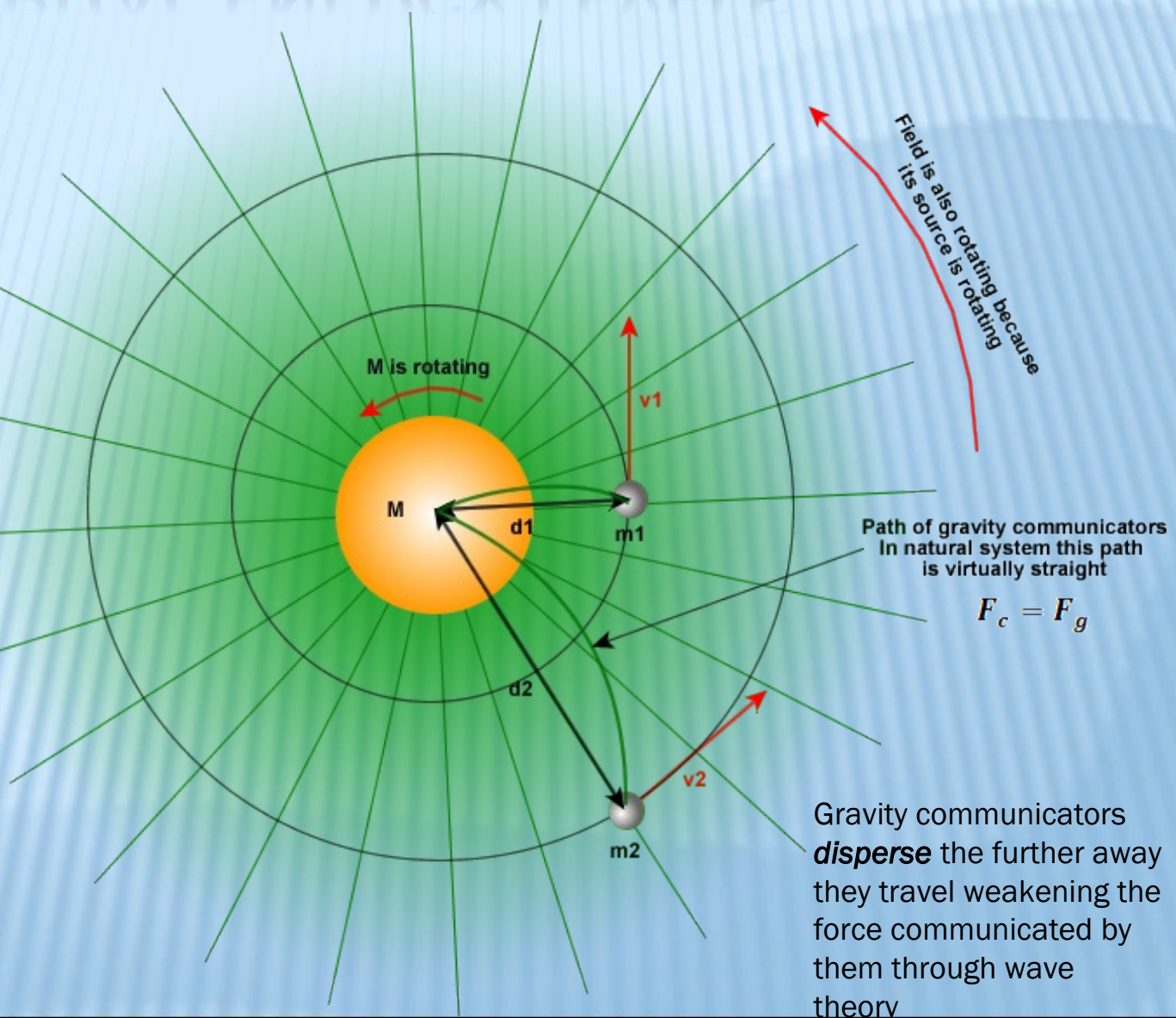
Energy is ***not*** independent of matter at any scale. Atomic orbital energy levels contain matter that are electrons which are gas-giant planets in this framework. ***These levels exists in direct relation to the mass of these matter objects and their kinetic energy due to an orbital velocity generated by the large core object.***

Remember that at velocities near and beyond c and at picometer radii, these orbital matter objects appear as a blur producing a magnetic field shell which at our scale appears as an energy level.

$$F_c = \frac{mv^2}{d} = F_g = \frac{GMm}{d^2}$$

where

$$v = \sqrt{\frac{G(M+m)}{d}}$$



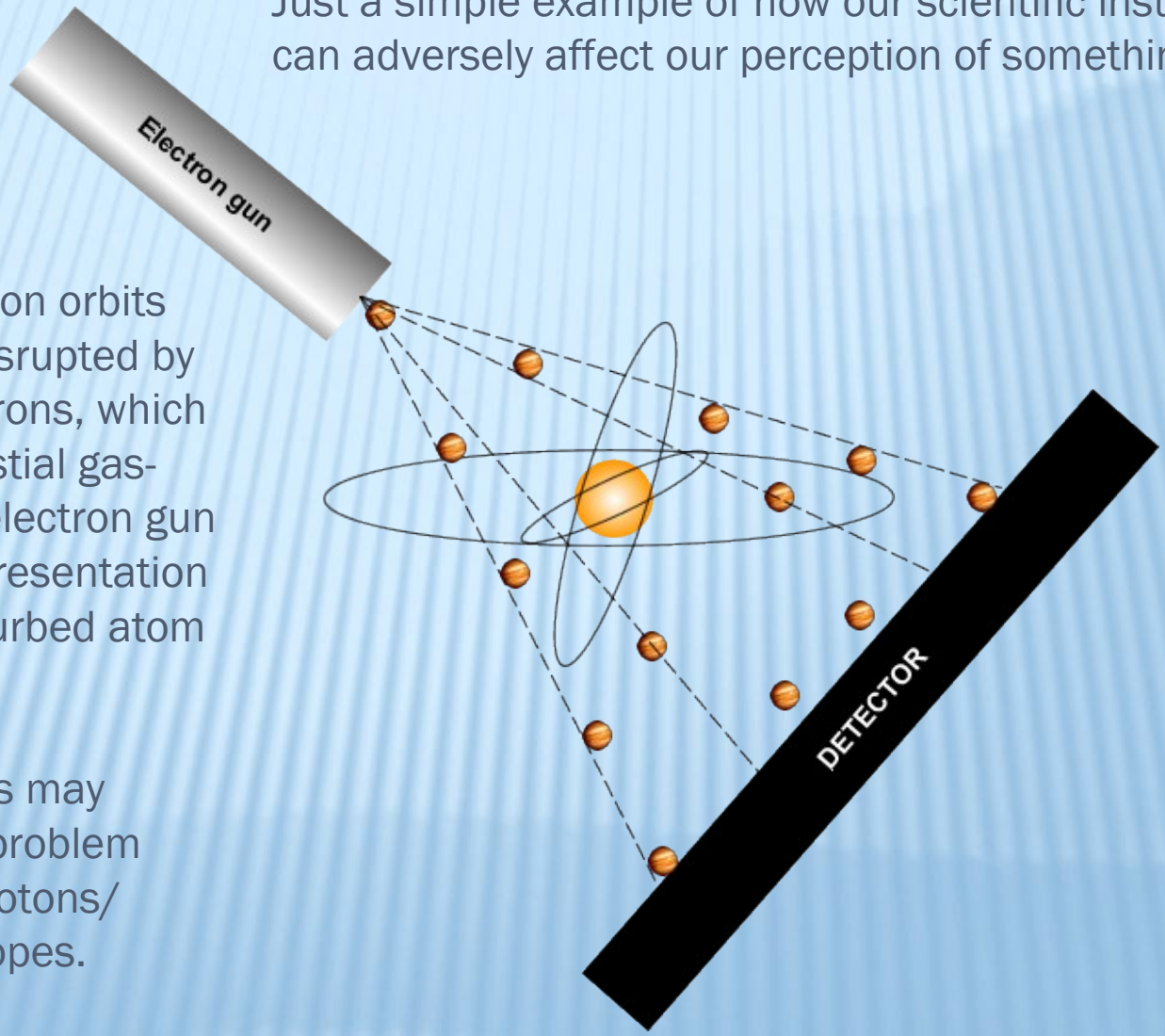
Gravity communicators ***disperse*** the further away they travel weakening the force communicated by them through wave theory

REVERSE UNCERTAINTY PRINCIPLE

- The further into the future we attempt to predict the position of a celestial object in a star system, the more erroneous our predictions will become in relation to the actual position of that object due to unknown internal or external compounded influences.
- Within this framework, as a star system increases in velocity approaching c, it becomes an atom where the Heisenberg Uncertainty Principle describes the difficulty of determining the position of quantum particles in an atom.
- The Reverse Uncertainty Principle is the Heisenberg Uncertainty Principle where the two are perceived from two different space-time densities.

SHAPE OF AN ATOM

Just a simple example of how our scientific instrumentation can adversely affect our perception of something.



The atom's electron orbits are immensely disrupted by a stream of electrons, which are equal to celestial gas-giants, from an electron gun giving a false representation of how an undisturbed atom actually appears.

Other instruments may cause the same problem such as laser (photons/ asteroids) telescopes.

REFINING THE CONCEPT OF CHARGE

- If star systems and atoms are the same thing in two very different levels of space-time density then what would constitute positive and negative charge at the celestial scale?
- The concept of positive and negative refer not to an isolated characteristic specific to a single particle, but are defined by how various particles interact with each other
- Positive and negative refer to the action whether particles attract or repel each other
- ***The label of "positive" and "negative" is a human invention to categorize particles in association to how they interact***

REFINING THE CONCEPT OF CHARGE

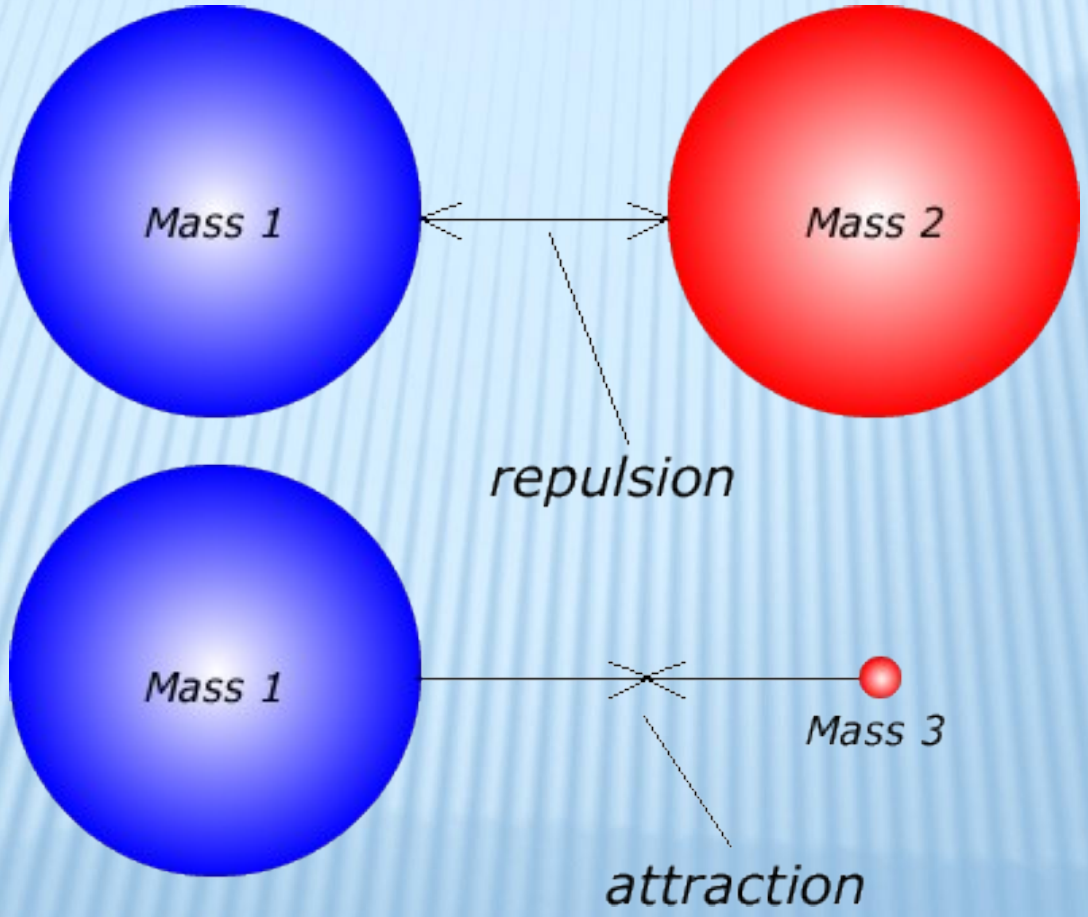
- So at the celestial scale, how do various celestial objects interact? Do some attract while others repel?
- Currently, classic gravity theory states that gravity only attracts, but gravity (in the traditional sense) alone does not completely define all attraction and repulsion behavior between celestial objects
- Stars and large gas-giants are very hot and continuously expel heat in the form of particles and photons which can exert a repelling force

REFINING THE CONCEPT OF CHARGE

- This obvious repelling force created by large celestial objects like stars and gas-giants expert a certain force per square area on other objects
- If the area is small, like rock planet vs. gas-giant, then the gas-giant's expelled heat will not exert enough force to repel the rock planet
- If the area is big, like gas-giant vs. gas-giant, then the expelled heat from both gas-giants will exert enough force to overcome gravity and repel each other
- **This alone defines a type of celestial charge**, but it's a bit more complicated

CELESTIAL CHARGE

Celestial charge is directly related to gravity interaction between different masse-densities.



Gravity needs to be re-examined.

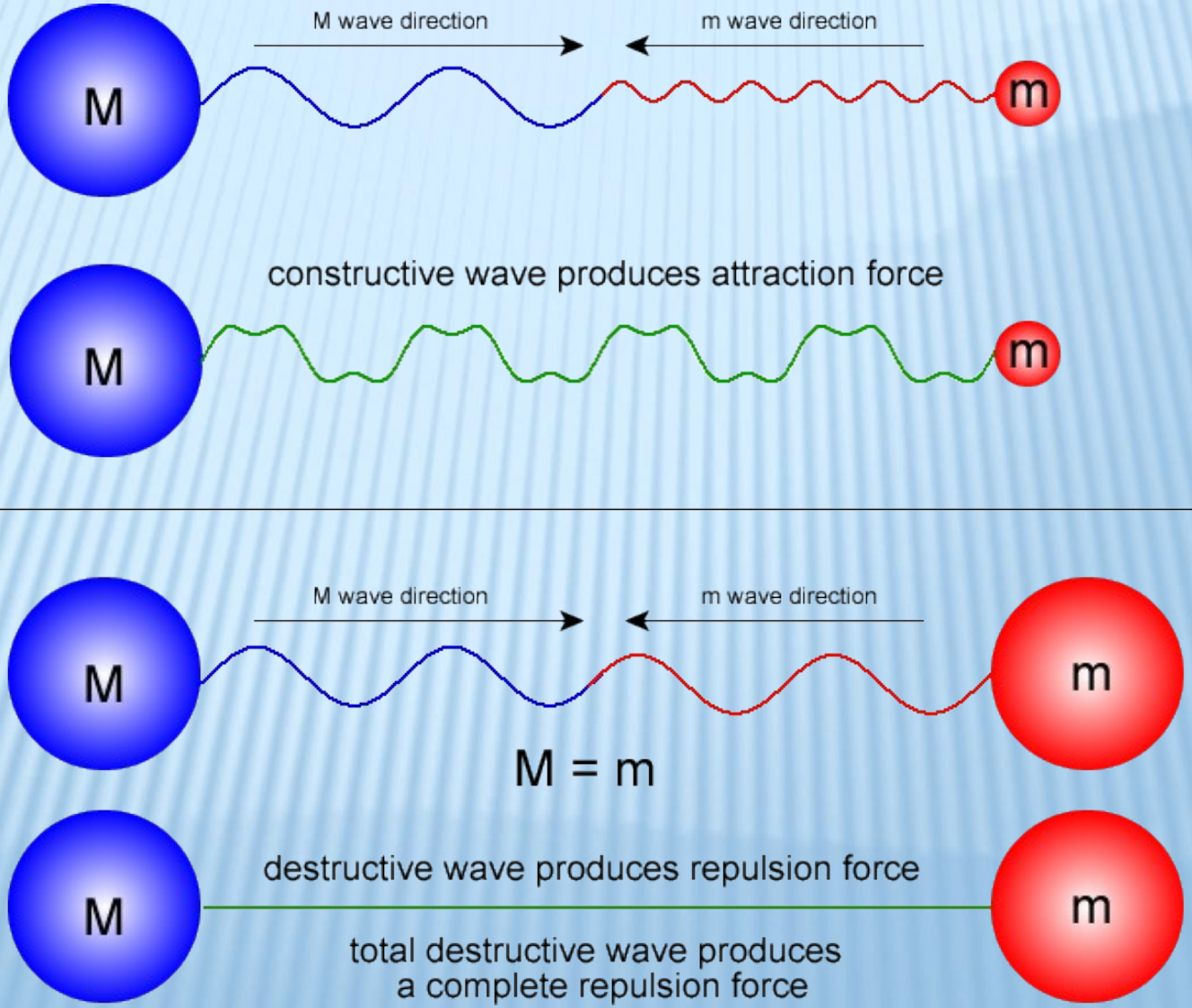
REFINING GRAVITY

- If expelled heat from large celestial objects can exert a repelling force overcoming gravity attraction, then what fully is gravity?
- Does the full definition of gravity also constitute this repelling force?
- Looking at the quantum realm for clues, its is well known that charge force can travel large distances
- This causes a problem for expelled heat repulsion force because it would be strongest at fairly close distances and diminish greatly over larger distances
- Quantum charge force appears to travel, relatively, indefinite distances only diminishing depending on the medium and what it encounters (blocks it)

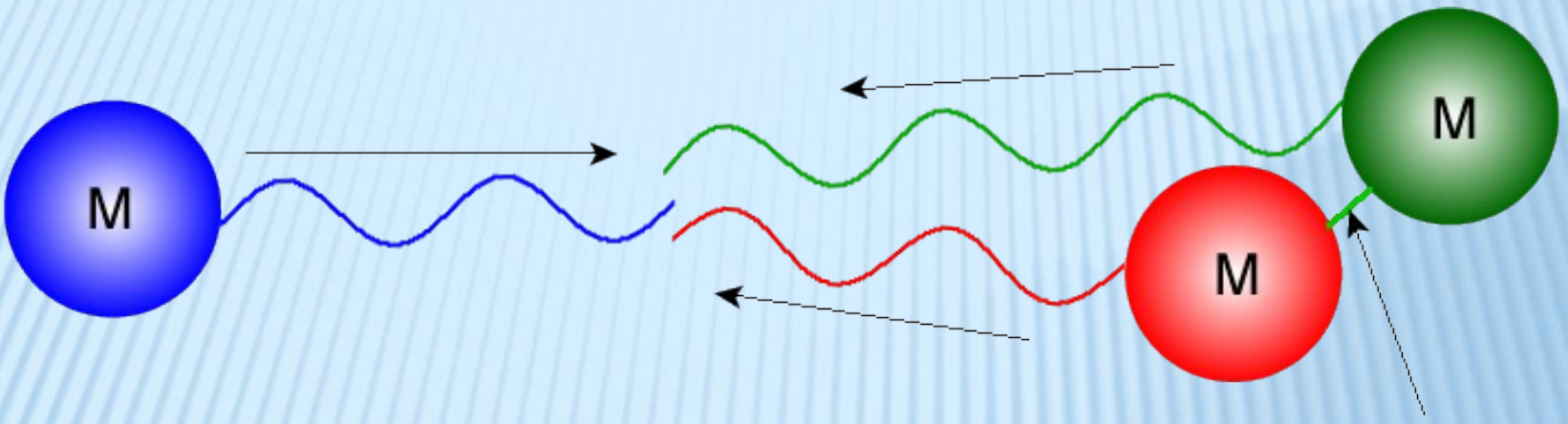
REFINING GRAVITY

- Gravity and wave theory are married
- If gravity force travels at the speed of light, then light (full spectrum) is what causes gravity
- Light travels indefinitely unless impeded
- Light has wave properties, therefore gravity must adhere impart to wave theory
- ***The full spectrum of expelled energy waves from a planet, manifesting a slow heat, magnetic fields, particles, photons and other quanta, collectively constitute the effect of gravity and all adhere to wave theory***

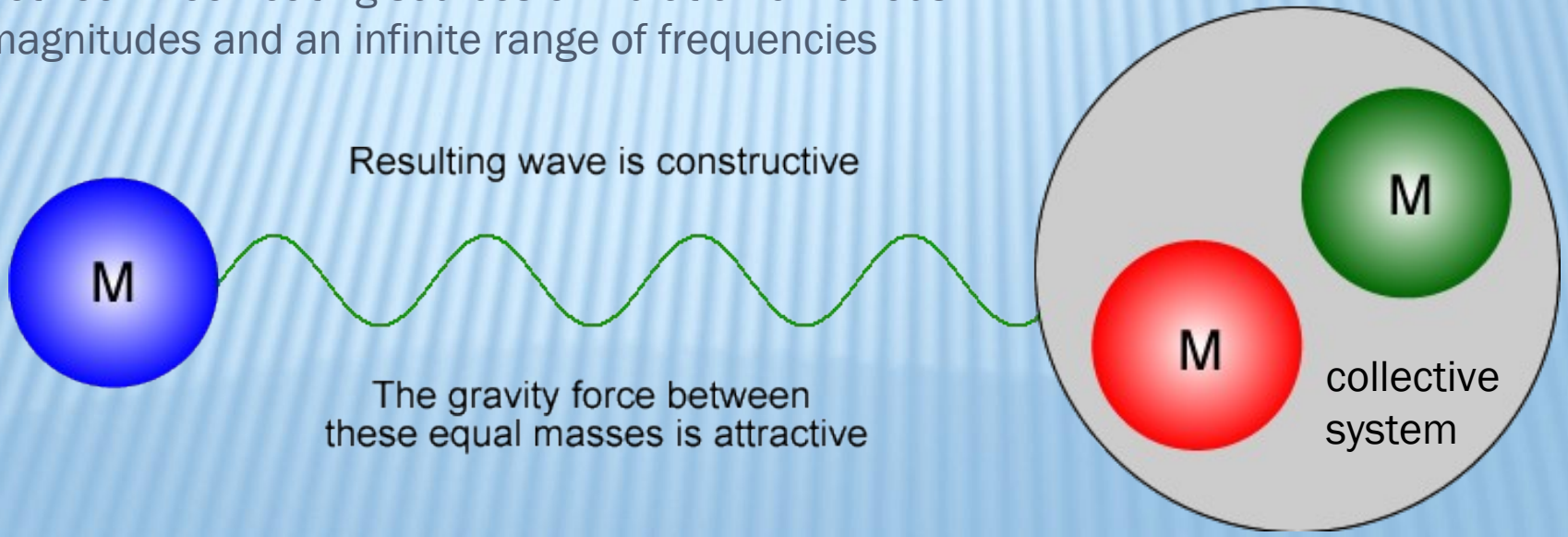
GRAVITY ATTRACTS AND REPELS



GRAVITY WAVE THEORY CHARACTERISTICS



Wave theory is wonderfully complex in its interactions between free floating sources of vibration of various magnitudes and an infinite range of frequencies



THERMODYNAMIC WAVE THEORY

- Wave theory manifests in many unsuspected representations
- A cold object and hot object floating freely in space attract each other, with the cold object absorbing the heat expelled of the hot object via various expelled communicators (quanta, particles and photons)
- Two hot objects of equal temperature will repel each other via communicators adhering to wave theory
- Overtime, the two objects, systems, could reach thermal equilibrium if the they are equal mass-density by becoming of equal temperature (neutral to each other), but if they are not equal one will always be hotter than the other again due to internal constructive wave buildup in the matter objects

GRAVITY WITH CHARGE

$$Charge\ Component = 2\left|\frac{m_1 \frac{r_{m_2}^{\ 3}}{r_{m_1}^{\ 3}} - m_2 \frac{r_{m_1}^{\ 3}}{r_{m_2}^{\ 3}}}{m_1 \frac{r_{m_2}^{\ 3}}{r_{m_1}^{\ 3}} + m_2 \frac{r_{m_1}^{\ 3}}{r_{m_2}^{\ 3}}}\right| - 1$$

$$Charge\ Component = 2\delta - 1$$

$$\delta = \sqrt{\left(\frac{m_1\rho_2 - m_2\rho_1}{m_1\rho_2 + m_2\rho_1}\right)^2}$$

$\rho = density, \quad m = mass, \quad r = radius$

If both objects are the same or very similar, this equation = -1, which symbolizes repulsion.

If both objects are significantly different, this equation = 1, which symbolizes attraction.

FORCE

The logic, concepts and theory described previously can now be used to describe force within this framework:

$$F = ma \qquad F = m\left(\frac{v}{\Delta t}\right)$$

Force has 2 time components described in its acceleration variable defined by the unit of seconds squared. This framework states ***that as an objects accelerates towards the speed of light, it's mass decreases, its collective size decreases and the passage of time increases***.

$$m_q = \frac{m_o}{s(v)^2} \qquad \Delta t_q = \Delta t_o(\tau(v))$$

$$F = m_o a\left(\frac{\tau(v)^2}{s(v)^2}\right)$$

This shows that force increases because the speed of force communicators increased.

GRAVITY FIELD FORCE

There is:
1 mass component
2 time components

$$F = \frac{GM}{d^2}$$

$$F = \frac{GM}{d^2}\left(\frac{\tau(v)^2}{s(v)^2}\right)$$

Once again this shows that this equation increases in strength as the object's total kinetic velocity increases.

GRAVITY FORCE BECOMES ELECTRIC FORCE

$$F = \frac{Gm_1m_2}{d^2} \quad \Rightarrow \quad F = \frac{k_e q_1 q_2}{d^2}$$

$G = Gravitational\ constant$ $\qquad$ $k_e = Coulomb's\ constant$

$$F = \left(\frac{GM}{d^2}\right)\left(\frac{Gm}{d^2}\right) = \left(\frac{G}{d^2}\right)(M * m)$$

$$F = \frac{Gm_1m_2}{d^2}\left(2\left|\frac{m_1\frac{r_{m_2}^{\ 3}}{r_{m_1}^{\ 3}} - m_2\frac{r_{m_1}^{\ 3}}{r_{m_2}^{\ 3}}}{m_1\frac{r_{m_2}^{\ 3}}{r_{m_1}^{\ 3}} + m_2\frac{r_{m_1}^{\ 3}}{r_{m_2}^{\ 3}}}\right| - 1\right)\left[\frac{\tau(v)^4}{s(v)^4}\right]$$

$$F = \frac{G}{d^2}\left(2\sqrt{\left(\frac{m_1\rho_2 - m_2\rho_1}{m_1\rho_2 + m_2\rho_1}\right)^2} - 1\right)\left(\frac{m_1(\tau(v_1)^2)}{s(v_1)^2}\right)\left(\frac{m_2(\tau(v_2)^2)}{s(v_2)^2}\right)$$

Gravity force = Electric force equation when the net velocity (net kinetic energy derived rot. & linear velocity) of the *collective* system is equal to a specific velocity.

GRAVITY = ELECTRIC FORCE DERIVATION

Using the relative scaling equation to factor in an initial velocity:

$$F = \frac{GM}{d^2}\left[\frac{\tau(v)^2}{s(v)^2}\right] = \frac{k_e q}{d^2}$$

$$\frac{k_e}{G} = \frac{\tau(v)^2}{s(v)^2}$$

$$\frac{k_e}{G} = \left(\frac{v}{v()}\right)^{2\pi-2e} = \left(\frac{v}{v()}\right)^{0.8466}$$

$$v = v()\left(\frac{k_e}{G}\right)^{1.1812} = v()\left(\frac{8.9876x10^9\ N.m^2/C^2}{6.673x10^{-11}\ m^3/kg/s^2}\right)^{1.1812}$$

$$v = v()(5.9810 * 10^{23})$$

Units cancel out = 1. Kg and C are interchange in this framework.

It's interesting to note that number 5.9810E23 is extremely close to Avogadro's constant of N_A=6.02214E23 at 99.32% similarity.

What is v() when v = 3E8 m/s? $v() = 5.0124x10^{-16} m/s$

Is this the true gravitationally influenced velocity from our scale on the quantum scale?

WHY GALAXIES TRAVEL >> 17315m/s

One possibility is that we are near the event horizon of a super-massive black hole. Another possibility in this framework is a matter of perception literally. You will see here with the perspectives are reversed:

$$d_q = \frac{d_o}{s(v)}$$

$$\Delta t_q = \Delta t_o \tau(v)$$

$$v = \frac{d}{\Delta t} \qquad v_o = \frac{d_q}{\Delta t_q}\left(s(v)\tau(v)\right)$$

$q = our\ perspective, \qquad o = celestial\ perspective$

The ***q*** perspective is our perspective and ***o*** is the next reality scale larger (celestial) . Our perspective makes celestial velocities appear faster than celestial speed of light.

HOW BIG IS A QUANTUM GALAXY?

Avogadro's number = 6.02214E23 (atoms or molecules)/mol
1 mol = (atomic or molecular weight of substance)(1 gram)

For 1 grain of sand at radius≈0.0625mm, mass=0.003g:

How many atoms exist in a grain of sand?

$$\#\ of\ SiO_2\ molecules/1gram = \frac{6.02214E23}{(28.0885u + 2(15.9994u))(1g)}$$
$$= 1.0024E22\ molecule/g$$
$$= (3\ atoms/molecule)(1.0024E22\ molecule/g)(0.003g)$$
$$= 9.02E19\ atoms$$

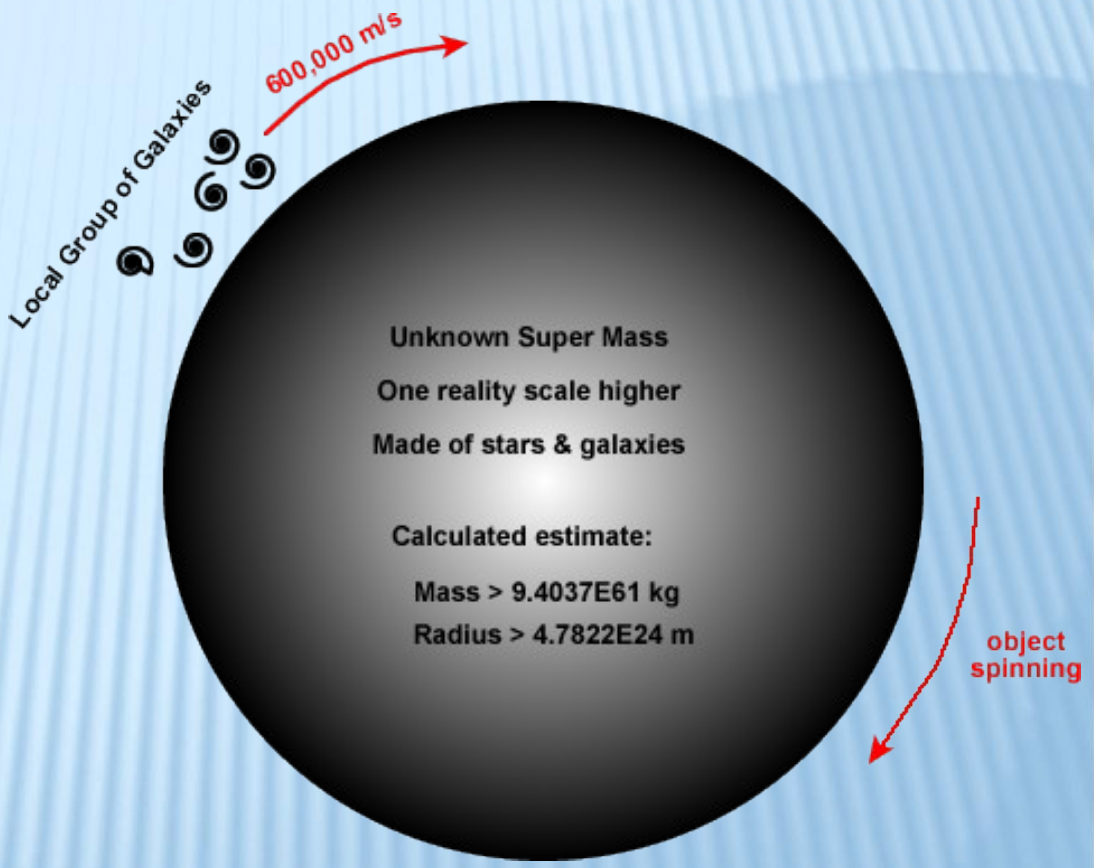
9E19 atoms is an enormous number of atoms. At the celestial scale 9E19 star systems far exceeds our Milky Way's number of star systems which is estimated to be 3E11. To put it in perspective: 90,000,000,000,000,000,000 vs. 300,000,000,000

A celestial grain of sand is 3E8 times larger in the number of systems than our galaxy.

This puts galaxy formations in a very small scale, perhaps in the size range of very large molecules, such as "super" or "macro" molecules, or a natural formation where billions of small atoms orbit many heavy atoms like Uranium in the freedom of space.

GALAXY IN ORBIT

The galaxy is traveling at a velocity of about 600,000 m/s which ***might*** be the natural orbital velocity of our cluster of galaxies around a super-large, super-massive dense cluster of stars and galactic systems. This massive object could be perceived as it's own Universe, but from this framework, it would be perceived as a ***planetoid at the next reality scale level***. It's a matter of perspective. ***This unknown massive object, in this framework, would be extremely "hot" which might be the cause of the mysterious background radiation we are aware of and maintaining our existence at a certain level of space-time density***.



Possibly a massive black hole depending on its density

EXO-STAR SYSTEMS

- Are other star systems formed the same?
- Initial data shows that:
  - majority of other star systems have planets
  - there are rock planets in the inner star system
  - there are gas-giants planets in the outer system
  - this follows the hypothesis of this framework
- Methods to view these systems and there properties are far from perfect and can have a high degree of error.

IMPLICATIONS & PREDICTIONS

- The implications are enormous. This research and theoretical framework strongly implies:
  - That the Universe is *infinite* in size and scale which in itself ***has further, far reaching implications***
  - That star systems live much longer than previously estimated
  - That celestial black holes are possibly nothing more than very dense and heavy celestial atomic systems (akin to a celestial Uranium star system)
  - Most star systems have gas giants orbiting an inner planetary system with an equivalent number of rock planets and have inner and outer asteroid belts.
  - Celestial molecules and chemistry exists with star systems
  - Atomic and star system data/research can be interchanged allowing us to learn much more than we've ever thought possible
  - Numerous and wonderful applications can arise from this knowledge like faster than light communication
  - Science has a lot to revisit and many theories to abandon or mend like the Big Bang, light speed limit and certain highly theoretical theories

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- WZGrapher (http://www.walterzorn.com/) 2D graphing tool used by Walter Zorn
- NetBeans studio used to program physical simulations
- Microsoft Visual Studio used to program 3D physical simulations
- Google O3D used to program 3D physical simulations for the World Wide Web
- Google Sketchup used to develop and render 3D drawings
- Macromedia Fireworks used for image design