

DOES TIME EXIST

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Abstract: Determining what “time” is has occupied the best minds since antiquity. It all boiled down to per Pythagoras: Is time and/or length bits (finite) of time/length (granular now called a quantum) or continuous? Unfortunately, the later scientists had a 50-50 chance and chose the wrong one, or continuous. But, is there an entity that actually exists in the Universe that is this time? If it does exist or at least its concept, then there are two kinds of time and one other of the utmost importance, a total of three kinds of time.

Note: Since this paper is being written using a PC due to font problems and what should be the correct symbols, then the symbol and the name will be upper case or T, Time, L Length, and M, Mass. Usage of the word light does and can cause confusion. For this paper the word Radiation will be used with the generic light normally limited to that observed by humans with their eyes but extending down to infrared and up to ultraviolet for convenience or as the accepted matter of convenience, i.e., the speed of light.

The symbol > means digits extend, the symbol < means digits end or exact, and the digits underscored mean they repeat.

1: OPENING:

St. Augustine examined what came before GOD and Time, etc., in detail. He wrestled with these problems. In his *Confessions*, he came to the conclusion that it is wrong to ask what there was before GOD and the Universe. GOD was outside of Time, **created** Time, along with the Universe. When pressed as to what GOD was doing before the Universe was created, St. Augustine replied, "Creating a Hell for those who would question it." This may not be the exact words, but is close enough.

It will not be possible to list each and every thought on Time and creation here; but the author is going to pick and choose some thoughts by others to show how close they came or how far they missed to finding how many Times there might be.

In 1981 at the Vatican, there was a meeting by famous scientists from all over the world. All of the various viewpoints were put forth, especially the Big Bang Theory. Pope John Paul II then told them that it was all right to study the evolution of the Universe after the Big Bang, but they should not inquire into the Big Bang itself because that was the moment of creation and, therefore, the work of God. (Present company accepted, but is not history repeating itself?)

St. Augustine had already set forth, with great thought, this problem. What now follows is but a rehash of such by some of the scientists today.

Now, for Time to exist, it must first be created. Where was the “clock” before it started to keep Time? Did Time have a beginning? Before discussing the creation of the Universe, one must answer what your concept is of Time or what is the idea you propose?

Another suggested that Time was not invented by GOD or from heaven, but was a word (concept?) invented by humans. That made it inappropriate for the Universe to just suddenly appear from nowhere.

Steven Hawking proposed that one of two things happened. Time goes back into past forever, sort of reversed from present to future infinite Time. The other, it had a beginning or was a result of the Singularity.

The last viewpoint was that GOD didn't have to create the Universe. It just appeared out of nowhere on its own. Strange how scientific thought keeps repeating itself. Before Louis Pasteur, it was thought that what we now call microbes, just spontaneously created themselves.

The author believes these few quotes just about cover most thinking on creation and Time. What it reduces to is; Time might have had a beginning and started with a Singularity; but if you go back beyond that point, you hit GOD or precreation and they could not bring themselves to that simple conclusion. WHY is forever beyond human knowledge. It is HOW that might be studied.

One possible scenario is that GOD created the Universe and Time. It started out with that Singularity. It is now in a "steady state" phase, due to the fact that Mass is being constantly converted to Radiation and vice versa (only one special case known and the end result results in no change of energy), that the steady state will deteriorate at some future point. That leaves the discussion, more like speculation, as to whether the Universe is shrinking or expanding. Rather a moot point.

2: ORIGIN:

It did not take long before early man, though they probably had no name for it, realized that there was what we called Time. The length of the day or the Sun rising and setting, the phases of the Moon (Moon month), movements of the planets, especially Venus that only goes up and down in the heavens, and the stars rising and setting. Different cultures developed various measurements of Time and how it was measured. But all of them arrived at the year, month, and day. That is not for here.

We are indebted to the Babylonians who used a different number system based on the number 60 called the sexagesimal number system. They gave us the 24 hours in a day, the 60 minutes in an hour, and the 60 seconds in a minute. That also resulted in the 360 degrees a circle is divided into. For information purposes, there are an infinite number of number systems. Most of the world uses the Roman decimal system based on the number 10.

There were invented over the millenniums what are called clocks to measure this *elapsed* Time or that Time between two events. This is the FIRST kind of Time. To digress a bit, the longest Time would be from the creation of the Universe to its end, if that ever happens. That is not practical. Neither are the growth and erosion of a mountain, growing trees etc. None of these mechanical clocks kept accurate Time, but were useful for practical purposes.

In 1581 Galileo Galilei discovered the constancy of a pendulum. In 1657 C. Huygens applied this to invent the pendulum clock. Now there could be clocks that kept Time to within a second or so a day. What is extremely important is that Huygens also discovered that when a number of pendulum clocks were mounted on the same or close by walls, over a short period of Time their pendulums all started swinging back and forth at the same Time or as is called became synchronized. Therefore, one clock running faster or slower etc. eventually all ran at the average rate of all the clocks. The readers must remember this very important discovery.

By the 1900's pendulum clocks could be manufactured to where they kept Time to about one part in 10,000. They were checked by using star transits. Using electrical signals, all the clocks worldwide could be synchronized to within that one part in 10,000. And there it remained.

But, it was accurate enough to determine that the Earth's rotation was not consistent, but speeded up and slowed down over a year due to the seasons, and was even slowing down over the years. Disaster. The second of Time was not a constant, but was slowing getting longer and longer, making the days, months, and years becoming longer likewise.

Efforts were made to construct an extremely accurate (perfect) pendulum clock. These efforts failed as when one problem was solved and corrected, it created yet another ad infinitum

To speed up, from the discovery of the piezoelectric effect, a piece of quartz crystal when properly cut and mounted would vibrate at a consistent speed when subjected to an oscillating current., i.e., a quartz crystal oscillator. They were used in clocks to a much greater accuracy to parts per million a year. But, they too had problems that could not be totally corrected. Today, they can be purchased for less than \$6 and are accurate to one or two seconds a year or less.

Excluding radioactivity, all measuring clocks are mechanical clocks regardless of their power source.

In 1952 the principle of the maser was set forth and it was applied to the first cesium atomic clock in 1955. The accuracy became in parts per billion, at least according to the establishment.

Now these atomic clocks are nothing more than Huygen's pendulum clock(s) or each atom of the material used is vibrating itself or like a small free pendulum. Since there are trillions of them in each clock, all being synchronized, then they all average out to one set vibration, or at least according to theory. Unfortunately, they are still subjected to those same problems that beset the pendulum clock makers. And on second thought all such clock works.

Those atomic clocks yo-yo all over the place during a day or months, or even a year. A pendulum clock will oscillate (vibrate in the masers) at a different rate when their WEIGHT changes. Weight is relative or between two masses that on this Earth we call a kilogram (pound or what ever). Weight varies from its position from the exact point center of the Earth, normally to the surface. There is also a weight change due to its latitude and the rotation speed of the Earth etc. Lastly that only few know and acknowledge, the Sun-Moon tides of the Earth's surface heaves up and down like the tides of the oceans. This changes the clock's Length from the center of the Earth and hence their weight. Hence a specific weight is **never constant** and **changes constantly** over Time. Such weight changes cause ALL clocks to speed up and slow down, so that they only *average out* the measured Time.

The scientists claim to the accuracy of their atomic clocks is a farce to start with. Students for the last 50 years or so (and no longer in textbooks they use) are not told of the rules of or for measurement. They were set forth by Lord Kelvin in his axioms or postulates the following:

#1: No measurements can be made unless the comparison measurement is equal to or **smaller** than the objective being measured, and any attempts to do so results in a change in both measurement(s) (answers), and must be compensated for

#2: No answer is more accurate than the least accurate value used in the calculation.

So, just what is used to verify the scientist's statement that those atomic clocks keep accurate time to less than a billionth (or whatever) a second a year? Cannot be done as *there is nothing to compare them to or with and/or something SMALLER in the first place*. They are simply spouting off science fiction that unfortunately, they themselves delude their selves and the public believes. Simply they lie!

But the main point here is: The current concept of Time is the physical measurement of Time and not what is Time itself.

3: FURTHER DEVELOPMENTS:

Dr. J. P. Siepmann of Oskosh, WI and this author both agree, though there may be others, that there is no such entity as Time in the Universe. However, as will be shown, there is some entity that exists that we humans have called Time, but it is not that measurement one. So for this discourse, whatever this entity is, it will be given the name of Time. Then there was spoken and written that Time could be of the past, present, and future.

With the increasing knowledge over the millenniums there were proposed two extremely vital postulates that related to Time. Pierre-Louis Moreau de Maupertius (1698-1759) set forth the concept of the Principal of Least Action. This was an off-shoot of P. Fermat (1601-1665) who had set forth the Principle of Least Time. To jump ahead, these resulted in the discovery of Max Planck in 1900 of his Planck's Constant that is the *quantum* of action or energy and proved these two postulates.

Where the next originated is unknown but more or less, finally took its form of The Universal Time Postulate. This is extremely important as what it implies is, that there must be something in the Universe that synchronizes the Universe, otherwise chaos would reign and the Universe could not exist. However, this is anathema to the current scientific establishment as it destroys too many of their beliefs, so is ignored and is never found in current approved scientific publications. Remember Huygen's clocks on the wall?

Why? Because if it was true, then there is some entity that is identical anywhere and everywhere in the Universe and most important, from Max Planck, it cannot be as currently believed of a continuous nature, i.e., infinitely small or like mathematical points *that flow*.

This flow of Time is given many names like the arrow of Time etc. Most all agree that this flow can be only in one direction from the present to what is called the future. The past flow is called past Time. No other considerations (theories) are to be permitted by the current establishment. They have spoken and enforce their beliefs on all others. They are **wrong**. It is an impossibility that is called dialectical materialism, to believe in Planck's Constant and then deny its existence in the next breath of the nonexistence of The Universal Time Postulate, i.e., double-speak.

4. QUANTUM AND QUANTA:

The Latin word quantum is defined as the SMALLEST unit, value, entity etc. The Latin word quanta is the plural of quantum.

There is unfortunately, even by those having been award a Ph.D. in English who write: One of the smallest etc. (but usually one of the first or longest ad nauseam) what ever. No such thing! And as to the usage of the word quanta, it is completely wrong in ALL scientific papers ever written to date. That is, excluding those written by this author.

5: CONTINUOUS OR QUANTUM?:

There now occurs the first flaw in continuous time. IF it did not flow as a quantum but as dimensionless points, then the future instantly becomes the present and the present instantly becomes the past. Therefore *there can be no present existing*. Yet, we exist and so does the Universe.

However, IF Time is a quantum, then a present can exist. It matters not how long this Time is (a jump) as it is not 0 as for point time, but must be greater than 0 regardless of how small it is or is a quantum. Simply the Time would be jump-pause-jump-pause with 0 time *between* jumps. The pauses are then connected so as to appear to be continuous and that permits a present time to exist.

At the sake of overkill, this is similar as to how we can see a movie or TV picture. For a movie, each frame is stopped in front of the lens for a short time, then a shutter closes off the projector light and the next frame is jerked into its fixed position, the shutter opens and repeats. Hence, jerk-pause-jerk-pause and the picture (a still!) on the screen we see makes it appear to be continuous.

6. THE SECOND AND MEASUREMENT OF TIME:

The current unit (numerical value) of a second is 1 formerly based on the rotation of the Earth, i.e., Earth based. There are ongoing arguments even today whether there is such an entity as 1 second. Brevity prohibits how Mass and Length were defined, so the unit of Length was called a meter and were two scratch marks on a platinum alloy some Length apart. The speed of light was then measured against this Earth based second and those two scratch marks that gave its value approximately to 3×10^8 meters/sec.

With the invention of the Michelson interferometer in 1881, it became possible to measure the wavelength of light rays to parts of less than one in 10,000. This became the standard of accuracy.

Then with their usual infallibility, the establishment combined the maser atomic clocks with the interferometer and then defined Length and Time based on some number of vibrations of some line spectra on one instant of Time on one day of that year, to be EXACT giving the unit of Length as some number of wavelengths and the Time for those wavelengths to cover some Length in one second. This is a circular definition and is not universal or logical or anything else. In reality, it was by the infallibility decree(s) of the current establishment.

With the advent of the Theory of Relativity, it became imperative that any mention of quantum Time was forbidden as the TOR must for it to exist, have time be continuous. All works even suggesting a quantum of Mass, Length, or Time is and was suppressed. Any proofs that Time is not continuous is strictly stonewalled.

7: THE AUTHORS NEW DISCOVERIES:

#1: The physical constants are quantum and quanta values.

A. The quantum of mass.

#2: Planck's Constant can be calculated from the known physical constants.

#3: The correct and extended Bohr Hydrogen atom equations.

#4: The de Broglie wave exists and what is its wavelength.

#5: The missing fundamental physical constant or what is that L^2 in the dimension of Planck's Constant.

There will be four digressions here.

The present establishment denies there is any relation between the physical constants.

The author had the quantum of mass over 55 years ago. No one believed him then and only one or two persons does so even now.

There is a universal start to being able to **define and derive** the fundamental physical constants rather than on the Earth based values now used. Strangely enough, the present values by serendipity are extremely close to the corrected values.

Consider a one cyc/sec frequency of Radiation. It has one h of energy, a frequency of 1 cyc/sec, its wavelength is the Length radiation goes in one second so that it covers its own wavelength in said elapsed Time. Hence, there exists that which is called a or the second. From the Mass to energy, Einstein's Equation, then what is the Mass that when transformed will results in this one cyc/sec frequency? That makes all of these units universal and they are no longer Earth based.

Lastly, to prove the statements made takes over 600 pages of proofs. Therefore the author is only going to give the short versions and not where they came from. The proofs of these end results are unassailable and self-evident.

#1: Finding the quantum of Mass.

What now follows the author did over 45 years ago, but no one would listen or even acknowledge this. The SI units (now BIPM) are a mixture of sizes. There are small ones and large ones. It was/is only necessary to group them into two columns as shown in TABLE 1. Current BIPM values being used. to last accepted digit. Values were slightly different 45 years ago.

TABLE 1

	Small	Large
Mass	?	$1.6726485 \times 10^{-24}$ gms (Mass of proton)
Length	$1.3214099 \times 10^{-13}$	$2.997924581 \times 10^{10}$ cm
Time	$4.4077489 \times 10^{-24}$	1 sec

That small Time is not found in any current physics textbooks or dictionaries/reference books. It was proposed by W. Heisenberg and is the Time it takes light to go across the diameter of the proton, that small Length shown. That small Length is also the calculated de Broglie wavelength of the proton when (actually if) it is moving at c and its wavelength when (if it could be, that it cannot) be changed/transformed in toto to energy (Radiaton) per Einstein's Equation, $E = mc^2$ (1) and from Planck's Equation, $E = hv$ (2) as currently accepted. The large mass is the largest single stable Mass. {For information, this value is not its energy Mass, but its weight. Its energy Mass is called the atomic mass unit and has a smaller value that is: $1.6605655 \times 10^{-24}$, the second mistake. This value used in Einstein's equation (1) gives the actual calculated energy released and a smaller Length. It makes no difference if inserted, as resulting (new/different) ratio is still identical.}

Now, what is the ratio between the large value to the small value? For Length, this gave: 2.2687317×10^{23} . For Time, this gave: $2.2687317 \times 10^{-23}$, the identical value to digits shown.

Therefore, since this ratio is identical to digits shown, then it stands to logic that the smallest Mass must be the large divided by this same ratio, and doing so gave: 7.372615×10^{-48} , the Mass of the neutrino.

What is this ratio? $2.26 \dots \times 10^{23}$. The value of the frequency of the light of the proton if it could be transformed in toto to energy per Einstein - Planck. What is its calculated wavelength? The smallest Length shown and listed previously

Second Proof: When the E in (1) is one h, then transposing there is: $M = h/c^2$ and solving gives $7.37 > \times 10^{-48}$ grams to the exact same digits.

CONCLUSION: 1. The first digression is false and there is a *direct relation* between the physical constants. Further proof: All Mass must then be some multiples of this smallest Mass that is its “frequency” number times this smallest Mass.

Using the current values for the electron whose frequency is 1.2355906×10^{20} times the Mass of the neutrino gave the electron’s Mass to the last known digit 9.109534×10^{-28} gms.

Therefore, each cycle, in reality or *extended* to for one whole second of duration, (2) contains one h of energy that must be identical to that same energy and of one cycle for the Mass/energy transformation of the neutrino.

#2 Calculating Planck’s Constant.

There is currently believed that h can only be found by or from experiment. The author refuted this in 1991-1992 using some of the current accepted physical constants (BIPM formerly the old SI) values. The following is in the cgs system. For the MKSA change the powers as appropriate. See (5) from where this came or comes from.

#1: For the electron:

$$h = 9.1095 \dots \times 10^{-28} \times 2.4263 \dots \times 10^{-10} \times 2.9979 \dots \times 10^{10} = 6.6261 \dots \times 10^{-27}$$

#2: For the current proton’s “mass” (a.m.u. can be used likewise giving identical answer):

$$h = 1.6726 \dots \times 10^{-24} \times 1.3214 \dots \times 10^{-13} \times 2.9979 \dots \times 10^0 = 6.6261 \dots \times 10^{-27}$$

#3: However, what is the smallest? The largest “diameter” would be that Length only light goes in or during one second, not its speed = *longest de Broglie wavelength or Compton Wavelength* and substituting to find its Mass results in:

$$h = 7.3726 \dots \times 10^{-48} \times 2.9979 \dots \times 10^{10} \times 2.9979 \dots \times 10^{10} = 6.6261 \dots \times 10^{-27}. \text{ This Mass is the } \mathbf{smallest\ mass} \text{ or what is called a free neutrino. This is the THIRD PROOF!}$$

From Planck’s Equation $E = hv$ (2) so that what is the frequency and wavelength of this smallest = quantum of mass when transformed to Rradiation (light)? Frequency is one cyc/sec and the wavelength is the maximum QUANTA of Length and is UNIVERSAL.

So, there is/are now quantum and quanta entities that can set some of the physical constants. Quantum of Mass, quanta of Length, quanta of Time, and the quantum of action OR energy. Therefore, h must set the universal second and the one second of Time now exists. But can the values be assigned to these so that they are universal? Can they be measured? That will be shown later.

#3 and #4 are the chicken or egg problem so #4 will be first.

#4: The de Broglie wave and wavelength.

The de Broglie wave is NOT a wave and was misnamed. It is a sphere surrounding any moving Mass whose **circumference is its wavelength**. It is and was not that of the linear wavelength for Radiation. Therefore, the wavelength has minimum and maximum LIMITS to it. A particle moving at the slowest speed must have the maximum wavelength. NO mass can go to the speed of light, c , so that wavelength cannot exist and marks the maximum limit. The de Broglie wave EXISTS!

#3. Bohr made a big mistake. The confusion was that the electron's orbital circumference was one de Broglie wavelength and the electrons orbital radius was one-half a de Broglie wavelength. Therefore, the drawings used or illustrations had the nucleus (the proton) at the center and the electron orbiting at a fixed radius. WRONG!

The proton and electron rotate about their common center of Mass. Each describes a circle and it is the APPARENT elliptical path observed due to CENTRAL MOTION.

The actual paths are circles and the electron's Length from the common center of Mass is one-half the de Broglie wavelength OR the outer envelope of the spherical de Broglie wave touches this common center of Mass point or as a sphere moving around the electron's orbital path with its center at the electron. The proton's radius from the common center of Mass is in proportion to the Mass of the proton to the Mass of the electron.

BUT, the de Broglie wavelength of the proton and the electron are IDENTICAL. As the electron moves into the quantized orbits or numbers (2, 3, 4etc.) , the outer envelope of the de Broglie wave still touches at the common center of Mass and the orbital path Length is then multiples of its de Broglie wavelength! $n = 1$, one de Broglie wavelength, $n = 2$, 2 de Broglie wavelengths etc.

This discovery results in hundreds of current beliefs DESTROYED. It shows WHY the electron does not radiate and spiral into the nucleus for starters.

First, that de Broglie sphere wave's circumference = wavelength when at right angles to the common center of Mass point is sweeping out an area. After completing one revolution the shape is a torus that has no center hole. The surface of this torus was named Sweep Area.

8: #5 OR THE MEANING OF THAT L^2 IN THE DIMENSIONS OF H:

There was the discovery of a new entity that is a constant which is: A (area) = $v \times \lambda$. (3). This was given the name of SWEEP AREA and holds true for light and the de Broglie wavelength. The dimensions of h are: $h = M \cdot L^2 / T = M \cdot L^2 T^{-1}$ (4) as normally shown. But, L^2 is area and therefore when this is spoken or written out it says: h is some Mass moving (a speed) through or **creating** some area during an elapsed Time of one second.

So, look at #1 for the electron and you will see that $h = M \cdot \lambda \cdot c$ (5) so that it is $h = M \times \lambda \times L/T$ (6). Therefore, that area when calculated out is $727.38 > \text{cm}^2/\text{sec}$ and is the identical value for the transformation (rest Mass) energy as Radiation of the electron's wavelength. That value **remains the same for any speed of the electron** and in **any path shape in one, two or three dimensions** for its associated de Broglie wavelength, hence is a UNIVERSAL constant.

This Sweep Area then turned out to be the one missing physical constant that sets or IS QUANTUM UNIVERSAL TIME. The author designated its symbol as t_q . Hence, that $1/T$ is no longer needed and the equation becomes $E = h = M t_q$ (7) and the second is automatically there as t_q is a/the second.

A second of elapsed Time is the elapsed Time required for the de Broglie wavelength of the electron in the ground state hydrogen atom or hydrogen-like atom (element's nucleus with one electron remaining) to sweep out a surface area (t_q) whose value is identical to the numerical value of the electron's diameter times the numerical value of the speed of light.

BOX 1

The Length light goes, L_c , from its starting point to its ending point in one elapsed Time second is this Sweep Area divided by the numerical value of the electron's diameter.

BOX 2

The final discovery by the author was what happens when this Sweep Area is divided by the Compton Wavelength, its calculated de Broglie wavelength when its speed = c , and its wavelength of Radiation light energy that are all ONE AND THE SAME value? It gives the universal speed of light per BOX 1 and BOX 2.

What happens when this area is divided by the same squared? It gives the frequency, a **ratio**, of the electron's light energy when transformed. Hence frequency is just a ratio and has no dimensions, i.e., just a count.

This new discovery is the SECOND KIND OF TIME in the Universe. Each particle carries its own clock that is the second of Time. The per second is no longer needed. $E = ML^2$. (8) And when $E = one\ h$, $h = ML^2$ (9) are the final dimensions.

9. SETTING THE ARBITRARY UNIVERSAL VALUES OF THE PHYSICAL CONSTANTS:

The present human values assigned to the physical constants are not fixed. The values assigned to ANY of the physical constants can be any reasonable value as LONG AS THEY MAINTAIN THEIR SAME RATIOS AND RELATIONSHIPS. What is now used are based on the Roman decimal system for the numbers. Time could be set to the digits in pi or any other digits. Then setting **one other constant**, say Length to 1 or what ever, **ALL the rest can be pre-calculated**. That goes likewise by setting Mass and one other. It takes two to tango and that is that.

Therefore, h must set the universal second and the one second of Time now exists. But can the values be assigned to these so that they are universal? Can they be measured?

Take that quanta of Length and divide it, not into the present 2.99792458 exact parts but to 3.0 parts and each part will be if into $\times 10^8$ parts a meter and if into 10^{10} parts a centimeter and it is *now universal*. The quanta second of time would be how long it takes this one cyc/sec wavelength to cover its own length. $v = v\lambda$ (10) That means there has now been set two values and the rest follow AUTOMATICALLY.

Therefore, it is only necessary to insert the new defined values and working backwards and forwards to determine that the universal constants can now be arbitrarily (there is/are no natural universal values as all are arbitrary) defined as follows: [$<$ means digits exact and the underscore means the digits repeat as underscored] The following table is in cgs units but changing the powers where necessary will make them in the MKSA system.

TABLE 2

SYMBOL	NAME	QUANTUM VALUE	QUANTA VALUE	UNIT
T	TIME	4.4×10^{-24}	1	seconds
L	LENGTH	1.3×10^{-13}	$3 < \times 10^{10}$	centimeters
M	MASS	7.407×10^{-48}	1.6×10^{-24}	grams
A (rect.)	AREA	1.7×10^{-26}	$9 < \times 10^{20}$	cm ²
V	VOLUME (cubic)	2.370×10^{-39}	$27 < \times 10^{30}$	cm ³
t _q	Quantum Time	$4 < \times 10^{-3}$	$9 < \times 10^{20}$	cm ²
E	ENERGY (h)	6.6×10^{-27}	$1.5 < \times 10^{-3}$	erg-sec ⁻¹
y	FREQUENCY	1	$2.25 < \times 10^{23}$	cyc/sec
v	SPEED	1.3×10^{-13}	$3 < \times 10^{10}$	cm/sec

M_{gm} GRAM 1 = $6 < \times 10^{23}$ a.m.u. or protons. Hence $1/M_{gm}$ = one a.m.u. or one proton.

Excluding t_q, the Quanta Ratio between the quanta and quantum values is identical and is $2.25 < \times 10^{23}$. For t_q and V it is squared and cubed respectfully.

G = 6.6×10^{-8} just a number as it is a constant of proportionality.

t_q electron is 7.29 cm²/sec at any speed at any path configuration, i.e., straight line to wavy or circular or elliptical or spiral etc. in two or three dimensions.

The frequency of the electron when transformed to energy is $1.23456790123456790 \times 10^{20}$ cyc/sec.

The electron's diameter, wavelength etc. is $2.43 < \times 10^{-10}$ cm

The electron's Mass is $2/2187$ or $9.1449 > \times 10^{-28}$ gms.

Ratio energy Mass proton (quanta of Mass) to the energy mass of the electron is 1822.5.

Avogadro's Number is the reciprocal of the Mass of the proton and vice versa, that makes it 6×10^{23} and is *no longer arbitrary* but a finite value. But, that is its Mass not its weight value that will be too large in reality, i.e., its weight is *larger* giving a greater number so must be compensated for.

The remainder can be found from their definitions and equations that provide for same.

As the final proof, divide the Mass of the electron or the proton by its frequency if transformed to energy and the result is the quantum of Mass. That means the quantum of Mass is the source of Mass OR all Mass is composed of multiple values of the quantum of Mass. AND if this is so, then this quantum of Mass must be the **quantum source** (SINGULAR!) of the pull of gravity or the source of gravity, not what is gravity, but its pull effect etc. The author has done this, but is not for here.

10: UNIVERSAL TIME POSTULATE:

There only remains The Universal Time Postulate.

There are LIMITS to frequency. The start is one cyc/sec. The proton in spite of the current false beliefs cannot self-decay nor can it be transformed in toto to Radiation. The one cyc/sec exists and the maximum frequency cannot be reached.

This is the third kind of Time in the Universe. This Universal Time is NOT frequency but are connected jumps/pulses (periodic motion) with 0 time between jumps. It is a series of pulses that are $2.25 < \times 10^{23}$ jumps (not cycles)/sec and is the same throughout the entire Universe and keeps it synchronized.

It is the Master Clock and those pulses keep the particles' second, Quantum Time, in synchronization. Simply, consider as the illustration that it is an Atomic Clock at one location that sends its signal to the other local clocks and they all beat at the same Time. Remember Huygens and his clocks on the wall? This beat the author named the Heartbeat of the Universe.

If there is something we humans call Time, this would be it. But, not that of the Time set by the particles clocks as they are an **area**. Nor do our mechanical clocks read any Time.

Contrary to all of the theories on how lasers work, they would not and could not work IF this Heartbeat of the Universe did not exist as only one example.

11: CONCLUSIONS:

1. The physical constants have quanta and quantum values.
2. Time is not continuous.
3. If Time exists, there are three kinds of Time.
4. The Theory of Relativity ist KAPUT!
5. The physical constants can be **finitely defined** and their arbitrary values (pre-calculated) using just pen and paper.
6. The numerical values of the physical constants are arbitrary, **are directly related to one another** and can be set at or to any value(s) by humans as long as they maintain their ratios to one another.
7. There is a Universal Time that jumps (pulses) at the same instant of Time throughout the Universe and synchronizes the Universe in toto. The author has named this; The Heartbeat of the Universe.

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