

The Creation and Evolution of the Living Universe

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The *Universe* versus the *Cosmos*

The passive *Universe* is the negatively existing Void of empty space and time that is quantified by the metaphysical ideas of mass, space, time, and gravity. The active *Cosmos* is the total momentum of the atoms and photons that occupy the Void and produce the forces that creates energies. The momentum of atoms $p = mv$ produces the momentum of photons $p = mc$. The Energy/Mass of photons $E/M = c^2$ is constant and the energy/mass $e/m = E/M/\sqrt{1-v^2/c^2}$ of atoms increases and decreases with changes in velocity and absorption and emission of photons. The Energy/Mass of atoms is *One* at ground state rest and potentially *Infinite* at c .

The energy/mass that produced the Big Bang occurred from the standard atomic and nuclear physics that has been adopted by the various interpretations of quantum mechanics. There is no physical evidence to support the Big Bang idea that the universe began with the sudden appearance of a "Pure Energy Spacetime Singularity". The Living Universe began with a simple eternal duality containing the same amount of conserved energy and mass contained in the cosmos today. This matter/antimatter duality divided into the equal numbers of protons and electrons contained in the cosmos today. The process by which this primordial duality was transformed into today's atoms and photons is in complete compliance with Newton's laws of motion, nuclear physics, and the quantum mechanical laws of electrodynamics. These laws and calculations are applied to the evolving 1/1836 electron/proton mass ratio and the effect that its changing value has on atomic constants like the Bohr Radius, the Fine Structure Constant and the Hydrogen Ionization Photon.

The only difference between the principle of the Living Universe and the Big Bang theory is in the way the original mass and energy of the universe was divided up into individual atoms and photons and spread throughout the cosmos. In the Living Universe, this process follows the well established laws of motion and quantum mechanics. In the Big Bang, the Newtonian laws of motion and quantum mechanics are mostly ignored and the ideas for dividing up atoms and photons and spreading them throughout the universe are created with several different smoke and mirrors mathematical inventions of various spacetime dimensions, fields, and aethers that all violate the basic laws of quantum mechanics.

Big Bang Theories versus Living Universe Principles

The Living Universe is based on the scientific method of measurement and makes none of Big Bang theory's unverifiable metaphysical assumptions. The initial physical assumption of the Living Universe model of creation is based on dual experimental principles.

Electrons and protons are eternal and always exist in equal numbers.
&
Photons are eternal energy/mass dualities created from the interactions of electrons and protons.

These dual principles were true when the cosmos began, are true today, and will be true in the future. These are not metaphysical assumptions because they are verified by all experimental measurements. The Living Universe model contains no metaphysical assumptions and is based completely on the validity of these two principles of experimental measurement.

In contrast, the Big Bang theory is constructed around a series of often contradictory metaphysical assumptions. Big Bang's initial violation of natural law is the creation of matter without antimatter. In the Living Universe the 1/1 ratio between matter and antimatter particles has always remained constant. This simple law of quantum mechanics and not a theory. The electron was once the antiparticle to the proton.

Einstein's Big Bang universe began with an enormous amount of "pure" energy at a virtually infinite temperature that has been imagined to be cooling off and disappearing ever since. The Living Universe began with a conserved amount of energy/mass at a temperature of absolute zero 0°K and has been gradually warming up ever since, to today's temperature of about 6°K.

Big Bang theories violate the conservation of momentum and the first and second laws of thermodynamics because they have no fixed relationship between energy and mass as in their equation $e = mc^2$. Relativists believe the universe began as all energy and that it now contains mostly mass. In the Living Universe energy and mass have always been equal and are actually the same thing. Energy/mass are equal and opposite aspects of atoms and photons $e/m = cC$ & $e/m = cC$

Big Bang enthusiasts imagine the mass contained in electrons and protons can be transformed into massless pure energy photons. They assume photons throughout the universe constantly lose momentum and energy that disappear without a trace into the fabric of one of their several different kinds of expanding space. In the Living Universe, there is absolute conservation of a photon's energy/mass, momentum, and angular momentum and there is no "space" other than the negative reality of an imaginary universal void. This law requires the eternal existence and equality of a photon's energy/mass, $e/m = cC$. When a photon is absorbed by an atom, it maintains its energy/mass until the atom emits it.

Big Bang theorists illustrate their ideas with a multitude of complex mathematical equations. The Living Universe equations listed below simply illustrate the mass, space and, time relationships between electrons, protons, neutrons, and photons as calculated with the parameters of this new circlon shape interpretation of standard model quantum mechanics.

Living Universe Equations

Electron/Proton Mass Ratio Today---	$m_e/m_p = 1/1836$
Bohr radius -----	$a_0 = \lambda_\infty \alpha / 4\pi$
Electron Angular Momentum -----	$I\omega = m_e a_0 \alpha c$
Fine Structure Constant -----	$\alpha = 4\pi a_0 / \lambda_\infty$
Photon Energy/Mass -----	$e/m = cC$
Hydrogen Ionization Photon -----	$\lambda_\infty = 4\pi a_0 / \alpha$
Photon Momentum -----	$p = mc$
Photon Angular Momentum -----	$I\omega = m\lambda c / 2\pi$
Electron Momentum -----	$p = m_e v$
Electron Angular Momentum -----	$I\omega = m_e a_0 \alpha c$
Electron kinetic energy -----	$e = m_e v^2 / 2$
Neutron Stability Number -----	$\#_{ns} = m_p / m_e \sqrt{\alpha}$

The Initial Condition of the Living Universe

Einstein believed the initial condition of the universe was a gigantic explosion of pure spacetime energy that mysteriously transformed into photons, hydrogen and other atoms and then instantly spread to the far reaches of the universe. As usual, Einstein got it backwards. The Living Universe began as a gigantic atom of pure energy/mass that synchronously evolved into the photons, neutrons, hydrogen, and the other atoms in today's cosmos. The cosmos began as just a single antiproton/positron pair coupled into an anti-hydrogen atom sitting at zero momentum rest in the centers of an infinite number of one-dimensional voids.

All of the conserved energy/mass, momentum, angular momentum and charge energy of today's universe was contained within this single primordial ground state atom. The energy/mass of atoms is a universal constant $e/m = CC$. The energy/mass of today's cosmos is exactly the same as the energy/mass of the original anti-Hydrogen atom.

This initial state of zero momentum atomic rest defines the anti-atom's beginning temperature of absolute zero 0°K . The atom has the rotational energy of its mass spinning in four different directions at the rotational speed of light C . It has angular momentum but no linear momentum to create the linear kinetic energy that defines temperature.

The Living Universe began with a standard model theory *positron* of constant and eternal mass and a standard model *antiproton* with slowly decreasing mass. The rate of antiproton and then electron mass decrease is the true physical

manifestation of time in the universe. It is this constant change in the values and properties of electrons that makes the atoms and neutrons of the past dynamically different from the atoms and neutrons today. This is the e/p mass ratio clock with today's Electron Evolutionary interval of time at $T_{EE} = 1/1836$.

The only constant in the cosmos is the structural relationship between mass, space, time, and gravity and their calculations of force, momentum, angular momentum, and energy. The history of the Living Universe is represented below as time points and intervals of the e/p ratio clock. It goes from the evolution of the antiproton/positron mass ratio beginning at $a/p = 1836/1$ and ending today at an electron/proton mass ratio of $e/p = 1/1836$. This is a non-steady state universe that is eternally evolving into a new and different future based on the values and equations listed above.

Nine Stages in the Cosmic Evolution of Electron Mass

The history of the universe is represented below in nine separate intervals in the evolving electron/proton mass ratio. The Living Universe has steadily evolved from the time when the negative/positive mass ratio of atoms of matter was antiproton/positron = 1836/1 until today when the electron/proton mass ratio is $e/p = 1/1836$. In the following equations, I use the symbol (c) for the relative linear speed of light and the symbol (C) for the absolute rotational speed of light so that the energy of the atom is $e = mCC$ and the energy of the photon is $e = mcC$.

An Arbitrary Beginning

a/p mass ratio 1836/1

Bohr radius $a_0 = \alpha \lambda_\infty / 4\pi = 1 = 5.292 \times 10^{-11}$

Fine structure constant $\alpha = 4\pi a_0 / \lambda_\infty = .0073$

Hydrogen ionization photon $= \lambda_\infty = 4\pi a_0 / \alpha = 9.11 \times 10^{-8}$

Neutron Stability Number $= M_p / M_E \sqrt{\alpha} = 157$

A single eternal antiproton/positron atom already existed in the universe at the “beginning” of the cosmos. These two equal and opposite eternal energy/mass particles were coupled together by their mutual charge chains into a ground state anti-hydrogen atom. All of the universe's energy/mass $e/m = CC$ was contained completely within this atom as rotational energy/mass with no linear energy/mass.

The Antineutron Era

a/p mass ratio 146/1

Bohr radius $a_0 = \alpha \lambda_\infty / 4\pi = 12.5 = 6.615 \times 10^{-10}$

Fine structure constant $\alpha = 4\pi a_0 / \lambda_\infty = .0000465$

Hydrogen ionization photon $= \lambda_\infty = 4\pi a_0 / \alpha = .000179$

Neutron Stability Number $= M_p / M_E \sqrt{\alpha} = 1$

After a long period of time, the antiproton mass decrease and size increase reached the point where the neutron stability number goes from completely stable at less than one to slightly unstable at one. This allowed the positron to be captured by the antiproton and create an antineutron without the need of additional energy. The Living Universe was now a single antineutron sitting at zero momentum rest and about to decay.

The God Particles of Creation versus Guth Inflation and Gravity

a/p mass ratio 147/1 to 1/1

Bohr radius $a_0 = \alpha \lambda_\infty / 4\pi = \infty$

Fine structure constant $\alpha = 4\pi a_0 / \lambda_\infty = 1/\infty$

Hydrogen ionization photon $= \lambda_\infty = 4\pi a_0 / \alpha = 4\pi$

Neutron Stability Number at $1/1 = M_p / M_E \sqrt{\alpha} = 0$

As this primordial antineutron sat at the center of the universe, with the positron spinning inside of its internal circlon coil structures, the antiproton continued to decrease in mass. In order to conserve the particle's angular momentum, the antineutron's internal linear energy/mass increased in proportion to the rotational energy/mass lost. This increasing energy eventually made the antineutron unstable and it bifurcated into a pair of antineutrons that were ejected out into a one-dimensional void at somewhat less than the speed of light.

All of the linear energy/mass that had accumulated in the original antineutron was contained in the opposite velocities of the two new antineutrons and they contained only rotational energy/mass. Each particle then slowly began to again accumulate linear energy/mass as the antiproton gradually decreased in mass.

Then after a very long time, perhaps millions of years, these two god particle gained too much linear energy/mass to remain stable and they simultaneously bifurcated into four antineutrons. Then, after another long incubation period, these four particles simultaneously bifurcated into eight and then, much later, into 2^4 . Each time, all of the particle's accumulated energy was used to propel them in opposite directions and each new antineutron was at virtual rest and with no kinetic in its new moving frame.

The cosmos now consisted of sixteen god particles millions of light years apart and rapidly moving outward in all directions. This began a long slow process of serial bifurcation that went through about 256 cycles in perfect synchronicity to eventually create 2^{256} antineutron pairs.

This was a non-linear process in which the time intervals between each cycle grew progressively shorter and the amount of kinetic energy between the ejected particles became less and less. The result of this is that the antineutrons from the earlier bifurcations had very high velocities and at the same time had long periods of time to spread out into the void of space. Then as the cycles

speeded up and the neutrons has less energy, they began bifurcating faster, closer together, and with less velocity. At the end of the process, the bifurcations became almost instantaneous before stopping at e/p ratio 1/1+ where the electron was less massive than the proton and the very unstable antineutrons became 2^{256} stable neutrons.

Non-linear Consecutive Serial Bifurcation Creation of the Cosmos

The end result of this non-linear consecutive serial bifurcation (NCSB) process was to first very slowly spread positrons and antiprotons, in the form of antineutrons, out into the far reaches of the universal void and then toward the end, the bifurcations occurred faster and faster with less and less decay velocity. The bifurcating antineutrons first were slowly spread far and wide into the universe at high velocity and then eventually speeded up the rate of synchronous bifurcation and slowed decay velocity until the process stopped.

At the end of this process the cosmos contained 2^{256} neutrons filling a volume in the void some twenty billion light years across. The NCSB process concentrated these particles on two different layers of scale. The primary fractal unit is the location of galaxies and the secondary unit is the location of stars and other bodies within the cosmos.

The UCSB creation process uses the laws of quantum mechanics and nuclear physics to transform the cosmos into its present configuration. It does not use Guth inflation to spread out the matter and energy and it does not use gravity to concentrate the matter into first galaxies and then stars. This creation process eliminates the need for the five primary metaphysical assumptions of Big Bang theory: the eternally constant 1/1836 electron/proton mass ratio, the singularity surprise, the Guth inflation, the gravitational collapse of stars and galaxies, and Dark Matter.

The UCSB process ended when the antiproton/positron mass ratio became 1/1. Once the e/p became less than one 1/1+, the antiproton was conceptually transformed into an electron and the positron was transformed into a proton. At this point, the god particles bifurcated one last time into 2^{256} pairs of stable neutrons.

As the electron loses mass as it is spun inside the stable neutron, it gains kinetic energy in proportion to its mass decrease. In this process the electron's rotational energy/mass is converted into the linear energy/mass of the neutron's vibration. As linear energy/mass within the neutron increases, the particle becomes less stable because the negative particle is inside of the positive particle and getting bigger. Eventually the point is reached where the increased energy is too much for stability and the neutron decays. In the antineutron, the negative particle is on the outside of the positive particle and getting bigger. As the e/p ratio moves forward, both antineutrons and neutrons become less stable.

This long multi-billion year process by which the god particle antineutrons slowly bifurcated and spread out into the cosmos replaces the Big Bang idea

involving the so called Guth inflation where the whole expansion of the universe occurred virtually instantaneously. Guth inflation was proposed long after Einstein but it is a foolish ad hoc metaphysical idea that has no relationship at all to any of the standard laws of physics or any scientific measurements. Also, Einstein was never able to come up with credible calculations in which his *down gravity* General Relativity was able to collapse far flung atoms into stars and galaxies within just one billion years after the Big Bang. In an attempt to make gravity do the job, modern cosmologists have had to assume that vast amounts of otherwise unseen dark matter surround the galaxies.

Cosmic Rays

Toward the end of this long process of bifurcating god particles, the anti-neutrons became so numerous that they occasionally collided with one another. This unbalanced their internal energy levels and caused the antimatter/matter pairs within them to immediately annihilate into a pair of gamma photons instead of bifurcating into neutrons. By the time all of the god particles had been transformed into stable neutrons, the universe then contained a large number of very high energy gamma photons moving in all different directions. Today, we still observe these photons as the highly energetic cosmic rays.

The Neutron Cloud Bomb

e/p mass ratio 1/146

Bohr radius a_0 = $\alpha\lambda_\infty/4\pi = 12.5 = 6.615 \times 10^{-10} \text{ m}$

Fine structure constant α = $4\pi a_0/\lambda_\infty = .0000465$

Hydrogen ionization photon λ_∞ = $4\pi a_0/\alpha = .000179 \text{ m}$

Neutron Stability Number = $M_p/M_E\sqrt{\alpha} = 1-$

At this point in history, the electron/proton mass ratio has reached 1/146.5 and the Neutron Stability Number passed from stable at a value of less than one to unstable at greater than one. This caused all neutrons throughout the universe to decay with great synchronicity into rapidly moving electrons and protons. These 2^{257} high energy electrons and protons either collided and recoiled from other particles or coupled with them to form neutrons, alpha particles, nuclear isotopes, atoms, and chemical compounds. In this process, nearly half of the universe's angular momentum and rotational energy was converted into the linear momentum and kinetic energy of 2^{257} rapidly moving electrons and protons.

The Universal 2.7°K Grand Fire

e/p mass ratio 1/147

$$\text{Bohr radius } a_0 = \alpha \lambda_\infty / 4\pi = 12.49 = 6.61 \times 10^{-10} \text{ m}$$

$$\text{Fine structure constant } \alpha = 4\pi a_0 / \lambda_\infty = .0000468$$

$$\text{Hydrogen ionization photon } = \lambda_\infty = 4\pi a_0 / \alpha = .000177 \text{ m}$$

$$\text{Neutron Stability Number} = M_p / M_E \sqrt{\alpha} = 1+$$

At this stage of cosmic evolution, the universe consisted of rapidly moving electrons, protons, alpha particles, and other nuclear isotopes and atoms. The electrons began coupling with atomic nuclei to form atoms. In this process, the kinetic energy of their motions and the electron/proton ionization charge energy were transformed into the linear energy/mass of photons $e/m = cC$. At an electron/proton mass ratio of 1/147, atoms emit blackbody spectral photons at a temperature of about 2.7°Kelvin.

Eventually, the atoms emitted their last thermal photon and dropped down into ground states. The universe was now filled with mostly ground state atoms that had converted equal parts of their momentum and energy into photons. These photons traveled the universe with constant conserved momentum $p = mc$, angular momentum $I\omega = m\lambda c/2\pi$, energy $e = mcC$, and wavelengths $\lambda = h/mc$. At this stage, the universe consisted of about 99% Hydrogen and Helium atoms with the remaining 1% consisting of atoms of the 2000 or so possible isotopes of the other elements. Among these great clouds of atoms that eventually become stars and galaxies, the cosmos contained a background of 2.7°K blackbody photons combined with a separate background of high energy cosmic gamma ray photons, also with an overall temperature of approximately 3°K.

The Hubble Red Shifted Galaxies

e/p mass ratio about 1/900

$$\text{Bohr radius } a_0 = \alpha \lambda_\infty / 4\pi = 2.04 = 1.0796 \times 10^{-10} \text{ m}$$

$$\text{Fine structure constant } \alpha = 4\pi a_0 / \lambda_\infty = .00175$$

$$\text{Hydrogen ionization photon } = \lambda_\infty = 4\pi a_0 / \alpha = 7.75 \times 10^{-7} \text{ m}$$

$$\text{Neutron Stability Number} = M_p / M_E \sqrt{\alpha} = 37.6$$

After many billions of years, most atoms in the Living Universe had gathered together into clouds, planets, stars, and galaxies. The most distant of these galaxies that we can now see with the Hubble telescope emitted red shifted photons with wavelengths of about $Z = 7$. As electron mass constantly decreased, it caused both the Bohr radius and the fine structure ratio to decrease proportionally. This increased the energy and temperature at which atoms emit blackbody spectral photons. At this stage in electron evolution, the spectral photons emitted by atoms with heavier electrons had wavelengths that were about 8 times

longer than the same spectral photons we measure from atoms here on Earth. The galaxies all remain relatively stationary and are not expanding away from one another. The Hubble red shift is caused by the individual expansion of electrons and not the general expansion of the cosmos.

The Dark Energy Myth

e/p mass ratio 1/1600

Bohr radius $a_0 = \alpha\lambda_\infty/4\pi = 1.148 = 6.075 \times 10^{-11} \text{ m}$

Fine structure constant $\alpha = 4\pi a_0/\lambda_\infty = .0055$

Hydrogen ionization photon $\lambda_\infty = 4\pi a_0/\alpha = 1.39 \times 10^{-7} \text{ m}$

Neutron Stability Number $= M_p/M_E \sqrt{\alpha} = 119$

It is from this era of the Living Universe that astronomers have recently observed that the most distant measurable supernova explosions have considerably less energy and intensity than supernova explosions in nearby galaxies. Foolish Big Bang theorists tried to explain this energy loss with a whole new dimensional layer in their spacetime continuum. Unlike the Guth layer of reality that just instantly expanded and then disappeared, this new layer takes the form of an increasing antigravity force field that is somewhat stronger at long range than Newton's universal gravitation and causes the galaxies to slowly accelerate toward the outer edges of the cosmos. This imagined antigravity repulsive force has been called everything from Quintessence to Dark Energy. The whole bone-headed idea of Dark Energy is nothing more than an ad hoc assumption by Einstein's followers to validate his idea of an eternally constant 1/1836 electron/proton mass ratio. However, these well established astronomical measurements of decreased supernova energy and intensity are not at all unsuspected in the Living Universe.

The so called Dark Energy effect is simply the expected result of decreasing electron mass. At this point in e/p ratio time, supernovas emitted spectral photons with less energy and longer wavelengths than the same photons today. These less energetic photons decreased the overall energy and intensity of supernovas from that time period.

Dinosaurs Ride Along on the Continents

e/p mass ratio 1/1800

Bohr radius $a_0 = \alpha\lambda_\infty/4\pi = 1.02 = 5.506 \times 10^{-11} \text{ m}$

Fine structure constant $\alpha = 4\pi a_0/\lambda_\infty = .00702$

Hydrogen ionization photon $= \lambda_\infty = 4\pi a_0/\alpha = 9.9 \times 10^{-8} \text{ m}$

Neutron Stability Number $= M_p/M_E \sqrt{\alpha} = 151$

At this stage of the Living Universe, the evolution of the cosmic e/p constant is able to answer some long contemplated mysteries in Earth's geological history.

The biological and physiological study of the largest of dinosaurs has long shown that they were much too large and heavy to have a viable existence on today's Earth. Modern physiology predicts that their muscles and bones could not have supported the great weight of largest dinosaurs.

The simple answer to this paradox is that when the e/p ratio was at $1/1800$, large dinosaurs were able to easily walk, run, and maneuver because surface gravity was much less on a larger and less dense Earth. Earth had the same mass as today, but because it was larger, its surface gravity was less. The decreasing mass of the electron and the decreasing dimension of the Bohr radius causes atoms to slowly become smaller and Earth to become denser.

If Earth's radius was twice what it is today, its density would be one/eighth and its surface gravity would be one/fourth (2.4 m/s^2) This is almost identical to the gravity of the Moon. Certainly, dinosaurs that are too heavy to be able to walk around on Earth would be able to get up and run on the Moon.

Plate Tectonics and the Shrinking Continents

Atoms are held together at the Bohr radius. The Bohr radius link that holds the electron and proton together in the Hydrogen atom is considerably larger than the 79 Bohr radii links that hold a gold atom together.

As Hydrogen atoms get smaller and emit more energetic photons, the atoms of all the chemical elements also decrease in size and increase in spectral energy by a lesser amount. The larger an atom's mass and number of electrons, the less its size decreases in proportion to the hydrogen atom. Atoms at the heavy end of the periodic table shrink considerably less than the atoms at the light end of the table.

When Earth was in a molten state, the heavy elements tended to sink toward its center, while the lighter elements floated to the surface. Once Earth had cooled to a semi-solid state, cracks began to develop in its outer crust composed of mostly elements lighter than Iron, such as Silicon and Oxygen. As the light elements in the outer layers of Earth's mantle contracted faster than the heavy elements in underlying layers, cracks open up in Earth's continents and they appear to move apart in the observed processes of sea floor spreading and plate tectonics. This is an optical illusion. Earth's surface layers are actually shrinking and cracking like mud on a drying lake bed.

In the Living Universe, plate tectonics is a natural process of electron evolution and not a theory. The motion of Earth's continental plates is a conclusion of measurement and does not require the initial assumption of a theory.

The way this process works is that as electron mass decreases, the fine structure constant ratio grows smaller. This in makes the Bohr radius and thus the size of atoms grow smaller. It is concluded that the rate by which the physical size of a particular atom decreases is dependent on the number of its bound electrons.

This effect provides an easy answer to one of the most difficult of Earth's

geological mysteries. Geologists have long tried to supply a mechanism to explain the apparent break up and spreading apart of Earth's continents. Plate tectonics is the latest idea to explain this phenomenon but it sometimes presents more questions than it can answer. Even if all the evidence for continental drift could be explained by the movement of large plates in Earth's crust, there is still no underlying mechanism that can make the plates move apart in the first place.

There is a great deal of geological evidence to support the idea that Earth once had a single large unbroken continent called Pangea. Between then and now, Pangea broke apart into a number of continents and islands that drifted apart over much of Earth's surface. The experimental evidence for this event is excellent. There have long been examples that made Earth and several other heavenly bodies appear to be expanding with surfaces cracking and continents appearing to be moving apart. The problem is, no one has been able to come up with a physical system that can come close to making the whole process work.

In the Living Universe, the shrinking of the lighter atoms in Earth's crust at a faster rate than the heavy atoms in its interior causes the surface to crack apart as it contracts faster than the heavier atoms in Earth's interior. There is no mystery here. This is exactly what we would expect from an increasing e/p mass ratio.

Today, the Evolution of Matter in the Living Universe Continues
a/p mass ratio 1836/1

Bohr radius $a_0 = \alpha \lambda_\infty / 4\pi = 5.292 \times 10^{-11} \text{ m}$

Fine structure constant $\alpha = 4\pi a_0 / \lambda_\infty = .0073$

Hydrogen ionization photon $= \lambda_\infty = 4\pi a_0 / \alpha = 9.11 \times 10^{-8} \text{ m}$

Neutron Stability Number $= M_p / M_E \sqrt{\alpha} = 157$

Today, we use our instruments to measure the momentum and angular momentum in the Living Universe from our moving position on Earth. Historic measurements of the electron/proton mass ratio of 1/1836 are beginning to show, that today, the ratio has increased to 1/1836+? As the electron's energy/mass continues to decrease, the increasing momentum and ionization energy of atoms is continually being converted into photons with more energy and shorter wavelengths. This causes both campfires and stars to get hotter and warm the cosmos. However, the universe's total increase in temperature from radiating stars is still only a tiny fraction of the original 2.7°K temperature of the Cosmic Blackbody Radiation.

Today, in the Living Universe, all of the Hubble galaxies are emitting spectral photons that are identical to photons measured here on Earth. When these photons eventually reach us, we will measure them as red shifted.

Since the time of the original anti-Hydrogen atom nearly half of the rotational energy/mass of the cosmos has been converted into the linear energy/mass of photons and moving atoms. All of the mass that was lost in the elec-

tron's evolution is still in the universe in the energy/mass of photons and the kinetic energies of atoms.

Dynamic interactions within the cosmos are constantly converting rotational energy/mass into the linear energy/mass of photons with decreasing momentum, energy, and longer and longer wavelengths. This is the second law of thermodynamics. Entropy is photon energy lost to the void. The universe's cooling effect of entropy is balanced by the warming effect of the decreasing wavelengths and increasing temperature of thermal radiation photons. It is very likely that the total entropy of the universe is neutral.

When atoms first formed, during the Grand Fire, the neutron stability number was slightly greater than one and the neutron was virtually stable. At that e/p ratio time interval, the vast majority of the element's approximately 2000 possible nuclear isotopes were at least virtually stable. Then, as electron mass gradually decreased, the steadily increasing value of the neutron stability number decreased the neutron's half-life. As a result, once stable isotopes began decaying, one after another. Today, with a neutron stability number of 157, the chemical elements only have 282 stable isotopes left. In the distant future, there will be less stable isotopes as the Living Universe continues to evolve. As neutrons become less and less stable there will come a time at the end of the world when they cease to exist and the universe will contain only 2^{256} hydrogen atoms and countless photons moving out into the void in all directions.

It will be a very long time before there are no longer enough stable isotopes for humans to get by on. I would think the metallic isotopes like Gold and Palladium would disappear long before we have to worry about losing any of the lighter isotopes vital to our bodies like carbon and oxygen. Long after we are gone, and the last alpha particle has decayed, the Living Universe will die a quiet death as a cloud of pure hydrogen gas containing exactly 2^{256} atoms. The universe began as a solitary ground state anti-hydrogen atom with a mass of one and no kinetic energy. The Living Universe will end as 2^{256} individual ground state atoms each with a mass of $1/2^{256}$ and no kinetic energy. There will still be a few photons around but most will have been lost within their one-dimensional voids. All is conserved. *One day it will all end. Enjoy it while you can.*

The Inventions of the Big Bang Explosion

All Big Bang theories begin with the metaphysical assumption of the eternal constant of $1/1836$ for the electron/proton mass ratio. From this they conclude that the universe's matter and energy exploded from some imagined point-like location called a singularity. Then, as the singularity expanded and "cooled" to a point where the temperature was just right, a number of protons appeared from the cooling residue of the singularity's photons. Then, after an even longer period of time a similar number of electrons spontaneously appeared within the expanding spacetime and the singularity was gone. From this time on, no electrons or protons could be spontaneously created from photons without their antiparticles and no protons or electrons could disappear into photons without their antiparticles.

Let there be Atoms

The first known invention of an instant creation process occurred when the author of Genesis wrote “Let there be Photons”. This simple statement is still the basic assumption for Big Bang’s singularity. The problem with this assumption is that it is upside down. The first law for the creation of photons is *Let there be Atoms*. Photons are secondary to atoms. Atoms emit and absorb photons. Photons do not emit and absorb atoms. The singularity is upside down and backwards because it tries to make atoms out of photons instead of the making photons from atoms. If we begin the Living Universe with atoms instead of photons, we can arrive at today’s cosmos without making any other metaphysical assumptions or violating the accelerometer measurements of mass, space, time, and gravity.

The really weird rule followed by theoretical cosmologists is that they are totally free to construct any number complicated and convoluted theories to explain a process by which vast amounts of pure photon energy could have appeared from nowhere at the beginning of the universe and then gradually transformed into the atoms and photons of today. By contrast, it is strictly taboo for cosmologists to propose that only atoms appeared from the singularity and that the only photons back then were those emitted by atoms. This is an electrodynamic law that all cosmologists fail to heed.

Any experimental physicist will tell you that it is very easy to get photons from atoms but nearly impossible to get atoms of matter from photons. Certainly, electron/positron pairs and proton/antiproton pairs can be produced from photons, but it is difficult to make atoms out of them and when you do, you make equal numbers of atoms and anti-atoms. If these come in physical contact they will annihilate back into pairs of photons with half the energy of the original photon. Experimental physicists have long known that you cannot create a large quantity of stable matter from photons without physically separating the antimatter from the matter.

Astronomical measurements show that the cosmos contains almost no positrons and antiprotons. The best example of this is the measurements cosmic rays. Cosmic rays give us a very good picture of the physical contents within the cosmos at large. Cosmic rays consist of photons and high speed particles of matter coming from all directions. They are mostly electrons, protons and alpha particles but there is a sprinkling of stable nuclear isotopes from all the elements. The abundance of individual isotopes in cosmic rays is quite similar to the relative abundance of elements here on earth. If there were any quantities of positrons and antiprotons within the cosmos, they would show up in cosmic rays. Believing that the cosmos could have been created without antimatter is an impossible thing.

Other Beliefs in Impossible Things

Experimental physicists measure all possible things and theoretical physicists imagine all the impossible things that cannot be measured.

The first impossible things imagined by all theoretical physicists are the spacetime aether fields and the continuum dimensions. Theorists define one or more of these to explain non-local forces and motion but these forces are impossible to measure by experimentalists. For example, imagined gravitational fields are believed to produce downward forces but no such forces have ever been measured.

Big Bang theorists imagine a spacetime field in their theories and then go on to invent several more similar but distinctly different entities to explain the features of their imaginary and impossible cosmic creations such as Dark Energy and the cooling of the Cosmic Blackbody Radiation.

Besides the pure energy singularity itself, the next big impossible thing they come up with is the Guth inflation. Inflation was invented and developed by impatient cosmologists who did not want to wait the billions of years that it would take for the galaxies in the universe to move from their point of creation to their present locations. Instead of waiting, theorists spread matter and photons throughout the universe in a virtual instant of time with Alan Guth's idea of matter teleportation. Guth inflation is an impossible thing that violates the constant speed of light and all other physical laws of force, acceleration/deceleration, momentum, energy, and gravity.

Perhaps the favorite impossible thing believed by all Big Bang enthusiasts is the idea that 2.7°K Cosmic Blackbody Radiation has cooled from an original temperature of about 3000°K. Experiments show that there is no way that blackbody radiation can be cooled without destroying its blackbody distribution curve. The physical way to cool radiation is to move the photons farther apart. Since this changes their distribution curve, Big Bangers believe photon wavelengths are constantly increasing while their momentum and energy are decreasing by proportionate amounts. The most amazing impossible thing about this expanding space is that it has three different kinds of expansion that all happen at the same time. In the first type of expansion, the wavelengths of photons increase, and their momentum and energy decreases. In the second type of expansion the distance between photons is increased to match the blackbody temperature curve. In the third type of expanding space, the space between the galaxies expands but the space within matter and galaxies does not expand. Both photons and the universal void of space expands while atoms, stars, and galaxies remain a constant size. It seems impossible that this imagined expanding space could cause some things to expand and not others. Also, how is this expanding space able to absorb more than 99% of the momentum and energy ever produced in the cosmos and have no effect on the speed of light or the energies of atoms or stars?

There is a strong controversy among Big Bang buffs as to the true cause of the Hubble red shift. One group says it is left over outward velocity from the original Guth inflation and the other group claims the galaxies are inertially stationary and it is the CBR expanding space that is increasing the wavelengths and decreasing the momentum and energy of the Hubble photons. The problem here is that the Hubble photons have increased in wavelength by a maximum of about 10 times and the CBR photons have increased by about 1000 times.

The cosmologists next big impossible thing is the idea of a new type of spacetime continuum called Dark Energy. Unlike the CBR expanding space, this new Dark Energy is a repulsive force that accelerates all matter away from the center of the cosmos. The only reason for these ideas and beliefs about Dark Energy and other impossible things is the cosmologists' unquestioned faith in the eternal 1/1836 electron/proton mass ratio.

It seems the standard solution for all modern cosmology problems and paradoxes is for theorists to immediately invent a new spacetime continuum field and adjust its parameters to solve each new problem. There seems to be no limit to the number of new and exotic spacetime aethers that Big Bang theorists can imagine. The only way to make progress in theoretical physics is to eliminate impossible metaphysical assumptions entirely and concentrate on the physical assumptions made by experimental physicists.

The Big Bang Theory Begins

It wasn't until well into the 20th century that George Lamaitre began to apply scientific principles to the idea that the universe had a sudden beginning that was created by God. His initial idea was essentially to create the universe from a single giant atom that somehow split apart into the atoms of today. George had the idea of the Living Universe basically figured out but since he didn't know about photons, neutrons, antimatter, Hubble red shifts, or the 2.7°K CBR, he was unable to fill in many of the details.

However, his followers soon took his ideas of creation and turned them around into an expanding universe model that began with the arbitrary idea of a Big Bang singularity that created atoms from photons. This was followed by a long list of metaphysical assumptions describing parameters and principles that painted a somewhat coherent picture of a creation of atoms, stars and galaxies. What came to be called the Standard Model Big Bang Theory contained many contradictions and violations of the physical laws of nature but these were explained away with such ideas as complementarity and relativity. The standard model of the Big Bang combines astronomical measurements with a large number of theories and contradictory assumptions about the existence of unmeasured parameters and certain imagined ancient laws of physics that are no longer in effect today. All of the Big Bang theory's structural problems stem from its assumptions of eternal electron mass and the idea that atoms can be constructed from photons.

According to some quantum mechanical Big Bang inventions, 2.7°K is regarded as a random temperature point in the cooling process of the CBR that began long ago in a much hotter and denser cosmos. In the circlon model of atomic structure, 2.7°K is the only possible temperature for this predicted homogeneous event that transformed a cosmos full of neutrons into atoms radiating photons.

Big Bang Theory's Violations of Natural Laws

There are many ways that Big Bang theorists violate the laws of experimental physics by proposing natural phenomena that cannot be measured or even detected. Of these, there are three in particular that have never been satisfactorily resolved by any experiment.

The creation of matter without antimatter. No experimental physicist has ever been able to create a particle of matter without also creating an equal particle of antimatter. Why do we not detect any leftover antimatter anywhere in the cosmos from the initial creation of our protons and electrons?

The answer is that what is called "matter and antimatter" is really positive magnetic matter (protons) and the negative electric matter (electrons). These matter and antimatter particles are still with us in the Living Universe today in exactly equal numbers. The electron was once the antiparticle to the proton when their masses were equal.

The cooling of the Cosmic Blackbody Radiation without any transfer of energy to the rest of the cosmos at large. How is it possible for the CBR to cool if momentum and energy from its photons are not transferred to the rest of the matter in the cosmos? Where does this energy go? The law for the conservation of energy does not allow heat to disappear. The CBR could not cool without heating up something else. Big Bang people claim the CBR photons originally had 1000 times more momentum and energy than they have today. Where did all of this non-conserved energy and momentum disappear to?

The answer is that the CBR had a temperature of 2.7°K when it was formed and it still has the same temperature today.

Resolving the paradox between the Doppler and non-Doppler shifts of the Hubble red shifted photons and the Cosmic Blackbody Radiation. When we look at photons from the cosmos, they comprise two distinct groups. More than 99% make up the CBR and the other less than 1% are the photons produced by atoms, stars, and galaxies. The first group consists of blackbody photons with a single temperature of 2.7°K and the second group consists of mostly spectral photons from atoms at all possible temperatures. Both the CBR photons and the highest red shift Hubble photons from the edges of the universe are assumed to have been emitted from the same atoms during the first billion years of cosmic

history. The Big Bang theory assumes that all of the photons from both groups were emitted from atoms with temperatures of around 3000°K.

One of the great paradoxes in Big Bang theory is how the Hubble group of photons acquired only modest red Doppler shifts of less than $Z=10$, while the CBR photons acquired enormous red shifts of $Z = 1000$. According to theory, both groups traveled a similar distance through the same space during nearly 14 billion years since the singularity was predicted to have occurred.

The solution to this paradox is that neither group of photons is Doppler shifted and both received their “shifts” from the evolving energy/mass of the electron. The CBR photons were emitted from a time much further in the past than were the Hubble photons.

The Electrodynamics of Absolute Circlon Synchronicity

The main feature of circlon electrodynamics calculations is that Planck’s constant $h = m\lambda c$ is not a single metaphysical constant but a combination of the two physical constants of photon masslength $Y = m\lambda$ and the speed of light $h = Yc = m\lambda c$. This eliminates the need for the massless photon as well as the transformation between mass and energy as in $e = mc^2$. The correct form of this photon equation is $cC = e/m$. The photon’s equal linear and rotational kinetic energies are $e = mc^2/2 + mC^2/2 = mcC$. Mass is the absolute and constant measured component of energy $e = mv^2/2$, momentum $p = mv$ and angular momentum $I\omega = mvr$.

The energy of the photon $e = hf = m\lambda cC/\lambda = mcC = mc^2/2 + mC^2/2 = E$

The angular momentum of the photon $I\omega = h/2\pi = m\lambda C/2\pi$

Today, when the Bohr radius is $a_0 = 5.2 \times 10^{-11}m$ and the fine structure constant is $\alpha = .007$, the electrodynamics of the Hydrogen atom produces its intrinsic Lyman spectral photon $_{Ly}\lambda_\infty = 4\pi a_0/\alpha$ at a wavelength of $9.11 \times 10^{-8}m$. This is the shortest possible wavelength in the hydrogen spectrum and when it is emitted, it leaves the Hydrogen atom at its ground state.

The angular momentum of the ground state Hydrogen atom is. $I\omega = m_e a_0 \alpha C = 1.06 \times 10^{-34}$ This constant for angular momentum is the same for all photons $I\omega = m\lambda C/2\pi = 1.06 \times 10^{-34}$. This value is a universal constant because it is not changed by the evolution of electron mass. As electron mass decreases, the fine structure constant α increases and the Bohr radius a_0 decreases to maintain a constant value for this so called “quantum” of angular momentum. This is the angular momentum at an atom’s Bohr radius as well as the angular momentum of all photons. An atom, must have at least this quantity of angular momentum $I\omega = h/2\pi = M_e a_0 \alpha C$ between its proton and electron in order to emit a photon. The wavelengths of spectral photons are transformed as decreasing electron mass causes changes in the fine structure of the Bohr radius. These changes are required by the conservation of angular momentum.

These electrodynamics explain the value of the Hubble shift and are also able to calculate both the 2.7°K temperature as well as the precise timing of the of the initial burst of 2.7°K cosmic blackbody photons. As electron mass decreases, it increases the fine structure of a decreasing the Bohr radius. This, in turn, decreases the wavelengths of spectral photons. Decreases in an electron's mass within the structure of a neutron decreases the neutron's stability and increases its decay energy.

Physics of the Big Bang without the Metaphysical Assumptions

The Living Universe principle of cosmic creation is not a theory. It is a series of conclusions made from measurements that are fitted together into a theory-like structure for the evolution of the electron within the living and growing cosmos.

This is not meant to be a new theory of matter, energy, or even cosmology because none of the initial metaphysical assumptions of a theory are made prior to the conclusions of experimental measurements. It is just a new way of looking at Big Bang physics that is upside down, inside out, and backwards from the standard model theories based on massless photons, downward pointing gravity, and the eternal and constant value of the 1/1836 electron/proton mass ratio.

The value of 1/1836 can be used to represent an interval of cosmic time on an Electron Evolution clock. $T_{EE} = 1/1836$ is the time interval that we are living through today. The next interval of Electron Evolution Time $T_{EE} = 1/1837$ will be in our future when the electron/proton mass ratio has increased to that amount. Both campfires and the sun will have become slightly hotter as well as the neutron becoming slightly less stable.

In our journey back into the far reaches of a Living Universe, we begin at this future interval of time and then stop briefly in the present at $T_{EE} = 1/1836$. We then continue our journey into the past with stops at $T_{EE} = 1/1800$, $T_{EE} = 1/900$, $T_{EE} = 1/147$, $T_{EE} = 1/146.5$, and finally at $T_{EE} = 1-1$. From there, we go backwards in Electron Evolution time from $T_{EE} = 1+1$ to $T_{EE} = 147/1$, and finally to the beginning of the Living Universe at $T_{EE} = 1836/1$.

A Beginning of Cosmic Time at $T_{EE} = 1836/1$

At this arbitrary point of beginning, today's negative electron and positive proton have been transformed by the reverse evolution of matter into a negative antiproton and positive positron with an antiproton/positron mass ratio of $a/p = 1836/1$. This point of beginning was when the positron and antiproton coupled together into an Anti-Hydrogen atom and emitted the photons necessary to reach its ground state.

$T_{EE} = 1836/1$ is not meant to be a beginning of cosmological time. It is simply the most logical and symmetrical point in time to start a complete evolutionary story of a Living Universe from beginning to end. It begins a detailed description of the existence and evolution of the atoms of matter and photons.

In this initial condition of the anti-cosmos, only one anti-Hydrogen atom existed with an antiproton/positron ratio of $a/p = 1836/1$. As we now go forward in time, the anti-atom sits at rest and is otherwise dormant except for the decreasing mass of antiproton evolution. When the antiproton/positron mass ratio reaches $T_{EE} = 146/1$, the tertiary coil of the antineutron's circlon shape becomes larger than the secondary coils of the positron's circlon shape. When this happens, the positron spontaneously collapses and becomes locked inside the structure of the antiproton. This process is called "positron capture" and forms a stable antineutron.

The evolution of the Living Universe begins with a single assumption that can be called a metaphysical assumption because it is open ended to time. This initial assumption is that the positive matter protons and the negative matter electrons are eternal and have always existed in equal numbers within the void of space. Their motions and interactions are measured to be in compliance with the standard Newtonian laws of physics. A conclusion of measurement made from this assumption is that the electrons (negative matter) have been slowly evolving in a synchronous process that decreases their energy/mass and increases their size (wavelength).

It is concluded that a Living Universe could begin with a single anti-Hydrogen atom that had existed long before this arbitrary "beginning". The only other assumption that need be made is that this original anti-atom contained all of the energy/mass in today's universe. We do not need to explain or even question the existence of the original positron and antiproton at the beginning. They were made of the same quantity of negative electric matter and positive magnetic matter that still exists in the Living Universe today. We do not need to assume the existence of electric and magnetic matter back at this arbitrary beginning any more than we need to assume their measured existence today. Once we conclude that matter has always existed, we can explain the history and structure of our world without any new laws, assumptions or parameters being added to the already well established laws of experimental physics.

Points in Space and Time

Philosophically, the idea of a beginning of time is kind of an oxymoron. Time is experienced through the thought process and while thoughts have beginnings and ends, a beginning or end to time cannot be imagined. The same is true for the ideas of the point and infinity. We cannot logically begin the cosmos at either a point in space or a point in time. Points in space and a beginning of time are even more difficult to imagine than infinity. At least you can look far into the heavens with a telescope and imagine you can see infinity. However, a point cannot be seen or even imagined with even the most powerful of microscopes. From this, we can only conclude that the universe could not begin as photons and particles appearing with a "bang" from points within a spacetime aether that suddenly appeared from another point. The Living Universe always

contained individual circlon shaped particles of electric (negative) and magnetic (positive) matter within a featureless void.

To discover the true nature of what was happening to electrons and protons during their reproduction, we must begin by studying what is happening in the interaction of matter today and then work our way back into the past toward this event. In this way, we can examine the forensic measurements of matter's evolution in terms of physical laws rather than make metaphysical assumptions about imagined and unmeasured initial conditions for the beginning. The only evidence presented here is the measurable dynamics of matter and photons. From these first principles of measurement, we can trace the evolution of matter back to its existence long before the so called Big Bang singularity.

The first clue in our quest for the evolution of matter is the discovery that the mass of the electron is slowly decreasing while its size has been increasing by a proportionate rate. This decrease has been detected in a general way by measurements of electron and proton mass going back to their discoveries at the turn of the 20th Century. This is an experimental measurement that we can make here on Earth. I have no doubt that if we develop the technology to make extremely precise measurements of proton mass, electron mass, the Bohr radius, and the fine structure "constant", it will not be too many years before we will be able to detect and then measure the rate of electron evolution in the laboratory.

When we look away from Earth and point our telescopes deep into the cosmos, the Hubble red shift becomes the first independent confirmation of this discovery. It shows us that spectral photons emitted by atoms today have much shorter wavelengths than the same spectral photons emitted in the distant past.

We must not make any assumptions or theories about the cause of the Hubble shift and instead accept these measurements at face value. What these shifted photons obviously tell us is that atoms in long ago galaxies emitted spectral photons with less momentum and longer wavelength than they do today. This is what we measure, but not what Big Bang cosmologists want to believe.

These theorists believe these large red shifts are Doppler shifts caused by distant galaxies rushing into the void at speeds approaching the speed of light. However, to propose such an idea without any collaborating evidence seems quite preposterous. When cosmologists hear hoof beats in the distance, they will immediately insist that it has to be metaphysical unicorns. The theorist has the choice between trying to account for the tremendous energies of an exploding universe or just calculating the changes in energy produced by evolving electron mass. The experimental physicist must make conclusions from what can be measured while the theoretical physicist is free to imagine impossible things that cannot be detected.

Unless one makes the initial assumption of eternal electron mass, there is no logical reason to conclude that the Hubble shifts are Doppler shifts caused by the rapid motion of distant galaxies. They are simply the electrodynamic

effects of expanding electrons and not the Doppler shifts of an expanding universe.

Measurements conclude that in the past, atoms emitted photons with longer wavelengths than they do today. The Hubble shift does not require any special explanation because such a shift is required by electron energy/mass transformation. The reason for the cosmological red shift is that as the electron's energy/mass decreases, the electrodynamics of atoms require them to radiate photons with shorter and shorter wavelengths.

The Hubble shift and the circlon shapes of electrons, protons, and neutrons are all we need to trace the evolution of matter and energy back to its earliest beginnings without inventing metaphysical assumptions or theories that are not supported by today's measurements of quantum mechanics or electrodynamics. Matter's cosmic evolution is driven by decreasing electron mass m_E that in turn decreases the Bohr radius a_0 with an accompanying increase in the fine structure constant α . These three values change in a complementary way in order to maintain the universal value of the atomic angular momentum constant ($I\omega = h/2\pi = M_E a_0 \alpha C$).

The Beginning of the Living Universe $T_{EE} = 1836/1$

The Living Universe began with two fully formed conscious deities. The antiproton and positron had existed forever separately and have just joined together to form a single atom of anti-Hydrogen. We could go further back in time but this single anti-atom can tell us everything that we need to know about the evolution of the Living Universe.

The antiproton/positron mass ratio was 1836/1 and they were identical in structure to the anti-Hydrogen atoms made in the laboratory today except that they contained the entire mass/energy of the universe. (Mass = 10^{80} protons, $M_p = 1.76 \times 10^{-27}$ kg = 10^{53} kg total. Energy of the universe $e = mc^2 = 10^{53} \times 10^{17} = 10^{70}$ Joules). All of this energy was rotational energy/mass. At this time, the cosmos contained no linear energy/mass and as a result its exact temperature was absolute zero 0°K .

The positron was coupled to the antiproton as they quietly sat alone at the anti-atom's ground state. They occupied the zero momentum position of absolute rest within the void of space that we can easily imagine to be its center. All atoms are at rest within this frame and have no momentum and all photons move at the speed of light c relative to this zero momentum rest frame and no photons are Doppler shifted in this frame. The only change that this atom experienced with the passage of time was the negative electric matter of the antiproton slowly decreasing in energy/mass and increasing in size. Experimental physicists have just barely detected the increase e/p mass ratio since it was first measured to be 1/1836 at the beginning of the Twentieth Century. Today, the ratio is measured to be about 1/1836+?.

Positron Capture $T_{EE} = 146/1$

As long periods of time passed, the rotational energy/mass of the antiproton decreased while the energy/mass of the positron stayed constant. In the process, the lost rotational energy/mass of the antiproton becomes the linear energy/mass of vibration between the two particles. Eventually, the antiproton/positron mass ratio dropped to 146/1 and the tertiary coil of the positron's circlon shape decreased to a $\sqrt{\alpha} = 1$. This caused positron's primary coils to be pulled inside of the antiproton's secondary coils. This process of positron capture transformed the anti-atom into an antineutron.

Bifurcation Synchronicity

As the linear energy/mass between the two particles within the antineutron increased, a breaking point was finally reached and it bifurcated into two identical antineutrons that moved apart with the stored up linear energy/mass of the original particle. The two new antineutrons moved away with relative linear energy/mass but had no internal linear energy/mass. As the rotational energy/mass of antiproton was slowly transformed into the linear energy/mass of the two antineutrons it again reached a breaking point and both particles bifurcated simultaneously into four antineutrons, all at 0°K with no internal linear energy/mass.

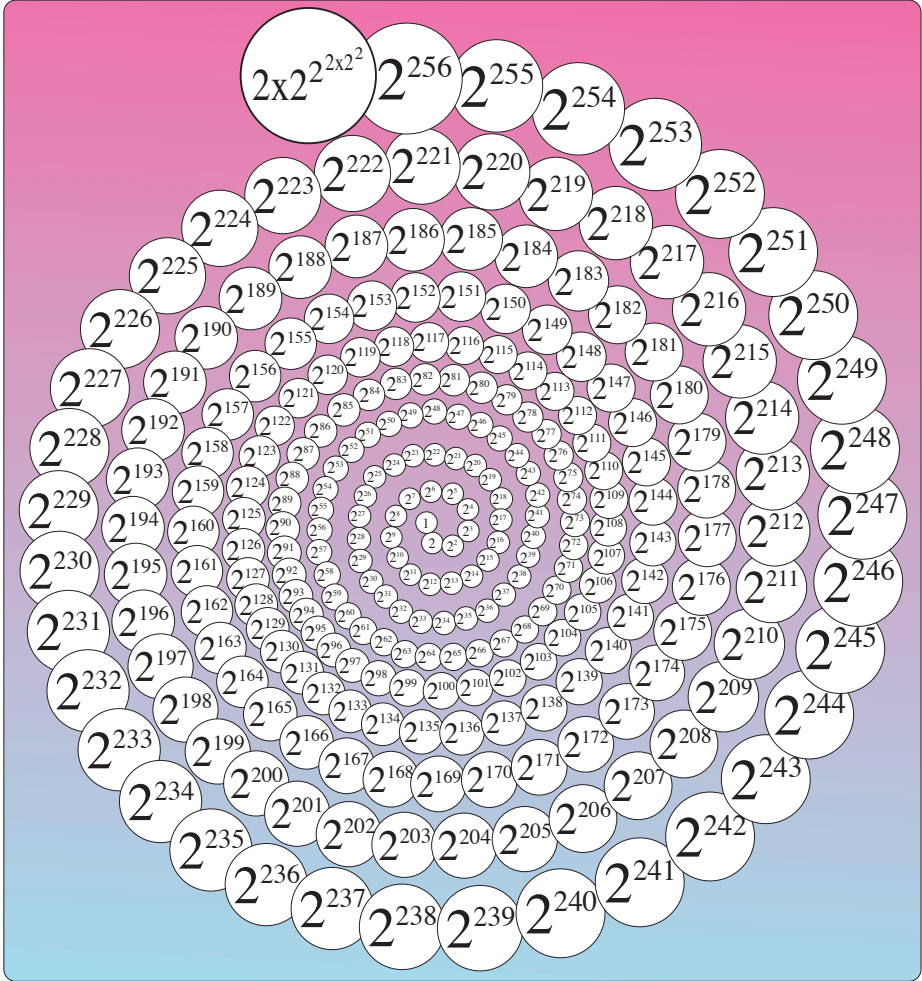
The four neutrons duplicated in the second bifurcation had shorter lifetimes than their parents because the circlon shapes of the antiprotons and positrons were closer to synchronicity in mass and size.

The first few neutron bifurcations cycles took billions of years, but they occurred with perfect synchronicity so that even though they were billions of light years apart and rapidly moving in all directions they all bifurcated simultaneously. Each pair of new antineutrons is exactly like its parent with 1/2 the energy/mass and twice its size. As this process continued the number of particles in the cosmos was increasing by a power of two $2, 2^2, 2^3, 2^4, 2^5, 2^6, 2^7$, etc.

As the circlon shaped particles grew closer and closer to mass/size synchronicity, the antineutrons gradually decreased the time intervals between bifurcations, making the lifetimes of the antineutrons shorter and shorter. By the time of the 256th bifurcation cycle, there were less than seconds between cycles and the particles were ejected from each other with very little linear energy/mass.

At this point in cosmic time $T_{EE} = 1/1$, the reproduction process stopped when the antiproton/positron mass ratio went from 146/1 to 1/1+ and it conceptually became the electron/proton mass ratio.

The Creation Spiral of the Universe



$$2^{256} = 231584178474632390847141970017375815706539969331281128078915168015826259279872$$

This drawing illustrates the exact number of protons and electrons at each stage of the matter bifurcation cycle of the Living Universe.

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The Frozen Cosmos $e/p = 1/1+$ thru $1/146$

At the point in time when the bifurcations stopped, the cosmos consisted of 2^{256} stable neutrons. I chose this number because it has great symmetry and is just slightly less than Eddington's venerable estimate of 10^{80} protons for the mass of the cosmos.

These particles can be considered as frozen because they had very little relative motion between them and there was very little vibrational motion within the particles.

It can be pointed out that at the moment $T_{EE} = 1/1$ when the positrons were conceptually transformed into protons, the cosmos contained exactly equal numbers of matter and antimatter particles, and all particles had equal quantities of energy/mass. The negative electron (antimatter) is the primordial antiparticle to the positive proton (matter). While the numbers of negative and positive particles have always been equal, this was the only moment in time when particles of matter and antimatter contained equal quantities of energy/mass.

In Einstein's Big Bang spacetime creation theory, neutrons and antineutrons play little or no part in his imaginary ideas about the creation of matter. Theorists believe that protons were created just after the singularity appeared and electrons were not created until much later in the process. There is nothing in their reasoning requiring the cosmos to have equal numbers of electrons and protons even though the law of charge conjugation does demands equal numbers.

In experimental nuclear physics, the only process that can produce equal numbers of protons and electrons is the decay of neutrons. The Big Bang's creation model of matter without antimatter has no experimental verifications. No Big Bang enthusiast has ever offered a credible reason as to why their Big Bang universe contains no antimatter or why electrons and protons seem to be in equal numbers..

During the millions of years that the 2^{256} stable neutrons floated and moved through space, the rotational energy/mass of the electron continued to convert to the internal linear energy/mass of the neutrons. Unlike the antineutrons, this increasing energy/mass did not cause the neutrons to decay because the mass/size ratios between the particles was growing larger instead of smaller as with the antineutrons.

When the electron/proton mass ratio finally reached $1/146.5$, the primary coils of the electron's circlon shape had grown slightly larger than the proton's secondary coils. Prior to this, the electron and proton were coupled together in a stable neutron with the electron's internal structure locked firmly inside of the proton. As soon as the electron's primary coils became too large to fit inside of the proton's secondary coils, they popped out of the proton with the tremendous amount of linear energy/mass that had been stored in the particles from their long incubations.

After $T_{EE} = 1/146.5$, the electron could attach to the outside of the proton at the Bohr radius to form an atom, but it could no longer attach to the inside of the proton to form a neutron without the addition of external coupling energy. After this point in time, neutrons all become unstable and decayed into electron and protons. These electrons and protons could then either couple together into atoms and emit photons or with enough collision energy they could transform back into slightly unstable neutrons. Since then, free neutrons have gone from being virtually stable to today's lifetime of about 19 minutes.

The 2.7° K Frozen Fire $T_{EE} = 1/147$

After their long incubation process, the neutrons had accumulated tremendous amounts of kinetic energy from the decreasing energy/mass of the electron. When the neutrons finally decayed all at once, they were like tiny atomic bombs. A long frozen cosmos suddenly erupted into a gigantic fire engulfing the whole universe. 2^{256} at rest neutrons were transformed into 2^{257} high velocity electrons and protons moving in all directions. These immediately began colliding with one another, emitting photons, forming atoms and converting back into nearly stable neutrons. In a mere instant in cosmological time, the universe was converted from great and small clouds of basically frozen neutrons into a seething mass of highly energetic electrons, protons, and neutrons.

Nuclear Synthesis $T_{EE} = 1/148$

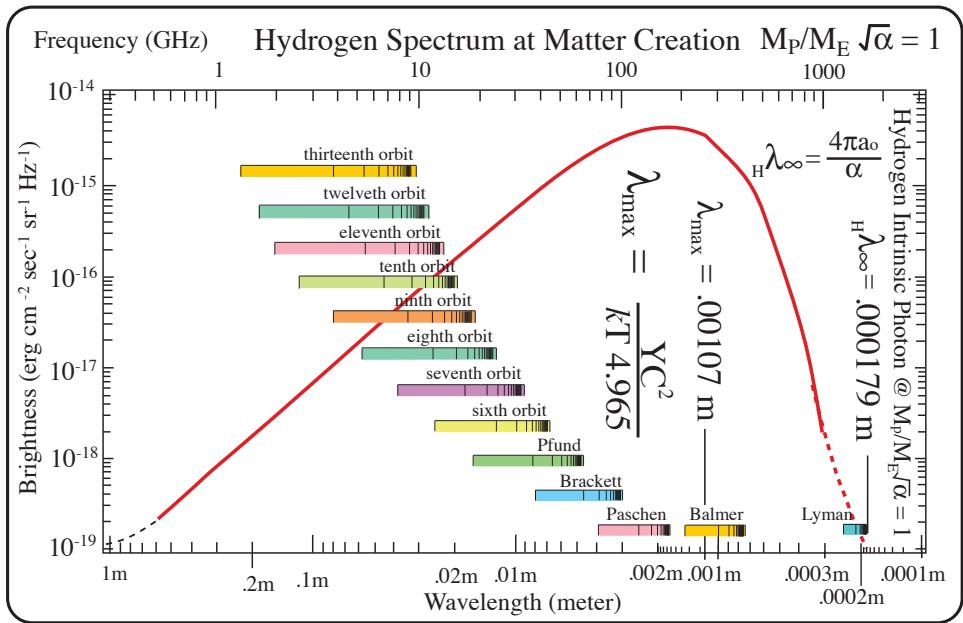
In this high-energy and neutron-rich environment, protons, electrons, and neutrons collided and joined together into atomic nuclei, atoms of all the chemical elements and many different chemical molecules. By the time this great nuclear synthesis had ended, the universe was composed of about 90% Hydrogen and 9% Helium. The remaining 1% of matter in the cosmos contained quantities of at least a few atoms of all the 2000 or so possible nuclear isotopes. The process finally stopped when virtually all of the universe's supply of protons, electrons and neutrons had been absorbed into the structures of about 2000 different chemical atoms.

When they were first formed, all of the isotopes were virtually stable with a nuclear stability number of one $\#_{NS} = M_p/M_e \sqrt{\alpha} = 1$. Then, as electron evolution progressed and the neutron stability number $\#_{NS}$ increased to say 10 or 20, the neutron began to become more unstable. This caused the largest and least stable of the atomic nuclei to decay into lighter nuclei.

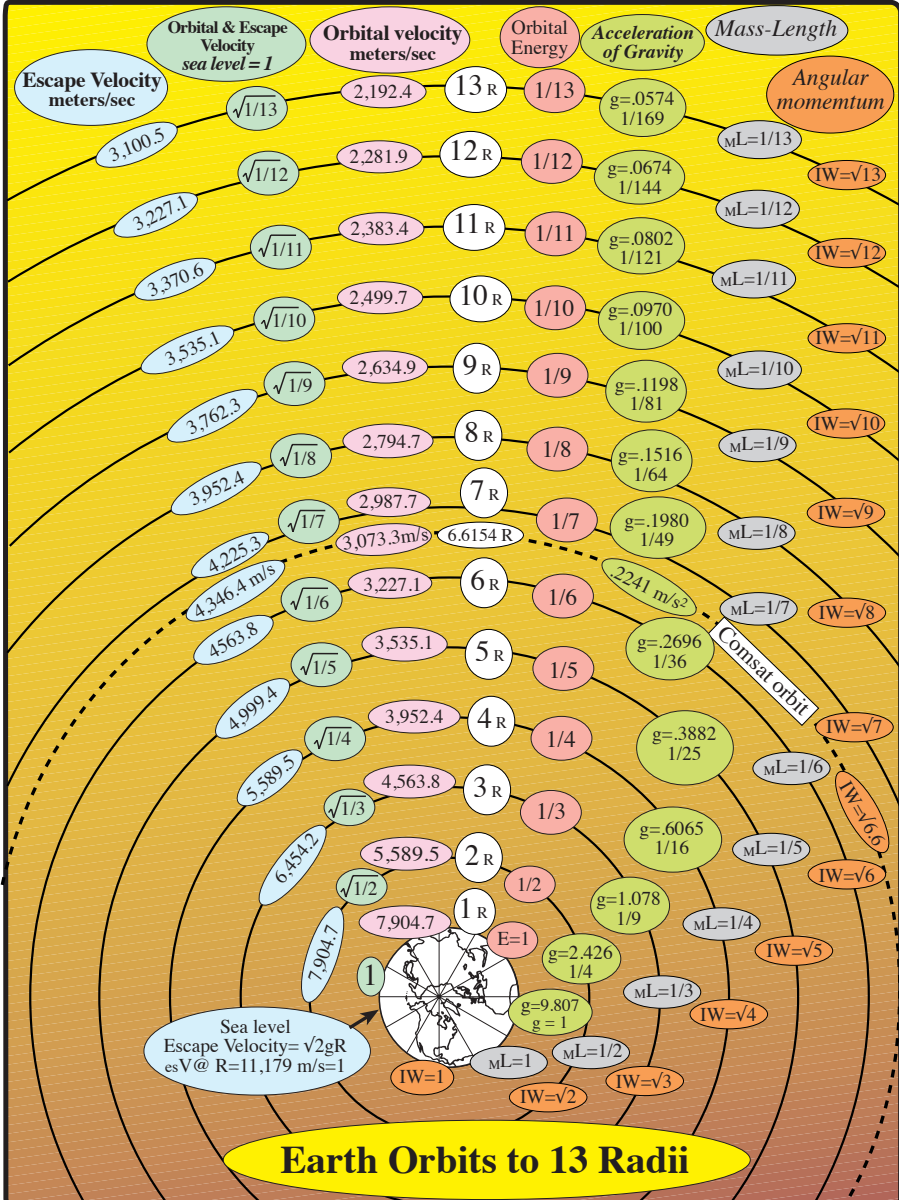
In the time that the nuclear stability number ($\#_{NS} = 1+$) advanced to today's value of ($\#_{NS} = 156$), the 2000 original isotopes had decayed into the 285 virtually stable isotopes that make up the periodic table. Currently, elements heavier than Hydrogen and Helium make up only about one percent of atomic nuclei. Today, most of a particular element's many nuclear isotopes are unstable, but at the time $T_{EE} = 1/147$ just after the great neutron decay, they were all at least virtually stable.

2.7° K Cosmic Blackbody Radiation $T_{EE} = 1/147$ to $T_{EE} = 1/1836$

As the process of rapid neutron decay continued, electrons began coupling to protons and other nuclei to form atoms and emit spectral photons. Both the kinetic energy of the electrons' and protons' rapid motion and the ionization energy between them was slowly converted into a mixture of spectral photons from all the elements. After this energy was dissipated into photons, the universe became filled with blackbody photons and the atoms settled down into their ground states and became relatively dormant. In this state, they possessed less than one unit of photon angular momentum and could no longer emit any photons unless they absorbed a photon or gained angular momentum from colliding with other atoms. With an electron/proton mass ratio of 1/147, heated atoms produced spectral photons at a blackbody temperature of 2.7°K.



This drawing shows the Hydrogen spectrum compared to the CBR.



This drawing shows the orbital parameters of Escape Velocity, Orbital Velocity, Orbital Energy, Acceleration of Gravity, Masslength, and Angular Momentum for Earth orbits out to 13 Earth radii. The Dinosaur Era probably occurred around the time when the radius of Earth was about twice what it is today and gravity was about one-quarter its present value.

This grand fire of radiating atoms filled the universe with a great burst of photons that contained the ionization energy of all the elements as well as much of the enormous decay energy of the neutrons. This great release of photon energy/mass can still be viewed in the universe today as the photons that make up the 2.7°K Cosmic Blackbody Radiation.

These photons represent an almost unbelievable amount of energy. Even today the CBR photons have about a thousand times as much energy as the photons produced by all the stars and galaxies since their formation.

Once the individual atoms had converted their kinetic and ionization energies into spectral photons, the universal grand fire eventually went out leaving the whole universe at a constant blackbody photon temperature of 2.7°K. The atoms continued to absorb and emit some these photons but that did not change the overall character and temperature of their blackbody radiation spectrum.

Formation of Galaxies $T_{EE} = 1/147$ to $1/918$

The extinguishing of the grand fire began another very long and cold, era in the history of the Living Universe when the gravitational expansion of mass, space, and time began to gather the atoms into individual clouds of gas and dust with greater and greater densities. These clouds slowly became segmented into still smaller and denser clouds that eventually collapsed into planets, stars, and galaxies. As new stars formed, starlight began to light up the universe with spectral photons for the second time. This process star formation within the galaxies took many billions of years but may have been mostly completed by the time the electron/proton mass ratio reached 1/918 or about half what it is today.

Map of Cosmic Time and the Evolution of Matter							
$h/2\pi = M_E C \alpha a_0$	Electron Mass M_E	Bohr Radius a_0	Circlon Constant $\sqrt{\alpha}$	Neutron Structure Constant $Q = M_p/M_E \sqrt{\alpha}$	Fine Structure Constant α	Hydrogen's Intrinsic Wavelength $\lambda_i = \frac{4\pi a_0}{\alpha}$	Hubble Z Number $Z = 0$
1.14×10^{-29} kg		5.292×10^{-11} m	.0855	156.8	.0073		
Today's Electron Mass						$\lambda = .0000000911$ m	
1/1836		1.00	.0855	157	.0073	1	Z = 0
1/1800		1.02	.0838	151	.007	1.06	Z = .06
1/1500		1.22	.0701	105	.0049	1.82	Z = .82
1/1200		1.53	.056	67	.00312	3.58	Z = 2.85
1/918		2.0	.0428	39	.001825	8	Z = 7
$E_M = 1/2$ proton mass							
1/146.5		12.53	.00682	1.0	.0000465	1967	Z = 1966
Neutrons decay, atoms form and the 2.7°K Cosmic Blackbody Radiation fills the universe						$\lambda = .000179$ m	
1/100		18.36	.000466	.4	.000022		
Only stable neutrons No atoms or photons							
1/1							
Electron and Proton are particle/antiparticle pair							

Hubble Constant $T_{EE} = 1/918$

The galaxies with the greatest red shifts observable with the Hubble telescope at the visible edges of the universe are about $Z = 7$. From this, we can conclude that the initial formation of stars and galaxies was largely completed by the time the electron/proton mass ratio reached about 1/918. From this time in the star formation process to the present, the energies of spectral photons have increased by a factor of 8.

From this point on, the Living Universe is just what we observe it to be with our telescopes. The Cosmic Blackbody Radiation still maintains its original temperature of 2.7°K and the total temperature of the universe produced by starlight is slowly increasing but still far below 1°K. The temperature from photons originating inside the Milky Way is about 3°K but out between the galaxies it is still much colder.

Reverse Entropy

What we measure with our telescopes is the opposite of what cosmologists have long believed to be true. True believers in the Eternal Electron Mass Constant and the invention of the Big Bang singularity have long believed that entropy was negative and that the universe was constantly in the process of cooling down toward an ultimate “heat death”. However, with the principle of electron evolution, both Dark Energy and the Hubble shift would show that total entropy is at least neutral and may even be positive. It is perhaps true that the increasing energy of spectral photons is generally equal to the energy lost from the emission of photons with longer and longer wavelengths. The Living Universe is cooling down from photon dissipation at the same time it is heating up from electron evolution.

Conservation of Momentum $T_{EE} = 1/1$

One of the great unsolved paradoxes of Big Bang theory concerns the simple conservation of momentum. If all of the universe’s protons and electrons were ejected from a singularity point at extremely high velocities, their momentum vectors would all be one dimensional voids pointing away from the singularity point. Since adjacent particles would be traveling on virtually parallel momentum vectors, they would have almost no relative momentum or virtual angular momentum to form atoms and emit photons. They would constantly be moving farther apart from one another and there would be little chance of any of them colliding or interacting on their long journeys toward the edge of the universe. The physical mechanics of the Big Bang theory completely eliminates any physical mechanism that could gather together these speeding particles of matter into clouds, stars, galaxies, and eventually people. In Big Bang theory, all of its momentum and energy are used to send particles of matter speeding away in all directions from a single point.

In the Living-Universe, the great explosive decay of neutrons that created the electrons and protons occurred not at a single point, but from 2^{256} separate locations throughout the universe.

When they decayed, these neutrons were moving in many different directions. The energy of these decaying neutrons put all of the electrons and protons on different high energy trajectories where they could crash into one another rather than all of them moving away from the point of a universal singularity .

The Era of Zero Entropy $T_{EE} = 1/1$ to $T_{EE} = 1/1836$

Big Bang cosmologists have long adopted the eternal electron mass constant of $1/1836$ as the fundamental metaphysical assumption of nature and have concluded from it that the universe is in a constant process of cooling down from a much hotter initial state. Mainstream cosmological theories have always been built around verifying this assumption of constant electron mass. However, when we look for actual physical evidence to support the conclusion of a cooling universe, we can find very little if any. All experimental evidence would indicate that the Living Universe was very cold when its atoms were formed and it has been slowly heating up ever since.

With the electron's mass getting smaller and smaller, it is easy to see why the universe is getting hotter. The photon emission spectra for all the elements are gradually growing to greater energies and shorter wavelengths. It could be that this effect matches the "heat death" predicted for the universe by the second law of thermodynamics. If the assumption is made that these effects are equal, then it can be concluded that entropy in the Living Universe is zero. As the Living Universe cools from the dissipation of energy into longer and longer wavelength photons, it is also being warmed by the increasing energy and shortening wavelengths of atomic emissions.

The Chemical Era

As the mass/size ratio between the proton and electron grows, there are subtle changes in the chemical reactions that occur from protons and electrons coupling together. Because of a much larger Bohr Radius, chemical compounds in the distant past had somewhat different properties than they do today. Perhaps the chemicals that make up dinosaur bone were stronger then than they are now.

It is possible there was a point in cosmological chemistry about three billion years ago when the chemistry was just right for the spontaneous formation of DNA and other organic molecules. Since then, these molecules have reproduced, diversified, and joined together to preserve themselves. Perhaps, there was only a small window of time in electron evolution when the chemistry was just right for the spontaneous formation of DNA molecules. After this "sweet spot" in cosmic history, DNA molecules were able to reproduce but they could no longer

be produced spontaneously. All life on Earth is directly connected to these original DNA molecules. As Timothy Leary said in a lecture I once attended, "We are all the result of an unbroken chain of life that is over three billion years old." There is no place along this chain where at least some portion of our present bodies was not part of a living organism. At least in principle, our bodies could still contain atoms from one of the original DNA molecules.

In the Living Universe, the evolution of life is driven by the changing parameters of cosmological chemistry. In the future, molecules that do not exist today may be possible. Certainly, the energy and intensity of chemical reactions will change as the mass of the electron evolves.

There is another factor that may very well have a significant effect on the evolution of life in both the past and in the future. This is the increasing instability of the neutron and its link to the decreasing stability of atomic nuclei. At one time in the distant past, common and widespread radioactive nuclei such as Thorium and Uranium may have been stable and this may also have been true of many other radioactive elements and isotopes. The end result of this evolving process is that today we have some 282 stable isotopes and a small number of radioactive isotopes with very long lifetimes. As the stability of the neutron decreases with electron evolution, the least stable of these 282 isotopes will become radioactive.

Knowledge of this effect will also change the way we measure things like the age of Earth. One way to determine the age of Earth is to study and quantify the rate that Thorium and Uranium decay through a series of steps into Lead. It is possible that these weakly radioactive elements may have been much more stable when Earth was first formed. Also, there may have been many more than today's 282 stable isotopes. If Thorium and Uranium were once stable or had much longer half lives, then Earth could be much older than previously estimated based on the decay of these elements.

The Era of Conscious Thought $T_{EE} = 1/1700$ to $T_{EE} = 1/1836$

Perhaps the most remarkable thing about the whole scenario of a Living Universe is that we are here to try and figure it out and discuss it. The great unexplained mystery of the universe is not so much the existence of the chemical elements of matter but the existence and origin of consciousness.

Since the only identifiable activity in the observable universe is the interaction between electrons and protons, it must be concluded that the activity of consciousness must also be a part of these interactions. The basic units of consciousness are somehow contained within the individual structures of protons and electrons. If each of our atoms contains a basic unit of awareness, then our higher degree of consciousness results from the connections of the many atoms

and molecules within our bodies. These individual atomic senses of awareness are all organized into symmetrical patterns of interactions within our atoms that we sense as feeling and experience as both consciousness and unconsciousness thought. Our total consciousness is the result of the 10^{29} possible connected interactions between the atoms in our bodies and brains.

While the atoms of a rock may have primitive individual awareness, it cannot really be called consciousness. It is possible that true consciousness did not arrive in the Living Universe until the spontaneous formation of DNA molecules about three billion years ago.

The eternal existence of matter is the initial principle of the Living Universe. A religious person, who wants to begin the cosmos with God, might want to consider concluding that electrons and protons are an eternally living Yin/Yang dichotomy of deities that could be referred to as goddesses and gods. This duality of gods has always existed with the antiproton as a yin goddess and the positron as a yang god. This god and goddess then worked together, interacted, and reproduced into 2^{256} electron and proton deities that contained all the consciousness of today's Living Universe. The god consciousness that we experience stems from the basic connected awareness of these chemical deities within our bodies.

Entropy is the evolution of total cosmic energy being irreversibly transformed from the rotational energy of atoms to the linear energy of photons and other moving bodies. In the beginning, there was no linear energy/mass and all rotational energy/mass was contained in the opposite internal motions of the original antiproton/positron pair. In the bifurcation process that divided the single anti-hydrogen atom into 2^{256} neutrons, the rotational energy/mass lost by the antiproton-electron becomes the linear energy/mass of all moving bodies in the cosmos. Entropy is a function of the general conservation of momentum, angular momentum, and energy.

Conclusion

The evolution of electron mass is not an assumption or theory because it is an experimental conclusion made from physical measurements of the cosmos without any initial metaphysical assumptions such as eternally permanent electron mass, unmeasurable parameters like a singularity, Guth's inflating field, expanding CBR photon spacetime, unmeasured Doppler red shifts, or the miraculous creation of particles of matter without particles of antimatter. Moreover, unlike the Big Bang, the Living Universe does not require the creation or destruction of any energy/mass and there is no requirement for an expanding spacetime continuum or a beginning of time. Indeed, no assumptions are made that are not completely verified by the conclusions of the scientific method for the measurement of mass, space, time, and gravity and the subsequent calculations of momentum, energy, force, and gravitational motion.