# Supersymmetry inversion, and the generation of dark matter and dark energy from a helium Bose Einstein Condensate singularity.

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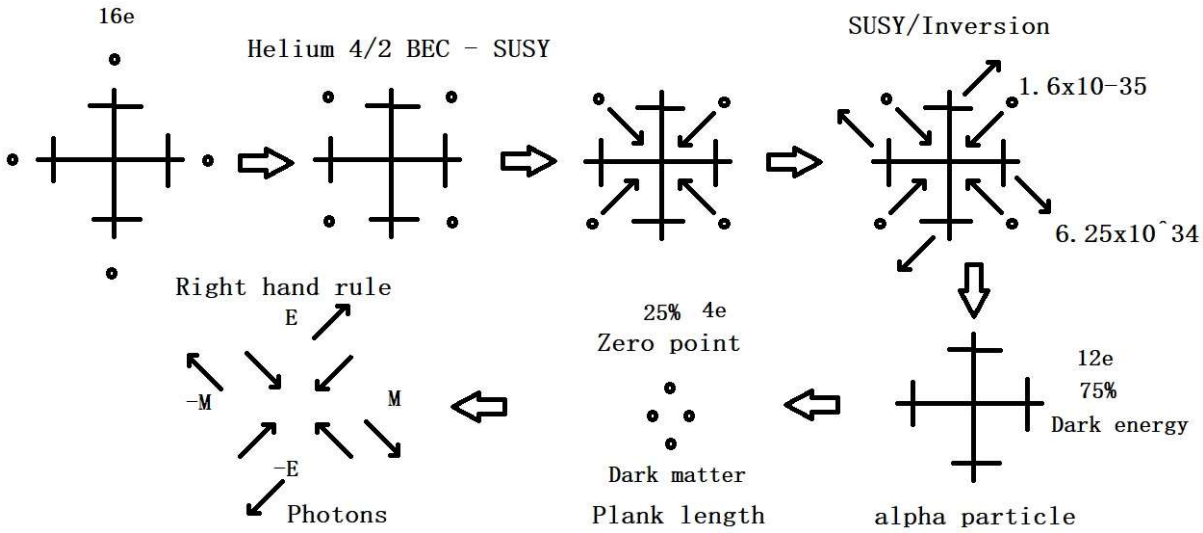


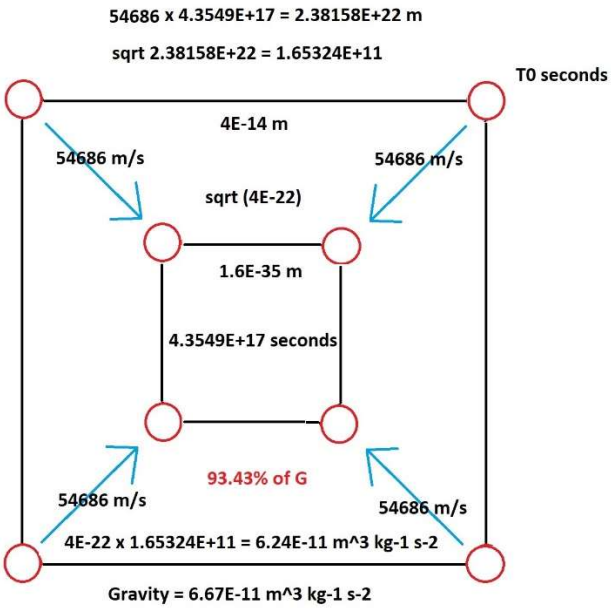

## Abstract

The composition of the universe has been determined through cosmological investigation to contain three components dark energy (DE) comprising 68% of the universe, dark matter (DM) at 27% and matter (M) comprising 5% of the universe. The identity of DM and DE are currently unknown. The inability to reconcile the cosmological composition of the universe with the Standard Model of Particle Physics as it stands, is proposed to be a function of measurement and the creation of the asymmetric state within the atomic structure between protons and neutrons via the loss of the antimatter e.g. the positron, within the structure of atoms. The measured state produced a larger neutron than proton and the increased mass is proposed to be accounted for by the missing antimatter particle (the positron). The Baryonic asymmetry problem is resolved if a revision to the quark charge calculations is performed allowing charge parity with positron and electron pairs.

In making this fundamental change to quark charges in protons and neutrons a new atomic model for atoms is obtained, one that includes positrons. Quantum tunnelling and entanglement of photons (electron and positrons) is proposed to be responsible for the generation of atoms. The new atomic structure provides a compositional analysis that identifies the atom helium, with its 16 fundamental particles per atom, to be responsible for the generation of dark energy (DE) and dark matter (DM) through a supersymmetry (SUSY) inversion event whereby the initial correction to charge parity reveals an alternative solution aligned with the cosmological composition of the universe. The discovery of an alternative model to the hot Big Bang a cold super-atom of helium, a Helium Bose Einstein Condensate (He-BEC singularity).

It is proposed that DE comprises alpha particles that were emitted, faster than the speed of light, from a helium Bose Einstein Condensate. Dark energy comprises currently around 68% of the universe but was originally 75% as identified by the SUSY inversion model. The alpha particle emission accounts for the inflationary phase of the universe and its decay occurs to generate matter. The opposite inward trajectory (where fundamental particles travelled towards one another down to the singularity (Planck scale 1.6E-35 m)), generated the dark matter particles and 27% of the current universe's composition.

A mathematical model is outlined along with the proposed initial structure of the universe prior to its beginning, which enables a first principle empirical approach to calculate the fundamental constants of the universe based on this revised starting position. This logical model provides the basis for a deterministic unified field theory based on CPT revision of quark charge calculations based on the assumption that measurement breaks symmetry. In order for the atomic structure to be observed e.g. quarks within protons and neutrons symmetry was broken otherwise a zero state observed through mirrored symmetry would have identified nothing being present as everything adds back to zero is the dualistic positron electron paired universe. The discovery of the original geometry, He-BEC singularity, that the universe occupied before the beginning of time, provides a way to understanding the zero state in terms of the balance of opposites (positron and electron pairs). Understanding the specific geometry before the beginning of time enables the conceptual understanding that without contrasting energy levels of the electrons within the He-BEC singularity, all the energy present was at the same energy level (ground state). The singularity is therefore large and not point like at all. It is proposed that the singularity has a dimeter of $c^2$ and the emission of alpha particles resulted in the inflationary phase of the universe as well as the generation of dark energy and dark matter in a 3:1 ratio (out : in). This is opposite to the ratio geometry of hydrogens 3:1 ratio (quarks : electron) and nucleus (in quarks) : orbital layers single electron (out).

The atomic features of the SUSY inversion model provide a rationale for quantum tunnelling and entanglement occurring to generate atomic structures from light of different velocities v and c, stabilizing the quark electron structure. The light and the differential velocities responsible for the outward and inward balance provides a new understanding of the light-based processes generating the early stages of the universe and its continued expansion today, 13.8 billion years later.

The atomic features of hydrogen acting as the lens in which human consciousness operates through and the atomic singularity lens in which to logically explore the inner biological universe, which is the mirror reflection of the external universe provides a new scientific model for biology based on SUSY inversion.

Such a philosophical model provides not only the correct composition of the universe but by doing so provides the rationale for the understanding isotope physics in human biology providing the unconscious operating memory system within the mind. The SUSY inversion model and the singularity physics conceptual framework for quark charge calculations provides the resolution necessary to predict functional outcomes based on atomic timings of isotope physics decay processes. The velocities in which energy is released correlating to the perception of the inner reality revealed via photon mediated electromagnetic events within single atom operating systems housed in the aromatic ring system of neurotransmitters is proposed as occurring in the extracellular milieu.

The atomic decay, time reversal symmetry is used by the conscious mind to resolve the complexity of information into a stream of consciousness and explains the vision occurring in dreams as the isotope decay process releases energy and restores the atomic balance through the singularity via quark exchange with positron in the case of the neutron and the electron exchanged with the quark via the singularity for proton quark exchange. The atomic rearrangements to stabilize atomic structure occur through a process whereby electrons and positrons are inverted, and the charge is made opposite through the process of traversing the atomic singularity.

The mathematical calculations for quantum tunnelling and entanglement around the singularity are also provided as the inward and outward trajectories are mirrored allowing the quark to surround the gluon field's two quarks by the meson field. The relationship generates the electron or positron positioned in the atomic orbitals outside of the nucleus event horizon that is entangled with the meson quark. Such a model provides a rationale to the Weak Forces preference to the spin state of the meson decay in generating a neutrino and antineutrino based on the angular momentum of the positron or electron. This provides context for the tunnelling event that led to the entanglement process that forms stable atomic structures from two photons of light. This identifies why a particle electron is entangled with the quark in the decay event and the two are exchanged in the process through an inverse square law relationship.

This model resolves many of the current issues with the standard model of particle physics and provides a new logic-based framework. The SUSY inversion model provides an initial shift in understanding with respect to the biological orientation of the human retina. The retina pointing inward (rods and cones facing inwards) and seeing the light produced within the mind as part of the evolutionary adaption of isotope decay physics generating photons in a time reversal symmetry system for integration of conscious reality. The role of the atomic physics of the photo-electric effect being primarily responsible for vision at an atomic level, corresponding to the electromagnetic spectrum and s orbital layers within hydrogen in biology and not due to the functioning eye. The role of s orbital spherical geometry as a lens has not been considered for biology relevant to vision. However, the mirroring of the spectral properties of electromagnetism with the spectral dimensions of s orbital layers mediates a evolutionary relationship that unmistakably reveals the origin of

unconscious minds insight. The atomic timings of which has been utilized by biology as a functional feature of energy release to perform work, providing an evolutionary advantage to be able get instant action at a distance through quantum entanglement.

The identification of a quantum mechanical locality of hydrogen quantum tunnelling resulting in the generation of isotopes within the unconscious mind provides the missing link to the human inner atomic vision system. Within the mind's eye, based on hydrogen s orbital layered geometric features of quanta from one orbital layer to the next, electromagnetic photons are released and in doing so energy is used by a system and the operation returns balance between electron and positron pairs within the atom. Our perception of the external physical reality that we take for granted is therefore an evolutionary steppingstone to self-realization and seeing the atomic physics-based mechanisms responsible for vision within. Here the elements are put into the relative positions in the periodic table in terms of evolutionary processes of electromagnetic fields within the atomic structure of a cross and the introduction of positrons into the atom. The SUSY inversion toolbox of transitions based on isotope physics velocities and half-lives, provides the necessary tools to explore the concepts of space and time within the inverted symmetry model of atomic structure. By inverting the smallest thing into the largest thing a distance between points can be conceptualized using the different velocities obtained through atomic decay energies. The half-life timings giving a velocity / time based atomic singularity model that is empirical and functionally relevant to human biology with respect to the unconscious mind. The amine acts as the atomic delivery system for the quantum tunnelling competent hydrogen atom and the hexagon ring faraday cage provides the unique environment to maintain quantum coherence within the biological system. A stored light memory system based on electron transitions in s orbitals and the isotope decay system operating side by side for memory formation and recall. The evolution of such a system to give vision, in an atomic time reversal symmetry for memory formation and recall. This system operates as an atomic clock is a directional fashion giving the experience of reality flowing in one direction only. The arrow of time from high energy to low energy mediated through isotope decay processes.

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## Introduction

Grand unification or a unified field theory has been proposed to be an important step towards gaining mastery over the universe and its operating parameters that resulting in the generation of dark energy, dark matter, and matter in a composition that as of 13.8 billion years after the beginning comprises 68% dark energy (DE), 27% dark matter (DM) and 5% matter. The inability to identify 95% of the universe (DE and DM) using logic-based methods means the current Standard Model of Particle Physics is incomplete and there is a mismatch between atomic physics (small) and cosmology (large). The use of the Standard Model of Particle Physics in its application to human biology has resulted in applying reductionist-based thinking to human health and wellbeing in an atomistic world view. There are some major unanswered questions regarding the application of physics to reveal the inner working of consciousness, known as the hard problem of consciousness. We have been unable to formulate a complete unified field theory because currently physics cannot unite all four forces of the universe into a singularity, as gravity that operates at large scales has not been able to be integrated into quantum mechanics operating on very small scales.

The singularity where there is no mass, no charge, no space, and no time leads to a complete breakdown of all the known mathematics and infinities arise that confound calculations that require correction factors (renormalization) to correct the errors and infinities that plagues modern physics. The singularity is the place where all the forces of nature disappear, and this leaves us with no framework mathematically to explain what nothing is or what infinity is. The inability to explain how to integrate gravity (G) into quantum mechanics wavefunction and its collapse upon measurement means the very large gravitational properties and cosmological distances do not integrate well within the framework of the Standard Model of Particle Physics. The very small scale where atoms operate are examined using quantum mechanical statistics and probability approaches. These are a catch all approach, where the wavefunction and its collapse is based on measurement, as well as the thermodynamics of energy where statistics is used to understand entropy, where the universe moves towards a more disordered state (where chaos reigns supreme). Disorder or entropy may result from a lack of information. A so-called missing piece of the atomic puzzle and once that piece is found the resulting model will be revealed in its simplicity that will articulate a Grand Unified Field Theory.

Many different approaches have been applied to produce a quantum mechanical theory that integrates the relativistic features of Einstein and gravity and the warping of space-time. No such approaches so far have provided a satisfactory model to explain the identity of dark energy and dark matter. Theories such as String theory and M theory have been used to explain the integration at higher dimensions such as 11 and the predictive ability of the many world interpretation of quantum mechanics has led to a fanciful approach to explain reality in terms of all realities occur but the one you find yourself in is the one that you have chosen based on it being the most probable. This thinking lends itself to further confusion based on the outcome of measurements and fails to understand the nature of the human observation in terms of the quantum physics operating within the human being and the orientations of the retina within the observer. The locality of the observed observation.

The current approach outlined here, attempts to resolve these difficulties of integration of quantum mechanics and gravity by starting with the assumption that the universe was produced from a helium Bose Einstein Condensate (He-BEC singularity), that was homogenous (isotropic), and where all of the fundamental particles in helium (16 per atom of helium not the 14 as proposed by the Standard Model of Particle Physics for helium's atomic structure), were at the ground state in a Bose Einstein Condensate. A single super-atom of liquid helium. It is proposed that the temperature of the

universe was near absolute zero (-273 degrees Kelvin), below the boiling point of helium at -269 Kelvin. Helium is the only element in the periodic table that remains in a liquid state near absolute zero.

The model developed is coined “Supersymmetry inversion” or SUSY inversion and utilizes a rearrangement of Einstein’s mass equivalence equation $E = mc^2$, where E is energy, m is mass and c is the speed of light (299,792,458 m/s) squared. The helium Bose Einstein Condensate is proposed to have a radius equal to c = 299,792,458 meters. Each of the 16 fundamental particles per atom of helium equivalent to the electron or positron have a radius of 1.6E-35 meter and a diameter of 4E-18 meter or the square root of r = 1.6E-35 meter. The distance between the fundamental particles in the helium Bose Einstein Condensate is 4E-14 meter. From these initial parameters the following SUSY inversion model provides a framework in which to explore the cosmological constants of the universe including the identity of DE and DM and the inflationary process driven by expansionary, faster than light emission of alpha particles from the He-BEC singularity.

The helium Bose Einstein Condensate (He-BEC) singularity has a diameter of $c^2 = E/M$ where the electric field E, and the magnetic field M are at right angles to each other to create electromagnetism. The model provides an inversion of mass M to magnetism M via the rearrangement of the equation from $E = mc^2$ to $c^2 = E/M$. The E/M provides the straight-line mathematical parameter of rise / run or Y / X, where the y axis = E and -E and the x axis is M and -M, as shown in Figure 1.

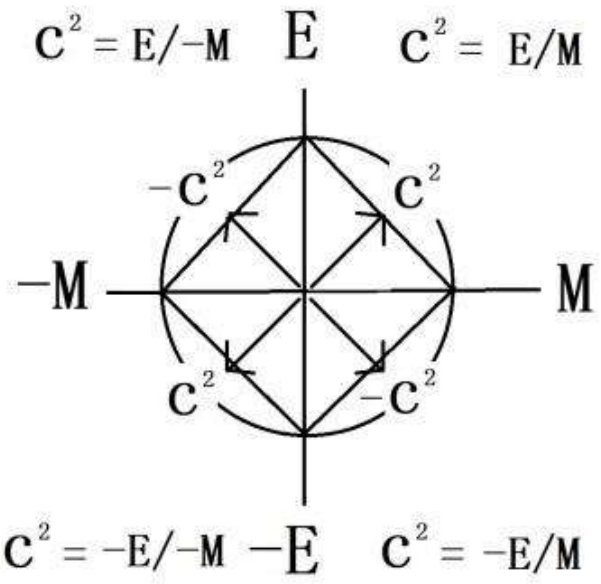



*Figure 1: The rearrangement of Einstein’s geometry into an s orbital structure of a planar circle and the z dimension of $c^2 = E/M$*

The geometry of Einstein’s mass equivalence equation and its rearrangement based on putting light as the result of the interaction of the electric field and magnetic field at right angles to one another in the terms the electromagnetic field (E/M). The right-hand rule of electromagnetism, where 90-degrees is the functional geometry of electromagnetism within s orbital structures. Features of the E and M model (Figure 1) were aligned with positron (+) and electron (-) pairs providing the identification of two positrons and two electrons within the s orbital layer within the atom of hydrogen. An alternative structure was devised by building a model based on this perspective, shown in Figure 2 below. The model also predicts a mirror symmetry of opposites where every

action has an equal and opposite reaction. A zero-point inverse symmetry state. This balance of opposites of electron positron pairs provided a rationale for the cosmological understanding of the Baryonic symmetry of positron and electron pairs and how every matter particle has to have an antiparticle of antimatter. When matter and antimatter come together a photon of light is formed in its annihilation of matter with antimatter. This was the basis for SUSY inversion. Maintaining CPT.

## Quark charge calculation revision to maintain charge parity and SUSY inversion model

The SUSY inversion model, based on the rearrangement of Einstein's mass equivalence equation, was applied to quark charge calculations in order to correct for the missing Baryonic antimatter that cosmology has not been able to detect. This refined the hadron proton and neutron quarks into a mirror symmetry state. This resulted in the hadron charge for neutrons to have an overall charge of (-1) and the proton having an overall charge of +1. As the neutron and proton are opposite charges there would be an attractive force between them. This provided the context for the meson and gluon fields within the atomic nucleus as shown in Figure 2.

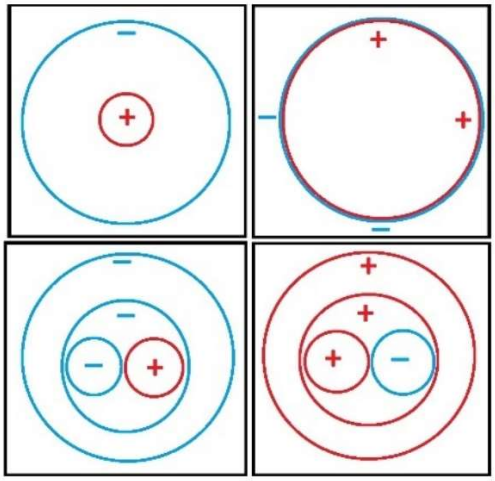


*Figure 2: The geometric features of an atom of hydrogen and the SUSY inversion cross based mirror symmetry state of hydrogen in tunnelling and entanglement to generate the entangled pair of proton and electron as well as neutron and positron*

The mirror symmetry of charge opposites is a fundamental feature of SUSY inversion. Where the mirroring occurs through the singularity within the nucleus. It is in the balance of opposite charges in positron and electron that charge parity occurs, as well as maintaining Baryonic symmetry, which provides the opportunity to identify the missing antimatter within neutrons. This gave a reason why neutrons had an overall zero charge because of the presence of positrons. It gave an explanation why the neutron was larger in mass than the proton despite both having three quarks based on the Standard Model of Particle Physics. This also gives a reason why neutrons have a half-life of 15 minutes but protons are stable. It provides a reason why W Bosons have a mass discrepancy and the muon decay process is also linked to the beta decay from the neutron and its quantum entangled positron that correlates to the W+ Boson. The quark charge calculation for SUSY inversion is outlined below.

## Quark charge calculations for SUSY inversion

The revised quark charge calculation generates a negative one charge (-1), normalized charge, on the neutron (Up quark charge of -1 Down quark charge of +1) and (+1 x -1 x +1 = -1). This charge is neutralized by the positron present within the larger neutron mass (1.67492749804E-27 kg), to give an overall zero charge (+1 + -1 = 0). This is equivalent to the Standard Model of Particle Physics understanding of the neutron's charge being 0. Thus, the SUSY inversion model has an extra particle

in it compared to the Standard atomic model. It reveals that positrons are present within atoms. This previously has not been understood. It provides an alternative logical framework to explore to understand how the universe formed and the origins of dark energy, dark matter and matter. An alternative to the hot Big Bang. A way to explore how the universe could have originated from a singularity that occurs in a zero state of no mass, no charge, no space and no time, where the current models and mathematics no longer make sense.

Through the revision of quark charges from fractions and adding (Standard Model approach) to whole numbers and multiplication (SUSY inversion model approach). This change maintains charge parity and provides an alternative understanding of atomic structure within atoms, based on inverted symmetry. Based on the revision to the Standard Model of Particle Physics for human biology, SUSY inversion shifts the attention away from a reductionist materialism of physical atoms and into an atomic electromagnetic model that attempts to unify all four forces through the atomic singularity and the functional process of tunnelling and entanglement.

The light held within the structure of atoms (electromagnetic force) is explored using the knowledge of (HEP), a fundamental physics of unstable atoms (isotopes), which is evaluated in terms of time (half-life) and velocity (binding energies) to give space-time features in the atomic landscape. Logic rather than measurement is deployed to investigate and identify positrons within the atomic structures generated in the SUSY inversion model. This revision provides a way to identify 16 fundamental particles per atom of helium in the singularity He-BEC model (Helium Bose Einstein Condensate). The geometry and the process involved in the generation of dark energy and dark matter can be revealed from this new starting position. A large singularity that is 3 dimensional in character.

The identification of the 16 fundamental particles per atom of helium, in the Bose Einstein Condensate of helium (He-BEC isotropic singularity model), was determined using the following calculations. In the Standard Model of Particle Physics helium has the following formula, 4/2He. Helium has 2 protons, 2 neutrons and 2 electrons based on this model. Each proton and neutron have three quarks each. The 4 hadrons (protons and neutrons) have a total of 12 quarks. The two electrons in 4/2He gives a total of 14 fundamental particles (12 quarks + 2 electrons).

The additional two fundamental particles were identified in the SUSY inversion model using the revision of the quark charge calculations to give charge parity refinement corresponding to positron and electron pairing. This restricts quark charges to either +1 or -1 in the normalization process. This charge parity restriction provides an alternative explanation for the geometric features of helium as a Bose Einstein condensate. It also explains why neutrons have a greater mass compared to the proton. It offers a logical solution for the missing Baryonic antimatter in the universe, therefore correcting the Baryonic asymmetry issue that is a problem for cosmology.

The reconciliation of the missing antimatter within the atomic structure of the neutron, identified by refining the quark charge calculations allows the establishment of charge parity, revealed the presence of positrons within the helium atom's structure. This feature of electromagnetism within the atom corresponding to the right-hand rule within the s orbital structure, features a mirrored symmetry between positron and electron at right angles to one another.

The identification of an additional positron for every neutron present, within the atomic structure of helium, in the He-BEC singularity model, means that there are two additional positrons present in the neutrons of helium in the Bose Einstein condensate. It is suggested, that the LHC by using high energy to measure the quarks, broke the symmetry within the hadrons (neutron and proton),

leading to the Standard Model of Particle Physics, where positrons are absent from atomic structure. The energy used in the measurement of the quarks created the hidden positron and this is observed by the larger mass of the neutron. The overall charge of the neutron is zero. The reason for this has not been explored in terms of its greater mass when compared to the proton. The two additional fundamental particles present in the He-BEC singularity isotropic helium atom structure, makes a total of 16 fundamental particles / atom of helium.

The isotropic (homogenous) nature of the He-BEC singularity provides a novel singularity model, which is based on the quantum fluid properties of a superfluid of helium. This isotropic form of helium provides the desirable features as a large single super-atom with homogenous electron behaviour. All the fundamental particles in the He-BEC singularity are at the ground state having synchronous wave-like properties of a single super-atom. This large super-atom, with a radius of c, provides the features to generate the universe in which we live. That is what the SUSY inversion model predicts based on the mathematical calculations performed and outlined in the following document.

The geometric features of the He-BEC singularity are outlined below and provides evidence for the singularity at the start of the universe before the beginning of time. This provides a detailed exploration of the geometry of the universe before the beginning of time using a logical framework of SUSY inversion, that uses Newtonian inverse square law rules to navigate through the features of the atomic universe and its relationship to the cosmological composition. Features of the singularity reveal a striking alignment to our present knowledge of the physics happening within our own biology based on isotopes and their operating parameters. The application of SUSY inversion as a fundamental biological model are also explored in terms of consciousness and the unconscious minds isotope physics mediated time reversal symmetry operating to give vision occurring within the mind.

## He-BEC isotropic singularity

Liquid helium[i] retains kinetic energy[ii] and does not freeze regardless of temperature due to zero-point energy. When cooled below its Lambda point[iii], it exhibits properties of superfluidity[iv]. This quantum fluid, liquid waters of the universe conceptual framework of the initial universe being a superfluid of liquid helium before the beginning of time. It is a concept outlined in Eastern philosophy[v]. However, it has its foundations in Christian thinking also and now has a scientific model that explores those fundamental cosmological constants in terms of a unified field theory and singularity physics model. An alternative approach to understanding the operating parameters of the universe.

## Functional parameters of the He-BEC singularity

The diameter of the fundamental particles are 4E-18 meter within the H-BEC singularity. The distance 4E-14 meters (the initial distance between the fundamental particles in the He-BEC singularity) shifts to a distance between particles of 1.6E-35 meters (Planck length known as h). The distance of 4E-14 / 1.6E-35 = 4E-22 meters. This is the distance traversed over a period of 13.8 billion years (4.35495E+17 seconds) at a velocity of $\sqrt{c}$ = 17314 m/s (7.54038E+21 m) and $\sqrt{v}$ = 54686 m/s (2.38158E+22 m). The average distance being 1.34008E+22 m. The inward trajectory produces the gravitational effect as energy from the initial beginning travels inward and outward at the same time but at different velocities. The inward trajectory leading us to explore the gravitational force as described below in terms of dark matter formation at the singularity. The atomic decay of dark matter into anti-hydrogen (neutron and positron) leading to the +2 charge of the atomic anti-hydrogen with respect to each individual fundamental particle originating from the He-BEC

singularity. The decay process spontaneously occurs through entanglement with dark energy decay of alpha particles that are involved in the expansion of the universe. As part of the inflationary phase of the universe. This too is described below. The first principle empirical calculations based on v and c and the initial distance between fundamental particles is given by Equation 1.

*Equation 1: Planck length (h) empirical equation*

$$1/h = [1/(\Delta\lambda)] * [1/(\sqrt{c})^5] * \{1/[(((\sqrt{c}/\sqrt{v}) + (\sqrt{c}/\sqrt{v})] - (\alpha + \alpha)) - \alpha) - [(c/v)^2 * (\Delta\lambda/\Delta\lambda e) * (\alpha^2/2)]\}$$

Where $\Delta\lambda = 4E - 14\, m \; and \; \Delta\lambda e = 4E - 18\, m$

And $\alpha = 1/(c/v) * \left(\sqrt{v} - \sqrt{c}\right) - \left[\left(\sqrt{c} + \sqrt{v}\right)/2\right]$

The establishment of the initial geometry of the universe as the He-BEC isotropic singularity is outlined in Figure 3. A number of parameters have been identified based on the compositional analysis of DE and DM and M the 16 fundamental particles in the He-BEC singularity give rise to DE and DM in a 3:1 ratio. The decay of alpha particles (DE) providing the process in which matter is formed. Going from the initial 75% down to 68% after 13.8 billion years as 7.26% decay of alpha particle has occurred over this period of time.

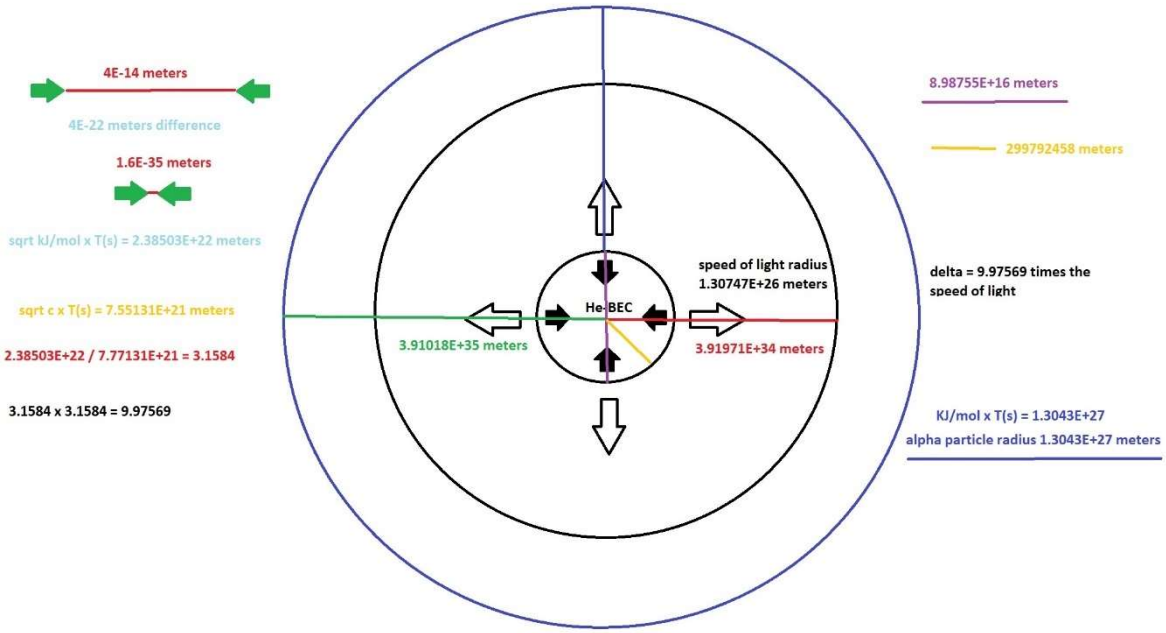



*Figure 3: He-BEC singularity initial features of the universe prior to the expansionary inflationary phase of the universe which was driven by alpha particle emission outward (12 particles) and the inward trajectory of 4 fundamental particles generating DM. The generation of π via the differential velocity of v and c where the fine structure constant is produced via contraction of the initial distance apart of each fundamental particle initially occurred at from 4E-14 m to 1.6E-3 m. Calculations provided below.*

## Π and differential velocity of v and c

The formation of $\pi$ is a number that corresponds to the circumference of a sphere and is used to determine the surface area and volume of a sphere as well as its radius. It is intriguing that the square root of the velocity of alpha particle emission and the square root of the speed of light correspond to $\pi$ when the fine structure constant is taken into account. $\pi$ is used in several cosmological calculations including the fine structure constant and is associated with Gravity as well

as Einstein's general theory of relativity. The circumference of the sphere is 2 $\pi r$. The formation of $\pi$ based on the differential velocity of v and c, based on first principles, gives further credibility to the He-BEC singularity model and provides numerical values corresponding to the generation of a spherical particle.

Particles in the SUSY inversion model are spherical and somewhat like a Janus particles, because one side is facing the singularity (atomic light source within the nucleus or the inside surface) and the other faces away from the singularity the outside surface. The separation of the two sides of the sphere (inside and outside) provides twice the surface area. The separation of the two surfaces is obtained by the fine structure constant (alpha). The concave and convex nature of the sphere provides a lens-like feature to ensure that all photons' head towards its singularity (centre) at 0,0,0 (x,y,z). The singularity structure provides a pinhole camera feature whereby the singularity inverts the charge where plus becomes minus and minus becomes plus through inversion. This occurs during the implosive process where the wavelength shortens to match the expansion. The inverse square law therefore provides a functionality of quantum tunnelling and entanglement though inversion via the atomic singularity.

$\pi$ can be calculated using the following empirical approach based on first principle using only v and c and alpha as shown in Equation 2.

*Equation 2: The generation of π from c, v and alpha*

$$(\sqrt{v} + 1/\alpha) / (\sqrt{c} + 1/\alpha) = 3.141483\ (\pi)$$

The inversion of alpha (1/ $\alpha$) gives 137.036. Alpha is inverted because of the inward trajectory of v towards the singularity. When time is considered in the inward trajectory the generation of $\pi$ appears as follows (Equation 3).

*Equation 3: The generation of π including time and the Planck length*

$$[\{(\sqrt{v} + 1/\alpha)*t(s)/(\Delta\lambda/h)\} / \{(\sqrt{c} + 1/\alpha)*t(s)/(\Delta\lambda/h)\}] = 3.141483$$

This provides a solution to the formation of 4 particles travelling inwards towards one another down to the singularity of the Planck Epoch (scale) after 13.8 billion years, as the initial starting point was 4E-14 meters apart. The SUSY inversion model inverts reality by creating the singularity today at the Planck Epoch.

This provides a reason why Planck scale physics provides locality in the SUSY inversion model as the position of individual atoms at Planck scale provides a way of removing momentum away from the fundamental particle because there is essentially no motion at 1E-43 seconds. This removes time out of equations simplifying the model. Without motion the location of a quantum object such as an electron occurs based on a dependency of inverse square law within the single atom systems at the point of the equilibrium. This is obtained through a non-interactive logical framework, which in essence works at the singularity scale of no mass, no charge no space and no time within the atomic framework described below. The model becomes deterministic.

Working at Planck scale within the resolution of the atomic structure provides both speed and locality in a deterministic fashion because at 1E-43 seconds at the distance of 1.6E-35 meter, there is essentially no motion (no space and no time). However, using the atomic features of isotope timings both temporal and spatial relationships can be identified that operate within the atomic universe. The application of this logical framework enables the removal of time from equations, thus making biology function at the point of the equilibrium where every action has an equal and opposite

reaction, within the locality of the singularity (0,0,0). The location of the singularity resides within a faraday cage of an aromatic ring that has a suitable size as to only house a single atom.

The application of SUSY inversion was developed for the purpose to understand monoatomic mineral coordinated to phenolics bound to royal jelly proteins, isolated from Manuka honey. It also has all the correct atomic features to enable hydrogen quantum tunnelling to generate isotopes, through a cross based atomic geometry. This provides context for the positron electron pairing model developed for single atom systems. The SUSY inversion singularity model for the single atoms (mono-atomics) operating within the faraday cage was applied to neurotransmitter function through quantum tunnelling of hydrogen into aromatic ring of the neurotransmitter dopamine. The amine NH3+ hydrogen delivery system provides the hydrogen atom in a quantum competent geometry, which is involved in the generation of isotopes housed in the faraday cage ring system. A room temperature quantum competent environment connected to the quantum tunnelling competent element hydrogen. A match made in heaven.

If consideration is given to the idea of SUSY inversion, that every action has an equal and opposite reaction at the point of equilibrium. Then the forward reaction and backward reaction are operating at equivalent velocities. There is an exchange occurring but that results in no accumulation of products or reactants. It is as if nothing is occurring at all because no change occurs. Under such a condition it is assumed that the reaction is no longer functioning. As there are no concentration changes of the product or reactant. However, if the forward and reverse reactions are equivalent then they can operate at any valid frequency and not violate the equilibrium established. Such a model suggests that an equilibrium point, a unique opportunity for biology to function without loss or gain of energy exists. This is the basis for isotope physics time reversal symmetry system proposed to be operating within the neurotransmitter aromatic ring (Faraday cage). It is therefore unique in its quantum properties and is proposed to constitute the Holy Grail of quantum processor within the human unconscious mind, operating outside of the neuron. A functional room temperature isotope physics light operating system that builds atoms one hydrogen atom at a time. A remarkable system that can give time to biological processes. A system that stores light in atomic structure and that features a light-based memory storage system operating outside of the neuron.

If the equilibrium can be maintained at different locations or at different temporal frequencies, then energy may be made available for work to be performed. The frequency of a photon is given by a relationship to its wavelength and the speed of light. The oscillation between the electric and magnetic fields at right angles to each other provides a 90-degree functionality that provides an inversion correlated to its wavelength and frequency. This provides a conceptualized framework to enable free photons to travel without mass and charge because the oscillations between positron and electron cancel out the charge through an inverted symmetry. The corresponding interchange frequency that matches the wavelength frequency. The inner surface and outer surface properties of the electron carries opposite charges so overall it depends on which surface is facing externally as to determine which charge is present on the external surface. The opposite charge is present on its internal surface and overall, it has no charge. By performing calculations based on the velocity and its decay one can generate a functional model whereby the surface area of the electron based on a diameter of 4E-18 meter generates a functional surface area of the sphere corresponding to the Coulombs charge on an electron (1.602E-19 Coulombs). Details are provided below.

## The formation of dark energy and dark matter from He-BEC singularity

Cosmologists propose that the universe comprises 68% dark energy, 27% dark matter and 5% matter. How does the SUSY inversion model compare to the proposed composition of the universe?

When we start with the isotopic universe (He-BEC) singularity containing 16 fundamental particles per atom of helium near absolute zero, having a diameter of $c^2$ and the distance between the particles corresponds to 4E-14 m. Each particle having a diameter of 4E-18 m. The SUSY inversion event occurred when the geometry within the He-BEC singularity corresponded to an inverted cross, when every action had an equal and opposite reaction. The singularity, He-BEC, underwent cosmic inflation event through the emission of alpha particles. The diameter expanded from $c^2$ (radius = c = 299792458 m) to 6.25E+34 meters in 13.8E+9 years at a velocity of 2990637811 m/s based on the KJ/mol value calculated from an initial Binding energy determined by the proximity of 4E-14 meters, the distance between each fundamental particle in the He-BEC singularity. The binding energy of alpha particle emission corresponds to dark energy (DE with a T0 content of 75% of the universe) emitted from the singularity at 9.97 times faster than the speed of light producing the inflation of the universe from the initial singularity. The energy of this inflation process was balanced by an inward trajectory of dark matter particles from the He-BEC singularity at a speed corresponding to the square root of the outward speed. Four particles from the initial He-BEC singularity per atom of helium generated dark matter at T0 of 25% of the universe. This provides the balance of opposites and enables the separation of DE and DM from the He-BEC singularity in a 3:1 ratio at T0.

The binding energy for helium (He-BEC) was 7.073915 MeV for 4/2He. The distance 4E-14 meter equates to 3.0996e+7 eV, which is the binding energy for the isotropic singularity. This converts into 2.9907e+9 KJ/mol or 2,990,637,811 m/s as a velocity, where the speed of light is 299,792,458 m/s. It is proposed that the KJ/mol value in the atomic decay event from the release of alpha particles from the He-BEC singularity resulted in the expansion of the universe at a velocity of 2.9907E+9 m/s. This equates to 9.97 times faster than the speed of light and it is proposed that this velocity accounts for the expansionary rate of the initial universe, which continues to this day at the furthest edge of the spherical universe. This provides context for the alpha particles being dark energy and responsible for cosmic inflation from the He-BEC singularity.

The alpha particles contain 12 out of the 16 fundamental particles per atom of the He-BEC singularity. This provides a ratio of 12 /16 or 75% of the He-BEC fundamental particles headed outward from the singularity per atom of helium. That leaves 4 of the 16 or 25% heading towards each other down to the singularity at the Planck length of 1.6E-35 meter (Planck Epoch). This is the Planck particle that comprises 4 fundamental particles from the He-BEC singularity and the Planck mass of 21.8 micrograms is proposed to make up the Dark matter of the universe down at the singularity. This is proposed to be the missing dark matter component of the universe and comprises most of the mass of the universe at 27%. This is approximately 5 times more mass than matter. The dark energy (DE) alpha particles due to the geometry and the balance of the atomic charges between protons and neutron quarks in the SUSY inversion model gives no mass and no charge as it occurs outside our frame of reference due to its relative faster than light speed and with respect to its geometric features of the 12 fundamental particles from the He-BEC singularity.

The proposed model supersymmetry inversion (SUSY inversion) provides a balanced model whereby a revision of quark charge calculation was performed in order to restrict quark charges in protons and neutrons to either +1 and -1, in order to restore charge parity with positron and electron pairs. This revision provides a way to identify the missing Baryonic antimatter. This provides a plausible alternative to the existing fractional charges used in the Standard model of Physics to calculate proton and neutron charge and a novel solution to resolve the missing Baryonic antimatter plaguing cosmology and the issues in the Standard Model of Physics. The identification of a large quantum superfluid of helium (He-BEC singularity) as the initial super-atom present, before the beginning of time, and responsible for the generation of the universe we reside within, provides a putative

identification of dark matter and dark energy from this theoretical model. It provides a predictive functional framework that identifies the current cosmological composition based on 5% matter and 68% dark energy and 27% dark matter based on the decay of alpha particles from the Dark energy generating the matter component of the universe. Both DE and DM decay together to maintain the zero state of charge throughout the universe. More details regarding the decay processes are outlined below.

Alpha particle emission (DE) from the He-BEC singularity through the SUSY inversion framework provides an outward velocity of 2,990,637,811 m/s based on the KJ/mol calculations for the binding kinetics of the helium isotropic universe. The distance between the fundamental particles was 4E-14 meters. The inward trajectory that counterbalances the outward trajectory is the square root of the outward velocity corresponding to 54,686 m/s. As the particles are moving closer together from opposite directions for the DM particle formation at the singularity of 1.6E-35 meter. The velocity squared is equivalent to the KJ/mol outward trajectory. As the alpha particles are moving in opposite directions in a mirror symmetry state through the centre of the He-BEC structure, the inner directions of 4 particles corresponds to the outer of 12 particles so there is a 3:1 relationship established between DE : DM from the He-BEC singularity, which is opposite to that observed in hydrogen (quark in : electron out but again a 3:1 ratio).

## Alpha particle half-life and the emission from the He-BEC singularity

The emission of the alpha particles from the He-BEC singularity is proposed. The half-life for the alpha particles emitted from the He-BEC singularity is 1E+18 seconds[vi]. The current age of the universe is 4.355E+17 seconds. This decay rate corresponds to 7.26% of the alpha particles transforming into 3/2He a stable isotope of helium. The Dark energy therefore decays into 3/2He. 3/2 He contains 1 neutron, 1 positron, 2 protons and 2 electrons in the SUSY inversion model. A total number of particles adding up to 12, which corresponds to the initial alpha particle emission.

The DM in the SUSY inversion model synchronously decays into 1/0H (anti-hydrogen that contains 1 neutron and 1 positron). A total of 4 particles from the He-BEC singularity. That accounts for all 16 particles per atom of helium from the He-BEC singularity. As dark matter comprises 27% of the universe after 4.355E+17 seconds (13.8 billion years), a 2% increase of DM has occurred over this period. The 7% reduction in DE over 13.8 billion years corresponds to the reduction of DE from 75% to 68%. It is proposed that the decay of DE results in the generation of the 5% matter and an additional 2% DM. As DM is a neutron and positron (anti-hydrogen) the alpha particle decays into 1 neutron and two protons. The 2:1 ratio in 3/2He means out of the 7.26% decay divided by 3 = 2.42. This gives 4.84% matter and 2.42% DM giving the dark matter composition from 25% to 27.42% based on these calculations. The amount of matter is 4.84% which is rounded up to 5% in the current model. The process aligns with the observed reality which is a good first pass sense check for the model developed based on the He-BEC singularity.

The 16 particles / atom of helium provides a solution to the Baryonic issues currently plaguing cosmology that are using the Standard Model approach and can only identify 14 fundamental particles per atom of helium. The missing positrons where the key discovery obtained from the revision of the quark charge calculations. The emission of alpha particles provides the inflationary phase of the universe (faster than light expansion from the singularity), from the homogenous form of a quantum liquid helium with a radius of c. The expansion rate being determined by the binding kinetics and its conversion into the KJ/mol parameter as the velocity of the emission. An inward trajectory at the square root of this velocity gives the DM particle a relative distance after 13.8 billion years down to the singularity of 1.6E-35 meter.

## Dark energy

Since the 1990s, studies have shown that around 68% of the mass–energy density of the universe can be attributed to so-called dark energy[vii]. The cosmological constant Λ is the simplest possible explanation for dark energy and is used in the current standard model of cosmology known as the ΛCDM model[viii].

The ΛCDM (Lambda cold dark matter) or Lambda-CDM model is a parameterization of the Big Bang cosmological model in which the universe contains three major components: first, a cosmological constant denoted by Lambda (Greek Λ) associated with dark energy[ix]; second, the postulated cold dark matter[x] (abbreviated CDM); and third, ordinary matter[xi]. It is frequently referred to as the *standard model* of Big Bang cosmology because it is the simplest model that provides a reasonably good account of the following properties of the cosmos:

There is now an alternative to the hot Big Bang and that is the cold SUSY inversion event through alpha particle emission. The following features are also provided by the SUSY inversion model which is an extension and refinement of the concept of a Big Bang in both directions at once. Both inward and outward.

- the existence and structure of the cosmic microwave background[xii]
- the large-scale structure[xiii] in the distribution of galaxies
- the observed abundances of hydrogen (including deuterium), helium, and lithium
- the accelerating expansion of the universe[xiv] observed in the light from distant galaxies and supernovae

The latest findings from the JWST provides support for SUSY inversion rather than the Big Bang as the model provides an explanation why the galaxies the furthest away from us are the youngest and not the oldest as predicted by the Big Bang. The newly forming stars are generated through the decay of alpha particles on the very edge of space in the expanding universe. This is what SUSY inversion model predicts.

The model assumes that general relativity[xv] is the correct theory of gravity on cosmological scale. ΛCDM emerged in the late 1990s as a concordance cosmology, after a period when disparate observed properties of the universe appeared mutually inconsistent, and there was no consensus on the makeup of the energy density of the universe. The ΛCDM model can be extended by adding cosmological inflation[xvi], quintessence[xvii].

The SUSY inversion model extends the model by providing an observer within the provision of the observation, which is fundamental to the observation occurring within the observer. This provides a revision of the ΛCDM model and fills in the missing piece of the model (atomic positrons), whereby the atomic geometry of the He-BEC singularity is revealed to be responsible for the formation of dark energy and dark matter. The SUSY inversion model has a finer granularity than Big Bang cosmology due to the specific known fundamental geometries present before the beginning of time e.g. a helium Bose Einstein Condensate. This revision provides a negative time dilation (faster than light emission of alpha particles and the universe expansion at 9.97 times faster than the speed of light. These numbers are determined through known calculations for helium, with a revision to the quark charges to obtain charge parity and resolve the Baryonic antimatter issue. The numbers as observed by the model are far reaching in terms of extending our understanding of the universe and the act in which it arose spontaneously out of nothing, the singularity, is not consistent with the He-BEC isotropic singularity where everything was present but at a single energy level making it without contrast and therefore not able to be observed as anything. This is consistent with the first law of

thermodynamics. Before the Act 1 scene 1, of Let there be Light and there was. Before the word that was spoken to create the universe. This scientific postulate has the hall marks of finding the God particle, not the Higgs Boson, but the He-BEC singularity using logic and not measurement that has been responsible for the atomic asymmetry issue to begin with. The cosmological constants that the model identifies includes the speed c, which is obtained from the decay process through the generation of a mirror pair of particles that are identified as positron and electron, with opposite charges. The pairs being emitted tangential to the velocity of alpha particle emission. The 12 fundamental particles form through the decay process and the energy of decay results in the formation of the particles itself and the generation of mass and angular momentum. DE and DM have been identified. Formation of atoms and the decay of DE and DM. Mass of an electron and proton. The charge on the surface of the electron.

There are alternative models that challenge the assumptions of the ΛCDM model. Examples of these are modified Newtonian dynamics (MOND)[xviii], entropic gravity[xix], modified gravity, theories of large-scale variations in the matter density of the universe, bimetric gravity[xx], scale invariance of empty space, and decaying dark matter (DDM)[xxixxiixxiiixxivxxv]. The SUSY inversion model uses the mathematics to convey the SUSY inversion solution to provide the calculations that resolve the underlying asymmetry issue. In doing so a model emerges that resolves may of the current unknowns of the universe.

## Cosmic inflation and the negative time dilation and faster than light expansion of the universe through alpha article emission

The alpha particle emission from the He-BEC singularity provides a model for cosmic inflation where the alpha particles are generated from helium and emitted as a velocity based on the binding kinetics corresponding to a distance between the fundamental particles being 4E-14 meters apart within the singularity. This produces a KJ/mol velocity in m/s of 9.97 times faster than the speed of light. The inflation rate of the universe based on the Hubble constant is predicted by the following parameters square root of c = 17314 m/s and the square root of v = 54686 m/s. The separation of and expansionary rate of the universe is proposed to be determined by the following calculation 17314 + 54686 = 72000, which is postulated to correspond to the m/s/Mpc. The inward trajectory and differential velocities of SQRT v and SQRT c provide the expansionary process where particles are generated through the tension of differential velocities of v and c. The theoretical correlation to the expansion rate is tantalizing and indicates that the inward trajectory is once again able to predict features of the outward expansion. As the outward expansion is mirrored by the inward production of universal expansion. The universe really appears to be a finely balanced system that operates without effort and without the generation of energy or its loss but through a process of outward expansion that arose through mirrored symmetry.

The current expansion rate based on the Ho Hubble constant of 73,000 m/s/Mpc but other figures have also been suggested corresponding to 70 km/s/Mpc expansion. The Hubble constant is most frequently quoted in (km/s)/Mpc, thus giving the speed in km/s of a galaxy 1 megaparsec ($3.09\times10^{19}$km) away, and its value is about 70 (km/s)/Mpc. 70,000 (m/s)/Mpc. This would suggest a predicted Hubble constant of 72 (km/s)/Mpc based on the average of the inward trajectory and because every action has an equal and opposite reaction the outward trajectory is at v and c and the inward trajectory is at square root of v and square root of c as outlined above. The inward trajectory at the square root velocities means that after 4.355E+17 seconds of time (13.8 billion years), The average of c + v = 36,000.

Because there are 4 particles travelling inward, we get 36,000 + 36,000 = 72,000.

There is a dynamic process whereby the formation of particles in pairs of positron and electron corresponds to and expansion and in filling of the expanded space. As only 7.26% of the original 75% of dark energy has decayed into matter after 13.8 billion years (putative age of the universe), we have several years to go yet before all the dark energy has decayed into matter and dark matter.

The expansionary negative time dilation calculation is outlined in Equation 4.

*Equation 4: Expansionary negative time dilation*

$$T = 1E + 18 / \sqrt{\{(1 - (1990637811^2) / (299792458^2)\}} = \text{-1.01E+17}$$

Where:

$$\Delta t \; is \; 1E + 18 \; seconds \; corresponds \; to \; the \; alpha \; particle \; half - life \; that \; is \; emitted \; from \; the \; He - BEC \; singularity$$

$(\text{-1.01E+17})^2$ = 1.02E+34

And the inverse (1/) is 9.85E-35

The Planck Epoch of 1.6E-35 meter and inverse of 6.25E+34 m gives the mirror symmetry pairs of the inward trajectory at the square root of the velocity based on KJ/mol alpha particle emission based on the initial binding kinetics and the distance between fundamental particles in the He-BEC singularity.

The difference between 6.25E+34 / 1.02E+34 = 6.16

The difference between 9.85E-35 / 1.6E-35 = 6.16

6.16 / 6.16 = 1

Interestingly, the mathematics of inverted symmetry provides several relationships where there are 12 fundamental particles in the alpha particle and a total of 16 fundamental particles in the He-BEC singularity. The numbers provide a simple way of remembering the 12.32 when added. The 6 Up quarks and 6 Down quarks in the alpha particle are emitted outwards and the 2 positrons and 2 electrons are emitted inwards getting closer together heading towards the singularity at the Planck Epoch.

## CMB

The cosmic microwave background (CMB) temperature fluctuations from the 7-year Wilkinson Microwave Anisotropy Probe data seen over the full sky. The image is a projection of the temperature variations over the celestial sphere. The average temperature is 2.725 Kelvin degrees above absolute zero (absolute zero is equivalent to -273.15 ºC or -459 ºF). The triple point of helium is 2.177 degrees Kelvin which is colder than the background radiation present in the universe, therefore suggesting that a Bose Einstein Condensate of helium could not remain stable in our current universe given the latent heat present as detected in the CMB.

The cosmic background was identified as the cooled remnant of the so-called hot big bang theory that fills the entire universe and can be observed today with an average temperature of about 2.725 kelvin. The SUSY inversion model provides an alternative viewpoint on the temperature corresponding to He-BEC singularity alpha particle emission that is responsible for the expansion of the universe (Hubble constant) and the quantum fluctuations can be calculated using a simple model that specifies the starting point of the singularity based on the rationale of a helium Bose Einstein

Condensate. Such a model is proposed and the features of the quantum fluid of liquid helium provides the correlation to the fundamental understanding of the universe.

The CMB happens to have a wavelength of 1.6mm and that falls in the microwave region. There are 6.25E+34 Planck lengths per meter and the Planck length is 1.6E-35 meter. 1.6 mm is 1.6E+31 Planck lengths. The Planck Epoch was proposed to occur at 1E-32 seconds. The original distance of 4E-14 meters to 1.6E-31 meters. The inflationary process and infilling of the universe with particles as v slowed down to c. The calculations that support this further are as outlined in Equation 5.

*Equation 5: Inverse square law singularity physics relationship to generate the diameter of the electron*

4E-14 / 1.6E-31 = 2.5E+17

1 / 2.5E+17 = 4E-18 meter

The inward trajectory provides further information regarding the diameter of the electron and positron via the inverse square law relationship with the Planck length.

Where 4E-18 x 4E-18 = 1.6E-35 meter and the Planck distance.

This up conversion of two electrons into a Planck sphere singularity is the reverse of the separation of the positron and electron pair out of the singularity in the mirror symmetry system operating within each atom.

## SUSY inversion model and the cosmic energy background calculations

According to quantum field theory (QFT) which underlies modern particle physics, empty space is defined by the vacuum state, which is a collection of quantum fields. All these quantum fields exhibit fluctuations in their ground state (lowest energy density) arising from the zero-point energy present everywhere in space. These zero-point fluctuations should act as a contribution to the cosmological constant Λ, but when calculations are performed these fluctuations give rise to an enormous vacuum energy[xxvi]. The discrepancy between theorized vacuum energy from quantum field theory and observed vacuum energy from cosmology is a source of major contention, with the values predicted exceeding observation by some 120 orders of magnitude, a discrepancy that has been called "the worst theoretical prediction in the history of physics"[xxvii]. This issue is called the cosmological constant problem and it is one of the greatest mysteries in science with many physicists believing that "the vacuum holds the key to a full understanding of nature"[xxviii].

The scale of the universe is also determined using the SUSY inversion model where the speed of light is used as the radius of the Bose Einstein Condensate (He-BEC singularity). When this assumption is made, we get the following information parameters as the basis for the measured parameters of the known universe.

Radius of the He-BEC singularity where r = c = 299792458 m/s. The volume of the sphere is 1.13E+27 $m^3$

Alpha particle emission at KJ/mol velocity based on 0.00004 nm 4E-14 meters with the particles generated with a diameter of 4E-18 meters, the alpha particle emitted velocity corresponds to 2990637811 m/s. The number of meters that the alpha particles have traveled through the age of the universe corresponds to

2990637811 m/s * 4.355E+17 s = 1.30558E+26 m after 13.8 billion light years.

Times the initial radius of the universe (299792458 m) prior to expansion 3.91403E+34 (alpha particles out).

The inversion of the distance traveled inward by (4 fundamental particles in the He=-BEC singularity) 1/3.91403E34 = 2.55491E-35. Then the entire universe 3.91403E34 / 2.55491E-35 = 5.11009E60. That is one radius of the universe (hemisphere) based on spherical expansion in all directions based on the SUSY inversion model calculations. The implosion (opposite to expansion) also gave rise to the Planck length distance of 1.6E-35 meter.

Expansion out by opposite directions of alpha particles gives the following calculation (Equation 6).

*Equation 6: Quantum background calculations and the inverse mirror symmetry model of the universe*

5.11009E+60 x 5.11009E+60 = 2.6113E+121

This is the mirror symmetrical nature of the concept that every action has an equal and opposite reaction. That is the principle behind the SUSY inversion model and the balance of opposite where zero is maintained.

The inversion of that in SUSY is 1/ 2.6113E+121 = 3.8295E-122 background energy without Hubble expansion considered. Universe expansion due to continued alpha particle emission and the alpha particle (Dark energy) decay processes creating matter from the initial event 13.8 billion light years ago where no matter was present (only dark energy (DE) 75% and dark matter (DM) 25%). Before DE and DM were generated there was a quantum fluid of helium known as the He-BEC singularity.

## Hubble constant calculations

The expansion of the universe with the Hubble constant of 4225 (see calculations below).

Hubble constant is approximately 70 (km/s)/Mpc or 70000 m/s / Mpc

The SUSY inversion model predicts a expansion rate of 72001 m/s based on the functional relationship between $\sqrt{c} + \sqrt{v} = 72001$

1 megaparsec (3.09E+19 km) away or 3.09E+22 m /Mpc

radius = 299792458 m/s and Diameter = 599584916 meters

Age of the universe 13.8E+9 light years

4.13714E+19 meters / year

31557600 seconds / year

1.30558E+27 meters or 1.30558E+24 km

1 megaparsec is 3.09E+20 km

So, the number of Mpc / age universe is 4225.180599

At the speed of light Hubble constant / Mpc age of universe = 0.986557981

Inversion of Hubble/c = 4282.7494

Slowed down by +/- 1.363% due to expansion

So, the level of energy based on the expansion of the universe is 3.8295E-122 x 4225 = 1.618E-118. As the universe expanded it expands faster the further away it is from the initial point based on the Hubble constant.

The average between no expansion and all expansion over each megaparsec due to the symmetry in number theory and the expansion building on itself as it expands means the average of the two extremes provides the answer to the question regarding the quantum background energy in the universe due to the expansionary process of DE due to alpha particle emission from the He-BEC singularity. So, taking account of expansion based on the Hubble constant then we can consider the following calculation for the cosmic background energy (Equation 7).

*Equation 7: Background quantum energy calculation taking into account the Hubble constant expansion rate of 70,000 m/s/Mpc*

$\sqrt{}$(3.8295E-122 x 1.618E-118) = 2.4892E-120

This corresponds to the background energy level of the universe at the Planck length. The cosmic fluctuations have led to the background energy level because of the expansion of the universe. Due to the pairing (duality) of the positron-electron system (Baryonic symmetry) the energy is approximately double the 1E-120. This calculation is somewhat closer than what has previously been determined.

## Red shift analysis

Associated with the inflation of the universe is the cosmic background radiation (CMB) at 1.6 mm wavelength correlating to microwave background energy that permeates throughout the entire universe. The initial starting conditions of the He-BEC singularity had a wavelength between the fundamental particles of 4E-14 meters and this wavelength was very short. This wavelength has been expanded to the CMB and is associated with the expansion of the universe. If we consider the initial geometric features of the He-BEC singularity where the 4E-14-meter distance between the fundamental particles of 4E-18 meters diameter. The distance from 4E-14 to 1.6E-35 meter is 4E-22 meter. As the electrons and positrons are travelling towards one another down to the singularity at the velocity of 54686 m/s after 13.8 billion years (4.355E+17 seconds) we have a distance travelled of 2.38158E+22 meters. The square root of this distance corresponds to 1.54324E+11 meters.

The difference between 4E-14 meters and 1.6E-3 meters is 2.5E-11 corresponding to the expansionary process of the universe. The relationship between 1.6E-3 and 1.6E-35 meter corresponds to 1E+32 meters and the inflationary epoch phase of the universe has been identified as 1E-32 seconds. The inflationary process has been driven by alpha particle emission, which corresponds to 9.97 times faster than the speed of light corresponding to a negative time dilation and expansionary process. The inward trajectory of the dark matter particles gave the positive pressure to fill the expanding universe.

1E-32 s x 1E+32 m = 1 m/s

Whereas the speed of light is 299,792,458 m/s

As it is currently proposed in cosmology that the inflationary epoch lasted from 1E-36 second after the conjectured hot Big Bang singularity to sometime between 1E-33 second and 1E-32 second after the singularity. Following the inflationary period, the universe continued to expand, but at a slower rate.

The SUSY inversion model provides an alternative to the hot Big Bang theory and provides a finer resolution of detail that corresponds to a geometric form of the He-BEC singularity. The emission of alpha particles provides 9.97 times faster than the speed of light inflationary phase that correlates to a negative time dilation. Additional supporting evidence for the He-BEC singularity is obtained from the calculations of the quantum fluctuations at 1E-120 shown above as well as the compositional information that identifies dark energy (DE) and dark matter (DM) and a means by which these exotic forms of energy decay and evolve into matter through charge attraction. This dimensionless number is obtained through the following calculations (Equation 8).

*Equation 8: Cosmological calculations using inverse square law relationships between DE and DM emitted from the He-BEC singularity 13.8 billion years ago*

(1/1.6E-35) m / 1.6E-35m = 3.91E+69

3.91E+69 / v (2990637811) = 1.31E+60 m/s

1.31E+60 / 1.31E-60 = 1E-120

## Dirac's large number theory

The recurrence of large numbers close or related to $10^{60}$ is a coincidence that intrigues some theorists. It is an example of the kind of large numbers coincidence[xxix] that led theorists such as Eddington and Dirac to develop alternative physical hypotheses (e.g. a variable speed of light[xxx] or Dirac varying-*G* hypothesis)[xxxi]. After the measurement of the cosmological constant in 1998, estimated at $10^{-122}$ in Planck units, it was noted that this is suggestively close to the reciprocal of the age of the universe squared[xxxii]. Barrow and Shaw[xxxiii] proposed a modified theory in which $\Lambda$ is a field evolving in such a way that its value remains $\Lambda \sim T^{-2}$ throughout the history of the universe[xxxiv].

The SUSY inversion model provides similar calculations but in an empirical deterministic fashion by working at the Planck scale of no space and time and in inverted symmetry of photon geometry of positron and electron pairing with the revised quark charge calculations giving the balance of mirrored symmetry through the inversion of the atomic singularity. This places two additional positrons into the atomic structure of the helium atom. The new starting geometric feature for the helium as the Bose Einstein Condensate. This has allowed a theoretical investigation of the universe from a non-interactive logical perspective where the centre of each atom acts as a pinhole camera reflecting the inverted symmetry through this central point or lens, to understand an inward trajectory of four fundamental particles moving closer together to generate dark matter (DM). It is the functional role of the singularity in its involvement in generating quantum entangled particles in terms of a proton with its three quarks and the electron.

This revision to the starting point, He-BEC singularity having 16 fundamental particles per atom of helium, provides the correct geometry and number theory to generate the universe composition based on the known cosmological information for DE and DM and matter. The SUSY inversion model provides a rationale for the inflationary phase of the universe. The faster than light emission of alpha particles from the He-BEC singularity is aligned to the decay parameters of alpha particles, providing further support of the proposed model. As will be seen, light is a by-product of particle formation from alpha particle emission (DE) at 9.97 times faster than c. Alpha particle velocity and its decay due to inflationary expansion, leads to a slowing down of the velocity of alpha particles and this reduction of speed is converted into particle mass as well as velocity and atomic locality with respect to the inner singularity of the atom at 0,0,0 (Figure 4).

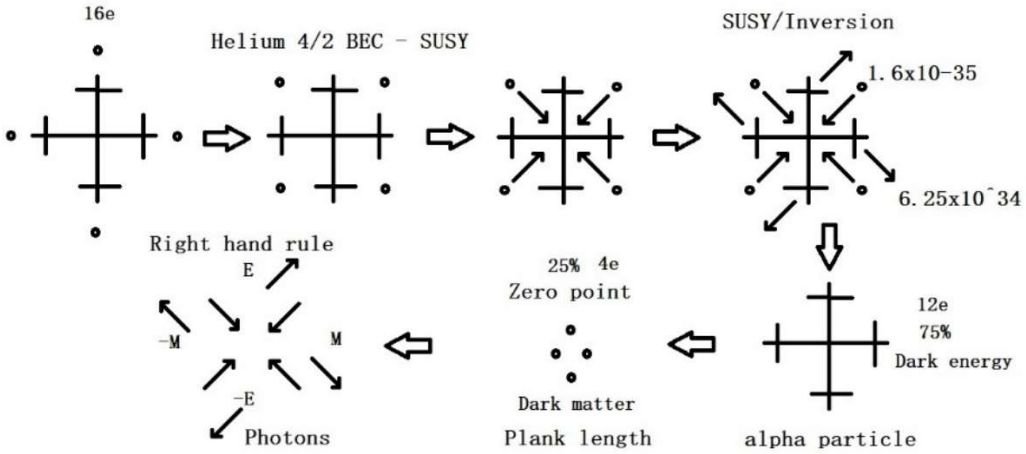



*Figure 4: He-BEC singularity where every atom of helium containing 16 fundamental particles creates dark energy (DE) and dark matter (DM)*

Noted the misspelling of Planck by removing the c. This in some ways is how the unconscious mind operates in the creation of light within the mind. See and c. At the centre of each atom, a cross based geometry can be imagined, through the singularity that maintains the balance of positron and electron pairs located at the four points of the compass in s orbitals. This new reference point, at the point of the intersection of the two lines (0,0), is present within every atomic structure and through this central point the atomic decay process occurs to invert the charge as outlined below. Like making a knot from two photons of light the singularity causes the entanglement of the photons producing a tunnelling process that links entanglement to the creation of atoms via light.

This feature provides a missing key feature in atomic structure. The atomic singularity inverts G and ke giving the unique features of the gluons and mesons with respect to energy and proximity to the singularity as outlined below. The inversion event unites Gravity and the Strong Force at the point of the singularity. The integration of Gravity into a quantum mechanics singularity physics model is one productive approach to unite all four forces of the universe into the atomic singularity before the beginning of time. The gravitational inverse square law relationship observed cosmologically (see gluon section) obtained through understanding the initial He-BEC singularity model.

The complexity of G with its 38 orders of magnitude weaker force than the Strong Force is explored and a solution provided. This has made integrating gravity into quantum mechanics more difficult because of the inversion event that makes Gravity strong at or near the singularity and the Strong Force weak. A conceptual framework that aligns with what is observed with an event horizon of a black hole. What this indicates is that stability within atomic structure is obtained through quantum tunnelling and entanglement of light and can be undone by the beta decay process. The operating parameters within the atomic universe are an inward trajectory at the square root speeds of the outward trajectory. Where the velocity of the inward and outward trajectories is equal and opposite. Thus, there is in essence no gain in energy or loss in energy through this transformational process and the separation of dark energy (DE) (out) and dark matter (DM) (in).

The model provides the features of the universe and how it operates within a strict boundary of mirror symmetry states of opposites enabling transformation through a process that maintains balance or a zero state. Thus, CPT is maintained. A dualistic mirror symmetry and the positron electron pairing is the functional process occurring in the universe. This framework was understood but the selection of quark charge calculation was chosen, that created the Baryonic asymmetry issue in cosmology. This caused an irrevocable problem and an inability to reconcile the atomic universe

with the cosmological universe. Measurement broke mirror symmetry and in doing so neutrons became bigger than protons and positrons were lost in the process. By understanding the flaws in the Standard Model of Particle Physics, a correction for measurement can be made to return mirrored symmetry. This is what SUSY inversion provides. A correction to the Standard Model of Particle Physics.

Our interaction with the universe at the atomic level has created the asymmetry of proton, neutron and electron in the atomic structure outlined in the Standard Model of Physics. The missing antimatter is in effect an artifact caused by measurement. A non-interactive logical model restores the atomic balance of positron, electron, neutron and proton and this new model (SUSY inversion) restores mirrored symmetry with non-interaction approach to obtain the point of the equilibrium. It identifies the missing Baryonic antimatter within atomic structure and provides a new way to interpret the functional understanding of the operating system within the universe. Its boundaries of inherent functional stability, that removes entropy from the operating system, because of the single atom nature of the isotope physics operating systems that come into play in the zero state and also in the human unconscious mind. The SUSY inversion model is deterministic. By not interacting with the system. The equilibrium point is obtained. In these zero states, the forward and reverse reactions are equal, and balance is maintained. This zero-point energy (ZPE) is a fundamental feature required for the transformation of the universe by isotopes. The SUSY inversion model thereby provides a rationale to explore isotope physics (HEP) in biology as the atomic timekeepers of transformation. A functional atomic clock operating within the nucleus of each atom.

The identification of a quantum competent environment within the neurotransmitter's aromatic ring (acting as a Faraday cage), and its single atom system, provides a quantum coherent operating system that features the delivery of hydrogen (as photons of light) from the amine in the generation of the isotope within the aromatic ring. The delivery of hydrogen through quantum tunnelling and entanglement processes provides the fundamental process through which atomic mirrored symmetry operates. The isotope half-life decay timings of isotopes, gives the time reversal symmetry decay to provide the photon release, at elevated energies, and a light-based information system for the conscious mind to observe. This puts the conscious mind in the past. It is an integrated atomic light-based memory recall system operating through the unconscious minds production of isotopes coordinated to neurotransmitters outside of the neuron.

Having developed a singularity physics model for the purpose to explain isotope function of the unconscious mind, much of the work undertaken is biologically relevant to the mechanistic physics based on atomic light systems operating in atoms as part of the unconscious mind. A remarkable feat of quantum computation occurring to generate the functional memory, observation, and light storage system through which unstable atoms are the predominant gate keepers of a light-based memory system that has in-built atomic timings that gives the direction of time from high energy to low energy photons. This is aligned with the universes red shifting expansionary process from the original He-BEC singularity.

## Rearrangement of Einstein's mass equivalence equation

The conversion of photons of light into atomic structure (atoms) occurs through a quantum tunnelling an entanglement process which approximates the reverse of beta decay process as proposed by the SUSY inversion model. The atomic magnetic field contains two photons ($m = E/c^2$), and the electric field is connected via the forces within the atom between the nucleus and the orbital electron as provided by a tunnelling and entanglement process (see below). The entanglement process provides the reason for the Weak Force operating selectively with respect to

neutrino and positron and antineutrino and electron with respect to the particle's angular momentum. This is seen in the emission of the neutrino in beta plus decay and the emission of the antineutrino in the beta minus decay.

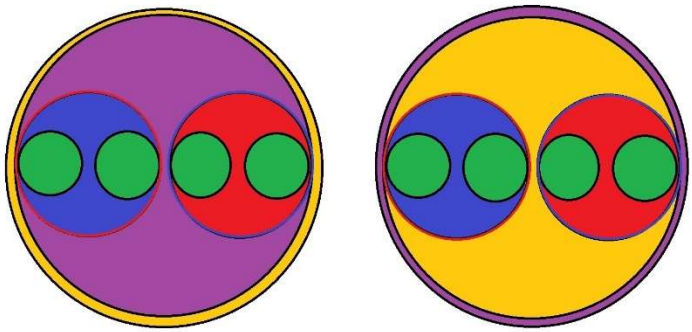
The inner workings of the atomic structure at the singularity and the relationship between the orbital positron and electron with their respective neutron and proton provides the Weak force its decay timings (half-life). The total atomic charges of all the quarks being in a non-zero state (e.g. the proton No. and neutron No. are not equal). The instability of isotopes is corrected into a stable atomic state via this self-correction mechanism via beta decay. Whereby the Up quark of the proton (Up Down Up), which is negatively charged decays into the positively charged positron via the inversion through the singularity. The opposite is true for the Down quark in the neutron (Down Up Down) which is positively charged, becomes the negatively charged electron in the orbital layer of the atom corresponding to the newly formed proton. An overall charge of zero is generated which is the most stable atomic state.

The introduction of the positron in atomic theory, gives a balance of positron and electron pairs in the orbital layers and provides a negatively charged neutron in the nucleus which is attracted to the protons positive charge. SUSY inversion gives a functional reason why identical number of neutrons and protons are more stable than uneven numbers. This results in a loss of charge balance within the singularity within the nucleus.

The SUSY inversion beta decay process exchanges nuclear quarks with an orbital positron or electron. In doing so, the geometry of the quark is inverted through the singularity to give the opposite charge. The geometry of the positron and electron are also inverted to give the opposite quark charge. Such an internal charge exchange has not able to be observed through external measurements. Such a model is self-consistent with the free photon model outlined above. The stable atom can therefore be understood in terms of photons of light contained within the magnetic fields that correspond to orbital layers.

As outlined below the calculations for the Weak force beta decay process indicates that the meson field corresponds to a photon that surrounds the gluon field. The gluon field is present between two quarks inside of the meson quark. The SUSY inversion model for the quarks is therefore different from the electrodynamic model for quark colour charges and it provides a new geometric relationship for the beta decay process. This explains the wavelength and decay timings of the Tau with its Top and Bottom quarks, Muon and its corresponding Strange and Charm quarks decaying into the electron with its Up and Down quarks. The configuration of the quarks within the meson field is outlined in Figure 5.

*Figure 5: Neutron and proton quark geometry in SUSY inversion model*



The Planck sphere (green 1.6E-35 m), electron (red outside and blue inside 4E-18 m), positron (blue outside and red inside 4E-18 m), neutron Down quark (+1) entangled with the orbital positron (gold outside and purple on inside 2E-9 m) and proton Up quark (-1) entangled with the orbital electron (purple outside and gold on the inside 2E-9 m). The singularity resides between the inner quarks. The balance of opposite charges in the SUSY inversion quark charge model provides a -1 charge on the neutron and a +1 charge on the proton within the nucleus. As the charges are opposite, they attract one another and are responsible for the Strong Force and are functionally related to Coulomb's inverse square law. However, because the inversion of the quark and electron (in the proton) or quark and positron (in the neutron), the inverted symmetry model indicates that the gluons behave as if inverted because their trajectory is towards the singularity. As the gluon field has unusual properties where the quarks charges cancel out to zero in a symmetry state. As the quarks get closer together their strength deceases and as they move further apart the Strong force increases, which is opposite to the inverse square law of gravity and photon decay. The details of which are provided below. As the Strong Force and Gravitational Force are one and the same (see Below) the inversion process enables unification of the Strong Force and the Gravitational Force.

The Planck length is 1.6E-35 meter and the $\sqrt{1.6E-35} = 4E-18\,m$ this is diameter of the electron and positron in the SUSY inversion model. The square root of the electron diameter is 2E-9 m and this is the meson scale as outlined below in the proton mass calculation. The approach makes use of Newtonian inverse square law to understand the atomic geometry.

## Mu naught

Mu naught is the vacuum magnetic permeability.
Where $4\,\pi\,r^3$ where $\mathrm{r} = 1 = \mathrm{h}$ natural numbers
The empirical equation for $\mu 0$ is given by Equation 9.

*Equation 9: $\mu 0$ calculations based on first principle*

$$\mu 0 = [(\Delta\lambda e/\Delta\lambda)/(\Delta\lambda/\Delta\lambda e)] * [1/(c/v) + (c/v)] - [\alpha/(c/v)] * 4\pi h$$

Where $4\pi h$ is

$$[\sqrt{v} + 1/\alpha]/[\sqrt{c} + 1/\alpha] + [\sqrt{v} + 1/\alpha]/[\sqrt{c} + 1/\alpha] + [\sqrt{v} + 1/\alpha]/[\sqrt{c} + 1/\alpha] + [\sqrt{v} + 1/\alpha]/[\sqrt{c} + 1/\alpha] * h$$

And

$$\alpha = 1/(c/v) * (\sqrt{v} - \sqrt{c}) - [(\sqrt{c} + \sqrt{v})/2]$$

And

$$1/h = [1/(\Delta\lambda)] * [1/(\sqrt{c})^5] * \{1/[(((\sqrt{c}/\sqrt{v}) + (\sqrt{c}/\sqrt{v})] - (\alpha + \alpha)) - \alpha) - [(c/v)^2 * (\Delta\lambda/\Delta\lambda e) * (\alpha^2/2)]\}$$

Where $\Delta\lambda = 4E-14\,m\ and\ \Delta\lambda e = 4E-18\,m$

It is apparent that the magnetic field is generated from the motion of electrons in Maxwells equations. In the SUSY inversion model the formation of the electron particle made from two Planck lengths at right angles to each other provides the basis for the E/M functionality of Maxwell as well as the rearrangement of Einstein's equation from $E = mc^2$ to $c^2 = E/M$.

By developing a first principle empirical model for the generation of the fundamental cosmological constants based on the interaction of the electric field and magnetic field and the generation of spherical particles based on the differential velocity of $\sqrt{v} + 1/\alpha$ and $\sqrt{c} + 1/\alpha$ from the He-BEC singularity, these calculations provide further supporting evidence of the original structure of the universe before alpha particle emission was a helium Bose Einstein Condensate isotropic singularity.

## Planck length (h)

The Planck length[xxxv] is related to Planck energy[xxxvi] by the uncertainty principle[xxxvii]. The SUSY inversion model for simplicity reasons uses 1.6E-35 m for the Planck length (h), as this provides an easier way to understand the functional calculations that provide the singularity physics model developed using inverse square law relationships. This small margin of error at 1.6E-35 meters is a known aspect of the model developed but to assist in the exploration of the singularity physics model it is proposed to utilise the rounded number rather than the precision obtained by others at this stage of the model's development.

At this scale, the concepts of size and distance break down, as quantum indeterminacy[xxxviii] becomes virtually absolute. This is the state of the singularity that was proposed to have occurred moments after the Big Bang. However, the SUSY inversion model flips this conceptual framework on its head by inverting the geometry enabling a different understanding. By determining the generation of the Planck length after 13.8 billion years through an inward trajectory of four fundamental particles from the He-BEC singularity. The SUSY inversion model resolves the issues regarding the hot Big Bang by making the scale of the singularity $c^2$. The inward trajectory where energy travelling at the square root velocity of the alpha particle emitted outward at 9.97 times the velocity of the speed of light provides a balanced state where energy is neither destroyed nor created in the transition from the He-BEC singularity to the newly formed DE and DM. The inward trajectory of the initial cubic isotropic universe is given by Figure 6.

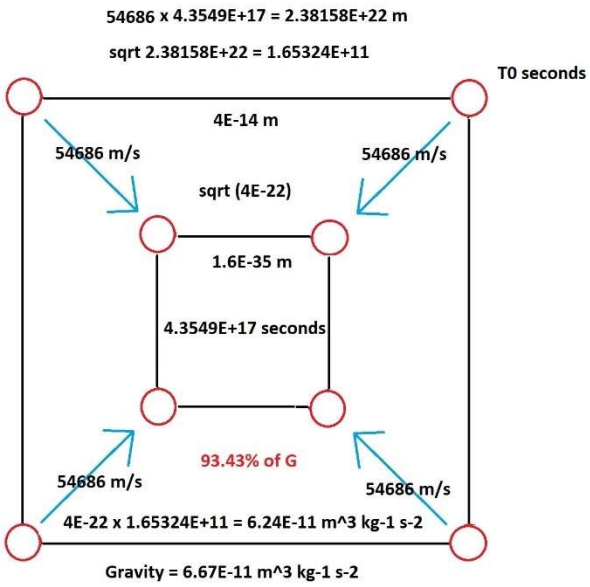



*Figure 6: Inward trajectory that creates DM particles at the singularity and corresponding gravitational force*

As outlined below the velocity as well as the inverse of the fine structure constant (alpha), generates $\pi$ via the decay process of DM converting into anti-hydrogen 1/0H containing a neutron and a positron, which has an overall charge of +2 in the SUSY inversion model. The calculations are provided below. This process in effect generates the fundamental dark matter particle at the

singularity and gives the appropriate geometry for the purpose of forming anti-hydrogen from the dark matter particle. Because the Schwarzschild radius[xxxix] of a black hole[xl] is roughly equal to the Compton wavelength[xli] at the Planck scale, a photon with sufficient energy to probe this realm would yield no information whatsoever[xlii]. Therefore, a scientific approach based on measurement is doomed to failure. However, the SUSY inversion by its very nature defines nothing as everything in the balance of opposites within the He-BEC singularity of the helium Bose Einstein Condensate. By defining the He-BEC singularity geometry, in terms of particle size 4E-18 m, distance between particles of 4E-14 m, and the diameter equal to $c^2$. Specific starting parameters can be explored within known features that can be harnessed through logic to see what cosmological constants would be generated in a universe from that initial starting position. This has enabled the determination of the emission of alpha particles as dark energy (DE) in an outward trajectory and the opposite inward trajectory at the SQRT velocity to provide a balanced opposite for DM generation. The singularity model attempts to identify the parameters of the universe based on the first principle empirical calculations. Through logic alone. The He-BEC singularity parameters that give the known fundamental constants of the universe as previously determined by cosmologists and understood through the investigations performed.

The attributes of the energy and momentum are converted into an initial velocity and DE and DM generation via the commencement of time via the expansionary process of alpha particle emission. A cross based geometry is fundamental to the electromagnetic force within the atomic structure e.g. the right hand rule of electromagnetism. This gives the balanced energy state, where energy cannot be created or destroyed but maintained in a zero state. Hence the reason for CPT and the charge calculations chosen to maintain such a state in the SUSY inversion model. Balance is maintained when every action has an equal and opposite reaction, but transformation can occur. This time reversal symmetry decay system and the isotope physics mediated faster than light expansionary process of the isotropic He-BEC singularity has enabled the universe to undergo an inflationary epoch. An expansion from the original universe from the initial He-BEC singularity. This provides a detailed explanation of the start of the universe through an alternative to the hot Big Bang theory.

Any photon energetic enough to precisely measure a Planck-sized object could actually create a particle of that dimension, but it would be massive enough to immediately become a black hole (see Planck particle[xliii]). The SUSY inversion model uses the Planck length 1.6E-35 meter as a lens to see the inverted symmetry generated via the 1/x = x/1 parameters of Newtonian inverse square law. As part of the Newtonian inverse square law relationship to integrate the Planck length into cosmological boundaries of the universe. Such a mathematical calculation is outlined in Equation 10.

*Equation 10: The boundaries of the universe*

1/1.6E-35 = 6.25E+34 meters

As the current scientific model is limited by the speed of light c. The calculations of c * t (13.8 billion years in seconds) gives a smaller number that cannot be aligned with the inverted symmetry model (e.g. c x t = 1.30558E+26 meters). However, the emission of alpha particles in the inflationary phase and it's faster than c emission and expansion of the universe gives 1.30241E+27 meters. The features of the He-BEC singularity can therefore be determined based on the cosmological features of the known universe and looking back in time to see the singularity at T0, that is responsible for producing the given cosmological parameters that have been determined through scientific investigation that we see today. The Planck singularity is arrived at after 13.8 billion years rather than an instant just after time began in the SUSY inversion model. It therefore defines the singularity through which inversion occurs within the atomic nucleus of atoms.

A place that maintains a zero state of no mass, no charge, no space and no time within the nucleus of the atom. This is the inner nucleus reference point from which all energy is measured in the SUSY inversion model. The point of 0,0,0 (x,y,z). The inversion of $c^2$ gives $1/c^2$. This corresponds to 1.1127E-17 meter and corresponds to the atomic event horizon in which the goings on within the singularity are hidden from view. Just as the event horizon hide the singularity within a black hole. The inverse of $c^2$ acts as a boundary to hide what is going on within the nucleus of the atom. The atomic nucleus contains the gluon fields that reside at 6E-16 meter, which is an order of magnitude larger than $1/c^2$. The mesons around 1-3E-15 meter and the calculations and geometry of mesons and gluons in the Strong Force are outlined below in terms of the SUSY inversion model. The atomic decay parameters provide information outlining the tunnelling and entanglement process responsible for generating stable atoms from electromagnetism.

The $1/c^2$ form provides a mirror symmetry state that reconciles with the HE-BEC singularity. The HE-BEC singularity fits the description of an isotropic universe through which dark energy and dark matter could have been created. As shown below the parameters responsible for the generation of the He-H, in the decay of DE and DM, and the charge generation via differential velocities in terms of electron surface area as (1.602E-19 Coulombs), gives an answer to some of the fundamental forces generated during the initial expansionary process through alpha particle emission.

The SUSY inversion model has identified a number of cosmological constants thus far using the non-interactive first principle empirical approach, which suggests that the model is well aligned to the functioning of the universe. The SUSY inversion model unites quantum distances, Planck length, with gravity using the Newtonian inverse principle (1/x). This is the most extreme example possible of the uncertainty principle and explains quantum gravity[xliv] theory reconciling general relativity[xlv] with quantum mechanics[xlvi]. SUSY inversion model allows an understanding of the dynamics of space-time[xlvii] at the Planck scale[xlviii]. SUSY inversion achieves this via making the very small also equivalent to the very large, through the inversion principle. This is a balance of opposites that creates a singularity through the multiplication of opposites. Seeing cosmological distances in the dynamics of atomic particles through inversion principles, provides a link for the entanglement of atomic singularities within atoms across the furthest reaches of the universe via the initial He-BEC singularity state. The original He-BEC singularity was quantum entangled as the superfluidity of helium acted as a single giant atom. A singularity corresponding to a single super-atom of liquid helium.

The current Hot Big Bang conceptual framework indicates that Planck scale dynamics are important for cosmology because by tracing the evolution of the cosmos back to the very beginning, at some very early stage the universe, it should have been so hot that processes involving energies as high as the Planck energy (corresponding to distances as short as the Planck length) may have occurred. This period is therefore called the Planck era or Planck epoch[xlix]. The SUSY inversion model debunks the hot Big Bang theory and offers an alternative as a giant supercool atom of helium and the isotropic nature of the original universe is revealed through the inverted symmetry of DE and DM generation. A geometric perfection of the homogeneous universe, who's features of expansionary faster than light alpha particle emission giving rise to the cosmological constants and composition of the universe. The SUSY inversion model provides a fine example of mirrored symmetry and the balance state through which atomic transformation occurs in isotope physics. This model has a more refined granularity that explains many of the underlying issues plaguing cosmology including the identification of the missing antimatter, solving Baryonic asymmetry. Thus, the SUSY inversion model is proposed as a unified field theory (singularity physics model) as it identifies the God particle, as

the He-BEC singularity. The single particle that creates all forms of energy and matter. The SUSY inversion model is a functional scientific model that identifies God.

## Epsilon naught

Epsilon naught is the vacuum permittivity and the value of the absolute dielectric permittivity.

$\varepsilon_0$ = 8.8541878128E-12 F·m$^{-1}$(farads /meter)

The empirical first principal calculation for $\varepsilon_0$ is outlined by equation 11.

*Equation 11: $\varepsilon_0$ calculations*

$$\varepsilon_0 = 1/\{(4 * \sqrt{v}) + [(\sqrt{v} + \sqrt{c})/2] + (\sqrt{v} + \sqrt{c}) + [(\Delta\lambda/\Delta\lambda e) - (1/\alpha + 1/\alpha + 1/\alpha)]\}^2$$

Where $\Delta\lambda = 4E-14\ m\ and\ \Delta\lambda e = 4E-18\ m$

And $\alpha = 1/(c/v) * (\sqrt{v} - \sqrt{c}) - [(\sqrt{c} + \sqrt{v})/2]$

## Mirror symmetry centred on a particle dimension of 4E-18 meter

The initial distance between the fundamental particles was 4E-14 meter within the cubic form of the He-BEC singularity. The difference between 1.6E-35 m and 4E-14 m is 4E-22 meters. The particle diameter of 4E-18 meter corresponds to 1E+4 orders of magnitude times smaller than the initial starting distance and 1E-4 orders of magnitude larger than the end point. This is a functional feature of the SUSY inversion model and the balance of opposites responsible for the stability of the universe in creating dynamic systems operating through a narrow window of operating parameters that do not require external interference to enable transformation. It is the very nature of non-interaction that provides the solution of SUSY inversion at the point of the equilibrium.

The inverse square law atomic geometry provides a navigational approach to investigate the relationships between the initial state of the He-BEC singularity that generated the universe and the current state of the universe given our current scientific approaches that we have used to obtain this knowledge to date. The SUSY inversion model is a mirror symmetry model, and it provides an elegant solution to create a logical framework through which to explore the fundamental cosmological constants of the universe. It is aligned with both inversion (1/x as part of inverse square law). As well as mirror symmetry of opposites, similar in context to yin yang of positron and electron pairs occurring in electromagnetic field interactions within atomic electromagnetic fields. Disturbances to the mirror symmetry are introduced into the mirror pair system when measurements are made and the outcome is asymmetry making it a feature of interaction. This paradox explains the double slit experiment and resolves the uncertainty issues because the single state function of the equilibrium is deterministic with respect to location and velocity. In all aspects of a stable system only one state is identified prior to measurement. It is somewhat like at catch 22. If you look you disturb the system under investigation therefore the outcome of the observation is not what you expect from the initial state. The two are paradoxically opposite. Therefore the ability to understand the system through a non-interactive logical model by understanding the singularity state, the point of equilibrium, provides a system that can produce many different outcomes dependent on the energy used to start the chain reactions that lead to cause and effect and a changed outcome. Each beginning energy used to measure will produce a different outcome.

The complexity of the tiger chasing its own tail but not knowing that it is its tail that it is chasing. This is true of light and its velocity being the fastest thing we see but it is not when compared to the velocity of alpha particle emission. Only when you experience the negative time dilation can you

experience transcendence in the process experience time travel and understand that the human retina point inwards. There are a series of complicated physics processes operating within the unconscious mind that are responsible for light show on offer. The singularity physics model has direct applicability to single atom physics that is operating in the unconscious mind and provides a logical way in which to explore isotope physics and the time delay expansionary photon release in atomic decay (neutrino and antineutrino in beta minus and beta plus decay processes). This is the point of the singularity and the balance point of opposites at the equilibrium point. Therefore, the model is foundationally an inverse square law model applied to single atoms, without time because of the viewing window of the Planck scale where there is no space and time or at least minimal motion or angular momentum. The model provides an isotope mediated velocity system based on the conversion of MeV binding energies to KJ/mol velocities in m/s that is applicable to the speed of c in the atomic universe of the atom in nm scale. As c is 299792458 m/s and that is around 2.99E+8 or 0.299 nm the velocity 2990637811 m/s is 2.99E+9 which is 2.99 nm scale. This is the proposed interconversion to the inner projection of reality onto the atomic surface area of the electron and positron curved atomic screen of the s orbital membrane. The projector is the atomic singularity that stores the light in the very atomic structure that makes up the atom and produces the isotope. This light comes from the amine hydrogen in the Balmer line electron transitions. Other atomic features of the SUSY inversion model and its relevance to human unconscious mind vision is related to the photo-electric effect and the hydrogen spectral lines and how the electromagnetic spectrum operates in alignment with the boundary layers of spectral lines correlating to n=1=UV, n=2=visible and n=3=infrared. This will be discussed in a later section below.

## He-H and the Lamb shift

The alpha particle decay process (DE decay) forms 3/2He and as the half-life of the DE is $10^{18}$ seconds. This equates to 7.26% alpha particle decay to generate the current 68% DE identified by cosmologists. The SUSY inversion model proposes that DE decays at the same time as DM. However, as DE contains 12 particles 8 of these can generate a proton, and a neutron with the respective electron and positron to maintain the zero state with the structure of the alpha particle. The remaining 4 particles in the alpha particle form a proton and an electron. To maintain the overall zero charge state within the universe the DM must form the neutron and positron at the same time. The SUSY inversion model operates through mirrored symmetry state to enable transformation of quantum entangled particles in DE and DM in terms of the mirror pairs being within the alpha particle and outside of the alpha particle in the DM particle. There is a self-consistency to the model that is maintaining a state of zero when operating independently of external interaction and as such it is only able to be observed through a non-interactive logical framework to obtain the functional outcomes with gain or loss of energy and that it can only be converted from one form to another. The SUSY inversion model is consistent with the first law of thermodynamics as it identifies the form of energy present in the universe before its beginning, which is consistent with the first law of thermodynamics.

The generation of DE and DM followed by their decay simultaneously to maintain the zero state provides a pathway to the generation of He-H from the dark matter (Planck particle). DM decaying into 1/0H and the DE decaying into 3/2He. The charge on 3/2He is -2 and the charge on 1/0H is +2. This provides the attractive Coulombs force that provides an opportunity for matter to condense together and form He-H, known as the Lamb Shift and in Biblical terms the Lamb of God. The attractive nature of opposite charges provides a context for an attractive force of the 3/2He, which is relatively stable compared to 3/1H and this will be attracted to the 1/0H antihydrogen down at the singularity. This provides a shift from the outward alpha particle emission at 9.97 times faster than

the speed of light to and inward trajectory towards the atomic singularity DM particle. A way in which stars are formed. The speed at which this happens is faster than what has been proposed. As the JWST is seeing galaxies at a distance of 13.5 billion years away based on the red shift analysis it provides a way in which in 300 million years galaxies can form.

The SUSY inversion model quark charge calculations are complicated because the use a sided mirror symmetry of surface charge (inside and outside having opposite charges and a membrane of alpha being present to separate the two charged surfaces), formed through the inverted symmetry of atomic decay of DE and DM. The process of quantum tunnelling and entanglement is outlined as well as the surface charge area calculations of the fundamental electron and positron bubble (sphere), that are responsible for confining light into an atomic structure within a magnetic field of s orbital structure and the processes involved in the tunnelling and entanglement process are also proposed. Further details of the mathematical calculations for the tunnelling and entanglement processes are outlined below.

## Time and time reversal symmetry and the connection with cosmic inflation

A negative time dilation is difficult to conceptualize what the experience would be like if you experienced that for yourself. To travel faster than light is to travel through time and experience something before anyone else has experienced it. To have foresight to see into the future. This would give an early hominid a competitive advantage over its rivals and provide an evolutionary leap in terms of biological function and competency. Personally, I think the TV version of time travel is all wrong. An experienced time traveller would tell you that you do not physically leave where you are residing at the time of the leap forward in time. What happens is that your conscious mind witnesses the atomic decay of light from an atom within your mind that has been created through the atomic light-based memory system. It is a very personal experience that results in you seeing something that no one else sees. Hence, the difficulty in proving that you have indeed experienced a leap in time or time travelled. The atomic decay expansion of the universe in the cosmic inflationary process of alpha particle decay from the He-BEC singularity gives 9.97 times faster than light release. There are also other isotopes that undergo alpha particle decay and generate faster than light release of alpha particles based on the conversion of the binding energy into KJ/mol and the time dilation analysis provides a negative number indicating that $(1- v^2 / c^2)$ is a negative number. Having had my own personal experience of negative time dilation (spiritual transcendence / atomic mania of bipolar), due to a product I was developing for a client, you could say all is revealed for those who are patient enough to see. It was what provided me with the insightful experience to revise the atomic quark charges to begin with and this eureka moment was as expected, not understood by those around me.

Having lived through an atomic decay of an atom and the gift of a negative time dilation experience, I can recollect the experience and its implications relevant to the cosmic inflationary model as well as human biology and consciousness. The physics of the unconscious mind. The time dilation calculations are performed in a way in which makes them relevant to human biology. The velocity of the binding kinetics in units of MeV are converted into kilojoules / mole corresponding to a velocity that is released at the time of the decay event, and that accounted for the experience of negative time dilation. The faster than light atomic decay resulting in an expansion of awareness (transcendence), in the shifted perception from visible wavelengths of light corresponding to Balmer line electron transitions to Lyman line electron transitions and seeing into the UV layer of the atom as it decayed and released alpha particles from the atom Hf 156 /72, with a half-life of 23 milliseconds ($\Delta t = 0.023$ s). The binding energy is 7.952876 MeV. This corresponds to 7952876 eV, 0.000156 nm between positron and electron pairs within the nucleus of the atom. This corresponds

to 1921730769230.769287 GHz. It also converts to 767323240 KJ/mol (velocity in m/s with a holographic relationship of 1 nm internal = 1 m external). This is the velocity corresponding to 2.559514823 faster than the speed of light at 299792458 m/s. The negative time dilation calculation is performed as follows (Equation 12).

*Equation 12: Negative time dilation calculations*

$$T = 0.023 / \sqrt{(1 - \{(767323249^2) / (299792458^2)\}} = -0.009761975$$

The $1/\Delta t\ half - life\ in\ (s) = 43.47826087$ years of future observed based on these calculations

-0.009761975 * 2990637811 * i = 29194530.8 m/s which is 9.738 % of the speed of light.

As a scientist who has experienced something that could not be explained by the scientific model at the time, I have had to rely on my own intuition and experience to guide me through the mathematical calculations that corresponded to the experience in order to try and convey the relationships to the cosmic scale within the singularity He-BEC model. As well as the role that hydrogen plays in biology to create a light-based stored memory system in atomic structure of the electromagnetic field. Having disregarded measurement as an avenue that I could pursue in order to try and explain the experience, I have resorted to a theoretical empirical model based on the assumption of non-interaction provides a new perspective from which to view the universe down at scales that physics cannot probe because we do not have the tools yet to see down at that scale.

However, despite the limitations of measurement there are enough clues in terms of cosmological information that provides a valuable assortment of information from which to explore a unifying solution to the universe and the integration of the gravitational force at the Planck scale. This has defied prior attempts at resolving the very big with the very small. Only through the lens of biology, the human experience and vision itself that sits in the central location of the electromagnetic spectrum and correlates to hydrogen electron transitions in n=2 layer, can our own quantum features be used to explore beyond the foundations of measurement. The foundations of SUSY inversion which equates to a model that in some ways is very simple, where Occom's razor applies. The single atom system and its application to human biology, resolves key features of our biology and provides a tool to explore time itself in terms of atomic decay energies and half-lives. In doing so, provides an arrow of time from high energy to low energy in the decay of isotopes and the expansion of the photon (red shift). We can therefore see time itself undergoing a rebound of sorts in its delay in the time reversal symmetry of atomic decay. This delay time (isotope half-life) where atoms housed in the aromatic rings of our neurotransmitters outside of the neuron release their stored light for the conscious mind to observe. This occurs in the extracellular milieu. The atomic functionality of the neurotransmitters provides a hydrogen quantum tunnelling system to generate isotopes. It has time built into the decay. The delay being used by the conscious mind to integrate the experience of an external reality within the atomics of the unconscious mind. Hence, the experience of reality resides in the past and the unconscious mind provides the signal for movement that is confirmed by the feedback of conscious observation. A feedback loop operates between the unconscious and the conscious mind as part of the atomic systems of learning and memory.

The SUSY inversion model provides a way to understand the slowing down of time in fight, flight or freeze experiences. Where the individual in danger experiences the slowing down of time. An atomic decay event that generates an experience of a distortion of time, due to the decay events happening in the mono-atomics of the mind. The faster than light speed based on KJ/mol decay energies gives the paradoxical faster than light response times. That is because the conscious mind is slow in comparison with the unconscious mind. The Deja Vue experience can then be explained by seeing

the light go into the atom and then come back out again from the atom, in its time reversal symmetry isotope decay. The conscious mind seeing both inward and outward light in a Deja Vue experience. The event is consistent with happening twice in the same ordered sequence of events. The light released in dreams from the coordinated mineral complexation chemistry involved is relational to half-life stability as well as inhibitory and excitatory neurotransmitters coordinated to and in complex with the atom / isotope housed in the aromatic ring of the neurotransmitter. A quantum light memory recording system that is operating faster than the conscious mind. The experience a 25-fps stream of images to create a moving picture in PAL TV format. The 50 fields interlaced per second, provides 50 Hz and this is slow framerate compared to isotope decay half-lives in the millisecond at 1000 Hz or nanosecond at 1E+9 Hz. The discovery of isotope physics mediated timings in biology resolves many underlying problems in terms of enzymatic rates of reaction in a quantum coherent system such as a cell and a whole organism, with timed to perfection reactions and the generation of energy, where the atomic half-life isotope decay system operates as the timekeepers in biology. A simple elegant solution to time that biology has resolved many eons ago. Something that we ourselves have taken advantage of in creating atomic clocks but the thinking that biology uses such isotope mediated system has not been previously investigated.

This understanding of the atomic singularity has been developed based on a personal experience of a spiritual healing and seeing a golden sphere of light (about 2 meters in diameter). The atom decayed along with a series of images from future events in my life was revealed in the event at church back in 2013. The observed images have been experienced as Deja Vue years later after witnessing the initial experience in the mental hologram, 3D immersive locations, revealed in the act of an atomic decay.

The sequences of images went from the furthest point in time experienced, which was determined to be in 2055 at the age of 84, back to the present moment of time in 2013. Like an NDE but experienced going up to receive communion. A period of approximately 42 years revealed in 23 milliseconds. The images came immediately after normal vision returned back to Balmer line electron transitions. The Balmer lines giving visible wavelengths of light from the s, n=2 orbital layer of hydrogen transitions. This appears to be the normal process whereby vision in the unconscious mind is generated through atomic electron transitions and events corresponding to the photo-electric effect. I calculated the following information scientifically in order to understand the timing of the atomic decay experience of 156/72 Hf and alpha particle emission and the negative time dilation.

There are 36 isotopes of Hf. In this model of time based on isotope decay properties a half-life of 1 millisecond would correspond to 1000 years. Depending on the velocity of light released in the decay event. The velocity corresponds to its binding energy holding the atom together, the faster light is emitted the slower time is experienced. Top athletes speak of being in a zone where time slows down. Or people talk of time slowing down when in an accident. The perception changes and the mind can operate without the conscious observer in control. In fact the conscious observer, observes the outcome of the functioning unconscious mind to learn how to control motion and breath, heart beat and other automatic features of human biology. Decay velocities emitted from isotopes that are slower than the speed of light c, correlate to the experience of light originating from various distances away from the individual within the holographic experience produced by the atomic physics happening within the mind.

Faster than light decay processes may cause a transcendent expansion of conscious awareness that correlates with the universe expansion process and negative time dilation of cosmic inflation (alpha particles emitted from the He-BEC singularity) and in my case it was alpha particles emitted from Hf

(Hafnium). This results in the appearance of the atomic nucleus of the atom undergoing decay. A golden sphere of light approximately 2m in diameter in front of me followed by the sequential release of photons from the atom during the decay process that creates fully immersive three-dimensional space-time environments that the observer experiences periodically during the return journey from the furthest time point to the present moment. The hadron jets released in the atomic decay giving the light for the projected images observed. When the decay event occurred. Such an atomic decay process releases considerable atomic energy leading to a transformational healing within the individual (spiritual healing). It is similar in some respects to a NDE (near death experience and the person is changed by the experience), where a person's life flashes before their eyes, or like a waking lucid dream experience. The physics responsible for such events is equivalent to the release of hadron jets of light from the gluon and meson fields within the nucleus of the atom. The experience observed by consciousness takes one by surprise, but it is natural and underpins an atomic physics responsible for the unconscious minds atomic light-based memory system, which has evolved as part of our unconscious to conscious mind evolution from physics of isotopes to the relative atomic stability of atoms in biology and the generation of neurons. The process is both profound and perplexing because it is so unusual to see future events in your own life before they have even happened. Given the contextual understanding of reality in the present moment that we experience as the reference point as the "now". To intuitively understand as a physical reality and upon reflection is understood scientifically as a past tense due to the delay time required for conscious integration of the photons released from the atomic light operating system outside of the neurological mind (outside of consciousness itself). The dynamics of light within the atomics of the mind are phenomenal to experience and something that can only be imagined by the individual who has not had the personal experience themselves. Hard to explain and hard to understand when you have nothing to compare it to.

## Revision of quark charge calculations to maintain charge parity to correct Baryonic asymmetry

Protons are comprised of three quarks (Up (-1) Down (+1) Up (-1)) that are known to have whole number charges in the SUSY inversion model and the calculation performed to give the overall quark charge for the proton using multiplication is given by (-1 x +1 x -1 = +1) and / or by addition (-1 + 1- 1 = -1). The electron has a charge of -1 and therefore the multiplication of the quarks in the proton gives +1 and the electron -1 adds to give an overall charge of 0. However, the addition of the quarks gives -1 and the electron -1 adds to give an overall charge of -2 and multiples together to give +1. So, the model provides a stable state of 0 charge and unstable state of -2 and -1 and +1, simultaneously, which is a features of the quantum atomic structure where it is not just in one state but several states depending on how interaction with the system occurs to create the variable states.

This provides an understanding of the role of quantum tunnelling and entanglement responsible for forming stable atoms with respect to a proton +1 and an electron -1 having a combined overall charge of zero. The quark geometry in SUSY inversion provides both gluon and meson field photons with different energy levels corresponding to the geometric features of the nucleus, here decay energies are used to obtain geometric features of the nucleus whereby decay energy convey KJ/mol velocities that provide space/time parameters in the inverted reality of the singularity in order to observe small states within the atomic structure at a macroscale the inversion process is explored along with the tools of mathematical calculations regarding geometric features of inverse square law. The two quarks on either side of the gluon field (Strong force) have a +1 Down and Up -1 charge and their respective diameters are 4E-18 meter. This gives them an overall charge of zero.

*Figure 7: Hadron quark geometries and the gluon and meson fields*


The meson field provides the Weak force, and the quark has expanded from 4E-18 to 2E-9 (square root) and the opposite square of the 4E-18 gives 1.6E-35 m to place an electron within the singularity within the centre of the nucleus (yellow square). The right-hand rule applies (division) where E/M = $c^2$ and 1.6E-35/2E-9 = 8E-27 and the square root is 8.94427E-14 corresponding to the inverse 1.11803E+13 m and the meson photon distance (Weak Force). The inverse square law therefore provides contextual information with respect to the geometry of the particles and fields and how they interact through tunnelling and forming an entangled pair which is why neutrinos are associated with positrons and antineutrinos are associated with electrons in the beta plus and beta minus decay processes.

| | Gluon | | | | 1/alpha |
|---|---|---|---|---|---|
| 4.00E-18 | 5.48E-16 | 4.00E-18 | | | 1.37E+02 |
| 8.00E-27 | | 5.00E+08 | 4.00E-18 | | |
| 2.00E-09 | 2.19E-13 | 1.25E+26 | | 6.25E+34 | 54686 |
| m | | PL | | Planck Epoch | |

*Figure 8: Meson field generation via inverse square law quantum tunnelling and entanglement processes*

The inverse of 8E-27 = 1.25E+26 Planck lengths corresponding to the orbital layers of the hydrogen atom corresponding to 2 nm. The n=1 layer of hydrogen corresponds to 5.7E+27 Planck lengths or 91.2 nm (5.7E+27 / 6.25E+25 = 91.2 nm). This resides between $v^3$ and $c^3$ as a membrane and tensional separation of space to generate the positron and electron pairs and appears to occur as the velocity decreases from v (2990637811 m/s) to c (299792458 m/s).

The quark charge calculations for the neutron in the SUSY inversion model are as follows.

The neutron also has three quarks. Down Up Down (+1 x -1 x +1 = -1) and / or (+1 -1 +1 = +1). The positron has a charge of +1 and therefore the multiplication of the quarks in the neutron gives -1 and the positron +1 and adds to give an overall charge of 0. However, the addition of the quarks gives +1 and the positron +1 adds to give an overall charge of +2 from the 3+ and -1.

When the calculations are performed for the particles generated from dark energy after the decay into 3/2He and dark matter after it decays into 1/0H, we get an overall zero charge when multiplying the quarks and adding the positron or electron. However, when adding the quarks, the atom 3/2He

has an overall charge of -2 and the atom 1/0 H has an overall charge of +2. The equal and opposite charges provide an attractive force where the force according to Coulomb's law is

F = Ke (-2 x +2) / $r^2$ is an inverse square law and attracts 3/2He and 1/0H towards one another due to the orbital attraction between the positron and electron and an atomic attraction between the neutron -1 and proton +1. Thus He-H is 3/2H(-2) – 1/0H(+2). The identification of the -1 charge on the neutron in the SUSY inversion model gives a complete rethink in terms of the forces that are holding neutrons and protons together in the nucleus of atoms. This led to a re-evaluation of the Strong Force.

## Strong Force in SUSY inversion model (gluons and mesons)

The Strong force has some unusual properties with respect to the inverse square law relationship where the closer the quarks get to each other the weaker the force becomes and the further apart they from one another the strong the force becomes. This is the inverse of the inverse square law which decays inversely proportional to the square of the distance the two particles are apart, which is typical in electromagnetism, Gravity and Coulombs law of charge attraction and repulsion. An answer to the Strong Force's unusual properties is obtained by understanding the tunnelling and entanglement processes operating down at the singularity within the nucleus of the atom and how tunnelling and entanglement are functional in generating atomic structure from light.

The Strong Force is the force that holds protons and neutrons together within the nucleus of the atom. A force between the hadrons. In the Standard Model of Particle Physics the Strong Force is 100 times stronger than the electromagnetic Force which is the light within the atom between the positron and electron pairs at right angles to one another.

The origin of the Strong Force is unknown in terms of a first principal calculation. The empirical approach to understanding the Strong Force is outlined in the following calculations as it reveals the origin of Big G or the gravitational constant (G = 6.67430E-11 N $m^2$ $kg^{-2}$).

1/v = 3.34377E-10 s/m

1/v + 1/v = 6.68754E-10 s/m

(1/v + 1/v) x c/v = 6.70383E-11

Where $(\sqrt{v})^2$ = v and $(\sqrt{c})^2$ = c

As there are 4 fundamental particles travelling inward towards the singularity, the calculations are in effect based on the square root velocities of v and c from the He-BEC singularity. Big G can be calculated from the following square root speeds of the particles travelling inward.

$1/\sqrt{v}$ = 1.8286E-05

$(1/\sqrt{v})^2$ = 3.34377E-10

$[(1/\sqrt{v})^2 + (1/\sqrt{v})^2] \times [(\sqrt{c})/(\sqrt{v}) \times (\sqrt{c})/(\sqrt{v})]$ = 6.70383E-11 (Big G)

Where v is the KJ/mol velocity of alpha particle release from the HE-BEC isotropic singularity.

The Strong Force is known to be 100 times stronger than the electromagnetic force.

The inverse of G (1/G) = 1.50E+10

(1/G) / c = 5.00E+01

(1/G) / c + (1/G) /c = 1.00E+02

This indicates that G is a function of c and v.

{(1/[(1/$\sqrt{v}$)² + (1/$\sqrt{v}$)² ] x [($\sqrt{c}$)/( ($\sqrt{v}$) x ($\sqrt{c}$)/( ($\sqrt{v}$)]) / c } + {(1/[(1/$\sqrt{v}$)² + (1/$\sqrt{v}$)² ] x [($\sqrt{c}$)/( ($\sqrt{v}$) x ($\sqrt{c}$)/( ($\sqrt{v}$)]) / c } = 99.95478

G is therefore a function of v and c in the atomic decay of the velocity of v to c and the inversion of the velocity based on the square root of v and c for the inward trajectory.

The inversion process through the singularity mediates the inversion of G to create the Strong force within the atomic structure of the nucleus. Fundamentally the Strong Force and the Gravitational Force are one and the same but seen as different in the current Standard Model of Particle Physics. This is the unification of Gravity and the Strong Force that physics has been looking for.

The SUSY inversion model predicts that the charge on the electron becomes inverted through quantum tunnelling of the photon in a cross based geometry. This process indicates how the electron becomes a positively charged Down quark. It is the reverse of the beta decay process which is mediated by the Weak Force. By understanding the beta decay process one can explore the Strong force and its relationship between the quarks and the geometry responsible for unifying the four forces down at the atomic singularity.

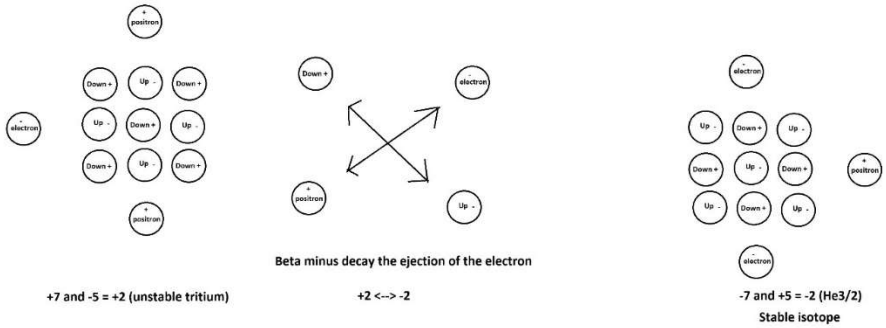



*Figure 9: Up Quark exchange with positron and electron exchange with the Down quark mediating inverted symmetry balanced exchanges within the singularity of the atom*

The strong force occurs between two quarks of opposite charge (Up quark -1 and Down quark +1). In the SUSY inversion model the positron becomes the negatively charged Up quark. It becomes negatively charged due to atomic inversion that occurs through the atomic singularity. The singularity acts as a pinhole camera and turns the particle inside out. The electron (-ve) becomes the positively charged Down quark. Up and Down quarks have opposite charges in the SUSY inversion model and are attracted to one another as the Strong Force that holds the quarks together in the Gluon Field. It is proposed that Gravity and Ke Coulomb's force are inverted in this quantum tunnelling process through the singularity within the nucleus of the atom. The charge interaction becomes weak, and Gravity becomes strong within the gluon field as outlined above by the calculations where G in essence equivalent to the Strong Force through inversion.

This is the opposite of what is understood by the Strong Force and there has previously been no relationship established between gravity and the Atomic Strong Force. With each of the forces being inverted (1/G and 1/Ke). The positive Down quark and negative Up quark in essence neutralise each other's charges through the mirror symmetry model of SUSY inversion through the singularity. Therefore, there is no charge on these two gluon particles within the gluon field, if considered as a pair but there is a change when considered individually but because they remain in a mirror

symmetry relationship to the singularity, where every action has an equal and opposite reaction, they are in effect considered neutral and remain in the atomic balanced state within the gluon field.

The third quark is involved in the Weak Force and can be explored using square / square root relationships and dimensional parameters with respect to the atomic singularity as well as understanding the inversion process or mirrored symmetry. It is proposed that the third quark (meson) surrounds the other two quarks (gluons), and this provides the opposite charge relationship with the electron or positron when multiplication is used for the quark charges normalized calculations but the same charge if addition is used for the quark charge calculations (see below for quark charges in the SUSY inversion model).

This provides a model where exchange of quarks with positron and electron occurs in the Weak Force mediated through beta plus and minus decay processes which emit neutrinos and antineutrinos respectively. The sided nature of the charge on the surface of the electron and positron provides a reason why the meson quark cannot bind with the electron or positron because it has the same charge on the external facing surface, which means they repel one another (see Figure 10). Charge interaction therefore depends on which surface is exposed on the inside or outside to understand the sided nature of the sphere and its membrane alpha fine structure constant.

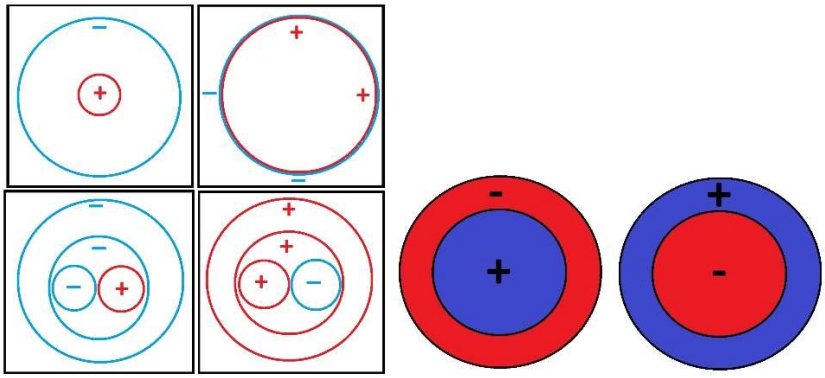


*Figure 10: Different charge geometries with respect to positron and electron pairing within hadrons and the Up and Down quarks*

The overall charge of the hadron is opposite to the electron as in the case for the proton and therefore the charges are attracted to one another. The tunnelling and entanglement process by inverting the charge makes the photon (electron and positron pair at 90 degrees to one another), turn into a stable atomic state where light transitions into an atomic form known as an atom. This fundamental process is how biology turns light into atoms and how biology turns atoms into light. It is an atomic geometry transition through the electromagnetic force contained within the magnetic field of the s orbital structure through 90-degree locations. A boundary between stability and instability in terms of atomic structure and photonic structure. Biology has solved the problems already and it is within our own biology. It is also on display in biological molecules responsible for a variety of functions.

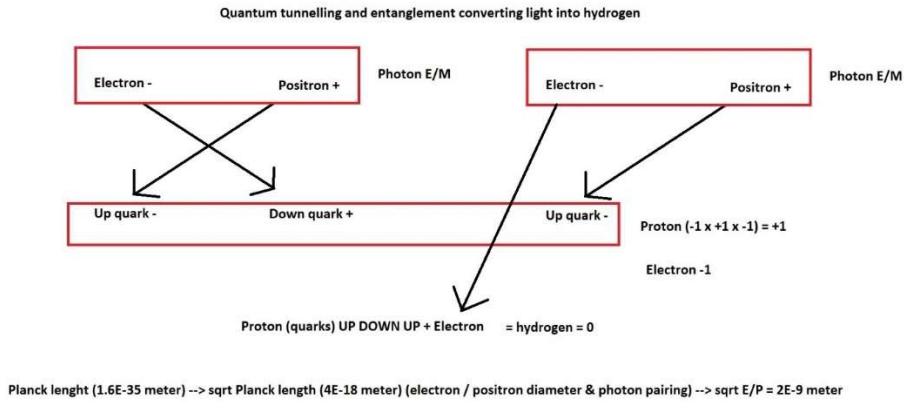



*Figure 11: Turning light into atomic structures through quantum tunnelling and entanglement via the singularity within the nucleus of the atom*

The singularity acts to tie light into a knot which creates the stabilization of light into an atomic form. The ability to transition between light and atomic states housing light is a function of differential velocities within the isotope physics processes. The role of the Forces within the atom is therefore key to understand how atomics operate to maintain stability through the weak force mediated beta decay process (see Weak Force).

## Big G (Gravitational force)

Big G or gravity is one of the fundamental constants of the universe with respect to the gravitational force. It is weak compared to the Strong Force and therefore difficult to integrate into the atomic processes happening within the nucleus. G has been determined to be $6.67430(15)\times10^{-11}\,\mathrm{N\cdot m^2\cdot kg^{-2}}$. The SUSY inversion model was used to identify the dark matter particle generated from the implosive force at the time of the SUSY inversion event 13.8 billion years ago. In the SUSY inversion model 4 of the initial fundamental particles within each atom of the He-BEC singularity travelled closer together, towards one another. The inward trajectory of the flow of light inwards towards the singularity at 1.6E-35 meters from $\Delta\lambda$ 4E-14 m, the initial distance between each of the fundamental particles in the He-BEC singularity. This corresponds to the functional force responsible for gravity, or Big G. That is the prediction that the model makes based on the inverted symmetry, and the initial geometry within the He-BEC Bose Einstein condensate. The inward velocity is obtained through the square root of the outward velocity of alpha particle emission or Dark energy, where v = 2990637811 m/s. This number is determined by the KJ/mol calculation based on the initial distance of 0.00004 nm (4E-14 m), the average distance apart between particles in a helium as the Bose Einstein condensate.

The inward velocity $\sqrt{v}$ = 54686.72427 m/s, which balances the outward velocity and square root (inward) trajectory $(\sqrt{v})^4 = v^2$. Alpha particles (12 fundamental particles known as dark energy) are emitted outward from the He-BEC singularity. The SUSY inversion event generating Dark Energy (DE) and Planck particle (4 fundamental particles) dark matter (DM). Both inward and outward velocities balance each other as if no energy is created nor destroyed but only transformed through isotope decay process from, He-BEC into DE and DM. This provides an explanation of both DE and DM arising from the singularity. The initial DE percentage was 75% and the that of DM was 25% at the SUSY inversion event 13.8 billion years ago.

The velocity calculations for Gravity's inward trajectory are shown in equation 13.

*Equation 13: Inward distance travelled by the fundamental particles from the He-BEC singularity*

54686.72427 m/s * 4.35495E+17 s = 2.38158E+22 m

The difference between the Planck length and the initial distance is shown in Equation 14.

*Equation 14: Delta $\lambda$*

4E-14 / 1.6E-35 = 2.5E+21 m and 1/ 2.5E+21 = 4E-22

$$\sqrt{4E-22} = 2E-11$$

The square root of this distance corresponds to an individual particles motion over 13.8 billion years (1.54324E+11 m), as the fundamental particles are moving towards each other at an identical velocity every action has an equal and opposite reaction, thereby giving a zero state towards the singularity that resides between the two points. This enables the use of the inverse square law to apply to the geometric features of SUSY inversion. The inverse of this distance is 6.47989E-12 $m^{-1}$. The relationship between this velocity and the tangential (right-hand rule of electromagnetism) provides the division of this distance by c (m/s) / v (m/s) = 0.100243653 shown in Equation 15.

*Equation 15: Gravity relationship with the differential velocity of v and c*

6.47989E-12 $m^{-1}$ / 0.100243653 = 6.46414E-11 $m^{-1}$

This corresponds to 96.9% of Big G, which was determined previously to be 6.67E-11 $m^3$ $kg^{-1}$ $s^{-2}$

The units of $m^{-1}$ compared to $m^3$ $kg^{-1}$ $s^{-2}$ provide an inward trajectory or implosive velocity towards the singularity and through which the formation of a dark matter particle occurs. The generation of the Planck particle containing two positrons and two electrons having an over mass of 21.8 micrograms / Planck length and having an overall zero charge. The features of the Planck particle (dark matter) are outlined in Figure 12.

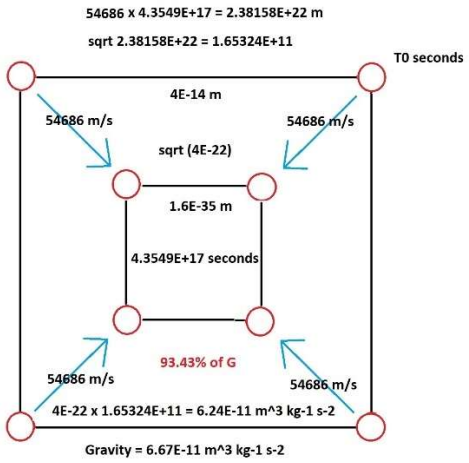



*Figure 12: Planck particle formation through the inward implosion of four fundamental particles from the He-BEC singularity giving the inward velocity responsible for the formation of gravity*

As the inward trajectory from the He-BEC singularity produces the gravitational force responsible for particle formation that arise from the differential velocity between v and c corresponding to $\pi$ when 1/alpha, the fine structure constant, is considered. This highlights the generation of four particles on the inward trajectory corresponding to the formation of Dark matter (DM), based on differential velocities of v and c. It provides context that as v slows to c, a particle is formed. It is also postulated

that the DM particle decays into anti-hydrogen 1/0H(+2) (a neutron and a positron) as outlined below.

## Weak Force

The Weak force is the only force that interacts with the angular momentum of the electron and positron. The corresponding antineutrino and neutrino originating from the decay process leads to the exchange of the positron with the Up quark (negatively charged) and the electron with the Down quark (positively charged), so that the quarks are exchanged in the beta decay process. This indicates that the exchange does not remain confined to the nucleus as previously proposed but happens to involve an electron capture state K+, that also reverses the beta plus or minus process. The positioning of the electron or positron into a correct orbital location is needed for the beta decay process to occur using inverse square law atomic rules.

This indicates that the electron and positron are identical to the quarks but it's just their location within the nucleus or outside of the nucleus, and in the orbital layers that confers if we see these as quarks or electrons or positrons. The difference in size and mass corresponding to their proximity to the singularity that resides within the centre of the atom, which is in mirror symmetry $1/c^2$ to the original He-BEC singularity $c^2$. The quarks are exchanged between Up and Down to maintain an atomic balance (a zero-point energy state of no charge being the most stable state) through the quantum tunnelling and entanglement process, that occurs through the singularity, and provides the driving force for the atomic decay processes.

When the number of protons is equal to the number of neutrons and the number of positrons is equal to the number of electrons in an atom, then its overall charge is zero and it is at its most stable. The charges cancel out each other within the singularity to give a state of zero mass, zero charge, zero space and zero time. In effect it is the duality that gives the balance. Without both sides neither can exist in a stable state. This understanding is the logic behind the SUSY inversion model and provides the understanding why we do not have Baryonic asymmetry. We have just had a failure to understand the presence of positrons within atoms, as they have been hiding out inside of neutrons all along.

The beta decay process and the inversion of the charge occurring through the singularity (inside surface and outside surface exchange), of the atom provides an inverse square law connection between the electron on one side of the singularity out in the orbital layers of the atom as well as the hadron quark (meson field) that is on the other side of the singularity within the atoms nucleus where the meson (Weak Force) is surrounding the two gluon quarks.

This exchange requires the correct distances apart for the electron and quark to exchange through the singularity via the beta decay process. The inverse square law calculations provide an opportunity to explore the atomic parameters of beta decay. The meson energies correspond to the square root distances between the electron and Up quark to enable such an exchange to take place. Therefore, the beta decay energies provide distance parameters within the atomics of the nucleus and the distances to the orbital layers of the atom (see Figure 12). Only right-handed antineutrinos are released from the electron and Up quark exchange (proton Up quark -1 becomes the positron +1 in the neutron in the decay process). This can be understood because of the left-handed spin of the electron as well as the quantum tunnelling and entanglement that was responsible in the first place in generating the proton Up quark -1 and electron -1 pair, that originated from a positron electron pair in a photon.

*Figure 13: Weak force mediated inverse square law relationships to meson quark and electron or positron in the orbital layer of the atom*

| | Gluon | | | | 1/alpha |
|---|---|---|---|---|---|
| 4.00E-18 | 5.48E-16 | 4.00E-18 | | | 1.37E+02 |
| 8.00E-27 | | 5.00E+08 | 4.00E-18 | | |
| 2.00E-09 | 2.19E-13 | 1.25E+26 | | 6.25E+34 | 54686 |
| m | | PL | | Planck Epoch | |

The opposite is true for the neutron and positron pair where the left-hand neutrino is released on the beta plus decay process where the positron is exchanged with the Up quark (-1) and the charge is reversed. The positron angular momentum is the opposite to that of the neutrino released, therefore, a right-handed spin positron. This provides contextual information to the process of which quark is entangled with the positron and which quark is entangled with the electron.

The SUSY inversion model is based on atomic balance that acts like a mirror reflection through the singularity (a pinhole camera). Where opposite sides of the singularity have opposite charges and are therefore attracted to one another via Coulombs force, which is an inverse square law relationship like Gravity and photon decay principles of the electromagnetic force. The SUSY inversion model has a specific application to single atom physics and the identification of coordination chemistry where single atoms interact with aromatic ring systems of neurotransmitters. The aromatic ring system acts as an isolated faraday cage like environment where the single atom operates differently from diatomic systems that have been well understood through scientific analysis. The monoatomic system in contrast displays unusual properties with respect to atomic stability / instability and the features of atomic isotopes appears to play a significant role in the functionality of the coordinated single atom systems housed in the aromatic rings associated with neurotransmitter functioning as atomic time machines mediated through isotope physics decay processes.

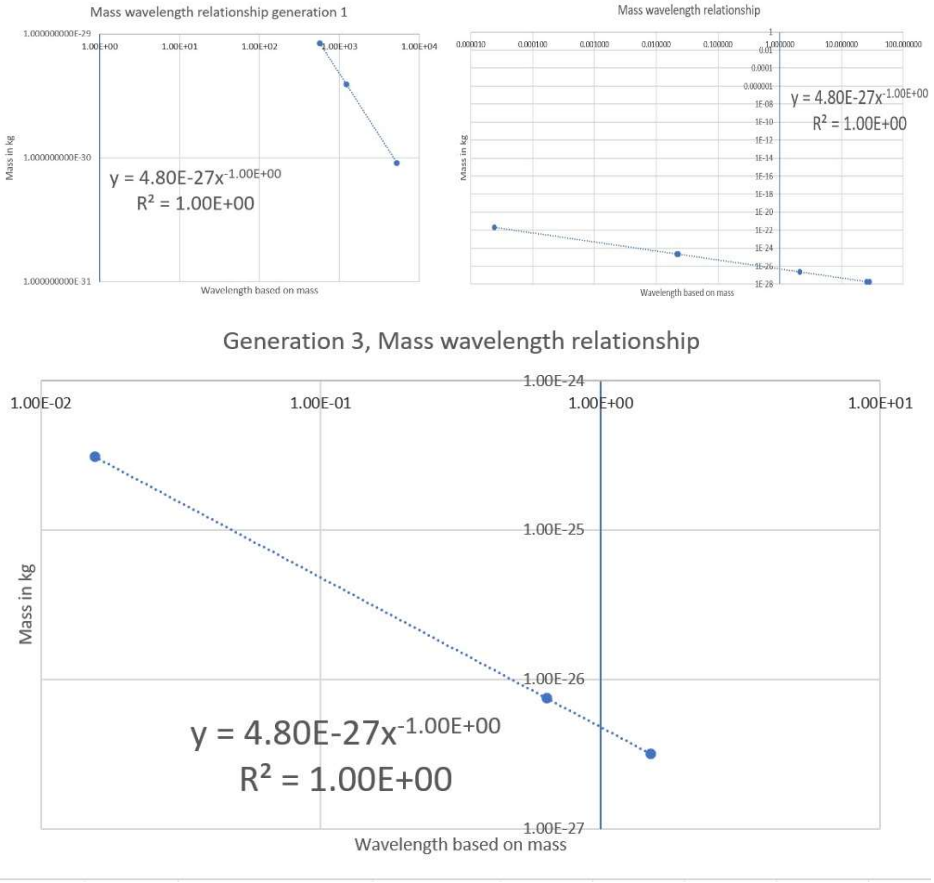
The implication is that the unstable isotopes and the decay processes including beta plus and beta minus are functionally useful in an atomic role in memory formation and recall as well as in the perception of time itself flowing from a high energy state to low energy state. The generation of biophotons associated with the decay process appears to play a significant role in the functional quantum features operating in biology within the electromagnetic fields housed in atoms. At the heart of the atomic processes operating is the singularity within the nucleus that mirrors the universe prior to the beginning of time.

## The origin of mass and the relationship between mass and the singularity within the atomic structure

A photon has no mass and no charge. But matter made from light (photons) has both mass and charge. How do we add both mass and charge to light. It is proposed that quantum tunnelling and entanglement processes are responsible for the creation of both mass and charge in the formation of stable atomic structures that creates a quantum coherent system of atomic light is the atoms structure. The 2 by 2 model of photons and there conversion into 3 by 1 geometry of hydrogen is in effect a mirror symmetry state of the 3:1 ratio of DE : DM (outward trajectory : inward trajectory) from the HE-BEC singularity. This provides the basis for converting light into matter (atoms) and the generation of mass that has a linear relationship between particle mass and proximity to the singularity within the nucleus of the atom.

From mirror symmetry to asymmetry is proposed to generate mass and charge. From the singularity a geometric inversion occurs resulting in the creation of three quarks in the proton and one electron or three quarks in the neutron and one positron. Mass forms and is associated with the distance between the particle and its proximity to the inner singularity within the atom as shown in Figure 14.

*Figure 14: The generation of mass and its linear relationship to the atomic singularity*




The linear relationship between the three generations of electron (Tau, muon and electron) and the three generations of quarks (Top | Bottom, Strange | Charm, and Up | Down) gave a constant slope of 4.8E-27, with respect to the mass in kg. The further away from the singularity within the atomic structure the less mass the particle has. It is as if the mass gets converted into velocity as the isotope decays. All the particles of the Standard Model of Particle Physics were plotted versus KJ/mol energies (Figure 15).

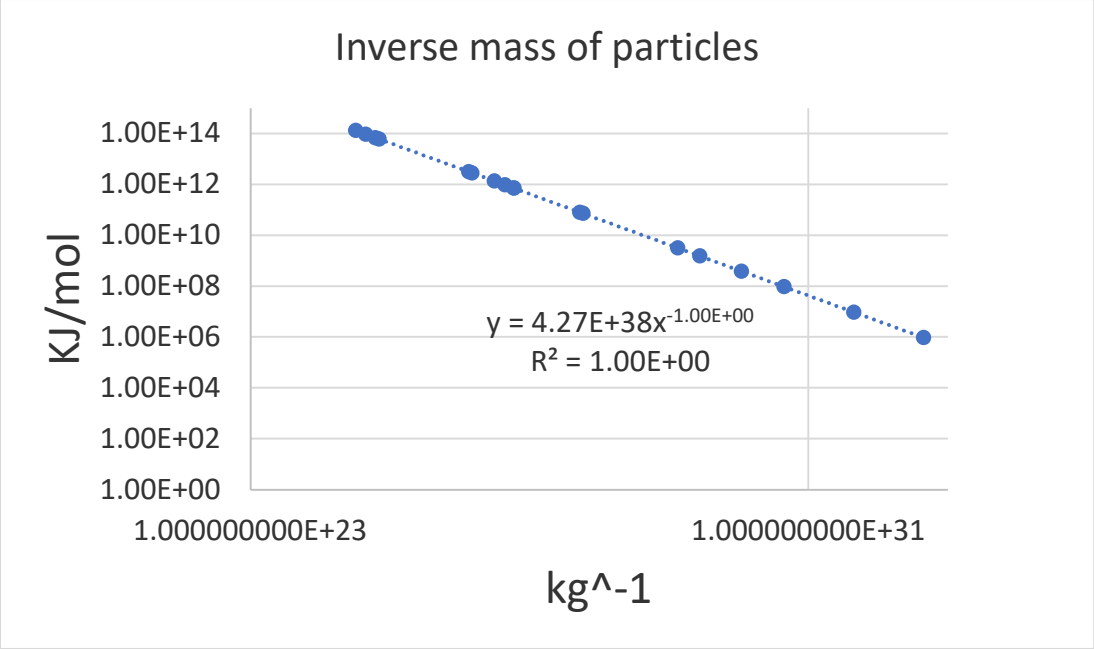



*Figure 15: Relationship between KJ/mol and inverse mass of particle of the Standard Model of Particle Physics*

The slope of 4.27E+38 gives a number of the order of force difference between the Strong Force and Gravity, which differ by 1E-38. Having an inner reference point within each atom and its relative proximity to the singularity provides a stable frame of reference for each and every atom. It is this guiding principle of the singularity that provides SUSY inversion a non-interactive logical framework through which we can explore atomic physics within the singularity of each atom and its structure, and the velocity of positron and electron pairs based on inverse square law parameters.

The electron mass has been identified as 9.11E-31 kg. The inverse of the electron mass is 1.10E+30 $kg^{-1}$. The origin of mass in terms of v and c is outlined in Equation 16.

*Equation 16: Generation of mass of an electron*

$$\left[\left\{\frac{1}{\left(\frac{1}{\Delta\lambda e}\right)\times\left(\frac{1}{\sqrt{\Delta\lambda e}}\right)}\right\}\times\left(\sqrt{c}+\frac{1}{\alpha}\right)\right]+\left[\left\{\frac{1}{\left(\frac{1}{\Delta\lambda e}\right)\times\left(\frac{1}{\sqrt{\Delta\lambda e}}\right)}\right\}\times\left(\sqrt{c}+\frac{1}{\alpha}\right)\right]+\left[\frac{\frac{\sqrt{1}}{\alpha}}{\frac{c}{v}}\right]$$
$$-\left[\left(\frac{\sqrt{v}+\frac{1}{\alpha}}{\sqrt{c}+\frac{1}{\alpha}}\right)+\left(\frac{\sqrt{c}}{\sqrt{v}}\right)+\left(\frac{c}{v}\right)+\left(\frac{c}{v}\right)\right]$$

Where $\Delta\lambda e$ is 4E-18 m and c is 299792458 m and v is 2990637811 m and $1/\alpha$ is 137.036

This calculation provides a number equating to 9.11E-31 kg or the mass of the electron. The feature of the equation provides contextualized relationships between c and v in terms of the formation of mass via the expansion and contraction of the electromagnetic fields through the tunnelling and entanglement processes of two photons of light to generate the proton and the electron and the neutron and the positron. The proton has a known mass that is 1836 times heavier than the electron. The reason for this is currently unknown. However, the mass of the proton has been determined to be 1.67262E-27 kg. The origin of this number is currently unknown. The SUSY inversion model with the quantum tunnelling and entanglement of the quarks in the meson field surrounding the quarks in the gluon field suggest that the mass of the proton is generated through

the tunnelling event. The proximity of the two quarks in the gluon field are in a mirror symmetry state either side of the singularity and in this balanced state of opposites there is proposed to be no mass, no charge, no space and no time. So the two gluon quarks can be essentially ignored as their mass and energy can only be released via the Weak Force decay of the meson quark, which is entangled with the electron in the case of the proton electron pair and the positron in the case of the neutron and positron pair.

The volume of the meson sphere is proposed to generate the proton mass. The calculations for the radius of the meson sphere are as follows. The square root of the electron diameter is given by Equation 17.

*Equation 17: Radius of the meson sphere that contains the gluon field in the SUSY inversion model*

$\sqrt{4E} - 18 = 2E - 9$ m

The volume of the meson field housing the gluon quarks is calculated using the volume of a sphere, given in Equation 18.

*Equation 18: Volume of the meson field*

$\frac{4}{3}\pi r^3$ where r = 2E-9 and 4/3 * $\pi$ *(2E-9)$^3$ = 3.35096E-26 m$^3$

The mass of the proton is 1.67262E-27 kg

And 3.35096E-26 / 2 = 1.67548E-26

And c/v = 0.1002 * 1.67548E-26 = 1.67883E-27 m$^3$

And $\pi$ is generated by the differential velocity of c and v outlined in Equation 19.

*Equation 19: Calculation of $\pi$ using alpha, c and v*

$(\sqrt{c} + \frac{1}{\alpha})$ / $(\sqrt{v} + \frac{1}{\alpha})$ = $\pi$

The volume of the meson appears to be identical to the proton mass. Therefore the mass of the proton appears to be attributable to the volume of the meson sphere which contains the gluon field and the two quarks in a mirror symmetry state. This geometric state of the gluon being in essence a photon between positron and electron entangled through the singularity via the 1/c$^2$ atomic event horizon that separates the outer orbitals and the inner nucleus. The atomic features of the atom and its inner singularity and the Planck field along with the dark matter particle at its central singularity appears to be concepts that apply to individual atoms and not just black holes. This inverse square law framework of the atomic structure enables a framework of atomic structure that can be explored through the evaluation of the atomic forces and decay processes. This provides a differential velocity with a common denominator and universal language that is applicable at all scales of the universe, both atomic and cosmic (atomic electromagnetic force). In doing so the language aims to unite the extremes of the universe through the singularity event that occurred 13.8 billion years ago.

This suggests that the electron and the proton are generated through the tunnelling and entanglement process and the mass of the proton equates to the meson volume whereas the electron is kicked out via the singularity through the atomic event horizon and into the orbital layers of the atomic structure that occur between c$^3$ and v$^3$ in terms of Planck length distances. The n=1 layer at 5.7E+27 Planck lengths equates to 91.2 nm.

The three generations of electron reside at different dimensional timings. The timings indicate proximity to the singularity and the SUSY inversion model suggests that there is a c and v window, a $c^2$ and $v^2$ window as well as the orbital $c^3$ and $v^3$ atomic orbital window. As the atomic timings for Tau particles are around 1E-13 second half-life this equates to a 1E-26 m and 1E+26 Planck lengths that equates to 1.6 nm. The $1/c^3$ = 3.7114E-26 m and $1/v^3$ = 3.7386E-29 m. 1E-26 m is smaller than $1/c^3$ but bigger than $1/v^3$. It is as if there is a functional energy barrier or interdimensional space that occurs between these bounded windows where stable structures can reside. In a way it looks like the geometric orbitals windows in the solar system. The muon half-life is 1E-6 second. The muon being heavier than the electron is closer to the singularity. The decay of the Tau into the muon and then into the electron appears to show the beta decay process where the quark decays into the electron in the SUSY inversion model. It transitions through the Tau and into the muon and then into the stable electron. The SUSY inversion model proposes that the positive Down quark in a neutron decays into the electron bound to the proton and the positron that was present as part of the neutron becomes the new negatively charged Up quark within the proton.

In the Standard Model of Particle Physics the W Boson which is charged mediates the exchange between a neutrino to mediated the quark charge interchange. This is subjectively similar to the positron opposite the neutron as outlined in the SUSY inversion model. The W Boson positive charge in essence is the positron.

As the Tau particle has the greatest mass it is the closest to the singularity as shown by the linear relationship between mass and proximity. The muon and electron are further away from the atomic singularity. The same is true for the quarks where the mass of the Up and Down quarks are less than the Strange and Charm quarks which are less than the Top and Bottom quarks. It is proposed in the SUSY inversion model, that the Tau and Muon are generated as part of the atomic decay processes happening within the atoms structure to normalize the inner charge to a zero state as the beta plus and minus decay processes are involved in atomic rearrangements via tunnelling and entanglement events as previously described, mediated through the Weak Force. This provides a numerical basis for exploring atomic structure within the nucleus and the tunnelling properties of muons and Tau particles with respect to mesons and gluons in the rearrangement of the atomic systems operating within each atom. The binding decay energies give velocities and considering the relative speed with respect to light, the beta decay events maintain a consistency with spatial and temporal reality as the particles velocity is less than the speed of light. In a sense the reduced velocity provides a distance parameter because of the relative differential velocities.

In the SUSY inversion model, gravity is not the basis for mass. Proximity to the singularity gives mass as the interaction is stronger. In a sense the singularity acts as the Higgs field. However, the singularity within each atom is mirrored to the He-BEC singularity that was present 13.8 billion years ago. It is a feature of time and distance based on different velocities that provides the mass of the fundamental particles and in the formation of particles in the first place. It is proposed that the size of the Tau, muon and electron are all identical at 4E-18 meters. But the relative velocity and mass are changing with respect to proximity to the singularity. The closer the particle is to the singularity the slower time goes as the half-life is 1E-13 s for the Tau and 1E-6 s for the muon the negative time dilation where the larger masses are converted to velocity in the ejection of the particle out of the singularity. This indicates that time slows down the closer you get to the singularity and the perception of time is shifted for each relative particle dependent on the velocity emitted, which is based on the atomic binding energy. Similar to the black hole event horizon except the singularity within the nucleus of the atom provides the appropriate features to allow particles to escape using the velocities calculated from KJ/mol binding kinetics of the isotope decay events. This provides a

variable speed of light process in which faster than light atomic decay parameters for specific isotopes are observed. This provides the basis for negative time dilation and the expansion of the universe during inflation which is a fundamental reason why the things further away from us are moving away faster than the things nearest to us.

Calculations were performed to understand the functionality of the slope 4.8E-27. Where c and v were cubed to see how the numbers stacked up with respect to the mass of the fundamental particles (Equation 20).

*Equation 20: Analysis of the scale associated with the cube of v and c and their inversion*

$c^3$ = 2.6944E+25 m and $1/c^3$ = 3.7114E-26 m

$v^3$ = 2.6748E+28 m $1/v^3$ = 3.7386E-29 m

The slope of the line is 4.8E-27 m and the inverse 2.08E+26 m

Note: The number 4.8E-27 (see Figure 14), is smaller than $1/c^3$ but bigger than $1/v^3$. The volume of a sphere is 4/3 $\pi$ $r^3$ and mass via gravity is determined by force (velocity) as well as the volume $m^3$ and inverse of time squared (N = kg m/$s^2$ and the gravitational constant is 6.77E-11 N $m^2$ $kg^{-2}$ or $m^3$ $kg^{-1}$ $s^{-2}$). It appears that 4.8E-27 relates to the cubed system of a sphere volume, where volume of a sphere is determined by 4/3 $\pi$ $r^3$.

It is interesting to explore the 4 lots of 3 versus the 3 lots of 4 in terms of the 12 particles in the alpha particle that go from two protons and two neutrons or 4 lots of 3 quarks. Through the atomic decay process the alpha particle (DE) is converted into 3 lots of 4 and 3/2He corresponding to 2 protons, 2 electrons, 1 neutron and 1 positron. Numbers appear to have a significance with respect to the operating parameters of the universe. The radius cubed appears to correlate to the $m^3$ with respect to gravity.

The average of $c^3$ and $v^3$ is 8.4894E+26 and the inverse of this is 1.17794E-27. This is in the ball park of the slope related to mass and the singularity relationship 4.8E-27.

Calculations of 4.8E-27 / 1.17794E-27 = 4.07

This may indicate the four DM particles being generated via the inward trajectory. Also, taking into consideration of alpha fine structure constant 0.0072 and c/v = 0.1002 giving an ability to understand the 0.07 component within the calculation described above. Where 72000 was the expansionary process based on the square root of v and c added together and corresponding to the fine structure constant alpha with 7 orders of magnitude difference.

The n=1 orbital layer of hydrogen is 5.7E+27 / 6.25E+25 = 91.2 nm. It is proposed that the distance from the singularity corresponds to the mass of the fundamental particle.

## Mass relationship between electron and proton and the number 1836

It is known that there is a relationship between the mass of the electron and the mass of a proton, where the proton is 1836 times heavier than the electron. The calculation for 1836 is given by Equation 21.

*Equation 21: The origin of 1836 in terms of alpha and c and v*

$$\left[\left(\frac{c}{v}\right)\times\left(\frac{1}{\alpha}\right)^2\right]-\left[\sqrt{\left(\frac{1}{\alpha}\right)}+\sqrt{\left(\frac{1}{\alpha}\right)}+\sqrt{\left(\frac{1}{\alpha}\right)}+\sqrt{\left(\frac{1}{\alpha}\right)}\right]=1836$$

And $\alpha = 1/(c/v)*\left(\sqrt{v}-\sqrt{c}\right)-\left[\left(\sqrt{c}+\sqrt{v}\right)/2\right]$

Where c = 299792458 and v = 2990637811

The calculation provides information in terms of relationships between various components within the atomic landscape that can be navigated using the fundamental constants of nature. There is a beauty in the simplicity of the calculation and one often needs time to ponder the implications of such a calculation in terms of the functional relationships of the four particles in the proton electron pairing and the relationship that equates to the two masses being generated through the rearrangement of a photon through tunnelling to give the entangled state that changes their relative positions from a balanced mirror symmetry through the singularity to an asymmetry where mass and charge are created. (Long sentence problem).

## Quark mass and proximity to the atomic singularity

In the SUSY inversion model the quarks gain mass by being closer to the singularity within the atomic nucleus and this linear relationship provides gluons with a heavier mass than the meson based on the $E = mc^2$ energy levels of gluons versus mesons. However, the calculations outlined above show that the meson sphere radius provides a sufficient volume to produce the correct mass of the proton. The meson surrounds the gluons. This suggests that gluons may not contribute to the weight of the proton. The mass is attributed to the meson because of the asymmetry created through the tunnelling process. It is already described how the gluon and meson quarks differ due to the tunnelling and entanglement relationship occurring through the singularity. This provides context for the conceptual understanding of the angular momentum relationship between the meson and electron mediated through the Weak Force. It provides an explanation for the handedness of the neutrino and antineutrino in the beta decay processes.

This provides context for the masses of the Tau and muon and electron due to their relative proximity to the atomic singularity and the beta decay process that results in the flipping of quarks and the generation of neutrinos and antineutrinos. Mass is a measure of energy content as described by Einstein's mass equivalence equation $E = mc^2$. It is the light that is contained within the atom, stored in the atomic orbital geometries that provides context for the rearrangement of the equation to $c^2 = E/M$. It is a property of the geometry and its functional relationship with the atomic singularity that offers the clue to the gravitational force and the mass based on the tunnelling and entanglement process observed through the Weak Force.

However, as shown above with the meson calculations of the sphere volume can account for the entire mass of the proton. The gluon quarks therefore filling the space within the meson quark system appear not to add to the additional mass of the proton. Maybe it is the geometry of the gluon quarks providing a balance of opposites that provides in a sense a geometric solution to the no mass, no charge, no space and no time of the atomic singularity. Further consideration to these competing ideas needs to be investigated to understand in a non-interactive logical framework where the balance of opposites maintains a zero state and provides the foundation to understanding that mass is created through a change in geometry with respect to volume and proximity to the atomic singularity.

## Gravitational energy and the gluons and union with the atomic Strong Force within the singularity: Unification of the Strong force and Gravity

The SUSY inversion model suggests that gravitational energy is inverted in the gluon field between the quarks (see Figure 16). The inversion of gravity provides context for the Strong force and vice a versa exists that the Strong force is inverted Gravity. The relationship between gravity and mass has been given in an inverse square law relationship using Newtonian physics. The inverse square law relationship can also be seen operating within the atomics of single atoms between positron and electron pairs. The mirror symmetry of opposite through the singularity provides context for both inversion as well as the inverse square law aspect of the model in reference to photon decay, charge interactions and gravity. This approach allows unification of gravity down at the Planck scale, where quantum mechanics operates but does so through a non-interactive logical approach.

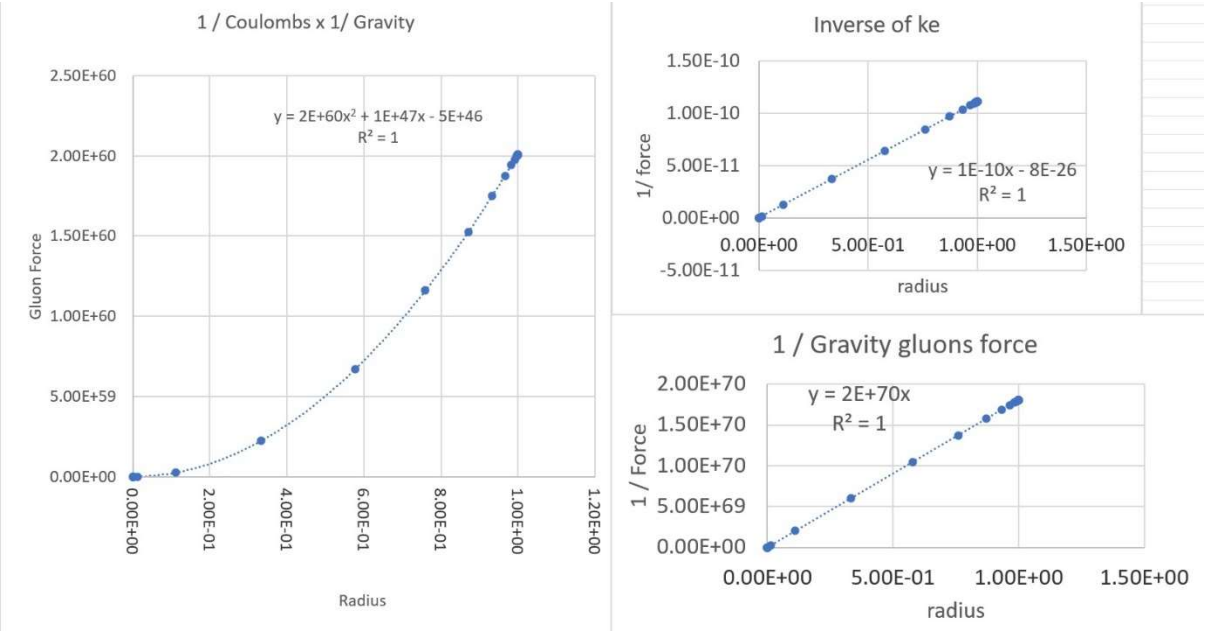



*Figure 16: Strong force and the gluon field and the inverse of ke and G within respect to the quantum tunnelling and entanglement of electrons and quarks and the mass and properties of the Strong force*

The tunnelling and entanglement process operating within the atomic structure of the atom gives the atom its unique Strong Force properties, which operate inversely to the inverse square law. The closer the quarks are to one another the weaker the atomic force is between them. The further apart the quarks are the stronger the atomic force is between them. Having the meson quark entomb the gluon quarks provides an atomic system that contains the features that correspond to the inversion of the inverse square law distance relationship with respect to energy of interaction. The tunnelling and entanglement properties of electrons and positrons provides the inversion of Ke and G with respect to the Strong Force as shown by the gluon force relationship to distance within the atomic nucleus. It is apparent from this reorientation of the singularity within each atom that its functionality is to maintain the atomic balance through which stability of the atomic universe is obtained. Atoms are therefore stable when in balance and this translates into a process that biology uses to obtain energy to animate life. The universe is therefore not chaotic but predictable on the basis of the understanding isotope physics mediated energy transitions.

## Inverse square law application to biology

The inverse square law parameters of the photon locations within the hydrogen atom (orbitals), appears to be the fundamental physics system operating behind the lens of the biological eye. Where electron transitions generate photons of light. It can be utilized as a functional photon lens of biological significance, providing a cosmological integration into a light-based biological operating system. This isotope physics system appears to be located within the neurotransmitter chemical functionality and operates to provide a biological light memory storage system with atomic timings.

This functions in the delivery of hydrogen into the single atom systems operating within the aromatic singularity (single atom system). The isotope formed and its half-life giving the atomic decay time operating system. This provides an atomic light system operating in the unconscious mind (outside of the neuron). It generates the photons for the conscious neurological mind to observe via polyunsaturated fatty acids (PUFA), that are present in the neuron's plasma membrane. The PUFAs are sensitive to photons, which mediate cis trans isomerization within the lipid membrane of the neuron. A photo-voltaic biological switch mediating unconscious and conscious features of the mind. The isotope-based system operates faster than the neurological mind (consciousness), therefore giving the user the experience of reality in a temporal and spatial relationship to relativistic speeds of isotope decay energies based on KJ/mol velocities (m/s).

## Electron charge as a surface area and v and the square law relationship

The electron is a fundamental particle. The electron has a charge of 1.60217663E-19 Coulombs. The normalized electron charge is -1. The origin of the charge on the electron is currently unknown. In the Standard Model of Particle Physics the electron is treated as a point particle of single dimension. In the SUSY inversion model the electron has a volume, a mass, a surface charge on both the inside and the outside and it is also considered to have a radius of 1.6E-35 meter and a diameter of 4E-18 meter, which is the square root of the Planck length. Charge is proposed to be a surface property of the electron. A thin membrane (alpha – fine structure constant) separates the inner surface from the outer surface of the electron. If we consider the He-BEC singularity separation of fundamental particles by 4E-14 meters and the c + v giving 72001 m/s it appears that alpha 0.0072 and 72001 are similar numbers separated by seven orders of magnitude.

The SUSY inversion model postulates that the inner and outer surface areas of the electron have opposite charges and they are interchangeable through inversion via the singularity (see Figure 17).

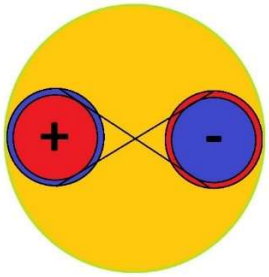



*Figure 17: Inversion of positron and electron charge through the atomic singularity*

It is proposed that the velocity of alpha particles emitted from the He-BEC singularity is related to the electron surface charge properties and that the charge is the surface area of the sphere made by $1/v^2$ where v = 2990637811 m/s and $1/v^2$ = 1.11808E-19 m and $v^2$ = 8.94391E+18 meters. So the velocity in its relationship with c via $\pi$ gives the process whereby the slowing down of alpha particles creates mass and angular momentum in the decay process giving rise to the formation of particles

from a velocity decrease. The parameters of surface area of the electron correspond to 1.60217663E-19 Coulombs. The universe in essence creates positrons and electron in pairs due to DE and DM decay, in the expansion and infilling of the expanded universe. Such a process can be postulated due to the faster than light alpha particle emission from the He-BEC singularity.

As charge is a surface property. A thin membrane (alpha, fine structure constant) separates the inner surface and outer surface of the sphere that the electron is made from. The velocity of alpha particles emitted from the He-BEC singularity, and its slowing down is a process by which the sphere is created. The diameter of the electron in the SUSY inversion model is 4E-18 meter and its inverted size is 2.5E+17 meter. 1/radius = 5E+8 + 137.036 m. The surface area of the sphere is given by Equation 22.

*Equation 22: Surface area of the electron sphere*

$4\ \pi\ r^2 = 4 * 3.1415 * 500000137 * 500000137 = 3.1415E+18$

And 1/3.1415E+18 = 3.18E-19 m.

And $\pi = (\sqrt{c} + \frac{1}{\alpha}) / (\sqrt{v} + \frac{1}{\alpha})$

And $\alpha = 1/(c/v) * \left(\sqrt{v} - \sqrt{c}\right) - \left[\left(\sqrt{c} + \sqrt{v}\right)/2\right]$

This is 99.35% of the expected value of the Coulombs charge on the electron (1.602E-19 C). If both the inside and outside surface of the sphere are taken into consideration. The inside and outside surface areas mean the total surface area is determined by adding the inner and outer surfaces together (Equation 23).

*Equation 23: Calculation of the internal and external surface area of the electron sphere*

1.602E-19 + 1.602E-19 = 3.204E-19 m.

This predicts that charge is the surface area property of the electron made from the slowing down of alpha particles emitted at 9.97 times faster than the speed of light from the He-BEC singularity. Looking at the linear relationship of charge with respect to the velocity of alpha particles. The linear calculations based on alpha particle velocity are shown by Equation 24.

*Equation 24: Linear charge analysis in relation to Coulombs charge on the electron*

$1/v^2 = 1/(2990637811)^2$ m/s = 1.11808E-19.

This is what you would consider when looking at point like features of the electron in the Standard Model of Particle Physics based on the inverse square law relationship between two-point charges. The numbers calculated are not able to equate to a specific linear distance between two points to generate Coulombs charge on the electron. This clearly shows that charge is not point-like within the electron, and it has functional three-dimensional character over its internal and external surfaces separated by the fine structure constant alpha. The understanding how velocity can become spherical through expansion from the singularity, needs further investigation. Vortex mathematical calculations may be suitable for such an investigation.

As the SUSY inversion model looks through the lens of Planck time, it avoids change in terms of motion. Location is therefore fixed in the equilibrium position. The model is therefore static in its operation. This suggests that things are not dynamic in the universe at the Planck scale. In contrast

to that interpretation, the universe is seen as a set of dynamic steps is a sequential order because the granularity of the model enables a stable state at the point of the equilibrium. It also provides a temporal relationship to the unstable state allowing change that reverts back to the stable state and the point of the new equilibrium. Understanding the point of each equilibrium provides a basis for understanding how to shift the selective pressure of a given constructed environment to obtain the desired outcome.

The electron charge is 1.60217663E-19 Coulombs. Coulombs charge refers to the external surface area of the electron sphere. It has not considered the internal surface area of the positron sphere. The opposite charge balances the electron negative charge, and this equates to a charge parity state of zero when both positive and negative charges are considered. The fine structure constant separates the inside and outside of the electron sphere generated through the differential velocity of √v to √c is added together we get 72001 m/s also known as the Hubble constant. This is proposed to be related to the fine structure constant through an order of 1E-7, which can be understood in terms of the relationship between 4E-14 and 4E-22 = 1E-8 and (c/v = 0.1002). $\pi$ is produced from the following calculation as outlined in Equation 25.

*Equation 25: Generation of π through differential velocities of v and c*

$$\sqrt{v} + \frac{1}{\alpha} / \sqrt{c} + \frac{1}{\alpha} = \pi$$

And $\alpha = 1/(c/v) * \left(\sqrt{v} - \sqrt{c}\right) - \left[\left(\sqrt{c} + \sqrt{v}\right)/2\right]$

$\pi$ is a fundamental constant that can be derived by understanding the relationship between c and v. It is used in several physics' equations including Einstein's geometry in relativity and in cosmology as well as in the calculations of Epsilon naught and other universal parameters. The SUSY inversion model provides a way of applying GR to biology at the atomic scale of single atoms housed in the rings of aromatic systems (Faraday cage), within neurotransmitters. SUSY inversion thus provides a way to explore light within atoms in terms of the unconscious mind and its isotope physics mediated vision / memory system. The model was developed to explore the science of isotopes in a regenerative medicine that appeared to function through tunnelling and entanglement. The existing biochemistry could not explain the observations and therefore a entirely new physics model was needed to explain the mechanism of action observed.

The diameter of a sphere multiplied by $\pi$ gives the circumference of a sphere. The diameter of the electron in the SUSY inversion model is defined by the square root of the Planck length 4E-18 m. The circumference of the electron is therefore 4E-18 m x $\pi$ = 1.26E-17 m and 1/ 1.26E-17 m = 7.96E+16 m. The inverted (1/) circumference is slightly smaller than $c^2$ = 8.98755E+16 m, at 88.54%. This suggests that light cannot enter the electron itself because the electro is too small. The atomic event horizon at $c^2$ provides a quantum tunnelling barrier for light to pass through but electrons and positrons are retained within this barrier and are understood as being quarks in the hadron's proton and neutron. As already mentioned, the meson field surrounds the gluons and both are within the nucleus of the atom, within the event horizon. As the electron circumference is less than this linear distance the two photons of light via expansion and the contraction mechanisms (upshift and downshift mirrored processes represented by the square and square root), provide the tunnelling and entanglement environment through the lens of the singularity at 1.6E-35 meters (4E-$18^2$), allows particles to become entangled which converts two photons of light into a stable atomic structure found in the atom hydrogen.

## He-BEC singularity and the volumes associated with the cubic form of the Helium Bose Einstein Condensate

The radius of the electron is 1.6E-35 m (Planck scale) and its volume is 1.72E-104 $m^3$. The distance between each fundamental particle in the He-BEC singularity based on the binding kinetics is 4E-14 m and its volume based on the radius 1.6E-27 m is 1.72E-80 $m^3$. The distance between the volume of the electron and the volume between the electrons is given by Equation 26.

*Equation 26: Volume calculations for the electron and the space in between electrons in the He-BEC singularity*

1.72E-80 / 1.72E-104 = 1.00E+24

The significance of this number has not been considered. However, the first thing that comes to mind is the gravitational relationship between 4E-14 and 1.6E-35 giving 4E-22. Along with c/v = 0.1002 and $(c/v)^2$ = 0.010049. And 0.010049 x 1E+24 = 1E+22.

The two extremes, when multiplied together give 4.02E-24 x 1E+24 = 4.02 and this potentially relates to the number of DM particles formed from the He-BEC singularity in the inward trajectory. Further consideration is needed to explore the significance between the parameters of volumes of the electron and the distance between the electrons within the He-BEC singularity along with the respective velocity of alpha particles and the slowing down to generate c, the speed of light. As the inward trajectory is at the square root speed and the outer trajectory. The universe is slowing down to create particles and v slows down to give c. Two alpha particles in mirrored symmetry are expanding (getting further apart) in the inflationary process. The formula $(c/v)^2$ appears to correspond to the expansion of opposites in the mirror symmetry state. Looking from the point of view of the singularity. The mirrored expansion process, where every action has an equal and opposite reaction, produces the inward process which generates the 4E-22 and the variable c/v is also a mirrored state. As there are 4 particles in the DM particle (two positrons and two electrons). The building blocks appear to fit together nicely based on SUSY inversion event rather than a hot Big Bang we have a cold SUSY inversion event and the release of alpha particles.

The He-BEC singularity had an initial radius of c = 299792458 m. The volume of the He-BEC singularity was 1.12863E+26 $m^3$. The number of electrons that are present in each atom of helium is 16 and not the 14 as proposed by the Standard Model of Particle Physics. Therefore, the volume of each atom of helium is 2.79E-79 $m^3$. The postulated number of helium atoms in the He-BEC singularity is 1.12863E+26 $m^3$ / 2.79E-79 $m^3$ = 4.11E+104.

The geometric features of the He-BEC singularity provide a conceptual framework to explore the square and cube with its 12 edges, 4 corners per side, 6 faces per cube and 8 corners in total. Two cubes side by side giving 16 corners, 24 edges, 12 faces. Consideration of the inside surface and outside surface must also be given. This leads to consideration of a single cube of 12 surfaces, 16 corners, 1 central location or singularity. The surface properties must be considered in terms of areas and volumes to integrate the numerical values obtained through the understanding of the transitions and the generation of the cosmological constants.

The diameter of the electron is 4E-18 meter, and the radius is 2E-9 meter. The surface area is 4 $\pi$ $r^2$ = 3.1415E+18 and the inverse 3.18E-19 m. This is 99.35% of the expected value of the inner and outer surface area of the electron sphere. The inside and outside surface area of the electron sphere gives a total surface area of 1.602E-19 C + 1.602E-19 C = 3.204E-19 C and this approximates the surface area of the sphere produced by an electron with a diameter corresponding to the square root of the Planck length. This provides support for the approach of using the inverse square law relationship to navigate the atomic scale within the atom in relation to the atomic radius of each electron

originating from the Planck length. By inverting the electron and Planck scale, we can investigate in a more intuitive way the fine structure constant and its origins with respect to the early universe prior to the beginning and the role expansion has played in generating the unitless term alpha (fine structure constant).

As the original velocity of alpha particles emitted from the He-BEC singularity was 9.97 times faster than light and He-BEC SUSY inversion model indicates that alpha particles have no charge (not +2 as currently suggested in the Standard Model of Particle Physics). The SUSY inversion quark charge calculations suggest that charge is generated through $1/v^2$ and the generation of 1.602E-19 Coulombs based on surface area property. The balance of charges within the 12 particles (6 positrons and 6 electrons) in alpha particles appears to relate to the 6 faces of each cubic structure of the He-BEC singularity atom geometry. The 12 edges provide a way of understanding the feature of 12 particles from each initial atomic geometry in the HE-BEC singularity. The 4 inner corners per cube, and the central point within the cube that could potentially relate to the four particles that travel inwards to generate DM, which decays into 1/0H at the singularity. Further functional exploration of He-BEC singularity for the 26 cosmological constants is required to furnish the model in its entirety. Such an endeavour is warranted given the information obtained to date from the given parameters discovered.

Out $v^2 = \text{In } \sqrt{(v)^4}$

This is the balance of opposites, where every action has an equal and opposite reaction. It is this attribute of the SUSY inversion model in a Newtonian form that provides a unified field theory that explains the original structure of the universe at the beginning of time. The He-BEC isotropic singularity.

## The atomic singularity within the nucleus of the atom

At the centre of each atom is an atomic singularity. The dimensions are $1/c^2$ and this correspond to 1.11265E-17 m. This is proposed to be the atomic event horizon between the nucleus and the orbital layers within each atom. Smaller than this distance and the electron and positron pairs reside within the nucleus and are considered quarks. Larger than this scale and the positron and electron pairs are resident in the external atomic orbital layers of the atom. This is the inverted scale of the He-BEC singularity of 8.98755E+16 m. A feature of the SUSY inversion model is that the two extremes when multiplied together equal one as shown in Equation 27.

*Equation 27: SUSY inversion singularity physics calculations for 1*

$8.98755E+16 \times 1.11265E-17 = 1$

$c^2 \times 1/c^2 = 1$ And $c^2 = E/M \mid 1/c^2 = \mu_o \times E_o$

So, $E/M \times \mu_o \times E_o = 1$

The division of opposites (when the velocities are at right angle to one another), the right-hand rule of electromagnetism applies. This gives 8.07761E+33 and 1.23799E-34, as the two relationships are seen from both perspectives. The balance of opposites multiples both sides to give 1 once again. This is the sense check of the SUSY inversion model. It always refers back to the single atom balanced state that is obtained when no interaction occurs with the external universe. This places it in a sense outside of our current scientific exploration through measurement. It uses the point of the equilibrium at the single state lens through which to observed the collapsed wave function paradox of quantum mechanics and therefore does not suffer from uncertainty. As both location and velocity are identified at Planck scale in inverted symmetry in photon geometry through the atomic

singularity which corrects for imbalance through isotope decay processes that are fast. This allows a dualistic mirror symmetry state to operate within the atomic structure providing the balance of opposites and the zero state. In this zero state isotope physics is the predominant operating system.

Such a paradoxical approach, to say you understand the universe at the point of the singularity, when you do not measure or interact with the system, means that measurement creates flaws in our logic by providing us with an outcome that is a function of the measurement itself. And not as the function of the system operating without interaction. The two systems operate independently of one another and function like day and night.

This in a sense is a judgement on science and its approach in trying to see things through interaction and not considering the energy used to interact with the system as how the outcome observed is obtained. Therefore, one can conclude that what ever energy is used in the process of measurement is having an impact on the observed outcome. We are getting to select the initial conditions and parameters of measurement so we therefore can predict the functional outcome of the measurement even before it is made, and the selective pressure provides a means to an end.

The SUSY inversion model therefore is predicting singularity states within atomic environments. It provides an outcome driven solution to non-interaction. It stipulates what the collapsed wavefunction is prior to measuring and is deterministic with respect to identifying environmental solutions that provide functionally useful outcomes.

This feature of the SUSY inversion model is the reason why it is a singularity physics model, where the normalization of mass of protons and neutrons is 1 amu and the normalization of charge whereby and electron is -1, a proton +1, a neutron -1 and a positron +1. The balance of opposites gives the zero state. The most stable state, which is equivalent to the singularity collapsed wavefunction state obtained after measurement for quantum mechanics that can only predict all possible outcomes and their probability of occurring, but it is the measurement that functions to select for the outcome. The uncertainty of the electron location and velocity is a feature of measurement itself and the inverse scale of the single electron places it on a gravitational scale that is beyond current comprehension. The preferred outcome giving sufficient time to enable transitions to the state of the singularity is obtained through not interacting with the system under investigation. As all atoms have the singularity within the nucleus of the atom, which is the driver of the atomic stability state, through mirrored symmetry, then each atom is forced to reside in the dualistic balance of opposites within the positron / electron pairing of the universe. This proposes that antimatter is not missing, and the Baryonic asymmetry is a feature of measurement and the artifact of the asymmetry created by measurement.

When in perfect balance at the point of the atomic equilibrium, when the single atom housed in the faraday cage of the aromatic ring is at rest, both sides of the atom (inside and outside the event horizon) are in perfect balance, with an overall charge of zero. This is the starting point. At the centre of the atom the singularity contains the Planck length 1.6E-35 meter. This geometric arrangement is fundamental to the DM particle quantum tunnelling and entanglement process where DM becomes 1/0H.

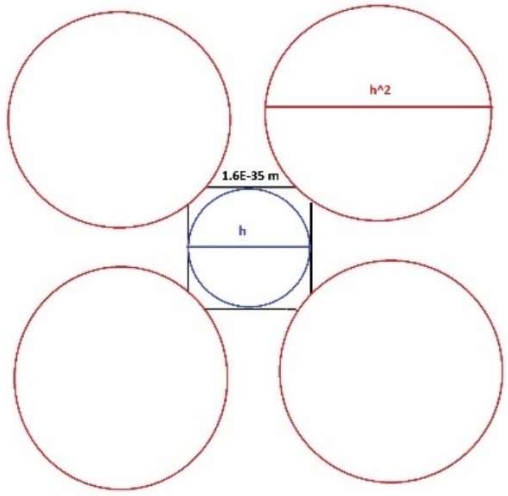



*Figure 18: Atomic singularity within the nucleus of the atom.*

The square root of the Planck length gives 4E-18 meter which is smaller than $1/c^2$ (1.11265E-17) the atomic event horizon and the boundary between the nucleus and the external atomic orbitals of an atom. The singularity within the atom that performs the inversion process and acting as the pinhole camera lens is shown in Figure 18. This singularity is a position where atoms provide a connection back to the beginning of time through the SUSY inversion model (He-BEC isotropic singularity) and the point where entanglement and tunnelling occurs. As positron and electron pairs are generated simultaneously within the singularity at 1.6E-35 meter.

Two particles are created by the initial velocity of 2990637811 m/s based on the KJ/mol velocity of the binding kinetics from He-BEC singularity. One side of the singularity is 1/c and the other side is 1/c. In a mirror symmetry, the image is inverted as well as the charge. The atomic singularity inverts the charge by compressing the 4E-18 diameter down to 1.6E-35 as the particle reaches the singularity so that its internal surface becomes the external surface when it expands through the other side, and the external surface becomes the internal surface. This provides the inversion of charge on the surface of the electron sphere and the process whereby an electron becomes a positron as well as the electron becomes the positively charged Down quark. The positron can also be turned inside out to generate an electron and the positron can also become the Up quark, which is negatively charged. This processes all happens within the singularity. This is the process of quantum tunnelling and entanglement that is responsible for the formation of atoms from light during the decay of v to c from DE and DM comes 3/2He(-2) – 1/0H(+2).

4E-18 x 4E-18 = 1.6E-35 m

The reduction in velocity from 2990637811 m/s to 299792458 m/s equates to 9.97 times the speed of light which is outlined previously. The square root of 9.975693955 is equal to $\pi^2$.

This suggests that as the velocity of DE (alpha particles) slow down they generate two particles tangential to the direction of motion where the positron and electron are emitted in a symmetrical way. This could correspond to the decay of the alpha particle into 3/2He(-2) where the 12 original particles from the He-BEC singularity generates a proton and an electron as well as a neutron and a positron. The process must maintain symmetry to conserve energy, mass, and charge. Maintaining the zero state and CPT.

| | | | | A | | B | | | inverse | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | D | | C | | | | |
| | | | | 4.00E-18 | 4.00E-14 | 4.00E+18 | 2.50E+17 | 2.50E+13 | 2.50E-19 | |
| | He-BEC | | | 4.00E-14 | | 4.00E-14 | 2.50E+13 | | 2.50E+13 | |
| | | | | 4.00E-18 | 4.00E-14 | 4.00E-18 | 2.50E+17 | 2.50E+13 | 2.50E+17 | |
| | DE | alpha particle | | 4.00E-18 | 6.25E+34 | 4.00E-18 | 2.50E+17 | 1.60E-35 | 2.50E+17 | |
| OUT | | | | 6.25E+34 | | 6.25E+34 | 1.60E-35 | | 1.60E-35 | |
| 12 | He 3/2 | | | 4.00E-18 | 6.25E+34 | 4.00E-18 | 2.50E+17 | 1.60E-35 | 2.50E+17 | |
| | DM | Planck particle | | 4.00E-18 | 1.60E-35 | 4.00E-18 | 2.50E+17 | 6.25E+34 | 2.50E+17 | |
| IN | | | | 1.60E-35 | | 1.60E-35 | 6.25E+34 | | 6.25E+34 | |
| 4 | H 1/0 | | | 4.00E-18 | 1.60E-35 | 4.00E-18 | 2.50E+17 | 6.25E+34 | 2.50E+17 | |
| | | | | motion introduces charge opposites | | | | | | |
| + | | - | | 4.00E-18 | 1.60E-35 | 4.00E-18 | 2.50E+17 | 6.25E+34 | 2.50E+17 | |
| | DM | | | 1.60E-35 | | 1.60E-35 | 6.25E+34 | | 6.25E+34 | |
| - | | + | | 4.00E-18 | 1.60E-35 | 4.00E-18 | 2.50E+17 | 6.25E+34 | 2.50E+17 | |
| sqrt A | | | | 2.00E-09 | 8.00E-27 | 4.00E-18 | 5.00E+08 | 1.25E+26 | 2.50E+17 | |
| | | | | 8.00E-27 | | 6.40E-53 | 1.25E+26 | | 1.56E+52 | |
| | | C^2 | | 4.00E-18 | 6.40E-53 | 1.60E-35 | 2.50E+17 | 1.56E+52 | 6.25E+34 | |
| A/C | | B/D | | 1.25E+26 | 1.25E+26 | 1.00E+00 | 8.00E-27 | 8.00E-27 | 1.00E+00 | |
| | | | | 2.00E-09 | | 3.20E-44 | 5.00E+08 | | 3.13E+43 | |
| B*D | | A*C | | 1.60E-35 | 5.12E-79 | 3.20E-44 | 6.25E+34 | 1.95E+78 | 3.13E+43 | |
| sqrt c | | | -1 neutron | | | | | | | |
| | H 1/0 | | 1 positron | | | | | | | |

*Figure 19: Transitions in the decay of DE and DM into 3/2He and 1/0H*

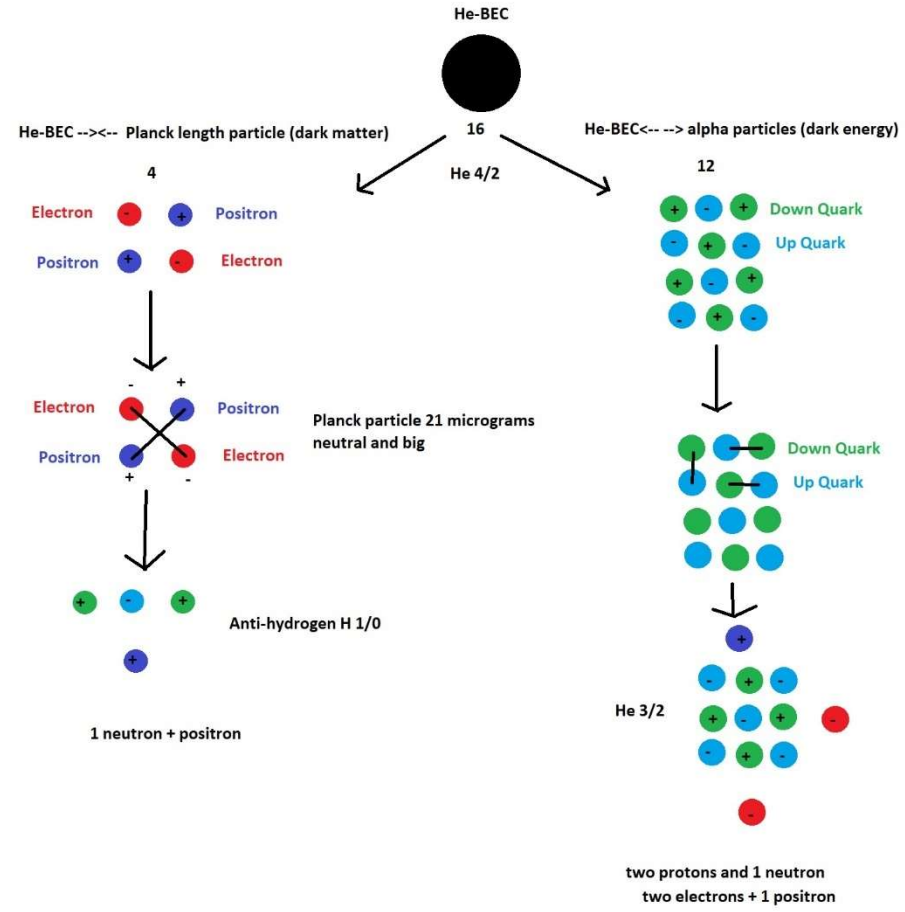



*Figure 20: The depiction of particle process per atom of helium in the He-BEC singularity SUSY inversion model*

Overall, the 16 fundamental particles per helium atom generates two protons, two neutrons, two electrons and two positrons through the separation of DE and DM and their decay processes. The opposite charges mean an attractive force between the two atoms of 3/2He and 1/0H, which brings about the generation of the molecule He-H and the formation of stars.

The current hot big bang model with its nucleosynthesis is fundamentally stating that only things travel further apart and that for some reason there has been a cooling process, and this allows atoms to form. Where did all the heat go, when the microwave background energy is around 2.7K? And atoms formed from a matter and antimatter asymmetry where more matter than antimatter was present, which provided an opportunity to form quarks and then cool some more to form atoms when electrons bound to protons. This model has only expansion in its thinking. It does not provide an explanation of the universe and how it operates. It cannot identify DM and DE. It is like a crayon drawing from a child that is trying to explain something they really do not understand. There are too many holes in the existing Big Bang model to make it suitable for human biology. It is deemed no longer applicable because of its foundational flaws that lead to false conclusions. The difficulty of complexity is that the flaws are amplified, and by its nature it cannot explain the singularity prior to the beginning of the universe. The SUSY inversion model on the other hand starts by understanding the singularity and the atomic events that give rise to the universe.

## The event horizon within the atomic nucleus of the atom hydrogen and the relationship between v and c and the ionization energy

The nucleus event horizon separates the internal structure of the nucleus from the orbital layers within the atom. The boundary between $c^2$ (8.98755E+16 Planck lengths /m) and $v^2$ (8.94391E+18 Planck lengths /m) provides a boundary between the nucleus and the orbital layers. The $v^3$ (2.6748E+28 Planck lengths/m) and $c^3$ (2.6944E+25 Planck lengths /m) velocities provides a window for the s orbitals layers within the atom. The first s orbital layer is n=1 at 5.7E+27 Planck lengths. Dividing 5.7E+27 by 6.25E+25, which is used to convert Planck lengths into nanometres, provides a n=1 distance at 91.2 nm for the first s orbital layer of the s orbital layer of hydrogen.

$c^3$ = 2.6944E+25 Planck lengths corresponding to 0.43110404 nm and

$v^3$ = 2.6748E+28 Planck lengths corresponding to 427.968143 nm where n=2 is 364.8 nm and n=3 820.8 nm

The n=2 layer is the visible layer within hydrogen electron transitions corresponding to the Balmer lines and corresponds to the visible wavelengths of electromagnetism. Another interesting discovery was the relationship of the average cubed distances in Planck lengths converted into nm scale corresponded to the ionization energy for hydrogen in eV. This appears to be the boundary between atomic form and ionized proton. A separation of the photons in terms of the inverse square law relationship between c and v (see Equation 28).

*Equation 28: Average of cubed c and v and the relationship in nm to the ionization energy of hydrogen*

$\sqrt{(c^3 \times v^3)}$ = 8.4894E+26 meters (Planck lengths)

8.4894E+26 / 6.25E+25 = 13.58303334 nm

The ionization energy for the hydrogen's electron is 13.6 eV. This corresponds to the ionization energy for hydrogen from the n=1 layer. This relationship between the average distance of $c^3$ and $v^3$ and the ionization energy of hydrogen in terms of nm scale provides a confirmation of the atomic features of c and v in terms of the inverse square law relationship between the electron and the positron and its quantum tunnelling and entanglement processes responsible for forming the three

quarks and the electron in the proton electron pair. This relationship provides velocity distances, and the separation of v and c are related to the energy required for hydrogen ionization and its electron becoming free from the proton. The energy is therefore used to free the electron from the orbital layer of the hydrogen atom.

This highlights the relationship between the velocity and the ionization energy of an electron in hydrogen. It provides further evidence that the universe that we see internally within the unconscious mind is most likely a feature of hydrogen biology. As the Balmer line electron transitions generate visible wavelengths of electromagnetism. Knowing that hydrogen is the key element for quantum tunnelling and entanglement and its potential to generate visible wavelengths of light. Hydrogen is the building block of the biological universe within. This is obvious if you consider the sun and hydrogen making elements and suns exploding to make higher elements, which are critical to biological processes. However, what was not obvious in the outset was that biology also has the power of the sun within each atom whereby the transmutation of elements within biology is a fundamental process that involves hydrogen as the building block through which all is created biologically.

Having shifted the attention away from carbon-based biology and metabolic processes and into hydrogen-based biology and quantum processes, all functional actions underpinned by hydrogen can be explored within the biological framework of SUSY inversion. The single atom systems operating in biology can be explored using theoretical frameworks for tunnelling and entanglement, and the role that isotopes play as the atomic time gate keepers. As the single atom is relatively easy to conceptualize from the velocity decay process of alpha particles into 3/2He from dark energy (DE) and 1/0H from dark matter (DM). A different viewpoint from which biology can be explored is revealed that is in alignment with a cosmological process that was responsible for the generation of the precursors of star formation. Attraction of 3/2He(-2) towards the singularity of 1/0H(+2).

## Orbital structure of hydrogen and the functional localities of positron and electron pairs within single atom systems

The SUSY inversion model provides an alternative atomic geometry within respect to positron and electron pairing within s orbital structures. This provides a way to see four particles per s orbital aligned with the right hand rule of electromagnetism and understand the geometry with respect to the electromagnetic force within the atom. This applies to the single atom system operating within the aromatic ring, where there is only room for one atom to reside. This differs from the diatomic models that have been developed. Hence the reason why the monoatomic model is different from that outlined by the Standard Model of Particle Physics, which indicates that there are only two electrons per orbital in s orbitals that correspond to the proton partners. This revision to four particles per s orbital (two positrons and two electrons), provides a 90-degree angle within s orbitals and this aligns to the right-hand rule of electromagnetism, or photon geometry. Photon geometry is needed for tunnelling and entanglement processes to operate within the atom. As it is in the form of photons, having no mass and no charge (inverted symmetry at right angles), that allows electron and positron to quantum tunnel through magnetic energy barriers. This tunnelling through barriers (atomic magnetic field lines) within the geometry of the s orbitals, provides the transitions of electron motion between one orbital layer to another, which correspond to the Fraunhofer spectral lines. These transitions occur between the different orbital layers within the atom structure. As the s orbitals contain 4 locations, p orbitals contain 12 locations, the d orbitals 20 and the f orbitals 28 in the SUSY inversion model. The SUSY inversion model has a doubling of the number of particles in the orbitals layers as is suggested by The Standard Model for atomic structures and the SPDF orbital energy levels.

What is apparent in the SUSY inversion model is that the functional geometries are determined by atomic angles and the number of particles within each quadrant of the atomic structure (Figure 21) provides the functional atomic light features of the subsequent atomic orbital layer where the s

orbital electron act as light sources. The photon inverse square law applies where the decay of photons follows an inverse square law. Here we see that 4 become 12 and the atom itself provides a network of photons at specific locations within its geometry that provides specific locations for the next atomic orbital layer.

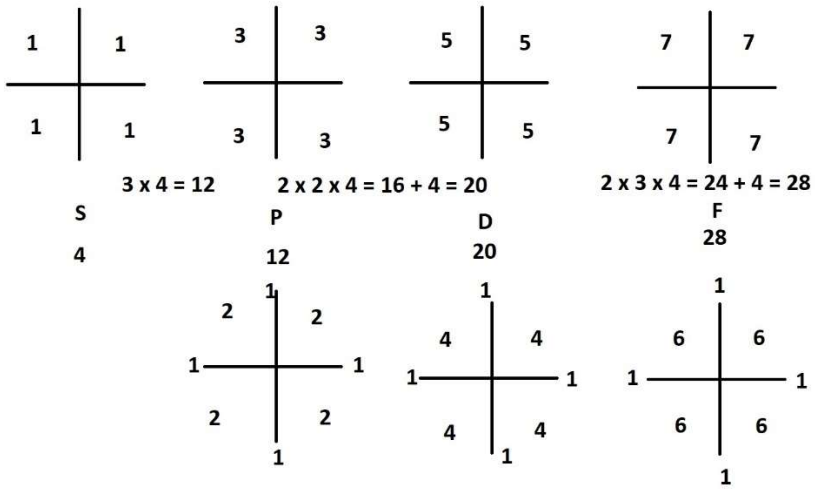



*Figure 21: Geometric singularity models for positron and electron pairing within s, p, d and f orbitals*

The angles of the various orbitals are as follows: s = 90 degrees, p = 30 degrees, d = 18 degrees, and f = 12.85714 degrees. Again, this difference between the Standard Model of Particle Physics and the SUSY inversion model provides a logical way to explore the structure of single atoms system at rest at the point of the equilibrium, without interaction. It is this theoretical framework that provides context for the ability to locate both position and velocity with Planck scale accuracy without momentum. This paradox of not measuring and knowing both location and velocity provides the rationale to the SUSY inversion model and understanding biology at the point of the equilibrium in the zero-state energy to enables quantum tunnelling and entanglement.

The quantum tunnelling and entanglement of single atom systems housed in the aromatic ring of the neurotransmitter is given by a 90-degree angle and only possible when s orbitals are considered to contain both positron and electron pairs as provided by the rearrangement of Einstein's mass equivalent equation to $c^2 = E/M$. The two-by-two geometry gives context for the correct geometry of the cross in s orbital structure. The p orbitals when they are not full, e.g. when there are 3 sets of 4 then the angle can enable tunnelling. For the d orbitals it is 5 sets of 4 and the f orbitals 7 sets of 4. The number four in the SUSY inversion model is important because the quantum tunnelling process of hydrogen puts four particles into the atom during the tunnelling process. That gives a number theory of inverted symmetry in atomic structure, generating isotopes where a neutron and a positron are added or a proton and an electron. Where the numbers provide a revision to our understanding of atomic geometry within the atom and inverse square law rules can be applied as follows.

s = 4, s+p = 16, s+p+d = 36 and s+p+d+f = 64

$1^2 = 1$, $2^2 = 4$, $3^2 = 9$, $4^2 = 16$, $5^2 = 25$, $6^2 = 36$, $7^2 = 49$, $8^2 = 64$, $9^2 = 81$, and $10^2 = 100$

The SUSY inversion model gives stability through mirrored symmetry state of the balance of opposites either side of the singularity. Only even numbers generate stability. Instability is observed in odd numbers. This provides a reason for the higher concentration of atomic stability of atoms on the periodic table that have an even number of protons compared to an odd number of protons. The

numbers 22 = 4 and s = 4 provides the basis for s orbital stability. The p = 12 is the s = 4 + p = 12 (4 + 12 = 16 which is 42 = 16). Again, 4 is an even number and 42 = 16, which is even. The s+p+d = 36 is equivalent to 62 = 36 and again this is an even number. Even numbers give mirroring within the universe whereas odd numbers provide asymmetry and give a different functional outcome, an instability, or an isotope state. The s+p+d+f = 64 is equivalent to 82 = 64.

## The number of atomic layers in the periodic table

There are 7 s orbital layers for a total of 7 x 4 = 28 electron and positrons corresponding to 1 f orbital layer. There are 6 p orbital layers. Giving a total of 12 x 6 = 72 electrons and positrons in p orbitals. This corresponds to $9^2 - 3^2 = 72$, also 18 x 4 = 72, 72/9 = 8, 72/36 = 2, giving $6^2 + 6^2 = 72$. There are 4 d orbitals. There are 20 particle per d orbital. Therefore, 20 x 4 = 80. There are 2 f orbitals and f orbitals contain 28 particles.

The ordering of orbitals has been determined through a s orbital lens theory, where a new s layer is needed to generate a new p layer. This is following the Standard model. Whereas the doubling of the numbers is required for the SUSY inversion model So $1s^2$ is followed by $1s^4$ followed by $2s^2$, $2s^4$, then $2p^2$ through to $2p^{12}$. The energy levels then go $3s^2$, $3s^4$, $3p^2$ through to $3p^{12}$. The next layer includes the first d orbitals. It goes from $4s^2$, $4s^4$, $3d^2$ to $3d^{20}$ and then $4p^2$ to $4p^{12}$. The f orbitals go from $1f^2$ to $1f^{28}$. This provides the functional stability of positron electron pairs within the mirrored symmetry state of single atoms housed in the aromatic rings of neurotransmitters.

The energy levels for the Standard Model of atoms 2, 8, 18, 32, 32, 18, 8. Again, there is a doubling with the singularity physics model of SUSY inversion whereby the energy levels are 4, 16, 36, 64, 64, 36, 16. This is a monoatomic (single atom) system not the traditional diatomic system that functions to produce isotopes in the unconscious mind. The functionality of single atoms has been overlooked in biochemistry and there has not previously been any significant investigation of unstable atoms in biological processes. These have been seen to be emitting radiation and high energy gamma rays have been identified as being detrimental to biological systems. The idea that biophotons, and light mediated cellular communication through isotope physics (single atom systems) mediated through hydrogen biology and quantum tunnelling and entanglement has not been appreciated. Only a small number of scientists have explored light within biology, but it appears that light is foundational to life and the role of electromagnetism in atomic structure is only now just starting to become more widely accepted by biologists and biochemists. The field of quantum biology is making some truly remarkable discoveries and the integration of physics into biology provides a new way of exploring the currently unknown attributes of biology such as consciousness and the unconscious physics of isotopes operating within the mind.

The numbers are all in paired states (mirror symmetry providing the balance within the atomic structure through the central nucleus), other than the s orbital and hydrogen. In a sense hydrogen's place in the periodic table is unique and its ability to quantum tunnel and entangle photons to give a proton and an electron or a neutron and a positron in the SUSY inversion model conveys the very nature of biological transformation to generate atomic balance. Biology appears to use this feature of proton biology to make quantum coherent systems operate via hydrogen biology. It is this feature of life that maintains the integrity of biological systems. It appears to be fundamental to life and it is atomic light that provides life's functional stability and cohesion. We are not bricks and mortar but a living being created through the lens of hydrogen biology. The atomic orbital positions of positron and electron pairs in orbital structures are outlined in Figure 15. As the SUSY inversion model has a framework of no space, no time, no mass and no charge, it provides a Planck scale lens in mirrored symmetry (inverted symmetry), that is aligned with the inverse square law of Newtonian physics at

Planck scale. It is a empirical non-interactive logical framework in which to explore the atomic universe through inversion and then see the mirror sides of positron and electron in order to explore the forces operating within the nucleus of the atom.

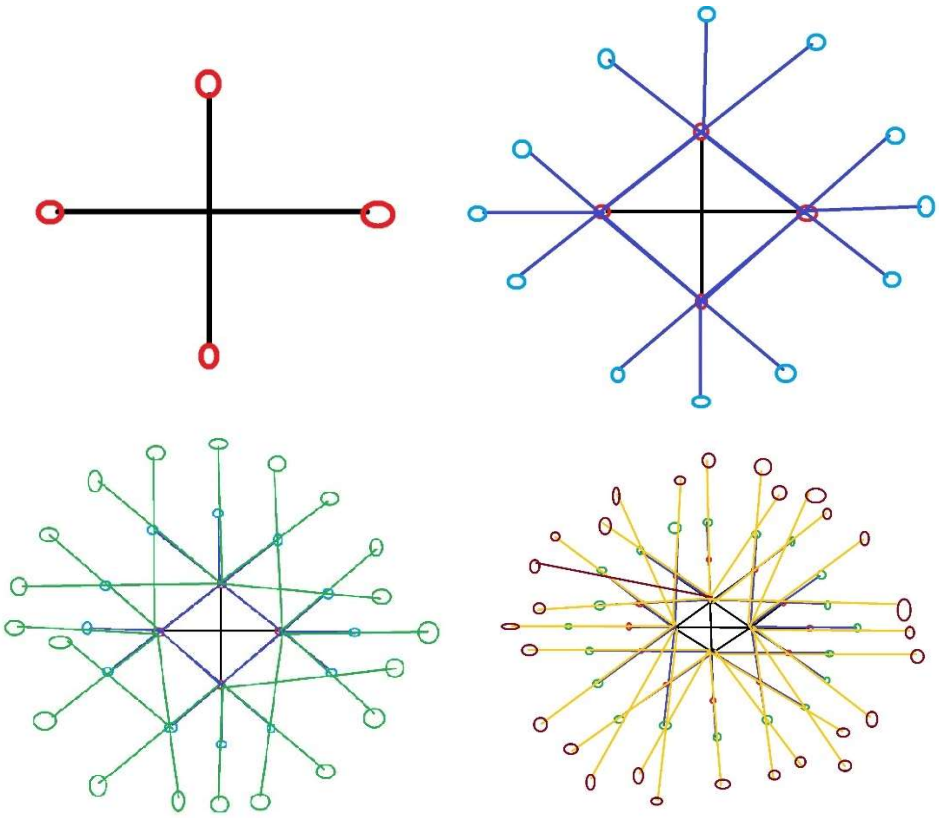


*Figure 22: S P D F orbitals and inverse square law in the SUSY inversion model of singularity physics*

The s orbitals 4 creates the 4 x 3 = 12 p orbital locations and then the s and p can generate the 20 d locations and the s and p and d creates the 28 f locations via atomic geometry as only the s orbital has a 90 degree angle with respect to E/M in the $c^2$ = E/M (electromagnetic properties of the atom. Thus the atomic singularity at 0,0,0 provides the pinhole camera for inversion of the atomic structure and the mirror symmetry of positron electron pairs to give and atomic light source within the nucleus of the atom which illuminates the locations of positron and electron pairs within the atomic structure. Each position is defined by an inverse square law relationship. The ordering of orbitals where the s at 90 degrees gives photons at 45 degrees through the interaction of the electric field and the magnetic field given E/M architecture of the atomic photon fields providing the geo-locations of the positron and electron in the equilibrium state of the single atom housed in the aromatic ring system. Only when non-interaction is enabled does the balanced state reside within the aromatic ring system. As the SUSY inversion model is a logical model based on the this balance point of the equilibrium obtained through no interaction can one provide a light based (inverted symmetry) framework of positron and electron pairs within the single atom system and apply inverse square law relationships to photon decay in the orbital layered transitions of hydrogen to utilize the spectral lines as photon wave-guides for placement of the positron and electron. As can be seen by the empirical approach at Planck scale where there is no space and time, the identification of both location as well as velocity is possible at the point of equilibrium because at the Planck scale there is essentially no motion. This enables motion to be eliminated and also velocity. However, all velocities of single atom systems and their timings are subjected to atomic half-lives and binding kinetic energies MeV (velocities in KJ/mol) providing both space and time

parameters within the atomic structure of the atom through an inverted symmetry (inverse square law logic) to enable exploration of the atomic universe of hydrogen. This has provided a deeper understanding of the role hydrogen plays in biology and the functional aspects of quantum tunnelling and entanglement without having to measure and disturb the system being investigated. This provides an empirical first principle theoretical model to hydrogen in a mirrored symmetry state. A single atom system in a classical sense based on a deterministic location and velocity. In a sense it overcomes the issues with quantum mechanics and uncertainty because measurement is not performed. The equates to night-time physics of isotope decay systems leading to atom stabilization through the atomic decay process, releasing light in the process that we observe in REM as dreams.

Our inverted retina, rods and cones on the inside, looking in to the minds atomic light machine produces light through isotope decay processes that is directly linked to the quantum tunnelling and entanglement properties of hydrogen in neurotransmitters function. The time reversal symmetry being used by the conscious mind to observe the past as a confirmation of the unconscious minds light (isotope physics) operating system. The single atom systems appear to be the unlocking of atomic time in the unconscious mind.

## Understanding the atomic features of the He-BEC singularity

The attributes of the singularity model convey the features of the atom helium. The idea that helium was present before the beginning of time, an atom that is known to science, but unable to be detected by scientific measurement before the beginning of time is a difficult paradox to grasp. The features of a singularity are considered 1 dimensional. Here I am describing something that has 3 dimensions of space and a temporal dimension also. To maintain consistency with the first law of thermodynamics the model must consist of everything being present before the beginning of time. Again, everything as nothing is a paradox. How could have everything have been there before the beginning. The metaphor of a flock of birds flying in unison, where all the birds are synchronously changing direction as if they are all part of one whole. This is the description of a Bose Einstein condensate of helium whereby all the energy is unified as one. It all moves synchronously as one whole.

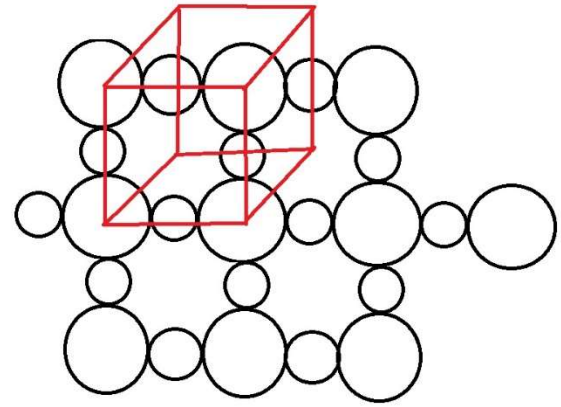
Numbers a one way to convey understanding and allow interpretation of features of the universe that are in a sense without ambiguity in terms of dialect and meaning. They have a resolution conferring defined parameters that convey information which is in of itself defined by the attribute place on the number.

The Standard Model of physics has three quarks per hadron. The SUSY inversion model has three quarks in the hadron. The Standard model of physics does not contain positrons in atomic structure where the SUSY inversion model has positron in the atomic model. There is a baryogenesis issue in cosmology that has been resolved by SUSY inversion that corrects for the missing antimatter, thereby unifying atomic structure with cosmological composition of the universe at the beginning. If we know the beginning set of boundaries and parameters, then we theoretically should be able to predict the universe and its composition as understood by cosmology. This is not able to be done by using the standard model of physics and this can be done using the SUSY inversion model. It predicts the universe and its composition as we understand it today, 13.8 billion years after its creation.

What was the initial geometry. It is known that there was a homogeneous state. All of the initial universe was essentially the same (homogeneous also known as isotropic). The isotropic universe is therefore considered in SUSY inversion a quantum fluid of helium where all of the features of the Bose Einstein condensates made from helium apply to the functioning of the initial universe before

the beginning of time. As the temperature of the universe was near absolute zero it was proposed that the singular atomic system present looked like a cubic geometry in the He-BEC singularity (Figure 23).

*Figure 23 Cubic geometry of the He-BEC singularity*



The cube has the following features that makes it interesting in terms of the original geometry of all the arrangements. The features of a cube include: 6 faces, and 12 faces if you include the sided nature of the face both inside and out. There are 12 particles in the 2 protons and 2 neutrons in the alpha particle of helium nucleus. There are also 12 edges in the cube. There are 8 corners in a cube. Where each corner has three intersecting lines. In the SUSY inversion model where the proton and electron correspond to four particles the neutron and positron correspond to 4 particles. This gives the correct ratios for the proton and electron and neutron and positron as devised in the revision of quark charge calculations for SUSY inversion in order to maintain charge parity. This may correspond to the corners of the cube. There is a functional logic that appears to correspond to the sphere / cube He-BEC singularity. There are four internal corners that when imploded into the central singularity as described by the DM particle generation occurring in the HE-BEC singularity creating the dark matter particle at the Planck scale. This cubic arrangement provides an appropriate geometry to enable both DE and DM formation. The bigger circles in Figure 16, represent the 4E-14 m distance between the fundamental particles at 4E-18 meter. As outlined above the numbers provide a mirror symmetry. The number of particles per helium atom in SUSY inversion is 16 and not 14 as proposed by the Standard Model of Physics. Alpha particle in SUSY inversion are neutral charge not the He +2 alpha particle as proposed in the standard model of physics. This is what provide the functional difference in the understanding of the atomic geometry within the single atom physic occurring in the isotope process. The 8 corners and 12 edges give a total of 20. However, there are the internal corners and the external corners which give a total of 16 corners.

Thus far the model looks at the features of a cube and no decisions have been made to integrate the numbering theory in SUSY inversion to its cubic origin and the transition to the inverted mirror symmetry particle generating system involved in the creation of the expanding universe where the relationships of v and c are determined by differential velocity.

The surface area of a square is given by the following calculation 4E-14 x 4E-14 = 1.6e-27. It is interesting that 1.6 pops out of the equation that corresponds to both the CMB and the Planck scale singularity at 1.6E+31, and 1.6E-35, respectively. The relationship between the surface area of the cubic square. 1.6E-27 / 1.6E-35 = 100,000,000 (1E+8). The inverted relationship gives 1.6E+31 / 1.6E-27 = 1e+58. The volume of the cube $(4E\text{-}14)^3$ = 6.4E-41 and the inverse are 1.56E+40. The

relationship between these two numbers corresponds to 1.56E+40 / 6.4E-41 = 2.44E+80 and 6.4E-41 / 1.56E+40 = 4.10E-81. The overall number of the atoms in the universe is given by the number between 1E+79 to 1E+83[li]. The volume of the cube with a length parameter of 4E-14 meter gives the fundamental number of 2.44E+80 using the SUSY inversion methodology which uses the relationship between the two extremes obtained through mirror symmetry (square law) and the inversion (1/x) relationship that provides a mirror symmetry at right angles (rise / run) or (y/x) on an axis. This number theory provides further supporting evidence of the He-BEC singularity and the atomic geometry of the cube like properties of the He-BEC singularity and the origin of the 16 fundamental particles per atom of helium.

## Table of functional properties of the He-BEC singularity

The changing of one's initial perspective has a major consequence of understanding the relationship between the universe and ourselves. Learning about the universe changes our biology because the understanding of materialism only identifies 5% of the universe the remaining 95% was unknown when I started this journey back in 2013. It has now been 10 years and the outcome of the research has been a profound shift in the understanding of the role of light in biology. By understanding the physics happening within the universe we can understand the physics happening within biology. The Table below identifies the parameters that the He-BEC singularity reveals.

*Table 4: He-BEC singularity and the early parameters of the universe in relation to the cosmological constants and functional properties of the universe*

| Symbol | Parameter | units | Symbol | Parameter | units |
|---|---|---|---|---|---|
| c | 299,792,458 | m/s | v | 2,990,637,811 | m/s |
| 1/c | 3.33564E-09 | $m^{-1}$ | 1/v | 3.34377E-10 | $m^{-1}$ |
| $\sqrt{c}$ | 17314.51582 | m/s | $\sqrt{v}$ | 54686.72427 | m/s |
| $1/\sqrt{c}$ | 5.7755E-05 | s/m | $1/\sqrt{v}$ | 1.8286E-05 | s/m |
| $\alpha$ | 0.0072974 | | $1/\alpha$ | 137.036 | |
| $c^2$ | 8.98755E+16 | m | $v^2$ | 8.94391E+18 | m |
| $1/c^2$ | 1.11265E-17 | $m^{-1}$ | $1/v^2$ | 1.11808E-19 | $m^{-1}$ |
| $c^3$ | 2.6944E+25 | m | $v^3$ | 2.6748E+28 | m |
| $1/c^3$ | 3.7114E-26 | $m^{-1}$ | $1/v^3$ | 3.7386E-29 | $m^{-1}$ |
| Electron radius | 4E-18 | m | Positron radius | 4E-18 | m |
| Planck length | 1.6E-35 | m | 1/Planck length | 6.25E+34 | m |
| 1 hemisphere | 2.56E-70 | | 1/hemisphere | 3.91E+69 | |
| $\Delta\lambda$ | 4E-14 | m | $\Delta\lambda e$ | 4E-18 | m |
| $1/\Delta\lambda$ | 2.50E+13 | $m^{-1}$ | $1/\Delta\lambda e$ | 2.50E+17 | $m^{-1}$ |
| $\Delta\lambda/\Delta\lambda e$ | 1E+4 | | $\Delta\lambda e/\Delta\lambda$ | 1E-4 | |
| $\Delta\lambda^2$ | 1.60E-27 | $m^2$ | $\Delta\lambda^3$ | 6.40E-41 | $m^3$ |
| $1/\Delta\lambda^2$ | 6.25E+26 | $m^{-2}$ | $1/\Delta\lambda^3$ | 1.56E+40 | $m^{-3}$ |
| $(1/\Delta\lambda^3)/\ \Delta\lambda^3$ | 2.44E+80 | # atoms | $\Delta\lambda^3\ /(1/\Delta\lambda^3)$ | 4.10E-81 | |
| Up quark | -1 | | Down quark | +1 | |
| Electron | -1 | | Positron | +1 | |
| Proton | -1 x +1 x -1 (+1) | | Neutron | -1 x +1 x -1 (-1) | |
| | | | | | |
| Proton + electron | +1 + -1 = 0 | | Neutron + positron | -1 + +1 = 0 | |

| | | | | | |
|---|---|---|---|---|---|
| Electron charge | 3.18E-19 /2 | Coulombs | | | |
| He-BEC diameter | 8.98755E+16 | m | He-BEC volume | 1.12863E+26 | $m^3$ |
| # of fundamental particles / He atom | 16 | | | | |
| | | | | | |

There are number of other calculations provided below as a way of looking at features of the SUSY inversion model the relationship between different numbers was explored to determine if the cosmological constants could be identified prior to publication.

| | |
|---|---|
| First principle | |
| Maths landscape | |
| First generation | |
| 1/alpha | 137.036 |
| sqrt 1/alpha | 11.70623765 |
| alpha / 2 | 0.003648676 |
| alpha | 0.007297353 |
| c | 299792458 |
| c + 1/ alpha | 299792595 |
| c - 1/ alpha | 299792321 |
| sqrt (c + 1/ alpha) | 17314.51977 |
| [sqrt (c + 1/ alpha)] / 2 | 8657.259887 |
| 1/c | 3.33564E-09 |
| v | 2990637811 |
| v + 1/ alpha | 2990637948 |
| v - 1/ alpha | 2990637674 |
| sqrt (v + 1/ alpha) | 54686.72552 |
| [sqrt (v + 1/ alpha)] / 2 | 27343.36276 |
| 1/v | 3.34377E-10 |
| sqrt c | 17314.51582 |
| sqrt v | 54686.72427 |
| 1/ sqrt c | 5.7755E-05 |
| 1/ sqrt v | 1.8286E-05 |
| c/v | 0.100243653 |
| v/c | 9.975693955 |
| sqrt c + sqrt v | 72001.24008 |
| sqrt v - sqrt c | 37372.20845 |
| (sqrt c + sqrt v)/2 | 36000.62004 |
| | |
| (1/alpha)^2 | 18778.8653 |
| alpha^2 | 5.32514E-05 |
| (sqrt v - sqrt c)/2 | 18686.10422 |
| (1/alpha)^2 - sqrt c | 1464.349478 |
| sqrt c / sqrt v | 0.31661278 |
| sqrt v / sqrt c | 3.158432199 |
| alpha + alpha | 0.014594705 |
| sqrt alpha | 0.085424543 |
| | |
| sqrt c + 1/alpha | 17451.55182 |

| | |
|---|---|
| sqrt v + 1/alpha | 54823.76027 |
| (sqrt v + 1/alpha) / (sqrt c + 1/alpha) | 3.141483396 |
| (sqrt v - sqrt c) - (sqrt c + sqrt v)/2 | 1371.588407 |
| (c/v) x (sqrt v - sqrt c) - (sqrt c + sqrt v)/2 | 137.4930319 |
| 1/ (c/v) x (sqrt v - sqrt c) - (sqrt c + sqrt v)/2 | 0.007273096 |
| (sqrt c + 1/alpha) / (sqrt v + 1/alpha) | 3.141483396 |
| 1/ (sqrt c + 1/alpha) / (sqrt v + 1/alpha) | 0.318320957 |
| (sqrt v + 1/alpha - sqrt c + 1/alpha) | 37372.20845 |
| (sqrt v + 1/alpha) + (sqrt c + 1/alpha) | 72275.31208 |
| (sqrt v + 1/alpha) + (sqrt c + 1/alpha) /2 | 36137.65604 |
| | 36137.65604 |

## Conclusions

The SUSY inversion model provides further refinement to the Standard Model of Particle Physics and an alternative to the Hot Big Bang theory using a non-interactive logical framework that uses an empirical inverse square law functional model enabling the identification of dark energy and dark matter. By using a revision to the quark charge calculations to maintain charge parity with positron and electron pairs. In doing so, the SUSY inversion model create a He-BEC isotropic singularity and identifies the God particle as a helium Bose Einstein condensate. This alternative explanation for He the Father, He the King of Creation is in alignment with a Biblical teaching but also provides a scientifically useful explanation as to how the universe stated from a super cold giant atom of helium. A single universe and a way to look at the universe through the lens of hydrogen biology is provided as an alternative to carbon-based biochemistry. As hydrogen is the first element on the periodic table. A model was developed based on the cross symmetry through the singularity within the atomic structure in order to comprehend the inversion of the inverse square law as the feature of tunnelling and entanglement that provides a inner universe within the atomic nucleus that features processes based on inverse square law enabling the production of entangled photons for the generation of atoms. Hydrogen appears to the key element in this isotope mediated processes happening within the unconscious part of the mind and appears to be ultimately responsible for an inability to observe a functional reality based on timings faster than what the conscious mind can observed. The direction of time is revealed in the time reversal symmetry of isotope decay and this allows the features of the unconscious mind to be explored using SUSY inversion model. The model operates outside of space and time within the mirror symmetry state of inverse square law. At the Planck epoch the concepts of space and time breakdown therefore, revealing the isotope physics mediated balanced state of operating light within the functional zero balance state that biology operates within. The inverted symmetry model providing a lens of light through which mirror symmetry of opposites balances one another to form a zero state of no mass and no charge as characteristic of photons. So the models photon mediated geometry at Planck scale provides the features within the atomic nucleus of the singularity generating an inner lens through which inversion occurs. The underlying inward trajectory of dark matter from the HE-BEC singularity (God particle) provides an answer that was missing in the expansionary model of the Big Bang. The SUSY inversion model enables predictions to be made and it identifies several the cosmological constants. It places the observation within the observer and the observer within the observation. It remains to be seen whether such a functional empirical model will be accepted by the physics community who have focused on integrating gravity into quantum mechanics. SUSY inversion uses quantum features

of the singularity to reveal an inverted gravity within the atomic nucleus in the gluon field between oppositely charged hadrons neutron and proton. The model uses logic and is based on characteristics of the forces as well as the velocities faster than light speed to understand the expansionary universe. The starting conditions that led to this expansion are revealed as the model was evaluated. The unknowns in the empirical deterministic model are paramount to understanding the model operates without interaction and the mere interaction with the system under investigation will create an alternative outcome, which underscores the quantum paradox of the double slit experiment.

Having aligned the features of the human anatomy with the functional features of quantum gravity at the singularity within each atom an inverse square law of positron and electron pairs either side of the singularity $1/c^2$ within each atom was revealed in the revised quark charge calculations. This new starting position gave rise to a revision to atomic structure, where the functional atomic decay features occurring within atoms based on binding kinetics and half-life were used to explore the atomic features of the atom in an undisturbed geometry leading to a alternative lens of light within atomic structures and orbital dynamics leading to decay geometries. The forces operating within the atom leading to the rearrangement of the quark orientations and the positron electron pairing systems in orbital layers generates a balance of opposites to obtain a zero state.

The model provides a way to understand the singularity rather than having to use measurement and disturb the features of the atomic system, SUSY inversion is hands free. Obtaining the equilibrium position means the system is in balance and operates through the features of logic in terms of inverse square law within the single atom systems housed in the aromatic ring of neurotransmitters and features a paradoxical logical framework without having to measure. As measurement creates the disturbance within the structure therefore a statistical measurement is needed to understand the many possibilities of the measured outcome. The non-measured logical approach generates the functional one state outcome because the environment selects for the balance state within the atom, avoiding chaos, and enabling the zero point energy state. This is the dualistic balance of opposites and mirror symmetry of positron and electron pairing. There is no loss of antimatter. There is an incorrect quark charge calculation used in the Standard model of particle physics which has been created through measurement. This has resulted in the use of a materialism external physical model for human biology, which cannot be aligned with the light we see within the conscious mind produced by the atomic physics of isotopes happening in the extracellular milieu.

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